RUBICON PROJECT, INC.
Form 10-K
February 27, 2019

false--12-31Q420182018-12-3110-K000159597451734264YesAccelerated Filer138653552RUBICON PROJECT,
INC.NoNo0000.000010.0000150000000050239000511590005023900051159000P3YP2Y6MP5YP3YP3YP2YP1Y6MP1Y02
0001595974 2018-01-01 2018-12-31 0001595974 2018-06-30 0001595974 2019-02-21 0001595974 2018-12-31
0001595974 2017-12-31 0001595974 2017-01-01 2017-12-31 0001595974 us-gaap:CommonStockMember
2018-01-01 2018-12-31 0001595974 us-gaap:AdditionalPaidInCapitalMember 2018-01-01 2018-12-31 0001595974
us-gaap:RetainedEarningsMember 2017-12-31 0001595974 us-gaap:CommonStockMember 2018-12-31 0001595974
us-gaap:AccumulatedOtherComprehensiveIncomeMember 2018-12-31 0001595974 us-gaap:CommonStockMember
2017-01-01 2017-12-31 0001595974 us-gaap:AdditionalPaidInCapitalMember 2017-01-01 2017-12-31 0001595974
2016-12-31 0001595974 us-gaap:CommonStockMember 2017-12-31 0001595974
us-gaap:AdditionalPaidInCapitalMember 2017-12-31 0001595974
us-gaap:AccumulatedOtherComprehensiveIncomeMember 2017-01-01 2017-12-31 0001595974
us-gaap:RetainedEarningsMember 2018-12-31 0001595974 us-gaap:CommonStockMember 2016-12-31 0001595974
us-gaap:AccumulatedOtherComprehensiveIncomeMember 2016-12-31 0001595974
us-gaap:AccumulatedOtherComprehensiveIncomeMember 2018-01-01 2018-12-31 0001595974
us-gaap:AccumulatedOtherComprehensiveIncomeMember 2017-12-31 0001595974
us-gaap:RetainedEarningsMember 2017-01-01 2017-12-31 0001595974 us-gaap:AdditionalPaidInCapitalMember
2018-12-31 0001595974 us-gaap:RetainedEarningsMember 2016-12-31 0001595974
us-gaap:AdditionalPaidInCapitalMember 2016-12-31 0001595974 us-gaap:RetainedEarningsMember 2018-01-01
2018-12-31 0001595974 us-gaap:CustomerConcentrationRiskMember rubi:CustomerTwoMember 2018-01-01
2018-12-31 0001595974 us-gaap:CustomerConcentrationRiskMember rubi:CustomerOneMember 2018-01-01
2018-12-31 0001595974 us-gaap:CustomerConcentrationRiskMember rubi:CustomerOneMember 2017-01-01
2017-12-31 0001595974 us-gaap:CustomerConcentrationRiskMember rubi:CustomerTwoMember 2017-01-01
2017-12-31 0001595974 us-gaap:CustomerRelationshipsMember us-gaap:MinimumMember 2018-01-01 2018-12-31
0001595974 us-gaap:FurnitureAndFixturesMember us-gaap:MaximumMember 2018-01-01 2018-12-31 0001595974
us-gaap:DevelopedTechnologyRightsMember us-gaap:MaximumMember 2018-01-01 2018-12-31 0001595974
us-gaap:OtherIntangibleAssetsMember us-gaap:MinimumMember 2018-01-01 2018-12-31 0001595974
us-gaap:DevelopedTechnologyRightsMember us-gaap:MinimumMember 2018-01-01 2018-12-31 0001595974
us-gaap:ComputerEquipmentMember 2018-01-01 2018-12-31 0001595974 us-gaap:NoncompeteAgreementsMember
us-gaap:MaximumMember 2018-01-01 2018-12-31 0001595974 us-gaap:FurnitureAndFixturesMember
us-gaap:MinimumMember 2018-01-01 2018-12-31 0001595974 us-gaap:OtherIntangibleAssetsMember
us-gaap:MaximumMember 2018-01-01 2018-12-31 0001595974 us-gaap:NoncompeteAgreementsMember
us-gaap:MinimumMember 2018-01-01 2018-12-31 0001595974 us-gaap:CustomerRelationshipsMember
us-gaap:MaximumMember 2018-01-01 2018-12-31 0001595974 us-gaap:RestrictedStockUnitsRSUMember
2017-01-01 2017-12-31 0001595974 rubi:EmployeeStockPurchasePlanMember 2017-01-01 2017-12-31 0001595974
us-gaap:RestrictedStockMember 2018-01-01 2018-12-31 0001595974 rubi:EmployeeStockPurchasePlanMember
2018-01-01 2018-12-31 0001595974 us-gaap:RestrictedStockUnitsRSUMember 2018-01-01 2018-12-31 0001595974
us-gaap:StockOptionMember 2017-01-01 2017-12-31 0001595974 us-gaap:StockOptionMember 2018-01-01
2018-12-31 0001595974 us-gaap:RestrictedStockMember 2017-01-01 2017-12-31 0001595974
rubi:IntentMarketingSolutionMember 2017-01-01 2017-12-31 0001595974 rubi:DesktopMember 2017-01-01
2017-12-31 0001595974 rubi:MobileMember 2017-01-01 2017-12-31 0001595974 rubi:MobileMember 2018-01-01
2018-12-31 0001595974 rubi:DesktopMember 2018-01-01 2018-12-31 0001595974 rubi:OtherInternationalMember
2018-01-01 2018-12-31 0001595974 rubi:OtherInternationalMember 2017-01-01 2017-12-31 0001595974
country:US 2017-01-01 2017-12-31 0001595974 country:US 2018-01-01 2018-12-31 0001595974
us-gaap:FairValueMeasurementsRecurringMember us-gaap:USTreasuryAndGovernmentMember 2018-12-31
0001595974 us-gaap:FairValueInputsLevel2Member us-gaap:FairValueMeasurementsRecurringMember
us-gaap:MoneyMarketFundsMember 2018-12-31 0001595974 us-gaap:FairValueMeasurementsRecurringMember
us-gaap:MoneyMarketFundsMember 2018-12-31 0001595974 us-gaap:FairValueInputsLevel1Member
us-gaap:FairValueMeasurementsRecurringMember us-gaap:USTreasuryAndGovernmentMember 2018-12-31

0001595974 us-gaap:FairValueInputsLevel3Member us-gaap:FairValueMeasurementsRecurringMember us-gaap:USTreasuryAndGovernmentMember 2018-12-31 0001595974 us-gaap:FairValueInputsLevel1Member us-gaap:FairValueMeasurementsRecurringMember us-gaap:MoneyMarketFundsMember 2018-12-31 0001595974 us-gaap:FairValueInputsLevel3Member us-gaap:FairValueMeasurementsRecurringMember us-gaap:MoneyMarketFundsMember 2018-12-31 0001595974 us-gaap:FairValueInputsLevel2Member us-gaap:FairValueMeasurementsRecurringMember us-gaap:USTreasuryAndGovernmentMember 2018-12-31 0001595974 us-gaap:SoftwareDevelopmentMember 2017-01-01 2017-12-31 0001595974 us-gaap:FairValueMeasurementsRecurringMember us-gaap:MoneyMarketFundsMember 2017-12-31 0001595974 us-gaap:IncomeApproachValuationTechniqueMember 2017-10-01 2017-12-31 0001595974 us-gaap:MarketApproachValuationTechniqueMember 2017-01-01 2017-12-31 0001595974 us-gaap:FiniteLivedIntangibleAssetsMember 2017-01-01 2017-12-31 0001595974 us-gaap:FairValueInputsLevel2Member us-gaap:FairValueMeasurementsRecurringMember us-gaap:USTreasuryAndGovernmentMember 2017-12-31 0001595974 us-gaap:FairValueInputsLevel1Member us-gaap:FairValueMeasurementsRecurringMember us-gaap:USTreasuryAndGovernmentMember 2017-12-31 0001595974 us-gaap:FairValueMeasurementsRecurringMember us-gaap:USTreasuryAndGovernmentMember 2017-12-31 0001595974 us-gaap:FairValueInputsLevel2Member us-gaap:FairValueMeasurementsRecurringMember us-gaap:CorporateDebtSecuritiesMember 2017-12-31 0001595974 us-gaap:FairValueInputsLevel3Member us-gaap:FairValueMeasurementsRecurringMember us-gaap:CorporateDebtSecuritiesMember 2017-12-31 0001595974 us-gaap:FairValueInputsLevel1Member us-gaap:FairValueMeasurementsRecurringMember us-gaap:MoneyMarketFundsMember 2017-12-31 0001595974 us-gaap:FairValueInputsLevel3Member us-gaap:FairValueMeasurementsRecurringMember us-gaap:MoneyMarketFundsMember 2017-12-31 0001595974 us-gaap:FairValueMeasurementsRecurringMember us-gaap:CorporateDebtSecuritiesMember 2017-12-31 0001595974 us-gaap:FairValueInputsLevel2Member us-gaap:FairValueMeasurementsRecurringMember us-gaap:MoneyMarketFundsMember 2017-12-31 0001595974 us-gaap:FairValueInputsLevel3Member us-gaap:FairValueMeasurementsRecurringMember us-gaap:USTreasuryAndGovernmentMember 2017-12-31 0001595974 us-gaap:FairValueInputsLevel1Member us-gaap:FairValueMeasurementsRecurringMember us-gaap:CorporateDebtSecuritiesMember 2017-12-31 0001595974 us-gaap:ShortTermInvestmentsMember us-gaap:USTreasuryAndGovernmentMember 2018-12-31 0001595974 us-gaap:OtherLongTermInvestmentsMember us-gaap:USTreasuryAndGovernmentMember 2017-12-31 0001595974 us-gaap:ShortTermInvestmentsMember us-gaap:CorporateDebtSecuritiesMember 2017-12-31 0001595974 us-gaap:ShortTermInvestmentsMember us-gaap:USTreasuryAndGovernmentMember 2017-12-31 0001595974 us-gaap:ShortTermInvestmentsMember 2017-12-31 0001595974 country:US 2018-12-31 0001595974 country:US 2017-12-31 0001595974 us-gaap:NonUsMember 2017-12-31 0001595974 us-gaap:NonUsMember 2018-12-31 0001595974 us-gaap:ComputerEquipmentMember 2018-12-31 0001595974 us-gaap:ComputerSoftwareIntangibleAssetMember 2018-12-31 0001595974 us-gaap:FurnitureAndFixturesMember 2018-12-31 0001595974 us-gaap:ComputerSoftwareIntangibleAssetMember 2017-12-31 0001595974 us-gaap:FurnitureAndFixturesMember 2017-12-31 0001595974 us-gaap:ComputerEquipmentMember 2017-12-31 0001595974 us-gaap:LeaseholdImprovementsMember 2017-12-31 0001595974 us-gaap:LeaseholdImprovementsMember 2018-12-31 0001595974 2017-10-01 2017-12-31 0001595974 us-gaap:FiniteLivedIntangibleAssetsMember 2017-10-01 2017-12-31 0001595974 2017-09-30 0001595974 us-gaap:DevelopedTechnologyRightsMember 2017-12-31 0001595974 us-gaap:NoncompeteAgreementsMember 2018-12-31 0001595974 us-gaap:NoncompeteAgreementsMember 2017-12-31 0001595974 us-gaap:DevelopedTechnologyRightsMember 2018-12-31 0001595974 us-gaap:TrademarksMember 2017-12-31 0001595974 us-gaap:TrademarksMember 2018-12-31 0001595974 rubi:NToggleMember 2017-01-01 2017-12-31 0001595974 2017-07-14 0001595974 rubi:NToggleMember 2017-07-14 2017-07-14 0001595974 rubi:NToggleMember 2017-07-14 0001595974 rubi:NToggleMember us-gaap:NoncompeteAgreementsMember 2017-01-01 2017-12-31 0001595974 rubi:NToggleMember us-gaap:TrademarksAndTradeNamesMember 2017-01-01 2017-12-31 0001595974 rubi:NToggleMember us-gaap:DevelopedTechnologyRightsMember 2017-01-01 2017-12-31 0001595974 us-gaap:AccumulatedNetUnrealizedInvestmentGainLossMember 2017-12-31 0001595974 us-gaap:AccumulatedTranslationAdjustmentMember 2017-12-31 0001595974 us-gaap:AccumulatedNetUnrealizedInvestmentGainLossMember 2016-12-31 0001595974

us-gaap:AccumulatedNetUnrealizedInvestmentGainLossMember 2018-12-31 0001595974
us-gaap:AccumulatedTranslationAdjustmentMember 2016-12-31 0001595974
us-gaap:AccumulatedTranslationAdjustmentMember 2018-12-31 0001595974 us-gaap:RestrictedStockMember
2018-01-01 2018-12-31 0001595974 us-gaap:RestrictedStockMember 2017-12-31 0001595974
us-gaap:RestrictedStockMember 2018-12-31 0001595974 us-gaap:EmployeeStockOptionMember 2018-01-01
2018-12-31 0001595974 us-gaap:EmployeeStockOptionMember 2017-01-01 2017-12-31 0001595974
us-gaap:RestrictedStockUnitsRSUMember 2018-01-01 2018-12-31 0001595974
us-gaap:RestrictedStockUnitsRSUMember 2018-12-31 0001595974 us-gaap:RestrictedStockUnitsRSUMember
2017-12-31 0001595974 us-gaap:EmployeeStockMember 2018-01-01 2018-12-31 0001595974
us-gaap:EmployeeStockMember rubi:A2014EmployeeStockPurchasePlanMember 2018-12-31 0001595974
us-gaap:EmployeeStockMember rubi:A2014EmployeeStockPurchasePlanMember 2018-01-01 2018-12-31
0001595974 rubi:OtherThanESPPMember 2018-12-31 0001595974 rubi:RestrictedawardsMember 2018-01-01
2018-12-31 0001595974 us-gaap:RestrictedStockUnitsRSUMember rubi:TwoYearRSUsMember 2018-01-01
2018-12-31 0001595974 us-gaap:RestructuringChargesMember 2018-01-01 2018-12-31 0001595974
us-gaap:CostOfSalesMember 2018-01-01 2018-12-31 0001595974
us-gaap:ResearchAndDevelopmentExpenseMember 2018-01-01 2018-12-31 0001595974
us-gaap:SellingAndMarketingExpenseMember 2018-01-01 2018-12-31 0001595974
us-gaap:SellingAndMarketingExpenseMember 2017-01-01 2017-12-31 0001595974
us-gaap:RestructuringChargesMember 2017-01-01 2017-12-31 0001595974
us-gaap:GeneralAndAdministrativeExpenseMember 2018-01-01 2018-12-31 0001595974
us-gaap:GeneralAndAdministrativeExpenseMember 2017-01-01 2017-12-31 0001595974
us-gaap:ResearchAndDevelopmentExpenseMember 2017-01-01 2017-12-31 0001595974
us-gaap:CostOfSalesMember 2017-01-01 2017-12-31 0001595974 rubi:The2018RestructuringEventsMember
2018-01-01 2018-12-31 0001595974 rubi:The2018RestructuringEventsMember 2017-12-31 0001595974
rubi:NoncashStockBasedCompensationMember rubi:The2017RestructuringEventsMember 2018-01-01 2018-12-31
0001595974 rubi:The2018RestructuringEventsMember 2018-12-31 0001595974
rubi:The2017RestructuringEventsMember 2017-12-31 0001595974 rubi:The2017RestructuringEventsMember
2017-01-01 2017-12-31 0001595974 rubi:NoncashStockBasedCompensationMember
rubi:The2017RestructuringEventsMember 2017-01-01 2017-12-31 0001595974 us-gaap:ForeignCountryMember
2018-12-31 0001595974 us-gaap:StateAndLocalJurisdictionMember us-gaap:ResearchMember 2018-12-31
0001595974 us-gaap:StateAndLocalJurisdictionMember 2018-12-31 0001595974 us-gaap:ResearchMember
2018-12-31 0001595974 us-gaap:DomesticCountryMember 2018-12-31 0001595974 rubi:OfficeLeaseMember
us-gaap:FinancialStandbyLetterOfCreditMember 2018-12-31 0001595974
rubi:DataCentersForCloudBasedServicesMember 2017-01-01 2017-12-31 0001595974
rubi:DataCentersForCloudBasedServicesMember 2018-01-01 2018-12-31 0001595974 rubi:OfficeLeaseMember
us-gaap:FinancialStandbyLetterOfCreditMember 2017-12-31 0001595974 rubi:CovenantTermScenarioOneMember
us-gaap:RevolvingCreditFacilityMember 2018-01-01 2018-12-31 0001595974
rubi:StreamlinePeriodDoesNotApplyMember us-gaap:RevolvingCreditFacilityMember us-gaap:PrimeRateMember
2018-01-01 2018-12-31 0001595974 us-gaap:RevolvingCreditFacilityMember 2018-09-26 0001595974
us-gaap:RevolvingCreditFacilityMember 2018-12-31 0001595974 rubi:CovenantTermScenarioTwoMember
us-gaap:RevolvingCreditFacilityMember 2018-01-01 2018-12-31 0001595974
rubi:CovenantCompliancePeriodThreeMember us-gaap:RevolvingCreditFacilityMember
rubi:A2011LoanAgreementMember 2018-01-01 2018-12-31 0001595974
rubi:CovenantCompliancePeriodTwoMember us-gaap:RevolvingCreditFacilityMember
rubi:A2011LoanAgreementMember 2018-01-01 2018-12-31 0001595974
rubi:StreamlinePeriodDoesNotApplyMember us-gaap:RevolvingCreditFacilityMember
us-gaap:LondonInterbankOfferedRateLIBORMember 2018-01-01 2018-12-31 0001595974
rubi:StreamlinePeriodAppliesMember us-gaap:RevolvingCreditFacilityMember
us-gaap:LondonInterbankOfferedRateLIBORMember 2018-01-01 2018-12-31 0001595974
us-gaap:RevolvingCreditFacilityMember 2018-01-01 2018-12-31 0001595974 rubi:StreamlinePeriodAppliesMember
us-gaap:RevolvingCreditFacilityMember us-gaap:PrimeRateMember 2018-01-01 2018-12-31 0001595974

us-gaap:RevolvingCreditFacilityMember rubi:A2011LoanAgreementMember 2018-01-01 2018-12-31 0001595974 2018-10-01 2018-12-31 0001595974 2018-07-01 2018-09-30 0001595974 2017-04-01 2017-06-30 0001595974 2017-01-01 2017-03-31 0001595974 2018-01-01 2018-03-31 0001595974 2017-07-01 2017-09-30 0001595974 2018-04-01 2018-06-30 0001595974 rubi:The2018RestructuringEventsMember 2018-10-01 2018-12-31 iso4217:USD rubi:segment xbrli:pure iso4217:USD xbrli:shares xbrli:shares

Table of Contents

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

x **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended December 31, 2018
OR
o **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the transition period from _____________ to _____________

Commission File Number: 001-36384

THE RUBICON PROJECT, INC.

(Exact name of registrant as specified in its charter)

Delaware	**20-8881738**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

12181 Bluff Creek Drive, 4th Floor
Los Angeles, CA 90094
(Address of principal executive offices, including zip code)

Registrant's telephone number, including area code:
(310) 207-0272

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, $0.00001 par value	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act:
None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

¨ Yes x No
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. ¨ Yes x No
Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. x Yes ¨ No
Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). x Yes ¨ No
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ¨
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ¨	Accelerated filer x
Non-accelerated filer ¨	Smaller reporting company x
Emerging growth company x	

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. x
Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). o Yes x No
As of June 29, 2018, the aggregate market value of shares held by non-affiliates of the registrant (based on the closing sales price of such shares on the New York Stock Exchange on June 29, 2018) was approximately $138.7 million.
Indicate the number of shares outstanding of each of the registrant's classes of common stock, as of the latest practicable date.

Class	**Outstanding as of February 21, 2019**
Common Stock, $0.00001 par value	**51,734,264**

DOCUMENTS INCORPORATED BY REFERENCE

Related Section	**Documents**
III	**Definitive Proxy Statement to be filed pursuant to Regulation 14A on or before April 30, 2019**

Table of Contents

THE RUBICON PROJECT, INC.
FORM 10-K
FOR THE FISCAL YEAR ENDED DECEMBER 31, 2018
TABLE OF CONTENTS

Table of Contents

SPECIAL NOTE ABOUT FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K and related statements by the Company contain forward-looking statements, including statements based upon or relating to our expectations, assumptions, estimates, and projections. In some cases, you can identify forward-looking statements by terms such as "may," "might," "will," "objective," "intend," "should," "could," "can," "would," "expect," "believe," "design," "anticipate," "estimate," "predict," "potential," "plan" or the negative of these terms, and similar expressions. Forward-looking statements may include, but are not limited to, statements concerning our anticipated financial performance, including, without limitation, revenue, advertising spend, non-GAAP net revenue, non-GAAP earnings (loss) per share, profitability, net income (loss), Adjusted EBITDA, earnings per share, and cash flow; strategic objectives, including focus on header bidding, mobile, video, and private marketplace opportunities; investments in our business; development of our technology; introduction of new offerings; the impact of our acquisition of nToggle and its traffic shaping technology on our business; the effects of our cost reduction initiatives; scope and duration of client relationships; the fees we may charge in the future; business mix and expansion of our mobile, video, and private marketplace offerings; sales growth; client utilization of our offerings; our competitive differentiation; our market share and leadership position in the industry; market conditions, trends, and opportunities; user reach; certain statements regarding future operational performance measures including ad requests, fill rate, paid impressions, average CPM, take rate, and advertising spend; benefiting from supply path optimization; and factors that could affect these and other aspects of our business. These statements are not guarantees of future performance; they reflect our current views with respect to future events and are based on assumptions and estimates and subject to known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from expectations or results projected or implied by forward-looking statements. These risks include, but are not limited to:

- *our ability to continue to grow and to manage our growth effectively;*
- *our ability to develop innovative new technologies and remain a market leader;*
- *our ability to attract and retain buyers and sellers and increase our business with them;*
- *our vulnerability to loss of, or reduction in spending by, buyers;*
- *our reliance on large sources of advertising demand;*
- *our ability to maintain and grow a supply of advertising inventory from sellers and to fill the increased inventory;*
- *the effect on the advertising market and our business from difficult economic conditions or uncertainty;*
- *the freedom of buyers and sellers to direct their spending and inventory to competing sources of inventory and demand;*
- *our ability to use our solution to purchase and sell higher value advertising and to expand the use of our solution by buyers and sellers utilizing evolving digital media platforms;*
- *our ability to introduce new offerings and bring them to market in a timely manner, and otherwise adapt in response to client demands and industry trends;*
- *the increased prevalence of header bidding and its effect on our competitive position;*
- *uncertainty of our estimates and expectations associated with new offerings, including header bidding, private marketplace, mobile, and video;*
- *lower fees and take rate and the need to grow through advertising spend increases rather than fee increases;*
- *our ability to compensate for a reduced take rate by increasing the volume and/or value of transactions on our platform and increasing our fill rate;*
- *our vulnerability to the depletion of our cash resources as we incur additional investments in products and technology;*
- *our ability to support our growth objectives with reduced resources from our cost reduction initiatives;*
- *our ability to raise additional capital if needed and/or to renew our working capital line of credit;*
- *our limited operating history and history of losses;*
- *our ability to continue to expand into new geographic markets;*
- *our ability to adapt effectively to shifts in digital advertising;*
- *increased prevalence of ad blocking or cookie blocking technologies;*
- *the slowing growth rate of online desktop display advertising;*

- *the growing percentage of online and mobile advertising spending captured by owned and operated sites (such as Facebook and Google);*
- *the effects, including loss of market share, of increased competition in our market and increasing concentration of advertising spending, including mobile spending, in a small number of very large competitors;*

Table of Contents

- *acts of competitors and other third parties that can adversely affect our business;*
- *our ability to differentiate our offerings and compete effectively in a market trending increasingly toward commodification, transparency, and disintermediation;*
- *requests from buyers and sellers for discounts, fee concessions or revisions, rebates, refunds, favorable payment terms, and greater levels of pricing transparency and specificity;*
- *potential adverse effects of malicious activity such as fraudulent inventory and malware;*
- *the effects of seasonal trends on our results of operations;*
- *costs associated with defending intellectual property infringement and other claims;*
- *our ability to attract and retain qualified employees and key personnel;*
- *our ability to identify future acquisitions of or investments in complementary companies or technologies and our ability to consummate the acquisitions and integrate such companies or technologies; and*
- *our ability to comply with, and the effect on our business of, evolving legal standards and regulations, particularly concerning data protection and consumer privacy and evolving labor standards.*

We discuss many of these risks and additional factors that could cause actual results to differ materially from those anticipated by our forward-looking statements under the headings "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations," and elsewhere in this report and in other filings we have made and will make from time to time with the Securities and Exchange Commission, or SEC, including Quarterly Reports on Form 10-Q for 2019. These forward-looking statements represent our estimates and assumptions only as of the date of the report in which they are included. Unless required by federal securities laws, we assume no obligation to update any of these forward-looking statements, or to update the reasons actual results could differ materially from those anticipated, to reflect circumstances or events that occur after the statements are made. Without limiting the foregoing, any guidance we may provide will generally be given only in connection with quarterly and annual earnings announcements, without interim updates, and we may appear at industry conferences or make other public statements without disclosing material nonpublic information in our possession. Given these uncertainties, investors should not place undue reliance on these forward-looking statements.

Investors should read this Annual Report on Form 10-K and the documents that we reference in this report and have filed or will file with the SEC completely and with the understanding that our actual future results may be materially different from what we expect. We qualify all of our forward-looking statements by these cautionary statements.

PART I

Item 1. Business Overview

We provide a technology solution to automate the purchase and sale of digital advertising inventory for buyers and sellers. Our platform features applications and services for digital advertising inventory sellers, including websites, mobile applications and other digital media properties, to sell their advertising inventory; applications and services for buyers, including advertisers, agencies, agency trading desks, and demand side platforms, or DSPs, to buy advertising inventory; and a marketplace over which such transactions are executed. Together, these features power and enhance a comprehensive, transparent, independent advertising marketplace that brings buyers and sellers together and facilitates intelligent decision-making and automated transaction execution for the advertising inventory we manage on our platform. Our clients include many of the world’s leading publishers of websites and mobile applications and buyers of digital advertising inventory.

Advertising inventory takes different forms, referred to as advertising units, is purchased and sold through different transactional methodologies, and allows advertising content to be presented to users through different channels. Our solution enables buyers and sellers to purchase and sell:

- a comprehensive range of advertising units, including display, audio and video;
- that are transacted through real-time bidding ("RTB"), which includes (i) direct sale of premium inventory, which we refer to as private marketplace ("PMP"), and (ii) open auction bidding, which we refer to as open marketplace ("OMP"); and
- that are displayed across digital channels, including mobile web, mobile application, and desktop, as well as across various out-of-home channels, such as digital billboards.

We believe our platform reaches approximately one billion users globally. Sellers of digital advertising inventory use our platform to generate revenue by monetizing their advertising inventory across transaction types, advertising units, and channels through accessing a global market of buyers representing top advertiser brands. We also help sellers decrease costs and protect their brands and user experience.

At the same time, buyers leverage our platform to manage their advertising spending and reach their target audiences across transaction types, advertising units, and channels, simplify order management and campaign tracking, obtain actionable insights into audiences for their advertising, and access impression-level purchasing from hundreds of sellers.

We generate revenue from the buying and selling of digital advertising inventory transacted on our platform. Digital advertising inventory is created when users access sellers' content. Sellers provide digital advertising inventory to our platform in the form of advertising requests, or ad requests. When we receive ad requests from sellers, we send bid requests to buyers, which enable buyers to bid on sellers' digital advertising inventory. Winning bids can place advertising, or paid impressions, for the seller to present to the user. The volume of paid impressions measured as a percentage of ad requests is referred to as fill rate. The price that buyers pay for each thousand paid impressions purchased is measured in units referred to as CPM. We refer to the total volume of spending between buyers and sellers on our platform as advertising spend. We keep a percentage of that advertising spend as a fee, and we pass the rest through to the seller. The fee that we retain from the gross advertising spend on our platform is our revenue. Our fee, measured as a percentage of advertising spend, is referred to as our take rate.

Our platform incorporates proprietary machine-learning algorithms, sophisticated data processing, robust high-volume analytics capabilities, and a distributed infrastructure. Our solution is constantly improving based on our systems' ability to process and learn from vast volumes of data in real time.

During the early stages of our business following our incorporation in April 2007, our solution matched sellers' inventory to appropriate buyers by offering impressions to different buyers in sequence. During 2010, we added RTB capabilities, creating a real-time open-market auction allowing all buyers accessing our platform to compete to purchase all of the advertising inventory that sellers made available to our platform. During 2012, we launched our PMP application, which allows sellers to connect directly with their pre-approved buyers to execute direct sales of previously unsold advertising inventory.

In 2016, we introduced our header bidding solution. In addition, we began to focus further on development of our video solution, helping grow our product footprint to allow our sellers to sell video advertising inventory across desktop or mobile platforms, and include instream, outstream and mobile-specific formats such as interstitials.

In 2017, we acquired nToggle, Inc. ("nToggle"), a provider of technology to make it easier and more cost effective for programmatic buyers to find the inventory they are looking for among the billions of bid requests they receive each day. Header bidding has dramatically increased the volume of bid requests sent to buyers, increasing buyers' processing costs and making it more difficult for them to find the impressions they want. nToggle technology utilizes analytical and data science techniques to help shape real-time bidding requests, optimize traffic, and reduce the number of duplicates and irrelevant bid requests DSPs must process. The technology also helps us manage our infrastructure costs and increase our aggregate ingestion capacity by filtering out impressions that are not in demand before they are processed through the bid stream. The technology also allows us to optimize traffic toward DSPs and buyers based on their unique, historical buying behaviors, leading to an overall expansion of relevant bid requests to DSPs unable or unwilling to process the full stream of real-time bidding requests available from our platform.

In 2018, we made first-price our default auction dynamic for header bidding due to increased competition inherent in header bidding, which led other exchanges to submit bids on a first-price basis, rendering our second-price auction methodology less competitive. This allowed us to improve the rate at which we win header-bidding auctions. To support buyers that needed some time to adapt their systems and bidding strategies to first-price auction dynamics, or may not want to make those adaptations themselves, we developed our Estimated Market Rate ("EMR") feature. This feature uses algorithms that monitor existing market conditions against our dataset of auction outcomes to look for opportunities to reduce the amount of the bid that we pass through to the downstream auction on behalf of our winning bidder, while maintaining high fill rates. This is intended to help buyers avoid overpaying for impressions while providing sellers with more stable, predictable demand.

We operate our business on a worldwide basis, with an established operating presence in North America and Europe and a developing presence in Asia, Australia, and South America. Substantially all of our assets are U.S. assets. Our non-U.S. subsidiaries and operations perform primarily sales, marketing, and service functions.

Recent Developments

The ad tech market is demanding more efficiency and lower cost from intermediaries like us. In an effort to be more competitive in attracting demand and capturing inventory supply, we made a strategic decision in mid-2017 to reduce the fees we charged buyers in OMP transactions. In addition, in 2017 our business mix shifted to a higher proportion of header bidding transactions, and we charged lower buyer fees for header bidding transactions in order to pass higher bids to the downstream decisioning process. Finally, in response to increasing market pressure and in an effort to be more competitive, on November 1, 2017, we eliminated our buyer transaction fees altogether. Throughout 2018, our focus was to increase the volume of transactions we process in order to offset the lower fees.

Buyer transaction fees represented approximately 49% of our revenue for the first ten months of 2017, which is the period during which we charged buyer fees in 2017, and represented approximately 43% of our revenue in 2017. Consequently, the elimination of our buyer transaction fees had a severe adverse effect on our revenue and margins since there were no buyer fees included in revenue for 2018. A critical part of our plan to adjust to our lower take rates is to increase advertising spending on our platform and operate with improved efficiency that will support lower margins. To increase our advertising spend, we have taken steps to increase significantly the ad requests coming from our seller clients. Our plans for increasing our inventory volumes have included active pursuit of more direct relationships with sellers, particularly of mobile, video, and PMP impressions, which are areas of industry growth. We have increased our access to ad requests that might not otherwise be accessible to us by utilizing header bidding technologies, including our own solution built on the Prebid open source architecture we helped advance, as well as third-party wrappers, and also integrating with large sources of supply that have their own monetization capabilities but also allow third parties to connect to their exchanges and bid on their inventory.

The industry-wide growth of header bidding has given us access to more advertising inventory, but has also exposed inventory to more competing sources of demand. As a result, we have significantly lower fill rates for header bidding transactions, and as the percentage of our overall transactions conducted through header bidding increases, our overall fill rates decrease. In an effort to increase our header bidding fill rates, in addition to our plans described above, we have made adjustments to our auction dynamics in header bidding transactions such as reducing timeouts, working with publishers to fix legacy publisher RTB rules files, increasing the number of user match rates across multiple devices, and fixed other technical mapping related issues. Historically, we conducted our RTB auctions based upon second-price principles, consistent with widespread industry practice. However, as header bidding increased competition for available inventory, some competing exchanges began submitting bids in header bidding auctions on a first-price or modified-first-price basis to increase their chances of winning. This put our buyers at a competitive disadvantage in these transactions and also created some confusion in the market, as it was often unclear how competing buyers were formulating their bids. In an effort to capture more inventory for our buyers and deliver better monetization to our sellers, and to provide better transparency and predictability to all our clients, effective as of January 22, 2018, we made first price our default auction dynamic for header bidding transactions. This means that the first price or highest bid in our auction wins and that first price is passed to the downstream auction. Because buyers may need some time to adapt their systems and bidding strategies to first-price auction dynamics, or may not wish to make those adaptations themselves, we have implemented an optional feature called EMR, described above.

Supply Path Optimization, or SPO, is a new practice emerging in 2018 referring to the practice of deliberately choosing a specific source of supply through which buyers will procure their media. SPO is important to buyers because it can help reduce their costs and gain efficiencies, and largely because of header bidding, they are able to choose the best partner (or small number of partners) without limiting the available inventory to bid on. There are a number of criteria that buyers use to evaluate supply partners, including transparency, cost, the quality of the inventory, and whether or not a supply partner meets standards around ads.txt compliance, GDPR compliance, brand safety, and remediation of fraudulent traffic. We believe we are well positioned to benefit from supply path optimization due to being a lower-cost provider as a result of the removal of buyer fees, our EMR feature, our transparency, and our brand safety measures.

While we work to increase the volume of transactions on our exchange and compete more effectively, we must operate efficiently to relieve the pressure on our margins and cash resources that has resulted from our fee reductions and increased infrastructure required to support the increased volume of bid requests generated through header bidding and the increased volume of transactions that our growth plans require. We believe that increasing our revenue through transaction volume while still offering competitive fees to our buyers and sellers, paired with cost reduction measures we undertook in 2018 and ongoing cost discipline, will establish us as a lower cost exchange. Our cost reduction measures have included headcount reductions of approximately 250 people since late 2016, including approximately 100 people in 2018, driving an overall workforce reduction of 39% from September 30, 2016 to

December 31, 2018. In the first quarter of 2018, we undertook various cost control initiatives including reductions in administrative staff to bring our general and administrative operations into better alignment with the current size of the business as well as in sales and technical personnel as a result of offshoring certain development functions, organizational delayering and restructuring, and reducing investment in unprofitable projects (see Note 14 of our "Notes to Consolidated Financial Statements"). As a result of our 2018 workforce reductions, combined with other non-headcount related operating expense reductions we undertook, we achieved our target of positive adjusted EBITDA in the fourth quarter of 2018. In addition, we have reduced our capital expenditures to $19.9 million in 2018, which is less than half of the $40.4 million in capital expenditures incurred in 2017. We will continue to pursue increased automation and efficiency across all aspects of the company, including our technology stack.

As a result of these efforts to increase the volume of advertising inventory transacted on our platform, we increased our advertising spend from $837.2 million in 2017 to $992.1 million in 2018. We have also been able to increase our revenue

Table of Contents

throughout 2018, despite a year-over-year decrease from 2017 due to the inclusion of revenue from buyer fees for the majority of 2017. Between continuing to generate increased advertising spend and stabilizing our take rate, we believe we are positioning ourselves for year-over-year revenue growth in future periods.

Our growth and cost-control strategies involve significant risk, as described in the "Risk Factors" section of this report.

Our Industry

Continued Shift Toward Digital Advertising

The increased delivery of content to users digitally over the Internet or through applications, as opposed to analog and print media, such as newspapers, magazines, broadcast radio, and television, has created an opportunity for buyers of advertising inventory to improve return on advertising investment by targeting audiences more accurately using data-driven strategies and delivering more relevant advertising in real time on multiple screens. Buyers are able to utilize various technologies to analyze data relating to return on investment, demographics, user behavior, location, and other attributes that enable them to create and deliver targeted advertisements to users, which helps achieve specific advertising goals. Technological advances have also enabled sellers to sell their inventory on an impression-by-impression basis, as well as in bulk, making it easier for sellers to enhance the monetization of their inventory. Therefore, advertising is continuing to shift with content to digital media.

Complicated and Manual Workflow for Direct Buying and Selling of Digital Advertising Inventory

Due to the size and complexity of the advertising ecosystem and purchasing process, manual processes cannot effectively manage digital advertising inventory at scale. In addition, both buyers and sellers are demanding more transparency, better controls and more relevant insights from their advertising inventory purchases and sales. Buyers and sellers benefit from a platform that enables them to leverage the targeting capabilities of their proprietary data assets. This has created a need to automate the digital advertising industry and to simplify the process of buying and selling advertising inventory.

A variety of factors make the digital advertising ecosystem highly complex and challenging to automate:

- ***Perishable Inventory.*** A user's visit to a website or mobile application creates a unique opportunity to reach the user by inserting advertisements into one or more of the impressions designed into the website or mobile application. In order to generate revenue for a seller these impressions must be filled before the page content loads.
- ***Complex Impression-Level Matching.*** Sellers aim to sell impressions in order to generate revenue while enhancing the users' experience and preserving the sellers' brand. Buyers seek to purchase impression-level inventory to improve targeting of specific audiences and return on investment for their advertising spending.
- ***Large Multi-Variate Datasets.*** Trillions of data points relating to browsing behavior, geographic information, user preferences, engagement with an advertisement, and effectiveness of an advertisement are created as users visit sellers' websites and mobile applications. Each piece of data represents a valuable piece of information that can facilitate and improve current and subsequent targeting and monetization of impressions.
- ***Fragmented Buyer and Seller Base.*** There is an enormous number and variety of buyers and sellers of digital advertising.
- ***Brand Safety and Inventory Quality Concerns.*** Buyers want to avoid buying fraudulent or unauthorized inventory or being associated with content they consider inappropriate, competitive, or inconsistent with their advertising themes. Sellers want to prevent advertisements that are inappropriate, disruptive, competitively sensitive, or otherwise do not comport with their brand image from appearing on their websites or mobile applications, or that convey malware.
- ***Consumer Experience Concerns.*** Consumers prefer digital advertising experiences that are relevant to their personal interests, non-intrusive, and do not detract from or slow down their enjoyment of digital content.
- ***Large and Highly Unpredictable Traffic Volumes.*** The scale of user traffic and the dollar value of digital advertisements is growing and difficult to manage efficiently. A large seller may have tens of millions of users per month, creating hundreds of millions of monthly impressions. The volume of traffic for any given seller is extremely difficult to predict and requires a technology infrastructure that is large enough to handle variable volumes. As more advertising shifts to digital and digital advertising technologies evolve, larger and more diverse data processing capabilities are required.
-

Lack of Standardized Ad Formats and Data. An available advertising impression can vary based on a number of factors, such as seller, ad format, screen size, pricing mechanism, content type, and audience demographic. It is challenging for buyers to efficiently evaluate and bid on trillions of impressions that are based on hundreds of ad formats in the context of millions of highly customized data fields.

- ***Diverse Technology Demands.*** Even as advertising is shifting from traditional to digital media, a shift is underway within the digital advertising ecosystem from desktop to mobile channels. Desktop and mobile digital advertising involve different challenges and rely upon different technologies, requiring significant technological capabilities and innovation.
- ***Increasing Privacy Demands.*** Privacy protection is becoming increasingly important to regulators, technology platforms, web and mobile browser applications and users on a regional and global basis, requiring constant adaptation to comply with legal and self-regulatory requirements while effectively matching buyers and sellers of inventory.

Rubicon Project: Competitive Strengths of Our Platform in the Digital Advertising Marketplace

Rubicon Project was founded to address the inherent challenges associated with the digital advertising ecosystem. Buyers can direct their spending towards the impressions that are of most value to them based on demographics, pricing, timing, and other targeting objectives. Sellers can improve revenue per impression, while adhering to their own specific rules around advertising that is permissible on their websites and mobile applications.

Serving a Broad Universe of Buyers and Sellers Across a Full Spectrum of Inventory Types, Advertising Units, and Channels Creates Network Effects

By accommodating a full spectrum of digital advertising inventory through various transaction types across multiple channels, our solution brings value to both buyers and sellers. Our sellers gain instant access to the world’s largest automated digital advertising buyers, including hundreds of DSPs with the flexibility to sell their advertising inventory in an automated fashion on an impression-by-impression basis, such as with OMP, in bulk, or in PMP transactions pursuant to arrangements directly between the seller and the buyer. Our buyers gain the ability to fulfill their audience needs in a cost-effective manner. Large numbers of diverse sellers on our platform attract more buyers and vice versa, resulting in a self-reinforcing network effect that adds value for all our clients and creates a strong platform for growth.

Private Marketplace Solutions Provide Unique Access to Quality Supply and Facilitate Transactions

A significant portion of premium inventory is purchased and sold through PMPs. Some sellers will continue to rely on their own sales forces for sales of premium inventory, but will benefit from automation to better price, match, and place campaigns, and to automate manual operations such as ad trafficking, quality assurance, and billing and collections. We have invested in workflow capabilities and automation of inventory transactions to enable sales teams to increase their productivity and process more sales of premium inventory at optimal prices. Workflow capabilities enable buyers and sellers to communicate directly and use shared data to execute campaigns. These capabilities support sales functions rather than replacing them, enhancing their adoption without friction. Buyers and sellers can also leverage their first-party data assets and third-party data assets in our platform to increase the value of sellers' inventory and the precision of buyers' targeting efforts.

Big Data Analytics and Machine-Learning Algorithms

A core aspect of our value proposition is our big data and machine-learning platform that is able to discover unique insights from our massive data repositories containing proprietary information on ad requests, bid requests, bid responses, and served advertisements. Our systems collect and analyze variable pieces of information such as pricing of advertisements, historical clearing prices, bid responses, what types of ads are allowed on a particular website, which sellers’ websites a buyer prefers, what ad formats are available to be served, advertisement size and location, user location, which users a buyer wants to target, how many ads the user has seen, browser or device information, and sellers’ proprietary data about users. Our access to data puts us in a unique position to develop differentiated insights to help both buyers and sellers, and we have developed proprietary machine-learning algorithms that analyze trillions of these data points to enable our solution to make data-driven decisions in real time and to process high volumes of bid requests and responses. Our solution is constantly self-improving as we process more volume and accumulate more data, which in turn helps make our machine-learning algorithms more intelligent and contributes to higher-quality matching between buyers and sellers. This traffic optimization toward our DSP partners and buyers coupled with more aggressive filtering of non-monetizable traffic improves return on investment for buyers and increases revenue for sellers, which in turn attracts more buyers and sellers to our platform. We believe this self-reinforcing dynamic contributes to the dual network effects described above, creating a strong platform for growth.

Table of Contents

Header Bidding Solution

Header bidding is effectively a change in the auction process by which, instead of allocating an impression to one exchange running a single auction, a publisher exposes the impression to multiple exchanges, each of which generally selects a winning bid through its own initial auction and passes that winning bid into a secondary auction to compete for the impression with all other participating exchanges' bids. Sellers first embraced header bidding using a client-side solution, in which the browser of the user creating the impression runs the secondary auction. This solution increases competition for impressions and raises impression prices, but burdening the browser to perform the secondary auction increases load time for content and causes delays during execution.

An emerging alternative header bidding protocol uses a server to conduct the secondary auction, which can reduce load times but presents its own challenges. Adding an additional step between the user's browser and the demand source can cause increased latency and limit the amount of user data that is transmitted, contributing to difficulties in user data synchronizing and resulting in adverse effects on audience targeting. Server-side technology also significantly increases the volume of demand sources that can be accommodated, resulting in increased competition for impressions. Further, the host of the server used in a particular transaction has an advantage in user sync with its demand sources, at least until some form of universal user identification approach gains significant market adoption.

In 2016, we entered the client-side header bidding space with our client-side solution, which we referred to as FastLane. In 2017, we began working on server-side header bidding and supported an open source industry solution we helped advance called Prebid. In October 2017, we launched our own open source server-side header bidding solution, which integrates with Prebid. Using these technologies, we are executing header bidding secondary auctions on behalf of our seller clients that implement our solution. To further the open source initiative, in 2017 we also helped to launch Prebid.org, Inc., an independent organization dedicated to the development and promotion of open-source header bidding solutions and other open-source tools to drive publisher monetization. There are two other primary server-side solutions, one provided by Amazon (called Amazon A9) and one provided by Google (called Google EB), and we are integrated with both. We believe the various header bidding alternatives we offer, our buyer reach and scale, our buying efficiency, and our machine learning capabilities put us in a strong position to compete for seller impressions, and we expect each of these header bidding solutions to deliver a meaningful volume of impressions.

Independence

Unlike some large industry participants, we do not have our own media properties that compete for advertising spending with our sellers. Our independence means we have none of the inherent conflicts of interests characterizing competing exchanges that sell their own inventory, giving our clients an important alternative to monetize and acquire inventory without subsidizing their competitors.

Platform Applications

To enhance the value our technology platform brings to the marketplace, we offer a number of applications to address the critical needs of buyers and sellers.

Applications for Sellers. We have direct relationships and integrations with the sellers on our platform. Our solution includes applications to help them increase their digital advertising revenue, reduce costs, protect their brands and user experience, and reach more buyers efficiently to increase digital advertising revenue by monetizing their full variety and volume of inventory. Our platform offers sellers many capabilities and benefits, including the following:

- ***xAPI Technology That Allows Sellers to Easily Access Our Demand.*** Publishers normally face numerous technical challenges in accessing advertising demand. They either have to modify their web pages by adding cumbersome "ad tags," or they have to integrate monetization code into their mobile applications. Both of these methods create technical risk and are time consuming to implement. xAPI technology eliminates these requirements and makes it easy and fast with no impact to the web pages or apps of the publisher to access demand and fill ad slots.
- ***Integrated Solution for Digital Advertising Needs.*** We provide sellers with a single web-based interface that serves as their central location to manage, analyze, and enhance digital advertising spending from hundreds of different buyers.
- ***Header Bidding.*** We provide our own header bidding solutions to sellers to use as a platform for aggregating demand, and also to integrate with third-party header bidding solutions to provide demand to our sellers that use those

third-party solutions as their header bidding platform.

Table of Contents

- ***Private Marketplaces.*** Sellers can use our PMP capabilities to augment their own internal sales operations through better matching and pricing and process automation.
- ***Inventory Allocation.*** We offer a solution that helps sellers to increase revenue across advertising types and sales channels by allocating inventory efficiently between direct and indirect demand.
- ***Significantly Streamlined Sales, Operations, and Finance Workflow.*** Our platform streamlines the management of digital advertisement sales by aggregating demand and providing a suite of software applications that automate the process of making inventory available for sale.
- ***Security for Brand and User Experience.*** Our platform is designed to enable sellers to implement guidelines specifying what advertising content may not be shown on the seller's website or mobile application.
- ***Advanced Reporting and Analytics and Actionable Insights.*** We provide a robust set of reporting features that sellers can use to analyze the vast array of data we collect for them.
- ***Consolidated Payments.*** We provide consolidated billing and collection for sellers that would otherwise be required to dedicate additional resources to cost-effectively manage financial relationships with a large base of buyers.
- ***Protective Screening.*** We employ measures to protect sellers and users from malware (software that can infect computers with malicious software), check advertisements delivered through our solution for the presence of malicious or questionable activity or characteristics, and gather technical attributes to inform our matchmaking process.
- ***Vantage.*** We provide an extension for Web browsers that lets sellers monitor ads served in context on their sites, providing insight, diagnostic applications, and ad-quality controls.
- ***Creative Approval API.*** Our platform includes a programmatic interface that sellers can use to retrieve a comprehensive set of individual advertising creatives that have bid or served on their sites, and instruct our delivery systems to approve or reject those creatives for future impressions.

Applications for Buyers. Buyers leverage our applications to access a large audience and execute highly automated campaigns that take advantage of unique targeting data and technology as provided by our platform to purchase advertising inventory based on buyers' key demographic, economic, and timing criteria. These applications help streamline a buyer's purchasing operations and increase the efficiency of its spending and the effectiveness of its advertising campaigns. Our platform offers buyers many capabilities and benefits, including the following:

- ***Direct Access to a Global Audience and Hundreds of Premium Sellers.*** By leveraging our platform, we believe buyers can reach approximately one billion internet users globally, including through many of the world's largest and most premium sellers. Furthermore, unlike many organizations in the digital advertising industry, we have direct relationships with sellers and can enable buyers to circumvent a multi-step, expensive, and inefficient process to connect to the seller.
- ***Private Marketplaces.*** Through our PMP capabilities, we enable buyers to access exclusive high-value inventory in a more controlled environment than in the open marketplace.
- ***Bid Stream Filtering.*** We provide technology to help buyers shape real-time bidding requests, optimize traffic, and reduce the number of duplicates and irrelevant or undesired bid requests they must process. This helps buyers find the inventory they are looking for more efficiently and reduces their data processing costs.
- ***Bid Reduction.*** Buyers participating in header bidding auctions, which we conduct on a first-price basis, may use our EMR technology, which uses our market data and proprietary algorithms to help buyers bid on advertising inventory consistent with market rates.
- ***Flexible Access to Inventory.*** Our platform allows buyers to purchase advertising inventory in their preferred manner, whether by OMP or PMP. Our solution also has the flexibility to allow buyers to integrate their purchases on our platform through their existing buying technologies or to buy directly through our platform.
- ***Simplified Order Management and Campaign Tracking.*** By eliminating most manual steps, our applications enable buyers to manage their digital campaigns efficiently and effectively, and significantly reduce the time it would otherwise take to execute their digital advertising programs.
- ***Transparency and Control Over Advertising Spending.*** Our platform is designed to let buyers know and control where their dollars are being spent. Buyers can easily navigate through our interface to choose the list of sellers they want to purchase inventory from and see an indicative price range that they should expect to pay.

10

Table of Contents

- ***Inventory Quality.*** We provide systems and processes to detect and minimize questionable inventory, such as non-human traffic and pirated content, and to enable labeling of inventory made available for sale so that buyers can make their own decisions about what meets the specific standards of campaigns they are running.
- ***PubCheq.*** We maintain a comprehensive database of all inventory reviewed by internal systems and teams that powers a global blacklist that blocks fraudulent or otherwise problematic seller properties and users from entering the Rubicon Project marketplace and identifies non-human traffic that is fraudulently consuming advertising spend.

Growth Strategies

Two powerful market trends are affecting our business. First, our exchange volume historically consisted largely of OMP transactions conducted through an ad server waterfall for desktop display advertising, but this business is being displaced by other ad units, channels, and transaction types. Second, the ad tech market is demanding more efficiency and lower cost from intermediaries like us, and we believe market share will consolidate. Our strategy for growth in this context is to operate a high-volume, low cost per transaction exchange, and focus on high-growth ad units, channels and transaction types.

Increase volumes and efficiencies and reduce transaction costs on our exchange. We aim to increase our transaction volumes and to enhance the operational efficiency and value to clients of our exchange, enabling buyers and sellers to achieve their campaign and monetization objectives efficiently and to streamline the number of exchanges they work with.

- ***Increasing Inventory Supply.*** Increased transaction volume begins with ad requests from sellers, which represent the inventory available for buyers to purchase on our platform. Our plan for increasing our inventory volumes includes active pursuit of more direct relationships with sellers, particularly of mobile, video, and PMP impressions, which are areas of industry growth, and expanding seller tools. Our own header bidding solutions are an important element of our offering to large sellers. We also access ad requests that might not otherwise be accessible to us by connecting to third-party header bidding solutions such as Google EB and Amazon A9, as well as other third-party wrappers, and also integrate through our server-to-server xAPI technology with large sources of supply that have their own monetization capabilities but also allow third parties to connect to their exchanges and bid on their inventory.
- ***Elimination of Buyer Fees.*** During 2017, we reduced and ultimately eliminated the transaction fees we previously charged buyers for OMP transactions. As a result, our total take rate was approximately 11.6% as we exited 2017, which did not include any buyer fees. We believe our pricing is now competitive, and our low fees are intended to address the market's demand for lower costs and to attract more inventory and spending to our platform. Elimination of buyer fees also allows us to pass higher bids to the downstream auction in header bidding transactions, which should improve our fill rate. In addition, elimination of our buyer fees, as well as the auction dynamics and bid filtering described immediately below, reflect our intensified focus on buyers, which, through “supply path optimization” initiatives, are expected to concentrate their spending to fewer more efficient sources of advertising inventory.
- ***More Competitive Auction Dynamics.*** Increased competition inherent in header bidding led other exchanges to submit bids on a first-price basis, rendering our second-price auction methodology less competitive. Therefore, effective as of January 22, 2018, we made first-price our default auction dynamic for header bidding transactions, which has improved the rate at which we win header-bidding auctions. To support buyers that need some time to adapt their systems and bidding strategies to first-price auction dynamics, or may not wish to make those adaptations themselves, we provide our EMR feature.
- ***Bid Filtering.*** We continue to improve our fill rate by using the technology we acquired from nToggle to filter out low-quality impressions so that a higher proportion of the ad requests on our platform are of interest to our buyers, and to analyze market dynamics to optimize impressions toward our buyers, enabling them to identify and purchase the impressions they want more efficiently. In addition, we expect the nToggle filtering technology to help us and our buyers control the processing costs associated with higher volumes of ad requests and bid requests.
- ***Platform Enhancements.*** We are working on a number of platform innovations and enhancements designed to improve the value to clients and the operational efficiency of our platform. For example, new technology and techniques will improve upon our market-leading position in inventory and ad quality, responding to market demands for increased brand security and protection against fraud. Cookie-less targeting, including device-based user

identifiers, will improve audience identification and match rates. Audience-based selling and enhanced measurement and viewability technologies will improve inventory values for sellers and campaign effectiveness for buyers. Impression filtering and virtual machine support will improve the efficiency and effective capacity of our data processing infrastructure.

Focus on emerging ad units, channels, and transaction types

Our business historically consisted largely of OMP transactions conducted through an ad server waterfall for desktop display advertising, which has declined significantly. In order for us to grow and compete effectively, we must continue to focus on areas of the digital advertising business that are experiencing growth and to adapt to evolution in the business.

- ***Mobile.*** We believe we can significantly expand the penetration of our mobile offerings among buyer and seller clients by creating and introducing new mobile ad formats, growing mobile advertising by brands with better measurement and decisioning data, and leveraging header bidding to improve returns for developers. Mobile includes mobile web pages as well as mobile applications.
- ***Audiences.*** We aim to develop technology to enable buyers and sellers to safely leverage their first-party data assets and third-party data assets in our platform to increase the value of sellers' inventory and the precision of buyers' targeting efforts, and to drive more precise matching of buyer demand to seller inventory. As the world continues to move more toward an app-centric consumption of the Internet, our concept of identity is evolving away from the browser cookie and into more sophisticated ID-agnostic systems and technology.
- ***Header Bidding.*** We will invest in continued improvement in our header bidding capabilities, including through support of open-source wrapper technologies that eliminate exchange bias, expand support for major third-party header bidding technologies and additional formats to maximize access to inventory supply, and develop enhanced customer service capabilities.
- ***Private Marketplace.*** We will continue to invest in our PMP solution, which we believe is well-positioned to take advantage of increased industry demand for PMP transactions.
- ***Video.*** We plan to expand our video presence by continuing to drive growth with header bidding, new formats and stronger measurement and targeting capabilities, and providing monetization service for over-the-top ("OTT") and connected television content providers as they migrate increasingly to programmatic monetization of their advertising inventory.
- ***Bringing Automation to Additional Media.*** Historically, our solution has focused on display advertising. We believe, however, that television and other analog and print media will eventually converge with existing digital channels, creating opportunities for us to expand our solution beyond digital media to analog and print media, such as television, radio, and magazines, as well as further expand in out-of-home media like billboards. We intend to extend our solution to track this convergence and support increasingly complex volumes of advertisements spanning multiple media. In addition to platform expansion, we intend to extend beyond our current capabilities for display, video, and engagement to other forms of advertising units as they may arise.

Technology and Development

To support our solution, we have developed globally distributed infrastructure hosted at data centers in the U.S., Europe, and Asia that run our proprietary software and process privacy-enabled user data, including analytics and decision-making algorithms, and store, manage, and process rules set by buyers and sellers and data about demographics, economics, timing, and preferences. Our hardware provides significant scale and is programmed for high-frequency, low-latency transactions. Its massive scale supports the volume, diversity, and complexity of buyers' bids on sellers' advertising inventory to increase market liquidity, and it achieves improved auction pricing using our machine-learning algorithms. This infrastructure is supported by a real-time data pipeline, a system that quickly moves volumes of data generated by our business into reporting and machine learning systems that allow usage both internally and by buyers and sellers. It also is supported by a 24-hour Network Operations Center, which provides failure protection by monitoring and rerouting traffic in the event of equipment failure or network performance issues between buyers and our marketplace.

Auction and security algorithms use matchmaking algorithms with both historical and real-time data to drive automated decision-making processes. Bid efficiency algorithms provide bid prediction (i.e., which buyers are most likely to bid on a given impression) and throttling (i.e., the volume of bid requests a given buyer can process), to improve infrastructure load and execute transactions in the most timely manner possible by only sending bid requests to those buyers of advertising inventory who can handle the volume and are likely to respond.

Our core technology and development team is responsible for the design, development, operation, and maintenance of our platform. Our technology and development process is based on agile development methodologies and emphasizes frequent, iterative, and incremental development cycles. Within the technology and development team, we have several highly aligned, independent sub-teams that focus on particular features of our platform. Each of these sub-teams includes engineers, quality assurance specialists, and product developers responsible for the initial and ongoing development of each sub-team's feature. In addition, the technology and development team includes our technical operations sub-team, which is responsible for the performance and capacity of our platform. While our sub-teams operate independently, the combined work is coordinated by our project management team, which manages dependencies and optimizes the schedule of the entire team towards common goals.

We believe that continued investment in our platform, including its technologies and functionalities, is critical to our success and long-term growth. We therefore expect technology and development expenses to increase as we continue to invest in technology infrastructure to support an increased volume of advertising spending on our platform and international expansion, migrate some of our infrastructure to the cloud, and expand our engineering and technology teams to maintain and support our technology and development efforts. We also intend to invest in new and enhanced technologies and functionalities to enhance our platform and further automate our business processes with the goal of enhancing our future profitability.

Sales and Marketing

We market our solution to buyers and sellers through global direct sales teams that operate from various locations around the world. These teams leverage market knowledge and expertise to demonstrate the benefits of advertising automation and our solution to buyers and sellers. We deploy a professional services team with each seller integration to assist sellers in extracting value from our solution. Our buyer team focuses on the unique challenges and priorities of buyers and is separately managed in order to properly represent this important client group. We are focused on managing our brand, increasing market awareness, and driving advertising spend to our platform. To do so, we often present at industry conferences, create custom events, and invest in public relations. In addition, our marketing team advertises online, in print, and in other forms of media, creates case studies, sponsors research, writes whitepapers, publishes marketing collateral, generates blog posts, and undertakes client research studies.

Competition

Our industry is highly competitive. Overall digital advertising spending is highly concentrated in a small number of very large companies that have their own inventory, including Google and Facebook, and increasingly Amazon, with which we compete for digital advertising inventory and demand. These companies are formidable competitors due to their huge resources and direct user relationships. Despite the dominance of large companies, there is still a large addressable market that is highly fragmented and includes many providers of transaction services with which we compete, including supply side platforms, or SSPs, and advertising exchanges. As we introduce new offerings, as our existing offerings evolve, or as other companies introduce new products and services, we may be subject to additional competition. There has been rapid evolution and consolidation in the advertising technology industry, and we expect these trends to continue, thereby increasing the capabilities and competitive posture of larger companies, particularly those that are already dominant in various ways, and enabling new or stronger competitors to emerge. There are many ways for buyers and sellers of digital advertising inventory to connect and transact, including directly and through many other exchanges, and advertising inventory buyers are increasingly demanding more transparency and lower transaction costs and establishing relationships directly with sellers of advertising inventory, which puts significant pressure on us. Our offering must remain competitive in terms of scope, ease of use, scalability, speed, price, inventory quality, brand security, customer service, and other technological features that help sellers monetize their inventory and buyers increase the return on their advertising investment.

While our industry is evolving rapidly and becoming increasingly competitive, we believe that our solution enables us to compete favorably on the factors described above. However, competitive differentiation is difficult to achieve, both in terms of capabilities and in terms of client perception. We lack the scale of some of our competitors, which may have the ability to compete effectively with us by offering broader capabilities or more aggressive pricing. Other competitors with capabilities inferior to ours may nevertheless compete effectively with us if clients do not perceive, or value, what we believe to be our competitive advantages.

To an increasing degree, SSPs and exchanges are becoming somewhat similar and less distinguishable in the services that they provide, and with the proliferation of header bidding, which increased competition for impressions, pricing has become a key competitive factor. In 2017, we continued to see a heightened level of competition on pricing sensitivity, which led us to implement buyer fee reductions in the first half of the year and ultimately to eliminate all our buy side transaction fees on November 1, 2017.

Overall our revenue decreased 20% from $155.5 million in 2017 to $124.7 million in 2018, which reflects the impact of our buyer fee elimination, partially offset by growth in ad spend. Our overall take rate in 2018 declined to 12.6% compared to 18.5% in 2017 and 25.0% in 2016. We exited 2018 at approximately 13.6% compared to 11.6% at the end of 2017. Our exit take rate in December 2018 is higher due primarily to seller pricing improvements negotiated during the year. We believe this take rate puts us in a favorable competitive position in terms of pricing, but it is uncertain whether it represents a sustainable competitive advantage or if we can increase our transaction volume enough to compensate for lower prices.

Table of Contents

Our Team and Culture
Our team draws from a broad spectrum of experience, including data science, machine-learning algorithms, auctions, infrastructure, software development, and from experienced managers on the seller and buyer sides.
We focus heavily upon developing and maintaining a company culture that supports our goals. We strive to make our company an exciting place to work, not just a "job." We reward team and individual excellence and constantly strive to build a stronger, more innovative team and a consistent culture across all our locations.
As of December 31, 2018, we had 409 full-time employees. In addition to the United States, we have personnel and operations in England, Canada, France, Australia, Germany, Italy, Japan, Singapore, and Brazil.
Our Intellectual Property
Our proprietary technologies are important and we rely upon trade secret, trademark, copyright, and patent laws in the United States and abroad to establish and protect our intellectual property and protect our proprietary technologies. We have several issued patents and pending patent applications, some of which may ultimately be abandoned if we determine that the cost of prosecution or maintenance does not justify the utility of receiving the patent. None of these patents has been litigated and we are not licensing any of the patents, and we do not believe that any individual patent or patent application is material to our business. Their importance to our business is uncertain and there are no guarantees that any of the patents will serve as protection for our technology or market in the United States or any other country in which an application has been filed.
We register certain domain names, trademarks and service marks in the United States and in certain locations outside the United States. We also rely upon common law protection for certain trademarks. We generally enter into confidentiality and invention assignment agreements with our employees and contractors, and confidentiality agreements with parties with whom we conduct business, in order to limit access to, and disclosure and use of, our proprietary information. We also use measures designed to control access to our technology and proprietary information. We view our trade secrets and know-how as a significant component of our intellectual property assets, which we believe differentiate us from our competitors.
Any impairment of our intellectual property rights, or any unauthorized disclosure or use of our intellectual property or technology, could harm our business, our ability to compete and our operating results.
Client Dynamics
While we serve many clients, certain buyers and sellers account for a large share of business transacted through our platform.
On the buy-side of our business, while demand for advertising inventory is diffuse, spending by advertisers on digital advertising inventory has historically been channeled through intermediaries, including principally advertising agencies and DSPs, both of which are important to us. We have generated a majority of our revenue through OMP, and most OMP inventory purchases are executed by a relatively small number of DSPs that have the bidding technologies, data assets, and client bases necessary to enable them to execute OMP purchases at scale on behalf of their clients. We have relationships with almost all of these major DSPs, but because there are relatively few of them, each of these relationships is important to us because it represents a source of demand that could be difficult for us to replace. Similarly, the majority of supply to date on our PMP product has been by a relatively small number of sellers. Creating new seller clients and expanding our business with existing seller clients is important to our growth, and the loss of any seller clients could adversely affect our PMP business. In addition, because large agencies often spend through multiple DSPs, new or enhanced agency relationships can result in increased spending on our platform by multiple DSPs, while a decrease in business or a decline in our relationship with a single agency can result in reduced spending by multiple DSPs. We are working to develop relationships directly with advertisers, to supplement their DSP and agency relationships and also to encourage them to influence their DSPs and agencies to route their spending through our platform.
On the sell-side of our business, while we work with many clients, a relatively small number of them provide a large share of the unique user audiences accessible by buyers. In addition, most of the application providers that make inventory available through our platform utilize system development kits ("SDKs") and other proprietary technology of third parties, such as aggregators, and it is those third parties, not the application providers themselves, that contract with us to help monetize the inventory. Termination or diminution of our relationships with these third parties could

result in a material reduction of the amount of mobile inventory available through our platform. We encourage application developers to use our own SDK when appropriate, but it is difficult to displace existing SDKs.

Table of Contents

Our contracts with buyers and sellers generally do not provide for any minimum volumes and may be terminated on relatively short notice. Buyer and seller needs and plans can change quickly, and buyers and sellers are free to terminate their arrangements with us or direct their spending and inventory to competing sources of inventory and demand, quickly and without penalty. Loss of a major buyer could result in a decrease of demand on our platform, and loss of a major seller could result in decrease of inventory available on our platform. Despite such losses, there could still be adequate demand and inventory supply on our platform to sustain and grow our revenue, so it is not necessarily the case that loss of a buyer or seller equates to loss of revenue. However, loss of unique inventory and loss of any demand could result directly in revenue loss. In addition, just as growth in the inventory strengthens buyer activity in a network effect, loss of substantial inventory or demand could degrade our marketplace. Loss of major DSP sources of demand could adversely affect bid density or pricing in our RTB auctions, and reduction in fees if we are not able to redirect inventory to other demand sources. Loss of important unique inventory could reduce fees from demand that cannot be shifted to other sellers. The number of large media buyers and sellers in the market is finite, and it could be difficult for us to replace the losses from any buyers or sellers whose relationships with us diminish or terminate. Because of these factors, we seek to expand and diversify our client relationships. In particular, as part of our strategy to increase the volume of advertising inventory on our exchange, we are continuing relationships with aggregators of inventory and with large sources of supply that have their own monetization capabilities but also allow third parties to connect to their exchanges and bid on their inventory. These relationships represent additional risks in terms of inventory quality, transaction discrepancies, and collections, and may be less profitable because we may be required to compensate these partners or share the fees available for intermediaries in these transactions, and may incur higher serving costs relative to revenue.

Geographic Scope of Our Operations

Our international operations and expansion plans expose us to various risks. International operations require significant investment in developing the technology infrastructure necessary to deliver our solution and establishing sales, delivery, support, and administrative capabilities in the countries where we operate. We face staffing challenges, including difficulty in recruiting, retaining, and managing a diverse and distributed workforce across time zones, cultures, and languages. We must also adapt our practices to satisfy local requirements and standards (including differing privacy requirements that are sometimes more stringent than in the U.S.), and manage the effects of global and regional recessions and economic and political instability. Transactions denominated in various non-U.S. currencies expose us to potentially unfavorable changes in exchange rates and added transaction costs. Foreign operations expose us to potentially adverse tax consequences in the United States and abroad and costs and restrictions affecting the repatriation of funds to the United States. For detailed information regarding our revenue and property and equipment, net by geographical region, see Note 4 and Note 7 of the "Notes to Consolidated Financial Statements."

User Reach

It is not practicable to determine the exact number of unique users we reach because we do not collect personally identifiable information. In order to estimate our user reach, we start with data we track on devices we see through our platform in a given time period: for web browsers, we identify each combination of browser user agent and originating IP address, and for mobile application users, we identify unique device identifiers. The resulting aggregated total counts some devices more than once because the same device creates different user agent and IP address combinations by using different browsers to access the Internet and/or accessing the Internet from locations with different IP addresses. We therefore make assumptions about the amount of duplication, as well as assumptions about the average numbers of devices per person, which can vary by geography and over time, and apply these assumptions to estimate of the number of users we reach. Following this methodology, we estimate that we reach approximately one billion users globally through our platform. This figure depends upon our assumptions and is therefore inherently imprecise and may differ from third-party estimates of our reach.

Regulation

Behavioral or personalized advertising, or the use of data to draw inferences about a user’s interests and deliver relevant advertising to that user, has come under increasing scrutiny by legislative, regulatory, and self-regulatory bodies in the United States and abroad that focus on consumer protection or data privacy. In particular, this scrutiny has focused on the use of technology (including "cookies") to collect or aggregate information about Internet users' online browsing activity. Because we, and our clients, rely upon large volumes of such data, it is essential that we monitor developments in this area domestically and globally, and engage in responsible privacy practices, including providing consumers with notice of the types of data we collect and how we use that data to provide our services. We provide this notice through our privacy policy, which can be found on our website at http://www.rubiconproject.com/privacy. As stated in our privacy policy, our technology platform does not collect information, such as name, address, or phone number, that can be used directly to identify a real person, and we take steps not to collect and store such information from any source. Instead, we rely on IP addresses, geo-location information, and persistent identifiers about Internet users and do not attempt to associate this data with other data that can be used to identify real people. This type of information is considered personal data in some jurisdictions or otherwise may be the subject of future legislation or regulation. The definition of personal data varies by country, and continues to evolve in ways that may require us to adapt our practices to avoid violating laws or regulations related to the collection, storage, and use of consumer data. As a result, our technology platform and business practices must be assessed regularly in each country in which we do business.

There are also a number of specific laws and regulations governing the collection and use of certain types of consumer data relevant to our business. For example, the Children's Online Privacy Protection Act ("COPPA"), imposes restrictions on the collection and use of data about users of child-directed websites. To comply with COPPA, we have taken various steps to implement a system that: (i) flags seller-identified child-directed sites to buyers, (ii) limits advertisers' ability to serve personalized advertisements on child-directed sites, (iii) helps limit the types of information that our advertisers have access to when placing advertisements on child-directed sites, and (iv) limits the data that we collect and use on such child-directed sites.

The use of and transfer of personal data in EU member states is currently governed by the General Data Protection Regulation (the "GDPR"). The GDPR sets out higher potential liabilities for certain data protection violations, as well as a greater compliance burden for us in the course of delivering our solution in Europe. Among other requirements, the GDPR obligates companies that process large amounts of personal data about EU residents to implement a number of formal processes and policies for reviewing and documenting the privacy implications of the development, acquisition, or use of all new products, technologies, or types of data. Further, the European Union is expected to replace the EU ePrivacy Directive governing the use of technologies to collect consumer information with the ePrivacy Regulation. Current drafts of the ePrivacy Regulation propose burdensome requirements around obtaining consent, and impose fines for violations that are materially higher than those imposed under the ePrivacy Directive.

The GDPR also prohibits the transfer of personal data of EU subjects outside of the European Economic Area ("EEA"), unless the party exporting the data from the EU implements a compliance mechanism designed to ensure that the receiving party will adequately protect such data. We have relied on certain compliance measures that are currently subject to legal challenge, and which directly subject us to regulatory enforcement by data protection authorities located in the European Union and the United States. By relying on these compliance measures, we risk becoming the subject of regulatory investigations in any of the individual jurisdictions in which we operate. Each such investigation could cost us significant time and resources, and could potentially result in fines, criminal prosecution, or other penalties. Further, to the extent any of the legal challenges to these compliance measures are successful, this could invalidate our approach to data export from the EEA. It may take us significant time, resources, and effort to restructure our business and/or rely on another legally sufficient compliance measure.

The UK's decision to leave the European Union may add cost and complexity to our compliance efforts. The UK is an important geography for us. If UK and EU privacy and data protection laws and regulations diverge, we will be required to implement alternative EU compliance measures and adapt separately to any new UK requirements.

Additionally, our compliance with our privacy policies and our general consumer privacy practices are also subject to review by the Federal Trade Commission, which may bring enforcement actions to challenge allegedly unfair and deceptive trade practices, including the violation of privacy policies and representations therein. Certain State Attorneys General may also bring enforcement actions based on comparable state laws or federal laws that permit state-level enforcement. Outside of the United States, our privacy and data practices are subject to regulation by data protection authorities and other regulators in the countries in which we do business.

Beyond laws and regulations, we are also members of self-regulatory bodies that impose additional requirements related to the collection, use, and disclosure of consumer data, including the Internet Advertising Bureau ("IAB"), the Digital Advertising Alliance, the Network Advertising Initiative, and the Europe Interactive Digital Advertising Alliance. Under the requirements of these self-regulatory bodies, in addition to other compliance obligations, we provide consumers with notice via our privacy policy about our use of cookies and other technologies to collect consumer data, and of our collection and use of consumer data to deliver personalized advertisements. We also allow consumers to opt-out from the use of data we collect for purposes of behavioral advertising through a mechanism on our website, linked through our privacy policy as well as through portals maintained by some of these self-regulatory bodies. Some of these self-regulatory bodies have the ability to discipline members or participants, which could result in fines, penalties, and/or public censure (which could in turn cause reputational harm). Additionally, some of these self-regulatory bodies might refer violations of their requirements to the Federal Trade Commission or other regulatory bodies.

Business Seasonality

Our advertising spend, revenue, cash flow from operations, Adjusted EBITDA, operating results, and other key operating and financial measures may vary from quarter to quarter due to the seasonal nature of buyer spending. For example, many buyers devote a disproportionate amount of their advertising budgets to the fourth quarter of the calendar year to coincide with increased

Table of Contents

holiday purchasing. We expect our revenue, cash flow, operating results and other key operating and financial measures to fluctuate based on seasonal factors from period to period and expect these measures to be higher in the fourth quarters than in prior quarters.

Working Capital Requirements

Our revenue is generated from advertising spend transacted on our platform using our technology solution. Generally, we invoice and collect from buyers the full purchase price for impressions they have purchased, retain our fees, and remit the balance to sellers. We attempt to coordinate collections from our buyers so as to fund our payment obligations to our sellers. However, in some cases, we may be required to pay sellers for impressions delivered before we have collected, or even if we are unable to collect, from the buyer of those impressions. There can be no assurances that we will not experience bad debt in the future. Any such write-offs for bad debt could have a materially negative effect on our results of operations for the periods in which the write-offs occur. In addition, growth and increased competitive pressure in the digital advertising industry are causing brand spenders to become more demanding, resulting in overall increased focus by all industry participants on pricing, transparency, and cash and collection cycles. Some buyers have experienced financial pressures that have motivated them to challenge some details of our invoices or to slow the timing of their payments to us. If buyers slow their payments to us or our cash collections are significantly diminished as a result of these dynamics, our revenue and/or cash flow could be adversely affected and we may need to use working capital to fund our accounts payable pending collection from buyers. This may result in additional cash expenditures and cause us to forgo or defer other more productive uses of that working capital.

Available Information

The Company is subject to the reporting requirements of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and accordingly files Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, proxy statements, and related amendments and other information with the Securities and Exchange Commission, or the SEC, pursuant to Sections 13(a) and 15(d) of the Exchange Act. Information filed by the Company with the SEC is available free of charge on the Company's website at investor.rubiconproject.com as soon as reasonably practicable after such materials are filed with or furnished to the SEC. The public may read and copy any materials filed by the Company with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, DC 20549 on official business days during the hours of 10:00 am to 3:00 pm. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC at www.sec.gov. The contents of these websites are not incorporated into this Annual Report on Form 10-K or into any other report or document we file with the SEC, and any references to the URLs for these websites are intended to be inactive textual references only.

Item 1A. Risk Factors

Investing in our common stock involves a high degree of risk, including the risks described below, each of which may be relevant to decisions regarding an investment in or ownership of our stock. The occurrence of any of these risks could have a significant adverse effect on our reputation, business, financial condition, revenue, results of operations, growth, or ability to accomplish our strategic objectives, and could cause the trading price of our common stock to decline. You should carefully consider the risks set forth below and the other information contained in this report, including our consolidated financial statements and related notes and Management's Discussion and Analysis of Financial Condition and Results of Operations, before making investment decisions related to our common stock. However, this report cannot anticipate and fully address all possible risks of investing in our common stock, the risks of investing in our common stock may change over time, and additional risks and uncertainties that we are not aware of, or that we do not consider to be material, may emerge. Accordingly, you are advised to consider additional sources of information and exercise your own judgment in addition to the information we provide.

Risks Relating to Our Business, Growth Prospects and Operating Results

We made a strategic decision to reduce our pricing by lowering and then eliminating our buyer fees in 2017, resulting in significant revenue declines. We are now pursuing a higher volume, lower cost business model, which

involves risks and may not succeed.

The ad tech market is demanding more efficiency and lower cost from intermediaries like us. In an effort to be more competitive in attracting demand and capturing inventory supply, we made a strategic decision in mid-2017 to reduce the fees we charged buyers in open market RTB transactions. In addition, in 2017 our business mix shifted to a higher proportion of header bidding transactions, and we charged lower buyer fees for header bidding transactions in order to pass higher bids to the downstream decisioning process. Finally, in response to increasing market pressure and in an effort to be more competitive, on November 1, 2017 we eliminated our buyer transaction fees altogether.

Table of Contents

Buyer transaction fees represented approximately 49% of our revenue for the first ten months of 2017, which is the period during which we charged buyer fees in 2017, and represented approximately 43% of our revenue in 2017. Consequently, the elimination of our buyer transaction fees has had a severe adverse effect on our revenue and margins. We must continue to increase transactional activity on our platform dramatically to make up for this lost revenue and maintain growth. A critical part of our plan to adjust to our lower take rates is to increase advertising spending on our platform and operate with improved efficiency that will support lower margins. To increase our advertising spend, we are taking steps to increase significantly the ad requests coming from our seller clients, which represent inventory available for purchase on our platform, and to increase the percentage of ad requests that we convert into successful transactions (fill rate). We have seen success in growing our share of ad requests, but with additional ad requests comes increased serving costs, lower fill rates, and potentially lower inventory quality. Our plans for increasing our inventory volumes include active pursuit of more direct relationships with sellers, particularly of mobile, video, and PMP impressions, which are areas of industry growth. We also plan to access ad requests that might not otherwise be accessible to us by utilizing emerging header bidding technologies, including third-party wrappers, and also integrating with large sources of supply that have their own monetization capabilities but also allow third parties to connect to their exchanges and bid on their inventory. We continue to use the technology we acquired from nToggle to improve our fill rate by filtering out low-quality impressions so a higher proportion of the ad requests on our platform are of interest to our buyers. In addition, the nToggle filtering technology is helping us and our buyers control the processing costs associated with the growing volume of ad requests. These efforts require us to expend a significant amount of time and resources and may ultimately prove to be ineffective and it may be possible that we are filtering traffic that would otherwise be monetizable.

We may not succeed in continuing to increase the inventory on our platform or improving fill rates for various reasons. Competitors could match our price reductions and develop their own filtering capabilities, thereby reducing the competitive advantage we seek to develop. Sellers could decide to reduce the number of exchanges with which they integrate and choose competitors over us. Large sources of supply that have their own monetization capabilities and also allow us to connect to their exchanges and bid on their inventory could reduce or eliminate our access to their inventories. Providers of third-party header bidding solutions could impose prohibitive terms. Much of our inventory growth has been through header bidding or other downstream decisioning arrangements; we must compete effectively with other sources of demand to purchase that inventory, which may be difficult if competitors have more robust demand or more effective technology or offer better pricing or service. In addition, operating at higher volumes with lower margins requires scale and efficiency, and we could have difficulty competing successfully with our largest competitors if the market evolves to aggressive price-cutting. If we are unable to compensate for our price reductions by continuing to increase advertising spend on our platform, our revenue will decline, we will not be able to grow our business, our cash resources may be depleted, and we may be forced to seek additional capital to support our business and operations.

While we work to increase the volume of transactions on our exchange, we must operate more cost-effectively to relieve the pressure on our margins and cash resources that has resulted from our price reductions. We must achieve overall cost controls despite the additional investments in technology and data processing capabilities required to support the increased volume of transactions on our exchange that our growth plans require. Therefore, in addition to the pursuit of our growth strategies, we are pursuing various cost-control measures. We are undertaking efficiency initiatives including increased automation, bid filtering, office consolidation, reduction in general and administrative expenses, and other measures, all of which involve operational tradeoffs and involve risk, including increased risk of administrative error due to reduced staffing levels. If we are not able to improve the efficiency of our operations and succeed with our growth strategies, our business may not be viable. If we are required to cut costs further in order to remain competitive, we may have difficult identifying and implementing significant additional cost reduction measures without adversely impacting our operations and our ability to provide competitive services to our clients.

We must grow rapidly to remain a market leader and to accomplish our strategic objectives. In order to meet our growth objectives, we will need to rely upon our ability to innovate, the continued adoption of our solution by buyers and sellers for higher value advertising inventory, the extension of our solution into evolving digital media, continued growth into new geographic markets, shift of our business mix to emphasize higher growth channels and

ad units, and the implementation of new offerings. If we fail to grow, the value of our company may decline.

We must continue growing to keep pace with the growth and change in our market and to compete effectively. Growth depends upon the quality of our strategic vision and planning and our ability to compete effectively and meet the evolving needs of our clients. The advertising market is evolving rapidly, and if we make strategic errors, there is a significant risk that we will be unable to recover and achieve our objectives.

Historically, real-time bidding, or RTB, open-market transactions, particularly for desktop display advertising, have provided most of the activity on our platform. We expect our historical open-market RTB desktop display advertising business to continue to be an important source of revenue for us, but consistent with market trends, our RTB desktop display business has declined significantly as other transaction types and channels have absorbed a greater share of advertising spend. In addition, our share of the RTB desktop display market has diminished, largely because header bidding has allowed more parties to compete for this inventory.

Table of Contents

Accordingly, our RTB desktop display business cannot be relied upon to drive growth. In order for us to grow and compete effectively, we must continue to increase our business in other transaction types, such as PMP transactions, other channels, such as mobile, and other advertising formats, all of which are growth areas in the market, innovate to adapt to changing market conditions, further increase our international business in existing and new markets, and significantly expand the use of our PMP offerings. Mobile, video, and other emerging digital platforms require different technology and business expertise than display advertising, and also present other challenges that may be difficult for us to overcome, including inventory quality issues. Many of our competitors in these emerging platforms have a significant head start in terms of technology, buyer or seller relationships, and the scope of their product offerings. Furthermore, a growing percentage of online and mobile advertising spending is captured by owned and operated sites (such as Facebook and Google). Our business model may not translate well into higher-value advertising due to market resistance or other factors, and we may not be able to innovate quickly or successfully enough to compete effectively on new platforms, or to adapt our solution and infrastructure to international markets.

Our technology development efforts may be inefficient or ineffective, which may impair our ability to attract buyers and sellers.

We face intense competition in the marketplace and are confronted by rapidly changing technology, evolving industry standards and consumer needs, regulatory changes, and the frequent introduction of new solutions by our competitors that we must adapt and respond to. Our future success will depend in part upon our ability to enhance our existing solution and to develop and introduce competing new solutions in a timely manner with features and pricing that meet changing client and market requirements. Our solutions are complex and can require a significant investment of time and resources to develop, test, introduce, and enhance. These activities can take longer than we expect. We schedule and prioritize our development efforts according to a variety of factors, including our perceptions of market trends, client requirements, and resource availability; we may encounter unanticipated difficulties that require us to re-direct, scale back, or modify our efforts. If development of our solution becomes significantly more expensive due to changes in regulatory requirements or industry practices, or other factors, we may find ourselves at a disadvantage to larger competitors with more resources to devote to development. These factors place significant demands upon our engineering organization, require complex planning, and can result in acceleration of some initiatives and delay of others. We have expanded our use of outsourced software development, which may put the company at greater risk with respect to our technology development because we may have less control over the performance of outside programmers and we may be at greater risk of losing their services. If we do not manage our development efforts efficiently and effectively, we may fail to produce solutions that respond appropriately to the needs of buyers and sellers, and competitors may more successfully develop responsive offerings. If our solution is competitive, buyers and sellers can be expected to shift their business to competing solutions. Buyers and sellers may also resist adopting our new solutions for various reasons, including reluctance to disrupt existing relationships and business practices or to invest in necessary technological integration.

The emergence of header bidding may reduce the value of inventory available to us from sellers, and our header bidding solution may not result in revenue growth and may cause infrastructure strain and added cost.

Sellers have embraced header bidding, a technology solution by which impressions that would have previously been exposed to different potential sources of demand in a sequence dictated by ad server priorities are instead available for concurrent competitive bidding by demand sources. This can help sellers increase revenue by exposing their inventory to more bidders, thereby allocating more inventory to demand sources that value it most highly. However, the number of demand sources that sellers accept is limited because too many header bidding integrations can cause delays in the transaction execution process, and therefore we must compete with other demand sources for allocations within a sellers' header bidding solution. With sellers that integrate with us as a demand source within their header bidding solution, we may be able to participate in improved demand dynamics by competing for impressions that would previously have been allocated first to demand sources prioritized above us in the seller's ad server, with accompanying potential for improved revenue. However, some sellers may not choose to do so, and our opportunities with those sellers may be impaired as a result. Certain sources of demand with unique value propositions may be prioritized by sellers in their header bidding implementation, leaving us to compete with other competitors for the remainder. Further, header bidding allows smaller competitors with less demand and/or fewer established seller relationships to compete for higher-value impressions on a more even footing. Just as header bidding allows us to compete with demand sources that would previously have been above us in sellers' ad server sequences, it exposes us to additional competition by demand sources that, prior to the emergence of header bidding, might have been below us in the sellers' ad server sequences or otherwise unable to compete effectively for inventory. This has contributed to our loss of market share for RTB desktop display inventory.

We have increased the number of installations of our header bidding solution with sellers. However, the productivity of our implementations to date has varied among sellers as a result of factors over which we have limited control, including seller systems and capabilities, technical proficiency of seller implementations, and third-party code that sellers load onto their pages. As a result, many implementations require individualized adaptation and troubleshooting. Because header bidding has typically relied upon the consumer’s browser for execution, header bidding auctions can fail if the consumer’s browser is not updated or if the consumer’s internet connection is slow, and header bidding can cause increased load times for content, adversely affecting user experience. Mobile browsers present additional difficulties. One alternative is to migrate functionality away from the client-side to the server-

Table of Contents

side, which is more highly controlled and should support faster load times. We are pursuing server-side solutions, but they present their own challenges. Adding an additional step between the user's browser and the demand source can cause increased latency and limit the amount of user data that is transmitted, contributing to difficulties in user data syncing and resulting adverse effects on audience targeting. Server-side technology also significantly increases the volume of demand sources that can be accommodated, resulting in increased competition for impressions. Further, the exchange hosting the server-side technology used in a particular transaction has an advantage in user sync with its demand sources, at least until some form of universal user identification approach gains significant market adoption. In the future, we plan to host more server-side header bidding solutions for our sellers, but this will increase our infrastructure costs, which we will not recover without increasing our fill rates.

As we invest in development of next-generation header bidding technology, we must continue working to improve the efficiency and effectiveness of our current header bidding solution and installations. Until we address these transitional issues, we will not fully offset the increased infrastructure costs associated with the higher volume of ad and bid requests we process as a result of header bidding; and we will not be able to take full advantage of the opportunities made available through current header bidding technology to access a larger addressable market and increase our revenue by capturing a greater share of higher value inventory. In addition, the expansion of header bidding exposes more inventory to competitive bidding, thereby potentially resulting in increased volatility of our operating results with little warning as a result of various factors, including evolution in technology and changes in business practices such as competitors' bidding tactics and sellers' ad server integration and management.

We must increase the scale and efficiency of our technology infrastructure to support our growth and transaction volumes.

Our technology must scale to process the increased ad requests on our platform. Additionally, for each individual advertising impression created when a user visits a website or uses an application where our auctions technology is integrated, our technology must send bid requests to appropriate buyers, receive and process their responses, select a winner, and, increasingly, integrate with downstream decisioning systems. It must perform these transactions end-to-end within milliseconds. We must continue to increase the capacity of our platform to support our high-volume strategy, to cope with increased data volumes and parties resulting from header bidding, and an increasing variety of advertising formats and platforms, and to maintain a stable service infrastructure and reliable service delivery. Delivering this increased capacity while concurrently reducing organizational costs to help compensate for our reduced revenue base will require us to implement more efficient data processing and traffic filtering. If we are unable, for cost or other reasons, to effectively increase the capacity of our platform, continue to process transactions at fast enough speeds, and support emerging advertising formats or services preferred by buyers, our revenue may be adversely affected by the inability to obtain new buyers or sellers, loss of existing buyers or sellers, or failure to process auction transactions in a timely manner. We expect to continue to invest in our platform to meet increasing demand. Such investment may negatively affect our profitability and results of operations, or cause dilution to our stockholders.

Our belief that there is significant and growing demand for private marketplace solutions may be inaccurate, and we may not realize a return from our investments in that area.

We believe there is significant and growing demand for PMPs, and we have made significant investments to meet that demand and grow our market share of PMPs. PMPs may involve lower fees than we can charge for our real-time bidding services, which may not be fully offset by anticipated higher CPMs. In some cases, we have experienced fee pressure as we have built out our PMP offering, and we expect this fee pressure to increase as more competitors, including new entrants as well as sellers themselves, build their own technology and infrastructure to enter this business. Even if the market for these solutions develops as we anticipate, buyers and sellers might not embrace our offerings to the degree we expect due to various factors. For example, we may not be successful in building out these offerings consistent with our vision, or competitive offerings may be offered at lower prices or be perceived as having better features and functionality. We may also be unable to scale our solution to markets outside of the United States due to local currency or other specific regulatory or operational requirements that we are unable to comply with. Even if the market for these solutions develops as we anticipate, and our buyers and sellers embrace our offerings, the positive effect of our PMP offerings on our results of operations may be offset or negated if PMPs cannibalize our open marketplace transaction volumes, by similar offerings from our competitors, or other adverse developments.

Our expectations regarding the growth prospects of our buyer offerings may be incorrect, and we may not realize a return from our investments in that area.

We compete for demand with well-established companies that have technological advantages stemming from their experience in the market. We must continue to adapt and improve our demand technology to compete effectively, and buyers may not embrace our offering due to various factors, including the perception that competitors have superior technology or produce better results. Buyers' efforts to optimize their supply paths have resulted in demands for transparency, inventory quality accountability, and longer payment terms. Some buyers are demanding access to data that we are restricted from sharing by our arrangements with sellers. Providing transparency to our buyers could negatively affect our sellers if buyers favor inventory that have lower fees. These factors may make it difficult for us to increase our business with some buyers, cause some buyers to reduce their spending with us, and increase our costs of doing business.

We have invested heavily in our mobile technology, which poses additional risks that did not affect our legacy desktop display business. Mobile connected devices, their operating systems, Internet browsers, or content distribution channels, including those controlled by our competitors, may develop in ways that make it difficult for advertisements to be delivered to their users. Further, we rely upon relationships with third parties to provide our buyers with access to large numbers of mobile inventory sellers that utilize third-party technology to display ads. If our access to mobile inventory is limited by third-party technology or lack of direct relationships with mobile sellers, our ability to grow our business will be impaired.

Due to increased usage of mobile devices and resulting migration of advertising spending to mobile platforms, we have invested heavily in our mobile technology and are relying to a significant degree on our mobile offerings to fuel our continued growth. The mobile advertising market is growing and changing quickly, and technological, market, or regulatory developments could render our solution less competitive. Because mobile advertising uses different data-capture techniques and methods of recording payable transactions, caters to different buyer budgets, may require us to enter emerging markets in which we have less experience, including China and India, and involves development challenges imposed by differing technological requirements and standards, there can be no assurance that we will be successful in achieving our goals in this market. Moreover, buyers' spending to reach consumers through mobile advertising may evolve more slowly than expected, or not grow to levels we anticipate. Our mobile investment has been focused on real-time bidding of mobile impressions, and that market may not grow as we expect. Our mobile revenue growth depends to a significant degree on the success of our xAPI technology, which enables us to access inventory aggregated by third parties, and there can be no assurance that this technology will continue to work as anticipated, without costly bugs or errors. Our success in the mobile channel depends upon the ability of our technology solution to provide advertising for most mobile-connected devices, as well as the major operating systems or Internet browsers that run on them and the thousands of applications that are downloaded onto them. The design of mobile devices and operating systems, applications, or Internet browsers is controlled by third parties. These parties frequently introduce new devices and applications, and from time to time they may introduce new operating systems or Internet browsers or modify existing ones in ways that may significantly affect our business, such as by providing ad-blocking capabilities or by limiting access to Internet user data. Network carriers may also affect the ability to access specified content on mobile devices. If our solution is unable to work on these devices, operating systems, applications, or Internet browsers for any reason, our ability to generate revenue through mobile advertising could be significantly impaired.

Our growth depends upon our ability to attract and retain buyers and sellers and increase business with them. Buyers and sellers are free to direct their spending and inventory to competing sources of inventory and demand, and large competitors with direct mobile user relationships and proprietary first-party user data have invested early and heavily in mobile advertising solutions, have many established relationships with mobile buyers and sellers that may be difficult for us to replicate, and may provide more compelling solutions than we do. Most of the application providers selling inventory through our platform utilize software development kits, or SDKs, and other proprietary technology of third parties, such as aggregators, and it is those third parties, not the application providers themselves, that contract with us to provide exchange services to help monetize the inventory. If our relationships with these third parties terminate or if the scale of these third parties' business with application providers is reduced, if these third parties develop their own solutions that render ours obsolete, or if the third parties' clients begin transacting directly between each other rather than through the third party, the amount of mobile inventory available through our platform, could rapidly and significantly decline, which in turn would adversely affect our mobile advertising spend and growth prospects.

Fee issues could have a material adverse effect on our business.

A majority of our advertising spend comes from DSP buyers purchasing advertising inventory in RTB transactions on our platform. Prior to eliminating our buyer fees on November 1, 2017, our proprietary auction algorithms included a buyer fee for use of our technology, and we typically charged buyers a variable price for real-time bidding impressions without specifying the amount or method of determining the fee that was included in the price. Buyers and sellers sometimes questioned our buyer fees, and we experienced requests from buyers and sellers for discounts, fee concessions or revisions, rebates, refunds, and greater levels of pricing transparency and specificity, in some cases as a condition to maintain the relationship. This could continue with respect to historical buyer fees. In addition, we charge fees to sellers for use of our technology, typically as a percentage of the cost of media and we may decide to offer discounts or other pricing concessions in order to attract more inventory or demand, or to compete effectively with other providers that have different or lower pricing structures and may be able to undercut our pricing due to greater scale or other factors.

We also may face the risk that a buyer that is dissatisfied with the execution of a transaction on our platform could request a refund from us of the advertising spend on the transaction notwithstanding that we have only collected a fee on the transaction and may not have the ability to recover the full amount of spending associated with the transaction from the seller. Our revenue, take rate, the value of our business, and the price of our stock could be adversely affected if we cannot maintain and grow our revenue and profitability through volume increases that compensate for price reductions, or if we are forced to make significant fee

Table of Contents

concessions or refunds, or if buyers reduce spending with us or sellers reduce inventory available through our exchange due to fee disputes or pricing issues.

We have a history of losses and we need to sustain and increase investment in our technology in order to be competitive, but we face many risks that may prevent us from achieving or sustaining profitability in the future.

We reported net losses of $61.8 million, $154.8 million, and $18.1 million during the years ended December 31, 2018, 2017, and 2016, respectively. As of December 31, 2018, we had an accumulated deficit of $315.6 million. During 2018, we were not able to sustain our earlier revenue growth and experienced significant declines in revenue and earnings for various reasons including our decisions to reduce and then eliminate our buyer fees. We have implemented strategic plans designed to reverse our financial declines and return to growth, and have taken steps to reduce unnecessary expenses and redirect spending to areas we expect to produce higher growth; however, these plans and steps may ultimately prove to be unsuccessful.

Notwithstanding these measures, and the ad spend growth experienced in 2018, revenue may continue to decrease due to competitive pressures, maturation of our business, or other factors, and additional cost-reduction measures may be required even as we must continue to increase investment in technology in response to industry developments and to retain competitiveness. We may not be able to return to revenue growth or to achieve or sustain profitability in the future.

We have encountered and will continue to encounter risks and difficulties frequently experienced by growing companies in rapidly evolving industries, including allocating and making effective use of our limited resources; achieving market acceptance of our existing and future solutions; competing against companies with greater financial and technical resources; recruiting; integrating, motivating, and retaining qualified employees; developing relationships with buyers and sellers; developing new solutions; integrating new technologies or companies we acquire; and establishing and maintaining our corporate infrastructure, including internal controls relating to our financial and information technology systems. We must improve our current operational infrastructure and technology to support significant growth and to respond to the evolution of our market and competitors' developments. Our business prospects depend in large part on our ability to:

- grow our share of online and mobile advertising spending and the supply of advertising impressions available to us notwithstanding the growing share of digital advertising that is controlled by owned and operated sites (such as Facebook and Google);
- return to revenue growth and positive cash flow before depleting our cash resources to the point that our ability to fund our cash cycle and invest in our business is impaired;
- build and maintain our reputation for innovation and solutions that meet the evolving needs of buyers and sellers;
- distinguish ourselves from the wide variety of solutions available in our industry;
- maintain and expand our relationships with buyers and sellers;
- respond to evolving industry standards and government regulations that impact our business, particularly in the areas of data collection and consumer privacy;
- prevent or otherwise mitigate failures or breaches of security or privacy;
- attract, hire, integrate and retain qualified employees;
- effectively execute upon our international expansion plans;
- evaluate new acquisition targets, and successfully integrate acquired companies' businesses and technologies;
- maintain our cloud-based technology solution continuously without interruption 24 hours a day, seven days a week; and
- anticipate and respond to varying product life cycles and new advertising solutions such as header bidding, regularly enhance our existing advertising solutions, and introduce new advertising solutions and pricing models on a timely basis, including by developing our capabilities in evolving areas of the business, such as mobile and video.

As a result of various factors, our operating results may fluctuate significantly, be difficult to predict, and fall below analysts' and investors' expectations.

Our operating results may be difficult to predict, particularly because we generally do not have long-term contracts with buyers or sellers. We have experienced significant variations in revenue and operating results from period to period, and operating results may continue to fluctuate and be difficult to predict due to a number of factors, including:

- seasonality in demand for digital advertising;
- changes in pricing of advertising inventory or pricing for our solution and our competitors' offerings, including potential further reductions in our pricing and overall take rate as a result of competitive pressure, changes in supply, improvements in technology and extension of automation to higher-value inventory, uncertainty regarding

rate of adoption, changes in the allocation of demand spend by buyers, changes in revenue mix, auction dynamics, pricing discussions or negotiations with clients and potential clients, header bidding and other factors;
- diversification of our revenue mix to include new services, some of which may have lower pricing than our historic lower-value inventory business or may cannibalize existing business;
- the addition or loss of buyers or sellers;
- changes in the advertising strategies or budgets or financial condition of advertisers;
- the performance of our technology and the cost, timeliness, and results of our technology innovation efforts;
- advertising technology and digital media industry conditions and the overall demand for advertising, or changes and uncertainty in the regulatory environment for us or buyers or sellers, including with respect to privacy regulation;
- the introduction of new technologies or service offerings by our competitors and market acceptance of such technologies or services;
- our level of expenses, including investment required to support our technology development, scale our technology infrastructure and business expansion efforts, including acquisitions, hiring and capital expenditures, or expenses related to litigation;
- the impact of changes in our stock price on valuation of stock-based compensation or other instruments that are marked to market;
- the effectiveness of our financial and information technology infrastructure and controls;
- foreign exchange rate fluctuations; and
- changes in accounting policies and principles and the significant judgments and estimates made by management in the application of these policies and principles.

Because significant portions of our expenses are relatively fixed, variation in our quarterly revenue could cause significant variations in operating results and resulting stock price volatility from period to period. In order to minimize adverse effects of our price reductions on revenue, we must increase the inventory and advertising spend on our platform and add more high-value inventory, which requires ongoing investment that can adversely affect earnings and might ultimately be unsuccessful. Period-to-period comparisons of our historical results of operations are not necessarily meaningful, and historical operating results may not be indicative of future performance. If our revenue or operating results fall below the expectations of investors or securities analysts, or below any guidance we may provide to the market, the price of our common stock could decline substantially.

Our revenue and operating results are highly dependent on the overall demand for advertising. Factors that affect the amount of advertising spending, such as economic downturns, can make it difficult to predict our revenue and could adversely affect our business.

Our business depends on the overall demand for advertising and on the economic health of our current and prospective sellers and buyers. If advertisers reduce their overall advertising spending, our revenue and results of operations are directly affected. Various macro factors could cause advertisers to reduce their advertising budgets, including adverse economic conditions and general uncertainty about economic recovery or growth, particularly in North America and Europe, where we do most of our business, instability in political or market conditions generally, and any changes in favorable tax treatment of advertising expenses and the deductibility thereof. Reductions in inventory due to loss of sellers could make our solution less robust and attractive to buyers.

Seasonal fluctuations in digital advertising activity could result in material fluctuations of our revenue, cash flows, operating results, and other key performance measures from period to period.

Our revenue, advertising spend, cash flow from operations, operating results, and other key performance measures may vary from quarter to quarter due to the seasonal nature of advertiser spending. For example, many advertisers devote a disproportionate amount of their advertising budgets to the fourth quarter of the calendar year to coincide with increased holiday purchasing, and advertising inventory in the fourth quarter may be more expensive due to increased demand for advertising inventory. As a result, any events that reduce the amount of advertising spend during the fourth quarter, or reduce the amount of inventory available to buyers during that period, could have a disproportionate adverse effect on our revenue and operating results for that fiscal year.

Failure to maintain our culture and institutional knowledge could jeopardize our innovation and operation effectiveness.

We have had significant attrition, including through workforce reductions, and it may become increasingly difficult to retain employees given concerns about our financial performance and significant reduction in the value of equity compensation resulting from the significant decline we have experienced in the market value of our common stock. Significant changes in our personnel may make it difficult for us to maintain our institutional knowledge and corporate culture, which has materially contributed to our success in the past. If our culture and knowledge base are negatively affected, our ability to support our growth and innovation may diminish.

Risks Related to the Advertising Technology Industry, Market, and Competition

Market conditions are increasing the costs and risks of our operations.

Due to various factors, including header bidding, market pressure from the increasing share of the digital advertising economy absorbed by Google and Facebook, and demands by both buyers and sellers of digital advertising for increased efficiency and value throughout the ecosystem, business conditions are becoming more difficult for intermediary businesses like ours. We see this in various ways. Both demand and supply for digital advertising inventory outside the "walled garden" companies are becoming less unique, contributing to commodification of the business. Buyers and sellers are demanding more favorable trade terms, which puts pressure on our cash collections cycle and can require more of our cash to fund our payments, making it unavailable to invest in growth. Buyers increasingly require us to accept liability for inventory quality and sellers increasingly require us to accept liability for ad content, despite the fact that we are not in direct control of either. Increased buyer vigilance regarding non-human traffic and other inventory quality issues, and varying inconsistent methodologies for assessing inventory quality, are causing buyers increasingly to withhold payment for transactions they question. Buyers and sellers are increasingly insisting upon using their own data to resolve discrepancies in transaction counts more favorably to them, resulting in some revenue loss. These and similar trends increase the costs and risks of our operations and put pressure on our margins.

The digital advertising market is relatively new, dependent on growth in various digital advertising channels, and vulnerable to adverse public perceptions and increased regulatory responses. If this market develops more slowly or differently than we expect, or if issues encountered by other participants or the industry generally are imputed to or affect us, our business, growth prospects and financial condition would be adversely affected.

While our core business of desktop display advertising has been used successfully for many years, marketing via new digital advertising channels, such as mobile and social media, out-of-home, and digital video advertising, are emerging and may evolve in unexpected ways, and our future growth will be constrained if we are not able to adapt successfully to market evolution. In addition, the success of our efforts to advance new solutions for increased advertising automation will depend upon adoption of our solution by personnel at buyers and sellers in lieu of their traditional methods of order placement. It is difficult to predict adoption rates, demand for our solution, the future growth rate and size of the digital advertising solutions market or the entry of competitive solutions.

Further, the digital advertising industry is complex and evolving, and the relatively few publicly traded companies operating in the business tend to be small and new to the public markets. Consequently, the digital advertising industry may not be as widely followed or understood in the financial markets as more mature industries. The markets may not fully appreciate our particular place in the industry and our strengths and differentiating factors. Problems experienced by one industry participant (even private companies) or issues affecting a part of the industry have the potential to have adverse effects on other participants in the industry or even the entire industry. Emerging understanding of how the digital advertising industry operates has spurred privacy concerns and misgivings about exploitation of consumer information and prompted regulatory responses that limit operational flexibility and impose compliance costs upon industry participants.

Any expansion of the market for digital advertising solutions depends on a number of factors, including social and regulatory acceptance, the growth of the overall digital advertising market and the growth of specific sectors including social, mobile, video, and out-of-home as well as the actual or perceived technological viability, quality, cost, performance and value associated with emerging digital advertising solutions. If demand for digital display advertising and adoption of automation does not continue to grow, or there is a reduction in demand for digital advertising caused by weakening economic conditions, decreases in corporate spending, quality, viewability, malware issues or other issues associated with buyers, advertising channels or inventory, negative perceptions of digital advertising, additional regulatory requirements, or other factors, or if we fail to develop or acquire capabilities to meet the evolving business and regulatory requirements and needs of buyers and sellers of multi-channel advertising, our competitive position will be weakened.

We operate in an intensely competitive market that includes companies that have greater financial, technical and marketing resources than we do.

We face intense competition in the marketplace. We compete for advertising spending against competitors that, in some cases, are also buyers and/or sellers on our platform. We also compete for supply of advertising inventory against a variety of competitors. Some of our existing and potential competitors are better established, benefit from greater name recognition, may have offerings and technology that we do not have or have significantly more financial, technical, sales, and marketing resources than we do. In addition, some competitors, particularly those with greater scale or a more diversified revenue base and a broader offering, may have greater flexibility than we do to compete aggressively on the basis of price and other contract terms, or to compete with us by including in their product offerings services that we may not provide. Some competitors are able or willing to agree to contract terms that expose them to risks that might be more appropriately allocated to buyers or sellers of advertising (including inventory risk and the risk of having to pay sellers for unsold advertising impressions), and in order to compete effectively we might need to accommodate risks that could be difficult to manage or insure against. Some existing and potential buyers, have their own relationships with sellers or are seeking to establish such relationships, and many sellers are investing in capabilities that enable them to connect more effectively directly with buyers. Our business may suffer to the extent that buyers and sellers purchase and sell advertising inventory directly from one another or through other intermediaries other than us, reducing the amount of advertising spend on our platform. In addition, as a result of solutions introduced by us or our competitors, our marketplace will experience disruptions and changes in business models, which may result in our loss of buyers or sellers. Our innovation efforts may lead us to introduce new solutions that compete with our existing solutions. New or stronger competitors may emerge through acquisitions and industry consolidation or through development of disruptive technologies. If our offerings are not perceived as competitively differentiated, we could lose clients, market share or be compelled to reduce our prices, making it more difficult to grow our business profitably.

There has been rapid evolution and consolidation in the advertising technology industry, and we expect these trends to continue, thereby increasing the capabilities and competitive posture of larger companies, particularly those that are already dominant in various ways, and enabling new or stronger competitors to emerge. For example, while we are investing to participate in the shift of digital advertising spending to mobile channels, the mobile advertising market is dominated by a relatively small number of large competitors with direct mobile user relationships and proprietary first-party user data. These competitors have invested early and heavily in mobile advertising solutions that may be more compelling than ours, and have many established relationships with buyers and sellers that may be difficult for us to replicate. Similar dynamics can be expected as growth in digital video advertising brings established broadcast and content companies into the digital advertising business.

As technology continues to improve and market factors continue to attract investment, competition and pricing pressure may increase and market saturation may change the competitive landscape in favor of larger competitors with greater scale and broader offerings, including those that can afford to spend more than we can to grow more quickly and strengthen their competitive position through innovation, development and acquisitions. In order to compete effectively, we may need to innovate, further differentiate our offerings, and expand the scope of our operations more quickly than would be feasible through our own internal efforts. However, because some capabilities may reside only in a small number of companies, our ability to accomplish necessary expansion through acquisitions may be limited because available companies may not wish to be acquired or may be acquired by larger competitors with the resources to outbid us, or we may need to pay substantial premiums to acquire those businesses. Our ability to make strategic acquisitions has also been hampered by the significant decline we have experienced in the value of our common stock, because our stock may not be viewed favorably as acquisition currency by an acquisition target, and the lower our stock price, the more dilution results from stock-based acquisitions.

Many buyers and sellers are large consolidated organizations that may need to acquire other companies in order to grow. Smaller buyers and sellers may need to consolidate in order to compete effectively. There is a finite number of large buyers and sellers in our target markets, and any consolidation of buyers or sellers may give the resulting enterprises greater bargaining power or result in the loss of buyers and sellers that use our platform, and thus reduce our potential base of buyers and sellers, each of which would lead to erosion of our revenue.

Acts of competitors and other third parties can adversely affect our business.

Our revenue is vulnerable to acts by third parties that reduce the amounts of spending or inventory available to us. For example, the amount of inventory available to independent platforms like us could be reduced as a result of decisions by Facebook to emphasize content viewable through its site or to favor friends-and-family type feeds over third-party properties, or decisions by Google to utilize its ad server advantages to outbid us and other competitors in open-market transactions. Similarly, decisions by buyers and sellers to transact directly rather than through us would tend to reduce both spending and inventory on our platform. Finally, nefarious, illegal, or disreputable acts by one or more of our competitors could affect the reputation and trustworthiness of the ad tech industry as a whole, which could negatively affect our revenue because buyers and sellers could decide to focus their activities on larger, more established industry participants.

Our business depends on our ability to collect and use data to deliver advertisements, and to disclose data relating to the performance of advertisements. Any limitation imposed on our collection, use or disclosure of this data could significantly diminish the value of our solution and cause us to lose sellers, buyers, and revenue. Consumer tools, regulatory restrictions and technological limitations all threaten our ability to use and disclose data.

The more informed advertising is about its audience, the more valuable it is. Skywriting and highway billboards are examples of generalized advertising, casting a broad net across an undifferentiated audience in hopes of capturing a few of the

Table of Contents

viewers the advertiser hopes to reach. "Contextual" advertising attempts to reach audiences based upon inferences about their interests drawn by, for example, what websites they visit or apps they use. Programmatic advertising, facilitated by the ad tech ecosystem, enables more precise audience targeting, known as "behavioral" or "personalized" advertising. Behavioral advertising is more effective and valuable for buyers than general or contextual advertising, resulting in more revenue for publishers. In order to perform behavioral advertising, we and our clients must be permitted to use data in a variety of ways, as further set forth below.

As we process transactions through our solution, we are able to collect significant amounts of information about advertisements, their buyers and sellers, and the transactions themselves. This includes buyer and seller preferences and requirements for media and advertisement content and specifications such as placement, size and format; pricing of advertisements; and auction activity such as price floors, bid response behavior, and clearing prices. We also are able to collect certain information about users, including browser or device location and characteristics; online behavior; exposure to and interaction with advertisements; and inferential data about purchase intentions and preferences. We collect this data through various means, including from our own systems, pixels, web beacons, software development kits installed in mobile applications, and "cookies," which are small text files placed through an Internet browser on an Internet user's computer. Our sellers and buyers also may provide us with their proprietary data about users.

We aggregate this data over trillions of advertising impressions and analyze it in order to enhance our services, including the pricing, placement and scheduling of advertisements purchased by buyers across the advertising inventory provided by sellers. We also share this data, or analyses based upon the data, with clients as part of our services. Our ability to collect, use, and share data about advertising purchase and sale transactions and user behavior and interaction with content is critical to the value of our services, and any limitation on our data practices could impair our ability to deliver effective solutions that meet the needs of sellers and buyers of advertising, resulting in loss of volume and reduced pricing. Any restriction on the types of technology we use to capture user or inventory information could make placement of advertising through our solution less valuable, with commensurate reductions in revenue.

Internet users can, with increasing ease, implement practices or technologies that may limit our ability to collect and use data to deliver advertisements, or otherwise inhibit the effectiveness of our solution. First, cookies may easily be deleted or blocked by Internet users. All of the most commonly used Internet browsers allow Internet users to modify their browser settings to block first-party cookies (placed directly by the publisher or website owner that the user intends to interact with) or third-party cookies (placed by parties, like Rubicon Project, that have no direct relationship with the user), and some browsers, such as Safari and Firefox, may block third-party cookies by default. Most browsers also now support temporary privacy modes that allow the user to suspend, with a single click, the placement of new cookies or reading or updates of existing cookies. Many applications and other devices allow users to avoid receiving advertisements by paying for subscriptions or other downloads. Mobile devices based upon the Android and iOS operating systems limit the ability of cookies to track users while they are using applications other than their web browser on their device (and may, in the future, limit the use of mobile device identifiers for advertising). As a consequence, fewer of our cookies or sellers' cookies may be set in browsers or be accessible in mobile devices, which adversely affects our business. If our ability to use cookies or identify Internet users is limited, transactions occurring through our solution would be executed with less insight into activity that has taken place by the user, reducing the accuracy of buyers' decisions about which inventory to purchase for an advertising campaign. We may be required to develop or obtain additional technologies to compensate for the lack of cookie data, which could be time consuming to develop or costly to obtain, less effective than our current use of cookies, and subject to additional regulation. Some Internet users also download free or paid "ad blocking" software, not only for privacy or security reasons, such as a desire to avoid being targeted for ads based upon location or online activity, but also to counteract the adverse effect advertisements can have on users' experience, including increased load times, data consumption, and screen overcrowding. Similar ad blocking technology has also recently emerged for mobile devices. Such ad blocking technology may prevent certain third-party cookies, or other tracking technologies, from being stored on a user's computer or mobile device. If more Internet users adopt these measures, our business could be harmed. Ad blocking technologies could have an adverse effect on our business if they reduce the volume or effectiveness (and therefore value) of advertising. In addition, some ad blocking technologies block only ads that are targeted through use of third-party data, while allowing ads based on first-party data (i.e. data owned by the provider of the website or application being viewed). These ad blockers could place us at a disadvantage because we rely on third-party data, while large competitors have troves of first-party data they use to direct advertising. Other technologies allow ads that are deemed "acceptable," which could be defined in ways that place us or our clients at a disadvantage, particularly if such technologies are controlled or influenced by our competitors. Even if ad blockers do not ultimately have a material impact on our business, investor concerns about ad blockers could cause our stock price to decline.

Current versions of the most widely used web browsers allow users to send "Do Not Track" signals to indicate that they do not wish to have their web usage tracked. There is currently no definition of "tracking" and no set of commonly accepted standards regarding how to respond to a "Do Not Track" preference, but if such standards are implemented, either by applicable law or industry self-regulation, they could impose significant requirements and limitations on our data collection. Some proposed standards would allow first parties to continue to track users, even if the users have enabled the "Do Not Track" signal in their web browser, but would prevent third parties, like us, from any further tracking of such users across the Internet. Such a standard would place us at a significant competitive disadvantage compared to first-party data owners such as large website operators, many of whom own or are developing or acquiring capabilities that compete with our solution. Even absent an industry standard, various government authorities have indicated an intent to implement some type of "Do Not Track" standard. Such legislation or regulation may affect our ability to collect or use data collected through our platform when a user enables "Do Not Track," and may also include a distinction between first-party and third-party collection and usage of data, which may impact our ability to compete in the marketplace. We may separately elect to respond to any such legislation by adopting a policy to discontinue profiling or web tracking in response to "Do Not Track" requests, and it is possible that we could in the future be prohibited from using non-personal consumer data by industry standards or state or federal legislation, which may diminish our ability to target and improve advertisements and the value of our services.

Further, much of the data we collect and use belongs to our buyers or sellers, and we receive their permission to use it. (Other data is subject to control by Internet users, either as a result of regulation or through choices such as behavioral advertising opt-outs or use of ad blocking technologies, as discussed below). We use data related to our buyers and sellers and their transactional activity on our platform to facilitate our services, but we must exercise care not to use this data in ways that provide unfair advantages to, or adversely affect, buyers or sellers. Although our sellers and buyers generally permit us to aggregate and use data from advertising placements, subject to certain restrictions, sellers or buyers might decide to restrict our collection or use of their data. There could be various reasons for this, including perceptions by buyers that their data can be used by sellers to extract higher prices for impressions, or perceptions by sellers that their data can be used by buyers to bid tactically to reduce pricing for impressions. Buyers and sellers may also request that we discontinue using data obtained from their transactions that has already been aggregated with other data. It would be costly and difficult, if not impossible, to comply with such requests. As consumers continue to increase their use of digital technology and to incorporate multiple devices into their lives, linking and using data across such devices will become increasingly important. Various challenges affect our ability to link data relating to discrete devices or browsers, including different technologies, increased user awareness and sensitivity regarding use of data about their device usage, and evolving regulatory and self-regulatory standards. These challenges may slow growth, and if we are not able to cope with these challenges as effectively as other companies, we will be competitively disadvantaged. Any limitation on our ability to collect data about user behavior and interaction with content could make it more difficult for us to deliver effective solutions that meet the needs of sellers and buyers.

If cookies are replaced by alternative tracking mechanisms, our performance may decline and we may lose buyers and revenue.

Some prominent sellers have announced intentions to discontinue the use of cookies, and to develop alternative methods and mechanisms for tracking web users. It is possible that these companies may rely on proprietary algorithms or statistical methods to track web users without cookies, or may utilize log-in credentials entered by users into other web properties owned by these companies, such as their digital email services, to track web usage, including usage across multiple devices, without cookies. Alternatively, such companies may build different and potentially proprietary user tracking methods into their widely-used web browsers.

If cookies are effectively replaced by proprietary alternatives, our continued reliance upon cookie-based methods may face negative consumer sentiment and otherwise place us at a competitive disadvantage, compelling us to develop or license alternative proprietary tracking methodologies. Development would take time, potentially subjecting us to competitive disadvantages, and require substantial investment from us. Development also may not be commercially feasible given our relatively small size, the fact that development of such technologies may require technical skills that differ from our core engineering competencies, and the likelihood that the market would adopt solutions developed by larger competitors. Licensing new proprietary tracking mechanisms and data from companies that have developed them may not be viable for us for various reasons; creators of such technology may compete with us and may offer to provide the technology to us only on unfavorable terms or not at all, and if proprietary web tracking standards are owned by sellers or browser operators that have access to user information by virtue of their popular consumer-oriented websites or browsers and design their technology for use in conjunction with the types of user information collected from their websites or design their browser to disfavor third-party cookies, we may still be at a competitive disadvantage even if we license their technology.

If cookies are effectively replaced by open industry-wide tracking standards rather than proprietary standards, we may still incur substantial re-engineering costs to replace cookies with these new technologies. This may also diminish the quality or value of our services to buyers if such new technologies do not provide us with the quality or timeliness of the data that we currently generate from cookies.

Table of Contents

Legislation and regulation of digital businesses, including privacy and data protection regimes, could create unexpected additional costs, subject us to enforcement actions for compliance failures, or cause us to change our technology solution or business model, which may have an adverse effect on the demand for our solution.

Many local, state, federal, and international laws and regulations apply to the collection, use, retention, protection, disclosure, transfer, and other processing of data collected from and about consumers and devices, and the regulatory framework for privacy issues is evolving worldwide. Various U.S. and foreign governments, consumer agencies, self-regulatory bodies, and public advocacy groups have called for new regulation directed at the digital advertising industry in particular, and we expect to see an increase in legislation and regulation related to the collection and use of data to target advertisements and communicate with consumers—including the use of mobile device and cross-device data, geo-location data, anonymous Internet user data and unique device identifiers, such as IP address or mobile advertising identifiers—and the collection of data from apps and websites that are directed to children. Such legislation or regulation could affect the costs of doing business online and may adversely affect the demand for or the effectiveness and value of our solution. Some of our competitors may have more access to lobbyists or governmental officials and may use such access to effect statutory or regulatory changes in a manner that commercially harms us while favoring their solutions.

Various federal privacy bills have been introduced in the U.S. Congress recently and a number of state legislatures, including California, have passed or are considering privacy bills. These regulations may place significant restrictions on the collection and use of certain types of data used for behavioral advertising. The FTC has issued guidance on how companies should apply privacy principles to tracking and delivering targeted advertisements to consumers across multiple devices. The FTC has also adopted revisions to the Children's Online Privacy Protection Act that expand liability for the collection of information (including certain anonymous information such as persistent identifiers) by operators of websites and other online services that are directed to children or that otherwise use (for certain purposes) information collected from or about children.

On June 28, 2018, California passed a privacy law in the California Consumer Privacy Act of 2018 ("CCPA"), which grants California residents certain rights with respect to their personal information. The CCPA is the most comprehensive data privacy regulation to date in the United States, and could be the precursor to other similar legislation in other states or at the federal level. The CCPA expands the definition of personal information, which captures the types of data that we collect, such as device identifiers and IP addresses. Under the CCPA, businesses are required to grant expansive access, deletion and portability rights to consumers in the United States, similar to those provided under the GDPR. The law may also impose burdensome storage and compliance obligations on publishers and ad tech companies. Interpretation of the requirements remains unclear due to the recent passage of the regulation. The law is expected to take effect in 2020. The CCPA may precipitate additional privacy regulation by federal, state and local governments, which may increase our compliance costs and strain our technical capabilities, and which may conflict with each other. If we are unable to comply with the CCPA or other related legislation in the future, we may be subject to regulatory or private investigations, and if we are unable to use information for behavioral advertising as we have in the past, our business could be materially affected.

In addition, the European Union has adopted the General Data Protection Regulation, Regulation (EU) 2016/679. A key feature of the GDPR is that it treats much of the end-user information that is critical to programmatic digital advertising as "personal data" and therefore subject to significant conditions and restrictions on its collection and use. Without this end-user information, the value of programmatic advertising inventory diminishes, resulting in lower demand and prices, and potentially less ad spend and revenue for us and other industry participants. The GDPR also sets out higher potential liabilities for certain data protection violations and creates a greater compliance burden for us in the course of delivering our solution in Europe (as outlined further below). The regulatory climate in Europe, in particular, has grown increasingly unfavorable for advertising technology-based business. Regulators have expressed antipathy towards common technologies deployed in digital advertising and we anticipate increased regulatory scrutiny on the digital advertising industry as a whole.

Further, many governments are restricting the transmission or storage of information about individuals beyond their national borders. Such restrictions could, depending upon their scope, limit our ability to utilize technology infrastructure consolidation, redundancy, and load-balancing techniques, resulting in increased infrastructure costs, decreased operational efficiencies and performance, and increased risk of system failure.

These laws and regulations are continually evolving, not always clear, and not always consistent across the jurisdictions in which we do business. Any failure to protect, and comply with applicable laws and regulations or industry standards applicable to, personal data or other data relating to consumers could result in enforcement action against us, including fines, imprisonment of our officers, and public censure, claims for damages by consumers and other affected individuals, damage to our reputation, and loss of goodwill. This is particularly true given that the FTC, Attorneys General of various U.S. States and various international regulators (including numerous data protection authorities in the European Union), have specifically cited as enforcement priorities certain practices that relate to digital advertising. Even the perception of concerns relating to our collection, use, disclosure, processing, and retention of data, including our security measures applicable to the data we collect, whether or not valid, may harm our reputation (and the reputation of the digital advertising ecosystem) and inhibit adoption of our solution by current and future buyers and sellers. We are aware of ongoing lawsuits filed against, or regulatory investigations into, companies in the digital advertising industry concerning various alleged violations of consumer protection, data protection, and computer crime laws, asserting various privacy-related theories. Any such proceedings brought against us could hurt our reputation, force us to spend significant amounts in defense of these proceedings, distract our management, increase our costs of doing business, adversely affect the demand for our services or the digital advertising industry at large, and ultimately result in the imposition of monetary liability or restrictions on our ability to conduct our business. We may also be contractually liable to indemnify and hold harmless buyers or sellers from the costs or consequences of litigation or regulatory investigations resulting from using our services or from the disclosure of confidential information, which could damage our reputation among our current and potential sellers or buyers, require significant expenditures of capital and other resources and cause us to lose business and revenue.

Legal and compliance uncertainties resulting from effectiveness of the GDPR may result in substantial risk to our ad spend and revenue.

The GDPR, which became effective on May 25, 2018, has imposed significant new regulatory requirements that are applicable to us as well as our clients and competitors. As is frequently the case with transformative new laws, some critical elements of the GDPR are still unclear, and consistent regulatory guidance has yet to be developed, and established industry compliance practices have yet to emerge. Compliance stakes are high because penalties for violation of the law can reach up to the greater of 20 million Euros or 4% of total worldwide annual turnover (revenue). Further, compliance is complicated by the potential for differing interpretation and enforcement of the GDPR by regulators in each of the EEA’s member states. The reach of the GDPR extends well beyond ad tech, but some observers believe that ad tech may become a special focus of enforcement due to the concerns many European privacy regulators have expressed about digital behavioral advertising.

If European publishers react by choosing to monetize their content through non-advertising-based methods (such as paid subscriptions), or reduce use of personal data subject to the GDPR in order to reduce compliance cost and risk, the volume and value of impressions available through our exchange would decrease, with potentially significant adverse consequences for our business. If we are subjected to regulatory investigations or private claims, we could face significant fines and losses, and our financial position could be materially affected. In addition, the GDPR permits some form of representative actions, which may be similar to class actions or collective actions in the United States. Allowing such representative actions may incentivize parties, organizations, and/or advocates to pursue private legal action relating to data protection violations more aggressively.

The GDPR generally prohibits the transfer of personal data of EU subjects outside of the European Union, unless a lawful data transfer solution has been implemented or a data transfer derogation applies. The Rubicon Project, Inc. is established in the United States of America and has certified its compliance to the EU-US Privacy Shield. The Privacy Shield is a privacy framework that the European Commission has declared provides "adequate" protection for personal data, and this enables The Rubicon Project, Inc. to receive personal data lawfully from the EU for as long as it complies with the Privacy Shield. If The Rubicon Project, Inc. fails to comply with the Privacy Shield (or with EU data protection rules more generally), it risks investigation and sanction by EU or US regulatory authorities, include the Federal Trade Commission. Each such investigation could cost us significant time and resources, and could potentially result in fines, criminal prosecution, or other penalties.

Further, the Privacy Shield, as well as some alternative compliance measures that we may also use for extra-EU data transfers, such as EU Commission approved data export agreements called Standard Contractual Clauses, are facing legal and political challenges. For example, in July 2018, the EU Parliament called for the suspension of the EU-US Privacy Shield by September 1st, 2018, although this did not happen. Further, in Data Protection Commissioner v. Facebook and Maximillian Schrems, the question of whether Standard Contractual Clauses enable lawful transfers of personal data from the EU has been referred by the Irish High Court to the Court of Justice of the European Union. If these challenges successfully invalidate the Privacy Shield or the alternative compliance measures that we currently rely on or may choose to rely on in the future, it may take us significant time, resources, and effort to restructure our business and/or rely on another legally sufficient compliance measure. Additionally, such an invalidation might affect our reputation with our clients, who may choose to work with businesses that do not rely on such compliance mechanisms to ensure legal and regulatory compliance, such as EU-based companies or other competitors that do not need to transfer personal data to the United States in order to avoid the above-identified risks and legal issues.

The GDPR imposes new requirements for end user consent and legal basis for data processing that are not yet well understood.

End-user consent to data collection through device access (including the placement of cookies) has been required for some time under the European Union Privacy and Electronic Communications Directive (Directive 2002/58/EC), commonly referred to as the "ePrivacy Directive," but the GDPR has added complexity and risk. End-user consent is difficult for ad tech intermediaries like us to obtain because we do not have direct relationships with such end users, so we have historically relied upon publishers to obtain consent for our technology under the ePrivacy Directive. To the extent any seller does not adequately satisfy their consent obligations for our technology, we may face regulatory risk. Further, emerging regulatory guidance has challenged this method of obtaining consent. To the extent we (and/or our buyers) are required to obtain or confirm consent directly from end users, our ability to use cookies or access devices within the EEA may become significantly restricted.

While simple click-through cookie banners on EU-based digital media properties had been the norm for ePrivacy Directive compliance, it may become more challenging to obtain valid consent from European end users because the GDPR will likely be interpreted to impose additional requirements applicable to end-user consents generally. In order to obtain valid consent, end users must be provided with increasingly granular data about cookies placed in the course of delivering an advertisement, including cookies placed by us, or by buyers using our technology. Providing this granular level of data may be difficult to do, considering user interface restrictions, and in some cases, may not be possible. Further, if consent mechanisms become too cumbersome or unwieldy, end users are more likely to decline. This may result in lower levels of users' consent for accessing of their devices and processing of their personal data. Without consent, our publishers may not attempt to monetize inventory associated with such end users at all, or pass that inventory to us without personal data, which will reduce the value of such inventory.

In 2018, IAB Europe released a tool, the Transparency and Consent Framework (the "TCF"), in order to assist publishers, advertisers and advertising technology providers, with the process of obtaining consent from end users in accordance with the GDPR (and also to provide end users with greater transparency in the advertising chain). In order for a publisher to use this tool, it must implement a "consent management provider" (CMP) to notify end users about the vendors that may access their personal data and their intended uses. The CMP then generates a consent string to distribute information to vendors about the end user’s consent preferences. There is limited guidance regarding proper implementation of the tool and some publishers and ad tech providers may not be using the tool or interpreting consent signals correctly. The TCF continues to evolve and we will need to devote internal resources to support any additional requirements imposed by the TCF (and possibly other consent tools). It is also not yet clear whether the TCF (or any other) consent tool will be accepted by regulators as appropriate consent mechanisms. Consent tool adoption remains in the early stages and it is unclear whether the market will widely adopt one standard. Some buyers may decline to bid on impressions from the EEA due to ambiguity about their rights, or may only bid on impressions that are stripped of personal data and converted to contextual advertising. This will have the effect of reducing demand for and value of EEA impressions on our platform.

Large integrated purchasers of ad inventory like Google may also have an advantage in obtaining the consent they need directly from their end users. It is not clear whether Google will participate in the TCF. If Google chooses not to participate in the TCF, broad adoption of the TCF by publishers may be limited.

As a result of the factors set forth above, our or our clients’ ability to place or use third-party cookies or access mobile devices, may become significantly impaired in certain jurisdictions. The EU is also expected to replace the ePrivacy Directive with the ePrivacy Regulation. Current drafts of the ePrivacy Regulation propose significant requirements around obtaining consent, and impose fines for violations that are materially higher than those imposed under the ePrivacy Directive.

It remains unclear whether certain legal bases for data processing are permitted for behavioral advertising.

The GDPR sets forth six alternative legal bases for processing personal data, but only two are relevant to ad tech: consent by the data subject and "legitimate interests," which means that "processing is necessary for the purposes of the legitimate interests pursued by the controller or by a third party, except where such interests are overridden by the interests or fundamental rights and freedoms of the data subject." We generally rely upon legitimate interests. There is minimal guidance on the factors that would override any legitimate interest for processing. Some EU regulators or courts may conclude that the processing of personal data for the purposes of behavioral advertising does not satisfy the legitimate interests of the controller, or that such interests do not outweigh the privacy rights of end users, even with respect to ad tech parties that only collect pseudonymous personal data. Unavailability of this basis for processing end users' personal data would require us to obtain end-user consent for processing under the GDPR, which may not be possible for us, or other ad tech intermediaries, without changes to the ad tech business that would be difficult, time-consuming, expensive, and perhaps unattainable. These complexities are compounded by the ability of different national and state governmental authorities within the EU to adopt differing interpretative and enforcement approaches to the law.

Google currently relies on end-user consent as its legal basis for processing personal data, and has required its publishers and ad tech partners to obtain such end-user consent on behalf of Google. We are reliant upon third parties to obtain consent for Google in accordance with their policies. Consent is relatively easier for Google to obtain because of its direct relationships with end users and importance to publishers, but its practices may not translate well across the industry. If publishers are unable to obtain this consent our revenue and advertising spend could decline.

Table of Contents

Legal uncertainty and industry unpreparedness may mean substantial disruption and inefficiency, demand constraints, and reduced inventory supply and value.

Some publishers may be unprepared to comply with evolving regulatory guidance under the GDPR, and therefore may remove personal data from their inventory before passing it into the bid stream, at least temporarily. This will lower their inventory on the value scale from behavioral to contextual advertising, resulting in loss of ad spend and revenue for us. Even well-prepared publishers and buyers will be confronted with difficult choices and administrative and technical hurdles to implement their GDPR compliance programs and integrate with multiple other parties in the ecosystem. Further, compliance program design and implementation will be an ongoing process as understanding of the new law increases and industry compliance standards evolve. The resulting process friction could result in substantial inefficiency and loss of inventory and demand, as well as increased burdens upon our organization as we seek to assist clients and adapt our own technology and processes as necessary to comply with the law and adapt to industry practice. The uncertain regulatory environment caused by the GDPR may benefit large, integrated competitors like Google and Facebook, which have greater compliance resources and can take advantage of their direct relationships with end users to secure consents from end users that we and other intermediaries without direct user relationships are less able to obtain under current industry conditions.

The UK's decision to leave the European Union may add costs and complexity to our compliance efforts.

The UK's decision to leave the European Union may add cost and complexity to our compliance efforts. If the UK leaves the EU with a "no deal" Brexit on March 29th, 2019, then additional compliance measures, such as Standard Contractual Clauses, may need to be implemented at very short notice to enable continuing transfers to our UK subsidiary company. Further, transfers from and processing of data in the UK will become subject to UK data protection law, and we will also need to adapt separately to any new UK requirements. Complying with any new regulatory requirements could force us to incur substantial costs, impact how clients view our technology, or require us to change our business practices in a manner that could reduce our revenue or compromise our ability to effectively pursue our growth strategy.

The U.S. comprehensive tax reform bill of 2017 could adversely affect our business and financial condition.

On December 22, 2017, the U.S. government enacted comprehensive Federal tax legislation commonly referred to as the Tax Cuts and Jobs Act of 2017 (""Tax Act"). The Tax Act, among other things, includes changes to U.S. federal tax rates, imposes future limitations on the deductibility of Research and Development expenditures and net operating loss carryforwards, allows for the expensing of capital expenditures, and puts into effect the migration from a worldwide system of taxation to a territorial system. We are continuing to evaluate the Tax Act and its requirements, as well as its application to our business and its impact on our effective tax rate. Additionally, U.S. states' incorporation of these federal law changes, or portions thereof, into their tax codes may result in higher future state tax liabilities. The implementation by us of new practices and processes designed to comply with and benefit from, the Tax Act and its rules and regulations could require us to make substantial changes to our business practices, allocate additional resources, and increase our costs, which could negatively affect our business, results of operations and financial condition.

We generally do not have contractual privity with Internet users who view advertisements that we place, and we may not be able to disclaim liabilities from such Internet users or consumers.

Potential sources of liability to Internet users include malicious activities, such as the introduction of malware into users' computers through advertisements served through our platform, and code that redirects users to sites other than the ones users sought to visit, potentially resulting in malware downloads or use charges from the redirect site. Sellers of advertisement space purchased through our solution often have terms of use in place with their users that disclaim or limit their potential liabilities to such users, or pursuant to which users waive rights to bring class-action lawsuits against the sellers related to advertisements. Certain of our competitors are also prominent sellers, and may be able to include protections in their website or application terms of use that also limit liability to users of their advertising services. We generally do not have terms of use in place with such users. As a consequence, we generally cannot disclaim or limit potential liabilities to such users through terms of use, which may expose us to greater liabilities than competing advertising networks that are also prominent sellers.

Changes in market standards applicable to our solution could require us to incur substantial additional development costs.

Market forces, competitors' initiatives, regulatory authorities, industry organizations, seller integration revisions, and security protocols are causing the emergence of demands and standards that are or could be applicable to our solution. We expect compliance with these kinds of standards to become increasingly important to buyers and sellers, and conforming to these standards is expected to consume a substantial and increasing portion of our development resources. If our solution is not consistent with emerging standards, our market position and sales could be impaired. If we make the wrong decisions about compliance with these standards,

Table of Contents

or are late in conforming, or if despite our efforts our solution fails to conform, our offerings will be at a disadvantage in the market to the offerings of competitors that have complied.

The evolving concept of viewability involves competitive uncertainty and may cause us to incur additional costs and liability risk.

Viewability of digital advertising inventory is relevant to marketers because it represents a way of assessing the value of particular inventory as a means to reach a target audience. However, there is no consensus definition of viewability. Some approaches focus on whether an advertisement can be seen at all, and others focus on whether an advertisement that can be seen is actually seen, in whole or part, or for how long. Low viewability can be caused by various factors, including technical issues (e.g. device screen size, browser functionality and settings, web site load times), media design (e.g. below-the-fold or sub-page placements), and user behavior (e.g. the decision whether to scroll down a website or click on an advertisement or how long to watch a video). Non-viewability is a separate issue and may result, for example, from stacking ads so the one in the back is obscured, or serving ads into a single pixel space too small to be seen.

Aside from non-viewable inventory, which is generally well understood, various vendors and other industry participants advocate definitions and measurements of low viewability that are consistent with their technology or interests. We cannot predict whether consensus views will emerge, or what they will be. Nevertheless, some themes seem to have emerged:

- Buyers of advertising inventory are increasingly using technology, often provided by third parties, to assess viewability of impressions for use as a bidding or purchasing criterion, or to determine value for purposes of determining pricing.
- Assessment of viewability is imperfect, but technology can be expected to improve as data providers, DSPs, and buyers themselves develop viewability assessment tools and build viewability factors into their algorithms for bidding, purchasing, and pricing decisions.
- Inventory viewability and value correlate. More viewable inventory is more valuable, and viewability of inventory increases in importance with the price paid for that inventory.
- Viewability can be used as an inventory differentiator, by domain or on an impression level, with higher viewability generally associated with higher value and pricing, and lower viewability generally associated with lower value and pricing.

These themes are relevant to our business of facilitating fully informed purchase and sale of advertising, and the evolution of viewability standards may represent an opportunity to refine matching of supply and demand. However, incorporating viewability concepts fully into our business as they evolve will require us to incur additional costs to integrate relevant technologies and process additional information through our system. If we do not handle viewability well, we could be competitively disadvantaged.

In addition, inventory that is well differentiated on the basis of viewability will also be differentiated on the basis of value, with less viewable inventory valued lower. In this context, if we are not positioned to transact the higher viewability inventory competitively, our revenue and profitability could be adversely affected.

As we have experienced in the past, buyers could attempt to hold us responsible, and not to pay us, for impressions that do not satisfy their viewability requirements or expectations, and depending upon how viewability evolves, market practice or emerging regulation may require us to incur compliance costs and assume some responsibility for viewability of advertisements transacted through our solution. Divergent views of how to measure viewability and imperfect measurement technology could lead to disagreement, increasing risk of disputes, demands for refunds, and reputational harm.

Failure to comply with industry self-regulation could harm our brand, reputation, and our business.

In addition to compliance with government regulations, we voluntarily participate in trade associations and industry self-regulatory groups that promulgate best practices or codes of conduct addressing privacy and the provision of digital advertising. However, in the past, some of these guidelines have not comported with our business practices, making them difficult for us to implement. If we encounter difficulties in the future, or our opt-out mechanisms fail to work as designed, or if digital media users misunderstand our technology or our commitments with respect to these principles, we may be subject to negative publicity, as well as investigation and litigation by governmental authorities, self-regulatory bodies or other accountability groups, buyers, sellers, or other private parties. Any such action against us could be costly and time consuming, require us to change our business practices, divert management's attention and our resources, and be damaging to our reputation and our business. In addition, we could be adversely affected by new or altered self-regulatory guidelines that are inconsistent with our practices or in conflict with applicable laws and regulations in the United States and other countries where we do business. As a result of such inconsistencies or conflicts, or other business or legal considerations, we may choose not to comply with some self-regulatory guidelines. Additionally, as we expand geographically, we may begin to operate in jurisdictions that have self-regulatory groups in which we do not participate. If we fail to abide by or are perceived as not operating in accordance with applicable laws and regulations and industry best practices, or any industry guidelines or codes with regard to privacy or the provision of Internet advertising, our reputation may suffer and we could lose relationships with buyers and sellers.

Forecasts of market growth may prove to be inaccurate, and even if the market in which we compete achieves the forecasted growth, our business may not grow at similar rates, if at all.

We have in the past provided, and may continue to provide, forecasts related to our market, including forecasts relating to the expected growth in the digital advertising market and parts of that market as well as the forecasted trend towards automation of analog and print advertising markets. Growth forecasts are subject to significant uncertainty and are based on assumptions and estimates that may prove to be inaccurate. Moreover, the anticipation that the advertising industry will continue to shift from analog and print media to digital advertising at the rate forecasted may not come to fruition. Further, even if the market grows, we may not. Our plans to enter or increase our presence in various markets may not succeed for various reasons, including possible shortfall or misallocation of resources or superior technology development or marketing by competitors. Large competitors, principally Google and Facebook, have absorbed a large portion of recent growth in digital advertising spending and appear well positioned to continue to do so, making it more difficult for smaller companies like us to participate in market growth without taking share from competitors.

Risks Related to Our Relationships with Buyers and Sellers and Other Strategic Relationships

Our contracts with buyers and sellers are generally not exclusive and generally do not require minimum volumes or long-term commitments. If buyers or sellers representing a significant portion of the demand or inventory in our marketplace decide to materially reduce the use of our solution, we could experience an immediate and significant decline in our revenue and profitability and harm to our business.

Generally, our buyers and sellers are not obligated to provide us with any minimum volumes of business, may do business with our competitors as well as with us, may reduce or cancel their business with us without penalty, and may bypass us and transact directly with each other or through other intermediaries that compete with us. Accordingly, our business is highly vulnerable to changes in the macro environment, price competition, and development of new or more compelling offerings by our competitors, which could reduce business generally or motivate buyers or sellers to migrate to competitors' offerings.

Sellers and buyers may seek to change the terms on which they do business with us, or allocate their advertising inventory or demand to our competitors who provide advertising demand and supply to them on more favorable terms or whose offerings are considered more beneficial. Supply of advertising inventory is also limited for some sellers, such as special sites or new technologies, and sellers may request higher prices, fixed price arrangements or guarantees that we cannot provide as effectively as our competitors, or that would reduce the profitability of that business. In addition, sellers sometimes place significant restrictions on the sale of their advertising inventory, such as strict security requirements, prohibitions on advertisements from specific advertisers or specific industries, and restrictions on the use of specified creative content or format. Finally, with the proliferation of header bidding, sellers' inventory is available for purchase through multiple exchanges simultaneously, thereby reducing the number of ad impressions sold through our exchange even where we have historically had relationships with the seller.

We serve many buyers and sellers, but certain large buyers and sellers have accounted for and will continue to account for a disproportionate share of business transacted through our solution. Although we no longer earn revenue directly from buyers, as we ceased charging buyer fees in late 2017, in 2018 there were two buyers of advertising inventory that indirectly contributed to 40% of revenue through their buying activity from sellers on our platform. Buyer and seller needs and plans can change quickly, and buyers or sellers may reduce volumes or terminate their arrangements with us, quickly and without penalty, for a variety of reasons, including financial issues or other changes in circumstances; development or acquisition by buyers or sellers of their own technologies that reduce their reliance upon us; the new offerings by or strategic relationships with our competitors; change or removal of personnel with whom we traditionally had relationships; opportunities for buyers and sellers to bypass us and deal directly with each other; change in control (including consolidations through mergers and acquisitions); adoption of header bidding solutions; or declining general economic conditions (including those resulting from dissolutions of companies). Technical issues affecting our systems or the systems of our larger buyers or sellers could also cause a decline in spending. As is typical in our industry, some of the largest buyers and sellers on our platform are also competitors, which could increase the risk that such companies could reduce their business with us. These factors make it important for us to expand and diversify our client relationships. The number of large media buyers and sellers in the market is finite, and it could be difficult for us to replace revenue loss from any large buyers or sellers whose relationships with us diminish or terminate. Just as growth in our inventory strengthens buyer activity in a network effect, loss of inventory or buyers could have the opposite effect.

Because we do not have long-term contracts, our future revenue may be difficult to predict and there is no assurance that our current buyers and sellers will continue to use our solution or that we will be able to replace lost buyers or sellers with new ones. If a buyer or group of buyers representing a significant portion of the demand in our marketplace, or a seller or group of sellers

Table of Contents

representing a significant portion of the inventory in our marketplace decides to materially reduce use of our solutions, it could cause an immediate and significant decline in our revenue and profitability and harm to our business. Additionally, if we overestimate future usage, we may incur additional expenses in adding infrastructure without a commensurate increase in revenue, which would harm our profitability and other operating results.

We must provide value to both buyers and sellers of advertising without being perceived as favoring one over the other or being perceived as competing with them through our service offerings.

Buyers and sellers have different interests, with each trying to enhance its value in their transactions through use of data, requests that we adapt our solution to help them, and other means. We are interposed between buyers and sellers, and to be successful, we must continue to find ways of providing value to both without being perceived as favoring one at the expense of the other. For example, our proprietary auction algorithms, which are designed to improve auction outcomes, influence the allocation and pricing of impressions and must do so in ways that add value to both buyers and sellers. Continued technological evolution in our business results in the availability and use of more data more incisively to inform buying and selling decisions. Third-party data analytics providers encourage this dynamic by offering products to buyers and sellers to attempt to swing transactional dynamics to their advantage at the expense of the other. We come under pressure to provide raw data to fuel these products and to facilitate their use by buyers and sellers on our platform. Unlike some competitors, who focus on serving either buyers or sellers, we must serve the interests of both, meaning that we must exercise caution in use of data and may determine not to facilitate some data products, which could result in loss of business from clients that insist upon using such products. Furthermore, because new business models continue to emerge, we must constantly adapt our relationship with buyers and sellers and how we market ourselves to each. Consistent with our goal of connecting buyers and sellers, we inevitably grow closer to each, and we must take care that our deeper connections with buyers, on the one hand, or sellers, on the other hand, do not come at the expense of the other's interests. For example, our decision to default to a first-price auction dynamic for all our header bidding auctions could be perceived by some buyers as serving the interests of sellers by increasing amounts paid for inventory, while some sellers could view our Estimated Market Rate service, which is designed to reduce buyers’ first price bids while maintaining their win rates, as favoring buyers and reducing sellers' revenue. In addition, as our own capabilities evolve, we may be perceived by clients, particularly buyers, as competing with them. If we fail to balance our clients' interests appropriately, our ability to provide a full suite of services and our growth prospects may be compromised.

We rely on buyers to use our solution to purchase advertising on behalf of advertisers. Such buyers may have or develop high-risk credit profiles or pay slowly, which may result in credit risk to us or require additional working capital to fund our accounts payable. In addition, direct billing arrangements between buyers and sellers may result in unfavorable fee dynamics and increased working capital demands.

Generally, we invoice and collect from buyers the full purchase price for impressions they have purchased, retain our fees, and remit the balance to sellers. However, in some cases, we may be required or choose to pay sellers for impressions delivered before we have collected, or even if we are unable to collect, from the buyer of those impressions. There can be no assurances that we will not experience bad debt in the future, and write-offs for bad debt could have a materially negative effect on our results of operations for the periods in which the write-offs occur. In addition, we attempt to coordinate collections from our buyers so as to fund our payment obligations to our sellers. However, some buyers and sellers may require direct billing and collection arrangements between themselves, and some providers of header bidding wrappers or other downstream decisioning mechanisms in which we participate (such as Google EB) may control billing and collection for transactions we win through their platforms. When we collect from buyers and pay sellers, we are able to retain our fees from cash we collect before remitting balances to sellers. However, if we do not manage collections and payments, we will need to invoice clients for our fees, which may delay our collections and increase visibility and result in pressure for more transparent or lower fees. Further, growth and increased competitive pressure in the digital advertising industry is causing advertisers and buyers to become more demanding, resulting in overall increased focus by all industry participants on pricing, transparency, and cash and collection cycles. Some buyers have experienced financial pressures that have motivated them to slow the timing of their payments to us. If buyers slow their payments to us or our cash collections are significantly diminished as a result of these dynamics, our revenue and/or cash flow could be adversely affected and we may need to use working capital to fund our accounts payable pending collection from the buyers. This may result in additional costs and cause us to forgo or defer other more productive uses of that working capital.

Our sales efforts with buyers and sellers may require significant time and expense and may not yield the results we seek.

Attracting new buyers and sellers and increasing our business with existing buyers and sellers involves substantial time and expense, and we may not be successful in our efforts. We may spend substantial time and effort educating buyers and sellers about our offerings, including providing demonstrations and comparisons against other available solutions. This process can be costly and time-consuming, and is complicated by us having to spend time integrating our solution with software of buyers and sellers. Because our solution may be less familiar in some markets outside the United States, the time and expense involved with attracting, educating and integrating buyers and sellers in international markets may be even greater than in the United States. If we are not successful in targeting, supporting and streamlining our sales processes, our ability to grow our business may be adversely affected. In addition, because of competitive market conditions and negotiating leverage enjoyed by large buyers and sellers, we are sometimes forced to choose between loss of business or contracting on terms that allocate more risk to us than we would prefer to accept.

We rely on buyers and sellers to abide by contractual requirements and relevant laws, rules, and regulations when using our solution, and legal claims or enforcement actions resulting from the actions of buyers or sellers could expose us to liabilities, damage our reputation, and be costly to defend.

The buyers and sellers engaging in transactions through our platform impose various requirements upon each other, and they and the underlying advertisers are subject to regulatory requirements by governments and standards bodies applicable to their activities. We assume responsibility for satisfying or facilitating the satisfaction of some of these requirements through the contracts we enter into with buyers and sellers. In addition, we may have responsibility for some acts or omissions of buyers or sellers transacting business through our solution under applicable laws or regulations or as a result of common law duties, even if we have not assumed responsibility contractually. These responsibilities could expose us to significant liabilities, perhaps without the ability to impose effective mitigating controls upon, or to recover from, buyers and sellers.

We contractually require our buyers and sellers to abide by relevant laws, rules and regulations, as well as restrictions by their counterparties, when transacting on our platform, and we generally attempt to obtain representations from buyers that the advertising they place through our solution complies with applicable laws and regulations and does not violate third-party intellectual property rights, and from sellers about the quality and characteristics of the impressions they provide. We also generally receive representations from buyers and sellers about their privacy practices and compliance with applicable laws and regulations, including their maintenance of adequate privacy policies that disclose and permit our data collection practices. Nonetheless, there are many circumstances in which it is difficult or impossible for us to monitor or evaluate their compliance. For example, we cannot control the content of buyers' advertisements or sellers' media properties, and we are often unable to determine exactly what information a buyer collects after an ad has been placed, and how the buyer uses any such collected information. If buyers or sellers fail to abide by relevant laws, rules and regulations, or contract requirements, when transacting over our platform, or after such a transaction is completed, we could potentially face liability for such misuse. Similarly, if such misconduct results in enforcement action by a regulatory body or other governmental authority, we could become involved in a potentially time-consuming and costly investigation or we could be subject to some form of sanction or penalty. We may not have adequate indemnity to protect us against, and our policies of insurance may not cover, such claims and losses.

Our business relationships expose us to risk of substantial liability for contract breach, violation of laws and regulations, intellectual property infringement and other losses, and our contractual indemnities and limitations of liability may not protect us adequately.

Our agreements with sellers, buyers and other third parties typically obligate us to provide indemnity and defense for losses resulting from claims of intellectual property infringement, damages to property or persons, business losses or other liabilities. Generally, these indemnity and defense obligations relate to our own business operations, obligations and acts or omissions. However, under some circumstances, we agree to indemnify and defend contract counterparties against losses resulting from their own business operations, obligations and acts or omissions, or the business operations, obligations and acts or omissions of third parties. For example, because our business interposes us between buyers and sellers in various ways, buyers often require us to indemnify them against acts and omissions of sellers, and sellers often require us to indemnify them against acts and omissions of buyers. In addition, our agreements with sellers, buyers and other third parties typically include provisions limiting our liability to the counterparty and the counterparty's liability to us. These limits sometimes do not apply to certain liabilities, including indemnity obligations. These indemnity and limitation of liability provisions generally survive termination or expiration of the agreements in which they appear.

We have limited ability to control acts and omissions of buyers and sellers or other third parties that could trigger our indemnity obligations, and our policies of insurance may not cover us for acts and omissions of others. Because we contract with many buyers and sellers and those contracts are individually negotiated with different scopes of indemnity and different limits of liability, it is possible that in any case our obligation to provide indemnity for the acts or omissions of a third party such as a buyer or seller may exceed what we are able to recover from that party. Further, contractual limits on our liability may not apply to our indemnity obligations, contractual limits on our counterparties' liability may limit what we can recover from them, and contract counterparties may be unable to meet their obligations to indemnify and defend us as a result of insolvency or other factors. Large indemnity obligations, or obligations to third parties not adequately covered by the indemnity obligations of our contract counterparties, could expose us to significant costs.

Table of Contents

In addition to the effects on indemnity described above, the limitation of liability provisions in our contracts may, depending upon the circumstances, be too high to protect us from significant liability for our own acts or omissions, or so low as to prevent us from recovering fully for the acts or omissions of our counterparties.

Our solution relies on third-party open source software components. Failure to comply with the terms of the underlying open source software licenses could expose us to liabilities, and the combination of certain open source software with code that we develop could compromise the proprietary nature of our solution.

Our solution utilizes software licensed to us by third-party authors under "open source" licenses. The use of open source software may entail greater risks than the use of third-party commercial software, as open source licensors generally do not provide warranties or other contractual protections regarding infringement claims or the quality of the code. Some open source licenses contain requirements that we make available source code for modifications or derivative works we create based upon the type of open source software we use. If we combine our proprietary software with open source software in a certain manner, we could, under certain open source licenses, be required to release the source code of our proprietary software to the public. This would allow our competitors to create similar solutions with lower development effort and time and ultimately put us at a competitive disadvantage.

The terms of many open source licenses have not been interpreted by U.S. courts, and there is a risk that these licenses could be construed in a way that could impose unanticipated conditions or restrictions on us. Moreover, we cannot guarantee that our processes for controlling our use of open source software will be effective. If we are held to have breached the terms of an open source software license, we could be required to seek licenses from third parties to continue operating using our solution on terms that are not economically feasible, to re-engineer our solution or the supporting computational infrastructure to discontinue use of certain code, or to make generally available, in source code form, portions of our proprietary code.

Risks Relating to Our Operations

Our reorganization and cost-control efforts might not assure profitability and may affect morale and make it difficult to retain employees or attract new ones.

We implemented a reduction in force affecting approximately 125 employees in November 2016 and, in the first quarter of 2017, we exited the intent marketing business and reorganized our management team. These steps were part of a larger effort we began earlier in 2016 to realign our business to address the needs of our clients and the evolving marketplace in which we operate, and to pursue our strategic priorities. Our strategic decisions to reduce and then eliminate our buyer fees contributed to a significant decline in our revenue and cash flow, which compelled us to pursue additional cost-reduction measures in 2018 in an ongoing effort to operate profitably; we implemented further headcount reductions of approximately 100 employees in the first quarter of 2018. We had previously scaled our organization in anticipation of continuing revenue growth in excess of the actual results we achieved, and the steps we took were intended to reduce our costs to align our organization and cost structure more appropriately to our current revenue and scale and to position us better to expand our investments in future growth areas including header bidding, mobile, video, and PMP. However, our cost reduction efforts do not assure our profitability. Additional cost reductions may be implemented in the future, and cost savings may be offset by future hiring or other costs to pursue strategic objectives. The reductions in force and management reorganization could adversely affect morale in our organization and our reputation as an employer, which could lead to the loss of valued employees and could make it more difficult for us to hire new employees in the future, and the reduction of our headcount could adversely affect our service delivery and make it more difficult for us to pursue new opportunities and initiatives in the future. The reduction in force, including our sales staff, also may make it difficult for us to execute on our strategy of increasing the amount of volume on our platform

Real or perceived errors or failures in the operation of our solution could damage our reputation and impair our sales.

We must operate our technology infrastructure without interruption to support the needs of sellers and buyers. Because our software is complex, undetected errors and failures may occur, especially when new versions or updates are made to our software or network infrastructure or changes are made to sellers' or buyers' software interfacing with our solution. Errors or bugs in our software, faulty algorithms, technical or infrastructure problems, or updates to our systems could lead to an inability to effect transactions or process data to place advertisements or price inventory effectively, cause the inadvertent disclosure of proprietary data, or cause advertisements to display improperly or be placed in proximity to inappropriate content. Errors or bugs in our software have in the past, and may in the future, not be found until the software is in our live operating environment. For example, changes to our solution have in the past caused errors in the reporting and analytics applications for buyers, resulting in delays in their spending on our platform. Errors or failures in our solution, even if caused by the implementation of changes by buyers or sellers to their systems, could also result in negative publicity, disclosure of confidential information, damage to our reputation, loss of or delay in market acceptance of our solution, increased costs or loss of revenue, loss of competitive position, or claims by advertisers for losses sustained by them.

Table of Contents

We may make errors in the measurement of transactions conducted through our solution, causing discrepancies with the measurements of buyers and sellers, which can lead to a lack of confidence in us and require us to reduce our fees or provide refunds to buyers and sellers. Alleviating problems resulting from errors in our software could require significant expenditures of capital and other resources and could cause interruptions, delays, or the cessation of our business.

Various risks could interrupt access to our network infrastructure or data, exposing us to significant costs and other liabilities.

Our revenue depends on the technological ability of our solution to deliver and measure advertising impressions, and the operation of our exchange and our ability to place impressions depend on the continuing and uninterrupted performance of our IT systems. Our platform operates on our data processing equipment that is housed in third-party commercial data centers that we do not control or on servers owned and operated by cloud-based service providers, which may leave us vulnerable to technical issues or outages that we cannot easily control or remedy. In addition, our systems interact with systems of buyers and sellers and their contractors. All of these facilities and systems are vulnerable to interruption and/or damage from a number of sources, many of which are beyond our control, including, without limitation: (i) loss of adequate power or cooling and telecommunications failures; (ii) fire, flood, earthquake, hurricane, and other natural disasters; (iii) software and hardware errors, failures, or crashes; (iv) financial insolvency; and (v) computer viruses, malware, hacking, terrorism, and similar disruptive problems. In particular, intentional cyber-attacks present a serious issue because they are difficult to prevent and remediate and can be used to defraud our buyers and sellers and their clients and to steal confidential or proprietary data from us, our clients, or their users. Further, because our Los Angeles headquarters and San Francisco offices and our California data center sites are in seismically active areas, earthquakes present a particularly serious risk of business disruption. These vulnerabilities may increase with the complexity and scope of our systems and their interactions with buyer and seller systems.

The steps we take to mitigate this risk may not protect against all problems, and our ability to mitigate risks to related third-party systems is limited. In addition, we rely to a significant degree upon security and business continuity measures of our data center operators, which may be ineffective. Our disaster recovery and business continuity plans rely upon third-party providers of related services, and if those vendors fail us, we could be unable to meet the needs of buyers and sellers. Any steps we take to increase the reliability and redundancy of our systems may be expensive and may not be successful in preventing system failures. Any failures with our solution or delays in the execution of transactions through our system may result in the loss of advertising placements on impressions and, as a result, the loss of revenue. Our facilities would be costly to repair or replace, and any such efforts would likely require substantial time.

Buyers may attribute to us any technical disruption or failure in the performance of advertisements on sellers' digital media properties, harming our reputation and resulting in buyers seeking to avoid payment or demand future credits for disruptions or failures. If we are unable to operate our exchange and deliver advertising impressions successfully, our ability to attract potential buyers and sellers and retain and expand business with existing buyers and sellers could be harmed.

Malfunction or failure of our systems, or other systems that interact with our systems, or inaccessibility or corruption of data, could disrupt our operations and negatively affect our business and results of operations to a level in excess of any applicable business interruption insurance, result in potential liability to buyers and sellers, and negatively affect our reputation and ability to sell our solution.

Any breach of our computer systems or confidential data in our possession could expose us to significant expense and liabilities and harm our reputation.

We maintain our own confidential and proprietary information in our IT systems, and we control or have access to confidential, proprietary, and personal data belonging or related to buyers, sellers, and their clients and users, as well as vendors and business partners. Our clients and various third parties also have access to our confidential and proprietary information. There is no guarantee that inadvertent or unauthorized use or disclosure will not occur or that third parties will not gain unauthorized access to this data despite our efforts to protect this data.

We are subject to ongoing security threats and breaches, computer malware, computer hacking attacks, and inadvertent transmission of computer viruses, which continue to increase in sophistication. Other harmful software code may occur on our systems or those of our clients, business partners, or information technology vendors. Security measures undertaken by us, our vendors, and our buyers and sellers may be ineffective as a result of employee error, failure to implement appropriate processes and procedures, malfeasance, cyber-attacks, cyber-extortion or other intentional misconduct by computer hackers, "phishing" or other tactics to obtain illicit system access, or otherwise. Because techniques used to obtain unauthorized access or sabotage systems change frequently and generally are not identified until they are launched against a target, and because we typically are not able to control the efficacy of security measures implemented by our clients and vendors, we may be unable to anticipate these techniques or to implement adequate preventative or mitigation measures.

Table of Contents

Though it is difficult to determine what harm may directly result from any specific interruption or breach, any security incident could disrupt computer systems or networks, interfere with services to our sellers, buyers, or their clients, and result in unauthorized access to personally identifiable information, intellectual property, and other confidential business information owned by us or our buyers, sellers, or vendors. As a result, we could be exposed to legal claims and litigation, indemnity obligations, regulatory fines and penalties, contractual obligations, other liabilities, significant costs for remediation and re-engineering to prevent future occurrences, significant distraction to our business, and damage to our reputation, our relationships with buyers and sellers, and our ability to retain and attract new buyers and sellers. If personally identifiable information is compromised, we may be required to undertake notification and remediation procedures, provide indemnity, and undergo regulatory investigations and penalties, all of which can be extremely costly and result in adverse publicity.

Failure to maintain the brand security features of our solution could harm our reputation and expose us to liabilities.

It is important to sellers that the advertising placed on their media not conflict with existing seller arrangements and be of high quality, consistent with applicable seller standards and compliant with applicable legal and regulatory requirements. It is important to buyers that their advertisements are placed on appropriate media, in proximity with appropriate content, that the impressions for which they are charged are legitimate, and that their advertising campaigns yield their desired results. We use various measures, including proprietary technology, in an effort to store, manage and process rules set by buyers and sellers and to ensure the quality and integrity of the results delivered to sellers and buyers through our solution. If we fail to properly implement or honor rules established by buyers and sellers, or if our measures are not adequate, advertisements may be improperly placed through our platform, which can result in harm to our reputation as well as the need to pay refunds and other potential legal liabilities.

Failure to detect or prevent fraud, intrusion of malware through our platform into the systems or devices of our clients and their customers, or other actions that impact the integrity of our solution or advertisement performance, could cause sellers and buyers to lose confidence in our solution and expose us to legal claims, which would cause our business to suffer. If we terminate relationships with sellers as a result of our screening efforts, our volume of paid impressions may decline.

We have in the past, and may in the future, be subject to fraudulent and malicious activities undertaken by persons seeking to use our platform for improper purposes, including to divert or artificially inflate purchases by buyers through our platform, or to disrupt or divert the operation of the systems and devices of our clients and their customers to misappropriate information, generate fraudulent billings, stage hostile attacks, or for other illicit purposes. Examples of such activities include the use of bots or other automated or manual mechanisms to generate fraudulent impressions that are delivered through our platform, which could overstate the performance of advertising impressions. Such activities could also include the introduction of malware through our platform by persons seeking to commandeer, or gain access to information on, consumers' devices. We use proprietary technology to identify non-human inventory and traffic, as well as malware, and we generally terminate relationships with parties that appear to be engaging in such activities, which may result in fewer paid impressions in the year the relationships are terminated than would have otherwise occurred. Despite our efforts, it can be difficult to detect fraudulent or malicious activity for various reasons. We do not own content and must rely in part on sellers and buyers for controls with respect to such activity. Perpetrators of fraudulent impressions and malware can be ingenious and change their tactics to adapt to preventative measures, requiring us to improve over time our processes for assessing the quality of sellers' inventory and controlling fraudulent activity. We may be restricted from employing certain anti-fraud detection technology. Fraudulent activity is more difficult for us to detect and police in inventory we access through third-party aggregators, because in those situations we do not connect directly to the publishers and their servers. We plan to increase our reliance on this type of inventory as part of our strategy to increase the volume of transactions on our platform, which could expose us to increased risk of fraudulent activity. If we fail to detect or prevent fraudulent or other malicious activity, we could face legal claims from clients and/or consumers and the affected advertisers may experience or perceive a reduced return on their investment or heightened risk associated with use of our solution, resulting in dissatisfaction with our solution, refusals to pay, refund demands, loss of confidence of buyers or sellers, or withdrawal of future business.

We are relying upon the ad classification technology we acquired from nToggle to help us increase the scale of our business and compete for demand.

In July 2017, we purchased nToggle, which had developed ad classification and filtering technology. Our plan is to use the technology to filter bidstream data to help our buyers more efficiently identify and purchase the inventory they are looking for, help our sellers monetize their inventory, and enable us to process ad requests more efficiently and achieve higher fill rates. As such, it is an important part of our strategic plans and is critical to our ability to increase the volume of transactional activity on our exchange significantly and in a cost-effective manner. We have invested substantially in continued development of the technology and the rollout of the classification and filtering capabilities to all of our buyers globally. The current version of the technology is designed to eliminate low-value traffic for each buyer, and increase the proportion of traffic that each buyer finds valuable, with the result that our traffic will be more valuable to our buyers than what they see from other exchanges. The technology requires additional development and its ongoing integration into our platform and implementation of the technology at scale in our services to our

Table of Contents

clients will continue to require significant efforts. We may need to allocate more resources to integration and product development activities than originally anticipated, and these efforts may increase the short-term cost of the deployment until we can more tightly integrate the features into our core platform. While we believe that the technology will give us a significant advantage in filtering capabilities over our competitors, some of our competitors are larger and better funded than we are, can devote more resources to development of technologies like filtering than we can, and thus might develop similar or better capabilities faster than we can. We intend to provide nToggle's technology to our DSPs without charging separately for it, so we do not currently expect to generate revenue directly from sale of filtering services based upon nToggle's technology. Instead, we plan to rely upon positive effects from integration of nToggle's technology into our operations, as described above, to recover our investment in the acquisition and help us return to growth and positive cash flow. However, the results we expect from the nToggle technology might not materialize, and we may not be able to recoup our investment in the technology, potentially resulting in adverse effects on our strategic plans and negative effects on our results of operations, cash flows, and financial condition from acquisition-related charges, amortization of intangible assets and asset impairment charges.

Any acquisitions we undertake may disrupt our business, adversely affect operations, dilute stockholders, and expose us to costs and liabilities.

Acquisitions have been an important element of our business strategy, and we may pursue future acquisitions in an effort to increase revenue, expand our market position, add to our service offering and technological capabilities, respond to dynamic market conditions, or for other strategic or financial purposes. However, there is no assurance that we will identify suitable acquisition candidates or complete any acquisitions on favorable terms, or at all. Further, any acquisitions we do complete would involve a number of risks, including the following:

- The identification, acquisition, and integration of acquired businesses require substantial attention from management. The diversion of management's attention and any difficulties encountered in the transition process could hurt our business.
- The identification, acquisition, and integration of acquired businesses requires significant investment, including to determine which new service offerings we might wish to acquire, harmonize service offerings, expand management capabilities and market presence, and improve or increase development efforts and technology features and functions.
- The anticipated benefits from the acquisition may not be achieved, including as a result of loss of clients or personnel of the target, other difficulties in supporting and transitioning the target's clients, the inability to realize expected synergies from an acquisition, or negative culture effects arising from the integration of new personnel.
- We may face difficulties in integrating the personnel, technologies, solutions, operations, and existing contracts of the acquired business.
- We may fail to identify all of the problems, liabilities or other shortcomings or challenges of an acquired company, technology, or solution, including issues related to intellectual property, solution quality or architecture, income tax and other regulatory compliance practices, revenue recognition or other accounting practices, or employee or client issues.
- To pay for future acquisitions, we could issue additional shares of our common stock or pay cash. Issuance of shares would dilute stockholders. Use of cash reserves could diminish our ability to respond to other opportunities or challenges. Borrowing to fund any cash purchase price would result in increased fixed obligations and could also include covenants or other restrictions that would impair our ability to manage our operations.
- Acquisitions expose us to the risk of assumed known and unknown liabilities including contract, tax, and other obligations incurred by the acquired business or fines or penalties, for which indemnity obligations, escrow arrangements or insurance may not be available or may not be sufficient to provide coverage.
- New business acquisitions can generate significant intangible assets that result in substantial related amortization charges and possible impairments.
- The operations of acquired businesses, or our adaptation of those operations, may require that we apply revenue recognition or other accounting methodologies, assumptions, and estimates that are different from those we use in our current business, which could complicate our financial statements, expose us to additional accounting and audit costs, and increase the risk of accounting errors.
-

Acquired businesses may have insufficient internal controls that we must remediate, and the integration of acquired businesses may require us to modify or enhance our own internal controls, in each case resulting in increased administrative expense and risk that we fail to comply with the requirements of Section 404 of the Sarbanes-Oxley Act of 2002.

- Acquisition of businesses based outside the United States would require us to operate in foreign languages and manage non-U.S. currency, billing, and contracting needs, comply with laws and regulations, including labor laws and privacy laws that in some cases may be more restrictive on our operations than laws applicable to our business in the United States.
- Acquisitions can sometimes lead to disputes with the former owners of the acquired company, which can result in increased legal expenses, management distraction and the risk that we may suffer an adverse judgment if we are not the prevailing party in the dispute.
- The purchase price allocation for any acquisition we complete is generally not finalized until well after the closing of the acquisition, and any final adjustment to the valuation could change the fair values assigned to the assets and liabilities, resulting in a change to our consolidated financial statements, including a change to goodwill. Such change could be material.

If we fail to attract, motivate, train, and retain highly qualified engineering, marketing, sales and management personnel, our ability to execute our business strategy could be impaired.

We are a technology-driven company and it is imperative that we have highly skilled mathematicians, computer scientists, engineers and engineering management to innovate and deliver our complex solutions. Increasing our base of buyers and sellers depends to a significant extent on our ability to expand our sales and marketing operations and activities, and our solution requires a sophisticated sales force with specific sales skills and specialized technical knowledge that takes time to develop. Appropriately qualified personnel can be difficult to recruit and retain. In addition, in international markets, we encounter staffing challenges that are unique to a particular country or region, such as recruiting and retaining qualified personnel in foreign countries and difficulty managing such personnel and integrating them into our culture. In particular, it may be difficult to find qualified sales personnel in international markets, or sales personnel with experience in emerging segments of the market. Skilled and experienced management is critical to our ability to achieve revenue growth, execute against our strategic vision and maintain our performance through the growth and change we anticipate.

Our success depends significantly upon our ability to recruit, train, motivate, and retain key technology, engineering, sales, and management personnel, and competition for employees with experience in our industry can be intense, particularly in California, New York and London, where our operations and the operations of other digital media companies are concentrated and where other technology companies compete for management and engineering talent. Other employers may be able to provide better compensation, more diverse opportunities and better chances for career advancement. These challenges could become more acute for us because our revenue and cash flow declines may contribute to concerns about our stability, and the decline we have experienced in the market value of our common stock reduces the perceived value of the equity compensation we offer and has left the stock options previously issued to our employees largely out of the money. Similarly, it may be difficult for us to recruit, train, motivate, and retain key technology, engineering, sales, and management personnel in light of the recent headcount reductions we have undertaken. None of our officers or other key employees have an employment agreement for a specific term, and any of such individuals may terminate his or her employment with us at any time.

It can be difficult, time-consuming, and expensive to recruit personnel with the combination of skills and attributes required to execute our business strategy, and we may be unable to hire or retain sufficient numbers of qualified individuals in the markets where we do business or plan to do business. New hires require significant training and it may take significant time (often six months or more) before they achieve full productivity. As a result, we may incur significant costs to attract and retain employees, including significant expenditures related to salaries and benefits and compensation expenses related to equity awards before new hires contribute to sales or productivity, and we may lose new employees to our competitors or other companies before we realize the benefit of our investment in recruiting and training. Moreover, new employees may not be or become as productive as we expect, and we may face challenges in adequately or appropriately integrating them into our workforce and culture. At times we have experienced elevated levels of unwanted attrition, and as our organization grows and changes and competition for talent increases, this type of attrition may increase.

Our proprietary rights may be difficult to enforce, which could enable others to copy or use aspects of our solution without compensating us, thereby eroding our competitive advantages and harming our business.

Our success depends, in part, on our ability to protect proprietary methods and technologies that we develop or otherwise acquire, so that we can prevent others from using our inventions and proprietary information. Establishing trade secret, copyright, trademark, domain name, and patent protection is difficult and expensive. We rely on trademark, copyright, trade secret laws, confidentiality procedures and contractual provisions to protect our proprietary methods and technologies. Our patent program is relatively small, and while we have some issued patents and pending patent applications, valid patents may not be issued from our pending applications or we may choose to abandon applications, and the claims of our issued patents or the claims eventually allowed on any pending applications may not be sufficiently broad to protect our technology or offerings and services. Any issued

Table of Contents

patents may be challenged, invalidated or circumvented, and any rights granted under these patents may not actually provide adequate defensive protection or competitive advantages to us. Additionally, the process of obtaining patent protection is expensive, time-consuming, and uncertain, and we may not be able to prosecute all necessary or desirable patent applications to successful conclusion at a reasonable cost or in a timely manner. Accordingly, despite our efforts, we may be unable to obtain adequate patent protection, or to prevent third parties from infringing upon or misappropriating our intellectual property.

Unauthorized parties may attempt to copy aspects of our technology or obtain and use information that we regard as proprietary, and the steps we take to protect our proprietary information may not prevent misappropriation of our technology and proprietary information or infringement of our intellectual property rights. Policing unauthorized use of our technology and intellectual property is difficult. We may be required to protect our intellectual property in an increasing number of jurisdictions, a process that is expensive and may not be successful or which we may not pursue in every location. Our competitors and others could attempt to capitalize on our brand recognition by using domain names or business names similar to ours, and we may be unable to prevent third parties from acquiring or using domain names and other trademarks that infringe on, are similar to, or otherwise decrease the value of our brands, trademarks or service marks. In addition, the laws of some foreign countries may not be as protective of intellectual property rights as those of the United States, and mechanisms for enforcement of our proprietary rights in such countries may be inadequate. It may be possible for unauthorized third parties to copy or reverse engineer aspects of our technology or otherwise obtain and use information that we regard as proprietary, or to develop technologies similar or superior to our technology or design around our proprietary rights, despite the steps we have taken to protect our proprietary rights.

From time to time, we may take legal action to enforce our intellectual property rights, protect our trade secrets, determine the validity and scope of the proprietary rights of others, or defend against claims of infringement. Such litigation could result in substantial costs and the diversion of limited resources, and might not be successful. If we are unable to protect our proprietary rights (including aspects of our technology solution) we may find ourselves at a competitive disadvantage.

We may be subject to intellectual property rights claims by third parties, which are costly to defend, could require us to pay significant damages and could limit our ability to use certain technologies and intellectual property.

Third parties may assert claims of infringement or misappropriation of intellectual property rights against us or buyers, sellers, or third parties with which we work; we cannot be certain that we are not infringing any third-party intellectual property rights, and we may have liability or indemnification obligations as a result of such claims. As a result of the information disclosure in required public company filings our business and financial condition are visible, which may result in threatened or actual litigation, including by competitors and other third parties.

Regardless of whether claims that we are infringing patents or infringing or misappropriating other intellectual property rights have any merit, these claims are time-consuming and costly to evaluate and defend, and can impose a significant burden on management and employees. The outcome of any claim is inherently uncertain, and we may receive unfavorable interim or preliminary rulings in the course of litigation. There can be no assurances that favorable final outcomes will be obtained in all cases. We may decide to settle lawsuits and disputes on terms that are unfavorable to us. Some of our competitors have substantially greater resources than we do and are able to sustain the costs of complex intellectual property litigation to a greater degree and for longer periods of time than we could. Although third parties may offer a license to their technology or intellectual property, the terms of any offered license may not be acceptable and the failure to obtain a license or the costs associated with any license could cause our business, results of operations or financial condition to be materially and adversely affected. In addition, some licenses may be non-exclusive, and therefore our competitors may have access to the same technology or intellectual property licensed to us. Alternatively, we may be required to develop non-infringing technology or to make other changes, such as to our branding, which could require significant effort and expense and ultimately may not be successful. Furthermore, a successful claimant could secure a judgment or we may agree to a settlement that prevents us from distributing certain products or performing certain services or that requires us to pay substantial damages, including treble damages if we are found to have willfully infringed such claimant's patents or copyrights. Claims of intellectual property infringement or misappropriation also could result in injunctive relief against us, or otherwise result in delays or stoppages in providing all or certain aspects of our solution.

We are subject to government regulations concerning our employees, including wage-hour laws and taxes.

We are subject to applicable rules and regulations relating to our relationship with our employees, including health benefits, sick days, unemployment and similar taxes, overtime and working conditions, equal pay, immigration status, and classification of employee benefits for tax purposes. Legislated increases in labor cost components, such as employee benefit costs, workers' compensation insurance rates, compliance costs and fines, as well as the cost of litigation in connection with these regulations, would increase our labor costs. Many employers nationally have been subject to actions brought by governmental agencies and private individuals under wage-hour laws on a variety of claims, such as improper classification of workers as exempt from overtime pay requirements, failure to pay overtime wages properly, and failure to provide meal and rest breaks or pay for missed breaks, with such actions sometimes brought as class actions, and these actions can result in material liabilities and expenses. Federal and state standards for classifying employees under wage-hour laws differ and are often unclear or require application of judgment, and classification may need to be changed as employment duties evolve over time. We may mis-classify employees and be subject to liability as a result. Employment rules and regulations change rapidly, often as a result of macro trends, such as the #metoo movement, and we may not be able to adapt our practices in time to meet new regulatory obligations. If we become subject to employment litigation, such as actions involving wage-hour, overtime, break and working time, discrimination or relation, it may distract our management from business matters and result in increased labor costs.

Risks Related to Our International Business Strategy

Our international operations require increased expenditures and impose additional risks and compliance imperatives, and failure to successfully execute our international plans will adversely affect our growth and operating results.

We have numerous operations outside of North America, in Northern and Southern Europe, Australia, Japan, Singapore, and Brazil, and achievement of our international objectives will require a significant amount of attention from our management, finance, legal, analytics, operations, sales, and engineering teams, as well as significant investment in developing the technology infrastructure necessary to deliver our solution and maintain sales, delivery, support, and administrative capabilities in the countries where we operate. Attracting new buyers and sellers outside the United States may require more time and expense than in the United States, in part due to language barriers and the need to educate such buyers and sellers about our solution, and we may not be successful in establishing and maintaining these relationships. The data center and telecommunications infrastructure in some overseas markets may not be as reliable as in North America and Europe, which could disrupt our operations. In addition, our international operations will require us to develop and administer our internal controls and legal and compliance practices in countries with different cultural norms, languages, currencies, legal requirements, and business practices than the United States.

International operations also impose risks and challenges in addition to those faced in the United States, including management of a distributed workforce; the need to adapt our offering to satisfy local requirements and standards (including differing privacy policies and labor laws that are sometimes more stringent); laws and business practices that may favor local competitors; legal requirements or business expectations that agreements be drafted and negotiated in the local language and disputes be resolved in local courts according to local laws; the need to enable transactions in local currencies; longer accounts receivable payment cycles and other collection difficulties; the effect of global and regional recessions and economic and political instability; potentially adverse tax consequences in the United States and abroad; staffing challenges, including difficulty in recruiting and retaining qualified personnel as well as managing such a diversity in personnel; reduced or ineffective protection of our intellectual property rights in some countries; and costs and restrictions affecting the repatriation of funds to the United States.

One or more of these requirements and risks may make our international operations more difficult and expensive or less successful than we expect, and may preclude us from operating in some markets. There is no assurance that our international expansion efforts will be successful, and we may not generate sufficient revenue or margins from our international business to cover our expenses or contribute to our growth.

Operating in multiple countries requires us to comply with different legal and regulatory requirements.

Our international operations subject us to laws and regulations of multiple jurisdictions, as well as U.S. laws governing international operations, which are often evolving and sometimes conflict. For example, the Foreign Corrupt Practices Act, or FCPA, and comparable foreign laws and regulations (including the U.K. Bribery Act) prohibit improper payments or offers of payments to foreign governments and their officials and political parties by U.S. and other business entities for the purpose of obtaining or retaining business. Other laws and regulations prohibit bribery of private parties and other forms of corruption. As we expand our international operations, there is some risk of unauthorized payment or offers of payment or other inappropriate conduct by one of our employees, consultants, agents, or other contractors, including by persons engaged or employed by a business we acquire, which could result in violation by us of various laws, including the FCPA. Safeguards we implement to discourage these practices may prove to be ineffective and violations of the FCPA and other laws may result in severe criminal or civil sanctions, or other liabilities or proceedings against us, including class action lawsuits and enforcement actions from the SEC, Department of Justice, and foreign regulators. Other laws applicable to our international business include local employment, tax, privacy, data security, and intellectual property protection laws and regulations, including restrictions on movement of information about individuals beyond national borders. In particular, as explained in more detail elsewhere in this report, the GDPR imposes substantial compliance obligations and increases the risks associated with collection and processing of personal data. In some cases, buyers and sellers operating in non-U.S. markets may impose additional requirements on our non-U.S. business in efforts to comply with their interpretation of their own or our legal obligations. These requirements may differ significantly from the requirements applicable to our business in the United States and may require engineering, infrastructure and other costly resources to accommodate, and may result in decreased operational efficiencies and performance. As these laws continue to evolve and we

expand to more jurisdictions or acquire new businesses, compliance will become more complex and expensive, and the risk of non-compliance will increase.
Compliance with complex foreign and U.S. laws and regulations that apply to our international operations increases our cost of doing business abroad, and violation of these laws or regulations may interfere with our ability to offer our solution competitively in one or more countries, expose us or our employees to fines and penalties, and result in the limitation or prohibition of our conduct of business.

We are subject to governmental export and import controls that could subject us to liability or impair our ability to compete in international markets.

Our operations are subject to U.S. export controls, specifically the Export Administration Regulations and economic sanctions enforced by the Office of Foreign Assets Control. These regulations limit and control export of encryption technology. Furthermore, U.S. export control laws and economic sanctions prohibit the shipment of certain products and services to countries, governments, and persons targeted by U.S. sanctions. We incorporate encryption technology into the servers that operate our solution. As a result of locating some servers in data centers outside of the United States, we must comply with these export control laws.
In addition, various countries regulate the import of certain encryption technology and have enacted laws that could limit our ability to deploy our technology or our clients' ability to use our solution in those countries. Changes in our technology or changes in export and import regulations may delay introduction of our solution or the deployment of our technology in international markets, prevent our clients with international operations from using our solution globally or, in some cases, prevent the export or import of our technology to certain countries, governments, or persons altogether. Any change in export or import regulations, economic sanctions or related legislation, shift in the enforcement or scope of existing regulations, or change in the countries, governments, persons, or technologies targeted by such regulations, could result in decreased use of our solution by, or in our decreased ability to export our technology to, international markets.

Fluctuations in the exchange rates of foreign currencies could result in currency transaction losses.

We currently have transactions denominated in various non-U.S. currencies, and may, in the future, have sales denominated in the currencies of additional countries. In addition, we incur a portion of our expenses in non-U.S. currencies, and to the extent we need to convert currency to pay expenses, we are exposed to potentially unfavorable changes in exchange rates and added transaction costs. International transactions may be subject to unexpected regulatory requirements and other barriers. Any fluctuation in relevant currency exchange rates may negatively impact our business, financial condition and results of operations. We have not previously engaged in foreign currency hedging, and any effort to hedge our foreign currency exposure may not be effective due to lack of experience, unreasonable costs or illiquid markets. In addition, hedging may not protect against all foreign currency fluctuations and can result in losses.

Risks Related to Our Internal Controls and Finances

Failure to maintain effective internal controls could cause our investors to lose confidence in us and adversely affect the market price of our common stock. If our internal controls are not effective, we may not be able to accurately report our financial results or prevent fraud.

Section 404 of the Sarbanes-Oxley Act of 2002 requires that we maintain internal control over financial reporting that meets applicable standards and report on the effectiveness of our internal controls over financial reporting and any material weaknesses we identify. When we are no longer an "emerging growth company," we will also need to provide a statement that our independent registered public accounting firm has issued an opinion on our internal control over financial reporting.
We may err in the design or operation of our controls, and all internal control systems, no matter how well designed and operated, can provide only reasonable assurance that the objectives of the control system are met. Because there are inherent limitations in all control systems, there can be no absolute assurance that all control issues have been or will be detected. We previously identified certain material weaknesses in our internal controls which were remediated during 2014. However, completion of remediation does not provide assurance that our remediated controls will continue to operate properly or that our financial statements will be free from error. There may be undetected material weaknesses in our internal control over financial reporting, as a result of which we may not detect financial statement

errors on a timely basis. Moreover, in the future we may implement new offerings and engage in business transactions, such as acquisitions, reorganizations, or implementation of new information systems that could require us to develop and implement new controls and could negatively affect our internal control over financial reporting and result in material weaknesses.

Table of Contents

If we identify new material weaknesses in our internal control over financial reporting, if we are unable to comply with the requirements of Section 404 in a timely manner, or, once required, if our independent registered public accounting firm is unable to express an opinion as to the effectiveness of our internal control over financial reporting, we may be unable, or be perceived as unable, to produce timely and reliable financial reports, investors may lose confidence in the accuracy and completeness of our financial reports, and the market price of our common stock could be negatively affected. As a result of such failures, we could also become subject to investigations by the stock exchange on which our securities are listed, the SEC, or other regulatory authorities, and become subject to litigation from investors and stockholders, which could harm our reputation, financial condition, or divert financial and management resources from our core business.

Our accounting is complex, and relies upon estimates or judgments relating to our critical accounting policies. If our accounting is erroneous or based on assumptions that change or prove to be incorrect, our operating results could fall below the expectations of securities analysts and investors, resulting in a decline in our stock price.

The preparation of financial statements in conformity with generally accepted accounting principles in the United States, or GAAP, requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes, and also to comply with many complex requirements and standards. Various factors contribute to complexity in our accounting. For example, the recognition of our revenue is governed by certain criteria that determine whether we report revenue either on a gross basis, as a principal, or net basis, as an agent, depending upon the nature of the sales transaction. We have generally reported our revenue on a net basis because we are not the principal in our open market and orders transactions as conducted to date. However, from April 2015 through January 2017, we conducted an intent marketing business that included transactions reported on a gross basis, resulting in higher GAAP revenue and lower GAAP margins on a particular amount of advertising spend than for an equivalent level of advertising spend for which we report revenue on a net basis. We may have gross reporting for portions of our revenue in the future as a result of the evolution of our existing business practices, development of new products, acquisitions, or changes in accounting standards or interpretations, that in any case result in transactions with characteristics that dictate gross reporting. It is also possible that revenue reporting for existing business may change from gross to net or vice versa as a result of changes in contract terms or transaction mechanics. We may experience significant fluctuations in revenue in future periods depending upon, in part, the nature of our sales and our reporting of such revenue and related accounting treatment, without proportionate correlation to our underlying activity or net income. Any combination of net and gross revenue reporting would require us to make estimates and assumptions about the mix of gross and net-reported transactions based upon the volumes and characteristics of the transactions we think will make up the total mix of revenue in the period covered by the projection. Those estimates and assumptions may be inaccurate when made, or may be rendered inaccurate by subsequent circumstances, such as changing the characteristics of our offerings or particular transactions in response to client demands, market developments, regulatory pressures, acquisitions, and other factors. Even apparently minor changes in transaction terms from those initially envisioned can result in different accounting conclusions from those foreseen. In addition, we may incorrectly extrapolate from revenue recognition treatment of prior transactions to future transactions that we believe are similar, but that ultimately are determined to have different characteristics that dictate different revenue reporting treatment. These factors may make our financial reporting more complex and difficult for investors to understand, may make comparison of our results of operations to prior periods or other companies more difficult, may make it more difficult for us to give accurate guidance, and could increase the potential for reporting errors.

Further, our acquisitions have imposed purchase accounting requirements, required us to integrate accounting personnel, systems, and processes, necessitated various consolidation and elimination adjustments, and imposed additional filing and audit requirements. Ongoing evolution of our business, and any future acquisitions, will compound these complexities. Our operating results may be adversely affected if we make accounting errors or our judgments prove to be wrong, assumptions change or actual circumstances differ from those in our assumptions, or acquired assets become impaired, which could cause our operating results to fall below the expectations of securities analysts and investors or guidance we may have provided, resulting in a decline in our stock price and potential legal claims. Significant judgments, assumptions and estimates used in preparing our consolidated financial statements include those related to revenue recognition, stock-based compensation, purchase accounting, assessment of goodwill and long-lived assets for impairment, and income taxes.

Our tax liabilities may be greater than anticipated.

Tax laws are dynamic and subject to change as new laws are passed and new interpretations of the law are issued or applied. In addition, governmental tax authorities are increasingly scrutinizing the tax positions of companies. Many countries in the European Union, as well as a number of other countries and organizations such as the Organization for Economic Cooperation and Development, are actively considering changes to existing tax laws that, if enacted, could increase our tax obligations in countries where we do business. If the U.S. or other foreign tax authorities change applicable tax laws, our overall taxes could increase, and our business, financial condition or results of operations may be adversely impacted.

Table of Contents

The U.S. and non-U.S. tax laws applicable to our business activities are subject to interpretation. We are subject to audit by the Internal Revenue Service and by taxing authorities of the state, local, and foreign jurisdictions in which we operate. Our tax obligations are based in part on our corporate operating structure, including the manner in which we develop, value, and use our intellectual property and sell our solution, the jurisdictions in which we operate, how tax authorities assess revenue-based taxes such as sales and use taxes, the scope of our international operations, and the value we ascribe to our intercompany transactions. Taxing authorities may challenge our tax positions and methodologies for valuing developed technology or intercompany arrangements, as well as our positions regarding jurisdictions in which we are subject to certain taxes, which could expose us to additional taxes and increase our worldwide effective tax rate. Any adverse outcomes of such challenges to our tax positions could result in additional taxes for prior periods, interest, and penalties, as well as higher future taxes. In addition, our future tax expense could increase as a result of changes in tax laws, regulations, or accounting principles, or as a result of earning income in jurisdictions that have higher tax rates. An increase in our tax expense could have a negative effect on our financial position and results of operations. Moreover, determining our provision (benefit) for income taxes and other tax liabilities requires significant estimates and judgment by management, and the tax treatment of certain transactions is uncertain. Although we believe we will make reasonable estimates and judgments, the ultimate outcome of any particular issue may differ from the amounts previously recorded in our financial statements and any such occurrence could materially affect our financial position and results of operations.

Our ability to use our net operating losses and tax credit carryforwards to offset future taxable income may be subject to certain limitations, which could result in higher tax liabilities.

Our ability to fully utilize our net operating loss and tax credit carryforwards to offset future taxable income may be limited. At December 31, 2018, we had U.S. federal net operating loss carryforwards, or NOLs, of approximately $285.5 million, state NOLs of approximately $167.0 million, foreign NOLs of approximately $20.5 million, federal research and development tax credit carryforwards, or credit carryforwards, of approximately $10.2 million, state credit carryforwards of approximately $8.0 million. A lack of future taxable income would adversely affect our ability to utilize these NOLs and credit carryforwards. In addition, under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, or the Code, and comparable state income tax laws, a corporation that undergoes an "ownership change" is subject to limitations on its ability to utilize its NOLs and credit carryforwards to offset future taxable income following the ownership change. As a result, future changes in our stock ownership, including because of issuance of shares of common stock in connection with acquisitions or other direct or indirect changes in our ownership that may be outside of our control, could result in limitations on our ability to fully utilize our NOLs and credit carryforwards. The Company had an ownership change on December 31, 2015 subjecting the federal and state NOLs to an annual limitation. Additionally, the Company had an ownership change in January 2008 and $2.3 million of federal and state NOLs are already subject to limitation under Section 382 of the Code. Additionally, approximately $3.4 million of our federal NOLs and approximately $3.4 million of our state NOLs were generated during the pre-acquisition period by corporations that we acquired, and thus those NOLs already are subject to limitation under Section 382 of the Code and comparable state income tax laws. Also, depending on the level of our taxable income, a portion of our NOLs and credit carryforwards may expire unutilized, which could prevent us from offsetting future taxable income we may generate by the amount of our NOLs and credit carryforwards generated in tax years beginning before December 31, 2017. U.S. federal net operating loss carryforwards generated for tax years beginning before December 31, 2017 can offset 100% of taxable income, however, these NOLs can only be carried forward for 20 years. U.S. federal net operating loss carryforwards generated for tax years beginning after December 31, 2017 can offset 80% of taxable income, however, these NOLs can be carried forward indefinitely. We have recorded a full valuation allowance related to our NOLs, credit carryforwards, and other net deferred tax assets due to the uncertainty of the ultimate realization of the future benefits of those assets. To the extent we determine that all, or a portion of, our valuation allowance is no longer necessary, we will reverse the valuation allowance and recognize an income tax benefit in the reported financial statement earnings in that period. Once the valuation allowance is eliminated or reduced, its reversal will no longer be available to offset our current financial statement tax provision in future periods. Release of the valuation allowance would result in the recognition of certain net deferred tax assets and a decrease to income tax expense for the period the release is recorded. However, the exact timing and amount of the valuation allowance release are subject to change on the basis of the level of profitability that we are able to actually achieve.

We may require additional capital to support our business, and such capital might not be available on terms acceptable to us, if at all. Inability to obtain financing could limit our ability to conduct necessary operating activities and make strategic investments.

Various business challenges and opportunities may require additional funds, including the need to respond to competitive threats or market evolution by developing new solutions and improving our operating infrastructure through additional hiring or acquisition of complementary businesses or technologies, or both. In addition, we could incur significant expenses or shortfalls in anticipated cash generated as a result of unanticipated events in our business or competitive, regulatory, or other changes in our market, or longer payment cycles required or imposed by our buyers.

Our available cash and cash equivalents, any cash we may generate from operations, and our available line of credit under our credit facility may not be adequate to meet our capital needs, and therefore we may need to engage in equity or debt financings

Table of Contents

to secure additional funds. We may not be able to obtain additional financing on terms favorable to us, if at all. If we are unable to obtain adequate financing on terms satisfactory to us when we require it or are unable to renew our credit facility when it matures or enter into a new one, our ability to continue to support our business growth and respond to business challenges could be significantly impaired, and our business may be adversely affected.

If we do raise additional funds through future issuances of equity or convertible debt securities, our existing stockholders could suffer significant dilution, particularly due to the significant decline we have experienced in the market value of our common stock, and any new equity securities we issue could have rights, preferences and privileges superior to those of holders of our common stock. Any debt financing that we secure in the future could involve restrictive covenants relating to our capital raising activities and other financial and operational matters, including the ability to pay dividends. This may make it more difficult for us to obtain additional capital and to pursue business opportunities, including potential acquisitions. In addition, if we issue debt, the holders of that debt would have prior claims on the Company's assets, and in case of insolvency, the claims of creditors would be satisfied before distribution of value to equity holders, which would result in significant reduction or total loss of the value of our equity.

Our credit facility subjects us to operating restrictions and financial covenants that impose risk of default and may restrict our business and financing activities.

We have a $40.0 million credit facility with Silicon Valley Bank, currently subject to a $10.0 million reserve that will be released if we maintain positive adjusted EBITDA for any trailing twelve-month period. Borrowings are secured by substantially all of our tangible personal property assets and all of our intangible assets are subject to a negative pledge in favor of Silicon Valley Bank. This credit facility is, and any replacement credit facility that we may secure will be, subject to certain covenants and borrowing conditions, including those related to financial ratios and liquidity. If we fail to perform in accordance with covenants or to satisfy conditions, we may not be able to make borrowings under the facility. The credit facility is, and any replacement credit facility that we may secure will be, also subject to restrictions that limit our ability, among other things, to:

- dispose of or sell our assets;
- make material changes in our business or management;
- acquire, consolidate or merge with other entities;
- incur additional indebtedness;
- create liens on our assets;
- pay dividends;
- make investments;
- enter into transactions with affiliates; and
- pay off or redeem subordinated indebtedness.

These covenants may restrict our ability to finance our operations and to pursue our business activities and strategies. Our ability to comply with these covenants may be affected by events beyond our control. If a default were to occur and not be waived, such default could cause, among other remedies, all of the outstanding indebtedness under our loan and security agreement to become immediately due and payable. In such an event, our liquid assets might not be sufficient to meet our repayment obligations, and we might be forced to liquidate collateral assets at unfavorable prices or our assets may be foreclosed upon and sold at unfavorable valuations.

Our ability to renew our existing credit facility, which matures in September 2020, or to enter into a new credit facility to replace or supplement the existing facility may be limited due to various factors, including the status of our business, global credit market conditions, and perceptions of our business or industry by sources of financing. In particular, it may be difficult to renew or replace our existing credit facility if we are not able to produce, or demonstrate a path to produce, positive cash flow. In addition, if credit is available, lenders may seek more restrictive covenants and higher interest rates that may reduce our borrowing capacity, increase our costs, and reduce our operating flexibility.

If we make borrowings under the facility and do not have or are unable to generate sufficient cash available to repay our debt obligations when they become due and payable, either upon maturity or in the event of a default, we may not be able to obtain additional debt or equity financing on favorable terms, if at all. Our inability to obtain financing may negatively impact our ability to operate and continue our business as a going concern.

Table of Contents

Risks Related to the Securities Markets and Ownership of our Common Stock

The price of our common stock has been and may continue to be volatile and the value of an investment in our common stock could decline.

Technology stocks have historically experienced high levels of volatility. The trading price of our common stock has fluctuated substantially and may continue to do so. These fluctuations could result in significant decreases in the value of an investment in our common stock. Factors that could cause fluctuations in the trading price of our common stock include the following:

- announcements of new offerings, products, services or technologies, commercial relationships, acquisitions, or other events by us or our competitors;
- price and volume fluctuations in the overall stock market from time to time;
- significant volatility in the market price and trading volume of technology companies in general and of companies in the digital advertising industry in particular;
- fluctuations in the trading volume of our shares or the size of our public float;
- actual or anticipated changes or fluctuations in our results of operations;
- actual or anticipated changes in the expectations of investors or securities analysts, and whether our results of operations meet these expectations;
- litigation involving us, our industry, or both;
- regulatory developments in the United States, foreign countries, or both;
- general economic conditions and trends;
- major catastrophic events;
- breaches or system outages;
- departures of officers or other key employees; or
- an adverse impact on the company resulting from other causes, including any of the other risks described in this report.

In addition, if the market for technology stocks or the stock market, in general, experiences a loss of investor confidence, the trading price of our common stock could decline for reasons unrelated to our business. The trading price of our common stock might also decline in reaction to events that affect other companies in our industry even if these events do not directly affect us. In the past, volatility in the market price of a company's securities has often resulted in securities litigation being brought against that company. Declines in the price of our common stock, even following increases, may result in securities litigation against us, which would result in substantial costs and divert our management's attention and resources from our business.

As a result of the significant decline we have experienced in the market value of our common stock, we no longer represent a permissible investment under the policies of some institutional investors. Further, our declining financial performance and lack of a clear path to growth and profitability make our stock an undesirable investment to many investors. As the pool of investors for our stock decreases, it becomes more difficult to attract the demand needed to support increases in the price of our stock.

Our equity compensation and acquisition practices expose our stockholders to dilution.

We have relied and may continue to rely heavily upon equity compensation, and consequently our outstanding unvested equity awards represent substantial dilution to our stockholders. In addition, we have used our common stock as consideration for acquisitions of other companies, and we may use shares of our common stock or securities convertible into our common stock from time to time in connection with financings, acquisitions, investments, or other transactions. Any such issuance could result in substantial dilution to our existing stockholders and cause the trading price of our common stock to decline.

Our public float is still relatively small, increasing the risk that sales by significant holders could adversely affect the market price for our stock.

The average daily trading volume for our common stock during 2018 was 531,169 shares. In addition, we are relatively new to the public markets and not well known to many analysts, investors, and others who could influence demand for our shares. Further, because we are a relatively small company without an established history of profitability, the range of investors willing to invest in our shares may be relatively limited. As a result of these factors, our shares can be susceptible to sudden, rapid declines in price, especially when large blocks of shares are sold. Under our Insider Trading Policy, we impose trading blackouts during the period beginning on or about the fifteenth day of the last month of each quarter and ending after two trading days following the filing of our next Quarterly Report on Form 10 Q or Annual Report on Form 10-K. All of our employees are limited to selling their

---

equity incentive plan shares during these open window periods. In addition, our employee restricted stock and restricted stock unit awards typically vest each May 15 and November 15, and are subject to automatic sale arrangements at those dates to cover taxes accruing on vesting. Finally, shares we issue as consideration for acquisitions may be subject to lock-up arrangements that expire in large numbers on certain dates. These insider trading windows, restricted stock vesting mechanics, and acquisition stock arrangements tend to concentrate selling into certain periods, and the resulting sales pressure can cause the trading price of our common stock to decline at those times. Sales of a substantial number of such shares, or the perception that such sales may occur, could cause our share price to fall or make it more difficult for investors to sell our common stock at a time and price that they deem appropriate, and could also impair our ability to raise capital through the sale of equity securities.

Competition for investors could adversely affect the price of our stock.

There are many companies in the advertising technology or "ad tech" space, but we are one of a relatively small portion of those companies that is publicly traded. Some of the other publicly traded ad tech companies are substantially larger than we are and have more diversified offerings, or may be perceived by investors as having greater stability or growth potential. Others may be focused on parts of the business that investors may view as more appealing. Ad tech or related advertising companies that are not yet public may become public, and publicly traded companies may enter the ad tech business through acquisitions. Increase in the number of publicly traded companies available to investors wishing to invest in ad tech may result in a decrease in demand for our shares, either because overall demand for ad tech investment does not increase commensurately with the increase in public companies in the ad tech space, or because we are not perceived as competitively differentiated or offering superior value compared to other such companies. Decrease in demand for our shares would result in suppressed growth, or decrease, in the value of our stock.

Our business could be negatively affected as a result of actions of activist stockholders.

Campaigns by stockholders to effect changes at publicly traded companies are sometimes led by investors seeking to increase short-term stockholder value through actions such as financial restructuring, increased debt, special dividends, stock repurchases or sales of assets or the entire company. The declines we have experienced in the market value of our common stock could increase the likelihood of an activist stockholder targeting our company. If we are targeted by an activist stockholder in the future, the process could be costly and time-consuming, disrupt our operations and divert the attention of management and our employees from executing our strategic plan. Additionally, perceived uncertainties as to our future direction as a result of stockholder activism or changes to the composition of our board of directors may lead to the perception of a change in the direction of our business, instability or lack of continuity, which may be exploited by our competitors, cause concern to current or potential buyers and sellers on our platform, who may choose to transact with our competitors instead of us, and make it more difficult to attract and retain qualified personnel.

If securities or industry analysts do not publish research or reports about our business, or publish inaccurate or unfavorable research or reports about our business, our share price and trading volume could decline.

The trading market for our common stock to some extent depends on the research and reports that securities or industry analysts publish about us. We do not control these analysts, and their reports or analyst consensus may not reflect our guidance, plans, or expectations. If one or more of the analysts who cover us downgrades our shares or expresses a negative opinion of our business prospects, our share price could decline. We have lost some analyst coverage as our financial performance has declined, and if we do not demonstrate revenue growth and a path to profitability, our remaining analysts may cease coverage. If one or more of these analysts decreases or ceases coverage of our company, we could lose visibility in the financial markets, which could cause our share price or trading volume to decline.

We do not intend to pay dividends for the foreseeable future and, consequently, investors' ability to achieve a return on their investment will depend on appreciation in the price of our common stock.

We have never declared or paid any dividends and we do not anticipate paying any cash dividends in the foreseeable future. In addition, our credit facility contains restrictions on our ability to pay dividends. As a result, investors may only receive a return on their investment in our common stock if the market price of our common stock increases.

Provisions of our charter documents and Delaware law may inhibit a potential acquisition of the company and limit the ability of stockholders to cause changes in company management.

Our amended and restated certificate of incorporation and amended and restated bylaws include provisions, as described below, that could delay or prevent a change in control of the company, and make it difficult for stockholders to elect directors who are not nominated by the current members of our board of directors or take other actions to change company management.

Table of Contents

- Our certificate of incorporation gives our board of directors the authority to issue shares of preferred stock in one or more series, and to establish the number of shares in each series and to fix the price, designations, powers, preferences and relative, participating, optional or other rights, if any, and the qualifications, limitations, or restrictions of each series of the preferred stock without any further vote or action by stockholders. The issuance of shares of preferred stock may discourage, delay or prevent a merger or acquisition of the company by significantly diluting the ownership of a hostile acquirer, resulting in the loss of voting power and reduced ability to cause a takeover or effect other changes.
- Our certificate of incorporation provides that our board of directors is classified, with only one of its three classes elected each year, and directors may be removed only for cause and only with the vote of 66 $^2/_3$% of the voting power of stock outstanding and entitled to vote thereon. Further, the number of directors is determined solely by our board of directors, and because we do not allow for cumulative voting rights, holders of a majority of shares of common stock entitled to vote may elect all of the directors standing for election. These provisions could delay the ability of stockholders to change the membership of a majority of our board of directors.
- Under our bylaws, only the board of directors or a majority of remaining directors, even if less than a quorum, may fill vacancies resulting from an increase in the authorized number of directors or the resignation, death or removal of a director.
- Our certificate of incorporation prohibits stockholder action by written consent, so any action by stockholders may only be taken at an annual or special meeting.
- Our certificate of incorporation provides that a special meeting of stockholders may be called only by the board of directors. This could delay any effort by stockholders to force consideration of a proposal or to take action, including the removal of directors.
- Under our bylaws, advance notice must be given to nominate directors or submit proposals for consideration at stockholders' meetings. This gives our board of directors time to defend against takeover attempts and could discourage or deter a potential acquirer from soliciting proxies or making proposals related to an unsolicited takeover attempt.
- The provisions of our certificate of incorporation noted above may be amended only with the affirmative vote of holders of at least 66 $^2/_3$% of the voting power of all of the then-outstanding shares of the company's voting stock, voting together as a single class. The same two-thirds vote is required to amend the provision of our certificate of incorporation imposing these supermajority voting requirements. Further, our bylaws may be amended only by our board of directors or by the same percentage vote of stockholders noted above as required to amend our certificate of incorporation. These supermajority voting requirements may inhibit the ability of a potential acquirer to effect such amendments to facilitate an unsolicited takeover attempt.
- Our board of directors may amend our bylaws by majority vote. This could allow the board to use bylaw amendments to delay or prevent an unsolicited takeover, and limits the ability of an acquirer to amend the bylaws to facilitate an unsolicited takeover attempt.

We are also subject to Section 203 of the Delaware General Corporation Law, which prohibits us from engaging in any business combination with an interested stockholder for a period of three years from the date the person became an interested stockholder, unless certain conditions are met. These provisions make it more difficult for stockholders or potential acquirers to acquire the company without negotiation and may apply even if some of our stockholders consider the proposed transaction beneficial to them. For example, these provisions might discourage a potential acquisition proposal or tender offer, even if the acquisition proposal or tender offer were to be at a premium over the then-current market price for our common stock. These provisions could also limit the price that investors are willing to pay in the future for shares of our common stock.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our corporate headquarters are located in Los Angeles, California, where we occupy facilities totaling approximately 47,000 square feet under a lease that expires in 2021. We use these facilities for our principal administration, sales and marketing, technology and development, and engineering activities. We also lease additional offices and maintain data centers in other locations in North America, South America, Europe, Australia, and Asia. We believe that our current facilities are adequate to meet

Table of Contents

our current needs, and that, if we require additional space, we will be able to obtain additional facilities on commercially reasonable terms.

Item 3. Legal Proceedings

We and our subsidiaries may from time to time be parties to legal or regulatory proceedings, lawsuits and other claims incident to our business activities and to our status as a public company. Such matters may include, among other things, assertions of contract breach or intellectual property infringement, claims for indemnity arising in the course of our business, regulatory investigations or enforcement proceedings, and claims by persons whose employment has been terminated. Such matters are subject to many uncertainties, and outcomes are not predictable with assurance. Consequently, we are unable to ascertain the ultimate aggregate amount of monetary liability, amounts which may be covered by insurance or recoverable from third parties, or the financial impact with respect to such matters as of December 31, 2018. However, based on our knowledge as of December 31, 2018, we believe that the final resolution of such matters pending at the time of this report, individually and in the aggregate, will not have a material adverse effect upon our consolidated financial position, results of operations or cash flows.

On March 31, 2017, Guardian News & Media Limited ("Guardian") issued proceedings (the "Complaint") against us in the Chancery Division of the High Court of Justice in England & Wales. The Complaint alleged that we underpaid Guardian for inventory sold by Guardian through our platform as a result of the fact that we charged fees to buyers of that inventory. Guardian claimed we were precluded from charging buyer fees as a result of our contractual arrangements with Guardian and English agency law principles, as well as representations we allegedly made to Guardian. The Complaint claimed damages including loss of revenue, interest, and costs. On October 11, 2018, we and Guardian mutually agreed to resolve our dispute and the High Court proceedings have been discontinued. Though the terms of the settlement agreement are confidential, the settlement is immaterial to us from a financial standpoint. However, if we face similar claims from other clients or as a preventative measure, we might decide to make changes to our business practices that could have a material impact on our financial position.

Item 4. Mine Safety Disclosures

Not applicable.

Table of Contents

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Our common stock has been listed on the New York Stock Exchange, or the NYSE, since April 1, 2014, under the symbol "RUBI". Prior to our initial public offering, or IPO, there was no public market for our common stock.

Holders of Record

As of February 21, 2019, there were approximately 76 holders of record of our common stock. The actual number of stockholders is greater than this number of record holders and includes stockholders who are beneficial owners but whose shares are held in street name by brokers and other nominees. This number of holders also does not include stockholders whose shares may be held in trust by other entities.

Dividend Policy

We have never declared or paid any dividends and we do not anticipate paying any cash dividends in the foreseeable future. In addition, our credit facility contains restrictions on our ability to pay dividends.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

We presently have no publicly announced repurchase plan or program.

Upon vesting of most restricted stock units or stock awards, we are required to deposit minimum statutory employee withholding taxes on behalf of the holders of the vested awards. As reimbursement for these tax deposits, we have the option to withhold from shares otherwise issuable upon vesting a portion of those shares with a fair market value equal to the amount of the deposits we paid. Withholding of shares in this manner is accounted for as a repurchase of common stock.

Common stock repurchases during the quarter ended December 31, 2018 were as follows (in thousands, except per share amounts):

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of a Publicly Announced Program	Maximum Approximate Dollar Value that May Yet be Purchased Under the Program
October 1 – October 31, 2018	1	$3.41	—	$ —
November 1 – November 30, 2018	213	$4.62	—	$ —
December 1 – December 31, 2018	—	$—	—	$ —

Use of Proceeds

In April 2014, we closed our IPO, whereby we sold 6,432,445 shares of common stock (including 1,015,649 shares sold pursuant to the underwriters' exercise of their over-allotment option), and the selling stockholders sold 1,354,199 shares of common stock. There has been no material change in the planned use of proceeds from our IPO as described in our final prospectus filed with the SEC on April 2, 2014 pursuant to Rule 424(b) of the Securities Act.

Item 6. Selected Financial Data

This section is not required for smaller reporting companies.

Table of Contents

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

You should read the following discussion and analysis of our financial condition and results of operations in conjunction with the consolidated financial statements and the related notes to those statements included in Item 8 to this Annual Report on Form 10-K. In addition to historical financial information, the following discussion contains forward-looking statements that reflect our plans, estimates, beliefs, and expectations and that involve risks and uncertainties. Our actual results and the timing of events could differ materially from those discussed in these forward-looking statements. Factors that could cause or contribute to these differences include those discussed below and elsewhere in this Annual Report on Form 10-K, particularly in "Item 1A. Risk Factors" and the "Special Note About Forward-Looking Statements."

Overview

We provide a technology solution to automate the purchase and sale of digital advertising inventory for buyers and sellers. Our platform features applications and services for digital advertising inventory sellers, including websites, mobile applications, other digital media properties, and their representatives to sell their digital advertising inventory; applications and services for buyers, including advertisers, agencies, agency trading desks, and demand side platforms, or DSPs, to buy digital advertising inventory; and a marketplace over which such transactions are executed. Together, these features power and enhance a comprehensive, transparent, independent advertising marketplace that brings buyers and sellers together and facilitates intelligent decision-making and automated transaction execution for the digital advertising inventory we manage on our platform. Our clients include many of the world’s leading publishers of websites and mobile applications and buyers of digital advertising inventory.

Advertising inventory takes different forms, referred to as advertising units, is purchased and sold through different transactional methodologies, and allows advertising content to be presented to consumers through different channels. Our solution enables buyers and sellers to purchase and sell:

- a comprehensive range of advertising units, including display, audio and video;
- that are transacted through real-time bidding ("RTB"), which includes (i) direct sale of premium inventory, which we refer to as private marketplace ("PMP"), and (ii) open auction bidding, which we refer to as open marketplace ("OMP"); and
- that are displayed across digital channels, including mobile web, mobile application, and desktop, as well as across various out-of-home channels, such as digital billboards.

We generate revenue from transactions where we provide a platform for the purchase and sale of digital advertising inventory. Digital advertising inventory is created when consumers access sellers’ content. Sellers provide digital advertising inventory to our platform in the form of advertising requests, or ad requests. When we receive ad requests from sellers, we send bid requests to buyers, which enable buyers to bid on sellers’ digital advertising inventory. Winning bids can create advertising, or paid impressions, for the seller to present to the consumer. The volume of paid impressions measured as a percentage of ad requests is referred to as fill rate. The price that buyers pay for each thousand paid impressions purchased is measured in units referred to as CPM.

The total volume of spending between buyers and sellers on our platform is referred to as advertising spend. We keep a percentage of that advertising spend as a fee, and remit the remainder to the seller. The fee or “take rate” that we retain from the gross advertising spend on our platform is recognized as revenue. The fee earned on each transaction is based on the pre-existing agreement between the Company and the seller and the clearing price of the winning bid. We discuss advertising spend and take rate more fully in the “Non-GAAP Financial Measures” section below.

Industry Trends and Trends in Our Business

Market Opportunities

The programmatic digital advertising market continues to experience growth. In September 2018, MAGNA estimated that the global programmatic market (excluding search and social) will grow from $34 billion in 2018 to $60 billion by 2022, which represents a 15% compound annual growth rate over that period. Another important trend in the digital advertising industry is the continued expansion of automated buying and selling of advertising inventory through new and developing channels, including mobile, which has market growth rates exceeding those of the desktop channel and is a critical area of operational focus for us. According to MAGNA estimates, mobile advertising was an $18 billion global market in 2018 that is expected to increase to $43 billion by 2022, producing a compound annual growth rate of 24%.

Consistent with industry trends, our mobile business is growing faster than desktop. Our mobile advertising spend increased $152.2 million, or 42%, for the year ended December 31, 2018, compared to the year ended December 31, 2017, while our desktop business increased only 1% during the same period. Our mobile business consists of two components, mobile web and mobile applications. Initially our mobile business was built upon mobile web, which is more similar to our desktop business and subject to many of the same market pressures as discussed below, and as a result has experienced lower growth in recent periods. Our mobile application business, which is where we see the greatest potential for growth, has shown growth rates in excess of industry projections. Advertising spend from mobile applications is approaching half of our mobile business.

The growth of automated buying and selling of advertising is also expanding into geographic markets outside of the United States, and in some markets, the adoption rate of programmatic digital advertising is greater than in the United States. We attribute advertising spend to the geographic location of the seller on whose inventory the advertising spend was directed. Our markets outside of the United States are more heavily built upon desktop display advertising than they are on mobile, and as such are subject to the same factors impacting our desktop business as described below. In addition, as programmatic advertising has grown in markets outside of the United States, we have seen more competitors enter those markets aggressively and gain market share. As a result of these factors, the portion of our advertising spend attributed to markets outside the United States declined to 34% during the year ended December 31, 2018 from 39% during the same period in 2017. Another factor impacting our business is that a large share of the growth in digital advertising spending worldwide is being captured by owned and operated sites, such as Facebook, Google, and increasingly Amazon.

Macro Trends Impacting Desktop

These market factors present long-term growth opportunities; however, in the near term the industry-wide shift from desktop to mobile advertising has had an adverse impact on our business. In recent years, we have seen an industry-wide slowdown in the growth rate for traditional desktop advertising, and the growth rate for this portion of the market is expected to flatten in future years. According to MAGNA, programmatic desktop advertising is expected to grow at a 1% compound annual growth rate over the 2018-2022 period. This results from the market shift to mobile channels noted above. These trends are having a significant effect on our overall growth rate, because desktop advertising continues to be a significant part of our core business, representing 48% of advertising spend in 2018. As noted above, our advertising spend in desktop increased 1% during the year ended December 31, 2018 compared to the year ended December 31, 2017. In addition to the ongoing industry shift away from desktop to mobile, year-over-year growth in our desktop business is hampered further by the continued migration to header bidding, which to date has been focused primarily on desktop display advertising inventory. While header bidding has increased competition for inventory, it also has made available to us significant amounts of inventory that previously we were unable to access, and while our traditional desktop display business has remained relatively flat, our header bidding solution gained significant traction in 2017 and through 2018.

Header bidding is going through an additional technical evolution from the client side, which involves the browser running the auction, to a server-side solution, in which a server runs the auction and offers the potential for improved performance and speed. We believe that our investments in our client-side header bidding solution as well as server-side header bidding have the potential to improve our competitiveness in all markets in future periods. However, we must continue to address certain technical and operational challenges, as described under "Risk Factors" in this Annual Report on Form 10-K, in order to realize our header bidding solution's full potential.

Because of these rapid developments in the industry, advertising spend from our traditional desktop display business has remained relatively flat and no longer can be relied upon to be the primary growth driver of our business. Our strategic focus is on growth areas—including mobile, video, PMPs, and header bidding—that are expected to represent a majority of our advertising spend in future periods. However, despite our solid progress in mobile, our traditional desktop display business is expected to continue to represent a significant part of our business in the near term. Therefore, the weight of our desktop display business will continue to have a significant adverse effect on our growth until our advertising spend mix has shifted more fully to growth areas.

Year-Over-Year Revenue Decline

Ad tech exchange intermediaries like us have experienced market demands for transparency and reduced costs throughout the value chain. Throughout 2017, we changed our revenue model in response to market pressures in an effort to be more competitive in attracting demand and capturing supply. In late 2017, we made a strategic decision to reduce the fees we charged buyers in OMP waterfall transactions, and ultimately eliminated buyer fees in November 2017.

We have historically charged fees to both buyers and sellers in OMP transactions conducted on our exchange, consistent with the fact that we provide services to each. Traditionally, for OMP waterfall transactions, we ran a modified second price auction in which the clearing price was the greater of the second highest bid in the auction plus one cent or the applicable price floor. Our buyer fees were determined algorithmically and added to the clearing price to determine the price charged to the winning bidder. In traditional OMP waterfall transactions, available impressions are passed to different demand sources in a sequence determined by the seller’s ad server, and when an impression is passed to a particular demand source, that demand source is generally able to auction the impression with little or no competition. We saw the mix of OMP transactions conducted through the traditional ad server waterfall on our exchange decrease significantly while the percentage of header bidding transactions has increased in 2018.

Table of Contents

Header bidding increases competition for ad inventory by exposing impressions simultaneously to multiple sources of demand in a competitive auction that, if successful, replaces the ad server waterfall. Each demand source in a header bidding auction generally conducts its own auction for the impression and then passes its winning bid to a “downstream” meta-auction in which the seller evaluates bids from all its demand sources, and generally the highest bid wins. This competition pushes auction clearing prices much closer to the winning first-price bid than OMP waterfall transactions. In order to be more competitive and give our buyers a better chance of winning the header bidding impressions on which they bid, we began charging lower buyer fees for header bidding transactions so that we could pass higher priced bids into the downstream auction. Based upon experience with this approach and client feedback, we began offering a modified first price auction dynamic in our header bidding solution without buyer fees in the fourth quarter of 2017. Subsequently, in an effort to capture more inventory for our buyers and deliver better monetization to our sellers, and to provide better transparency and predictability to all our clients, in early 2018 we made first price our default auction dynamic for header bidding transactions. This means that the first price or highest bid in our auction wins and that first price is passed to the downstream auction. Because buyers needed time to adapt their systems and bidding strategies to first-price auction dynamics and maximize advertising campaign returns and performance, or may prefer not to develop their own first price pricing algorithms, we built and implemented an optional feature at no additional cost, which we call Estimated Market Rate ("EMR"). This feature uses algorithms that monitor existing market conditions against our dataset of auction outcomes to look for opportunities to reduce the amount of the bid that we pass through to the downstream auction on behalf of our winning bidder, while maintaining high fill rates. This is intended to help buyers bid on digital advertising inventory consistent with market values while preserving demand and budget for sellers on our platform. In addition to increasing the rate at which buyers win in our auctions, and the monetization that that winning provides to sellers, our first price auction dynamic and EMR solution have contributed to higher CPMs for our header bidding inventory.

In November 2017, we ceased charging our additive buyer fees altogether. We do still charge access fees to allow buyers to connect to our system when their spending is too small to support the maintenance of their accounts, although such amounts are not significant. This strategic decision, as well as cost reductions noted below, has helped to support our objective to be a high volume, lower cost and transparent exchange. Most of our marketplace fees are negotiated with sellers as a percentage of the auction clearing price for sale of their inventory. In some cases, we reduce the buyer’s bid amount by the amount of our fee and pass the remainder as the bid to the seller. If the bid wins, we retain the amount of the bid reduction as our fee, which is referred to as net bidding. We do this at the discretion of sellers that allocate digital advertising inventory through a decisioning process that follows after our auction and incorporates other demand sources as well as our bids, and that prefer or require that we submit our bids to them net of our fees, so that our bid matches the amount we will owe them if we win. Net bidding amounts can vary across transactions depending upon various factors including inventory and auction characteristics and seller policies.

These pricing reductions were intended to address the market's demand for lower costs and to attract more inventory and spending to our platform. Lower pricing has caused our revenue to decline significantly in 2018 compared to 2017, even though ad spend grew. To return to revenue growth, we must continue to increase advertising spend on our platform. Increases in PMP and header bidding transactions as a percentage of the activity on our exchange could yield higher advertising spend despite lower take rates due to higher CPMs typically associated with PMP transactions, and from modified first-price auctions in header bidding transactions. However, in an increasingly competitive market in which buyers and sellers have many choices, it is not clear whether pricing reductions will result in increases in spending on our platform, or whether any spending increases will compensate fully for the reduction in pricing. We have seen significant increases in the volume of ad requests we receive, but the rate at which we win header bidding auctions is much lower than the rate at which we win waterfall transactions. As our business continues to rely on header bidding, which now represents approximately 80% of our revenue, we need to participate in more header bidding auctions and increase the fill rate in header bidding auctions to compensate for the decline in the number of waterfall transactions. Driving revenue growth in this situation is difficult to accomplish in a competitive market and requires accessing significantly greater inventory levels from our sellers and in turn processing more auctions. This growth in business volume requires adequate processing capacity as well as ongoing innovation to address evolving client needs, capture business, and improve our fill rate. Throughout 2018, we worked to increase advertising spend on our platform, through both higher transaction volumes and by increasing seller fees, to put us in a position to be able to grow our business and maintain our cash resources.

Expense Reduction Initiatives

In addition to strategic decisions made to reduce costs paid by our clients on our platform while growing revenue through transaction volume, we have also focused on the cost structure of our business to enable us to compete more effectively. We must operate efficiently to relieve the pressure on our margins and cash resources that has resulted from our price reductions and to compensate for the ongoing investments in technology and data processing capabilities required to support the increased volume of transactions that our growth plans require. As part of these efforts, during the first quarter of 2018 we undertook measures to reduce headcount by approximately 100 people, or 19% of our workforce, and to reduce other operating costs. Our actions included reductions in administrative staff to bring our general and administrative operations into better alignment with the current size of the business as well as in sales and technical personnel as a result of offshoring certain development functions, organizational delayering and restructuring, and reducing investment in unprofitable projects. We are continuously evaluating our costs and pursuing additional cost-control and efficiency opportunities, including increased automation, across all aspects of the Company.

Uncertainty Resulting from GDPR

The European General Data Protection Regulation, or GDPR, added significant new regulatory requirements that are applicable to us as well as our clients and competitors. Some critical elements of the GDPR are still unclear, and there has not been time for consistent regulatory guidance to be developed, or for established industry compliance practices to emerge. In particular and despite being past the implementation date, uncertainty about the requirements regarding end-user consent, and diverging interpretations among sellers and buyers as to the adequacy of any consent that is obtained, could result in the removal of personal data from bid requests, which will lower the value of the impressions, resulting in reduced revenue and advertising spend for us. Until prevailing industry standards emerge, our revenue from European sellers could fluctuate from quarter to quarter.

Components of Our Results of Operations

We report our financial results as one operating segment. Our consolidated operating results, together with non-GAAP financial measures, are regularly reviewed by our chief operating decision maker, principally to make decisions about how we allocate our resources and to measure our consolidated operating performance.

Revenue

We generate revenue from the purchase and sale of digital advertising inventory through our marketplace. We recognize revenue upon the fulfillment of our contractual obligations in connection with a completed transaction, subject to satisfying all other revenue recognition criteria. Our revenue recognition policies are discussed in more detail within Note 4 of the accompanying Notes to the Consolidated Financial Statements.

Expenses

We classify our expenses into the following categories:

Cost of Revenue. Our cost of revenue consists primarily of data center costs, bandwidth costs, depreciation and maintenance expense of hardware supporting our revenue-producing platform, amortization of software costs for the development of our revenue-producing platform, amortization expense associated with acquired developed technologies, personnel costs, facilities-related costs, and for transactions we have previously reported on a gross basis, the amounts we paid sellers. Personnel costs included in cost of revenue include salaries, bonuses, stock-based compensation, and employee benefit costs, and are primarily attributable to personnel in our network operations group who support our platform. We capitalize costs associated with software that is developed or obtained for internal use and amortize the costs associated with our revenue-producing platform in cost of revenue over their estimated useful lives. We amortize acquired developed technologies over their estimated useful lives.

Sales and Marketing. Our sales and marketing expenses consist primarily of personnel costs, including stock-based compensation and the sales bonuses paid to our sales organization, as well as marketing expenses such as brand marketing, travel expenses, trade shows and marketing materials, professional services, and amortization expense associated with client relationships and backlog from our business acquisitions, and to a lesser extent, facilities-related costs and depreciation and amortization. Our sales organization focuses on increasing the adoption of our solution by existing and new buyers and sellers. We amortize acquired intangibles associated with client relationships and backlog from our business acquisitions over their estimated useful lives.

Technology and Development. Our technology and development expenses consist primarily of personnel costs, including stock-based compensation and bonuses, as well as professional services associated with the ongoing development and maintenance of our solution, and to a lesser extent, facilities-related costs and depreciation and amortization, including amortization expense associated with acquired intangible assets from our business acquisitions that are related to technology and development functions. These expenses include costs incurred in the development, implementation, and maintenance of internal use software, including platform and related infrastructure. Technology and development costs are expensed as incurred, except to the extent that such costs are associated with internal use software development that qualifies for capitalization, which are then recorded as internal use software development costs, net, on our consolidated balance sheets. We amortize internal use software development costs that relate to our revenue-producing activities on our platform to cost of revenue and amortize other internal use software development costs to technology and development costs or general and administrative expenses, depending on the nature of the related project. We amortize acquired intangibles associated with technology and development functions from our business acquisitions over their estimated useful lives.

General and Administrative. Our general and administrative expenses consist primarily of personnel costs, including stock-based compensation and bonuses, associated with our executive, finance, legal, human resources, compliance, and other administrative personnel, as well as accounting and legal professional services fees, facilities-related costs and depreciation and amortization, and other corporate-related expenses. General and administrative expenses also include amortization of internal use software development costs and acquired intangible assets from our business acquisitions over their estimated useful lives that relate to general and administrative functions.

Restructuring and Other Exit Costs. Our restructuring and other exit costs consist primarily of employee termination costs, including stock-based compensation charges, and facility closure costs.

Impairment of Intangible Assets and Internal Use Software. Our impairment charges are non-cash charges related to our intangible assets and internal use software. Certain events or changing circumstances that impact the value of our intangible assets may necessitate a valuation analysis, as described within "Critical Accounting Policies" and in Note 2 "Organization and Summary of Significant Accounting Policies" of the accompanying Notes to the Consolidated Financial Statements. If needed, an impairment is recorded to reduce the carrying amount of the assets to their estimated fair value in the period that the valuation analysis is performed.

Impairment of Goodwill. Goodwill impairment charges are non-cash expenses recognized to reduce the goodwill asset on our balance sheet. Certain events or changing circumstances that impact the value of our business may necessitate a valuation analysis, as described within "Critical Accounting Policies" and in Note 2 "Organization and Summary of Significant Accounting Policies" of the accompanying Notes to the Consolidated Financial Statements. If the estimated fair value of the Company is lower than its carrying amount, a goodwill impairment is recognized for the difference, up to the carrying amount of goodwill.

Other (Income), Expense

Interest (Income) Expense, Net. Interest income consists of interest earned on our cash equivalents and marketable securities. Interest expense is mainly related to our credit facility and was insignificant for the years ended December 31, 2018 and 2017.

Other Income. Other income consists primarily of rental income from commercial office space we hold under lease and have sublet to other tenants.

Foreign Currency Exchange (Gain) Loss, Net. Foreign currency exchange (gain) loss, net consists primarily of gains and losses on foreign currency transactions. We have foreign currency exposure related to our accounts receivable and accounts payable that are denominated in currencies other than the U.S. Dollar, principally the British Pound and the Euro.

Provision (Benefit) for Income Taxes

Provision (benefit) for income taxes consists of federal, state, and foreign income taxes and is primarily the result of the domestic valuation allowance and the tax liability associated with foreign subsidiaries. Due to uncertainty as to the realization of benefits from the predominant portion of our domestic and international net deferred tax assets, including net operating loss carryforwards and research and development tax credits, we have a full valuation allowance reserved against such net deferred tax assets. We intend to continue to maintain a full valuation allowance on our deferred tax assets until there is sufficient evidence to support the reversal of all or some portion of these allowances. Release of the valuation allowance would result in the recognition of certain net deferred tax assets and a decrease to income tax expense or recognition of a benefit for the period the release is recorded. However, the exact timing and amount of the valuation allowance release are subject to change on the basis of the level of profitability that we are able to achieve.

On December 22, 2017, the U.S. government enacted the Tax Cuts and Jobs Act (the “Tax Act”). The Tax Act includes significant changes to the U.S. corporate income tax system including the following: a federal corporate rate reduction from 34% to 21%; limitations on the deductibility of executive compensation and research and development expenditures; temporary immediate expensing of qualified property; the creation of new minimum taxes such as the base erosion anti-abuse tax (“BEAT”) and Global Intangible Low Taxed Income (“GILTI”) tax; and the transition of U.S. international taxation from a worldwide tax system to a modified territorial tax system, which resulted in a one time U.S. tax liability on those earning which had not previously been repatriated to the U.S. (the “Transition Tax”).

The Tax Act imposes a Transition Tax on previously untaxed accumulated and current earnings and profits (“E&P”) of certain of our foreign subsidiaries. To determine the amount of the Transition Tax, we determined, among other things, the amount of post-1986 E&P of the relevant subsidiaries. We recorded a provisional Transition Tax of $0.6 million, which reduced our U.S. net deferred tax assets for the year ended December 31, 2017. We completed our analysis of the impact of U.S. tax reform during 2018, and for the year ended December 31, 2018, there was no change to the Transaction Tax recorded in the prior period.

Table of Contents

The Tax Act requires certain GILTI income earned by controlled foreign corporations ("CFCs") to be included in the gross income of the CFCs' U.S. shareholder (for tax years beginning after December 31, 2017). For the year ended December 31, 2018, we have included a GILTI inclusion of $1.3 million, which was incorporated into the calculation of the tax provision.

Results of Operations

The following table sets forth our consolidated results of operations:

	Year Ended December 31, 2018	Year Ended December 31, 2017	Favorable/(Unfavorable) %
	(in thousands)		
Revenue	$124,685	$155,545	(20)%
Expenses [1][2]:			
Cost of revenue	60,003	56,836	(6)%
Sales and marketing	44,556	51,794	14%
Technology and development	37,863	47,500	20%
General and administrative	42,431	55,596	24%
Restructuring and other exit costs	3,440	5,959	42%
Impairment of intangible assets and internal use software	—	4,585	100%
Impairment of goodwill	—	90,251	100%
Total expenses	188,293	312,521	40%
Loss from operations	(63,608)	(156,976)	59%
Other income, net	(2,143)	(431)	397%
Loss before income taxes	(61,465)	(156,545)	61%
Provision (benefit) for income taxes	357	(1,762)	NM
Net loss	$(61,822)	$(154,783)	60%

NM - Not Meaningful

(1) Stock-based compensation expense included in our expenses was as follows:

	Year Ended December 31, 2018	Year Ended December 31, 2017
	(in thousands)	
Cost of revenue	$321	$ 404
Sales and marketing	4,557	4,582
Technology and development	2,867	4,034
General and administrative	8,139	9,924
Restructuring and other exit costs	398	1,560
Total stock-based compensation expense	$16,282	$ 20,504

(2) Depreciation and amortization expense included in our expenses was as follows:

	Year Ended December 31, 2018	Year Ended December 31, 2017
	(in thousands)	
Cost of revenue	$33,306	$ 31,981
Sales and marketing	586	1,066
Technology and development	882	1,957
General and administrative	564	1,221
Total depreciation and amortization expense	$35,338	$ 36,225

Table of Contents

The following table sets forth our consolidated results of operations for the specified periods as a percentage of our revenue for those periods presented:

	Year Ended	
	December 31, 2018	December 31, 2017
Revenue	100 %	100 %
Cost of revenue	48	37
Sales and marketing	36	33
Technology and development	30	30
General and administrative	34	36
Restructuring and other exit costs	3	4
Impairment of intangible assets and internal use software	—	3
Impairment of goodwill	—	58
Total expenses	151	201
Loss from operations	(51)	(101)
Other income, net	(1)	—
Loss before income taxes	(50)	(101)
Provision (benefit) for income taxes	—	(1)
Net loss	(50)%	(100) %

Comparison of the Years Ended December 31, 2018 and 2017

Revenue

Revenue decreased $30.9 million, or 20%, for the year ended December 31, 2018 compared to the prior year primarily due to the reduction and then elimination of our buyer fees in 2017, market and competitive pressures, deceleration in traditional desktop display spending, and header bidding dynamics as described above in "Industry Trends and Trends in Our Business".

Revenue is impacted by shifts in the mix of advertising spend by transaction type and channel, changes in the fees we charge buyers and sellers for our services, and other factors such as changes in the market, our execution of the business, and competition. In addition to the decrease in revenue due to the elimination of buyer transaction fees, an increase in PMP transactions as a percentage of the transactions on our platform could also result in reduced revenue, if not offset by increased volume, because PMP transactions can carry lower fees than OMP transactions. In late 2018, we began to see some pressure on desktop CPMs, which has now carried over to mobile CPMs, as a result of buyer pricing tools and the impact from privacy initiatives, such as Apple’s ITP, that drive a higher mix of contextual versus behavioral impressions being sold. We believe that better pricing has helped advertising campaigns' return on investment and is driving significant increases in paid impressions, but it has decreased advertising spend and corresponding revenue, and could eliminate or reduce potential revenue growth in 2019. Industry dynamics are challenging due to market and competitive pressures and make it difficult to predict the near-term effect of our growth initiatives. While we anticipate long-term benefits from these initiatives, unless we are able to continue to increase advertising spend on our platform, through higher transaction volumes or higher transaction values or both, our revenue will continue to fluctuate and our growth may be limited.

Cost of Revenue

Cost of revenue increased $3.2 million, or 6%, for the year ended December 31, 2018 compared to the prior year. The increase was primarily due to an increase of $3.6 million in data center and bandwidth expenses to support the increase in our transaction volume, as well as an increase of $1.3 million in depreciation and amortization expenses related to continued investment in our network technology infrastructure to keep up with impression demand. These increases were partially offset by a $1.0 million reduction in media costs related to the cessation of our intent marketing solution during the first quarter of 2017 and a $0.3 million decrease in personnel costs.

We expect cost of revenue to be higher in absolute dollars in 2019 compared to 2018 as a result of increased spending on data centers, serving costs, and technology to process the greater volumes of data and transactions we will need to grow revenue. Cost of revenue may fluctuate from quarter to quarter and period to period, on an absolute dollar basis and as a percentage of revenue, depending on revenue levels and the volume of transactions we process supporting those revenues, and the timing and amounts of depreciation and amortization of equipment and software.

Table of Contents

Sales and Marketing

Sales and marketing expenses decreased $7.2 million, or 14%, for the year ended December 31, 2018 compared to the prior year. The decrease is attributable to our 2017 and 2018 cost reduction measures, including the realignment of our management team, primarily including a $3.9 million decrease in personnel costs as well as decreases across other expenses necessary to support our reduced headcount. In addition, certain sales and marketing expenses have decreased due to our cost reduction measures, including subscription costs and travel-related costs, which collectively decreased $1.0 million in 2018. Sales and marketing professional services costs also decreased $0.9 million compared to 2017.

We expect sales and marketing expenses to remain relatively flat in 2019 compared to 2018 as we continue to maintain reduced cost levels that were established and achieved in 2018, described below. Sales and marketing expense may fluctuate quarter to quarter and period to period, on an absolute dollar basis and as a percentage of revenue, based on revenue levels, the timing of our investments and seasonality in our industry and business.

Technology and Development

Technology and development expenses decreased by $9.6 million, or 20%, for the year ended December 31, 2018 compared to the prior year, primarily due to a decrease of $7.4 million in personnel costs as a result of our 2017 and 2018 cost control initiatives. In addition, depreciation and amortization expenses decreased $1.1 million compared to 2017 primarily due to the cessation of our intent marketing services offering and closure of our Toronto office in the first quarter of 2017.

We expect technology and development expense to increase slightly in 2019 compared to 2018 as we make a limited number of strategic and targeted headcount additions to focus on the engineering aspect of our new developments, including tools for our sellers. The timing and amount of our capitalized development and enhancement projects may affect the amount of development costs expensed in any given period. As a percentage of revenue, technology and development expense may fluctuate from quarter to quarter and period to period based on revenue levels, the timing and amounts of these investments, the timing and the rate of the amortization of capitalized projects and the timing and amounts of future capitalized internal use software development costs.

General and Administrative

General and administrative expenses decreased by $13.2 million, or 24%, for the year ended December 31, 2018 compared to the prior year. The decrease was primarily attributable to a $7.4 million decrease in personnel related expenses due to a decrease in employee headcount as a result of our 2017 and 2018 cost control initiatives, as well as decreases across other expenses necessary to support our reduced headcount. Professional service expenses also decreased $3.2 million, largely due to reduced legal fees and consultant services. General and administrative depreciation and amortization costs also decreased $0.7 million due to accelerated amortization of certain capitalized software assets in 2017.

We expect general and administrative expenses to decrease in 2019 compared to 2018 as the cost savings realized in the second half of 2018 have a larger impact on our expected results. General and administrative expenses may fluctuate from quarter to quarter and period to period based on the timing and amounts of our investments and related expenditures in our general and administrative functions as they vary in scope and scale over periods which may not be directly proportional to changes in revenue.

Restructuring and Other Exit Costs

We incurred restructuring and other exit costs of $3.4 million for severance and other one-time employee termination benefits during the year ended December 31, 2018 related to headcount reductions that were made in the first quarter of 2018, as described below. For the year ended December 31, 2017, we incurred $6.0 million of restructuring and one-time termination benefits expenses, primarily in severance and one-time employee termination benefits and facility closure costs, as a result of the management restructuring and the costs associated with the shut-down of our intent marketing services (see Note 14).

As part of our on-going evaluation of efficiency and implementation of cost-control measures, during the first quarter of 2018 we undertook measures to reduce headcount by approximately 100 people, or 19% of our workforce, and to reduce other operating costs. Our actions included reductions in administrative staff to bring our general and administrative operations into better alignment with the current size of the business, as well as in sales and technical personnel as a result of offshoring certain development functions, organizational delayering and restructuring, and reducing investment in unprofitable projects. We estimated the 2018 restructuring activities would result in annualized cash basis cost savings of approximately $24.0 million. For the year ended December 31, 2018, we met our target for operating expense reductions.

For the year ended December 31, 2017, we recognized expenses of $6.0 million as restructuring and other exit costs related to the cessation of our intent marketing solution, including the closure of the Toronto office, as well as the realignment of

Table of Contents

the management team to a more cost-efficient structure. These expenses primarily related to one-time employee termination benefits, and included $4.4 million of cash expenditures. Restructuring expenses of $5.1 million were paid in 2017, which included restructuring costs incurred in 2016 and 2017 related to this restructuring plan. The remaining liability as of December 31, 2017 was paid in 2018.

Other (Income) Expense, Net

	Year Ended December 31, 2018	December 31, 2017
	(in thousands)	
Interest income, net	$(988)	$ (908)
Other income	(766)	(688)
Foreign exchange (gain) loss, net	(389)	1,165
Total other income, net	$(2,143)	$ (431)

Foreign exchange (gain) loss, net is impacted by movements in exchange rates, primarily the British Pound and the Euro relative to the U.S. Dollar, and the amount of foreign currency-denominated receivables and payables, which are impacted by our billings to buyers and payments to sellers. The foreign currency gain, net during the year ended December 31, 2018 was primarily attributable to the strengthening of the U.S. Dollar in relation to the Euro and the British Pound for foreign currency denominated transactions.

Provision for Income Taxes

We recorded an income tax expense of $0.4 million for the year ended December 31, 2018 compared to an income tax benefit of $1.8 million for the year ended December 31, 2017. The tax provision for the year ended December 31, 2018 is primarily the result of the domestic valuation allowance and the tax liability associated with foreign subsidiaries.

Non-GAAP Financial Measures

In addition to our GAAP results, we review certain non-GAAP financial measures to help us evaluate our business, measure our performance, identify trends affecting our business, establish budgets, measure the effectiveness of investments in our technology and development and sales and marketing, and assess our operational efficiencies. These non-GAAP measures include advertising spend, non-GAAP net revenue, and Adjusted EBITDA, which are discussed immediately following the table below, along with the operational performance measure take rate. Although we historically provided advertising spend and take rate as key performance metrics on a quarterly basis, we have determined that we will share specific metrics in these areas on an annual basis going forward. These metrics were historically more important when we had GAAP revenue that was reported on both a gross and a net basis prior to early 2017. More recently, they were important given our removal of buyer fees in late 2017, which significantly lowered our take rate, and made it challenging to understand our business during that time of significant transition. Given that these informational needs are lessened, competitive sensitivities, and in particular given that the comparison year for the significant take rate change is behind us, we believe now is an appropriate time to make this change. Revenue and other GAAP measures are discussed under the headings "Components of Our Results of Operations" and "Results of Operations".

	Year Ended December 31, 2018	December 31, 2017
	(in thousands)	
Financial Measures and non-GAAP Financial Measures:		
Revenue	$124,685	$155,545
Advertising spend	$992,087	$837,221
Non-GAAP net revenue	$124,685	$154,928
Net loss	$(61,822)	$(154,783)
Adjusted EBITDA	$(11,222)	$(4,420)
Operational Measure:		
Take Rate %	12.6 %	18.5 %

60

Table of Contents

Advertising Spend

We define advertising spend as the total volume of spending between buyers and sellers transacted on our platform. Advertising spend does not represent revenue reported on a GAAP basis. We also use advertising spend for internal management purposes to assess market share of total advertising spending. As discussed above, we no longer expect to present our advertising spend on a quarterly basis beginning in 2019.

Our advertising spend may be influenced by demand for our services, the volume and characteristics of paid impressions, average CPM, our ability to fill ad requests, the nature and amount of fees we charge, and other factors such as changes in the market, our execution of the business, and competition.

Advertising spend may fluctuate due to seasonality. In the past, we have experienced higher advertising spend during the fourth quarter of a given year because many buyers devote a disproportionate amount of their advertising budgets to this period of the year to coincide with increased holiday purchasing. Buyers' focus on the fourth quarter generates more bidding activity on our platform, which may drive higher volumes of paid impressions, average CPM, or both.

Our advertising spend grew 18% for the year ended December 31, 2018 compared to 2017. The increase in advertising spend was driven by higher ad request volumes and an increase in the CPMs generated from our auctions. The increase in CPMs was driven by increased bidding activity on our platform, the value of the inventory that we made available to buyers, including PMP, mobile and video inventory that typically carries higher pricing, and auction dynamics, including the implementation of first price auctions and EMR for our header bidding inventory.

The following table presents the reconciliation of revenue to advertising spend:

	Year Ended	
	December 31, 2018	December 31, 2017
	(in thousands)	
Revenue	$124,685	$155,545
Plus amounts paid to sellers[(1)]	867,402	681,676
Advertising spend	$992,087	$837,221

(1) Amounts paid to sellers for the portion of our revenue reported on a net basis for GAAP purposes.

Our solution enables buyers and sellers to transact through desktop and mobile channels. The following tables present revenue and advertising spend in dollar terms by channel and as a percentage of total revenue or advertising spend for the years ended December 31, 2018 and 2017.

	Revenue				Advertising Spend			
	Year Ended				Year Ended			
	December 31, 2018		December 31, 2017		December 31, 2018		December 31, 2017	
	(in thousands, except percentages)							
Channel:								
Desktop	$59,039	47 %	$84,327	54 %	$477,900	48 %	$475,258	57 %
Mobile	65,646	53	71,218	46	514,187	52	361,963	43
Total	$124,685	100%	$155,545	100%	$992,087	100%	$837,221	100%

Non-GAAP Net Revenue

We define non-GAAP net revenue as GAAP revenue less amounts we pay sellers, where the amounts paid are included within cost of revenue for the portion of our revenue reported on a gross basis. The portion of our revenue reported on a gross basis was attributable to intent marketing services, which no longer generated revenue after the first quarter of 2017. Historically, non-GAAP net revenue was a useful measure in assessing the performance of our business in periods for which our revenue included revenue reported on a gross basis, because it showed the operating results of our business on a consistent basis without the effect of differing revenue reporting (gross vs. net) that we applied under GAAP across different types of transactions, and facilitated comparison of our results to the results of companies that report all of their revenue on a net basis. Revenue from intent marketing services in the first quarter of 2017 created the difference between our non-GAAP net revenue and our GAAP revenue for that period. We ceased offering our intent marketing solution in the first quarter of 2017, so for subsequent periods non-GAAP net revenue is the same as GAAP revenue, as there is no longer a reconciling item between GAAP and non-GAAP net revenue.

Non-GAAP net revenue is presented for comparative purposes as the first quarter of 2017 still included the intent marketing solution reconciling item.

Table of Contents

A potential limitation of non-GAAP net revenue is that other companies may define non-GAAP net revenue differently, which may make comparisons difficult.

Non-GAAP net revenue is influenced by the volume and characteristics of advertising spend and our take rate. The revenue we have reported on a gross basis was associated with our intent marketing business. Because we exited that business in the first quarter of 2017, we do not expect to report any revenue on a gross basis after the first quarter of 2017 unless and until we change our business practices, develop new products, or make an acquisition, in each case with characteristics that require gross reporting.

The following table presents a reconciliation of revenue to non-GAAP net revenue for the years ended December 31, 2018 and 2017.

	Year Ended	
	December 31, 2018	**December 31, 2017**
	(in thousands)	
Revenue	$124,685	$155,545
Less amounts paid to sellers[1]	—	617
Non-GAAP net revenue	$124,685	$154,928

(1) Represents amounts paid to sellers included within cost of revenue.

Non-GAAP net revenue decreased in the current period compared to the prior year due to a lower take rate, as noted within "Industry Trends and Trends in Our Business", which was partially offset by the increase in advertising spend.

Adjusted EBITDA

We define Adjusted EBITDA as net income (loss) adjusted to exclude stock-based compensation expense, depreciation and amortization, amortization of acquired intangible assets, impairment charges, interest income or expense, and other cash and non-cash based income or expenses that we do not consider indicative of our core operating performance, including, but not limited to foreign exchange gains and losses, acquisition and related items, and provision (benefit) for income taxes. We believe Adjusted EBITDA is useful to investors in evaluating our performance for the following reasons:

- Adjusted EBITDA is widely used by investors and securities analysts to measure a company's performance without regard to items such as those we exclude in calculating this measure, which can vary substantially from company to company depending upon their financing, capital structures, and the method by which assets were acquired.
- Our management uses Adjusted EBITDA in conjunction with GAAP financial measures for planning purposes, including the preparation of our annual operating budget, as a measure of performance and the effectiveness of our business strategies, and in communications with our board of directors concerning our performance. Adjusted EBITDA may also be used as a metric for determining payment of cash incentive compensation.
- Adjusted EBITDA provides a measure of consistency and comparability with our past performance that many investors find useful, facilitates period-to-period comparisons of operations, and also facilitates comparisons with other peer companies, many of which use similar non-GAAP financial measures to supplement their GAAP results.

Although Adjusted EBITDA is frequently used by investors and securities analysts in their evaluations of companies, Adjusted EBITDA has limitations as an analytical tool, and should not be considered in isolation or as a substitute for analysis of our results of operations as reported under GAAP. These limitations include:

- Stock-based compensation is a non-cash charge and is and will remain an element of our long-term incentive compensation package, although we exclude it as an expense in Adjusted EBITDA when evaluating our ongoing operating performance for a particular period.
- Depreciation and amortization are non-cash charges, and the assets being depreciated or amortized will often have to be replaced in the future, but Adjusted EBITDA does not reflect any cash requirements for these replacements.
- Impairment charges are non-cash charges related to the write-down of goodwill, intangible assets and/or long-lived assets, although we exclude these charges as expenses in Adjusted EBITDA when evaluating our ongoing operating performance for a particular period.
- Adjusted EBITDA does not reflect non-cash charges related to acquisition and related items, such as amortization of acquired intangible assets and changes in the fair value of contingent consideration.

- Adjusted EBITDA does not reflect cash and non-cash charges and changes in, or cash requirements for, acquisition and related items, such as certain transaction expenses and expenses associated with earn-out amounts.

Table of Contents

- Adjusted EBITDA does not reflect changes in our working capital needs, capital expenditures, or contractual commitments.
- Adjusted EBITDA does not reflect cash requirements for income taxes and the cash impact of other income or expense.
- Other companies may calculate Adjusted EBITDA differently than we do, limiting its usefulness as a comparative measure.

Our Adjusted EBITDA is influenced by fluctuation in our revenue and the timing and amounts of our investments in our operations.

The following table presents a reconciliation of net loss, the most comparable GAAP measure, to Adjusted EBITDA for the years ended December 31, 2018 and 2017.

	Year Ended	
	December 31, 2018	December 31, 2017
	(in thousands)	
Net loss	$(61,822)	$(154,783)
Add back (deduct):		
Depreciation and amortization expense, excluding amortization of acquired intangible assets	32,153	31,443
Amortization of acquired intangibles	3,185	4,782
Stock-based compensation expense	16,282	20,504
Impairment of intangible assets and internal use software	—	4,585
Impairment of goodwill	—	90,251
Acquisition and related items	—	303
Interest income, net	(988)	(908)
Foreign exchange (gain) loss, net	(389)	1,165
Provision (benefit) for income taxes	357	(1,762)
Adjusted EBITDA	$(11,222)	$(4,420)

The decline in adjusted EBITDA for the year ended December 31, 2018 and our expectations for future adjusted EBITDA have been driven by the same factors that drove the changes in our GAAP metrics noted above.

Take Rate

Take rate is an operational performance measure calculated by dividing revenue (or for periods in which we have revenue reported on a gross basis, non-GAAP net revenue) by advertising spend. We review take rate for internal management purposes to assess the development of our marketplace with buyers and sellers. As discussed above, we no longer expect to present our take rate on a quarterly basis beginning in 2019.

Our take rate (and our fees, which drive take rate) can be affected by a variety of factors, including the terms of our arrangements with buyers and sellers active on our platform in a particular period, the scale of a buyer’s or seller’s activity on our platform, mix of inventory types, the implementation of new products, platforms and solution features, auction dynamics, competitive factors, our strategic pricing decisions, credits for discrepancies and other items, and the overall development of the digital advertising ecosystem.

The significant declines in our take rates for the year ended December 31, 2018 compared to 2017 resulted primarily from the reduction and elimination of buyer fees as discussed above in "Industry Trends and Trends in Our Business—*Take Rate Decline*". Subsequent to the elimination of buyer fees, take rates have stabilized and increased slightly.

Liquidity and Capital Resources

Our principal sources of liquidity are our cash and cash equivalents, marketable securities, cash generated from operations, and our credit facility with Silicon Valley Bank ("SVB"). At December 31, 2018, we had cash and cash equivalents of $80.5 million, of which $20.1 million was held in foreign currency cash accounts, and marketable securities of $7.5 million. Our cash and marketable securities balances are affected by our results of operations, the timing of capital expenditures, which are typically greater in the second half of the year, and by changes in our working capital, particularly changes in accounts receivable and accounts payable. The timing of cash receipts from buyers and payments to sellers can significantly impact our cash flows from operating activities and our liquidity for, and within, any period presented. Our collection and payment cycle can vary from period to period depending upon various circumstances, including seasonality.

Table of Contents

On September 26, 2018, we amended and restated our loan and security agreement with SVB (the "Loan Agreement"), which was scheduled to expire on September 27, 2018. The Loan Agreement provides a senior secured revolving credit facility of up to $40.0 million with a maturity date of September 26, 2020. The amount available for borrowing as of December 31, 2018 is $30.0 million due to a $10.0 million reserve that will be released if we maintain positive Adjusted EBITDA for any trailing twelve-month period.

An unused revolver fee in the amount of 0.15% per annum of the average unused portion of the revolver line is charged and is payable monthly in arrears. We may elect for advances to bear interest calculated by reference to prime or LIBOR. If we elect LIBOR, amounts outstanding under the amended credit facility bear interest at a rate per annum equal to LIBOR plus 2.50% if a streamline period applies or LIBOR plus 4.00% if a streamline period does not apply. If we elect prime, advances bear interest at a rate of prime plus 0.50% if a streamline period applies or prime plus 2.00% if a streamline period does not apply. A streamline period is any period during which an event of default does not exist and our Adjusted Quick Ratio (as defined in the Loan Agreement) is at least 1.05 for each day in the preceding month.

The Loan Agreement is collateralized by security interests in substantially all of our assets. Subject to certain exceptions, the Loan Agreement restricts our ability to, among other things, pay dividends, sell assets, make changes to the nature of the business, engage in mergers or acquisitions, incur, assume or permit to exist, additional indebtedness and guarantees, create or permit to exist, liens, make distributions or redeem or repurchase capital stock, or make other investments, engage in transactions with affiliates, make payments with respect to subordinated debt, and enter into certain transactions without the consent of the financial institution. If a streamline period is not in effect, we are required to maintain a lockbox arrangement where client payments received in the lockbox will immediately reduce the amounts outstanding on the credit facility.

The Loan Agreement requires us to comply with financial covenants, including a minimum Adjusted Quick Ratio and the achievement of certain Adjusted EBITDA targets. On a monthly basis, or quarterly if there were no advances outstanding during the calendar quarter, we are required to maintain a minimum Adjusted Quick Ratio of: (i) 1.00 if the trailing six month adjusted EBITDA is $0 or less, or (ii) 0.90 if the trailing six month adjusted EBITDA is greater than $0. If our Adjusted Quick Ratio is 1.05 or greater, a streamline period applies. As of December 31, 2018, our Adjusted Quick Ratio was 1.16, which is in compliance with the covenant requirement and is higher than the minimum Adjusted Quick Ratio required to qualify for a streamline period. We must also maintain trailing twelve month Adjusted EBITDA targets as of the end of each quarter as follows: (1) September 30, 2018 through June 30, 2019 Adjusted EBITDA must be within 20% of the Adjusted EBITDA projections that were delivered to Silicon Valley Bank; (2) September 30, 2019 Adjusted EBITDA of $1 or greater; and (3) December 31, 2019 and thereafter, Adjusted EBITDA of $5.0 million or greater.

The Loan Agreement also includes customary representations and warranties, affirmative covenants, and events of default, including events of default upon a change of control and material adverse change (as defined in the Loan Agreement). Following an event of default, SVB would be entitled to, among other things, accelerate payment of amounts due under the credit facility and exercise all rights of a secured creditor.

At December 31, 2018, we had no amounts outstanding under our Loan Agreement with SVB. Future availability under the credit facility is dependent on several factors including the available borrowing base and compliance with future covenant requirements.

We believe our existing cash and cash equivalents and investment balances will be sufficient to meet our working capital requirements for at least the next twelve months from the issuance of our financial statements. However, we typically collect from buyers in advance of payments to sellers, and our collection and payment cycle can vary from period to period depending upon various circumstances, including seasonality. Increases in revenue earned directly from advertisers and agencies may cause the amount of receipts from buyers collected in advance of payments to sellers to decrease, because advertisers and agencies may pay slowly. Recently, some buyers have begun demanding longer terms to pay us later and some sellers have begun demanding shorter terms to collect from us earlier. We may not have the leverage to resist these demands given the competitive nature of our business. If this continues, more of our cash will be required to fund our payment cycle and therefore not available for other uses. Our future capital requirements and the adequacy of available funds will depend on many factors, including those set forth in Part I, Item

1A: "Risk Factors" of this Annual Report on Form 10-K.

Our ability to renew our existing credit facility, which matures in September 2020, or to enter into a new credit facility to replace or supplement the existing facility may be limited due to various factors, including the status of our business, global credit market conditions, and perceptions of our business or industry by sources of financing. In particular, it may be difficult to renew or replace our existing credit facility if we are not able to produce, or demonstrate a path to produce, positive cash flow. In addition, even if credit is available, lenders may seek more restrictive covenants and higher interest rates that may reduce our borrowing capacity, increase our costs, and reduce our operating flexibility.

In the future, we may attempt to raise additional capital through the sale of equity securities or through equity-linked or debt financing arrangements. If we raise additional funds by issuing equity or equity-linked securities, the ownership of our existing stockholders will be diluted. If we raise additional financing by incurring indebtedness, we will be subject to increased

Table of Contents

fixed payment obligations and could also be subject to restrictive covenants, such as limitations on our ability to incur additional debt, and other operating restrictions that could adversely impact our ability to conduct our business. Any future indebtedness we incur may result in terms that could be unfavorable to equity investors.

An inability to raise additional capital could adversely affect our ability to achieve our business objectives. In addition, if our operating performance during the next twelve months is below our expectations, our liquidity and ability to operate our business could be adversely affected.

Cash Flows

The following table summarizes our cash flows for the periods presented:

	Year Ended December 31, 2018	December 31, 2017
	(in thousands)	
Cash flows provided by (used in) operating activities	$ (22,686)	$ 21,535
Cash flows provided by (used in) investing activities	27,947	(93,210)
Cash flows used in financing activities	(1,279)	(1,380)
Effects of exchange rate changes on cash, cash equivalents and restricted cash	(172)	199
Change in cash, cash equivalents and restricted cash	$ 3,810	$ (72,856)

Operating Activities

Our cash flows from operating activities are primarily driven by revenues generated from advertising activity, offset by the cash costs of operations, and significantly influenced by increases or decreases in receipts from buyers and related payments to sellers. Our future cash flows will be diminished if we cannot increase our revenue levels and manage costs appropriately. Cash flows from operating activities have been further affected by changes in our working capital, particularly changes in accounts receivable and accounts payable. The timing of cash receipts from buyers and payments to sellers can significantly impact our cash flows from operating activities for any period presented.

For the year ended December 31, 2018, net cash used in operating activities was $22.7 million, compared to net cash provided by operating activities of $21.5 million for the year ended December 31, 2017. Our operating activities included our net losses of $61.8 million and $154.8 million for the years ended December 31, 2018 and 2017, respectively, which were offset by non-cash adjustments of $51.3 million and $151.5 million, respectively. Non-cash adjustments for the year ended December 31, 2017 included $90.3 million and $4.6 million of impairment charges related to goodwill and intangible assets and internally developed software, respectively. In 2018, net changes in our working capital increased cash used in operating activities by $12.1 million. Net cash provided by operating activities for 2017 was also increased by net changes in our working capital of $24.8 million. The net changes in working capital for both periods are primarily due to the timing of cash receipts from buyers and the timing of payments to sellers.

We believe that cash flows from operations will continue to be negatively impacted by our ongoing net losses and working capital needs.

Investing Activities

Our primary investing activities have consisted of investments in, and maturities of, available-for-sale securities, acquisitions of businesses, purchases of property and equipment, and capital expenditures to develop our internal use software in support of creating and enhancing our technology infrastructure. Purchases of property and equipment and investments in internal use software development may vary from period-to-period due to the timing of the expansion of our operations, changes to headcount, and the cycles of our internal use software development. As we execute on our strategy to be a high volume, low cost advertising exchange, we are developing solutions to manage the growth of our digital advertising inventory volume more efficiently. As the business continues to grow, we expect our investment in property and equipment to slightly increase compared to 2018. We anticipate investment in internal use software development to remain relatively consistent with past years' investment levels as we continue to innovate new solutions on our platform. Investments in, and maturities of, available-for-sale securities and acquisitions of businesses vary from period-to-period.

During the year ended December 31, 2018, net cash provided by investing activities was $27.9 million, compared to net cash used in investing activities of $93.2 million for the year ended December 31, 2017. Net cash used in our investing activities in 2017 included $38.6 million of cash consideration, net of cash acquired, to acquire nToggle, Inc. in July 2017. For the year ended December 31, 2018 we had net maturities of available-for-sale securities of $38.7 million compared to net purchases of available for sale securities of $14.2 million for the year ended December 31, 2017. The year ended December 31, 2018 also included cash inflows of $9.2 million from sales of our available-for-sale securities. These cash inflows were offset by purchases of property and equipment of $11.4 million and $32.4 million during 2018 and 2017, respectively, which included costs to integrate nToggle into our platform in 2017. We also made investments in our internally developed software of $8.5 million and $8.0 million during the year ended December 31, 2018 and 2017, respectively.

Financing Activities

Our financing activities consisted of transactions related to the issuance of our common stock under our equity plans. For the years ended December 31, 2018 and 2017, we used net cash of $1.3 million and $1.4 million, respectively, for financing activities. Cash outflows from financing activities for the years ended December 31, 2018 and 2017 included payments of $1.6 million and $2.4 million, respectively, for income tax deposits paid in respect of vesting of stock-based compensation awards that were reimbursed by the award recipients through surrender of shares. Offsetting these outflows were cash inflows of $0.3 million and $0.6 million from the issuance of common stock under the employee stock purchase plan for the years ended December 31, 2018 and 2017, respectively.

Off-Balance Sheet Arrangements

We do not have any relationships with other entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities that have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. We did not have any other off-balance sheet arrangements at December 31, 2018 other than the operating leases and the indemnification agreements described below.

Contractual Obligations and Known Future Cash Requirements

Our principal commitments consist of leases for our various office facilities, including our corporate headquarters in Los Angeles, California, and non-cancelable operating lease agreements with data centers that expire at various times through 2024. At December 31, 2018, expected future commitments relating to operating leases were $14.0 million. See Note 16 of "Notes to Consolidated Financial Statements" for our annual lease commitment for each of the next five years and thereafter. In certain cases, the terms of the lease agreements provide for rental payments on a graduated basis. We received rental income from subleases totaling $0.8 million for the year ended December 31, 2018.

There were no significant changes to our unrecognized tax benefits in the year ended December 31, 2018 and we do not expect to have any significant changes to unrecognized tax benefits through December 31, 2019.

In the ordinary course of business, we enter into agreements with sellers, buyers, and other third parties pursuant to which we agree to indemnify buyers, sellers, vendors, lessors, business partners, lenders, stockholders, and other parties with respect to certain matters, including, but not limited to, losses resulting from claims of intellectual property infringement, damages to property or persons, business losses, or other liabilities. Generally, these indemnity and defense obligations relate to our own business operations, obligations, and acts or omissions. However, under some circumstances, we agree to indemnify and defend contract counterparties against losses resulting from their own business operations, obligations, and acts or omissions, or the business operations, obligations, and acts or omissions of third parties. These indemnity provisions generally survive termination or expiration of the agreements in which they appear. In addition, we have entered into indemnification agreements with our directors, executive officers and certain other officers that will require us, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors, officers, or employees. No demands for indemnification have been made as of December 31, 2018.

Critical Accounting Policies and Estimates

Our consolidated financial statements are prepared in accordance with GAAP. The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, expenses, and related disclosures. We evaluate our estimates and assumptions on an ongoing basis. Our estimates are based on historical experience and various other assumptions that we believe to be reasonable under the circumstances. Our actual results could differ from these estimates.

We believe that the accounting policies disclosed below include estimates and assumptions critical to our business and their application could have a material impact on our consolidated financial statements. In addition to these critical policies, our significant accounting policies are included within Note 2 of our "Notes to Consolidated Financial Statements" within this Annual Report on Form 10-K.

Revenue Recognition

We generate revenue from transactions where we provide a platform for the purchase and sale of digital advertising inventory. Our advertising automation solution is a marketplace that includes sellers of inventory (providers of websites, mobile applications and other digital media properties, and their representatives) and buyers of inventory (including advertisers, agencies, agency trading desks, and demand-side platforms). This solution incorporates proprietary machine-learning algorithms,

Table of Contents

sophisticated data processing, high-volume storage, detailed analytics capabilities, and a distributed infrastructure. Together, these features form the basis for our automated advertising solution that brings buyers and sellers together and facilitates intelligent decision-making and automated transaction execution for the digital advertising inventory managed on our platform. Digital advertising inventory is created when consumers access sellers' content. Sellers provide digital advertising inventory to our platform in the form of advertising requests, or ad requests. When we receive ad requests from sellers, we send bid requests to buyers, which enable buyers to bid on sellers' digital advertising inventory. Winning bids can create advertising, or paid impressions, for the seller to present to the consumer.

The total volume of spending between buyers and sellers on our platform is referred to as advertising spend. We keep a percentage of that advertising spend as a fee, and remit the remainder to the seller. The fee that we retain from the gross advertising spend on our platform is recognized as revenue. The fee earned on each transaction is based on the pre-existing agreement we have with the seller and the clearing price of the winning bid. We recognize revenue upon fulfillment of our performance obligation to a client, which occurs at the point in time an ad renders and is counted as a paid impression, subject to a contract existing with the client and a fixed or determinable transaction price. Performance obligations for all transactions are satisfied, and the corresponding revenue is recognized, at a distinct point in time; we have no arrangements with multiple performance obligations. We consider the following when determining if a contract exists (i) contract approval by all parties, (ii) identification of each party's rights regarding the goods or services to be transferred, (iii) specified payment terms, (iv) commercial substance of the contract, and (v) collectability of substantially all of the consideration is probable.

We have determined that we do not act as the principal in the purchase and sale of digital advertising inventory because we are not the primary obligor and do not set prices agreed upon within the auction marketplace, and therefore we report revenue on a net basis. In periods prior to the second quarter of 2017, we reported revenue on a gross basis for revenue associated with our intent marketing solution, as we determined that we acted as the principal in the purchase and sale of digital advertising inventory. We ceased offering our intent marketing solution after the first quarter of 2017, after which time, all of our revenues have been recorded on a net basis.

Impairment of Long-Lived Assets, including Intangible Assets and Internal Use Capitalized Software Costs

We assess the recoverability of our long-lived assets when events or changes in circumstances indicate their carrying value may not be recoverable. Such events or changes in circumstances may include: a significant adverse change in the extent or manner in which a long-lived asset is being used, significant adverse change in legal factors or in the business climate that could affect the value of a long-lived asset, an accumulation of costs significantly in excess of the amount originally expected for the acquisition or development of a long-lived asset, current or future operating or cash flow losses that demonstrate continuing losses associated with the use of a long-lived asset, or a current expectation that, more likely than not, a long-lived asset will be sold or otherwise disposed of significantly before the end of its previously estimated useful life. We perform impairment testing at the asset group level that represents the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. We assess recoverability of a long-lived asset by determining whether the carrying value of the asset group can be recovered through projected undiscounted cash flows over their remaining lives. If the carrying value of the asset group exceeds the forecasted undiscounted cash flows, an impairment loss is recognized, measured as the amount by which the carrying amount exceeds estimated fair value. An impairment loss is charged to operations in the period in which management determines such impairment.

Recently Issued Accounting Pronouncements

For information regarding recent accounting pronouncements, refer to Note 2 of our "Notes to Consolidated Financial Statements" within this Annual Report on Form 10-K.

Item 7A. Quantitative and Qualitative Disclosure About Market Risk

This section is not required for smaller reporting companies.

Table of Contents

Item 8. Financial Statements and Supplementary Data

The Rubicon Project, Inc.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Table of Contents

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the stockholders and the Board of Directors of The Rubicon Project, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheet of The Rubicon Project, Inc. and subsidiaries (the "Company") as of December 31, 2018, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity, and cash flows, for the year ended December 31, 2018, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018, and the results of its operations and its cash flows for the year ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audit. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audit, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company’s internal control over financial reporting. Accordingly, we express no such opinion.

Our audit included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audit provides a reasonable basis for our opinion.

/s/ Deloitte & Touche LLP

Los Angeles, CA

February 27, 2019

We have served as the Company's auditor since 2018.

Table of Contents

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of The Rubicon Project, Inc.

Opinion on the Financial Statements

We have audited the consolidated balance sheet of The Rubicon Project, Inc. and its subsidiaries (the “Company”) as of December 31, 2017, and the related consolidated statements of operations, comprehensive income (loss), stockholders’ equity (deficit) and cash flows for the year ended December 31, 2017, including the related notes (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017, and the results of its operations and its cash flows for the year ended December 31, 2017 in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company’s consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits of these consolidated financial statements in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ PricewaterhouseCoopers LLP

Los Angeles, California

March 14, 2018

We served as the Company's auditor from 2012 to 2018.

Table of Contents

THE RUBICON PROJECT, INC.
CONSOLIDATED BALANCE SHEETS
(In thousands, except per share amounts)

	December 31, 2018	December 31, 2017
ASSETS		
Current assets:		
Cash and cash equivalents	$ 80,452	$ 76,642
Marketable securities	7,524	52,504
Accounts receivable, net	205,683	165,890
Prepaid expenses and other current assets	6,882	9,620
TOTAL CURRENT ASSETS	300,541	304,656
Property and equipment, net	33,487	47,393
Internal use software development costs, net	14,570	12,734
Other assets, non-current	1,240	5,493
Intangible assets, net	10,174	13,359
TOTAL ASSETS	$ 360,012	$ 383,635
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable and accrued expenses	$ 239,678	$ 214,103
Other current liabilities	1,304	3,141
TOTAL CURRENT LIABILITIES	240,982	217,244
Other liabilities, non-current	1,017	1,780
TOTAL LIABILITIES	241,999	219,024
Commitments and contingencies (Note 16)		
STOCKHOLDERS' EQUITY		
Preferred stock, $0.00001 par value, 10,000 shares authorized at December 31, 2018 and 2017; 0 shares issued and outstanding at December 31, 2018 and 2017	—	—
Common stock, $0.00001 par value; 500,000 shares authorized at December 31, 2018 and 2017; 51,159 and 50,239 shares issued and outstanding at December 31, 2018 and 2017, respectively	1	—
Additional paid-in capital	433,877	418,354
Accumulated other comprehensive income (loss)	(259)	41
Accumulated deficit	(315,606)	(253,784)
TOTAL STOCKHOLDERS' EQUITY	118,013	164,611
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$ 360,012	$ 383,635

The accompanying notes to consolidated financial statements are an integral part of these statements.

Table of Contents

THE RUBICON PROJECT, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share amounts)

	Year Ended December 31, 2018	December 31, 2017
Revenue	$124,685	$155,545
Expenses:		
Cost of revenue	60,003	56,836
Sales and marketing	44,556	51,794
Technology and development	37,863	47,500
General and administrative	42,431	55,596
Restructuring and other exit costs	3,440	5,959
Impairment of intangible assets and internal use software	—	4,585
Impairment of goodwill	—	90,251
Total expenses	188,293	312,521
Loss from operations	(63,608)	(156,976)
Other (income) expense:		
Interest income, net	(988)	(908)
Other income	(766)	(688)
Foreign exchange (gain) loss, net	(389)	1,165
Total other income, net	(2,143)	(431)
Loss before income taxes	(61,465)	(156,545)
Provision (benefit) for income taxes	357	(1,762)
Net loss	$(61,822)	$(154,783)
Net loss per share:		
Basic and Diluted	$(1.23)	$(3.17)
Weighted average shares used to compute net loss per share:		
Basic and Diluted	50,259	48,869

The accompanying notes to consolidated financial statements are an integral part of these statements.

Table of Contents

THE RUBICON PROJECT, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(In thousands)

	Year Ended	
	December 31, 2018	December 31, 2017
Net loss	$(61,822)	$(154,783)
Other comprehensive income (loss):		
Unrealized gain (loss) on investments	27	(28)
Foreign currency translation adjustments	(327)	342
Other comprehensive income (loss)	(300)	314
Comprehensive loss	$(62,122)	$(154,469)

The accompanying notes to consolidated financial statements are an integral part of these statements.

Table of Contents

THE RUBICON PROJECT, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In thousands)

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2016	49,378	$ —	$398,787	$ (273)	$(99,001)	$ 299,513
Exercise of common stock options	106	—	394	—	—	394
Restricted stock awards, net	(189)	—	—	—	—	—
Issuance of common stock related to employee stock purchase plan	200	—	629	—	—	629
Issuance of common stock related to RSU vesting	1,273	—	—	—	—	—
Shares withheld related to net share settlement	(529)	—	(2,403)	—	—	(2,403)
Stock-based compensation	—	—	20,947	—	—	20,947
Other comprehensive loss	—	—	—	314	—	314
Net loss	—	—	—	—	(154,783)	(154,783)
Balance at December 31, 2017	50,239	—	418,354	41	(253,784)	164,611
Exercise of common stock options	50	—	45	—	—	45
Restricted stock awards, net	(156)	—	—	—	—	—
Issuance of common stock related to employee stock purchase plan	174	—	314	—	—	314
Issuance of common stock related to RSU vesting	1,367	1	—	—	—	1
Shares withheld related to net share settlement	(515)	—	(1,638)	—	—	(1,638)
Stock-based compensation	—	—	16,802	—	—	16,802
Other comprehensive loss	—	—	—	(300)	—	(300)
Net loss	—	—	—	—	(61,822)	(61,822)
Balance at December 31, 2018	51,159	$ 1	$433,877	$ (259)	$(315,606)	$ 118,013

The accompanying notes to consolidated financial statements are an integral part of these statements.

THE RUBICON PROJECT, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended	
	December 31, 2018	**December 31, 2017**
OPERATING ACTIVITIES:		
Net loss	$(61,822)	$(154,783)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:		
Depreciation and amortization	35,338	36,225
Stock-based compensation	16,282	20,504
Impairment of intangible assets and internal use software	—	4,585
Impairment of goodwill	—	90,251
Loss on disposal of property and equipment	243	195
Provision for doubtful accounts	758	580
Accretion of available for sale securities	(412)	(276)
Unrealized foreign currency gains, net	(897)	970
Deferred income taxes	(42)	(1,564)
Changes in operating assets and liabilities, net of effect of business acquisitions:		
Accounts receivable	(40,688)	26,051
Prepaid expenses and other assets	4,519	(224)
Accounts payable and accrued expenses	26,612	(502)
Other liabilities	(2,577)	(477)
Net cash provided by (used in) operating activities	(22,686)	21,535
INVESTING ACTIVITIES:		
Purchases of property and equipment	(11,433)	(32,438)
Capitalized internal use software development costs	(8,507)	(7,988)
Acquisitions, net of cash acquired	—	(38,610)
Investments in available-for-sale securities	(23,991)	(95,224)
Maturities of available-for-sale securities	62,650	81,050
Sales of available-for-sale securities	9,228	—
Net cash provided by (used in) investing activities	27,947	(93,210)
FINANCING ACTIVITIES:		
Proceeds from exercise of stock options	45	394
Proceeds from issuance of common stock under employee stock purchase plan	314	629
Taxes paid related to net share settlement	(1,638)	(2,403)
Net cash used in financing activities	(1,279)	(1,380)
EFFECT OF EXCHANGE RATE CHANGES ON CASH, CASH EQUIVALENTS AND RESTRICTED CASH	(172)	199
CHANGE IN CASH, CASH EQUIVALENTS AND RESTRICTED CASH	3,810	(72,856)
CASH, CASH EQUIVALENTS AND RESTRICTED CASH — Beginning of period	76,642	149,498
CASH, CASH EQUIVALENTS AND RESTRICTED CASH — End of period	$80,452	$76,642
SUPPLEMENTAL DISCLOSURES OF OTHER CASH FLOW INFORMATION:		
Cash paid for income taxes	$379	$382
Cash paid for interest	$46	$61
Capitalized assets financed by accounts payable and accrued expenses	$6	$109
Capitalized stock-based compensation	$520	$443

The accompanying notes to consolidated financial statements are an integral part of these statements.

Table of Contents

THE RUBICON PROJECT, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
Note 1—Nature of Operations
Company Overview
The Rubicon Project, Inc., or Rubicon Project (the "Company"), was formed on April 20, 2007 in Delaware and began operations in April 2007. The Company is headquartered in Los Angeles, California.
The Company provides a technology solution to automate the purchase and sale of digital advertising inventory for buyers and sellers. The Company's platform features applications and services for digital advertising sellers, including websites, mobile applications and other digital media properties, and their representatives, to sell their digital advertising inventory; applications and services for buyers, including advertisers, agencies, agency trading desks, and demand side platforms, or DSPs, to buy digital advertising inventory; and a marketplace over which such transactions are executed. Together, these features power and enhance a comprehensive, transparent, independent advertising marketplace that brings buyers and sellers together and facilitates intelligent decision making and automated transaction execution for the digital advertising inventory managed on the Company's platform. The Company's clients include many of the world's leading publishers of websites and mobile applications and buyers of digital advertising inventory.
Advertising inventory takes different forms, referred to as advertising units, is purchased and sold through different transactional methodologies, and allows advertising content to be presented to consumers through different channels. The Company's solution enables buyers and sellers to purchase and sell:
- a comprehensive range of advertising units, including display, audio and video;
- that are transacted through real-time bidding ("RTB"), which includes (i) direct sale of premium inventory, which the Company refers to as private marketplace ("PMP"), and (ii) open auction bidding, which the Company refers to as open marketplace ("OMP"); and
- that are displayed across digital channels, including mobile web, mobile application, and desktop, as well as across various out-of-home channels, such as digital billboards.

Risks and Uncertainties
The Company has been negatively impacted by rapid changes in the ad tech industry, including demand by ad tech buyers for more efficiency and lower costs, changes in bidding technologies, and increased competition. In response to these challenges, the Company made significant reductions in fees charged to buyers during 2017 and in November 2017 eliminated its buyer fees altogether. The competitive pressures and reduced take rate resulted in lower revenue on an annual basis in 2018 compared to the prior year. In an effort to bring its costs into better alignment with reduced take rates, the Company has undertaken restructuring activities to reduce headcount and related operating costs, and has also reduced its capital expenditures. Unless and until the Company is able to compensate for the fee reductions and reduced margins by continuing to increase advertising spending on its platform, or sufficiently reducing costs, it may not be able to grow its business and may continue to operate at a loss, depleting its cash resources and liquidity. If the Company continues to experience significant operating losses in the future, the Company may require additional liquidity to fund its operations.

Note 2—Organization and Summary of Significant Accounting Policies
Basis of Consolidation
The accompanying consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America, or GAAP, and include the operations of the Company and its wholly owned subsidiaries. All significant inter-company transactions and balances have been eliminated in consolidation.
Segments
Management has determined that the Company operates as one segment. The Company’s chief operating decision maker reviews financial information on an aggregated and consolidated basis, together with certain operating and performance measures principally to make decisions about how to allocate resources and to measure the Company’s performance.

Use of Estimates

The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported and disclosed financial statements and accompanying footnotes. Actual results could differ

Table of Contents

materially from these estimates.

On an ongoing basis, management evaluates its estimates, primarily those related to: (i) revenue recognition criteria, including the determination of revenue reporting as net versus gross in the Company’s revenue arrangements, (ii) accounts receivable and allowances for doubtful accounts, (iii) the useful lives of intangible assets and property and equipment, (iv) valuation of long-lived assets and their recoverability, including goodwill, (v) the realization of tax assets and estimates of tax liabilities, (vi) assumptions used in valuation models to determine the fair value of stock-based awards, (vii) fair value of financial instruments, (viii) the recognition and disclosure of contingent liabilities, and (ix) the assumptions used in valuing acquired assets and assumed liabilities in business combinations. These estimates are based on historical data and experience, as well as various other factors that management believes to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Estimates relating to the valuation of stock and business combinations, as well as the recoverability of long-lived assets and goodwill, require the selection of appropriate valuation methodologies and models, and significant judgment in evaluating ranges of assumptions and financial inputs. Actual results may differ materially from those estimates under different assumptions or circumstances.

Revenue Recognition

The Company generates revenue from transactions where it provides a platform for the purchase and sale of digital advertising inventory between buyers and sellers of advertising inventory. Digital advertising inventory is created when consumers access sellers’ content. Sellers provide digital advertising inventory to our platform in the form of advertising requests, or ad requests. When the Company receives ad requests from sellers, it sends bid requests to buyers, which enable buyers to bid on sellers’ digital advertising inventory. Winning bids can create advertising, or paid impressions, for the seller to present to the consumer.

The total volume of spending between buyers and sellers on the Company's platform is referred to as advertising spend. The Company keeps a percentage of that advertising spend as a fee, and remits the remainder to the seller. The fee that the Company retains from the gross advertising spend on its platform is recognized as revenue. The fee earned on each transaction is based on the pre-existing agreement with the seller and the clearing price of the winning bid. The Company recognizes revenue upon fulfillment of its performance obligation to a client, which occurs at the point in time an ad renders and is counted as a paid impression, subject to a contract existing with the client and a fixed or determinable transaction price. Performance obligations for all transactions are satisfied, and the corresponding revenue is recognized, at a distinct point in time; the Company has no arrangements with multiple performance obligations. The Company considers the following when determining if a contract exists (i) contract approval by all parties, (ii) identification of each party’s rights regarding the goods or services to be transferred, (iii) specified payment terms, (iv) commercial substance of the contract, and (v) collectability of substantially all of the consideration is probable.

The Company evaluates whether it acts as the principal in the purchase and sale of digital advertising inventory to determine whether revenue should be reported on a gross or net basis. The Company has determined that it does not act as the principal in the purchase and sale of digital advertising inventory because it does not have control of the digital advertising inventory and does not set prices agreed upon within the auction marketplace, and therefore reports revenue on a net basis. In periods prior to the second quarter of 2017, the Company reported revenue on a gross basis for revenue associated with its intent marketing solution, as the Company determined that it acted as the principal in the purchase and sale of digital advertising inventory. The Company ceased offering its intent marketing solution after the first quarter of 2017, after which time, all of the Company’s revenues have been recorded on a net basis. See Note 4 for additional disclosure of our revenue policies and disaggregated presentation of our revenues.

Expenses

The Company classifies its expenses into the following seven categories:

Cost of Revenue. The Company's cost of revenue consists of data center costs, bandwidth costs, depreciation and maintenance expense of hardware supporting the Company's revenue-producing platform, amortization of software costs for the development of the Company's revenue-producing platform, amortization expense associated with acquired developed technologies, personnel costs, and facilities-related costs. For intent marketing transactions

conducted in the first quarter of 2017 in which the Company was the principal and reported revenues on a gross basis, cost of revenue also included amounts the Company paid to sellers for their inventory. Personnel costs included in cost of revenue include salaries, bonuses, stock-based compensation, and employee benefit costs, and are primarily attributable to personnel in the Company's network operations group who support the Company's platform. The Company capitalizes costs associated with software that is developed or obtained for internal use and amortizes the costs associated with its revenue-producing platform in cost of revenue over their estimated useful lives. The Company amortizes acquired developed technologies over their estimated useful lives.
Sales and Marketing. The Company's sales and marketing expenses consist primarily of personnel costs, including stock-

Table of Contents

based compensation and sales bonuses paid to the Company's sales organization, marketing expenses such as brand marketing, travel expenses, trade shows and marketing materials, professional services, and amortization expense associated with client relationships and backlog from the Company's business acquisitions and, to a lesser extent, facilities-related costs and depreciation and amortization. The Company's sales organization focuses on increasing the adoption of the Company's solution by existing and new buyers and sellers. The Company amortizes acquired intangibles associated with client relationships and backlog from its business acquisitions over their estimated useful lives.

Technology and Development. The Company's technology and development expenses consist primarily of personnel costs, including stock-based compensation and bonuses, and professional services associated with the ongoing development and maintenance of the Company's solution and, to a lesser extent, facilities-related costs and depreciation and amortization, including amortization expense associated with acquired intangible assets from the Company's business acquisitions that are related to technology and development functions. These expenses include costs incurred in the development, implementation and maintenance of internal use software, including platform and related infrastructure. Technology and development costs are expensed as incurred, except to the extent that such costs are associated with internal use software development that qualifies for capitalization, which are then recorded as internal use software development costs, net on the Company's consolidated balance sheet. The Company amortizes internal use software development costs that relate to its revenue-producing activities on the Company's platform to cost of revenue and amortizes other internal use software development costs to technology and development costs or general and administrative expenses, depending on the nature of the related project. The Company amortizes acquired intangibles associated with technology and development functions from its business acquisitions over their estimated useful lives.

General and Administrative. The Company's general and administrative expenses consist primarily of personnel costs, including stock-based compensation and bonuses, associated with the Company's executive, finance, legal, human resources, compliance, and other administrative personnel, as well as accounting and legal professional services fees, facilities-related costs and depreciation, and other corporate-related expenses. General and administrative expenses also include amortization of internal use software development costs and acquired intangible assets from the Company's business acquisitions over their estimated useful lives that relate to general and administrative functions and changes in fair value associated with the liability-classified contingent consideration related to acquisitions.

Restructuring and Other Exit Costs. The Company's restructuring and other exit costs are cash and non-cash charges consisting primarily of employee termination costs, facility closure and relocation costs, and contract termination costs.

Impairment of Intangible Assets and Internal Use Software. The Company's impairment charges are non-cash charges related to its intangible assets. Intangible assets are reviewed for impairment indicators at least annually and whenever events or changes in circumstances indicate that the carrying amount of the assets might not be recoverable. Refer to the "Intangible Assets" policy within this footnote for additional information regarding the determination of impairment charges related to intangible assets.

Impairment of Goodwill. The Company's goodwill impairment charges are non-cash charges related to its goodwill asset. Goodwill is tested annually for impairment during the fourth quarter or more frequently if events or changes in circumstances indicate that goodwill may be impaired. Refer to the "Goodwill" policy within this footnote for additional information regarding the determination of goodwill impairment charges.

Stock-Based Compensation

Compensation expense related to stock-based awards is measured and recognized in the consolidated financial statements based on the fair value of the awards granted. The Company has granted restricted stock awards, restricted stock units, and stock option awards that vest based solely on continued service, or service conditions, to employees and non-employees. The fair value of each share-based award containing service conditions is based on the Company's grant date common share price for restricted stock awards and restricted stock units and is estimated using the Black-Scholes option-pricing model for stock option awards. For service condition awards, stock-based compensation expense is recognized on a straight-line basis over the requisite service periods of the awards, or the vesting period, which is generally four years.

As of July 1, 2018, the Company prospectively adopted ASU 2018-07—*Stock Compensation (Topic 718)* ("ASU 2018-07"), which updated the treatment of non-employee share-based awards to conform with the existing guidance under Accounting Standards Codification Topic 718, Compensation—*Stock Compensation* that was already applicable to share-based awards granted to employees. Prior to this adoption, the Company remeasured the fair value of each non-employee stock-based award each period until a commitment date was reached, which was generally the vesting date. As of the adoption date, the fair value of existing unvested awards held by non-employees was determined based on the adoption date fair value, which will be recognized over the remaining service period. For employees that transition into a non-employee contractor relationship with the Company subsequent to the adoption date their existing awards will continue to be recognized at the original grant date fair value. There was no impact to the Company's consolidated financial statements resulting from the adoption of ASU 2018-07.

Table of Contents

The assumptions and estimates used in the Black-Scholes pricing model are as follows:
Fair Value of Common Stock. The fair value of common stock is based on the closing price of the Company's common stock as reported on the New York Stock Exchange, or the NYSE, on the date of grant.
Risk-Free Interest Rate. The Company bases the risk-free interest rate used in the Black-Scholes option-pricing model on the yields of U.S. Treasury securities with maturities appropriate for the term of stock option awards.
Expected Term. For employee options that contain service conditions, the Company applies the simplified approach, in which the expected term of an award is presumed to be the mid-point between the vesting date and the expiration date of the award. The expected term of employee stock options that contain performance conditions represents the weighted-average period that the stock options are estimated to remain outstanding.
Volatility. Because the Company does not have significant trading history for the Company’s common stock, the Company determines the price volatility based on the historical volatilities of a publicly traded peer group based on daily price observations over a period equivalent to the expected term of the stock option grants.
Dividend Yield. The dividend yield assumption is based on the Company’s history and current expectations of dividend payouts. The Company has never declared or paid any cash dividends on its common stock and does not anticipate paying any cash dividends in the foreseeable future, so the Company used an expected dividend yield of zero.
Determining the fair value of stock-based awards using a pricing model requires judgment. The Company’s use of the Black-Scholes option-pricing model requires the input of subjective assumptions such as the expected term of the award, the expected volatility of the price of the Company’s common stock, risk-free interest rates, and the expected dividend yield of the Company’s common stock. The assumptions used in the Company’s valuation model represent management’s best estimates. These estimates involve inherent uncertainties and the application of management’s judgment. If factors change and different assumptions are used, the Company’s stock-based compensation expense could be materially different in the future.
Due to the full valuation allowance provided on its net deferred tax assets, the Company has not recorded any tax benefit attributable to stock-based awards for the years ended December 31, 2018 and 2017.

Income Taxes

Deferred income tax assets and liabilities are determined based upon the net tax effects of the differences between the Company’s consolidated financial statement carrying amounts and the tax basis of assets and liabilities and are measured using the enacted tax rate expected to apply to taxable income in the years in which the differences are expected to be reversed.
A valuation allowance is used to reduce some or all of the deferred tax assets if, based upon the weight of available evidence, it is more likely than not that those deferred tax assets will not be realized. The Company has established a full valuation allowance to offset its domestic net deferred tax assets due to the uncertainty of realizing future tax benefits from the net operating loss carryforwards and other deferred tax assets.
The Company recognizes the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities, based on the technical merits of the position. The tax benefits recognized in the consolidated financial statements from such positions are then measured based on the largest benefit that has a greater than 50% likelihood of being realized. The Company recognizes interest and penalties accrued related to its uncertain tax positions in its income tax provision (benefit) in the consolidated statements of operations.
The Tax Cuts and Jobs Act (“the Tax Act”) was enacted in December 2017. The Tax Act significantly changes U.S. tax law by, among other things, lowering U.S. corporate income tax rates, implementing a territorial tax system and imposing a one-time transition tax on deemed repatriated earnings of foreign subsidiaries. The Tax Act reduces the U.S. corporate income tax rate from 34% to 21%, effective January 1, 2018. The Company recognized the impact of the revaluation of deferred tax balances and the provisional impact related to the one-time transition tax in its consolidated financial statements for the year ended December 31, 2017. The Company completed its analysis of the impact of U.S. tax reform during 2018 in accordance with the SAB 118 measurement period and there were no changes to the amounts recorded.

Capital Stock

The Company has authorized capital stock of 500,000,000 shares of common stock and 10,000,000 shares of preferred stock. The Company has issued common stock, which is included in outstanding common stock on the Company's Consolidated Balance Sheets. The Company has not issued any shares of its preferred stock subsequent to the Company's IPO and does not have any preferred stock outstanding.

The Company is required to reserve and keep available out of its authorized but unissued shares of common stock such number of shares sufficient to effect any of the Company's contingent consideration liabilities and the conversion of all shares granted and available for grant under the Company’s stock award plans. The number of shares of the Company's stock reserved for these purposes at December 31, 2018 was 18,094,154.

The board of directors is authorized to establish, from time to time, the number of shares to be included in each series of preferred stock, and to fix the designation, powers, privileges, preferences, and relative participating, optional or other rights, if any, of the shares of each series of preferred stock, and any of its qualifications, limitations or restrictions.

Net Income (Loss) Per Share Attributable to Common Stockholders

Basic net income (loss) per share of common stock is calculated by dividing the net income (loss) by the weighted-average number of shares of common stock outstanding. Diluted income (loss) per share attributable to common stockholders adjusts the basic weighted-average number of shares of common stock outstanding for the effect of potentially dilutive securities during the period. Potentially dilutive securities consist of stock options, restricted stock awards, restricted stock units, potential shares issued under the Company's Employee Stock Purchase Plan ("ESPP"), shares held in escrow and potential shares issuable as part of contingent consideration as a result of business combinations. For purposes of this calculation, potentially dilutive securities are excluded from the calculation of diluted net income (loss) per share if their effect is anti-dilutive.

Comprehensive Income (Loss)

Comprehensive income (loss) encompasses all changes in equity other than those arising from transactions with stockholders, and consists of net income (loss), unrealized gains (losses) on investments and foreign currency translation adjustments.

Cash, Cash Equivalents, and Marketable Securities

The Company invests excess cash primarily in money market funds, corporate debt securities, and highly liquid debt instruments of the U.S. government and its agencies. The Company classifies investments held in money market funds as cash equivalents because the money market funds have weighted-average maturities at the date of purchase of less than 90 days. Investments held in U.S. government and agency bonds and corporate debt securities with stated maturities of less than one year are classified as short-term investments included in marketable securities and prepaid expenses and other current assets. Investments held in U.S. government and agency bonds and corporate debt securities with stated maturities of over a year are classified as long-term investments included in other assets, non-current on the Company’s consolidated balance sheets, as the Company does not expect to redeem or sell these securities within one year from the balance sheet date.

The Company determines the appropriate classification of investments in marketable securities at the time of purchase and reevaluates such designation at each balance sheet date. The Company classifies and accounts for the Company’s marketable securities as available-for-sale, and as a result carries the securities at fair value and reports the unrealized gains and losses in the consolidated statements of comprehensive income (loss) and as a component of stockholders’ equity. The Company determines any realized gains or losses on the sale of marketable securities on a specific identification method, and the Company records such gains and losses as a component of other income, net on the Company’s consolidated statements of operations.

Restricted Cash

The Company classifies certain restricted cash balances within prepaid expenses and other current assets on the consolidated balance sheets based upon the term of the remaining restrictions. At December 31, 2018 and 2017 the Company had no restricted cash.

Accounts Receivable Allowance for Doubtful Accounts

Accounts receivable are recorded at the invoiced amount, are unsecured, and do not bear interest. The allowance for doubtful accounts is based on the best estimate of the amount of probable credit losses in existing accounts receivable. The allowance for doubtful accounts is determined based on historical collection experience and the review in each period of the status

Table of Contents

of the then-outstanding accounts receivable, while taking into consideration current client information, subsequent collection history and other relevant data. The Company reviews the allowance for doubtful accounts on a quarterly basis. Account balances are charged off against the allowance when the Company believes it is probable the receivable will not be recovered. The Company's allowance for doubtful accounts was approximately $1.3 million and $0.5 million at December 31, 2018 and 2017, respectively. During the years ended December 31, 2018 and 2017, the Company wrote-off $0.6 million and $0.7 million, respectively, of accounts receivable.

Property and Equipment, Net

Property and equipment are recorded at historical cost, less accumulated depreciation and amortization. Depreciation is computed using the straight-line method based upon the estimated useful lives of the assets. The estimated useful lives of the Company's property and equipment are as follows:

	Years
Computer equipment and network hardware	3
Furniture, fixtures and office equipment	5 to 7
Leasehold improvements	Shorter of useful life or life of lease
Computer equipment under capital leases	Shorter of useful life or life of lease

Repair and maintenance costs are charged to expense as incurred, while renewals and improvements are capitalized. When assets are retired or otherwise disposed of, the cost and related accumulated depreciation are removed from the accounts and any resulting gain or loss is reflected in the Company's results of operations.

Internal Use Software Development Costs

The Company capitalizes certain internal use software development costs associated with creating and enhancing internally developed software related to the Company's technology infrastructure. These costs include personnel and related employee benefits expenses for employees who are directly associated with and who devote time to software projects, and external direct costs of materials and services consumed in developing or obtaining the software. Software development costs that do not meet the qualification for capitalization, as further discussed below, are expensed as incurred and recorded in technology and development expenses in the results of operations.

Software development activities generally consist of three stages, (i) the planning stage, (ii) the application and infrastructure development stage, and (iii) the post implementation stage. Costs incurred in the planning and post implementation stages of software development, including costs associated with the post-configuration training and repairs and maintenance of the developed technologies, are expensed as incurred. The Company capitalizes costs associated with software developed for internal use when the planning stage is completed, management has authorized further funding for the completion of the project, and it is probable that the project will be completed and perform as intended. Costs incurred in the application and infrastructure development stages, including significant enhancements and upgrades, are capitalized. Capitalization ends once a project is substantially complete and the software and technologies are ready for their intended purpose. Internal use software development costs are amortized using a straight-line method over the estimated useful life of three years, commencing when the software is ready for its intended use. The straight-line recognition method approximates the manner in which the expected benefit will be derived.

The Company does not transfer ownership of its software, or lease its software, to third parties.

Intangible Assets

Intangible assets primarily consist of acquired developed technology, client relationships, and non-compete agreements resulting from business combinations, which are recorded at acquisition-date fair value, less accumulated amortization. The Company determines the appropriate useful life of its intangible assets by performing an analysis of expected cash flows of the acquired assets. Intangible assets are amortized over their estimated useful lives using a straight-line method, which approximates the pattern in which the economic benefits are consumed.

Table of Contents

The Company’s intangible assets are being amortized over their estimated useful lives as follows:

	Years
Developed technology	3 to 5
Client relationships	2.5 to 3
Non-compete agreements	2 to 3
Other intangible assets	1 to 1.5

Intangible assets are reviewed for impairment indicators at least annually and whenever events or changes in circumstances indicate that the carrying amount of the assets might not be recoverable. Conditions that would necessitate an impairment assessment include a significant decline in the observable market value of an asset, a significant change in the extent or manner in which an asset is used, or any other significant adverse change that would indicate that the carrying amount of an asset or group of assets may not be recoverable. For intangible assets used in operations, impairment losses are only recorded if the asset’s carrying amount is not recoverable through its undiscounted, probability-weighted future cash flows. The Company measures the impairment loss based on the difference between the carrying amount and estimated fair value.

Impairment of Long-Lived Assets including Internal Use Capitalized Software Costs

The Company assesses the recoverability of its long-lived assets when events or changes in circumstances indicate their carrying value may not be recoverable. Such events or changes in circumstances may include: a significant adverse change in the extent or manner in which a long-lived asset is being used, significant adverse change in legal factors or in the business climate that could affect the value of a long-lived asset, an accumulation of costs significantly in excess of the amount originally expected for the acquisition or development of a long-lived asset, current or future operating or cash flow losses that demonstrate continuing losses associated with the use of a long-lived asset, or a current expectation that, more likely than not, a long-lived asset will be sold or otherwise disposed of significantly before the end of its previously estimated useful life. The Company performs impairment testing at the asset group level that represents the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. The Company assesses recoverability of a long-lived asset by determining whether the carrying value of the asset group can be recovered through projected undiscounted cash flows over their remaining lives. If the carrying value of the asset group exceeds the forecasted undiscounted cash flows, an impairment loss is recognized, measured as the amount by which the carrying amount exceeds estimated fair value. An impairment loss is charged to operations in the period in which management determines such impairment.

Business Combinations

The results of businesses acquired in a business combination are included in the Company’s consolidated financial statements from the date of acquisition. The Company allocates the purchase price of a business combination, which is the sum of the consideration provided, which may consist of cash, equity or a combination of the two, to the identifiable assets and liabilities of the acquired business at their acquisition date fair values. The excess of the purchase price over the amount allocated to the identifiable assets and liabilities, if any, is recorded as goodwill. Determining the fair value of assets acquired and liabilities assumed requires management to use significant judgment and estimates including the selection of valuation methodologies, estimates of future revenues and cash flows, discount rates and selection of comparable companies.

When the Company issues stock-based or cash awards to an acquired company’s stockholders, the Company evaluates whether the awards are contingent consideration or compensation for post-business combination services. The evaluation includes, among other things, whether the vesting of the awards is contingent on the continued employment of the selling stockholder beyond the acquisition date. If continued employment is required for vesting, the awards are treated as compensation for post-acquisition services and recognized as expense over the requisite service period.

The Company estimates the fair value of intangible assets acquired generally using a discounted cash flow approach, which includes an analysis of the future cash flows expected to be generated by the asset and the risk associated with achieving these cash flows. The key assumptions used in the discounted cash flow model include the discount rate that is applied to the forecasted future cash flows to calculate the present value of those cash flows and the estimate of future cash flows attributable to the acquired intangible asset, which include revenue, expenses and taxes. The

carrying value of acquired working capital assets and liabilities approximates its fair value, given the short-term nature of these assets and liabilities.
Acquisition-related transaction costs are not included as a component of consideration transferred, but are accounted for as an expense in the period in which the costs are incurred.

Goodwill

Goodwill represents the excess of the aggregate fair value of the consideration transferred in a business combination over the fair value of the assets acquired, net of liabilities assumed. Goodwill is not amortized, but is subject to impairment testing conducted annually during the fourth quarter or more frequently if events or changes in circumstances indicate that goodwill may be impaired.

The Company adopted Accounting Standards Update ("ASU") 2017-04—*Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment* during the first quarter of 2017. In accordance with the guidance, the Company has the option to first assess qualitative factors to determine whether or not it is necessary to perform the quantitative goodwill impairment test. If the qualitative assessment option is not elected, or if the qualitative assessment indicates that it is more likely than not that the fair value is less than its carrying amount, a quantitative analysis is then performed. The quantitative analysis, if performed, compares the estimated fair value of the Company with its respective carrying amount, including goodwill. If the estimated fair value of the Company exceeds its carrying amount, including goodwill, goodwill is considered not to be impaired and no additional steps are necessary. If the fair value is less than the carrying amount, including goodwill, then an impairment adjustment must be recorded up to the carrying amount of goodwill.

The Company operates as a single operating segment and has identified a single reporting unit. In the third quarter of 2017, the Company identified potential indications of impairment and performed a quantitative goodwill impairment assessment and determined that the fair value of the Company was less than the carrying value, including goodwill. As a result, the Company recorded a goodwill impairment charge of $90.3 million during the third quarter of 2017. Refer to Note 5 for a description of the methods used to compute the goodwill impairment charge in the third quarter of 2017.

Operating and Capital Leases

The Company records rent expense for operating leases, some of which have escalating rent payments, on a straight-line basis over the lease term. The Company begins recognition of rent expense on the date of initial possession, which is generally when the Company enters the leased premises and begins to make improvements in preparation for its intended use. Some of the Company’s lease arrangements provide for concessions by the landlords, including payments for leasehold improvements and rent-free periods. The Company accounts for the difference between the straight-line rent expense and rent paid as a deferred rent liability.

Assets and liabilities under capital lease are recorded at the lesser of present value of aggregate future minimum lease payments, including estimated bargain purchase options, or the fair value of the asset under lease. Assets under capital lease are amortized using the straight-line method over the estimated useful lives of the assets. The Company has no capital leases at December 31, 2018.

Fair Value of Financial Instruments

The carrying amounts of the Company's cash equivalents, accounts receivable, accounts payable, accrued expenses, and seller payables approximate fair value due to the short-term nature of these instruments. Certain assets of the Company are recorded at their fair value, using the fair value hierarchy, on a recurring basis, and other assets and liabilities, including goodwill and intangible assets are subject to measurement at fair value on a non-recurring basis if they are deemed to be impaired as a result of an impairment review (see Note 5).

Concentration of Risk

Financial instruments that potentially subject the Company to concentration of credit risk consist principally of cash, cash equivalents, restricted cash and accounts receivable. Cash and cash equivalents maintained with financial institutions exceed applicable federally insured limits.

Accounts receivable include amounts due from buyers with principal operations primarily in the United States. The Company performs ongoing credit evaluations of its buyers.

At December 31, 2018, two buyers accounted for 21% and 13%, respectively, of consolidated accounts receivable. At December 31, 2017, two buyers accounted for 20% and 15%, respectively, of accounts receivable.

The Company recognizes revenue from its contracts with sellers, and no seller of advertising inventory comprised 10% or more of revenue in 2018 or 2017.

At December 31, 2018 and 2017, no seller of advertising inventory comprised 10% or more of accounts payable.

83

Table of Contents

Foreign Currency Transactions and Translation

Transactions in foreign currencies are translated into the functional currency of the applicable entity at the rates of exchange in effect at the date of the transaction. Foreign exchange gains or losses were included in foreign exchange (gain) loss, net in the accompanying consolidated statements of operations. To the extent that the functional currency is different than the U.S Dollar, the financial statements have then been translated into U.S. Dollars using period-end exchange rates for assets and liabilities and average exchanges rates for the results of operations. Foreign currency translation gains and losses are included as a component of accumulated other comprehensive income (loss) on the consolidated balance sheet.

Recently Adopted Accounting Pronouncements

On January 1, 2018, the Company adopted the following accounting pronouncements, using a prospective adoption method, which did not have an impact on the Company's consolidated financial statements and did not result in any significant policy changes:

- Accounting Standards Update ("ASU") 2017-01—*Business Combinations (Topic 805): Clarifying the Definition of a Business*; and
- ASU 2017-09—*Compensation—Stock Compensation (Topic 718): Scope of Modification Accounting.*

The Company has also adopted ASU 2016-15—*Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments,* although the retrospective adoption method did not have an impact on periods presented. The Company will apply this guidance to applicable future transactions.

Recent Accounting Pronouncements

Under the Jumpstart Our Business Startups Act, or the JOBS Act, the Company meets the definition of an emerging growth company. The Company has irrevocably elected to opt out of the extended transition period for complying with new or revised accounting standards pursuant to Section 107(b) of the JOBS Act.

In February 2016, the Financial Accounting Standards Board ("FASB") issued ASU 2016-02—*Leases (Topic 842)* ("ASU 2016-02"), which requires an entity to recognize right-of-use assets and lease liabilities on its balance sheet and disclose key information about leasing arrangements. ASU 2016-02 offers specific accounting guidance for a lessee, a lessor, and sale and leaseback transactions. Lessees and lessors are required to disclose qualitative and quantitative information about leasing arrangements to enable a user of the financial statements to assess the amount, timing and uncertainty of cash flows arising from leases. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement. ASU 2016-02 is effective for annual reporting periods beginning after December 15, 2018, including interim periods within that reporting period, with early adoption permitted. ASU 2016-02 required a modified retrospective adoption approach, however subsequent guidance (discussed below) provides an additional option for adoption approach.

In July 2018, the FASB issued ASU 2018-11—*Leases (Topic 842): Targeted Improvements* ("ASU 2018-11"), which updates some of the implementation requirements under Accounting Standards Codification Topic 842 on leases. ASU 2018-11 provides for an additional adoption approach that was not previously included in ASU 2016-02 that allows for a prospective application. This guidance eliminates the requirement to present prior year comparative lease disclosures once ASU 2016-02 is adopted, and must be adopted concurrently with ASU 2016-02. The Company plans to apply the adoption method made available by ASU 2018-11.

Although the Company is evaluating the impact of adopting ASU 2016-02 on its consolidated financial statements, the Company expects that most of its operating lease commitments will be recognized as operating lease liabilities and right-of-use assets upon adoption of the new guidance. The adoption date of this guidance is January 1, 2019 in accordance with ASU 2018-11 and prior periods will not be adjusted. The Company continues to implement changes to its systems, processes and controls, in conjunction with its review of existing lease agreements. The Company's leases primarily include, real estate leases (office space), equipment leases, and data center leases. The adoption of the new accounting guidance will have a material, although largely offsetting, impact on its consolidated balance sheet in future periods, with increases to both its total assets and total liabilities by establishing right-of-use assets and lease liabilities, respectively. The adoption of this guidance will not have a material impact to the Company's consolidated statements of operations and the Company does not expect it to have any impact on its total cash flows from operating, investing or financing activities.

In August 2018, the FASB issued ASU 2018-13—*Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement* ("ASU 2018-13"), to streamline the disclosure requirements of ASC Topic 820—Fair Value Measurement. ASU 2018 removes certain disclosure requirements, including the valuation process for Level 3 fair value measurements, and adds certain quantitative disclosures around Level 3 fair value measurements. This ASU is effective for annual reporting periods beginning after December 15, 2019, including interim periods within that reporting period, with early adoption permitted. The provisions of ASU 2018-13 are required to be adopted retrospectively, with the exception of disclosure of

Table of Contents

the range and weighted average of significant unobservable inputs used to develop Level 3 measurements, which can be adopted prospectively. The Company is currently evaluating the effect this guidance will have on its consolidated financial statements and related disclosures.

In August 2018, the FASB issued ASU 2018-15—*Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer’s Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract* ("ASU 2018-15"). ASU 2018-15 was issued to clarify the requirements of ASC 350-40—*Intangibles—Goodwill and Other—Internal-Use Software* ("ASC 350-40"). The ASU clarifies that implementation, setup and other upfront costs related to cloud hosting agreements should be accounted for under ASC 350-40. This ASU is effective for annual reporting periods beginning after December 15, 2019, including interim periods within that reporting period, with early adoption permitted. ASU 2018-15 can be applied either retrospectively or prospectively to all implementation costs incurred after the date of adoption. The Company is currently evaluating the effect this guidance will have on its consolidated financial statements.

In December 2018, the FASB issued ASU 2018-20—*Leases (Topic 842): Narrow-Scope Improvements for Lessors* ("ASU 2018-20"). ASU 2018-20 was issued to clarify the requirements for lessors under ASC 842—*Leases* ("ASC 842"). The ASU clarifies the recognition timing and requirements of certain payments made by lessees to either the lessor or a third party. This ASU is effective for annual reporting periods beginning after December 15, 2018, including interim periods within that reporting period, with its adoption aligned with the adoption of ASU 2016-02. The Company functions as the sublessor for a limited number of real estate leases, however ASU 2018-20 is not applicable to these subleases.

Note 3—Net Income (Loss) Per Share

The following table presents the basic and diluted net loss per share:

	Year Ended	
	December 31, 2018	**December 31, 2017**
	(in thousands, except per share data)	
Basic and Diluted EPS:		
Net loss	$(61,822)	$(154,783)
Weighted-average common shares outstanding	50,602	49,720
Weighted-average unvested restricted shares	(343)	(851)
Weighted-average common shares outstanding used to compute net loss per share	50,259	48,869
Basic and diluted net loss per share	$(1.23)	$(3.17)

The following weighted-average shares have been excluded from the calculation of diluted net loss per share attributable to common stockholders for each period presented because they are anti-dilutive:

	Year Ended	
	December 31, 2018	**December 31, 2017**
	(in thousands)	
Options to purchase common stock	128	120
Unvested restricted stock awards	218	297
Unvested restricted stock units	2,029	556
ESPP	55	50
Total shares excluded from net loss per share	2,430	1,023

Note 4—Revenues

On January 1, 2018, the Company adopted Accounting Standards Update 2014-09—*Revenue from Contracts with Customers (Topic 606)* ("ASU 2014-09") using a modified retrospective approach applied to all contracts that generated revenue in the preceding year. The adoption of this guidance did not have an impact on the amount or timing of revenue recognized by the Company.

The Company generates revenue from transactions where it provides a platform for the purchase and sale of digital advertising inventory. The Company's advertising automation solution is a marketplace for sellers of digital advertising inventory (providers of websites, mobile applications and other digital media properties, and their representatives) and buyers of digital advertising inventory (including advertisers, agencies, agency trading desks, and demand-side platforms). This solution incorporates proprietary machine-

Table of Contents

learning algorithms, sophisticated data processing, high-volume storage, detailed analytics capabilities, and a distributed infrastructure. Together, these features form the basis for the Company’s automated advertising solution that brings buyers and sellers together and facilitates intelligent decision-making and automated transaction execution for the digital advertising inventory managed on the Company's platform. Digital advertising inventory is created when consumers access sellers’ content. Sellers provide digital advertising inventory to the Company’s platform in the form of advertising requests, or ad requests. When the Company receives ad requests from sellers, it sends bid requests to buyers, which enable buyers to bid on sellers’ digital advertising inventory. Winning bids can create advertising, or paid impressions, for the seller to present to the consumer.

The total volume of spending between buyers and sellers on the Company’s platform is referred to as advertising spend. The Company keeps a percentage of that advertising spend as a fee, and remits the remainder to the seller. The fee that the Company retains from the gross advertising spend on its platform is recognized as revenue. The fee earned on each transaction is based on the pre-existing agreement between the Company and the seller and the clearing price of the winning bid. The Company recognizes revenue upon fulfillment of its performance obligation to a client, which occurs at the point in time an ad renders and is counted as a paid impression, subject to an underlying agreement existing with the client and a fixed or determinable transaction price. Performance obligations for all transactions are satisfied, and the corresponding revenue is recognized, at a distinct point in time when an ad renders. The Company does not have arrangements with multiple performance obligations.

The Company reports revenue on a net basis as it does not act as the principal in the purchase and sale of digital advertising inventory because it does not have control of the digital advertising inventory and does not set prices agreed upon within the auction marketplace. In periods prior to the second quarter of 2017, the Company reported revenue on a gross basis for revenue associated with its intent marketing solution, as the Company determined that it acted as the principal in the purchase and sale of digital advertising inventory. The Company ceased offering its intent marketing solution after the first quarter of 2017, after which time, all of the Company’s revenues have been recorded on a net basis. Revenue generated by the Company’s intent marketing solution in 2017 prior to its cessation was $1.3 million, which is included in total revenue for the year ended December 31, 2017.

Payment terms are specified in agreements between the Company and the buyers and sellers on its exchange platform. The Company generally bills buyers at the end of each month for the full purchase price of impressions filled in that month. The Company recognizes volume discounts as a reduction of revenue as they are incurred. Specific payment terms may vary by agreement, but are generally seventy-five days or less. The Company's accounts receivable are recorded at the amount of gross billings to buyers, net of allowances for the amounts the Company is responsible to collect. The Company's accounts payable related to amounts due to sellers are recorded at the net amount payable to sellers (see Note 11). Accordingly, both accounts receivable and accounts payable appear large in relation to revenue reported on a net basis.

The following table presents our revenue by channel for the years ended December 31, 2018 and 2017:

	Year Ended					
	December 31, 2018			**December 31, 2017**		
	(in thousands, except percentages)					
Channel:						
Desktop	$59,039	47	%	$84,327	54	%
Mobile	65,646	53		71,218	46	
Total	$124,685	100	%	$155,545	100	%

The following table presents our revenue disaggregated by geographic location, based on the location of the Company's sellers:

	Year Ended	
	December 31, 2018	**December 31, 2017**
	(in thousands)	
United States	$83,020	$95,567
International	41,665	59,978

Total	$124,685	$155,545

86

Table of Contents

Note 5—Fair Value Measurements
Recurring Fair Value Measurements
Fair value represents the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. Observable inputs are based on market data obtained from independent sources. The fair value hierarchy is based on the following three levels of inputs, of which the first two are considered observable and the last one is considered unobservable:

- Level 1 – Quoted prices (unadjusted) in active markets for identical assets or liabilities that the Company has the ability to access at the measurement date.
- Level 2 – Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.
- Level 3 – Unobservable inputs.

The table below sets forth a summary of financial instruments that are measured at fair value on a recurring basis at December 31, 2018:

	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in thousands)			
Cash equivalents	$13,692	$ 13,692	$ —	$ —
U.S. Treasury, government and agency debt securities	$7,524	$ 7,524	$ —	$ —

The table below sets forth a summary of financial instruments that are measured at fair value on a recurring basis at December 31, 2017:

	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in thousands)			
Cash equivalents	$1,807	$ 210	$ 1,597	$ —
Corporate debt securities	$25,098	$ —	$ 25,098	$ —
U.S. Treasury, government and agency debt securities	$29,901	$ 29,901	$ —	$ —

At December 31, 2018 and 2017, cash equivalents of $13.7 million and $1.8 million, respectively, consisted of money market funds and commercial paper, with original maturities of three months or less. The carrying amounts of cash equivalents are classified as Level 1 or Level 2 depending on whether or not their fair values are based on quoted market prices for identical securities that are traded in an active market. The commercial paper included in cash equivalents at December 31, 2017 is classified as Level 2 since its fair value is not based on quoted market prices for identical securities that are traded in an active market, but rather is derived from similar securities. Corporate debt securities (which are included in marketable securities on the balance sheet) with fair values derived from similar securities rather than based on quoted market prices for identical securities, are classified as Level 2 as well. The fair values of the Company's U.S. treasury, government and agency debt securities are based on quoted market prices and classified as Level 1, and are included within marketable securities.
There were no transfers between Level 1 and Level 2 fair value measurements during the year ended December 31, 2018 and 2017.
Non-Recurring Fair Value Measurements
Impairment of Goodwill
During the third quarter of 2017, the Company identified potential indications of impairment, which triggered a quantitative goodwill impairment assessment. The Company compared the fair value of its net assets, calculated using three valuation methodologies, to the carrying value of the net assets. The fair value of the Company's net assets falls within Level 3 of

Table of Contents

the fair value hierarchy, as it was determined using unobservable inputs and relied on assumptions and estimates made by the Company's management. The valuation process is described below:

Income Approach. The Company first estimated the fair value of its net assets based on an income approach using the 2017 remaining year forecast, projections for growth from that base, and a terminal growth rate. The cash flows were discounted using the Company's estimated weighted average cost of capital rate of 16.2%. The value of net operating losses and the excess working capital were then added to the discounted cash flows to arrive at the income approach fair value of the Company's net assets.

Market Approach. The market approach used to determine the fair value of the Company's net assets was based upon a review of private and public company control transactions involving comparable companies. The Company performed two analyses under the market approach—a control premium analysis and a similar transaction analysis. In each of these analyses, the Company identified merger or acquisition transactions that were completed over the past three years involving targets that operate within the "Advertising" or "Internet Software and Services" industries and where the buyer was a strategic buyer. In the control premium analysis, the Company calculated a control premium paid in each of these transactions. After analyzing the comparable transactions, the Company applied a control premium of 15% to its adjusted public equity value to derive the fair value of its net assets. An additional method under the market approach, the similar transactions method, was utilized to determine the fair value of the Company's net assets under a strategic buyer purchase scenario. In this analysis, target companies were compared to the Company and multiples paid in transactions, specifically EBITDA, were analyzed and applied to the Company's adjusted EBITDA for the twelve months ended September 30, 2017. Based on the results of this analysis, an adjusted EBITDA multiple of 2.0x was applied to calculate the fair value of the Company's net assets. In determining the comparability of publicly-traded companies, several factors were analyzed, including products and solutions, markets, growth patterns, relative size, earnings trends and other financial characteristics.

The Company compared the fair value of its net assets using the three methodologies (one income approach and two market approaches) described above, to the carrying value and determined that its goodwill was fully impaired. The Company recorded an impairment of $90.3 million to adjust its goodwill balance to its fair value of zero.

Impairment of Intangible Assets and Internal Use Software

The Company measures impairment loss based on the difference between the carrying amount and estimated fair value. In the fourth quarter of 2017, we performed a cash flow analysis of our Guaranteed Orders workflow tool that resulted in impairment charges of the related intangible assets and long lived assets totaling $3.5 million and $1.1 million, respectively. The intangible assets included developed technology and client relationships acquired as part of an acquisition completed in 2014. The fair value of the asset group was determined based on a discounted cash flow method, which reflected estimated future cash flows associated with the identified asset group at the measurement date, and falls within Level 3 of the fair value hierarchy. The asset group was determined to be fully impaired and the assets were written down to their fair values of zero.

For the year ended December 31, 2018, no impairments were recorded on the Company's assets required to be measured at fair value on a non-recurring basis.

Note 6—Investments

Investments in marketable securities as of December 31, 2018 consisted of the following:

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
	(in thousands)			
Available-for-sale—short-term:				
U.S. Treasury, government and agency debt securities	$7,526	$ —	$ (2)	$7,524

The Company's available-for-sale securities had a weighted remaining contractual maturity of 0.1 years as of December 31, 2018. During the year ended December 31, 2018, the Company sold $9.2 million of available-for-sale investments, on which the realized gains were de minimis and there were no unrealized holding gains (losses) reclassified out of accumulated other comprehensive loss into the consolidated statements of operations. The

Company had no sales of available-for-sale investments in 2017. As of December 31, 2018, all of the Company's marketable securities had contractual maturities of less than one year.

Table of Contents

Investments in marketable securities as of December 31, 2017 consisted of the following:

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
	(in thousands)			
Available-for-sale—short-term:				
U.S. Treasury, government and agency debt securities	$27,426	$ —	$ (20)	$27,406
Corporate debt securities	25,098	—	—	25,098
Total	$52,524	$ —	$ (20)	$52,504
Available-for-sale—long-term:				
U.S. Treasury, government and agency debt securities	$2,504	$ —	$ (9)	$2,495

Note 7—Property and Equipment

Major classes of property and equipment were as follows:

	December 31, 2018	December 31, 2017
	(in thousands)	
Purchased software	$1,254	$1,985
Computer equipment and network hardware	98,884	90,695
Furniture, fixtures and office equipment	1,973	2,165
Leasehold improvements	2,571	3,325
Gross property and equipment	104,682	98,170
Accumulated depreciation	(71,195)	(50,777)
Net property and equipment	$33,487	$47,393

Depreciation expense on property and equipment totaled $25.0 million and $20.3 million for the years ended December 31, 2018 and 2017, respectively. There were no impairment charges to property and equipment for the years ended December 31, 2018 and 2017.

At December 31, 2018 and 2017, the Company had no property and equipment under capital leases.

The Company's property and equipment, net by geographical region was as follows:

	December 31, 2018	December 31, 2017
	(in thousands)	
United States	$24,928	$37,566
International	8,559	9,827
Total	$33,487	$47,393

Note 8—Internal Use Software Development Costs

Internal use software development costs were as follows:

	December 31, 2018	December 31, 2017
	(in thousands)	
Internal use software development costs, gross	41,882	$33,414
Accumulated amortization	(27,312)	(20,680)
Internal use software development costs, net	$14,570	$12,734

During the years ended December 31, 2018 and 2017, the Company capitalized $9.0 million and $8.4 million, respectively, of internal use software development costs. Amortization expense was $7.2 million and $11.1 million for the years ended December 31, 2018 and 2017, respectively. In the years ended December 31, 2018 and 2017, amortization expense included the write-off of software development costs of $0.5 million and $1.6 million, in the respective periods. Based on the Company's internal

Table of Contents

use software development costs at December 31, 2018, estimated amortization expense of $7.0 million, $5.1 million and $2.5 million is expected to be recognized in 2019, 2020 and 2021, respectively.
In the fourth quarter of 2017, the Company recognized an impairment of the remaining capitalized software asset related to its Guaranteed Orders workflow tool of $1.1 million, which is included within impairment of intangible assets and internal use software on the consolidated statements of operations (see Note 5 for additional valuation details). There were no impairment charges to internal use software development costs for the year ended December 31, 2018.

Note 9—Goodwill and Intangible Assets

Throughout 2017, the Company experienced a decrease in its stock price and market capitalization. During the third quarter of 2017, there were also certain developments that negatively impacted the Company's near-term business outlook, including the strategic decision to make reductions in the fees the Company charges buyers in open market waterfall RTB transactions, header bidding, and direct pressure from buyers and sellers, which accelerated dramatically in 2017. The Company concluded that these developments, together with the continued decline in the Company's market capitalization below the carrying value of its net assets, represented an indication of impairment that triggered the Company to perform a quantitative valuation assessment of its goodwill. The Company, with the assistance of a valuation consultant, performed a fair value assessment of its net assets using fair values derived from income and market approaches and weighted the outcomes. The fair value of its net assets was compared to the carrying value of $274.4 million and, as the carrying value exceeded the estimated fair value, the Company recorded an impairment charge of $90.3 million during the third quarter of 2017. For additional details regarding the valuation assessment process, refer to Note 5.
The Company no longer had a goodwill balance following the goodwill impairment. Activity of the Company's goodwill for the year ended December 31, 2017 was as follows:

	December 31, 2017 (in thousands)
Beginning balance	$ 65,705
Additions from the acquisition of nToggle (See Note 10)	24,546
Impairment of goodwill	(90,251)
Ending balance	$ —

The Company's intangible assets as of December 31, 2018 and 2017 included the following:

	December 31, 2018	December 31, 2017
	(in thousands)	
Amortizable intangible assets:		
Developed technology	$ 16,878	$ 16,878
Non-compete agreements	690	690
Trademarks	20	20
Total identifiable intangible assets, gross	17,588	17,588
Accumulated amortization—intangible assets:		
Developed technology	(6,888)	(4,062)
Non-compete agreements	(506)	(161)
Trademarks	(20)	(6)
Total accumulated amortization—intangible assets	(7,414)	(4,229)
Total identifiable intangible assets, net	$ 10,174	$ 13,359

Amortization of intangible assets for the years ended December 31, 2018 and 2017 was $3.2 million and $4.8 million, respectively.

In the fourth quarter of 2017, the Company recognized an impairment charge of the remaining intangible assets associated with its Guaranteed Orders workflow tool, totaling $3.5 million. These intangible assets included developed technology and client relationships acquired as part of an acquisition completed in 2014. See Note 5 for additional information.

Table of Contents

The estimated remaining amortization expense associated with the Company's intangible assets was as follows as of December 31, 2018:

Fiscal Year	Amount (in thousands)
2019	$ 3,010
2020	2,826
2021	2,826
2022	1,512
2023	—
Thereafter	—
Total	$ 10,174

Note 10—Business Combinations

2017 Acquisition—nToggle, Inc.

On July 14, 2017, the Company completed the merger of nToggle, Inc. ("nToggle") with Caviar Acquisition Corp., a wholly owned subsidiary of the Company, with nToggle surviving as a wholly owned subsidiary of Rubicon Project. nToggle was a Boston, Massachusetts based programmatic advertising company with traffic-shaping technology. The primary reason for the acquisition was to acquire technology, know-how and personnel that will enable the Company to offer services that make it easier and more cost-effective for buyers to find the inventory they seek among the billions of bid requests they receive. At closing, the Company paid net cash consideration of $38.6 million, which represents total purchase consideration of $40.6 million less acquired cash and cash equivalents of $2.0 million, to the stockholders, warrantholders, and holders of vested in-the-money options of nToggle. In addition, the Company assumed 432,482 outstanding unvested in-the-money options and 77,499 shares of restricted stock held by continuing employees, and issued an aggregate of 174,117 restricted stock units to the continuing employees under the Company's 2014 Inducement Grant Equity Incentive Plan. The financial results of nToggle have been included in our consolidated financial statements since the date of the acquisition.

The major classes of assets and liabilities to which the Company allocated the purchase price were as follows as of the acquisition date:

	Amount (in thousands)
Cash and cash equivalents	$ 1,953
Accounts receivable	256
Prepaid and other assets	18
Fixed assets	763
Other non-current assets	82
Intangible assets	14,840
Goodwill	24,546
Total assets acquired	42,458
Accounts payable and accrued expenses	78
Deferred revenue	91
Deferred tax liability, net	1,719
Total liabilities assumed	1,888
Total net assets acquired	$ 40,570

The Company recognized approximately $0.3 million of acquisition-related costs during the year ended December 31, 2017 that are included within general and administrative expenses in the Company’s consolidated statements of operations. As part of the acquisition of nToggle, the Company acquired nToggle's net operating losses of approximately $9.3 million. In addition, the Company recorded deferred tax liabilities related to acquired intangibles of $5.5 million net of deferred tax assets of $3.8 million primarily related to net operating loss carryforwards.

Table of Contents

The following table summarizes the components of the acquired intangible assets and estimated useful lives (in thousands, except for estimated useful life):

	December 31, 2017	Estimated Useful Life
Developed technology	$14,130	5 years
Non-compete agreements	690	2 years
Trademark & trade name	20	1.5 years
Total intangible assets acquired	$14,840	

The intangible assets are amortized on a straight-line basis, which approximates the pattern in which the economic benefits are consumed, over their estimated useful lives. Amortization of developed technology is included in cost of revenue, the amortization related to non-compete agreements is included in technology and development, and amortization related to trademark and trade name is included in general and administrative.

Goodwill resulting from the acquisition was primarily attributable to acquired workforce, an increase in development capabilities, increased offerings to clients, and enhanced opportunities for growth and innovation. Refer to Note 5 for a description of the methods used to compute the charge for the impairment of consolidated goodwill of $90.3 million recorded in the third quarter of 2017. The acquired intangibles and goodwill resulting from the nToggle acquisition are not amortizable for tax purposes.

Unaudited Pro Forma Information - nToggle Acquisition

The following table provides unaudited condensed pro forma information to give effect to the nToggle acquisition as if it had occurred on January 1, 2017. The unaudited pro forma information reflects adjustments for additional amortization resulting from the fair value adjustments to assets acquired and liabilities assumed. The pro forma results do not include any anticipated cost synergies or other effects of the integration of nToggle. Accordingly, pro forma amounts are not necessarily indicative of the results that actually would have occurred had the acquisition been completed on the date indicated, nor are they indicative of the actual or future operating results of the combined company.

	Year Ended December 31, 2017 (in thousands)
Pro forma revenues	$156,480
Pro forma net loss	$(158,443)
Pro forma net loss per share, basic	$(3.24)
Pro forma net loss per share, diluted	$(3.24)

nToggle's technology was fully integrated into the Company's platform, and its pre-acquisition product is not offered on a stand-alone basis. As a result, the determination of nToggle's post-acquisition revenue and operating results on a stand-alone basis was impracticable.

Note 11—Accounts Payable and Accrued Expenses

Accounts payable and accrued expenses included the following:

	December 31, 2018	December 31, 2017
	(in thousands)	
Accounts payable—seller	$230,423	$203,694
Accounts payable—trade	3,122	3,764
Accrued employee-related payables	6,133	6,645
Total	$239,678	$214,103

Table of Contents

Note 12—Accumulated Other Comprehensive Income (Loss)

The components of accumulated other comprehensive income (loss) were as follows (in thousands):

	Unrealized Gain (Loss) on Investments, net of tax	Foreign Currency Translation	Accumulated Other Comprehensive Income (Loss)
Balance at December 31, 2016	$ (1)	$ (272)	$ (273)
Other comprehensive income (loss)	(28)	342	314
Balance at December 31, 2017	(29)	70	41
Other comprehensive income (loss)	27	(327)	(300)
Balance at December 31, 2018	$ (2)	$ (257)	$ (259)

Note 13—Stock-Based Compensation

In connection with its IPO, the Company implemented its 2014 Equity Incentive Plan, which governs equity awards made to employees and directors of the Company since the IPO. Prior to the IPO, the Company granted equity awards under its 2007 Stock Incentive Plan, which governs equity awards made to employees and contractors under the plan. In November 2014, the Company approved the 2014 Inducement Grant Equity Incentive Plan (the "Inducement Plan"), which governs certain equity awards made to certain employees in connection with commencement of employment. In connection with the Company's acquisitions of Chango Inc. ("Chango") and iSocket, Inc. ("iSocket"), it assumed the existing employee equity award plans, the 2009 Chango Stock Option Plan (the "Chango Plan") and the 2009 Equity Incentive Plan - iSocket (the "iSocket Plan"). As part of the nToggle acquisition in July 2017, the Company assumed all unvested in-the-money options and restricted stock held by continuing employees under the nToggle, Inc. 2014 Equity Incentive Plan ("nToggle Plan") (see Note 10). All compensatory equity awards outstanding at December 31, 2018 were issued pursuant to the 2014 Equity Incentive Plan, the iSocket Plan, the Chango Plan, the nToggle Plan, the Inducement Plan, or the Company's 2007 Stock Incentive Plan.

The Company's equity incentive plans provide for the grant of equity awards, including non-statutory or incentive stock options, restricted stock awards, and restricted stock units, to the Company's employees, officers, directors, and consultants. The Company's board of directors administers the plans. Options outstanding vest based upon continued service at varying rates, but generally over four years from issuance with 25% vesting after one year of service and the remainder vesting monthly thereafter. Restricted stock awards and restricted stock units vest at varying rates, typically approximately 25% vesting after approximately one year of service and the remainder vesting semi-annually thereafter. The restricted stock units granted in 2018 included 2,800,000 restricted stock units that vest 50% on each of the first and second anniversaries of the grant date. Options, restricted stock awards, and restricted stock units granted under the plans accelerate under certain circumstances for certain participants upon on a change in control, as defined in the governing plan. No further awards were made under the iSocket Plan, the Chango Plan, the nToggle Plan, or the 2007 Stock Incentive Plan; available shares under the iSocket Plan, the Chango Plan, and the nToggle Plan were rolled into the available share pool under the 2014 Equity Incentive Plan at the time of acquisition of each company, and available shares under the 2007 Stock Incentive Plan were rolled into the available share pool under the 2014 Equity Incentive Plan at the time of the IPO. An aggregate of 6,701,872 shares remained available for future issuance at December 31, 2018 under the plans. The 2014 Equity Incentive Plan has an evergreen provision pursuant to which the share reserve will automatically increase on January 1st of each year in an amount equal to 5% of the total number of shares of capital stock outstanding on December 31st of the preceding calendar year, although the Company's board of directors may provide for a lesser increase, or no increase, in any year. The 2014 Inducement Grant Equity Incentive Plan has a provision pursuant to which the share reserve may be increased at the discretion of the Company's board of directors.

Table of Contents

Stock Options

A summary of stock option activity for the year ended December 31, 2018 is as follows:

	Shares Under Option	Weighted-Average Exercise Price	Weighted-Average Contractual Life	Aggregate Intrinsic Value
	(in thousands)			(in thousands)
Outstanding at December 31, 2017	4,363	$ 8.75		
Granted	706	$ 2.09		
Exercised	(50)	$ 0.91		
Expired	(1,438)	$ 10.17		
Forfeited	(93)	$ 3.83		
Outstanding at December 31, 2018	3,488	$ 7.06	7.09 years	$ 2,354
Exercisable at December 31, 2018	2,114	$ 9.29	6.07 years	$ 765

The total intrinsic values of options exercised during the year ended December 31, 2018 was $0.1 million. At December 31, 2018, the Company had unrecognized employee stock-based compensation expense relating to nonvested stock options of approximately $3.2 million, which is expected to be recognized over a weighted-average period of 2.5 years. The weighted-average grant date fair value per share of stock options granted during the year ended December 31, 2018 was $1.15. Total fair value of options vested during the year ended December 31, 2018 was $3.3 million.

The Company estimates the fair value of stock options that contain service and/or performance conditions using the Black-Scholes option pricing model. The weighted-average input assumptions used by the Company were as follows:

	Year Ended	
	December 31, 2018	December 31, 2017
Expected term (in years)	6.0	5.8
Risk-free interest rate	2.67 %	2.03 %
Expected volatility	57 %	57 %
Dividend yield	— %	— %

Restricted Stock Awards

A summary of restricted stock activity for the year ended December 31, 2018 is as follows:

	Number of Shares	Weighted-Average Grant Date Fair Value
	(in thousands)	
Nonvested shares of restricted stock outstanding at December 31, 2017	558	$ 12.60
Granted	—	$ —
Canceled	(156)	$ 13.82
Vested	(205)	$ 12.19
Nonvested shares of restricted stock outstanding at December 31, 2018	197	$ 12.06

The aggregate fair value of restricted stock awards with service conditions that vested during the year ended December 31, 2018 was $0.6 million. At December 31, 2018, the Company had unrecognized stock-based compensation expense for restricted stock awards with service conditions of $0.9 million, which is expected to be recognized over a weighted-average period of 1.1 years.

Table of Contents

Restricted Stock Units

A summary of restricted stock unit activity for the year ended December 31, 2018 is as follows:

	Number of Shares	Weighted-Average Grant Date Fair Value
	(in thousands)	
Nonvested restricted stock units outstanding at December 31, 2017	3,609	$ 7.55
Granted	4,976	$ 2.30
Canceled	(1,118)	$ 5.32
Vested	(1,367)	$ 8.06
Nonvested restricted stock units outstanding at December 31, 2018	6,100	$ 3.56

The weighted-average grant date fair value per share of restricted stock units granted during the year ended December 31, 2018 was $2.30. The aggregate fair value of restricted stock units that vested during year ended December 31, 2018 was $4.3 million. At December 31, 2018, the intrinsic value of nonvested restricted stock units was $22.8 million. At December 31, 2018, the Company had unrecognized stock-based compensation expense relating to nonvested restricted stock units of approximately $17.3 million, which is expected to be recognized over a weighted-average period of 2.1 years.

Employee Stock Purchase Plan

In November 2013, the Company adopted the Company's 2014 Employee Stock Purchase Plan ("ESPP"). The ESPP is designed to enable eligible employees to periodically purchase shares of the Company's common stock at a discount through payroll deductions of up to 10% of their eligible compensation, subject to any plan limitations. At the end of each six-month offering period, employees are able to purchase shares at a price per share equal to 85% of the lower of the fair market value of the Company's common stock on the first trading day of the offering period or on the last trading day of the offering period. Offering periods generally commence and end in May and November of each year. As of December 31, 2018, the Company has reserved 1,607,646 shares of its common stock for issuance under the ESPP. The ESPP has an evergreen provision pursuant to which the share reserve will automatically increase on January 1st of each year in an amount equal to 1% of the total number of shares of capital stock outstanding on December 31st of the preceding calendar year, although the Company’s board of directors may provide for a lesser increase, or no increase, in any year.

Stock-Based Compensation Expense

Total stock-based compensation expense recorded in the consolidated statements of operations was as follows:

	Year Ended December 31, 2018	December 31, 2017
	(in thousands)	
Cost of revenue	$321	$ 404
Sales and marketing	4,557	4,582
Technology and development	2,867	4,034
General and administrative	8,139	9,924
Restructuring and other exit costs	398	1,560
Total stock-based compensation expense	$16,282	$ 20,504

Note 14—Restructuring and Other Exit Costs

As part of its on-going efforts to control costs and create efficiencies, the Company underwent restructuring events throughout 2017 and in the first quarter of 2018. The objective of these restructuring activities was to streamline operations, prioritize resources for growth initiatives and increase profitability.

For the year ended December 31, 2017, the Company recognized $6.0 million of restructuring and other exit costs expenses related to the cessation of it's intent marketing solution, including the closure of the Toronto office, as well as the realignment of the management team to a more cost efficient structure (collectively, the "2017 Restructuring Events"). A majority of

Table of Contents

the costs incurred in the year ended December 31, 2017 were severance and one-time termination benefit costs, of which $1.6 million related to non-cash stock-based compensation, the remainder of which related to facility closure costs.

In the first quarter of 2018, the Company announced its restructuring plan to reduce headcount to bring the Company's general and administrative operations into better alignment with the current size of the business and de-layer certain functions, and to reduce its investment in unprofitable projects (the "2018 Restructuring Events"). During the year ended December 31, 2018, the Company incurred restructuring and other exit costs expenses of $3.4 million for severance and one-time termination benefits.

The following table summarizes restructuring and other exit cost activity for the 2018 Restructuring Events (in thousands):

Accrued restructuring and other exit costs at December 31, 2017	$ —
Restructuring and other exit costs	3,440
Cash paid for restructuring and other exit costs	(2,975)
Non-cash stock-based compensation for restructuring and other exit costs	(398)
Accrued restructuring and other exit costs at December 31, 2018	$ 67

Accrued restructuring costs related to the 2017 Restructuring Events were $0.1 million at December 31, 2017 and were paid in the first half of 2018. Accrued restructuring costs are included within other liabilities on the Company's consolidated balance sheets.

The following table presents the components of restructuring and other exit costs for the years ended December 31, 2018 and 2017 (in thousands):

	Year Ended	
	December 31, 2018	**December 31, 2017**
Employee termination costs	$3,440	$ 5,753
Facility closing costs	—	206
Total restructuring and other exit costs	$3,440	$ 5,959

Note 15—Income Taxes

The following are the domestic and foreign components of the Company’s income (loss) before income taxes for the years ended December 31, 2018 and 2017:

	Year Ended	
	December 31, 2018	**December 31, 2017**
	(in thousands)	
Domestic	$(62,292)	$(104,750)
International	827	(51,795)
Loss before income taxes	$(61,465)	$(156,545)

Table of Contents

The following are the components of the provision (benefit) for income taxes for the years ended December 31, 2018 and 2017:

	Year Ended	
	December 31, 2018	December 31, 2017
	(in thousands)	
Current:		
Federal	$ (23)	$ (140)
State	41	78
Foreign	388	(250)
Total current provision	406	(312)
Deferred:		
Federal	—	(1,877)
State	2	288
Foreign	(51)	139
Total deferred benefit	(49)	(1,450)
Total provision (benefit) for income taxes	$ 357	$ (1,762)

The Company recorded an income tax expense of $0.4 million for the year ended December 31, 2018 and an income tax benefit of $1.8 million for the year ended December 31, 2017. The tax provision for the year ended December 31, 2018 is primarily the result of the domestic valuation allowance and the tax liability associated with the foreign subsidiaries.

During the fourth quarter of 2017, the Company recorded a tax deduction of $145.8 million and increased its valuation allowance by a corresponding amount, resulting in no net tax benefit related to a worthless stock deduction generated by the Company's exit from its intent marketing business activities in Canada.

On December 22, 2017, the U.S. government enacted the Tax Cuts and Jobs Act (the "Tax Act"). The Tax Act includes significant changes to the U.S. corporate income tax system including the following: a federal corporate rate reduction from 34% to 21%; limitations on the deductibility of executive compensation and research and development ("R&D") expenditures; temporary immediate expensing of qualified property; the creation of new minimum taxes such as the base erosion anti-abuse tax ("BEAT") and Global Intangible Low Taxed Income ("GILTI") tax; and the transition of U.S. international taxation from a worldwide tax system to a modified territorial tax system, which resulted in a one time U.S. tax liability on those earning which had not previously been repatriated to the U.S. (the "Transition Tax").

The Tax Act imposes a Transition Tax on previously untaxed accumulated and current earnings and profits ("E&P") of certain of our foreign subsidiaries. To determine the amount of the Transition Tax, the Company determined, among other things, the amount of post-1986 E&P of the relevant subsidiaries. The Company recorded a provisional Transition Tax of $0.6 million, which reduced its U.S. net deferred tax assets for the year ended December 31, 2017. We completed our analysis of the impact of U.S. tax reform during 2018, and for the year ended December 31, 2018, there was no change to the Transaction Tax recorded in the prior period.

The Tax Act also reduced the U.S. corporate tax rate from 34% to 21%, effective January 1, 2018. Consequently, the Company recorded a decrease to its tax effected U.S. net deferred tax assets of $31.6 million, with a corresponding decrease to the U.S. valuation allowance for the year ended December 31, 2017 as a result of re-measuring net deferred tax assets at the new lower corporate tax rate of 21%.

The Tax Act requires certain GILTI income earned by controlled foreign corporations ("CFCs") to be included in the gross income of the CFCs' U.S. shareholder (for tax years beginning after December 31, 2017). For the year ended December 31, 2018, the Company has included a GILTI inclusion of $1.3 million, which was incorporated in the calculation of the tax provision.

Table of Contents

Set forth below is a reconciliation of the components that caused the Company's provision (benefit) for income taxes to differ from amounts computed by applying the U.S. Federal statutory rate of 21% for the year ended December 31, 2018 and 34% for the year ended December 31, 2017:

	Year Ended December 31, 2018	December 31, 2017
U.S. federal statutory income tax rate	21.0 %	34.0 %
State income taxes, net of federal benefit	(0.1)%	— %
Foreign income (loss) at other than U.S. rates	— %	0.2 %
Stock-based compensation expense	(5.3)%	(3.8)%
Meals and entertainment	(0.4)%	(0.1)%
Goodwill impairment	— %	(19.0)%
Research and development tax credits	— %	0.8 %
Debt cancellation	(1.2)%	— %
Worthless stock	— %	31.7 %
Other permanent items	(0.5)%	(0.5)%
Change in valuation allowance	(14.1)%	(22.0)%
Tax rate change; U.S. tax reform	— %	(20.2)%
Effective income tax rate	(0.6)%	1.1 %

Set forth below are the tax effects of temporary differences that give rise to a significant portion of the deferred tax assets and deferred tax liabilities as of December 31, 2018 and 2017:

	December 31, 2018	December 31, 2017
	(in thousands)	
Deferred Tax Assets:		
Accrued liabilities	$916	$ 2,648
Stock-based compensation	2,623	3,685
Net operating loss carryovers	76,098	65,648
Tax credit carryovers	13,206	13,494
Other	1,053	1,502
Total deferred tax assets	93,896	86,977
Less valuation allowance	(90,959)	(81,767)
Deferred tax assets, net of valuation allowance	2,937	5,210
Deferred Tax Liabilities:		
Fixed assets	(2,352)	(3,864)
Intangible assets	(152)	(955)
Other	—	—
Total deferred tax liabilities	(2,504)	(4,819)
Net deferred tax assets (liability)	$433	$ 391

The change in valuation allowance for the years ended December 31, 2018 and 2017 was $9.2 million and $42.3 million, respectively.

At December 31, 2018, the Company had U.S. federal net operating loss carryforwards, or NOLs, of approximately $285.5 million, which will begin to expire in 2027. At December 31, 2018, the Company had state NOLs of approximately $167.0 million, which will begin to expire in 2027. At December 31, 2018, the Company had foreign NOLs of approximately $20.5 million, which will begin to expire in 2026. At December 31, 2018, the Company had federal research and development tax credit carryforwards, or credit carryforwards, of approximately $10.2 million, which will begin to expire in 2027. At December 31, 2018, the Company had state research and development tax credits of approximately $8.0 million, which carry forward indefinitely. No amounts for any federal or state research and development tax credits for the year ended December 31, 2018 are included herein.

Table of Contents

Utilization of certain NOLs and credit carryforwards may be subject to an annual limitation due to ownership change limitations set forth in the Internal Revenue Code of 1986, as amended, or the Code, and comparable state income tax laws. Any future annual limitation may result in the expiration of NOLs and credit carryforwards before utilization. A prior ownership change and certain acquisitions resulted in the Company having NOLs subject to insignificant annual limitations.

Additionally, for tax years beginning after December 31, 2017, the Tax Act limits the NOL deduction to 80% of taxable income, repeals carryback of all NOLs arising in a tax year ending after 2017, and permits indefinite carryforward for all such NOLs. NOL's arising in a tax year ending in or before 2017 can offset 100% of taxable income, are available for carryback, and expire 20 years after they arise.

At December 31, 2018, unremitted earnings of the subsidiaries outside of the United States were approximately $7.6 million, on which the Company recorded a transition tax of $0.6 million, as discussed above. The Company's intention is to indefinitely reinvest these earnings outside the United States. Upon distribution of those earnings in the form of a dividend or otherwise, the Company would be subject to withholding taxes payable to various foreign countries and, potentially, various state taxes. The amounts of such tax liabilities that might be payable upon actual repatriation of foreign earnings, after consideration of corresponding foreign tax credits, are not material.

The following table summarizes the activity related to the unrecognized tax benefits (in thousands):

	Amount (in thousands)
Balance as of December 31, 2016	$ 5,027
Increases related to 2017 tax positions	619
Decreases related to prior year tax positions	—
Balance as of December 31, 2017	5,646
Increases related to current year tax positions	—
Decreases related to current year tax positions	—
Decreases related to prior year tax positions	(929)
Balance as of December 31, 2018	$ 4,717

Interest and penalties related to the Company's unrecognized tax benefits accrued at December 31, 2018 and 2017 were not material.

Due to the net operating loss carryforwards, the Company's United States federal and a majority of its state returns are open to examination by the Internal Revenue Service and state jurisdictions for all years since inception. For Australia, Brazil, Canada, Germany, Italy, Japan, Singapore, and the United Kingdom, all tax years remain open for examination by the local country tax authorities, while for France only 2014 forward are open for examination. During the first quarter of 2017, the Internal Revenue Service ("IRS") commenced an examination of the 2015 tax year. During 2018, the Company received an IRS Letter 1226 indicating no change to the 2015 tax return as filed and concluded the examination.

The Company does not expect its uncertain income tax positions to have a material impact on its consolidated financial statements within the next twelve months.

Note 16—Commitments and Contingencies

Operating Leases

The Company has commitments under non-cancelable operating leases for facilities, certain equipment, and its managed data center facilities. Total rental expenses were $12.6 million and $12.7 million for the years ended December 31, 2018 and 2017, respectively. Additionally, expenses for cloud-based services related to data centers were $7.1 million and $4.9 million for the years ended December 31, 2018 and 2017, respectively. As of December 31, 2018 and December 31, 2017, the Company had $2.9 million of letters of credit associated with office leases available for borrowing, on which there were no outstanding borrowings as of either date.

Table of Contents

The following table summarizes the Company's future minimum lease payments under non-cancelable operating leases and related sublease income at December 31, 2018:

	2019	2020	2021	2022	2023	Total
	(in thousands)					
Operating lease expense	$6,773	$3,880	$1,734	$1,019	$597	$14,003
Operating sublease income	(285)	(194)	(194)	(194)	(145)	(1,012)
Total	$6,488	$3,686	$1,540	$825	$452	$12,991

Guarantees and Indemnification

The Company’s agreements with sellers, buyers, and other third parties typically obligate it to provide indemnity and defense for losses resulting from claims of intellectual property infringement, damages to property or persons, business losses, or other liabilities. Generally, these indemnity and defense obligations relate to the Company’s own business operations, obligations, and acts or omissions. However, under some circumstances, the Company agrees to indemnify and defend contract counterparties against losses resulting from their own business operations, obligations, and acts or omissions, or the business operations, obligations, and acts or omissions of third parties. For example, because the Company’s business interposes the Company between buyers and sellers in various ways, buyers often require the Company to indemnify them against acts and omissions of sellers, and sellers often require the Company to indemnify them against acts and omissions of buyers. In addition, the Company’s agreements with sellers, buyers, and other third parties typically include provisions limiting the Company’s liability to the counterparty, and the counterparty’s liability to the Company. These limits sometimes do not apply to certain liabilities, including indemnity obligations. These indemnity and limitation of liability provisions generally survive termination or expiration of the agreements in which they appear. The Company has also entered into indemnification agreements with its directors, executive officers and certain other officers that will require the Company, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors, officers or employees. No material demands have been made upon the Company to provide indemnification under such agreements and there are no claims that the Company is aware of that could have a material effect on the Company’s consolidated financial statements.

Litigation

The Company and its subsidiaries may from time to time be parties to legal or regulatory proceedings, lawsuits and other claims incident to their business activities and to the Company’s status as a public company. Such matters may include, among other things, assertions of contract breach or intellectual property infringement, claims for indemnity arising in the course of the Company’s business, regulatory investigations or enforcement proceedings, and claims by persons whose employment has been terminated. Such matters are subject to many uncertainties, and outcomes are not predictable with assurance. Consequently, management is unable to ascertain the ultimate aggregate amount of monetary liability, amounts which may be covered by insurance or recoverable from third parties, or the financial impact with respect to such matters as of December 31, 2018. However, based on management’s knowledge as of December 31, 2018, management believes that the final resolution of these matters known at such date, individually and in the aggregate, will not have a material adverse effect upon the Company’s consolidated financial position, results of operations or cash flows.

On March 31, 2017, Guardian News & Media Limited ("Guardian") issued proceedings (the "Complaint") against the Company in the Chancery Division of the High Court of Justice in England & Wales. The Complaint alleged that the Company underpaid Guardian for digital advertising inventory sold by Guardian through the Company's platform as a result of the fact that the Company charged fees to buyers of that inventory. Guardian claimed the Company was precluded from charging buyer fees as a result of the contractual arrangements with Guardian and English agency law principles, as well as representations it allegedly made to Guardian. The Complaint claimed damages including loss of revenue, interest, and costs. On October 11, 2018, the Company and Guardian mutually agreed to resolve their dispute and the High Court proceedings have been discontinued. Though the terms of the settlement agreement are confidential, the settlement is immaterial to the Company from a financial standpoint.

Employment Contracts

The Company has entered into severance agreements with certain employees and officers. The Company may be required to pay severance and accelerate the vesting of certain equity awards in the event of involuntary terminations.

Note 17—Debt

On September 26, 2018, the Company amended and restated its loan and security agreement with Silicon Valley Bank (the "Loan Agreement"), which was scheduled to expire on September 27, 2018. The Loan Agreement provides a senior secured

Table of Contents

revolving credit facility of up to $40.0 million with a maturity date of September 26, 2020. The amount available for borrowing as of December 31, 2018 is $30.0 million due to a $10.0 million reserve that will be released if the Company maintains positive Adjusted EBITDA for any trailing twelve-month period. The Company incurred $0.1 million of debt issuance fees that were capitalized and are being amortized over the term of the Loan Agreement.
An unused revolver fee in the amount of 0.15% per annum of the average unused portion of the revolver line is charged and is payable monthly in arrears. The Company may elect for advances to bear interest calculated by reference to prime or LIBOR. If the Company elects LIBOR, amounts outstanding under the amended credit facility bear interest at a rate per annum equal to LIBOR plus 2.50% if a streamline period applies or LIBOR plus 4.00% if a streamline period does not apply. If the Company elects prime, advances bear interest at a rate of prime plus 0.50% if a streamline period applies or prime plus 2.00% if a streamline period does not apply. A streamline period is any period during which an event of default does not exist and the Company's Adjusted Quick Ratio (as defined in the Loan Agreement) is at least 1.05 for each day in the preceding month.
The Loan Agreement is collateralized by security interests in substantially all of the Company's assets. Subject to certain exceptions, the Loan Agreement restricts the Company's ability to, among other things, pay dividends, sell assets, make changes to the nature of the business, engage in mergers or acquisitions, incur, assume or permit to exist, additional indebtedness and guarantees, create or permit to exist, liens, make distributions or redeem or repurchase capital stock, or make other investments, engage in transactions with affiliates, make payments with respect to subordinated debt, and enter into certain transactions without the consent of the financial institution. If a streamline period is not in effect, the Company is required to maintain a lockbox arrangement where clients payments received in the lockbox will immediately reduce the amounts outstanding on the credit facility.
The Loan Agreement requires the Company to comply with financial covenants, including a minimum Adjusted Quick Ratio and the achievement of certain Adjusted EBITDA targets. On a monthly basis, or quarterly if there were no advances outstanding during the calendar quarter, the Company is required to maintain a minimum Adjusted Quick Ratio of: (i) 1.00 if the trailing six month adjusted EBITDA is $0 or less, or (ii) 0.90 if the trailing six month adjusted EBITDA is greater than $0. If the Company’s Adjusted Quick Ratio is 1.05 or greater, a streamline period applies. As of December 31, 2018, the Company's Adjusted Quick Ratio was 1.16, which is in compliance with its covenant requirement and is higher than the minimum Adjusted Quick Ratio required to qualify for a streamline period. The Company must also maintain the following trailing twelve month Adjusted EBITDA targets as of the end of each quarter as follows: (1) September 30, 2018 through June 30, 2019 Adjusted EBITDA must be within 20% of the Adjusted EBITDA projections that were delivered to Silicon Valley Bank; (2) September 30, 2019 Adjusted EBITDA of $1 or greater; and (3) December 31, 2019 and thereafter, Adjusted EBITDA of $5.0 million or greater. As of December 31, 2018, the Company was in compliance with the Adjusted EBITDA covenant.
The Loan Agreement also includes customary representations and warranties, affirmative covenants, and events of default, including events of default upon a change of control and material adverse change (as defined in the Loan Agreement). Following an event of default, SVB would be entitled to, among other things, accelerate payment of amounts due under the credit facility and exercise all rights of a secured creditor.
As of December 31, 2018, there were no amounts outstanding under the Loan Agreement. Future availability under the credit facility is dependent on several factors including the available borrowing base and compliance with future covenant requirements.

Note 18—Related Party Transactions

As of December 31, 2018 and 2017, there were no holders of more than 10% of the Company’s outstanding common stock that were considered to be related parties. During the years ended December 31, 2018 and 2017, the Company did not enter into transactions with any of its related parties.

Note 19—Quarterly Financial Data (Unaudited)

The following tables set forth our quarterly consolidated statements of operations data for each of the eight quarters in the two-year period ended December 31, 2018. We have prepared the quarterly unaudited consolidated statements of operations data on a basis consistent with the audited consolidated financial statements included elsewhere in this Annual Report on Form 10-K. In the opinion of management, the financial information in these tables reflects all adjustments, consisting only of normal recurring adjustments, which management considers necessary for a fair statement of this data. This information should be read in conjunction with the audited consolidated financial statements and related notes included elsewhere in this Annual Report on Form 10-K. The results of historical periods are not necessarily indicative of the results for any future period.

Table of Contents

	Three Months Ended							
	Mar. 31, 2017	**June 30, 2017**	**Sept. 30, 2017**	**Dec. 31, 2017**	**Mar. 31, 2018**	**June 30, 2018**	**Sept. 30, 2018**	**Dec. 31, 2018**
	(in thousands, except per share amounts)							
Revenue	$46,015	$42,922	$35,211	$31,397	$24,876	$28,648	$29,729	$41,432
Expenses:								
Cost of revenue	14,688	13,698	12,985	15,465	14,783	15,044	14,687	15,489
Sales and marketing	14,628	12,529	12,503	12,134	12,257	11,135	10,654	10,510
Technology and development	12,753	12,044	11,580	11,123	10,494	9,245	9,299	8,825
General and administrative	15,080	14,355	13,644	12,517	12,544	11,441	9,355	9,091
Restructuring and other exit costs	4,338	1,621	—	—	2,466	974	—	—
Impairment of intangible assets and internally developed software	—	—	—	4,585	—	—	—	—
Impairment of goodwill	—	—	90,251	—	—	—	—	—
Total expenses	61,487	54,247	140,963	55,824	52,544	47,839	43,995	43,915
Loss from operations	(15,472)	(11,325)	(105,752)	(24,427)	(27,668)	(19,191)	(14,266)	(2,483)
Other (income) expense, net	(7)	84	(150)	(358)	73	(1,281)	(558)	(377)
Loss before income taxes	(15,465)	(11,409)	(105,602)	(24,069)	(27,741)	(17,910)	(13,708)	(2,106)
Provision (benefit) for income taxes	375	146	(2,031)	(252)	75	74	84	124
Net loss	$(15,840)	$(11,555)	$(103,571)	$(23,817)	$(27,816)	$(17,984)	$(13,792)	$(2,230)
Net loss per share:								
Basic and diluted	$(0.33)	$(0.24)	$(2.11)	$(0.48)	$(0.56)	$(0.36)	$(0.27)	$(0.04)
Weighted-average shares used to compute net loss per share:								
Basic and diluted	48,332	48,783	49,055	49,293	49,692	50,071	50,513	50,746

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Not applicable.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as defined in Rule 13a-15(e) under the Exchange Act. Our disclosure controls and procedures are designed to provide reasonable assurance of achieving their objectives of ensuring that information we are required to disclose in the reports we file or submit under the Exchange Act is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosures, and is recorded, processed, summarized, and reported within the time periods specified in the SEC's rules and forms. There is no assurance that our disclosure controls and procedures will operate effectively under all circumstances. Based upon the evaluation described above, our Chief Executive Officer and Chief Financial Officer concluded that, as of December 31, 2018, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control over Financial Reporting

There have been no changes in our internal control over financial reporting that occurred during the three months ended December 31, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) of the Exchange Act).

Our management conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in "Internal Control - Integrated Framework" (2013) issued by the Committee of Sponsoring Organizations of the

Table of Contents

Treadway Commission. Based on this evaluation, management concluded that the Company's internal control over financial reporting was effective as of December 31, 2018.

Inherent Limitations on Effectiveness of Controls

Management recognizes that a control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints and that management is required to apply its judgment in evaluating the benefits of possible controls and procedures relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud or error, if any, have been detected. These inherent limitations include the realities that judgments in decision making can be faulty, and that breakdowns can occur because of a simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

Item 9B. Other Information

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by Item 10 will be included in our Proxy Statement for the 2019 Annual Meeting of Stockholders to be filed with the SEC within 120 days of the fiscal year ended December 31, 2018, or the 2019 Proxy Statement, under the headings "Proposal 1—Election of Directors," "Section 16(a) Beneficial Ownership Reporting Compliance," and "Corporate Governance" and is incorporated herein by reference.

Item 11. Executive Compensation

The information required by Item 11 will be included in the 2019 Proxy Statement under the headings "Executive Officers" and "Executive Compensation" and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by Item 12 will be included in the 2019 Proxy Statement under the heading "Common Stock Ownership of Certain Beneficial Owners and Management" and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by Item 13 will be included in the 2019 Proxy Statement under the headings "Certain Relationships and Related Person Transactions" and "Director Independence" and is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

The information required by Item 14 will be included in the 2019 Proxy Statement under the heading "Proposal 2—Ratification of the Selection of Deloitte & Touche LLP as Independent Registered Public Accounting Firm" and is incorporated herein by reference.

Table of Contents

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a) We have filed the following documents as part of this Annual Report on Form 10-K:

1. Consolidated Financial Statements

2. Financial Statement Schedules

No financial statement schedules are provided because the information called for is not required or is shown in the financial statements of the notes thereto.

3. Exhibits

EXHIBIT INDEX

Number	Description
2.1	Agreement and Plan at Merger, dated July 11, 2017, by and among the Registrant, Caviar Acquisition Corp., nToggle, Inc., Shareholder Representative Services LLC, solely in its capacity as the initial Holder Representative thereunder, and certain persons delivering joinder agreements therewith (incorporated by reference to Exhibit 2.1 to the Registrant's Current Report on Form 8-K filed with the Commission on July 17, 2017).†
3.1	Sixth Amended and Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on May 15, 2014).
3.2	Amended and Restated Bylaws of the Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the Commission on April 8, 2016).
10.1+	The Rubicon Project, Inc. 2007 Stock Incentive Plan and forms of agreements for employees thereunder (incorporated by reference to Exhibit 10.1 to the Registrant's Registration Statement on Form S-1/A filed with the Commission on March 20, 2014).
10.2+	The Rubicon Project, Inc. 2014 Equity Incentive Plan, as amended and restated (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on April 8, 2016).
10.3+	Form of Stock Option Grant Notice and Award Agreement for Employees under The Rubicon Project, Inc. 2014 Equity Incentive Plan (incorporated by reference to Exhibit 10.2(B) to the Registrant's Annual Report on Form 10-K filed with the Commission on March 6, 2015).
10.4+	Form of Restricted Stock Unit Grant Notice and Award Agreement for Employees under The Rubicon Project, Inc. 2014 Equity Incentive Plan (incorporated by reference to Exhibit 10.2(C) to the Registrant's Annual Report on Form 10-K filed with the Commission on March 6, 2015).
10.5+	Form of Stock Option Grant Notice and Award Agreement for Non-Employee Directors under The Rubicon Project, Inc. 2014 Equity Incentive Plan (incorporated by reference to Exhibit 10.2(D) to the Registrant's Annual Report on Form 10-K filed with the Commission on March 6, 2015).
10.6+	Form of Restricted Stock Unit Grant Notice and Award Agreement for Non-Employee Directors under The Rubicon Project, Inc. 2014 Equity Incentive Plan (incorporated by reference to Exhibit 10.2(E) to the

	Registrant's Annual Report on Form 10-K filed with the Commission on March 6, 2015).
10.7+	Form Market Stock Award Notice and Award Agreement under The Rubicon Project, Inc. 2014 Equity Incentive Plan (incorporated by reference to Exhibit 10.7 to the Registrant’s Annual Report on Form 10-K filed with the Commission on March 4, 2016).

104

Table of Contents

10.8+	The Rubicon Project, Inc. 2014 Employee Stock Purchase Plan, as amended and restated on July 26, 2018 (incorporated by reference to Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on November 7, 2018).
10.9+	Form of Enrollment Agreement under The Rubicon Project, Inc. 2014 Employee Stock Purchase Plan (incorporated by reference to Exhibit 10.3(B) to the Registrant's Annual Report on Form 10-K filed with the Commission on March 6, 2015).
10.10+	The Rubicon Project, Inc. 2014 Inducement Grant Equity Incentive Plan, as amended and restated (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the Commission on April 8, 2016).
10.11+	Form of Restricted Stock Unit Grant Notice under The Rubicon Project, Inc. 2014 Inducement Grant Equity Incentive Plan (incorporated by reference to Exhibit 4.7 to the Registrant's Registration Statement on Form S-8 filed with the Commission on December 19, 2014).
10.12+	Form of Stock Option Grant Notice under The Rubicon Project, Inc. 2014 Inducement Grant Equity Incentive Plan (incorporated by reference to Exhibit 4.8 to the Registrant's Registration Statement on Form S-8 filed with the Commission on December 19, 2014).
10.13+	Form of Restricted Stock Grant Notice under The Rubicon Project, Inc. 2014 Inducement Grant Equity Incentive Plan (incorporated by reference to Exhibit 4.9 to the Registrant's Registration Statement on Form S-8 filed with the Commission on December 19, 2014).
10.14+	The Rubicon Project, Inc. 2015 Executive Cash Incentive Plan (incorporated by reference to Exhibit A to the Registrant's Definitive Proxy Statement on Schedule 14A filed with the Commission on April 2, 2015).
10.15+	Executive Employment Agreement, dated May 4, 2007, between adMonitor, Inc. and Frank Addante, as amended December 14, 2007 (incorporated by reference to Exhibit 10.4 to the Registrant's Registration Statement on Form S-1 filed with the Commission on February 4, 2014).
10.16+	Agreement, dated August 16, 2017, by and between Frank Addante and the Registrant (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on August 22, 2017).
10.17	Amended and Restated Loan and Security Agreement, dated as of September 26, 2018, by and among Silicon Valley Bank, the Registrant, Rubicon Project Hopper, Inc., and Rubicon Project Bell, Inc. (incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on November 8, 2018).
10.18	Stock Pledge Agreement, dated October 3, 2013, by and between Silicon Valley Bank and the Registrant (incorporated by reference to Exhibit 10.15 to the Registrant's Registration Statement on Form S-1 filed with the Commission on February 4, 2014).
10.19	First Amendment to Stock Pledge Agreement, dated July 29, 2015, by and between Silicon Valley Bank and the Registrant (incorporated by reference to Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on August 5, 2015).
10.20	Stock Pledge Agreement, dated as of July 29, 2015, by and between Silicon Valley Bank and Rubicon Project Unlatch, Inc. (incorporated by reference to Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on August 5, 2015).
10.21	Second Amendment to Stock Pledge Agreement, dated as of September 26, 2018, by and between Silicon Valley Bank and the Registrant (incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q filed with the Commission on November 8, 2018.
10.22+	Form of Indemnification Agreement between the Registrant and each of its directors and executive officers (incorporated by reference to Exhibit 10.17 to the Registrant's Registration Statement on Form S-1/A filed with the Commission on March 20, 2014).
10.23+	Form of Executive Severance and Vesting Acceleration Agreement by and between the Registrant and certain of its executive officers (incorporated by reference to Exhibit 10.18 to the Registrant's Registration Statement on Form S-1 filed with the Commission on February 4, 2014).
10.24+	

	Form of Amendment No. 1 to Executive Severance and Vesting Acceleration Agreement by and between the Registrant and certain of its executive officers (incorporated by reference to Exhibit 10.1 to the Registrant Quarterly Report on Form 10-Q filed with the Commission on August 5, 2015).
10.25+	Executive Employment Agreement between the Registrant and Michael Barrett, dated March 16, 2017 (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the Commission on March 22, 2017).

Table of Contents

10.26+	Executive Severance and Vesting Acceleration Agreement between the Registrant and Michael Barrett, dated March 16, 2017 (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the Commission on March 22, 2017).
10.27	Sublease, dated January 9, 2013, by and between Fox Interactive Media, Inc. and the Registrant (incorporated by reference to Exhibit 10.19 to the Company's Registration Statement on Form S-1 filed with the Commission on February 4, 2014).
16.1	Letter of PricewaterhouseCoopers LLP dated August 23, 2018 to the SEC regarding statements included in Current Report on Form 8-K (incorporated by reference to Exhibit 16.1 to the Registrant's Current Report on Form 8-K filed with the Commission on August 23, 2018).
21.1*	List of Subsidiaries of The Rubicon Project, Inc.
23.1*	Consent of Deloitte & Touche LLP.
23.2*	Consent of PricewaterhouseCoopers LLP.
31.1*	Certification of Principal Executive Officer Pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of Principal Financial Officer Pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32*(1)	Certification of the Principal Executive Officer and Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.ins *	XBRL Instance Document- the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.sch *	XBRL Taxonomy Schema Linkbase Document
101.cal *	XBRL Taxonomy Calculation Linkbase Document
101.def *	XBRL Taxonomy Definition Linkbase Document
101.lab *	XBRL Taxonomy Label Linkbase Document
101.pre *	XBRL Taxonomy Presentation Linkbase Document

* Filed herewith

\+ Indicates a management contract or compensatory plan or arrangement

† Certain schedules have been omitted pursuant to Item 601(b)(2) of Regulation S-K. The Company agrees to furnish supplemental copies of any of the omitted schedules upon request by the Securities and Exchange Commission.

(1) The information in this exhibit is furnished and deemed not filed with the Securities and Exchange Commission for purposes of section 18 of the Exchange Act of 1934, as amended (the "Exchange Act"), and is not to be incorporated by reference into any filing of The Rubicon Project, Inc. under the Securities Act of 1933, as amended (the "Securities Act"), or the Exchange Act, whether made before or after the date hereof, regardless of any general incorporation language in such filing.

Item 16. Form 10-K Summary

None.

Table of Contents

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this Annual Report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized.

THE RUBICON PROJECT, INC.
(Registrant)

/s/ David Day
David Day
Chief Financial Officer
(Principal Financial Officer)

Date February 27, 2019

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated:

Name	Title	Date
/s/ Michael Barrett Michael Barrett	President, Chief Executive Officer and Director (Principal Executive Officer)	February 27, 2019
/s/ David Day David Day	Chief Financial Officer (Principal Financial Officer)	February 27, 2019
/s/ Blima Tuller Blima Tuller	Chief Accounting Officer (Principal Accounting Officer)	February 27, 2019
/s/ Frank Addante Frank Addante	Director	February 27, 2019
/s/ Robert J. Frankenberg Robert J. Frankenberg	Director	February 27, 2019
/s/ Sumant Mandal Sumant Mandal	Director	February 27, 2019
/s/ Robert F. Spillane Robert F. Spillane	Director	February 27, 2019
/s/ Lisa L. Troe Lisa L. Troe	Director	February 27, 2019
/s/ Lewis W. Coleman Lewis W. Coleman	Director	February 27, 2019