Software-As-A-Service

Could 2020-2030 be the Golden Age?

CONTENTS

Introduction

In the past few years, the number of enterprise Software-as-a-Service (SaaS) companies going public has increased significantly. Once a nascent and unproven way of serving and selling software, we believe SaaS has become the de-facto business model for both startups and incumbents. While not new, its addressable market and growth seems to have caught many investors by surprise.

In this paper,[1] we review the state of the public SaaS market today and aim to answer three questions:
- Why do so many public SaaS companies exist today?
- How are SaaS companies today different from those that evolved a decade ago?
- What's the investment opportunity for SaaS over the next decade?

Research Highlights

- In 2019, SaaS companies generated $100 billion[2] in revenue and accounted for 25% of the enterprise software market. We expect SaaS revenue to grow 21% at a compounded annual growth rate (CAGR) until 2030, reaching $780 billion or 81% of the enterprise software market.
- Enterprise software companies are going public at a much faster rate than consumer technology companies. Between 2009 and 2019, 98 enterprise software companies went public, quadruple the 24 consumer tech IPOs.[3] Nearly 80% of enterprise software IPOs were SaaS companies.
- During the same ten years, enterprise software IPOs returned nearly 23% at a compound annual rate, nearly triple the 8% delivered by consumer tech IPOs.[4]
- SaaS companies increasingly have employed viral and self-serve customer acquisition strategies, improving their sales efficiency almost three-fold and enabling not only rapid growth but also positive cash flows according to our research.

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1   *For informational purposes only and should not be considered investment advice, or a recommendation to buy, sell or hold any particular security. The securities noted in the material were the result of ARK's research and analysis methodology corresponding to the white paper content. The reader should not assume that any security identified was or will be profitable. Data utilized is unreconciled and from a third-party system (Bloomberg). Please see full disclosures at the end of the white paper.*

2   *"Gartner Forecasts Worldwide Public Cloud Revenue to Grow 17% in 2020." Gartner, www.gartner.com/en/newsroom/press-releases/2019-11-13-gartner-forecasts-worldwide-public-cloud-revenue-to-grow-17-percent-in-2020.*

3   *ARK analysis of applicable data from third party data source (Bloomberg). Excludes companies that went public that were subsequently acquired. Please see Appendix for full details on ARK's analysis and methodology.*

4   *ARK analysis of applicable data from third party data source (Bloomberg). Please see Appendix for full details on ARK's analysis and methodology.*

What is SaaS?

Software-as-a-Service describes software deployed in the cloud and billed on a subscription basis. Compared to traditional on-premise software, Software-as-a-Service provides customers with a number of benefits, notably:

- SaaS eliminates the need to procure and manage hardware.
- SaaS is accessible with little more than a credit card and laptop.
- SaaS requires minimal maintenance, with vendors responsible for updates and upgrades.
- SaaS is subscription-based, with low upfront costs, an operating expense instead of a capital expense.
- SaaS is easy to use with minimal training, similar to consumer software.
- SaaS works on any computer or mobile device, which is ideal for remote work.

For software companies, we believe Software-as-a-Service has become the preferred operating model for the following reasons:

- Leveraging the public cloud, SaaS companies can serve software to customers who do not have to build out their own data centers.
- All customers use the same software, lowering the cost and complexity typically associated with multiple versions and operating environments.
- Subscriptions generate predictable, recurring revenue with automatic renewals, conferring higher valuations on SaaS stocks than on traditional software stocks.
- SaaS software vendors own their customer relationships and, with full insight into usage patterns and payments, can upsell and cross-sell other products more effectively.

While not a new model, the rapid growth of the public cloud as a computing platform and the push for digital transformation across industries have created a SaaS market much larger and sooner than most analysts had expected.

Why Are There So Many SaaS Companies?

SaaS companies are proliferating in response to forces on both the supply-side and the demand-side. On the supply side, abundant venture capital, startup talent, and cloud computing have enabled software companies to start up and scale more easily than ever. Meanwhile, the demand for specialized software has never been higher. Thanks to the focus on digital transformation across every industry, companies are using software to drive efficiencies across research and development, sales, marketing, customer engagement, and operations.

In 2004, Salesforce.com's IPO marked the beginning of the modern SaaS era.[5] Salesforce's growth focused investors on a new way of looking at the software market and encouraged countless startups to join the new world. For the next 15 years, venture investing in SaaS boomed.

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5   Reuters. "Salesforce.com Top I.P.O. of the Year." The New York Times, The New York Times, www.nytimes.com/2004/06/23/business/salesforcecom-top-ipo-of-the-year.html.

From 2009 to 2019, venture capital increased its annual investment in software by more than six-fold from $7 billion to $44 billion,[6] as shown below, funding companies like Twilio, Okta, and MongoDB. Today they still are providing the public markets with a deep pipeline of prospective SaaS IPOs.

Figure 1: US Venture Investments in Software
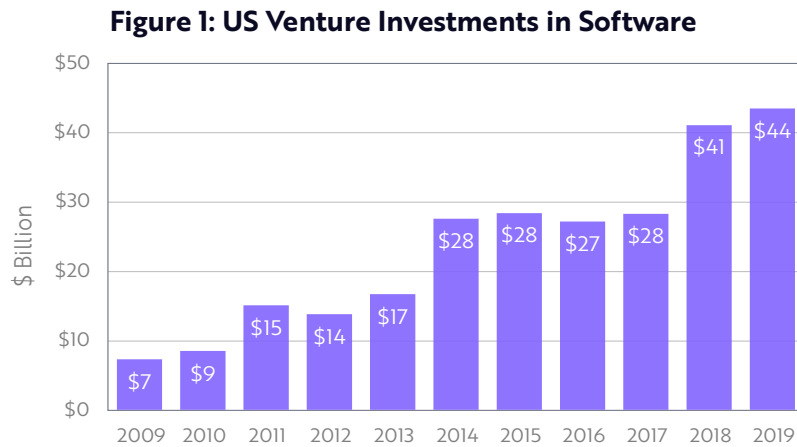
Source: ARK Investment Management LLC, 2020; PitchBook-NVCA Monitor

Cloud computing is perhaps the most important enabling technology behind SaaS companies. Before cloud computing became widely available, internet software companies had to be experts in building and running data centers, increasing the cost, complexity, and difficulty of scaling an internet software company significantly. Introduced in the mid 2000s,[7] cloud computing—specifically infrastructure-as-a-service—made it possible to rent compute resources instead of buying them. Cloud computing providers like Amazon Web Services (AWS) leveraged their scale to lower costs, increase reliability, and scale compute, storage, and other functions on-demand, as shown below.

**Figure 2: On Premise vs. Cloud Compute Infrastructure
Total Cost of Ownership for 100 Servers Over Three Years**
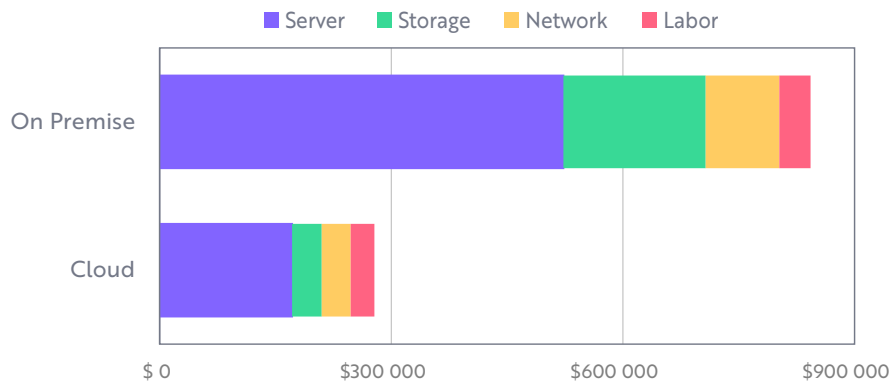
Source: ARK Investment Management LLC, 2020; AWS Cost Calculator

6   "Q4 2019 PitchBook-NVCA Venture Monitor." PitchBook, pitchbook.com/news/reports/q4-2019-pitchbook-nvca-venture-monitor.
7   Goddard, William. The Evolution of Cloud Computing – Where's It Going Next? itchronicles.com/cloud/the-evolution-of-cloud-computing-wheres-it-going-next/.

Over time, cloud computing eliminated the need for software companies to procure and manage hardware. Pre-public cloud companies like Facebook spent billions of dollars building out their own data centers, for example, while Snap owns no data centers and relies on Google's cloud services to provide the hardware infrastructure serving its users.[8] Likewise newer SaaS companies such as Okta and PagerDuty are built on top of public clouds and appear to be growing quickly without the burden of managing and scaling infrastructure.[9]

By transforming compute infrastructure into an on-demand utility, cloud computing has lowered the cost and complexity of software development dramatically. Today, a software developer with a laptop and credit card can build and launch applications that run on global infrastructure that is serving Fortune 500 companies. Thanks to infrastructure on tap and abundant venture capital, we believe SaaS entered its golden age during the past decade.

The Impact of Digital Transformation
The hundreds of SaaS companies created in the past decade would have faced stunted growth paths were it not for "digital transformation". According to Salesforce,[10] "Digital transformation is the process of using digital technologies to create new—or modify existing—business processes, culture, and customer experiences to meet changing business and market requirements."

Digital transformation is the successor to digitization. Digitization helped companies move their workflows from pen and paper to computers and software. This improved productivity without transforming business models. ATMs replaced some bank tellers, for example, but still dispensed cash. With the internet at its core, we believe digital transformation has been and is more profound. With mobile wallets and apps, for example, consumers do not need physical cash to pay for goods and services. Likewise, businesses can leverage mobile apps to improve customer loyalty, perform real-time analytics, and issue digital receipts. As a result, challenger banks can acquire customers through app downloads instead of bank branches, a change much more disruptive than digitization.

"Software eating the world"[11] has catapulted the tech industry's total available market (TAM) from "IT" to the global economy. Prior to the 2000s, tech companies typically sold digital tools to help companies improve productivity. Today, they compete with mature companies in the media, retail, financial, and automotive industries, among others, forcing incumbents to modernize and embrace digital transformation and, in turn, creating demand for software. Netflix competes directly with cable networks and studios, forcing them to invest in digital and mobile distribution. Amazon competes directly with retailers of every size and type, forcing them to spend on

8   Lawler, Ryan. "Snap Commits $2 Billion over 5 Years for Google Cloud Infrastructure." TechCrunch, TechCrunch, 2 Feb. 2017, techcrunch. com/2017/02/02/snap-commits-2-billion-over-5-years-for-google-cloud-infrastructure/.
9   Investor Relations.» Okta, investor.okta.com/ and "Investor Relations." PagerDuty, investor.pagerduty.com/overview/default.aspx.
10   "What Is Digital Transformation? A Definition by Salesforce." Salesforce.com, www.salesforce.com/products/platform/what-is-digital-transformation/.
11   Andreessen, Marc. "Why Software Is Eating The World." The Wall Street Journal, Dow Jones & Company, 20 Aug. 2011, www.wsj.com/articles/SB10001424053111903480904576512250915629460.

e-commerce platforms like Shopify or Adobe Commerce Cloud. Paypal's Venmo and Square's Cash App are competing increasingly with traditional banks, forcing them into collective solutions like Zelle, while Waymo's and Tesla's focus on software and autonomy has forced the auto industry into more than a billion dollars[12] of M&A for companies like Cruise Automation and Argo.

Even when not under competitive threat, well-managed companies are embracing digital transformation to improve business and operational efficiencies. A plethora of SaaS tools aims to streamline the productivity of every department in a company. Compared to Excel worksheets delivered by mail, we believe ServiceNow's cloud-based IT management system is more efficient and effective, as are Salesforce's and Hubspot's customer relationship management (CRM) systems. Company-wide collaboration tools like Slack, Dropbox, and Zoom are improving employee productivity across departments and geographies.

Investing in SaaS

We believe that while consumer-focused software companies have attracted a disproportionate share of the press's time and attention, the large number of early stage opportunities in enterprise software seems to be more fertile ground for potential growth. While there's only room for one Amazon, Google, or Facebook in their respective markets, there is room for hundreds if not thousands of unique software companies solving for the ever-growing needs of IT, sales, HR, finance, and R&D of modern enterprises.

Different business models explain why the number of enterprise software companies dwarfs the number of consumer tech companies, as shown in the graph below. Typically, consumer tech companies are characterized by aggregation business models:[13] they accumulate third party suppliers and re-sell their products and services to consumers. With a few exceptions, they do not make the products they sell. Facebook, for example, aggregates user-generated content, Zillow the existing housing supply, Uber independent drivers, and GrubHub existing restaurants. None of these companies makes the products it is selling. In aggregation business models, natural winners emerge because of network effects that make competition difficult.

The same is not true of enterprise tech. Enterprise technology companies are not re-sellers of existing products and services: almost all create and sell new products. Atlassian, for example, created and sells its own project management software, Slack its own chat platform, and so on. Because each new software maps to a single product among thousands in the $3.7 trillion IT industry,[14] the market has supported thousands of enterprise software startups, giving rise to a large and growing number of public SaaS companies.

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12   Burns, Matt. "GM's Cruise Gets $2.25B from SoftBank's Vision Fund, $1.1B from GM." TechCrunch, TechCrunch, 31 May 2018, techcrunch. com/2018/05/31/gms-cruise-gets-2-25b-from-softbanks-vision-fund-1-1b-from-gm/.

13   "Aggregation Theory." Stratechery by Ben Thompson, 22 Nov. 2017, stratechery.com/aggregation-theory/.

14   "Gartner Says Global IT Spending to Grow 0.6% in 2019." Gartner, www.gartner.com/en/newsroom/press-releases/2019-10-07-gartner-says-global-it-spending-to-grow-06-in-2019.

Figure 3: Consumer Tech vs. Enterprise Software IPOs 2008-2019 (US)
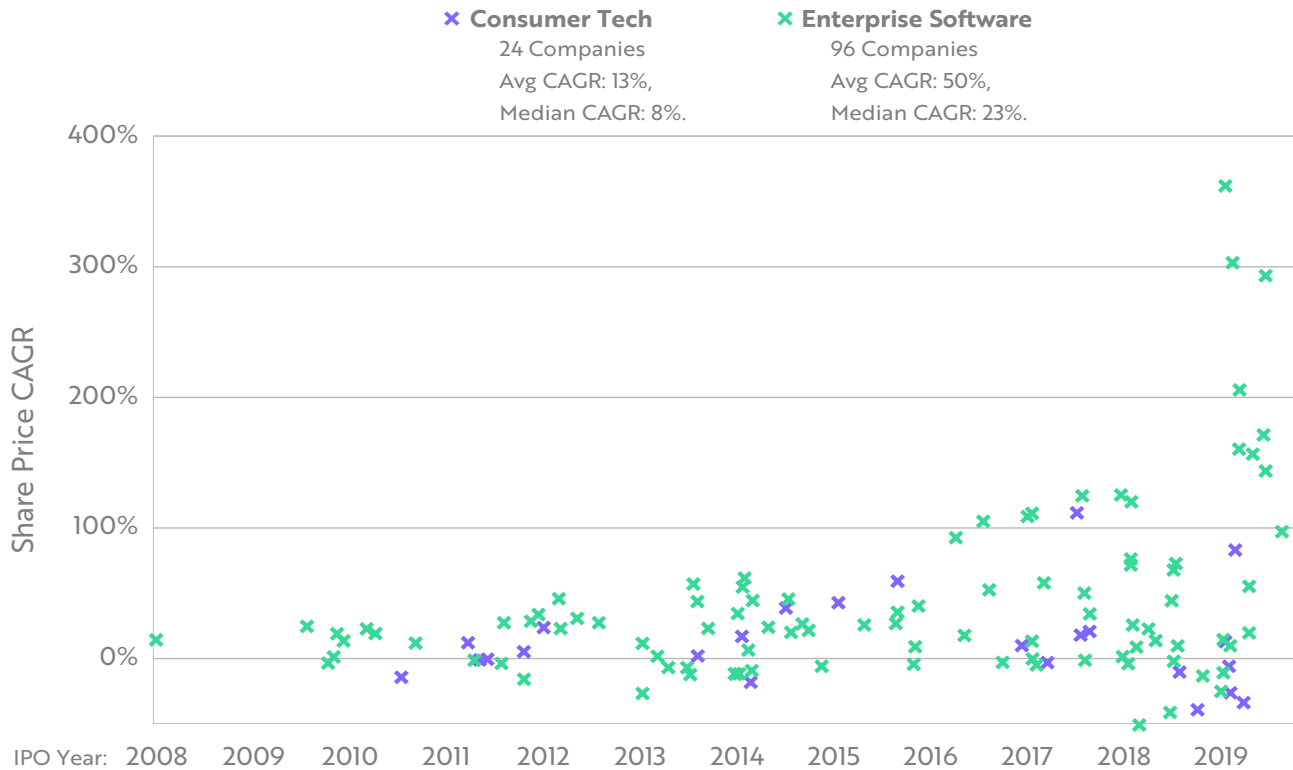
Source: ARK Investment Management LLC, 2020; Data sourced from third party (Bloomberg).
Analysis methodology located in the Appendix section at the end of the white paper.

As a group, enterprise software IPOs have outperformed consumer tech IPOs over the past years. Between 2008 and 2020, the 24 US consumer tech companies that have IPO'd and remain public have delivered an 8% median compounded annual return, roughly a third of the 23% associated with the 98 enterprise software IPOs in the same position.[15]

To be fair, while the performance of enterprise relative to consumer technology stocks appears positive, it comes with some important caveats. First, the years including 2016 through 2019 were particularly productive for SaaS IPOs, with Zoom, DataDog, and Crowdstrike all delivering triple digit returns.[16] Second, software IPOs often "pop"[17] on their first day of trading but most investors do not have access to IPOs at their offering prices. Third, as of mid 2020, SaaS company valuations are near historic highs.[18] Investment returns are subject to end-point sensitivity and valuations.

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15   ARK analysis of applicable data from third party data source (Bloomberg). Please see Appendix for details on ARK's analysis and methodology.
16   ARK analysis of applicable data from third party data source (Bloomberg). Please see Appendix for details on ARK's analysis and methodology.
17   Jordannovet. "Datadog Pops 39% in Nasdaq Debut as Cloud Software IPOs Stay Hot." CNBC, CNBC, 19 Sept. 2019, www.cnbc.com/2019/09/19/datadog-pops-50percent-in-nasdaq-debut-as-cloud-software-ipos-stay-hot.html.
18   "BVP Nasdaq Emerging Cloud Index." BVP Nasdaq Emerging Cloud Index · Bessemer Venture Partners, www.bvp.com/bvp-nasdaq-emerging-cloud-index.

That said, we believe enterprise SaaS covers a large universe of investible ideas, with returns potentially greater than consumer tech peers.

Why Could SaaS Eat Software?

The Software-as-a-Service model is a win for all stakeholders—developers, customers, and investors. As such, we believe that over time, the vast majority of software revenue will be recurring. Two forces are driving increased SaaS adoption: first, traditional software companies are transitioning their businesses from perpetual license terms to recurring or SaaS terms, as shown below. Second, most of the new software IPOs operate on a SaaS or marketplace-based model. With both new and old companies embracing SaaS, we expect the total addressable market (TAM) for SaaS companies will converge with that for all software.

Figure 4: Forces Driving SaaS Adoption
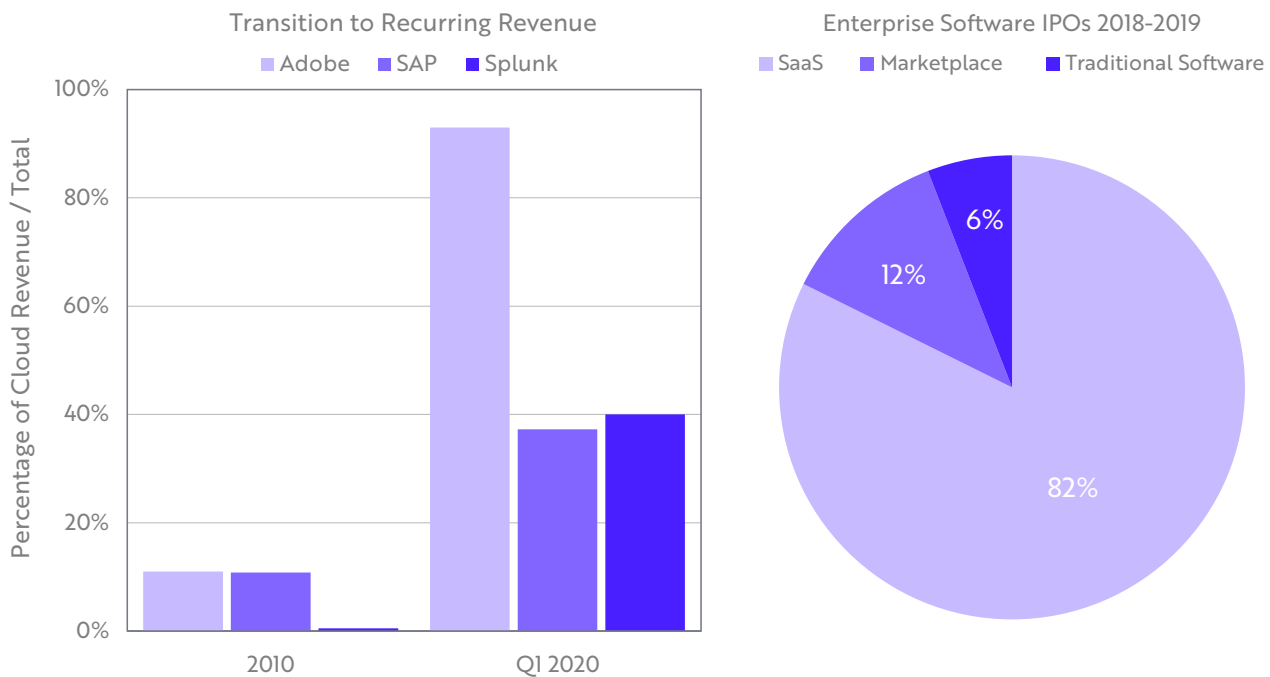
Source: ARK Investment Management LLC, 2020; Data sourced from company quarterly filings (Adobe, SAP, Splunk) | For informational purposes only and should not be considered investment advice, or a recommendation to buy, sell or hold any particular security.

The SaaS model appeals to established software companies looking to modernize their businesses, taking advantage of low-cost internet delivery, lower sales intensity, recurring revenues, and control of the customer relationship. Companies ranging from industry heavyweights like SAP to modern big data platforms like Splunk are re-platforming to SaaS models.

Among established companies, our analysis indicates Adobe has been one of the most successful in transitioning from a perpetual license model to SaaS.

From 2010 through 2019, its recurring revenue as a percent of total revenue increased from 10% to 90% as it shifted from a license model on its creative products to "much stickier" subscriptions[19] and earned a much higher valuation in the equity market. In the past nine years, for example, Adobe's trailing price-to-sales multiple has increased from 4.3x to 11.3x and its EV/EBITDA (enterprise value relative to earnings before interest, taxes, depreciation, and amortization) from 11.3x to 41.0x.[20]

As established software companies appear to be migrating slowly to SaaS, software IPOs have been dominated by SaaS. Of the 18 enterprise software IPOs in 2018,[21] for example, 14 were SaaS, three marketplaces, and just one license. This pattern has been evolving since 2008, with SaaS increasingly the dominant model for enterprise software IPOs. Our analysis indicates SaaS companies also have dominated market returns: from 2008 through 2018, 19 of the 20 highest returning enterprise software IPOs were SaaS stocks.

Figure 5: Annual SaaS revenue Growth Forecast
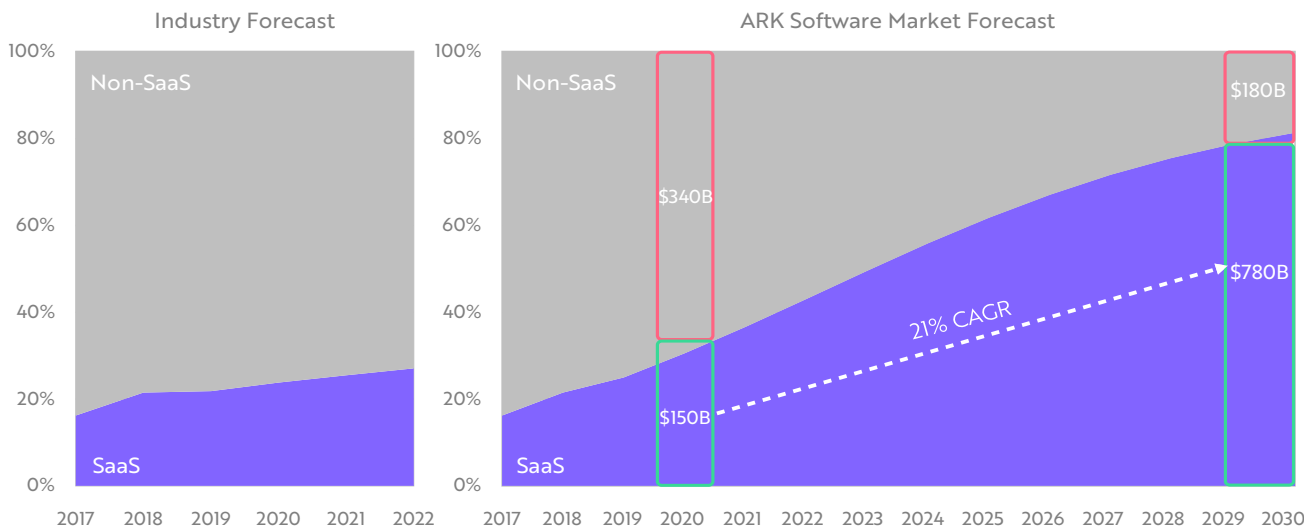
Source: ARK Investment Management LLC, 2020, Gartner | Forecasts are inherently limited and cannot be relied upon.

Despite incumbents and startups embracing Software-as-a-Service, the SaaS market still makes up just 25% of the enterprise software market.[22] According to industry forecasts, annual SaaS revenue growth will decelerate from 16.1% in 2019 to 13.6% by 2022,[23] reflecting, in our view, "reversion to

19   Adobe Quarterly Reports, Third Quarter 2019, news.adobe.com/sites/adobe.newshq.businesswire.com/files/press_release/additional/ AdobeQ319Earnings.pdf.
20   ARK analysis of applicable data from third party data source (YCharts).
21   ARK analysis of applicable data from third party data source (Bloomberg). Please see Appendix for details on ARK's analysis and methodology.
22   "Gartner Says Global IT Spending to Grow 1.1 Percent in 2019." Gartner, www.gartner.com/en/newsroom/press-releases/2019-04-17-gartner-says-global-it-spending-to-grow-1-1-percent-i.
23   "Gartner Forecasts Worldwide Public Cloud Revenue to Grow 17% in 2020." Gartner, www.gartner.com/en/newsroom/press-releases/2019-11-13-gartner-forecasts-worldwide-public-cloud-revenue-to-grow-17-percent-in-2020.

the mean" thinking. Instead, as shown above, we believe that at 25% share, SaaS probably hit an inflection point during the coronavirus crisis and, according to classic S-shaped adoption, is likely to capture an increasing share of the enterprise software market. If our forecast is correct, SaaS revenues will grow at a 21% compound annual rate for the next decade, topping $780 billion or 80% of the enterprise software market by 2030.

What Makes SaaS Different This Time?

While it has been around for more than 15 years, SaaS today is benefiting from five characteristics that have evolved over the last five years: 1) the decentralization of IT purchasing, 2) new platforms that have attracted not only companies but also individual departments, expanding the total available market (TAM), 3) the emergence of higher margin self-service and viral sales models, 4) the incorporation of artificial intelligence (AI) that differentiates vendor offerings, and 5) accelerated investments in remote work software, again in response to the coronavirus crisis.

The Decentralization of IT

Prior to the advent of cloud computing, IT departments managed the software and hardware needs of a company, creating bottlenecks that discouraged new software adoption. New technology deployments involved complex and lengthy negotiations with IT. If a sales department wanted to set up a new database system, for example, it had to approach the IT department with a request for proposal (RPF); order servers, storage and networking; buy software licenses; deploy servers; and finally set up and administer the database.

Cloud SaaS platforms allow company departments to bypass IT, deploying new software in days instead of months. Hosted in the cloud, SaaS platforms eliminate the need to procure new hardware, while web-grade ease of use reduces the need for training and support. A sales associate can launch a new instance of MongoDB's cloud database in hours. A developer can create a payment portal using Stripe and Twilio in a few days. Just like economic decentralization, cloud-based software removes friction, opens up wallet share, and accelerates time to adoption.

SaaS For Every Worker

The first generation of SaaS products targeted specialized departments within companies: Workday for Human Resources, ServiceNow for IT support, and Salesforce.com for the Sales Team. While creating a number of notable companies, those SaaS markets were narrow in scope with few instances of software subscription sales to all employees in a company.

In 2005, cloud-based productivity tools like Box[24] emerged, expanding the SaaS market from a handful of departments to all knowledge workers in the global economy. Companies from

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24   "About Box." Box, 21 Mar. 2016, www.box.com/about-us.

coffee shops to the Fortune 500 standardized their workforces on the likes of Google Docs for productivity, Box for file sharing, and Zoom for video conferencing, as shown below. While the revenue per user typically was modest for these SaaS products, the potential user base was significant. With roughly 90 million information workers [25] across public and private sectors in the US alone, a $10 subscription per month potentially created an $11 billion total available market (TAM) per year. In addition, unlike in the PC era which one software suite, Microsoft Office, dominated, knowledge workers today typically use several SaaS products, expanding the productivity software TAM to roughly $50 billion[26] in the US alone.

Enterprise Software with Consumer Virality

SaaS companies sold their first wave of products like they did traditional enterprise software. With large sales teams, they often invested a significant percent of revenues to acquire customers in a top down sales strategy. While effective, this headcount driven approach to revenue growth was costly and, as a result, few SaaS companies generated both top line growth and profits.

In recent years, SaaS companies have developed more organic and cost-effective customer acquisition strategies. One strategy targets developers instead of CIOs or IT departments. Twilio, a provider of programmatic text and telephony services, built its product without the need for on-boarding. In its S-1 filing,[27] the company said: "Our developer-first business model is low friction, eliminating the upfront costs, time and complexity that hinder innovation. Developers can begin building with a free trial. Once developers determine that our software meets their needs, they can flexibly increase consumption and pay based on usage. In short, we acquire developers like consumers and enable them to spend like enterprises." As a result of its self-service sales model, our research shows, Twilio spent just 24% of its revenue on sales and marketing, half that of peers, during the year of its initial public offering.

Another set of SaaS companies are taking a leaf from consumer and social media playbooks, using the network effect to drive sales. Team chat application Slack, file sharing platform Dropbox, and video conferencing platform Zoom are examples of this new wave of consumer-inspired enterprise software. Multi-user by nature, collaboration software enjoys the same network effects as social media platforms: existing users invite new users, resulting in organic growth without direct sales engagement. Zoom describes its viral sales model as key to its multi-channel sales strategy:[28] "We have a unique model that combines viral enthusiasm for our platform with a multipronged go-to-market strategy for optimal efficiency. Viral enthusiasm begins with our users as they experience our platform – it just works. This enthusiasm continues as meeting participants become paid hosts and as businesses of all sizes become our customers. Our sales efforts funnel

25   ARK estimate based on US Bureau of Labor Statistics figures.
26   Based on 90 million information workers paying for five SaaS products at $10 monthly per month.
27   SEC.gov, www.sec.gov/Archives/edgar/data/1447669/000104746916013448/a2227414zs-1.htm.
28   Form S-1 Registration Statement: Zoom Video Communications, Inc. www.sec.gov/Archives/edgar/data/1585521/000119312519083351/
      d642624ds1.htm.

this viral demand into routes-to-market that are optimized for each customer opportunity, which can include our direct sales force, online channel, resellers and strategic partners. Our sales model allows us to efficiently turn a single non-paying user into a full enterprise deployment."

Figure 6: Years Needed to Recoup Customer Acquisition Cost
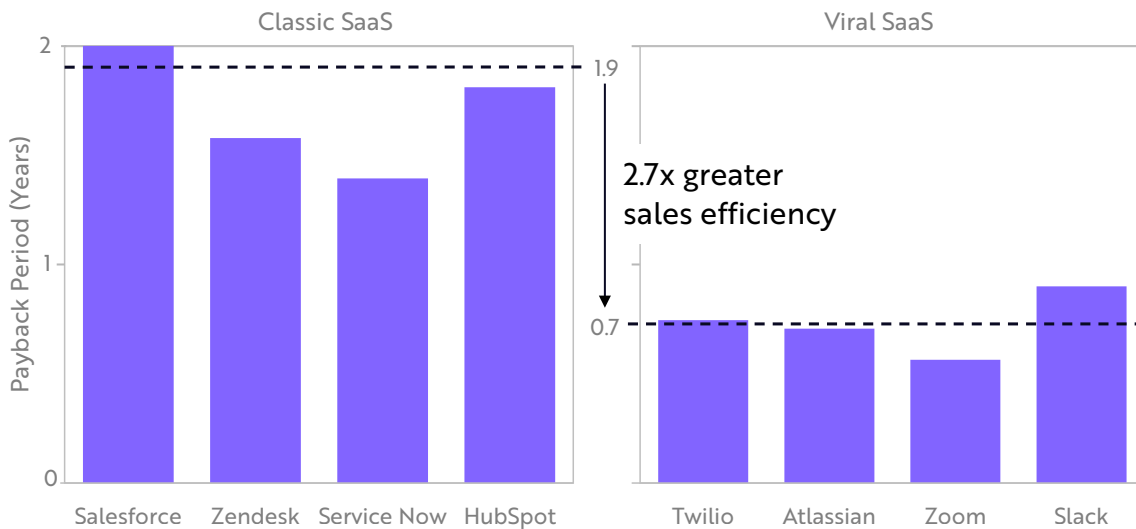
Source: ARK Investment Management LLC, 2020 | Forecasts are inherently limited and cannot be relied upon. For informational purposes only and should not be considered investment advice, or a recommendation to buy, sell or hold any particular security.

By converting customers to sales reps, viral SaaS companies reduce their customer acquisition costs (CACs) significantly. One way to measure customer acquisition efficiency is the payback period, defined as spending on sales and marketing during the previous year divided by gross profit dollar growth during the current year. If a company were to spend $200 million in sales and marketing in year one and to grow gross profit by $100 million in year two, for example, the payback period would be two years. The payback period for the first wave of SaaS companies, including Salesforce, Zendesk, and Service Now, was around two years, as indicated by our analysis above. Newer SaaS companies with self-service or viral sales models have enjoyed payback periods of as low as eight months. We believe that higher sales and marketing efficiencies have enabled them to invest more aggressively to accelerate growth and profitability.
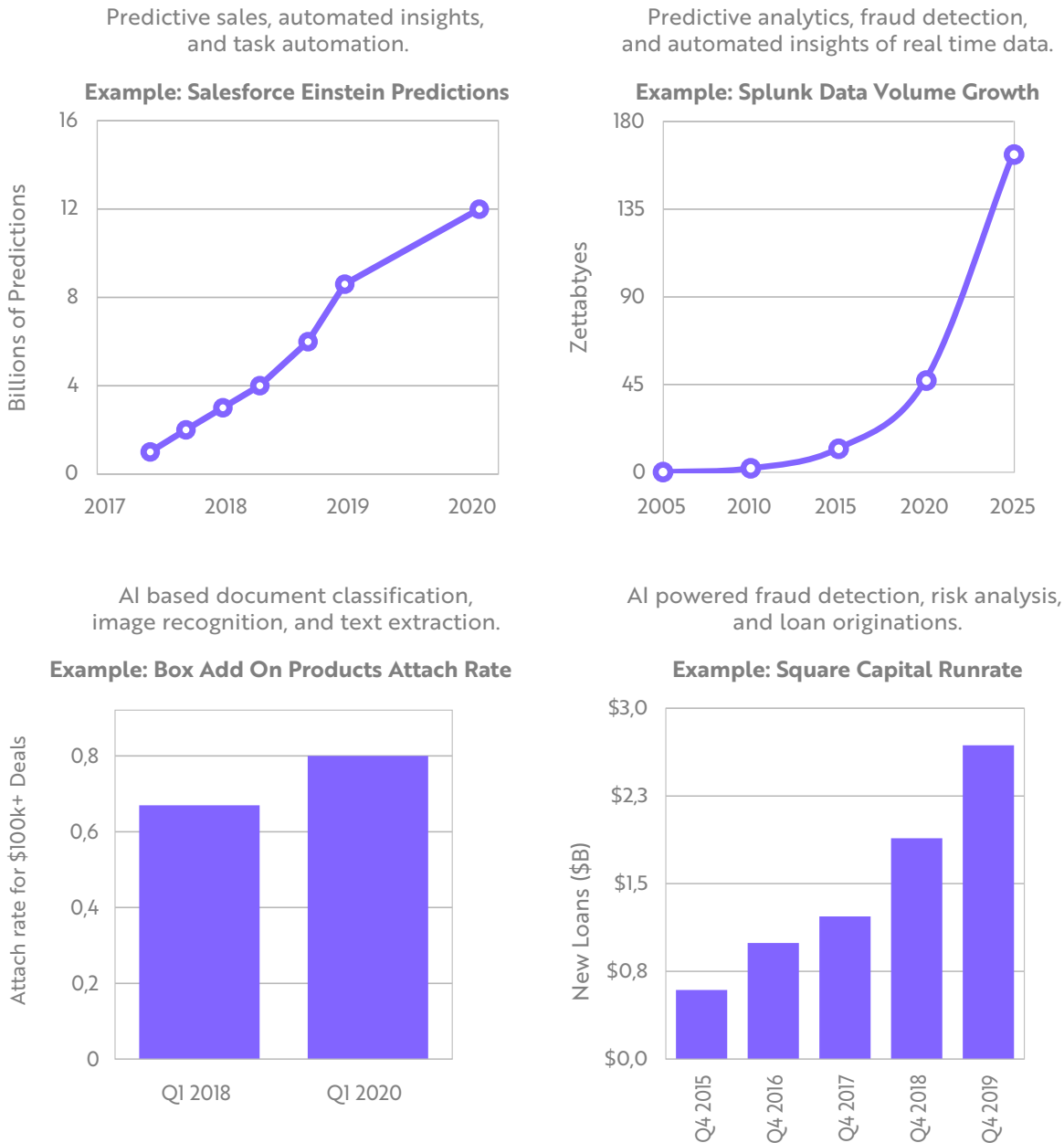
SaaS Companies as Enablers of AI
With breakthroughs in artificial intelligence, SaaS applications are evolving from workflow orchestration to data analytics and predictions. As the central hubs for storing and organizing data, SaaS applications can enable inferences from documents, images, and video using machine learning models. Salesforce's Einstein AI platform, for example, provides predictive leads, forecasts, and follow up recommendations. Box, a cloud-based storage provider, applies AI to help customers classify documents, images, and text. Hosted or connected to the cloud, SaaS applications can gather user data immediately, observe usage patterns, infer behavior patterns

using AI, in turn driving product design with new features and monetization opportunities. In early 2020, Salesforce's Einstein AI platform was making more than 12 billion predictions per day, and Square Capital—an AI driven credit assessment and lending platform - granted new loans at a $2.7 billion annual run rate, as shown below.

Figure 7: Adoption of SaaS AI Products

Predictive sales, automated insights, and task automation.

Example: Salesforce Einstein Predictions

Predictive analytics, fraud detection, and automated insights of real time data.

Example: Splunk Data Volume Growth

AI based document classification, image recognition, and text extraction.

Example: Box Add On Products Attach Rate

AI powered fraud detection, risk analysis, and loan originations.

Example: Square Capital Runrate

Source: ARK Investment Management LLC, 2020; Data sourced from company quarterly filings (Salesforce, Splunk, Box, Square)
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Coronavirus Epidemic Is Accelerating the Shift to Remote Work

In early 2020, the coronavirus epidemic forced countless companies, governments, and schools to switch to remote work. Working from home requires software that works anywhere and enables tools for collaboration. As a result, cloud software went from nice-to-have to mission-critical almost overnight.

Two verticals appear to have been prime beneficiaries of and solutions to the remote work imperative: collaboration and security. As shown below, Microsoft Teams daily active users (DAUs) more than tripled from 20 million to 70 million in the first quarter of 2020 alone, as did Zscaler's traffic, while Zoom Meeting participants skyrocketed 30-fold to 300 million.

Figure 8: SaaS Growth From Remote Work
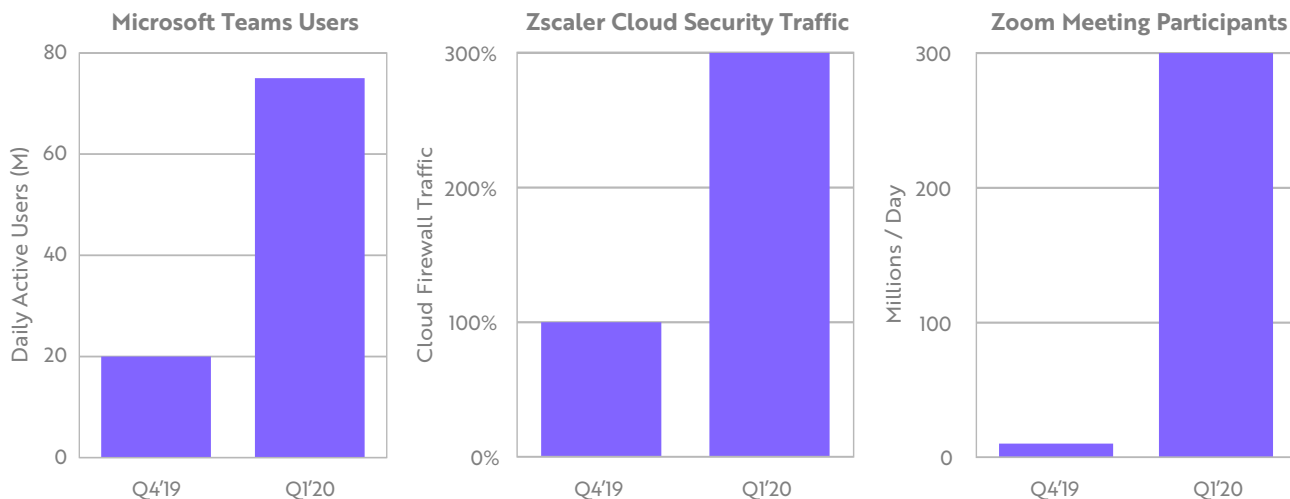
Source: ARK Investment Management LLC, 2020; Data sourced from company quarterly filings (Microsoft, Zscaler, Zoom)
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Prior to the coronavirus outbreak, large organizations considered remote work neither desirable nor viable. The coronavirus-related, multi-month experiment has demonstrated that it not only is viable but often more productive and cost-effective for both employees and employers. As a result, companies such as Facebook, Twitter, Shopify, and Coinbase have announced plans to enable permanent work from home for much of their staffs. We believe that the percentage of knowledge workers operating at a distance will increase significantly in the coming years, an additional tailwind for SaaS adoption.

Conclusion

Information technology has grown to a multi-trillion-dollar industry thanks to continuous improvements in costs and ease of use. The simpler it is to buy, deploy, maintain, and use computer systems, the greater the addressable market. While past innovations such as the graphical user interfaces made computers easier to use, cloud computing simplifies the lifecycle of buying, deploying, and maintaining enterprise computer systems dramatically. From a business model perspective, we believe it could be the biggest leap in computing technology in history. Computer systems—both infrastructure and software—have become on-demand utilities like electricity. We estimate cloud spending on computer infrastructure has reached 60% of total spend. SaaS's present penetration of just 25% suggests runway for growth.

According to our research, during the next 10 years the SaaS industry will grow 21% at a compound annual rate, generating $780 billion in revenue by 2030. In our view, software will drive global productivity during the next few decades. Thanks to the unique combination of low-friction onboarding and recurring revenues, SaaS companies may be well positioned to capture a significant portion of future technology revenues.

Great investment themes take years if not decades to grow from ideas to lasting, secular industries. Pioneered more than a decade ago, SaaS has attracted mass market demand just in the last few years. With companies of all sizes adopting new digital workflows, the coming decade could prove to be the golden age for SaaS.

Appendix

Methodology: ARK used Bloomberg to screen for all new US company listings from 2008–2019 in the categories of Technology and Communications.[29] We reviewed each company's business description to ensure it fell into the categories of either "Consumer Technology" or "Enterprise Software". Some hardware enterprise tech companies were included as they transitioned more of their business to software and recurring billing in recent years. For each company included, a compounded annual growth rate (CAGR) was computed using the IPO offering price and the closing price of 6/30/2020. Companies that have been acquired since listing were not included in this screen.

29   *For informational purposes only and should not be considered investment advice, or a recommendation to buy, sell or hold any particular security.*

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James joined ARK in April 2015. As an Analyst for ARK's Next Generation Internet strategy, James focuses on AI and the next wave of the internet.

Prior to ARK, James worked for nine years at NVIDIA where he helped launch GeForce Experience, a PC gaming application with over 80 million users. He founded and edited GeForce.com, NVIDIA's gaming portal with over 15 million visitors. He has written about the technology industry since 2000 for various magazines and publications. James graduated from the University of New South Wales with Bachelor of Engineering degree in Computer Engineering.

He has appeared on CNBC, Bloomberg, Fox Business, WSJ, CNNMoney, Barrons, Quartz, EETimes. In 2018 and 2019, James was a featured speaker at CogX, one of the largest AI events in the world.

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