Accelerate Cloud Adoption With Application Streaming

Deliver Cloud Services, Products, And Evaluations To Customers Without Extensive Rewrites

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ABOUT FORRESTER CONSULTING

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Executive Summary

As customers embrace cloud-native and software services, software companies with established products installed on-premises face a difficult choice. They can refactor existing software, scale out their architecture, or watch as their existing customers drift away to cloud-native competitors offering lower installation costs, consumption-based pricing, and faster rollouts of updates and new features. For many midsize software firms, rebuilding established products from the ground up is simply not feasible; it is expensive and risky and may take years to fully execute. Application streaming, the ability to deliver applications virtually via a web browser, can help firms quickly shift their existing portfolios of on-premises applications to the cloud — without starting from scratch.

In May 2019, Amazon Web Services commissioned Forrester Consulting to evaluate how application streaming technology could impact product evaluations and cloud enablement of desktop applications. Forrester conducted one interview and an online survey of 289 North American and European software professionals at midsize technology companies to explore this topic. We found that professionals expect that leveraging application streaming technology can improve customer experience and overall business operations.

KEY FINDINGS

› **Modern buyers expect cloud-enabled software.** More than 80% of software professionals agree their customers expect online trials and software-as-a-service (SaaS) versions of desktop applications, and firms must adapt to stay competitive.

› **Traditional methods of demoing on-premises applications are missing the mark on customer experience.** While demoing new software or installing it for the first time, prospective customers must provide their own infrastructure. Increasingly modern applications have graphics processing units (GPU) and memory-intensive requirements that make it a challenge to quickly secure infrastructure that meets minimum requirements. Often these requirements are a deal-killer: More than two-thirds of respondents surveyed say their firms have lost a deal because of the amount of time or effort it took to execute a working product demo.

› **Application streaming bridges the gap between legacy software and customer needs.** Rebuilding applications from the ground up to take advantage of cloud-native architecture is time- and resource-intensive. Firms need a different approach — and nearly 90% of respondents' firms are willing to try application streaming for either demo or installation use cases.

TERMINOLOGY

Application streaming is the ability to deliver applications virtually by deploying the desktop application on a virtual server. Users do not need complex hardware or infrastructure to access applications that are streamed — the only requirement is a web browser.

80%

More than **80%** of respondents agree that customers expect online trials and SaaS versions of desktop applications.

67%

More than **two-thirds** of professionals' software firms have lost a deal because of the time and effort it took to set up a product demo.

90%

Nearly **90%** are willing to try application streaming for either demo or installation use cases.

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Software Vendors Expect Application Streaming To Meet Growing Customer Expectations

Delivering a great product is not enough for companies to remain competitive and profitable; they must also deliver a great customer experience. For software vendors, customer experience includes reducing friction to evaluate a product, complete a purchase, and roll it out across a customer's organization. Equally important, firms must deliver software the way customers want to access it — which, increasingly, means via cloud. We asked software professionals about the current software purchasing environments, leading to three key insights:

› **Modern software buyers view online trials and software-as-a-service as table stakes.** With a growing number of options to choose from, buyers have increasing demands of software vendors. Software professionals report their customers expect online trials (84%), device flexibility without sacrificing performance (82%), and SaaS versions of desktop applications (81%).

› **Firms are increasingly cloud-enabling their software portfolios to meet buyer expectations.** Companies that sell software are scrambling to update their legacy product portfolios: 96% of respondents' firms have reconfigured some or many of their desktop- or server-based software products to be cloud hosted. When it comes to software portfolios, SaaS is the largest growing category, and local on-premises installation is the fastest declining (see Figure 1). For firms earlier in the cloud enablement journey, customer needs top the list of reasons for the move. Firms later in the journey are also driven by operational benefits (see Figure 2).

"[Every customer] was saying, 'We want a cloud version.' No one is asking for an on-premises installation anymore."

Director of technology services at a financial software company

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Figure 1

"What percentage of your software products fit in the following categories? What percentage do you expect in the next two years?" (Answers are means.)

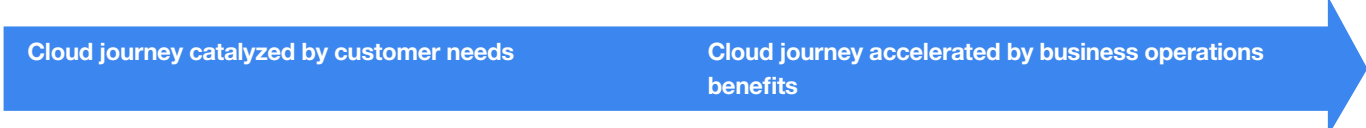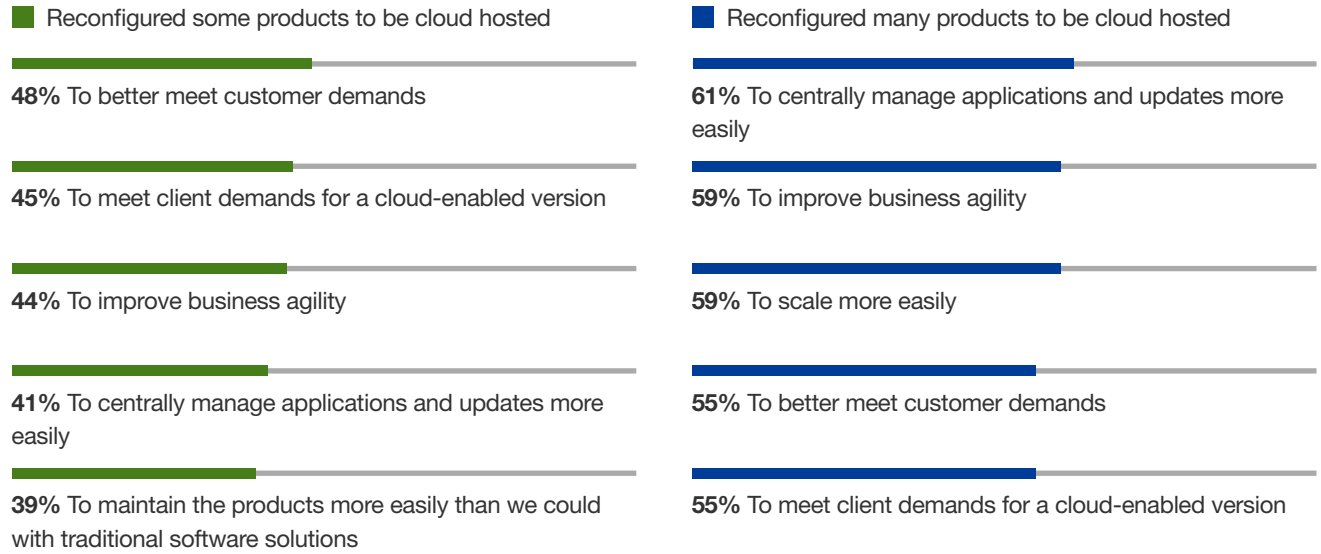|		Today	In two years
⬆ 17% increase	Client/SaaS	22.2%	25.9%
	Client/server	21.9%	20.8%
	Client/private cloud	21.2%	21.5%
	Client/hosted private cloud	18.3%	19.1%
⬇ 21% decrease	Install locally on an end user PC	17.1%	13.5%

Base: 284 software decision makers
Source: A commissioned study conducted by Forrester Consulting on behalf of AWS, May 2019

96% of respondents' firms have reconfigured at least some of their desktop- or server-based software products to be cloud hosted.

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Figure 2

"Why did you refactor your on-premises software products to cloud-enable them?"

■ Reconfigured some products to be cloud hosted   ■ Reconfigured many products to be cloud hosted

48% To better meet customer demands

45% To meet client demands for a cloud-enabled version

44% To improve business agility

41% To centrally manage applications and updates more easily

39% To maintain the products more easily than we could with traditional software solutions

61% To centrally manage applications and updates more easily

59% To improve business agility

59% To scale more easily

55% To better meet customer demands

55% To meet client demands for a cloud-enabled version

Cloud journey catalyzed by customer needs   **Cloud journey accelerated by business operations benefits**
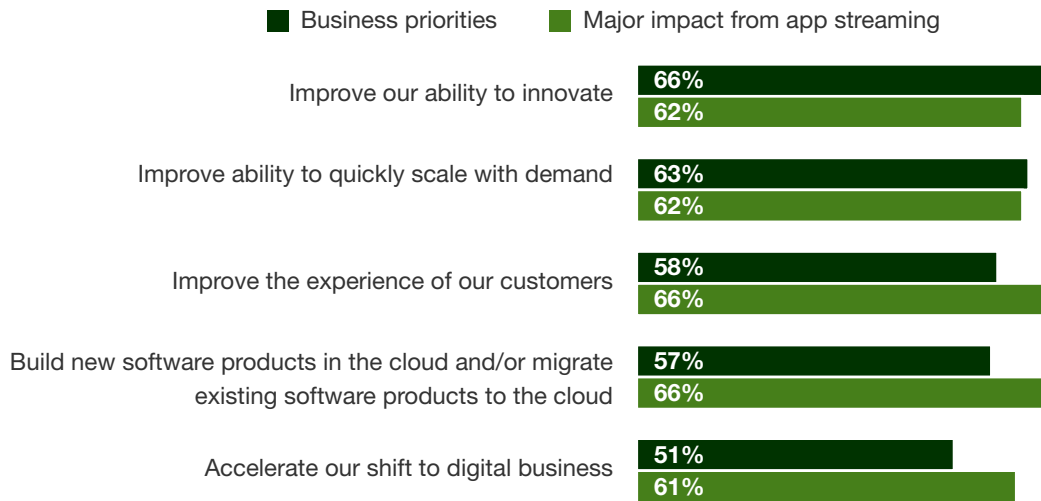
Base: 183 software decision makers who have reconfigured some products to be cloud hosted | 96 who have reconfigured many
Source: A commissioned study conducted by Forrester Consulting on behalf of AWS, May 2019

› **Software companies believe application streaming can fill the cloud gap quickly.** Application streaming can help firms connect with prospects and customers without requiring them to acquire, provision, or operate complex hardware or infrastructure. More than half of software firm professionals expect application streaming to have a major business impact on improving their bottom lines. Software professionals also report that application streaming would support top business priorities, including improving the ability to innovate, scaling quickly with demand, and improving customer experience (see Figure 3).

Figure 3

"Which of the following initiatives are likely to be your top business priorities over the next 12 months?"

"To what extent do you feel that [application streaming] would impact your ability to meet your business goals in the following areas?"

■ Business priorities   ■ Major impact from app streaming

Improve our ability to innovate
66%
62%

Improve ability to quickly scale with demand
63%
62%

Improve the experience of our customers
58%
66%

Build new software products in the cloud and/or migrate existing software products to the cloud
57%
66%

Accelerate our shift to digital business
51%
61%

58% of respondents expect application streaming to have a major positive impact on improving their bottom lines.

Base: 289 software decision makers
Source: A commissioned study conducted by Forrester Consulting on behalf of AWS, May 2019
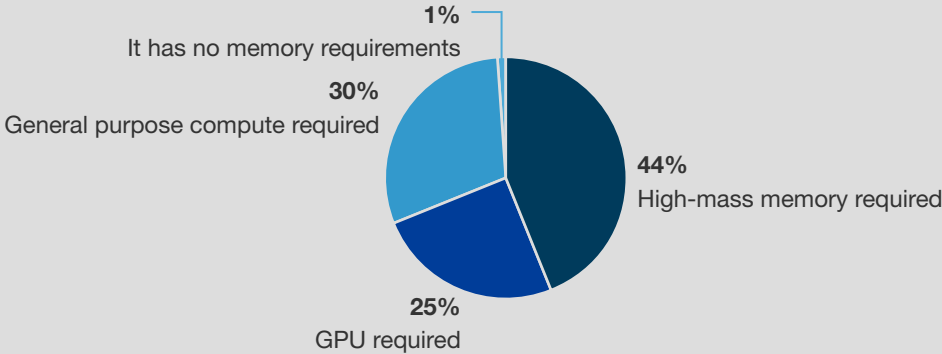
Firms Struggle With Desktop App Demos And Installations

Despite organizations understanding that customer experience is critical, the process to demo and install desktop and traditional on-premises applications remains fraught with technical challenges. Usually, these difficulties are foisted onto the prospective buyer or customer. For companies that build and sell software with desktop clients, we found the following challenges with demos and installations:

› **Applications have intensive GPU and memory requirements that are only increasing.** Sixty-nine percent of flagship applications require either GPU or high-mass memory (see Figure 4). Those requirements are trending upward. Seventy-nine percent of respondents agree that desktop applications have become more processor-intensive over the last two years, and 73% say desktop applications have increasingly intensive hardware requirements (see Figure 5). Resource-intensive applications that are not cloud enabled put the burden of providing expensive, purpose-built workstations on the end customer, before they have even proven the value of the application under evaluation.

Figure 4

"What are your flagship desktop application's memory requirements?"

- 1% It has no memory requirements
- 30% General purpose compute required
- 44% High-mass memory required
- 25% GPU required

Base: 289 software decision makers
Source: A commissioned study conducted by Forrester Consulting on behalf of AWS, May 2019

Figure 5

"To what extent do you agree with the following statements?"
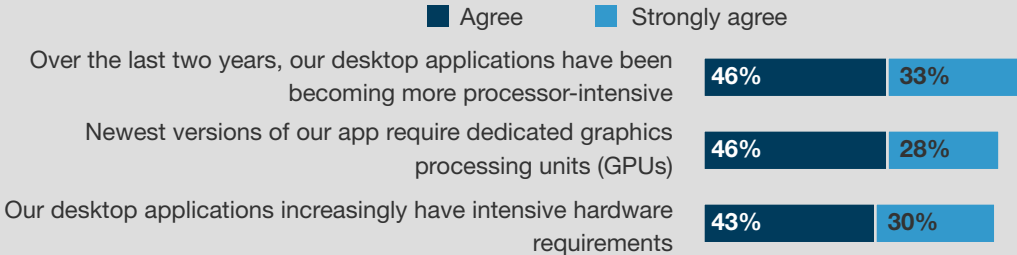
■ Agree ■ Strongly agree

| Statement	Agree	Strongly agree
Over the last two years, our desktop applications have been becoming more processor-intensive	46%	33%
Newest versions of our app require dedicated graphics processing units (GPUs)	46%	28%
Our desktop applications increasingly have intensive hardware requirements	43%	30%

Base: 289 software decision makers
Source: A commissioned study conducted by Forrester Consulting on behalf of AWS, May 2019

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› **Prerequisites for customer infrastructure are a barrier to purchase.** Upfront minimum requirements create friction in the user journey. For many desktop and on-premises applications, prospective buyers must invest in appropriate infrastructure to trial the product, from dedicated machines to specific hardware requirements to server installation (see Figure 6). Software companies feel the impact of issue-laden demos and installations: Not only is it an extremely poor customer experience, but more than two-thirds of software professionals surveyed say their firms have lost a deal because of the amount of time or effort it took to set up a good product demo (see Figure 7).

Figure 6

"In the cases where a dedicated machine (or machines) is (or are) required for your desktop applications/presales demos, how many dedicated machines are required on average to do the full deployment of the app?"
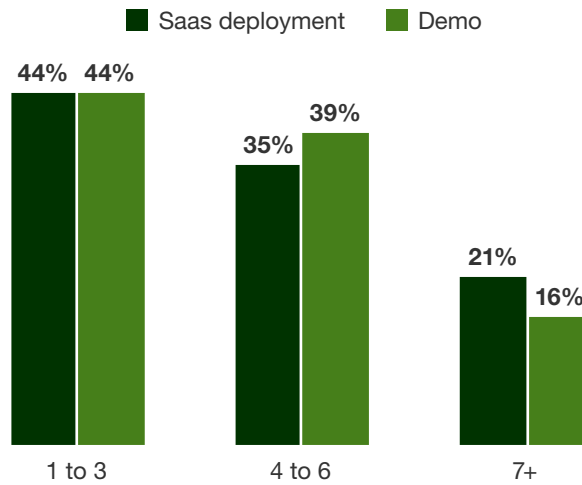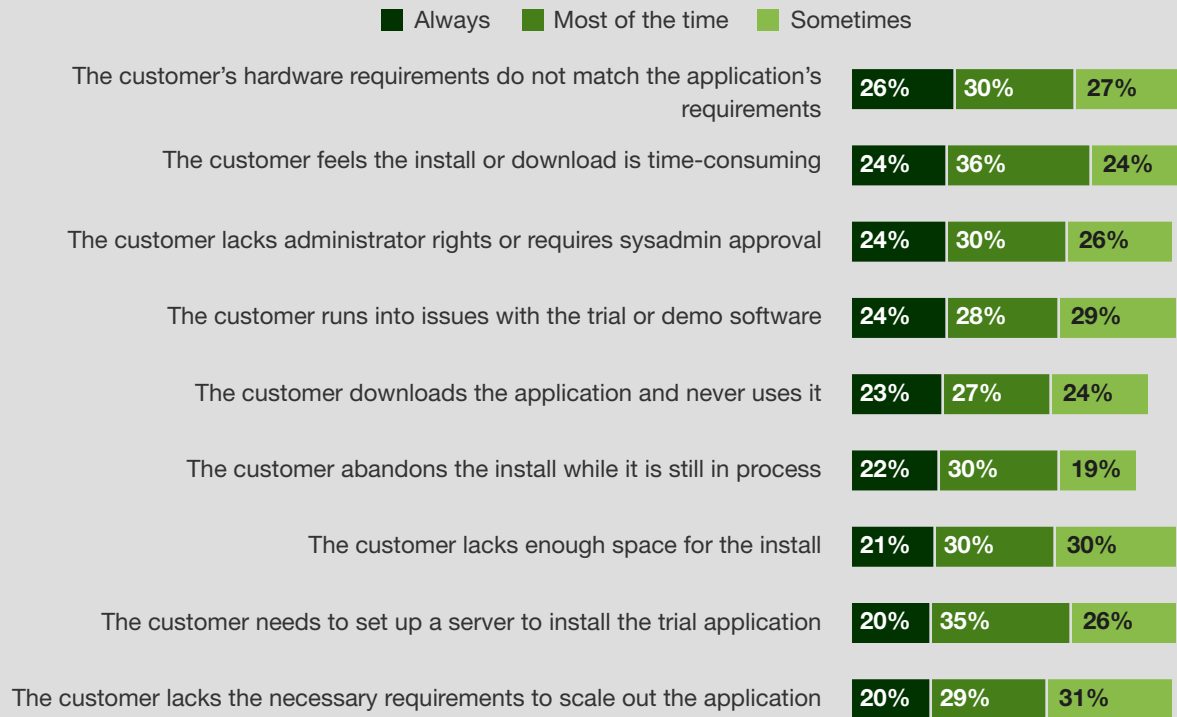

Base: 275 software decision makers
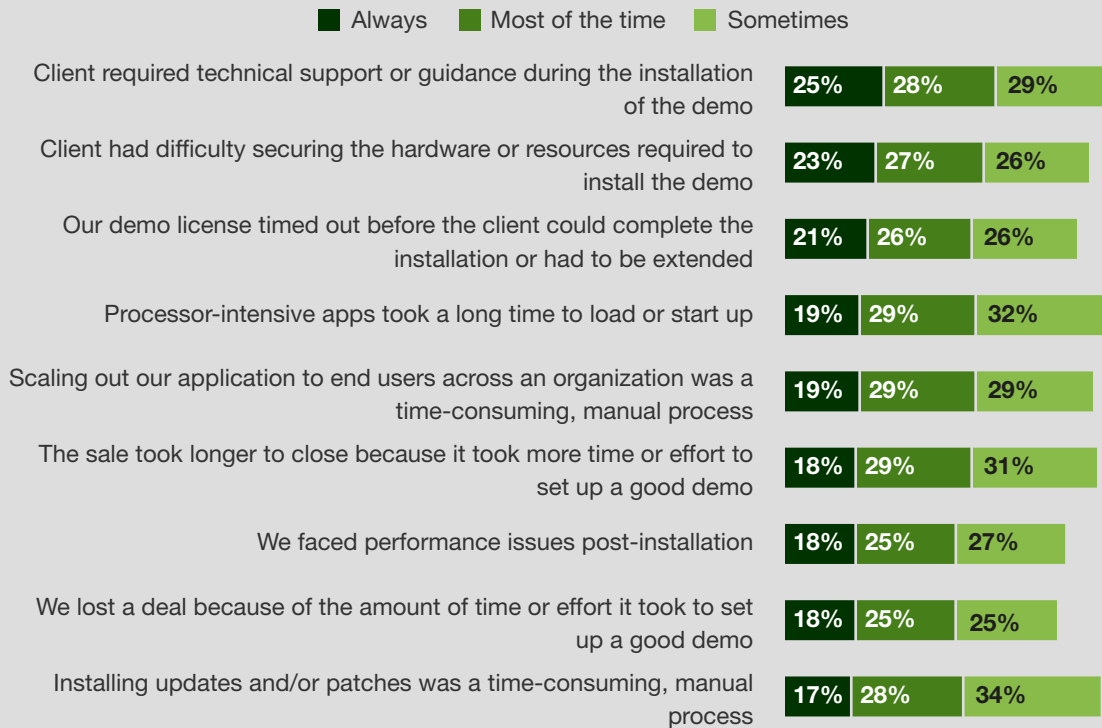Note: Percentages may not total 100 because of rounding.
Source: A commissioned study conducted by Forrester Consulting on behalf of AWS, May 2019

Figure 7

"When setting up a demo or trial for a prospect, how often do you run into the following issues?"

■ Always ■ Most of the time ■ Sometimes

Issue	Always	Most of the time	Sometimes
The customer's hardware requirements do not match the application's requirements	26%	30%	27%
The customer feels the install or download is time-consuming	24%	36%	24%
The customer lacks administrator rights or requires sysadmin approval	24%	30%	26%
The customer runs into issues with the trial or demo software	24%	28%	29%
The customer downloads the application and never uses it	23%	27%	24%
The customer abandons the install while it is still in process	22%	30%	19%
The customer lacks enough space for the install	21%	30%	30%
The customer needs to set up a server to install the trial application	20%	35%	26%
The customer lacks the necessary requirements to scale out the application	20%	29%	31%

"How often have the following situations occurred when setting up and/or running your flagship application for a customer?"

■ Always ■ Most of the time ■ Sometimes

Situation	Always	Most of the time	Sometimes
Client required technical support or guidance during the installation of the demo	25%	28%	29%
Client had difficulty securing the hardware or resources required to install the demo	23%	27%	26%
Our demo license timed out before the client could complete the installation or had to be extended	21%	26%	26%
Processor-intensive apps took a long time to load or start up	19%	29%	32%
Scaling out our application to end users across an organization was a time-consuming, manual process	19%	29%	29%
The sale took longer to close because it took more time or effort to set up a good demo	18%	29%	31%
We faced performance issues post-installation	18%	25%	27%
We lost a deal because of the amount of time or effort it took to set up a good demo	18%	25%	25%
Installing updates and/or patches was a time-consuming, manual process	17%	28%	34%

Base: 289 software decision makers
Source: A commissioned study conducted by Forrester Consulting on behalf of AWS, May 2019

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› **Ground-up cloud enablement requires significant investment in development time.** For many firms that sell software, recreating their applications from the ground up as cloud-enabled products simply isn't feasible. Only one in four respondents surveyed says their firm never or rarely has issues with SaaS-enabling an application (see Figure 8). Despite knowing the challenges associated with current demos and installations, midsize firms are ill-equipped to transform their product portfolios with in-house resources.

Application Streaming Offers A Faster Path To The Cloud

Given the numerous challenges with traditional demos and software installation, as well as the investment required to rebuild software as a cloud version, application streaming delivers business value for software firms by enabling them to leverage their existing software investments. Software companies are open to streaming, with nearly 90% of software professionals saying they are likely to use application streaming for either product demonstrations or to cloud-enable their existing products (see Figure 9). Application streaming can:

› **Improve customer experience.** Nearly half of respondents surveyed expect application streaming would improve the experience of their customers. Streaming eliminates the friction caused by requiring specific customer infrastructure prior to trying or installing new software.

› **Improve business agility.** Sellers can deliver a proof-of-concept demo faster, building momentum toward a sale. Similarly, first-time users reach the point of their first success with a software product more quickly when barriers to installation are removed.

› **Make it easier to scale quickly.** Particularly for small and medium-size businesses, ability to scale is critical to growth. These companies are the least likely to have specialized infrastructure sitting around for product demos or IT capacity to support complex product installations and evaluations.

Figure 8

"When SaaS-enabling an application, how often do you run into the following issues?"

"It takes too long to restructure code as a SaaS."
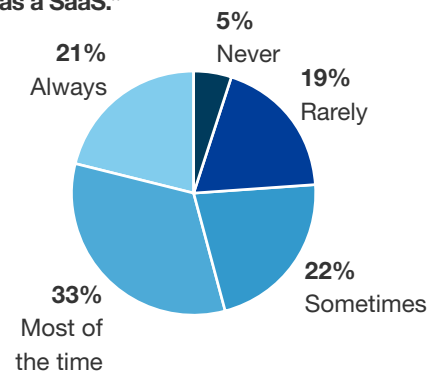
- 5% Never
- 19% Rarely
- 22% Sometimes
- 33% Most of the time
- 21% Always

Base: 275 software decision makers
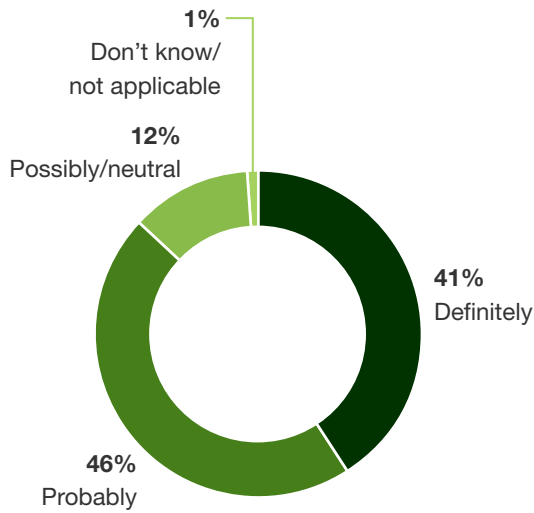Source: A commissioned study conducted by Forrester Consulting on behalf of AWS, May 2019

"The way we've packaged [our software with application streaming], it appears that we built it this way from the ground up. It wasn't an afterthought."

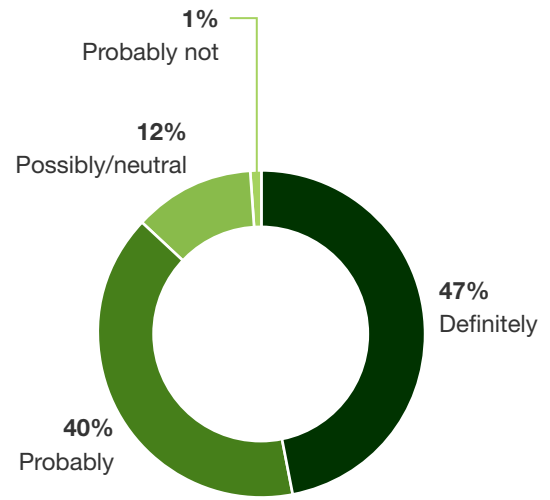*Director of technology services at a financial software company*

Figure 9

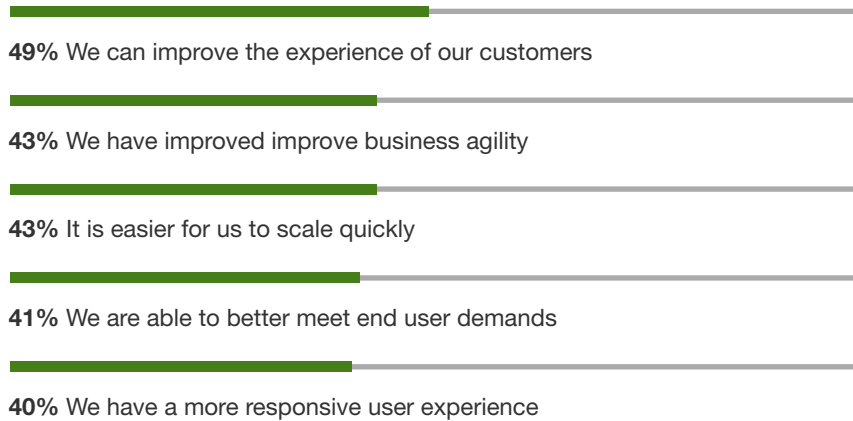**"How likely are you to use an application-streaming service for demos, training, or going full SaaS expansion?"**

1% Don't know/ not applicable

12% Possibly/neutral

41% Definitely

46% Probably

"How likely are you to use an application-streaming service to SaaS-enable your products?"

1% Probably not

12% Possibly/neutral

47% Definitely

40% Probably

87% will probably or definitely try this technology.

"What are the business benefits you would expect/have you experienced with a streaming service for demos, training, or scaling out desktop applications?"

49% We can improve the experience of our customers

43% We have improved improve business agility

43% It is easier for us to scale quickly

41% We are able to better meet end user demands

40% We have a more responsive user experience

Base: 289 software decision makers
Source: A commissioned study conducted by Forrester Consulting on behalf of AWS, May 2019

Key Recommendations

As more customers come to expect cloud-based applications and services, companies that sell software face increased pressure. Cloud adoption rates are not linear, steady affairs; when customers decide it is time to move, it is often like the flood of a dam breaking. Waiting months for development teams to refactor applications, repackage demos, and update evaluation scripts simply isn't an option once a migration picks up steam. App steaming represents another way to move to the cloud at the speed customers demand.

Forrester's in-depth survey of software professionals about application streaming yielded several important recommendations with respect to application streaming, including:

Focus on reducing "time-to-value" with streaming-enabled demos. Creating qualified leads is challenging enough, but losing those leads during a complex evaluation and demo installation process adds insult to injury. Application streaming reduces the footprint of on-premises demos and proofs of concept to that of a modern web browser, which provides an opportunity to prove the value of your solution with minimal investment from a prospective buyer.

Use application streaming to give refactoring teams breathing space. Enabling current versions of traditional applications for cloud delivery gives development teams more time to consider the best way to refactor and modernize them, away from the white-hot glare of immediate customer demands. Consider a two-pronged effort where most existing customers get immediate support for cloud migration via streaming while longer-horizon teams explore the value new cloud technologies like containers and orchestrators can add to a major refactoring effort.
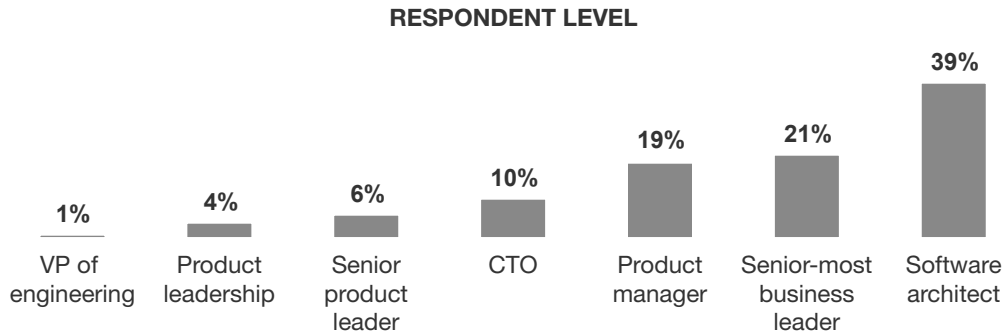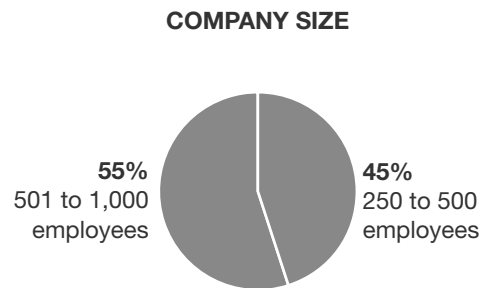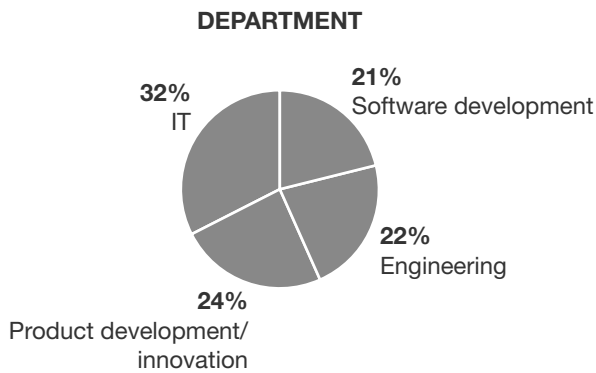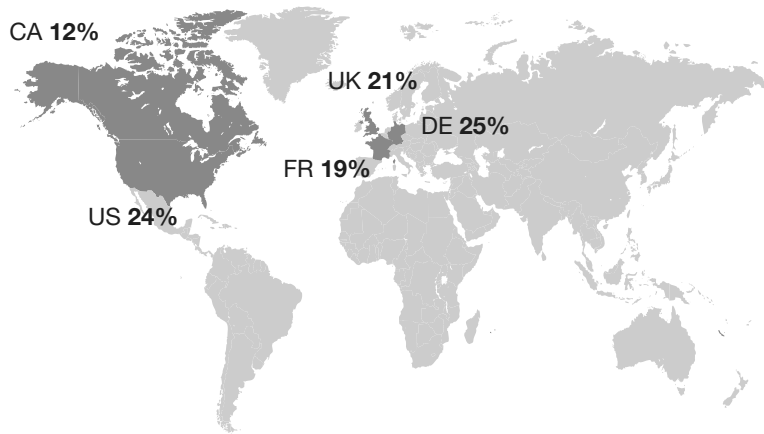
Rethink how you deliver complex applications. The traditional design approach for applications with complex graphical and compute needs is to push power out to the edge, as close to the user as possible. However, as end user devices get smaller and lighter, networks get better and faster, and workloads become more collaborative, it is worth rethinking the standard approach. For workloads from gaming to augmented reality to machine learning, developers are standardizing and optimizing compute-, GPU-, and memory-intensive processes into the core of cloud infrastructure — an approach that is highly compatible with application streaming.

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Appendix A: Methodology

In this study, Forrester conducted one interview and an online survey of 289 software professionals in North American and Europe to evaluate how application streaming technology could impact product evaluations and cloud-enabling desktop applications. Survey participants included software development, engineering, product development, and IT professionals at companies with between 250 and 1,000 employees.

Questions provided to the participants asked about technical requirements for their applications, challenges with the product demo and installation process, and potential benefits from application streaming. Respondents were offered an incentive as a thank you for time spent on the survey. The study began in April 2019 and was completed in May 2019.

Appendix B: Demographics

CA **12%**

UK **21%**

DE **25%**

FR **19%**

US **24%**

DEPARTMENT

32% IT

21% Software development

22% Engineering

24% Product development/ innovation

COMPANY SIZE

55% 501 to 1,000 employees

45% 250 to 500 employees

RESPONDENT LEVEL

VP of engineering	Product leadership	Senior product leader	CTO	Product manager	Senior-most business leader	Software architect
1%	4%	6%	10%	19%	21%	39%

Base: 289 software decision makers
Note: Percentages may not total 100 because of rounding.
Source: A commissioned study conducted by Forrester Consulting on behalf of AWS, May 2019

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Appendix C: Supplemental Material

RELATED FORRESTER RESEARCH

"Drive Greater Speed, Innovation, And Adoption With SaaS Transformation," Forrester Research, Inc., February 13, 2019.

"Ten Key Strategies For Pivoting Enterprise Applications To SaaS," Forrester Research, Inc., December 20, 2018.

"Digital Transformation Requires Development Transformation," Forrester Research, Inc., October 9, 2018.

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