State of Application Services

2019 REPORT / FINANCIAL SERVICES EDITION

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Introduction

The financial services industry has a long history of technology leadership. The industry encompasses product lines and business units that span both B2C and B2B operations—and as a result financial services is typically at the forefront of technology adoption from consumer-focused products to enterprise data center and cloud solutions.

We are always excited to explore how the industry responds to our annual State of Application Services survey—and this year they bring a unique perspective to multi-cloud adoption.

We isolated finance professionals' answers in this report, which is based on the results from 354 respondents. The results? The industry is embracing digital transformation, strategically exploring new technologies such as blockchain, and implementing automation—while leading their peers in security and analytics deployments.

Note: Throughout this report, we use the term "financial services" to reference both financial and insurance institutions.

2019 Key Findings

01 81% of respondents are executing digital transformation.

Four out of five (81%) financial services respondents are engaged in ongoing digital transformation initiatives. These IT organizations are re-evaluating their structures, processes, and workflows to be more agile. As financial services adopt multi-cloud architectures, the challenge of ensuring customer identity and securing confidential data makes a robust analytics solution essential.

02 77% use a WAF to protect applications, ushering in new deployments of application services while maintaining a focus on security.

The top application services currently deployed continue to be network firewall, antivirus, SSL VPN, IPS/IDS, and load balancing, but financial services respondents distinguish themselves in how they are embracing application security protection as well as adopting newer application services such as SDN, IoT, and HTTP/2 gateways.

03 More than 60% of respondents are deploying network and security automation and orchestration initiatives.

Automation and orchestration of network and security services in financial services institutions are clearly a priority. Both network and security service automation in the production pipeline are outpacing automation of application services and application infrastructure automation.

KEY FINDING 01

81% of respondents are executing digital transformation.

Four out of five (81%) financial services respondents are engaged in ongoing digital transformation initiatives. These IT organizations are re-evaluating their structures, processes, and workflows to be more agile. As financial services adopt multi-cloud architectures, the challenge of ensuring customer identity and securing confidential data makes a robust analytics solution essential.

FINANCIAL SERVICES LEADS IN TECHNOLOGY ADOPTION

The financial services industry is consistently at the forefront of adopting new technology, a trend that continues to be true in this year's survey. With four out of five (81%) respondents embarking on digital transformation initiatives, financial services respondents are far and away ahead of the global average of 69%.

We asked respondents which strategic trends will be important over the next 2–5 years. The top six strategic trends for financial services align with the global results: big data analytics (52%), IaaS (49%), real-time threat analytics (44%), SDN (42%), private cloud (38%), and machine learning and artificial intelligence (36%).

Confirming our view of financial services as technology leaders, 27% reported blockchain as a strategic trend compared to 21% in the total survey respondent base. This is not surprising as blockchain has the potential to improve trust throughout the supply chain of globally distributed goods and services, a key concern for the industry.

WE ASKED

"Which technology trends do you think will be strategically important for your organization in the next 2–5 years? Select all that apply."

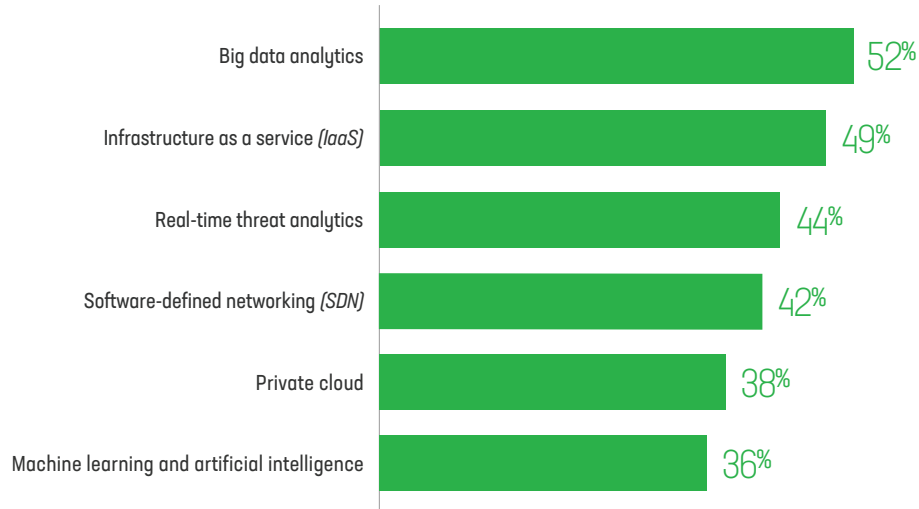| Trend	Percentage
Big data analytics	52%
Infrastructure as a service (IaaS)	49%
Real-time threat analytics	44%
Software-defined networking (SDN)	42%
Private cloud	38%
Machine learning and artificial intelligence	36%

FIGURE 01: FINANCIAL SERVICES STRATEGIC TRENDS

TRANSFORMING SYSTEMS AND PROCESSES TO DRIVE IT OPTIMIZATION

Three-quarters (76%) of financial services respondents rank IT optimization as the number one benefit of digital transformation. Next in the benefit line is business process optimization (65%), while employee productivity improvements (59%), competitive advantage (55%), and new business opportunities (48%) round out the top five.

WE ASKED

"What benefits do you want from your digital transformation projects? Select all that apply."

Benefit	Percentage
IT optimization	76%
Business process optimization (boost operational performance)	65%
Employee productivity improvements	59%
Competitive edge	55%
New business opportunities	48%

FIGURE 02: PRIMARY BENEFIT FROM DIGITAL TRANSFORMATION FOR FINANCIAL SERVICES ORGANIZATIONS

Financial services organizations are ahead of their peers in transforming IT through automation and orchestration. This is reflected in a 12% increase (from 52% in 2018 to 64% in 2019) in the percentage of respondents who reported that they are implementing automation and orchestration in support of digital transformation application decisions.

As one of the largest employers of developers and IT professionals in general, the financial services industry can realize huge productivity gains from automation and orchestration initiatives. Further, the investment in agile development methodologies provides the ability to rapidly innovate on the quality of all customer interactions and transactions.

WE ASKED

"How is digital transformation influencing your application decisions? Select all that apply."

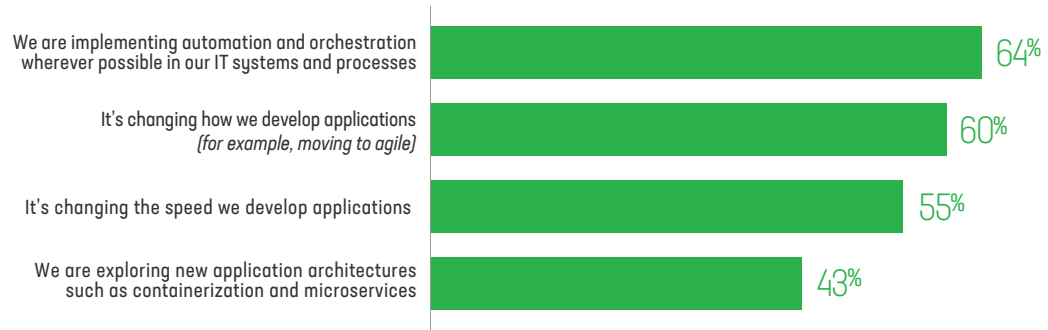|	
We are implementing automation and orchestration wherever possible in our IT systems and processes	64%
It's changing how we develop applications *(for example, moving to agile)*	60%
It's changing the speed we develop applications	55%
We are exploring new application architectures such as containerization and microservices	43%

FIGURE 03: FINANCIAL SERVICES EMBRACING AUTOMATION AND ORCHESTRATION

CHOOSING THE BEST CLOUD FOR THE APP

IT organizations in financial services understand that they need to assess each layer of their IT stack for standardization, scale, competitive advantage, and costs. In this assessment, they are choosing the application as the highest priority, which leads to multi-cloud architectures—and underscores the importance of having a multi-cloud strategy.

Respondents select their cloud platforms and locations by the types of applications (48%), determined by IT (47%), by the intended end users of the applications (44%), and on an individual case-by-case basis (44%). This illustrates that financial services organizations have moved beyond an ad hoc adoption of cloud to align on best practices—classifying and categorizing applications while making sure that IT has a voice—which helps ensure that all applications meet the standards of the organization. By unifying application services, policy, and visibility, IT can play a critical role in promoting the digital health and success of the organization.

WE ASKED

"How does your organizaiton decide which type of cloud is best for each application? Select all that apply."

Type of application *(for example, collaborative, business, data management, etc)* — 48%

Determined by IT — 47%

Type of end user of the application *(for example, employee, customer, business partner)* — 44%

Case by case, per application — 44%

Business unit directive *(stakeholder)* — 35%
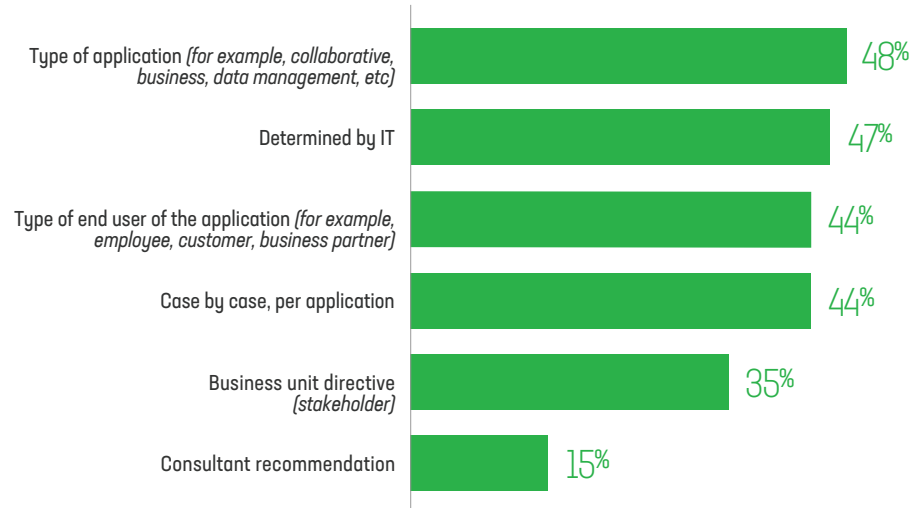
Consultant recommendation — 15%

FIGURE 04: CHOOSING THE BEST CLOUD FOR THE APP

SECURITY IS THE TOP CHALLENGE

For financial services organizations, complying with regulations (47%) is the most difficult challenge of deploying applications across multiple clouds. Achieving consistent security (43%) for applications distributed among multiple cloud platforms comes in second, while gaining visibility into application health (including status, performance, and capacity) is the number three answer at 42%. Protecting applications from existing and emerging threats (41%) and optimizing the performance of the application (38%) round out the top five.

The top four answers all point to a heightened need to deploy security services. Because financial services organizations protect global payments, store consumers' most personal data, and continually invest in new opportunities, they can find themselves directly in the crosshairs of bad actors. To mitigate risk, and maintain customer trust, these organizations need to ensure that they are not only meeting the required certifications and regulations but are staying ahead of the bad guys with a robust security strategy.

WE ASKED

"As you think about managing applications in a multi-cloud envinroment *(private, public, or SaaS)*, what part of managing the application do you find the most challenging, frustrating, or difficult? Select all that apply."
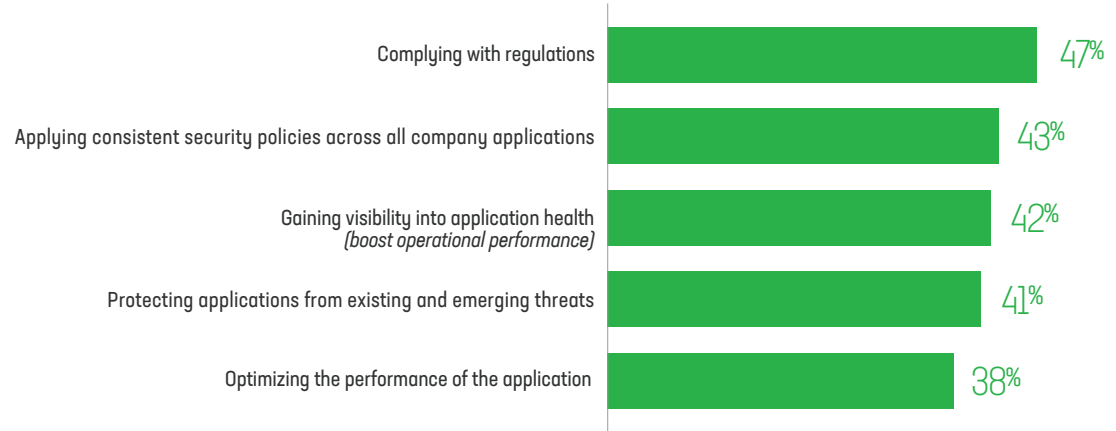
Complying with regulations	47%
Applying consistent security policies across all company applications	43%
Gaining visibility into application health *(boost operational performance)*	42%
Protecting applications from existing and emerging threats	41%
Optimizing the performance of the application	38%

FIGURE 05: MULTI-CLOUD CHALLENGES FOR FINANCIAL SERVICES ORGANIZATOINS

F5 INSIGHTS FOR KEY FINDING 01

Financial services organizations are full steam ahead with respect to digital transformation, adopting new agile methodologies, utilizing all types of clouds, and implementing automation. As they evaluate multi-cloud architectures to support their transformation efforts, they are keenly aware they need to protect the money—as well as the financial and personal data—that they safeguard for their customers.
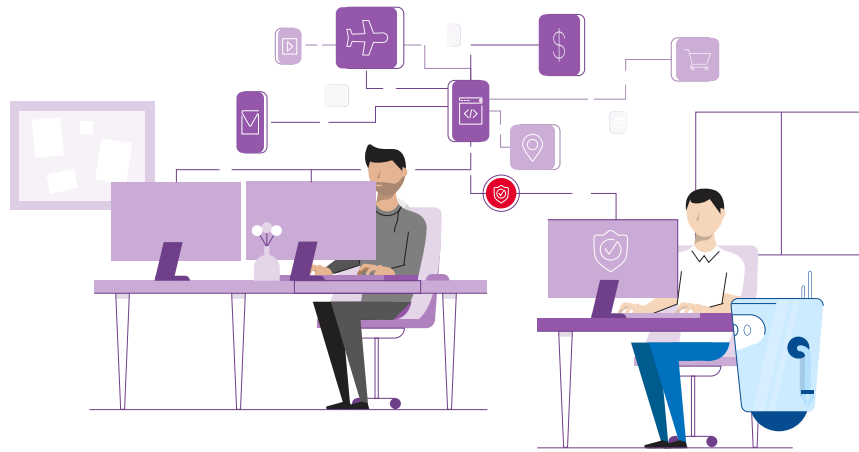
KEY FINDING 02

77% use a WAF to protect applications, ushering in new deployments of application services while maintaining a focus on security.

The top application services currently deployed continue to be network firewall, antivirus, SSL VPN, IPS/IDS, and load balancing, but financial services respondents distinguish themselves in how they are embracing application security protection as well as adopting newer application services such as SDN, IoT, and HTTP/2 gateways.

APPLICATION SERVICES DELIVER SECURITY

Application services that implement and enforce security policies continue to dominate the list of top five app services deployed today. Financial services organizations are no exception:

WE ASKED

"For each of the application services below, please indicate your company's current deployment status."

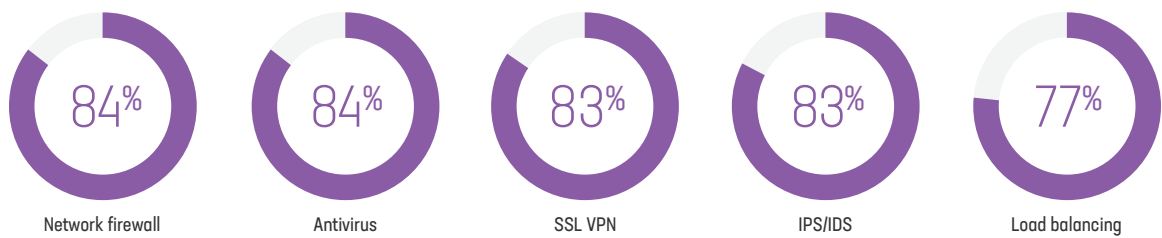| 84%	84%	83%	83%	77%
Network firewall	Antivirus	SSL VPN	IPS/IDS	Load balancing

FIGURE 06: TOP APPLICATION SERVICES DEPLOYED TODAY

These stalwart application services are primarily network-focused technologies. That is, they are deployed for the purposes of detecting and preventing malicious traffic from passing into and through the corporate network. When it comes to protecting applications, there is a significant difference between financial services institutions and other industries.

While other industries are employing web application firewalls (WAF) at greater rates (64%) than in previous years, financial institutions are markedly ahead with more than three in four (77%) deploying a WAF to protect their applications. This decision is driven by compliance and regulations for 56% of financial services, as compared to 44% of other industries citing compliance as a factor. The sensitivity of data has greater bearing on the decision by financial services to deploy a WAF (51%) than the type of application (38%), which is different from other industries that cite type of application (47%) as the most important factor.

WE ASKED

"How do you decide which applications will be protected by a WAF? Select all that apply?"
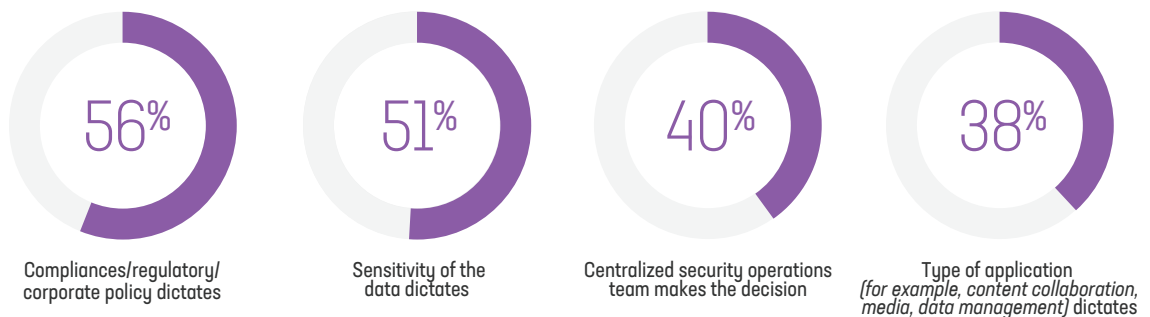
56%	51%	40%	38%
Compliances/regulatory/ corporate policy dictates	Sensitivity of the data dictates	Centralized security operations team makes the decision	Type of application *(for example, content collaboration, media, data management)* dictates

FIGURE 07: POLICY DICTATES MAJORITY OF WAF DECISIONS

DEPLOYING NEW APPLICATION SECURITY SERVICES

Financial services are also ahead of other industries in the use of modern application services like user behavior analytics (38%) and runtime application self-protection (20%) to secure their applications. The use of these technologies contributes to the greater confidence cited by financial services in every environment to withstand an application-layer attack.

WE ASKED

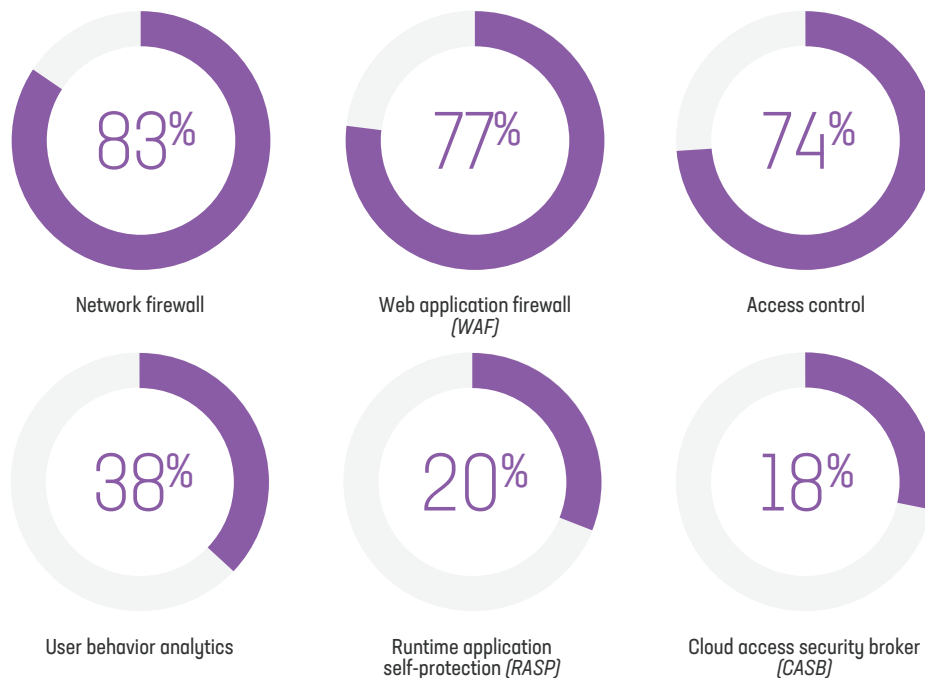"Which technologies do you use to protect your applications? Select all that apply"

83%	**77%**	**74%**
Network firewall	Web application firewall *(WAF)*	Access control
38%	**20%**	**18%**
User behavior analytics	Runtime application self-protection *(RASP)*	Cloud access security broker *(CASB)*

FIGURE 08: TECHNOLOGIES USED TO PROTECT APPLICATIONS

WE ASKED

"How confident are you in your ability to withstand an application-layer attack in the following environments?"
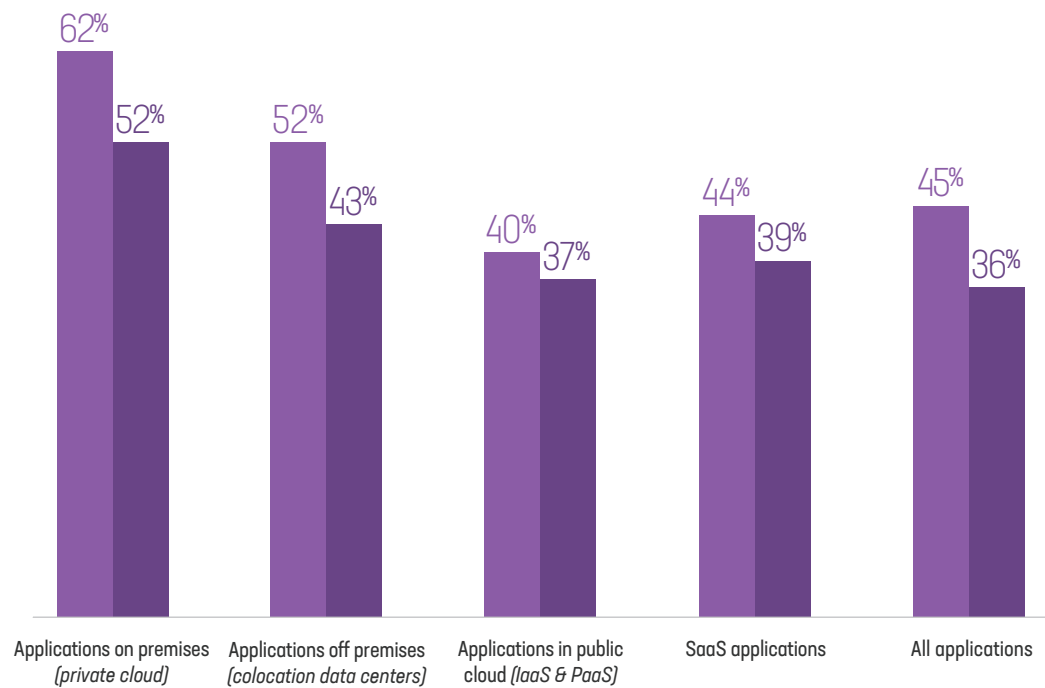
■ Finance   ■ Global

FIGURE 09: CONFIDENCE TO WITHSTAND AN APPLICATION-LAYER ATTACK

Financial services organizations' focus on security is also seen in the top application services planned for deployment in 2019. Botnet protection is higher on the list for financial services than other industries. The high-profile nature of financial services—along with the criticality of transactional data to the digital economy—makes this choice a wise one, as bots are often used to perpetrate financial fraud.

WE ASKED

"Which of the following application services do you plan to deploy in 2019?"

| 34% | 31% | 24% |
| SDN gateway | DNSSEC | Iot gateway |

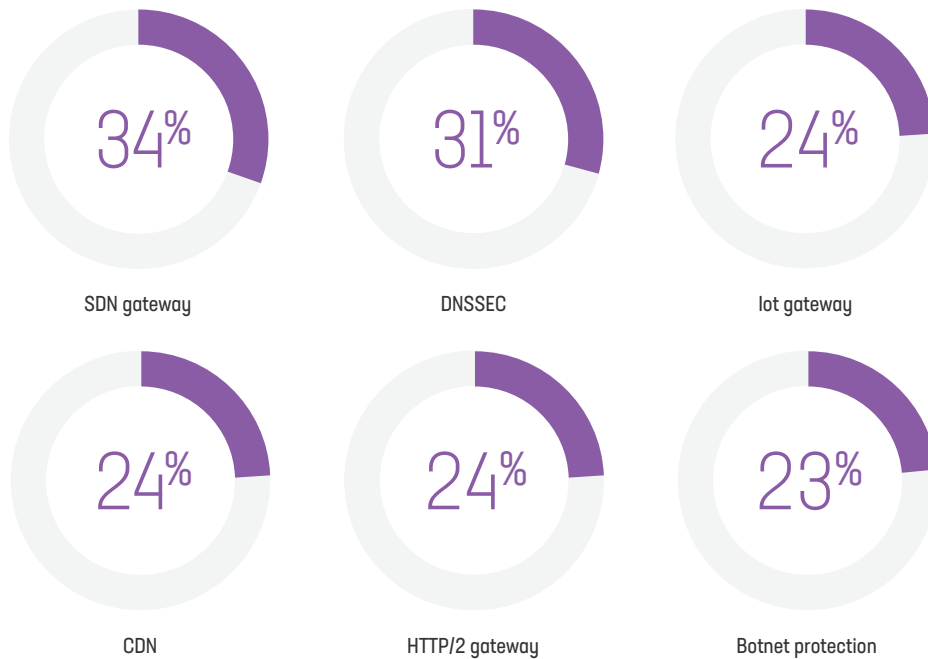| 24% | 24% | 23% |
| CDN | HTTP/2 gateway | Botnet protection |

FIGURE 10: THE TOP APP SERVICES PLANNED FOR DEPLOYMENT IN 2019

F5 INSIGHTS FOR KEY FINDING 02

The sensitive nature of information and data in the financial services industry leads to higher deployment rates (compared to the general population) of each of the surveyed security services. The combination of these services minimizes organizational risk and contributes the confidence financial services organization have in withstanding an application-layer attack.

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KEY FINDING 03

More than 60% of respondents are deploying network and security automation and orchestration initiatives.

Automation and orchestration of network and security services in financial services institutions are clearly a priority. Both network and security service automation in the production pipeline are outpacing automation of application services and application infrastructure automation.

AUTOMATION AND ORCHESTRATION DELIVER AGILITY DESPITE COMPLEXITY

Financial organizations are dramatically ahead of their peers in automating individual components of the network. Less than half of other industry respondents indicate automation of security (42%) and network services (38%), whereas those numbers are 62% and 64% respectively among financial services organizations.

The financial respondents are also slightly ahead of other industries in terms of achieving continuous deployment—automation across all four key components of the production pipeline—with 22% of respondents automating all four key components of the production pipeline.

 With respect to self-service provisioning outside of IT—financial services is more conservative compared to other industries—less than half (42%) are piloting or in production.

WE ASKED

"Which of the following four key components of the production pipeline have you automated?"

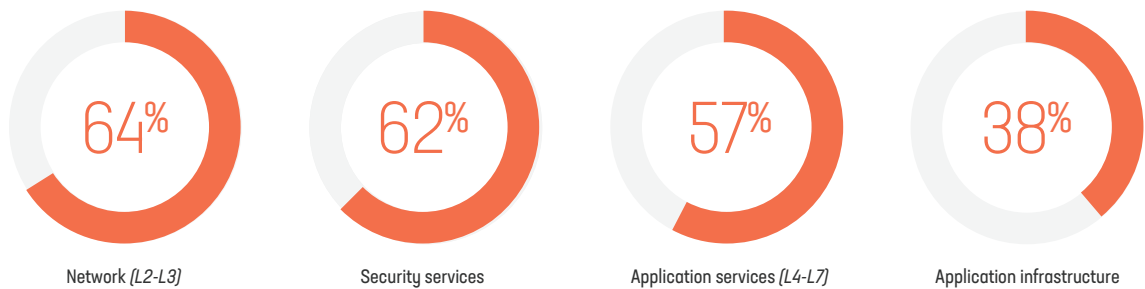| 64% | 62% | 57% | 38% |
| Network *(L2-L3)* | Security services | Application services *(L4-L7)* | Application infrastructure |

FIGURE 11: FINANCIAL SERVICES ORGANIZATIONS LEAD IN AUTOMATING COMPONENTS OF THE PRODUCTION PIPELINE

AUTOMATION AND ORCHESTRATION CHALLENGES

When it comes to network automation challenges, financial services respondents see creating policies and governance (44%) as the number one concern, followed closely by lack of skilled professionals at 43%. This difference illustrates the impact compliance and regulation have on financial services, as well as the ability to attract the talent needed to quickly execute on digital transformation efforts. This year, we see a slight lead by financial respondents in adoption of DevOps-friendly tools like Jenkins (22%) and GitHub Enterprise (17%), which may provide the edge financial organizations need to attract talent and accelerate efforts to realize continuous deployment.

WE ASKED

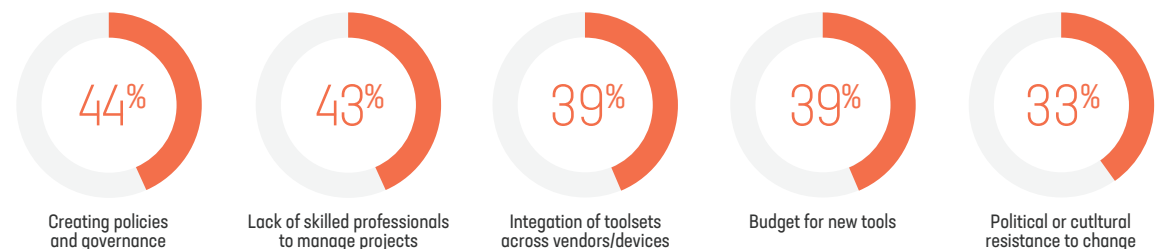## "What do you find the most frustrating or challenging about automating the network?"

| 44% | 43% | 39% | 39% | 33% |
| Creating policies and governance | Lack of skilled professionals to manage projects | Integation of toolsets across vendors/devices | Budget for new tools | Political or cutltural resistance to change |

FIGURE 12: NETWORK AUTOMATION CHALLENGES FOR FINANCIAL SERVICES ORGANIZATIONS

WE ASKED

"Which of the following toolsets do you use or plan to use in the next 12 months to automate the network?"
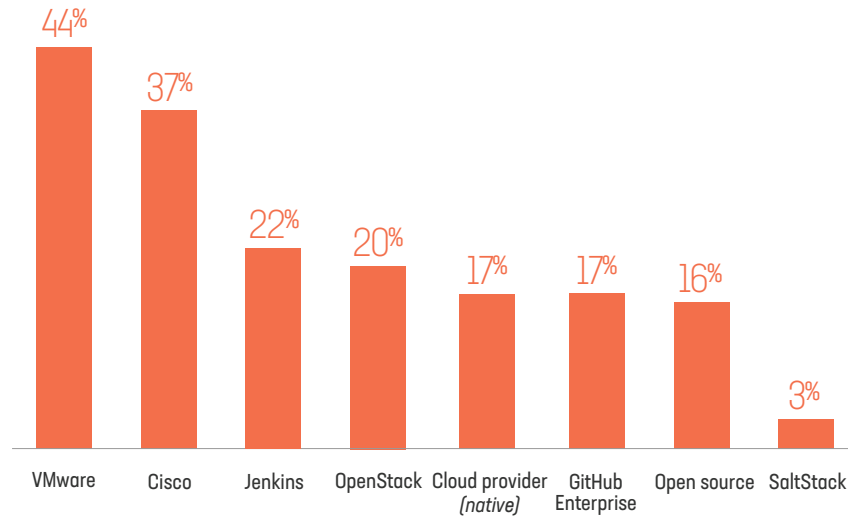

FIGURE 13: PREFERRED TOOLSETS TO AUTOMATE THE NETWORK

PYTHON RULES SUPREME

The one thing everyone agrees on—regardless of role or team structure or industry—is that Python is the go-to tool when it comes to overall automation and orchestration. This is also true in the financial services industry with 43% of respondents reporting using Python for automation and orchestration. It has occupied the top spot in every iteration of this survey—40% in the total survey population—and we expect it to remain the favorite for the foreseeable future.

F5 INSIGHTS FOR KEY FINDING 03

Financial services organizations have embraced network and security automation solutions and are on their way to automating the entire production pipeline. DevOps teams are leading the way in standardizing on tools and team structures that enable faster development, deployment, and delivery of applications.

Conclusion

In today's business world, applications are the key to the connected customer experience, support a global supply chain of goods and services, and are on the front line of insurance claims. Understanding the importance of supporting and protecting their apps, financial services organizations are embracing the benefits of digital transformation.

Deploying applications across multiple clouds requires a breadth of application services to mitigate risk, protect data, deliver visibility, and ensure that compliance and regulatory requirements are met. By implementing automation and orchestration, standardizing on uniform policies, and boosting security and availability across their entire portfolio of applications, financial services organizations can best optimize their application capital—and continue to grow their business.

LEARN MORE

For more information about how application services can help you support and protect your business-critical apps, visit **f5.com**.