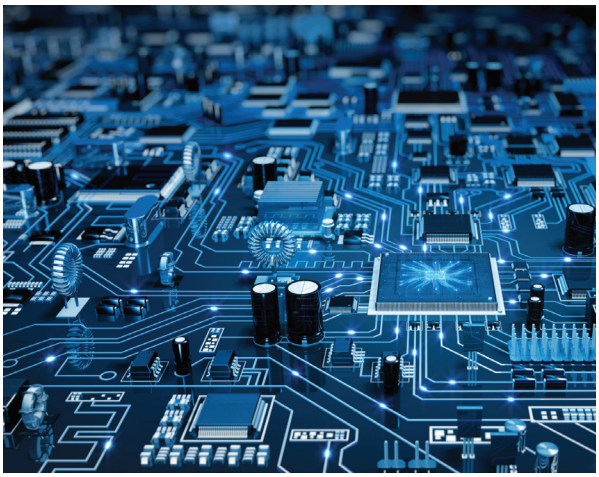
The State of Application Delivery in 2015

a report by F5

f5.com/SOAD



Introduction

F5 surveyed customers from more than 300 organizations (of all sizes) across a broad spectrum of vertical markets such as banking and finance, telecommunications, public sector, and consumer products.

It's an "application world." Not only have applications become pervasive in our personal lives, they are a vital component of business strategy. Organizations in every industry rely on applications to drive customer engagement, employee productivity, and revenue. Deployed between users and the applications are a wide variety of "application services" designed to enhance security, improve performance, and ensure reliability.

F5 set out to evaluate the state of these services by asking IT professionals about their current and planned use of application services. F5 surveyed customers from more than 300 organizations (of all sizes) across a broad spectrum of vertical markets such as banking and finance, telecommunications, public sector, and consumer products. We wanted their perspectives on how emerging trends and technologies will impact application services in the future.

We asked respondents about specific types of application services (commonly known as "layer 4-7 services" in reference to their logical location in the seven layer OSI network stack). We also asked about software-defined networking (SDN) at layers 2-3 and DevOps, both of which impact the network and its ability to scale to meet increasing demand driven by mobility and cloud. These trends are important to understand in the context of how they impact the application services that organizations rely on to keep their applications fast, secure, and available.

Key Findings

01

Application availability is priority one.

A common belief is that customers are willing to give up application performance to keep their networks more secure, but respondents indicated that performance was the *last* thing they were willing to give up. Availability proved to be the application service that respondents considered most critical.

02

Security remains top of mind for customers.

While not quite edging out performance in terms of priorities, security and the need to keep applications safe continues to rank high among customer concerns.

03

Programmability is vital to business agility.

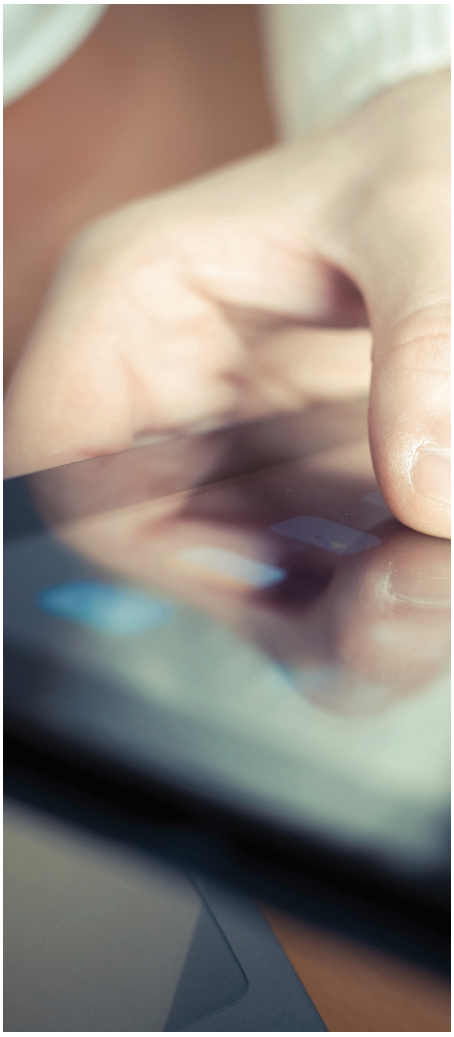
The ability to change the behavior of network services and control their configuration via open application programming interfaces (APIs) and app templates is the key characteristic of emerging software-defined architectures and trends. A majority of respondents (69%) rated data path programmability as important/somewhat important/very important. Applications templates and API-enabled network infrastructures came in close behind at 60% each.

04

Software-defined networking must reduce operating expenses.

As organizations look to operationalize the network, interest in SDN is clearly growing. Two-thirds of respondents are considering SDN to reduce operating expenses. In order to progress from today's early adopter stage to widespread implementation, SDN must address this customer requirement.

Strategic Initiatives Driving Application Deployments



To set the stage for the survey, we began by asking respondents about their current applications environments. Many organizations are already managing a huge number of applications. Twenty percent of respondents said they have 201-500 applications deployed while 28% have 1-200 deployed.

Next we asked respondents which technologies and trends they believe will have strategic importance within the next two to five years. The highest number of responses centered on private cloud at 59%, mobile apps at 56%, SaaS at 48%, and Infrastructure as a Service (IaaS) at 45%. This will not only significantly increase the number of applications requiring services, it will contribute to an increasingly complex application deployment environment, whether on premises or in the cloud.

Fifty-six percent of respondents still view mobile apps as strategically important. While mobile apps have clearly made strides from the early days when existing applications (such as online banking) were simply ported to mobile devices, survey responses indicate we haven't yet seen the end of mobile app innovation.

Over 22% of respondents tagged the Internet of Things (IoT) as an important trend. Entirely new products are emerging based on the IoT, from lifestyle apps that track health and fitness to IP addresses on vending machines that enable supply chain efficiencies. Applications provide the linkage for the business to deliver value in IoT and the consumer initiatives that are connected to it.

"Private cloud ranked as the most important trend for the next 2-5 years with nearly six in ten customers listing it as a key strategic initiative."

Survey

Emerging trends: Which technologies do you expect to have strategic importance over the next 2-5 years?

Answer Choices:	Responses:
Private cloud	59%
Mobile applications	56%
Software as a Service (SaaS)	48%
Infrastructure as a Service (IaaS)	45%
Virtual desktop	41%
Physical data center consolidation	38%
Big data analytics	37%
Software defined networking (SDN)	35%
WAN optimization	29%
Internet of Things	22%
DevOps	17%

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While applications are at the heart of IT's ability to drive revenue and business efficiencies, they are only as good as the application services that deliver them. What good is a lifestyle app if it loses connectivity just as you have completed your seven mile run? Can an organization afford to risk its reputation on a vending machine that loses its customers' personal information? As applications increase in their strategic importance to the business, so, too, will the application services required to provide for their security, performance, and availability.

01

APPLICATION SERVICES

Whether we're discussing a custom application that's meant to deliver immediate competitive advantage or one of many productivity applications (such as email) that are pervasive across every organization and end user, *applications need services in order to make the experience useful.*

Just as "cloud," "SDN," and "DevOps" suffer from a spate of vague definitions that can be confusing to the market, so, too, does the term "application services," despite the fact that these services have existed for a very long time. While many people distill "application" or "Layer 4-7" services down to just a few commonly known services such as load balancing and WAN optimization, the reality is that application services comprise a diverse set of technologies.

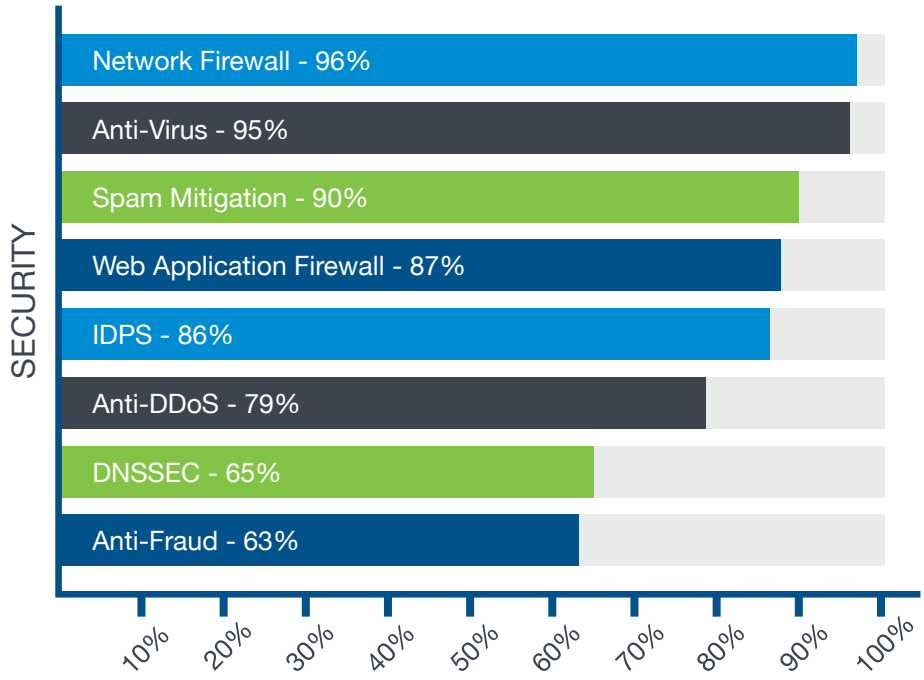
We wanted to know what kinds of application services our respondents currently have deployed and plan to deploy within the next 12 months. Specifically, we asked for detailed responses in five services categories:

- Availability: load balancing, global server load balancing, DNS
- Security: Anti-DDoS, web application firewall, intrusion detection and prevention systems (IDPS), anti-virus, anti-fraud, spam mitigation, DNSSEC, network firewall
- Identity and access management (IAM): SSL VPN, identity federation, application access control, secure web gateway, single sign-on
- Mobility: endpoint security, virtual desktop infrastructure (VDI)
- Performance: application acceleration, compression, SSL/TLS offload, caching, TCP optimizations, WAN optimization

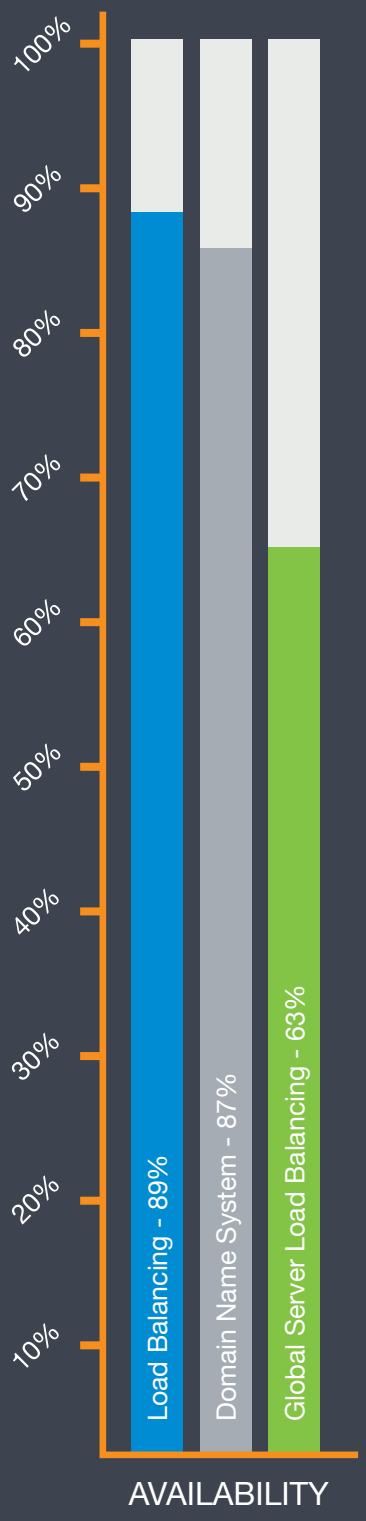
F5 Insights

The pervasiveness of all application services and the diversity of the services being deployed makes it imperative that business and IT growth strategies relying on SDN and other operationally focused architectures include application services, otherwise, they will fail.

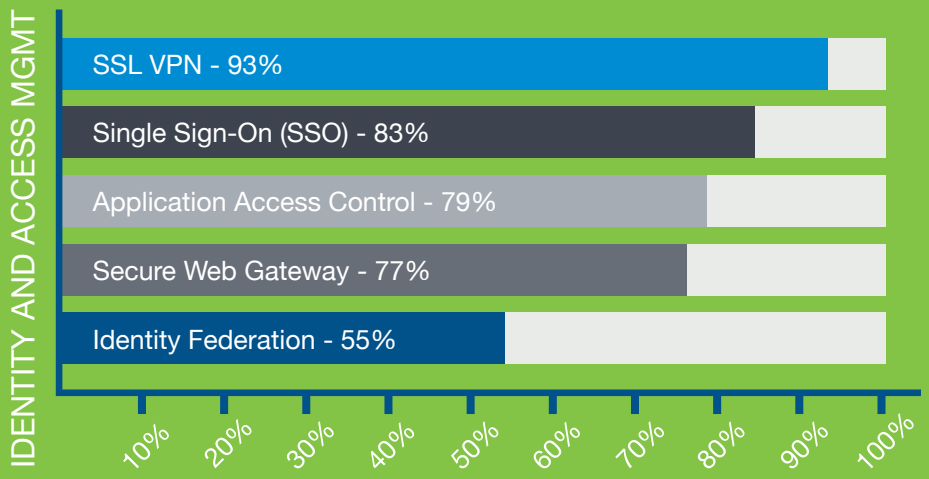
Security Application Services Currently Deployed or Planned for the Next Year



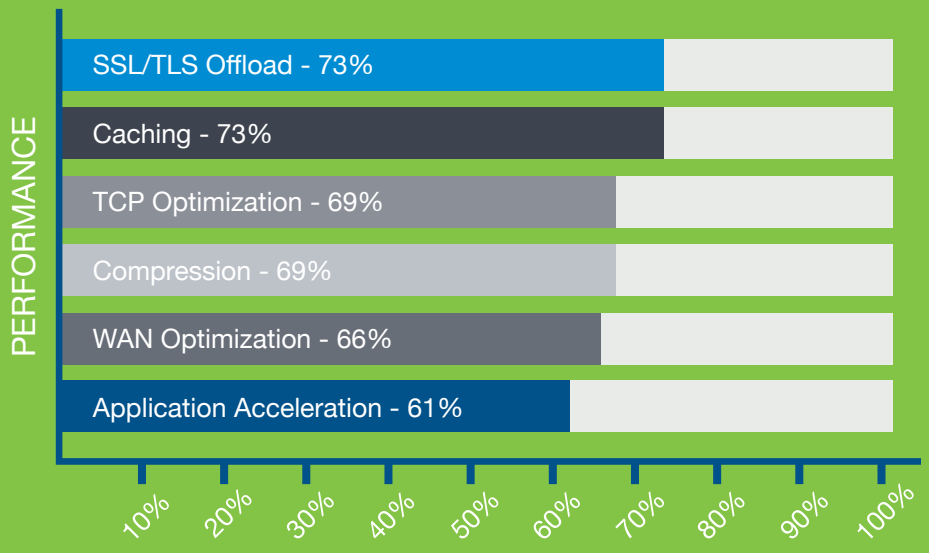
Application Availability Services Currently Deployed or Planned for the Next Year



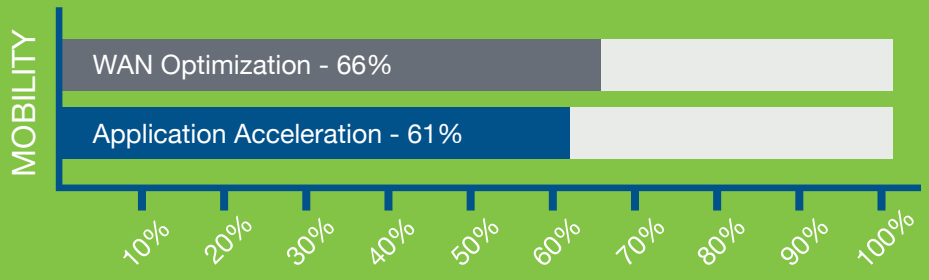
Identity and Access Management Services Deployed or Planned for the Next Year



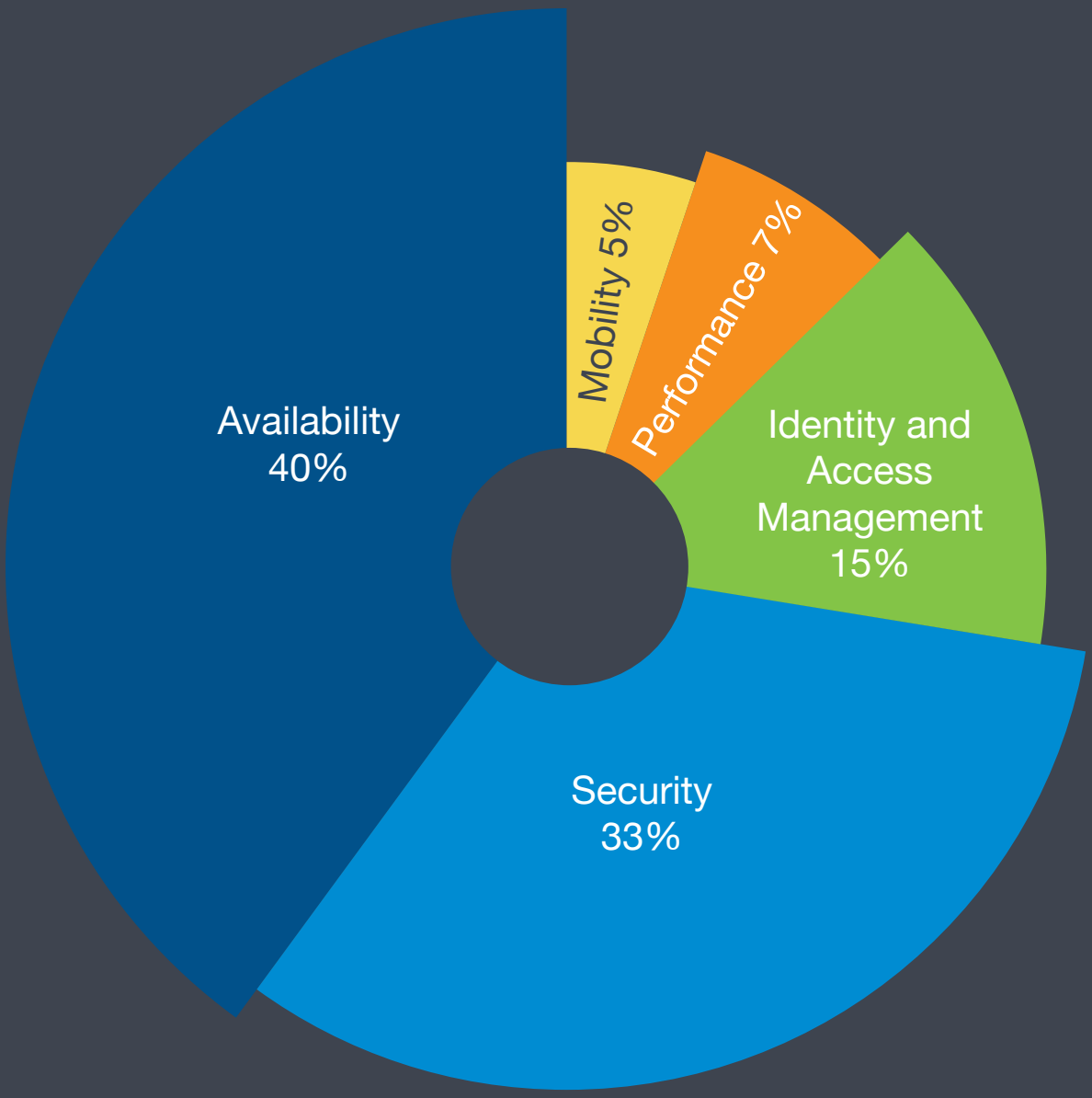
Performance Services Deployed or Planned for the Next Year



Application Mobility Services Deployed or Planned for the Next Year



We asked survey participants to complete the following sentence: “I can’t imagine deploying an application without _____.”



The responses to this question were somewhat surprising. With growing concern about the increasing number of security breaches and DDoS attacks, and security topping the list of concerns for just about every emerging technology in the past five years, we expected security services of various kinds would edge out other categories.

APPLICATION SERVICES

We asked survey participants to complete the following sentence: "I can't imagine deploying an application without _____."

The responses to this question were somewhat surprising. With growing concern about the increasing number of security breaches and DDoS attacks, and security topping the list of concerns for just about every emerging technology in the past five years, we expected security services of various kinds would edge out other categories. Instead, 40% of respondents said they were least willing to deploy an application without availability services, which encompasses traffic management at the local and global level, as well as DNS services. These responses seem to underscore the point that if an application isn't available, other services aren't as important to networking professionals. Security professionals (and business stakeholders) however, would likely have a different perspective on the relative importance of security to other services.

Capturing the second spot behind availability was security services at 33%. This is not surprising since the threat landscape is expanding, and protection services need to span inbound, outbound, and end client concerns. Among the wide variety of security services we asked about, respondents overwhelmingly chose the network firewall (14%) as the security service they would not deploy an app without. All other security services, somewhat surprisingly, ranked only in the single digits.

In the identity and access management (IAM) category, application access control and single sign-on (SSO) services ranked among the highest, but only at roughly 6% each.

"If an application isn't available, other services aren't as important."

02

SECURITY

Security spans a wide spectrum of services, from network anti-DDoS, to anti-fraud and anti-virus scanning, to application security. The depth and breadth of these services indicate the diverse attack surfaces that must be defended and, as such, security remains a top concern with respect to any networked technology. This point of view is reflected in our survey in which 33% of respondents were unwilling to deploy an application without at least one of these services.

We wanted to understand just how important network security is to IT professionals, so we asked, "Which of the following would you give up if it made your network more secure?" Choices included application performance, ease of network management, network programmability, flexible options for scaling the data center up and/or out, and consolidation of network appliances/devices.

By a very wide margin, most respondents (47%) said they would be willing to give up the ability to consolidate network appliances and devices if it made their network more secure. Eighteen percent were willing to give up ease of network management, while 10% said they would give up the ability to scale their data centers up and out.

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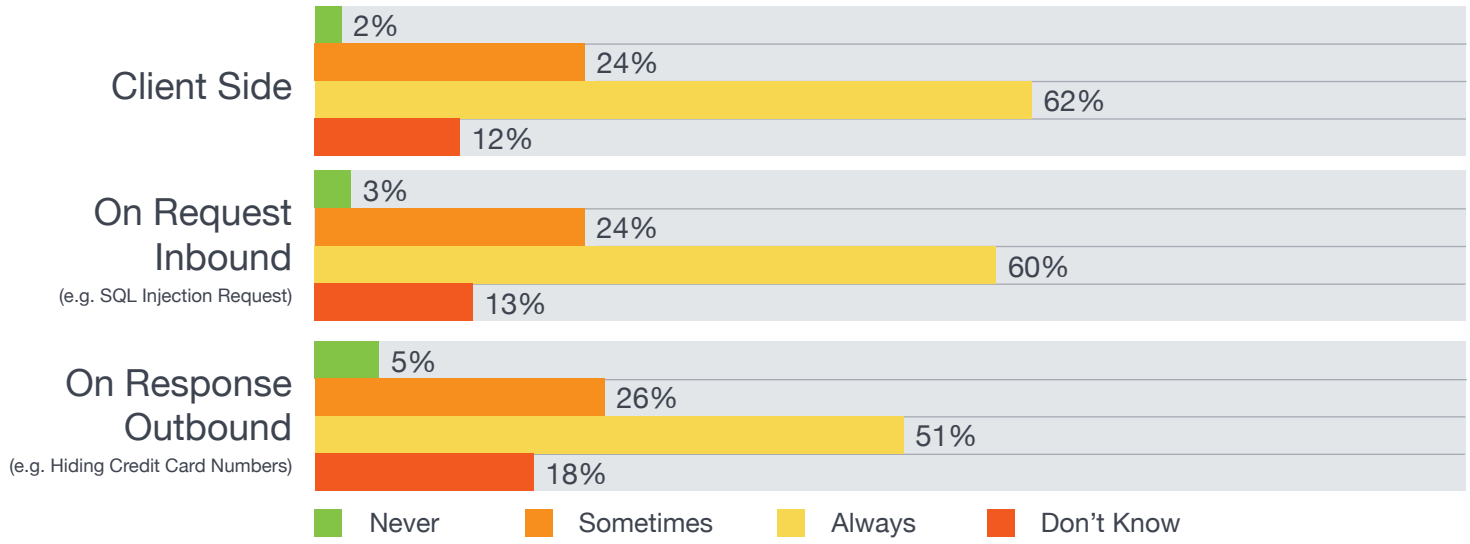
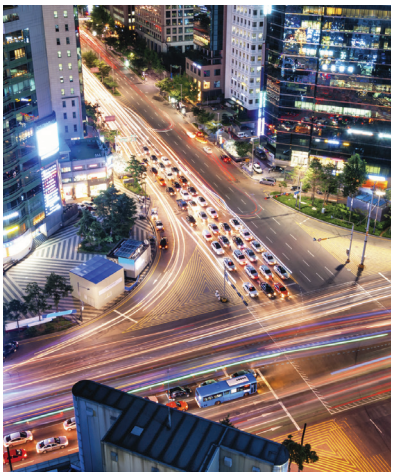
Security is always a top concern, whether it's focused on data, the network, or applications. We believe that the increase in the diversity of application deployments across on-premises, cloud, and hybrid data center models will also increase the need and demand for security services that enable and fit seamlessly into those models.

Attack Surfaces Being Protected



In stark contrast to these responses, only 7% of respondents said they would be willing to give up performance if it made their network more secure. This plainly indicates where the IT organization's priorities lie when it comes to meeting customer expectations.

When asked "Which of the following attack surfaces is your organization protecting: the client, inbound requests, outbound traffic?" about one quarter of respondents said they protect all three attack surfaces only "sometimes." Sixty percent said they always protect both the client and inbound requests whereas only 51% said they always protect outbound traffic.



03

PROGRAMMABILITY

It has been said that successful organizations change their critical business processes 4 to 7 times a year.

That kind of business agility is hard to match in the network, but it's rapidly becoming a requirement and is a key characteristic of SDN architectures. Programmability enables IT to achieve that level of agility in the network in multiple ways.

First, open APIs support and enable the operationalization that organizations seek to implement through SDN architectures. Sixty-nine percent of respondents rated APIs as important to very important for their infrastructure. Even more telling, of those looking to SDN to reduce operating expenses, nearly 3 out of 4 (71%) consider an API-enabled infrastructure important to very important. An API-enabled infrastructure encourages automation and orchestration of provisioning and configuration processes that can otherwise impede or inhibit changes that are necessary to support business requirements.

Second, data path programmability is critical to agility in data center networks and application services because it enables organizations to tailor services to execute in support of business- and application-specific processes. Over half of all respondents consider data path programmability important to very important. Of the respondents who are looking to SDN to reduce time to market, 73% ranked APIs as important to very important.

Lastly, 60% of all respondents rated application templates important to very important. App templates are key enablers of IaaS because they allow self-service provisioning through automation and orchestration systems. Unsurprisingly, of those who believe app templates are important, 74% indicated they were using VMware for orchestration and automation. Python (28%) and Puppet (22%) were a distant second and third in usage among this group.

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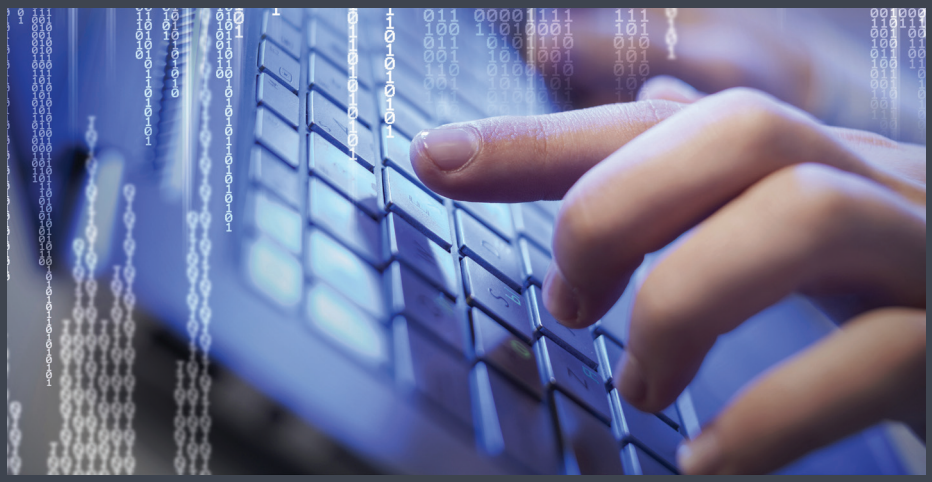
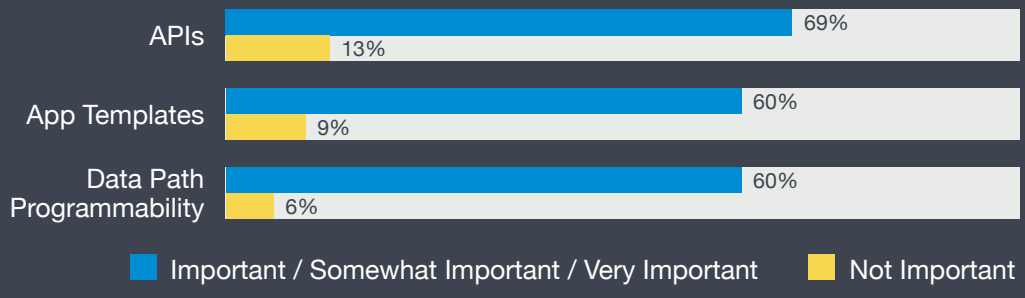
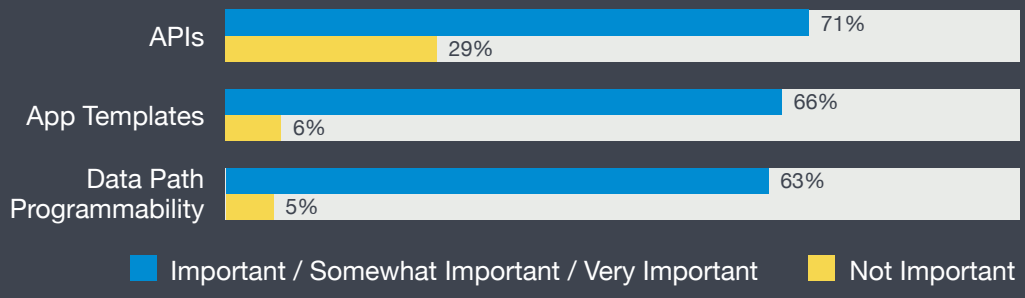
Programmability is a key component of DevOps, SDN, and even cloud computing. The importance assigned to various programmatic technologies and capabilities with respect to network infrastructure indicates a substantial shift toward the adoption of automation and orchestration of network services across organizations. The drivers behind interest in SDN and DevOps clearly speak of a desire to leverage automation and orchestration that's enabled by programmability to improve time to market and reduce operating expenses.



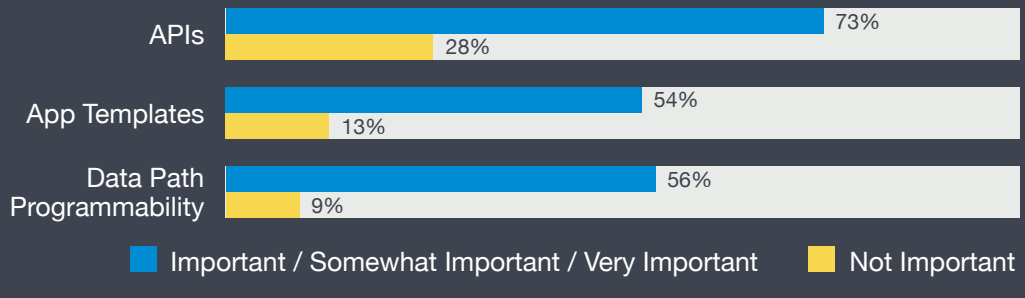
Overall Importance of Programmability Features



Importance to Those Who Are Looking to SDN to Reduce Operating Expenses



Importance to Those Who Are Looking to SDN to Reduce Time to Market



Automation frameworks used by those who consider app templates important to very important

04

F5 Insights

SDN has evolved into an architectural approach to operationalizing the network. Organizations believe that programmatic methods for provisioning and automating the configuration of the network services are necessary to achieve the benefits of SDN they desire most: reduced operating expenses and improved time to market. This requires an approach that is inclusive of the Layer 4-7 services required to deliver secure, available, and fast applications. Without a comprehensive approach to SDN, organizations cannot realize its full potential nor achieve the goals it is designed for.

SOFTWARE-DEFINED NETWORKING MUST REDUCE OPERATING EXPENSES

As the application deployment model becomes more complex, it's increasingly clear that the network must evolve so that applications can meet the quality of experience and time to market demands of the business. Supporting this evolution, SDN has emerged as an architectural approach for operationalizing networks in application-centric IT environments.

Eight percent of organizations surveyed are in the initial SDN implementation stage, 8% are piloting SDN, and another 8% are "early innovators," having deployed SDN in production already. Another 33% are currently evaluating SDN.

Our research indicates that efficiency and speed are the primary reasons that organizations are considering SDN. Two thirds of the respondents (67%) want to reduce operating expenses. Similarly, over a third (38%) of respondents hope to reduce capital expenses. Speed and improved time to market was cited by 44% of the respondents as a reason to move to SDN. The potential benefits of SDN are valued at the executive level as 11% of respondents said that SDN was a CxO mandate for their organizations.

As in the early stages of many technology deployments, the solution portfolio for SDN is not yet complete. Of the 57% of respondents who are evaluating, piloting, implementing, or currently using SDN in production, 64% agree that classic SDN is not well positioned to deliver the layer 4-7 application services they view as critical.

It is interesting to note that the number of respondents who agreed SDN cannot provide the layer 4-7 services that applications require was nearly as high as the number of respondents (67%) who indicated they're considering SDN as a means to reduce operating expenses. Organizations are clearly looking for SDN to enable efficiencies in the network—and the bulk of the network comprises services that reside at layers 4-7. These are the same services that respondents are heavily deploying today and plan to deploy in the next 12 months. If SDN cannot provide efficiencies for these network services, it follows that SDN cannot offer relief from the operating costs associated with provisioning and managing those services. Perhaps the high percentage of respondents who don't believe SDN can provide these services might explain why 43% of respondents say they have no plans to deploy SDN.

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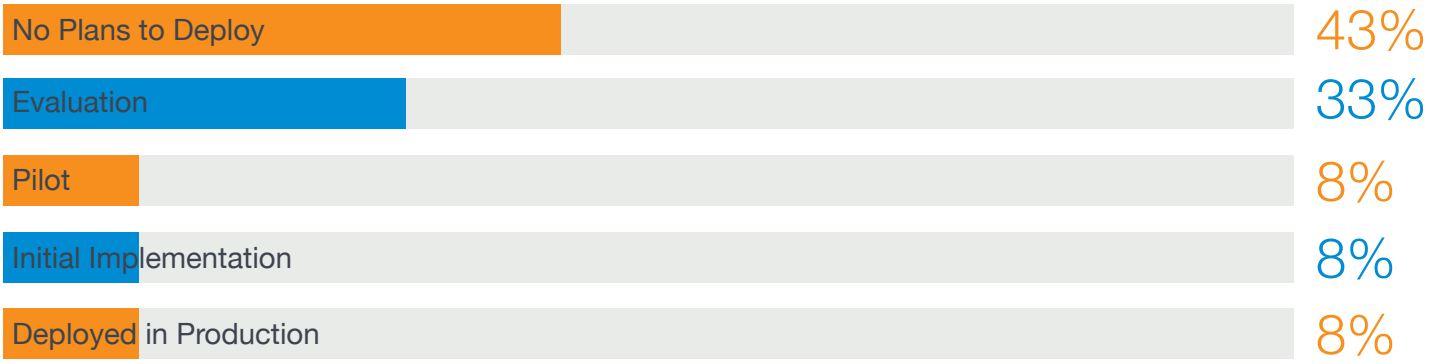
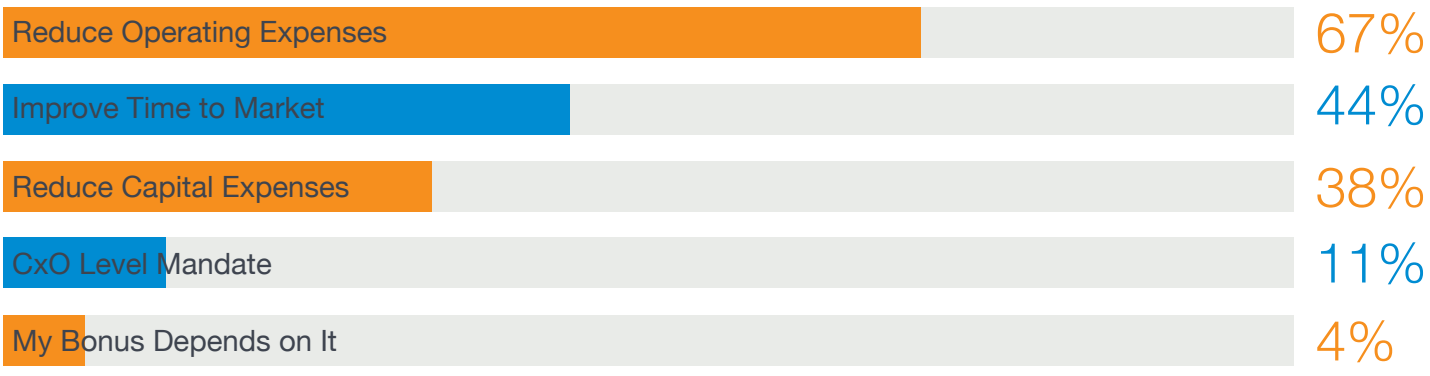
Where are you in the SDN deployment cycle?



Reasons to deploy SDN



CONCLUSION

The evidence of F5's first survey to explore the state of application delivery indicates that organizations are not only aware of the importance of application services, but overwhelmingly rely on them to deliver their applications. As application deployments expand to include public, private, and hybrid cloud models, the complexity and diversity of the network services needed to support those applications will also continue to grow. Application services will continue to evolve to address that complexity as well as existing and new challenges related to the delivery of those applications. The success of emerging technologies designed to address these challenges (such as SDN) will depend in part on their ability to support and include the diverse set of application services organizations rely on to deliver applications.

For more information regarding the data in this report and what it means for your business please join F5 for a webinar series featuring executives and subject matter experts. Visit f5.com/SOAD for details.

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