



State of Application Services

2019 REPORT / ASIA PACIFIC EDITION



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Introduction

Welcome to the 2019 State of Application Services report. When we started this journey to understand the importance of application services within the context of emerging technologies such as cloud, IoT, and software-defined technologies more than five years ago, we knew we were shining a light on a future disruption.

What we didn't know was that applications themselves would become the very foundation of the digital economy—thus ushering in an even more prominent role for application services. It's these services that help organizations ensure that their applications can be quickly migrated and deployed, with the confidence that they are always available, protecting their business from unforeseen threats, and scaling seamlessly globally—no matter where their applications reside.

2019 Key Findings Summary

01 87% of respondents have multi-cloud architectures, driven by an app-first methodology, with some countries in Asia Pacific having over 90% of respondents using more than one cloud provider.

Multi-cloud has become the new norm for Asia Pacific. Most organizations use an app-first methodology to evaluate cloud decisions based on what environment is best for each application, leading to multi-cloud architectures for almost nine in ten respondents worldwide. In fact, this figure rises above 90% for Australia and New Zealand, ASEAN, China, and India. Multi-cloud has evolved from an experiment to a strategic concern, while enforcing consistent security and ensuring reliable performance are still challenging for most organizations.

02 66% of Asia Pacific organizations currently have, or plan to have, digital transformation projects, increasing the prominence of big data and real-time threat analysis.

With two-thirds of Asia Pacific survey respondents are engaged in ongoing digital transformation initiatives, IT organizations are re-evaluating their structures, processes, and workflows to be more agile. As enterprises migrate applications to the cloud—and with them application data—the importance of big data analysis and real-time threat analytics are emerging.

03 Asia Pacific is adopting nascent and emerging technologies at impressive rates, with 56% of respondents already employing containers.

The application services currently deployed for most of respondents continue to be antivirus, network firewall, SSL VPN, and load balancing, but the list of services that respondents are planning to deploy includes some newcomers. The rise of containers has boosted deployment plans for SDN and API gateways, as well as service mesh.

04 Asia Pacific businesses are ahead of the automation game, with 60% of respondents deploying automation and orchestration initiatives

Automating and orchestrating development and deployment pipelines—and standardizing on developer-oriented solutions to implement CI/CD practices throughout IT—helps organizations keep up with the rapid rate of change required for applications. Most countries in Asia Pacific are ahead of automating application infrastructure, app services, network services, and security services. In addition, Asia Pacific respondents showed an interest in providing self-service infrastructure for their line of business as well as app development teams.



KEY FINDING 01

87% of respondents have multi-cloud architectures, driven by an app-first methodology, with some countries in Asia Pacific having over 90% of respondents using more than one cloud provider.

Multi-cloud has become the new norm for Asia Pacific. Most organizations use an app-first methodology to evaluate cloud decisions based on what environment is best for each application, leading to multi-cloud architectures for almost nine in ten respondents worldwide. In fact, this figure rises above 90% for Australia and New Zealand, ASEAN, China, and India. Multi-cloud has evolved from an experiment to a strategic concern, while enforcing consistent security and ensuring reliable performance are still challenging for most organizations.

MULTI-CLOUD EVOLVES FROM EXPERIMENT TO STRATEGY

For most organizations, the adoption of multiple clouds has moved beyond the experimentation stages to become a deliberate strategy. The clear majority (87%) of respondents reported that they operate in a multi-cloud environment—and do so to drive business growth by reaping the benefits of public cloud platforms and associated technologies such as artificial intelligence and developer ecosystems. In Asia Pacific, the trend is quite in line with global responses, with markets such as A/NZ, ASEAN, China, and India having more than 90% of respondents embracing the multi-cloud trend.

Leading IT organizations 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—underscoring the importance of a multi-cloud strategy in the midst of an app-first methodology. Respondents select their cloud platforms and locations by the types of applications (47%), by the intended end users of the applications (44%), and on an individual case-by-case basis (44%).

WITH CLOUD ADOPTION STILL GROWING, IT HELPS DETERMINE THE BEST CLOUD FOR EACH APP

Treating each individual app as a unique asset while creating a unifying strategy is the role of the CIO and their organization. We find that IT helps guide this strategy, with majority of respondents reporting that IT determines which type of cloud is best for each app. The role of IT in unifying application services, policy, and visibility is critical to the digital health and success of the organization.

WE ASKED

“How does your organization decide which type of cloud is best for each application? Select all that apply.”

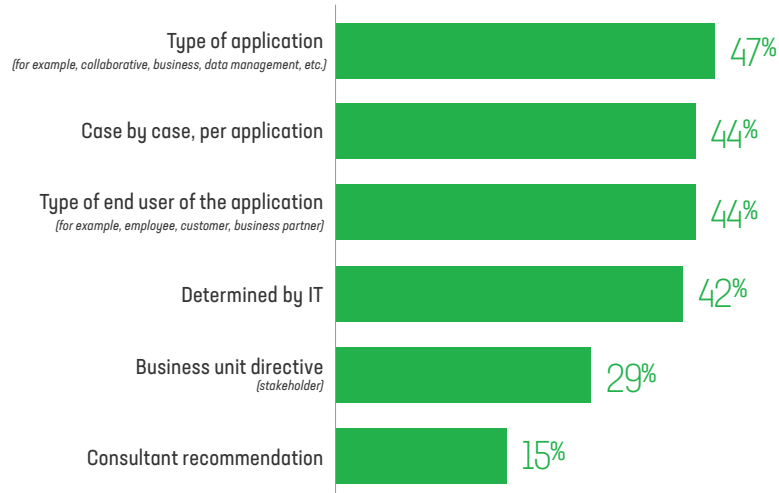


FIGURE 01: BEST CLOUD FOR THE APP

CONSISTENT VISIBILITY AND SECURITY ARE STILL CHALLENGES FOR MULTI-CLOUD DEPLOYMENTS

Optimizing performance and gaining visibility into application health also remain high on the list of challenges for Asia Pacific organizations. Security is also a real challenge, which is shown by the confidence organizations have in withstanding an application-layer attack on their applications.

WE ASKED

“As you think about managing applications in a multi-cloud environment, what part of managing the application do you find the most challenging, frustrating, or difficult?”

■ Asia Pacific

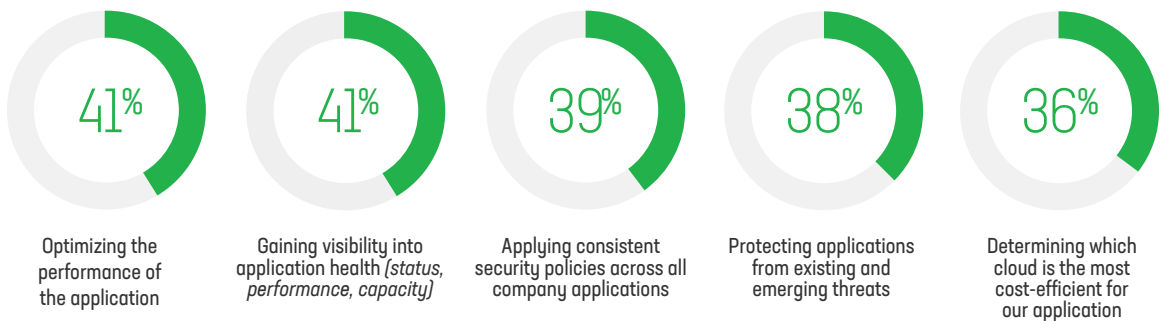


FIGURE 02: OPTIMIZING PERFORMANCE AND GAINING VISIBILITY INTO APP HEALTH ARE MAJOR CHALLENGES

Overall, only 34% of respondents are confident in their ability to withstand an application-layer attack this year. As was the case last year, confidence rises with proximity to the app, with more than half (53%) more confident about protecting applications on premises than off premises in the public cloud (38%).

Breaking down Asia Pacific, we found that organizations in A/NZ and India are more confident than global respondents in their abilities to withstand app-layer attacks, while the opposite was true in Japan and Korea.

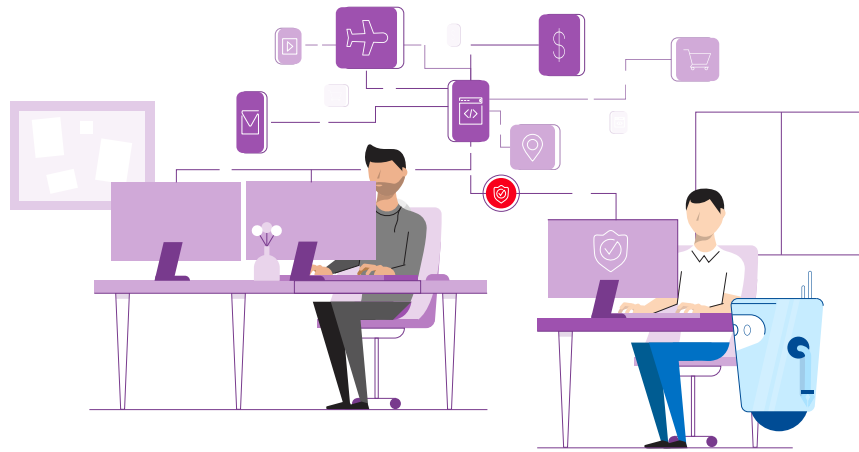
NETWORK FIREWALLS DON'T PROVIDE ADEQUATE APP-LAYER PROTECTION

Nearly 10% of organizations use only a network firewall to protect their applications—regardless of deployment location. That is distressing, and certainly a contributing factor to flagging confidence. The only environment in which users of network firewalls felt highly confident was on premises. In every other environment, the use of network firewalls did not seem to contribute to confidence at the application layer. This makes sense. Network firewalls do not provide adequate protection against application-layer DDoS or infiltration attempts, nor can they detect or prevent credential stuffing attacks or probing attacks from bad bots—both of which have increased dramatically in frequency over the past year.

Users of other application and user-aware defenses—such as WAF, behavioral analytics, and application access control—were more confident that they could withstand an app-layer attack in every environment.

F5 INSIGHTS FOR KEY FINDING 01

While public cloud adoption continues to rise, the disparity in application services deployments across environments contributes to the challenge of providing consistent security for the majority of multi-cloud organizations. The ability to enforce similar policy is enabled by the use of similar application services, which suggests that organizations would be well-served by standardization upon a common set of application services across all cloud environments. This is especially so in Asia Pacific, where we see organizations embarking on forward-looking digital transformation initiatives, with the cloud being a strong foundation for many of these projects.



KEY FINDING 02

66% of Asia Pacific organizations currently have or plan to have digital transformation projects, increasing the prominence of big data and real-time threat analysis.

With two-thirds of Asia Pacific survey respondents engaged in ongoing digital transformation initiatives, IT organizations are re-evaluating their structures, processes, and workflows to be more agile. As enterprises migrate applications to the cloud—and with them application data—the importance of big data analysis and real-time threat analytics are emerging.

In the digital economy, an organization's most valuable capital is its applications. Employees are unable to do their jobs without applications facilitating all aspects of product creation, manufacturing, and delivery. Apps are also key in creating the first impression an organization makes with its customers—and they boost value by connecting a global network of customers, partners, and suppliers. In short, the business is driven by applications and, in an increasing number of organizations, the application is the business itself.

This new digital economy is changing the entire landscape of applications in Asia Pacific. Two-thirds of Asia Pacific organizations currently have or plan to have a digital transformation project, with India (94%) and A/NZ (93%) leading the way, followed closely by the ASEAN countries (84%). This closely reflected our observations in the region, as digital transformation has been and still is a widely discussed topic.

However, while we can confidently say that respondents from India, A/NZ, and ASEAN are clearly embracing digital transformation, we found that businesses in China, Hong Kong, Taiwan, Japan, and Korea have the potential to leapfrog their competitors by accelerating their digital transformation projects.

WE ASKED

“Does your organization currently have or plan to have digital transformation projects in place?”

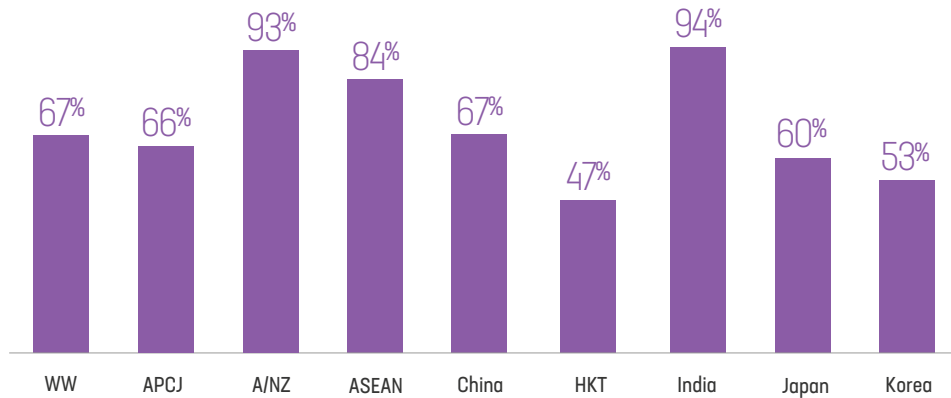


FIGURE 03: ADOPTION OF DIGITAL TRANSFORMATION VARIES ACROSS ASIA PACIFIC

We also asked respondents which strategic trends will be important over the next 2–5 years and their answers were clear: the future is all about analytics and machine learning. Interestingly, the only trend in which A/NZ and India were behind the global average was in big data analytics—while other countries in the region were well ahead of the global average. This could be attributed to the fact that big data analytics is much more common in these markets—to the point where it is no longer a strategic initiative.

ANALYTICS, CLOUD, AND SDN DRIVE IT OPTIMIZATION

These trends make sense. Similar to last year, the majority of organizations (69%) across every region around the globe and vertical ranked IT optimization as the number one benefit of digital transformation. The building blocks for IT optimization initiatives? You guessed it: analytics, smart cloud usage, and software-defined networking.

WE ASKED

“What are the top three strategically important technology trends for your organization?”

	WW	A/NZ	ASEAN	China	HKT	India	Japan	Korea
Big data analytics	49%	42%	51%	50%	59%	48%	38%	57%
Machine learning and analytics	40%	42%	37%	37%	38%	56%	50%	40%
Infrastructure as a Service (IaaS)	43%	60%	53%	47%	31%	54%	35%	24%
Software-defined networking (SDN)	40%	65%	39%	38%	29%	62%	38%	32%
Software as a Service (SaaS)	35%	55%	33%	41%	19%	41%	38%	22%
Real-time analytics	40%	62%	42%	26%	37%	51%	25%	38%

FIGURE 04: DIGITAL TRANSFORMATION DRIVES STRATEGIC TRENDS.

Next in the benefit line were business process optimization (62%) and employee productivity improvements (57%), which means that the top three benefits of digital transformation globally this year are internal facing, neatly outpacing the external-facing benefits of competitive advantage (45%) and new business opportunities (45%). All indications are that IT organizations are studiously evaluating processes, workflows, and organizational structures to prepare for the onslaught of change to come.

Yet, when we look at Asia Pacific organizations, the majority of them are placing a greater emphasis on external benefits, such as new business opportunities, or generating a competitive advantage from digital transformation. While digital transformation undoubtedly provides these Asia Pacific organizations with a host of benefits externally, they should also explore how digitalization can optimize internal IT and business processes.

WE ASKED

“What benefits do you want from your digital transformation projects?”

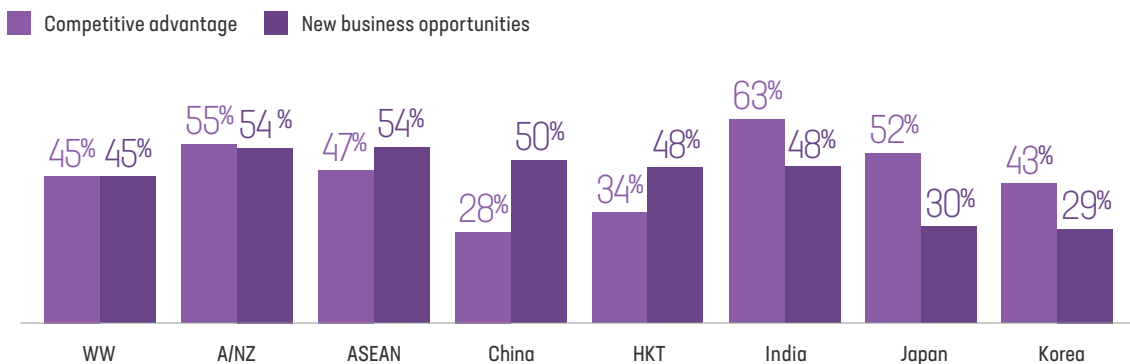


FIGURE 05: THE MAJORITY OF ASIA PACIFIC ORGANIZATIONS LOOK FOR EXTERNAL BENEFITS FROM DIGITAL TRANSFORMATION

AUTOMATION AND ORCHESTRATION BECOME PARAMOUNT

Digital transformation influences every aspect of the application lifecycle—from development and delivery to deployment. As organizations look to transform, the need for automation and orchestration becomes ever more important, which is reflected in a 7% increase (from 55% to 62%) in the percentage of respondents who reported that they are implementing automation and orchestration this year.

Organizations are taking advantage of agile development methodologies (52%) and moving to deliver applications to the public cloud (48%) as well as exploring new application architectures such as containerization (42%). Taken together, these shifts all point to a changing application landscape which is automated, cloud-centric, and influenced by responsiveness to business priorities. This is reflected in Asia Pacific as well, where the overall trend aligns with the global average. Interestingly, adoption of automation and orchestration is led by India and Hong Kong/Taiwan, while A/NZ and ASEAN place an emphasis on agile services, with both frequent app releases as well as microservices led by A/NZ and China.

WE ASKED

“How is digital transformation influencing your application decisions?”

- We are implementing automation and orchestration wherever possible in our IT systems and processes
- It's changing how we develop applications (*for example, moving to agile*)
- It's changing how we deliver applications to production environments (*for example, more frequent releases*)
- We are exploring new application architectures such as containerization and microservices

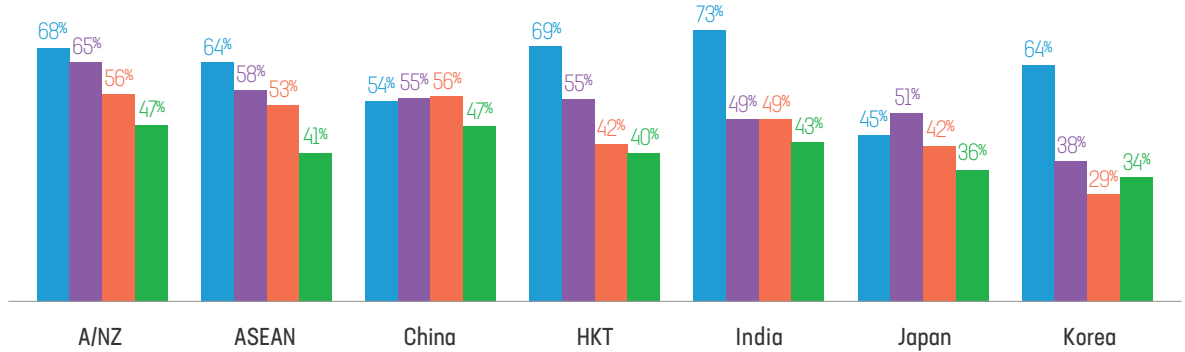


FIGURE 06: THE APPLICATION LANDSCAPE OF TODAY IS AUTOMATED, CLOUD-CENTRIC, AND AGILE

F5 INSIGHTS FOR KEY FINDING 02

To prepare for the continued evolution of the digital economy, IT organizations are re-evaluating everything about how they deliver value to the enterprise. This year, the focus of digital transformation initiatives is analyzing and leveraging the monumental amount of data now available, while keeping that data safe through enhanced security and improving processes with automation.



KEY FINDING 03

Asia Pacific is adopting nascent and emerging technologies at impressive rates, with 56% of respondents already employing containers.

The application services currently deployed for most of respondents continue to be antivirus, network firewall, SSL VPN, and load balancing, but the list of services that respondents are planning to deploy includes some newcomers. The rise of containers has boosted the deployment plans for SDN and API gateways, as well as service mesh.

TOP APPLICATION SERVICES STAY CONSISTENT GLOBALLY, WITH SOME ASIA PACIFIC COUNTRIES SHOWING STRONGER INTEREST IN DEPLOYING EMERGING TECHNOLOGIES

Over the past five years, we've tracked the deployment of application services and noted that there is a consistent set that tops the charts every single year: antivirus, network firewall, SSL VPN, and load balancing. This year, however, we have found some countries in Asia Pacific starting to deploy, or planning to deploy, emerging solutions ahead of the global average, as shown below.

WE ASKED

“For each of the application services below, please indicate your company’s current deployment status.”

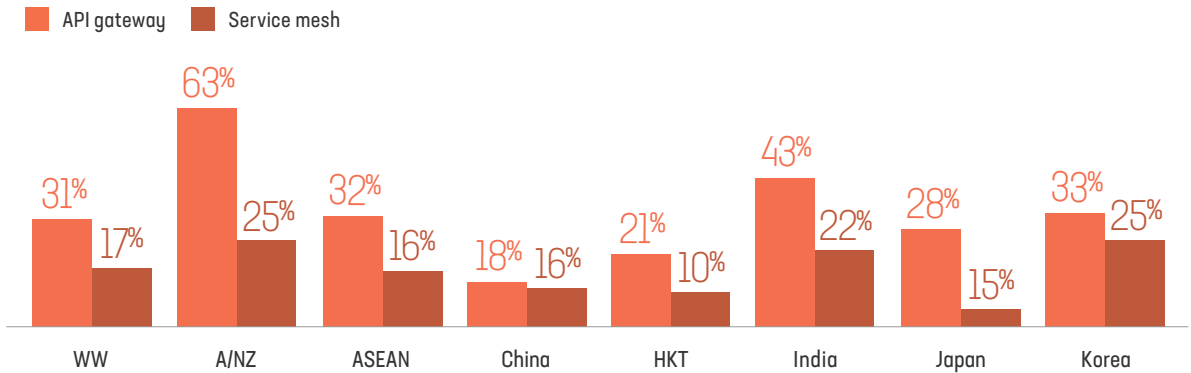


FIGURE 07: ORGANIZATIONS IN SOME ASIA PACIFIC COUNTRIES ARE DEPLOYING EMERGING TECHNOLOGIES AT RATES AHEAD OF THE GLOBAL AVERAGE

Mostly in line with the responses to the digital transformation question at the beginning of this report, A/NZ, ASEAN, and India all provide positive responses to this emerging technologies question, including both “Deployed today” and “Will deploy in 12 months.” A similar trend can be seen in the fact that API gateways are a key solution in building an API ecosystem in digital projects—where most digitally led projects require collaborative approaches with partner companies for organizations—while service mesh is one of the hottest solutions to manage infrastructure in containerized environments. Additionally, the push for digital transformation in Asia Pacific also sees organizations embracing API ecosystem and microservices architectures.

WE ASKED

“For each of the application services below, please indicate your company’s current deployment status.”

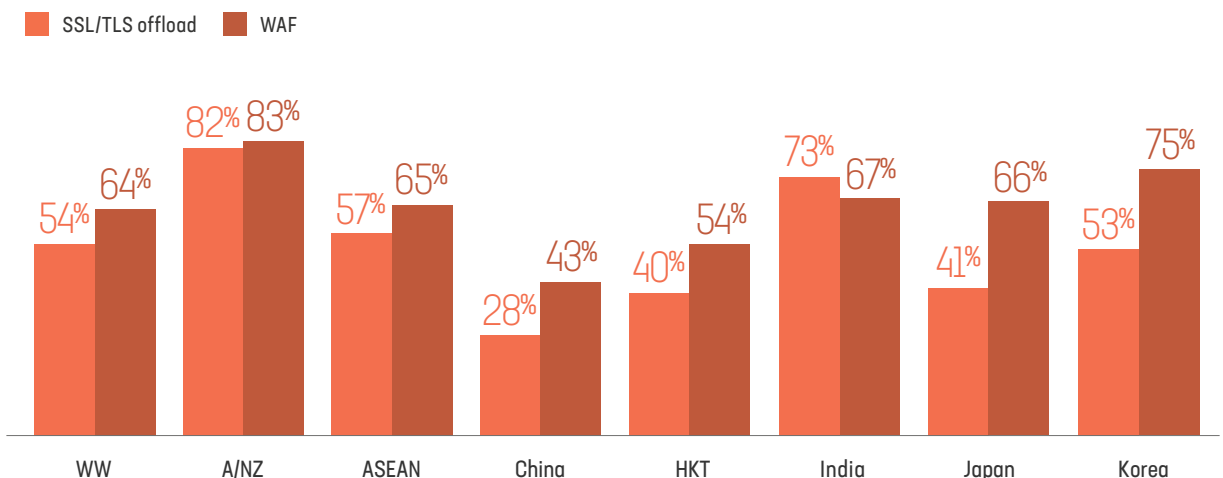
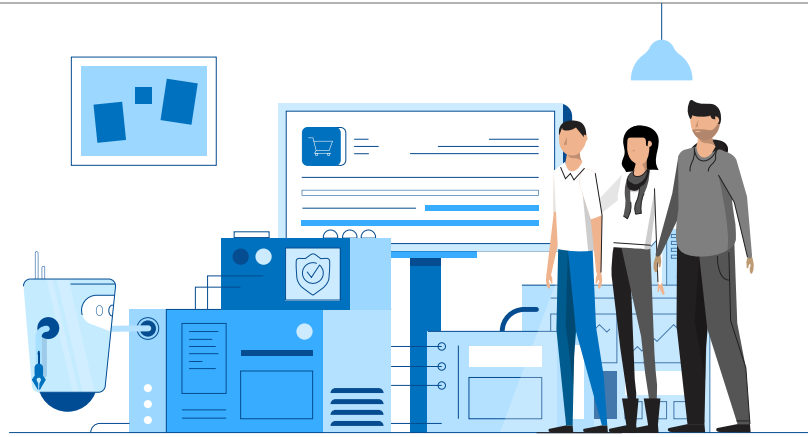


FIGURE 08: A/NZ AND INDIA LEAD THE WAY IN SSL/TLS OFFLOAD AND WAF DEPLOYMENTS

Something else to note: we've noticed that the trends of some key application security solutions are in line with the trends of emerging technologies, as well as sentiments around digital transformation. We believe that the explanation for this is that the more invested an organization is in their digital transformation journey, the more security concerns arise—eventually becoming a clear issue for the organization to deal with, as the projects are relying on apps more than ever. As a result, application security is ever more critical in an organization's digital transformation journey.

F5 INSIGHTS FOR KEY FINDING 03

Containers continue to rise in importance, leading to the increased adoption of API gateways and service mesh to support containerized environments and fulfill the needs of an organization's digital transformation strategy.



KEY FINDING 04

Asia Pacific businesses are ahead of the automation game, with 60% of respondents deploying automation and orchestration initiatives.

Automating and orchestrating development and deployment pipelines— and standardizing on developer-oriented solutions to implement CI/CD practices throughout IT—helps organizations keep up with the rapid rate of change required for applications. Most countries in Asia Pacific are ahead of automating application infrastructure, app services, network services, and security services. In addition, Asia Pacific respondents showed an interest in providing self-service infrastructure for their line of business as well as app development teams.

AUTOMATION AND ORCHESTRATION HELP ORGANIZATIONS SUPPORT THEIR APPS

As a result of cloud and container disruptions, automation and orchestration grow in importance as essential components of digital transformation initiatives. Last year, 55% of respondents employed automation and orchestration as a direct result of digital transformation efforts. This year, it's 62%.

It is worth noting that—according to survey respondents—DevOps has never attained real strategic importance. It peaked in 2018 with 25% reporting it as a strategic concern, but lost its momentum, falling to a mere 14% this year. Even among those operating under a digital transformation initiative, CI/CD and DevOps could only manage 19%. This is not surprising, as strategic impact often implies competitive

advantage. It seems that the automation and orchestration of development and deployment pipelines associated with DevOps is no longer about getting ahead—it’s merely about keeping up.

The good news is that organizations are not only starting to keep up, but some are really moving forward. More than one-third have automated all four key components of the production pipeline:

WE ASKED

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

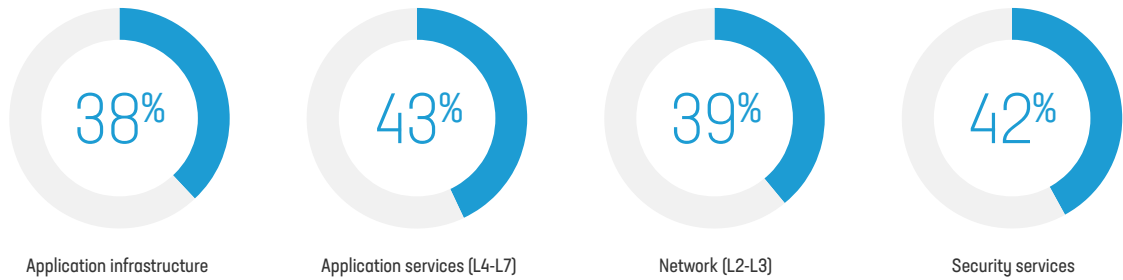


FIGURE 09: PERCENTAGE OF ORGANIZATIONS AUTOMATING COMPONENTS OF THE PRODUCTION PIPELINE

WE ASKED

“As you think about the following infrastructure components, please select if they are automated within the continuous deployment pipeline.”

■ Application infrastructure ■ Application services (L4-L7) ■ Network (L2-L3) ■ Security services

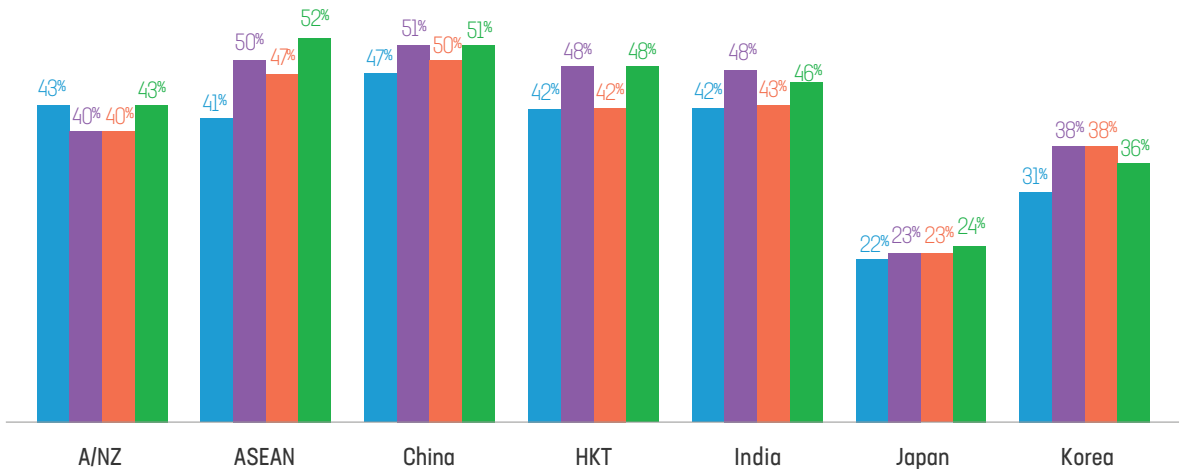


FIGURE 10: THE MAJORITY OF ORGANIZATIONS IN ASIA PACIFIC ARE OUTPACING GLOBAL AVERAGES IN INFRASTRUCTURE AUTOMATION

In Asia Pacific, we found that the majority of respondents had parts of their infrastructure automated, which follows the global trend. And while a solid 35% are piloting or in production with self-service provisioning outside of IT, this number jumps to 46% for those organizations operating under a digital transformation initiative.

These numbers are highly influenced by the composition of applications being supported. Those with portfolios composed of more than 50% external-facing (customer, partner, consumer) applications exhibit higher adoption rates of automation across all four pipeline domains. Organizations understand that the rate of change required for external-facing applications can best be maintained with an automated deployment process.

Another factor in pipeline automation implementation is the structure of IT teams. More evolved, DevOps-influenced, cross-functional teams and combined operational teams automate and orchestrate at a much faster pace than traditional, single-function teams. However, despite the rise of automation and orchestration, some challenges remain in automating the network. These include a lack of suitable skill sets, difficulty in creating policies and governance, and having sufficient budget to implement new tools. Although Asia Pacific enterprises are aggressively pursuing automation, they struggle with the same challenges.

WE ASKED

“As you think about the use of automation in the network, what do you find the most challenging, frustrating, or difficult?”

	A/NZ	ASEAN	China	HKT	India	Japan	Korea
Lack of skilled professionals to manage projects	46%	52%	49%	46%	40%	54%	39%
Creating policy and governance	41%	44%	49%	37%	51%	40%	36%
Budget for new tools	37%	53%	32%	30%	44%	56%	23%
Integration of toolsets across vendors/devices	48%	39%	35%	35%	51%	56%	24%

FIGURE 11: LACK OF SUITABLE SKILL SETS AND DIFFICULTY CREATING POLICIES ARE THE MAIN BARRIERS TO INCREASING AUTOMATION IN THE NETWORK

ORGANIZATIONS LEVERAGE DEVELOPER-ORIENTED SOLUTIONS TO AUTOMATE THE NETWORK

This lack of skills and an increasingly cross-functional/integrated IT organization are likely the primary factors influencing a shift away from network-centric automation tools toward developer-oriented solutions. In addition, many of the early traditional network automation offerings are unable to extend beyond simply managing devices and often leave holes that organizations need to fill with more comprehensive solutions for implementing their toolchains.

The maturity of existing solutions like GitHub Enterprise and Jenkins allows organizations to efficiently fill these holes and address the issue of skill scarcity in IT. Even if the market offers a viable network and infrastructure-focused alternative, we expect that the benefits of standardization on existing tools across an organization are likely to outweigh the appeal of such an offering.

DEVOPS DRIVES NETOPS TO STANDARDIZE THEIR AUTOMATION TOOLS

With automation and orchestration being so important to the success of the enterprise, the pressure is on NetOps to deliver self-service provisioning and adopt configuration- and infrastructure-as-code methodologies. We are seeing DevOps driving NetOps toward those tools and team structures that have served to automate and orchestrate continuous delivery efforts. With a dearth of talent and a lack of skills, organizations will continue to look internally—to DevOps and developers—to realize the fully automated infrastructure pipelines necessary to satisfy business demands to deliver faster and more frequently.

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. It has taken the top spot in every iteration of this survey, and we expect it to remain the favorite for the foreseeable future. In Asia Pacific, Python script also led the way, attracting the most interest in A/NZ, China, and India.

WE ASKED

“What is your preferred tool for automation and orchestration?”

	WW	A/NZ	ASEAN	China	HKT	India	Japan	Korea
Python scripts	40%	62%	33%	49%	33%	53%	23%	33%
Github enterprise	22%	35%	22%	19%	17%	30%	21%	20%
Ansible	23%	41%	18%	19%	13%	33%	19%	12%

FIGURE 12: PYTHON LEADS THE WAY IN PREFERRED AUTOMATION TOOLS

F5 INSIGHTS FOR KEY FINDING 04

For those engaged in automation and orchestration across a variety of roles, Python remains the scripting language of choice. In fact, the use of developer-oriented tools is spreading into the traditional domains of network automation solutions like those provided by VMware and Cisco. As automation and orchestration of the entire production pipeline becomes more and more important, organizations look to developers and DevOps groups to lead the way in standardizing on tools and team structures that enable faster development, deployment, and delivery of applications.

Conclusion

In some respects, the perception of application services as a critical component of success has come full circle since we started this report five years ago. When cloud and associated technologies such as software-defined infrastructure burst onto the scene—with the promise of solving the cost and agility challenges of IT operations—application services were relegated to the sidelines. Fast forward to today: multi-cloud has shifted from an experiment to a comprehensive strategy for innovation. In this application economy, app services have reclaimed their status as a key player in digital transformation and business success.

Organizations regard application services as vital for cloud and the full range of digital economy enablers to succeed. We see emerging application services such as Ingress control and IoT gateways skyrocketing from initial deployments to production. These new application services—in concert with existing services such as firewalls and global server load balancing—are adapting to the new platforms and requirements of our multi-cloud world.

This year we have found some intriguing Asia Pacific statistics, especially in the responses on digital transformation as well as the sentiment toward emerging technologies and automation solutions. Overall, A/NZ and India both show strong appetite for many of the emerging trends, while there is a little more reservation seen in North Asian countries. However, there is no doubt that the digitalization of business is the key priority across all countries, and all industries—especially as every single organization in Asia Pacific looks to accelerate the shift moving forward.

As digital transformation continues to change the landscape, deploying consistent application services enables organizations to keep pace and thrive. By maintaining uniform policies, security, and availability across their entire portfolio of applications, organizations can best leverage their application capital—and continue to grow their business.

LEARN MORE

For more information about how application services can help you reduce expenses and boost agility, visit [f5.com](https://www.f5.com).



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