

LATIN
AMERICA
EDITION



2020 STATE OF APPLICATION SERVICES REPORT



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INTRODUCTION

**Across Latin America,
applications are the engines
that power the digital economy.**

Through what is broadly referred to as digital transformation, all businesses across all industries are becoming application centric with the goal of moving faster, boosting efficiency, and securely delivering the digital customer—and employee—experiences the market demands.

While the pace of change varies by organization, most digital transformation journeys follow a similar path:

Phase 1: Automating individual tasks to improve efficiencies by digitizing IT and business processes.

Phase 2: Integrating those discrete automated tasks and taking advantage of cloud-native infrastructures to scale the process with orchestration.

Phase 3: Harnessing and analyzing telemetry from application services to provide actionable business insights that prevent loss, predict capacity, optimize resources, and increase revenue.

In order to accelerate organizations' progress through this journey, the industry is responding with new solutions. Today, we see tremendous innovation in the application services that support every step in the lifecycle of an application, including development, deployment, management, and operations. There is similar innovation in terms of application and infrastructure. These innovations are delivering new capabilities, agility, and scale that were not possible before.

For our sixth annual survey, we heard from 198 respondents across Latin America—representing a range of industries, company sizes, and roles—about the challenges and opportunities presented by the ongoing process of digital transformation. Their responses provide a unique view of the trends shaping the application landscape and how organizations around the world are transforming to meet the ever-changing demands of the digital economy.

Welcome to the Latin America edition of the 2020 State of Application Services Report.

2020 KEY FINDINGS



01

87% of organizations are executing on digital transformation—with increasing emphasis on accelerating speed to market.



02

85% of organizations operate in multiple clouds but struggle with applying consistent policies across environments.



03

77% of organizations are automating network operations to boost efficiency.



04

81% of senior leaders report security services are their top priority.



05

83% of organizations still place primary responsibility for app services with IT operations, with more than half moving to DevOps-inspired teams.



01

87% of organizations are executing on digital transformation—with increasing emphasis on accelerating speed to market.

As organizations progress through their digital transformation, IT and business process optimization initiatives mature. But what exactly are they doing? Many organizations are moving beyond the first phase of digital transformation—business process automation—and scaling their digital footprint with cloud, automation, and containers. This transformation results in the creation of new ecosystems and skyrocketing API call volumes. Organizations able to harness the application (and API) data and insights generated will be rewarded with significant business value.



The Application Economy Evolves

According to senior leader respondents, nearly nine in ten organizations across Latin America are embarking on digital transformation. This enthusiastic embrace of technology puts enterprises in Latin America ahead of their global counterparts. Consistent with our findings last year and across all regions, business process optimization and IT optimization are the top reported benefits of these initiatives. This demonstrates that IT organizations continue to re-evaluate their structures, processes, and workflows to set the stage for the next phase in their digital transformation journey.

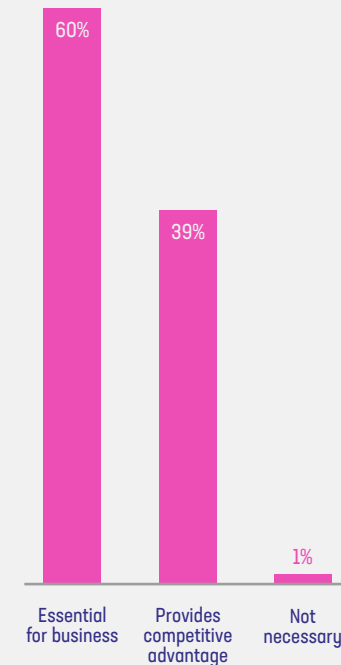
With organizations beginning to breach the second phase of digital transformation—a period marked by an increase in applications and an expansion of automation—their growing dependence on applications should be no surprise. In Latin America, the primary driver for organizations was improving the velocity of new product/service introductions (68%), followed by responding to the behaviors of new buyers (46%) and emerging competitors (24%).

As digital business activities mature, organizations are looking to combine digital services from previously unconnected industries or segments, forming new ecosystems to create value.

That every business today is an application business is not just a catchy marketing phrase. For 60% of organizations in Latin America, applications are essential to business; without applications, they cannot operate. And 39% tell us applications support their business and provide competitive advantage. Only 1% of respondents reported they do not need applications to operate. Those views are consistent globally and not a surprise. Applications know no geographical boundaries, enabling organizations to expand their reach and grow their business.

WE ASKED:

Please select the statement that represents how your organization views/treats its application portfolio. Select one.



WE LEARNED:

Applications are critical for just about every organization in Latin America.

FIGURE 01: The importance of applications to the business



It's important to note that the use of the term “business” here is not restricted to revenue-generating applications. External-facing applications make up less than half (45%) of an organization’s app portfolio. The rest are internal facing and include productivity, process-related, and, increasingly, operational applications. These internal-facing apps are critical to digitizing business processes—and making them consistent, repeatable, and scalable.

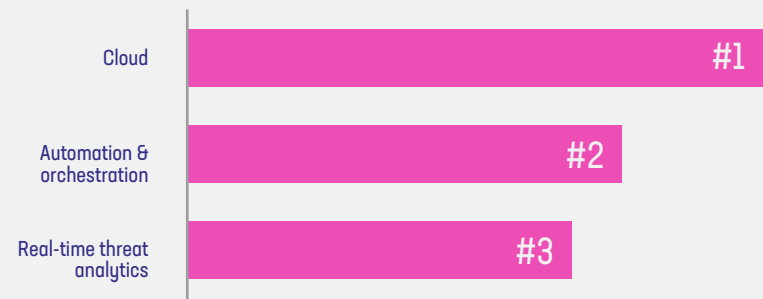
As digital business activities mature, organizations are looking to combine digital services from previously unconnected industries or segments, forming new ecosystems to create value while protecting established and emerging investments. Senior leaders in Latin America are already eyeing that future, reporting that cloud, automation and orchestration, and real-time threat analytics will be the top three strategic trends in the next two to five years.

F5 INSIGHTS FOR KEY FINDING 01

It is time to manage your application portfolio like the business asset it is. First, focus on the application services required to secure, scale, and digitize IT and business processes. Automation and orchestration are key foundational tenets in this first phase of digital transformation. As you transition to the second phase, it is important to instrument application services to emit telemetry for unified visibility and control over policy enforcement. In the third phase, this telemetry from application services can be studied by cloud analytics tools to provide actionable operational and business insights such as predicting capacity, preventing loss, and delivering differentiated customer experiences.

WE ASKED:

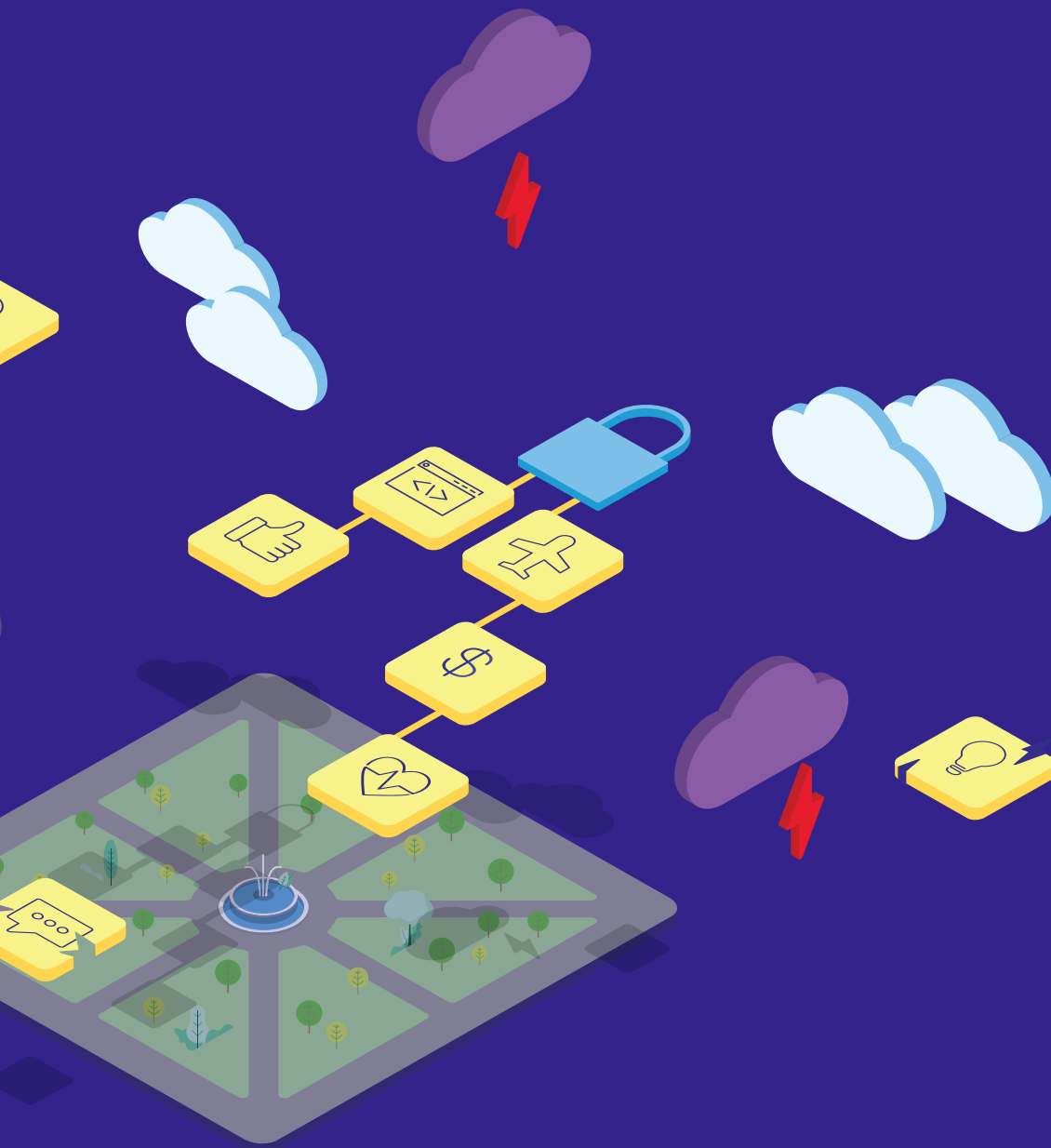
Which technology trends do you think will be strategically important for your organization in the next 2-5 years? Select all that apply.



WE LEARNED:

Cloud, automation and orchestration, and real-time threat analytics will be the top three strategic trends in Latin America for the coming years.

FIGURE 02: Strategic trends according to senior leaders in Latin America



02

85% of organizations operate in multiple clouds but struggle with applying consistent policies across environments.

Whether they are responding to government mandates or C-level demands, organizations in Latin America are using the public cloud to participate in industry ecosystems, leverage cloud-native architectures, and deliver applications at the speed of the business. Despite the strategic nature of the cloud, respondents are much less confident in their ability to withstand an application-layer attack in the public cloud versus in an on-premises data center. This discrepancy illustrates a real need for easy-to-deploy solutions that can ensure consistent security across multiple environments.



Organizations Choose the Best Cloud for Each Application

Following through on their strategic initiatives, organizations continue to adopt cloud platforms at a high rate, with 27% of respondents from Latin America reporting that they will have more than half of their applications in the cloud by the end of 2020, perfectly in line with global respondents. When we asked organizations how they decide which cloud is best for their applications, the number one answer in Latin America agreed with global respondents: on a “case-by-case, per application” basis. This approach necessitates using multiple providers, and a full 85% of respondents report that they have deployed applications on two or more cloud platforms.

It is imperative to have application services that span multiple architectures and multiple infrastructures to ensure consistent (and cost-effective) performance, security, and operability across the application portfolio.

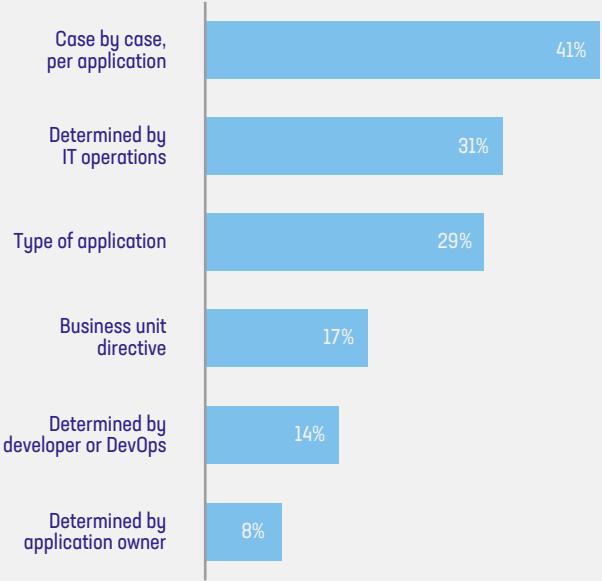
This per-application strategy is required because each application is unique and serves a specific function within the business. Each can have end users that scale from less than a hundred to into the millions. And the damages from an attack can range from a minor inconvenience to a costly public embarrassment.

There are many challenges in managing a multi-cloud environment as reported by respondents, but primary among them are issues of security:

- Protecting applications from existing and emerging threats
- Applying consistent policies across all company applications
- Complying with regulations

WE ASKED:

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



WE LEARNED:

Organizations in Latin America tailor their use of cloud infrastructure to suit a variety of stakeholders—no single decision-maker has sole responsibility.

FIGURE 03: Best cloud for the app



Organizations in Latin America diverged slightly from their global counterparts in reporting that optimizing the performance of their applications was the second most challenging part of multi-cloud environments. Furthermore, they were also concerned with determining which cloud platform is the most cost-efficient for their apps, an answer that didn't even make the top five in global results, indicating that Latin American organizations may be more cost-conscious than their counterparts in other regions.

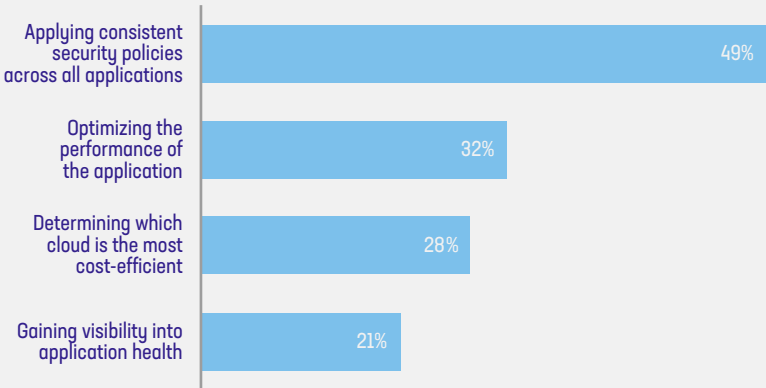
The challenge of providing policy and security parity across all application architectures and infrastructure is brought into even sharper relief by taking a snapshot of the average application portfolio worldwide.

According to global survey respondents, no single application architecture has the majority in app portfolios. Three-tier web and mobile app architectures come in first at 40%, with client-server following right behind at 34%. Microservices/cloud-native architectures are on the rise at 15%, but old school mainframe/monoliths still account for 11%. With each new generation, additional business value is created and captured, yet the investments, value, and insights arising from the previous generation of architecture are still necessary—which leads to organizations having a diverse application portfolio.

Given the heterogeneous mix of application architectures in a typical organization's portfolio, it is understandable that over a third of respondents reported that refactoring legacy applications for modern environments is a priority for digital transformation. Additionally, it highlights the fact that multi-cloud will be the norm for the long term. It is imperative to have application services that span multiple architectures and multiple infrastructures to ensure consistent (and cost-effective) performance, security, and operability across your application portfolio.

WE ASKED:

As you think about managing applications in a multi-cloud environment, what parts of managing the application do you find the most challenging, frustrating, or difficult? Select all that apply.



WE LEARNED:

Strengthening security and optimizing performance are the biggest multi-cloud challenges for organizations in Latin America.

FIGURE 04: Multi-cloud challenges

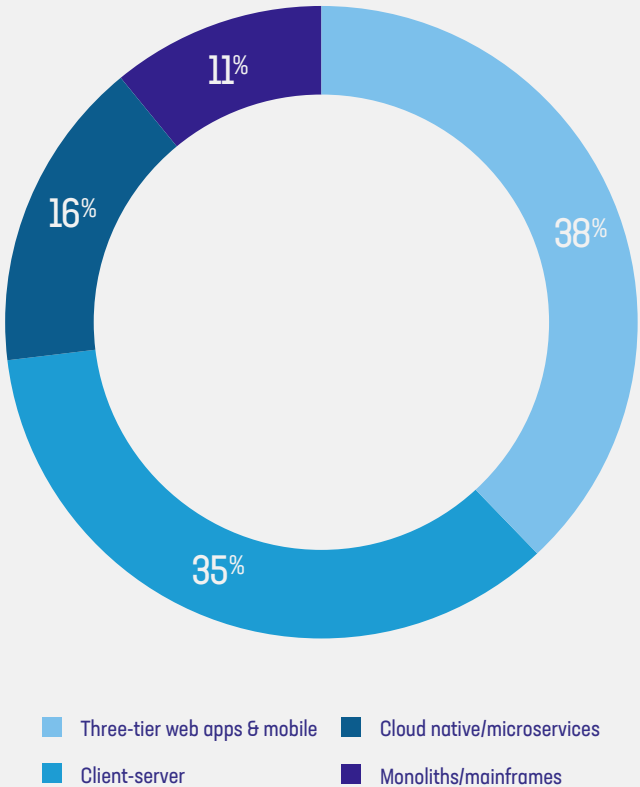


F5 INSIGHTS FOR KEY FINDING 02

The notion of achieving a single application architecture or uniform infrastructure environment is a pipedream for most organizations of scale. Instead, leading organizations in Latin America recognize that the most efficient and effective way to treat each application uniquely while operating and securing applications across heterogeneous architectures and environments is through a set of application services that abstract the application logic from the underlying infrastructure.

WE ASKED:

Of those applications deployed today, roughly what share fit into the following categories?



WE LEARNED:

A diverse mix of application architectures is the reality for every organization.

FIGURE 05: App portfolios are diverse and multigenerational



03

77% of organizations are automating network operations to boost efficiency.

Unsurprisingly, given that the primary drivers of digital transformation are business process and IT optimization, the majority of organizations in Latin America are automating their network operations. Despite challenges, they're gaining proficiency and moving toward continuous deployment with more consistent automation across all four key pipeline components: app infrastructure, app services, network, and security.



Automation and Orchestration Go Mainstream

Network automation continues to increase as organizations seek to realize gains in speed and consistency in their race to deliver applications to the market more quickly. We still see less automation in the deployment pipeline for network and security components than is true of app infrastructure and app services.

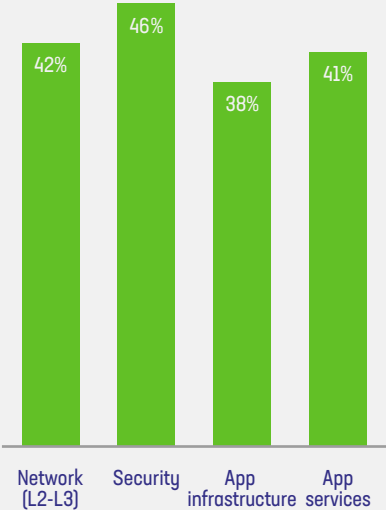
The tools of choice for network automation remain proprietary VMware (43%) and Cisco (37%) solutions, followed by open source (31%) and CI/CD (27%) tools. In their use of open source tools, organizations in Latin America are considerably ahead of their global counterparts (23%). CI/CD darling Jenkins has captured an impressive 20% of the network automation user base in Latin America.

Repository usage as part of the automation toolset remains low, with 14% of respondents using GitHub Enterprise and 11% using GitLab Enterprise. The lackluster use of these repository-first offerings in the automation toolchain is unsurprising as they tend to be considered developer tools. Organizations in Latin America should, however, give these tools a hard look when considering how best to manage deployment artifacts—particularly when adopting an infrastructure-as-code approach that takes advantage of declarative methods of provisioning and configuration.

We are still a long way from the continuous deployment model necessary for business to really take advantage of digital transformation and expand beyond optimization of processes to competitive advantage in the marketplace.

WE ASKED:

Which of the following infrastructure components have you automated within the continuous deployment pipeline? Select all that apply.



WE LEARNED:

Organizations in Latin America are gaining proficiency and moving toward continuous deployment with more consistent automation.

FIGURE 06: State of the deployment pipeline



Despite the fact that network automation continues to rise, we are still a long way from the continuous deployment model necessary for business to really take advantage of digital transformation and expand beyond optimization of processes to competitive advantage in the marketplace. The most frequently reported obstacles to achieving continuous deployment remain a lack of necessary skill sets, challenges integrating toolsets across vendors and devices, and budget for new tools.

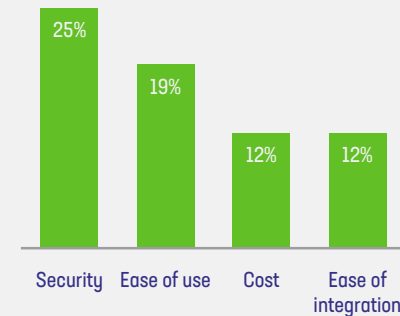
We see this frustration clearly in the position of ease of use (30%) as a preferred characteristic of app services, second only to security (41%). Notably, organizations in Latin America valued ease of integration (26%) much more highly than their global counterparts (17%). With skill set and integration challenges slowing automation and orchestration initiatives, this desire for app services that are easy to use and insert into an already-existing ecosystem makes sense.

F5 INSIGHTS FOR KEY FINDING 03

The increasing use of open source and CI/CD tools in the deployment pipeline points to a preference for open ecosystems as a way to address the skill set gap plaguing enterprise IT. Organizations in Latin America are looking for application services that promote security while also being easy to use and compatible with open ecosystems to bridge the skill sets of operations and DevOps.

WE ASKED:

When you are deploying application services, what is the most important characteristic of the offering?



WE LEARNED:

Organizations in Latin America demand security and ease of use to accelerate time to value.

FIGURE 07: Primary characteristics desired of app services



04

81% of senior leaders report security services are their top priority.

Digital transformation, cloud platforms, and modern architectures are driving adoption of app services. Security remains the top priority of senior leaders who are evolving their infrastructure and services to support more cloud- and container-native application architectures—both on premises and in the public cloud. These modern applications require modern app services to support scale, security, and availability requirements.



Complex Environments Drive Adoption of Security Services

We see the impact of the distribution of applications across multiple environments in the current and planned deployment of app services.

It is no surprise to note that the most widely deployed application services—as well as those that will be deployed in the next 12 months—are largely services that provide corporate and per-application security. For the third year running, respondents in Latin America told us by a wide margin (66 percentage points) that the worst thing they could do is deploy an app without security services.

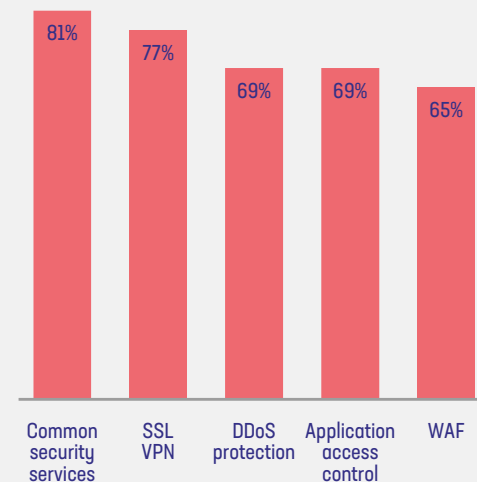
On premises and in the cloud, security continues to dominate the top five application services deployed today: common security services like firewall, IPS/IDS, antivirus, and spam mitigation (81%) and SSL VPN (77%) lead the way, followed by DDoS protection and application access control, both at 69%. Web application firewalls (WAF) and secure web gateways tie for the final spot in the top five at 65%. In the public cloud, we see a similar set of app services (albeit with lower deployment rates across the board) with common security services and application access control occupying the top spots.

On premises and in the cloud, security app services continue to dominate the top five application services deployed today.

And when we shift our view to the next 12 months, we see the impact of cloud and modern app architectures on application services deployment plans. Of note, next-generation application services such as API gateways and Ingress control come in first at 35%. We see

WE ASKED:

Which of the following application services does your company currently deploy in an on-premises data center/private cloud or the public cloud? Select all that apply.



WE LEARNED:

Security dominates the list of top five app services deployed today in Latin America.

FIGURE 08: Top five application services deployed today



this trend being driven by digital transformation initiatives that are pushing organizations toward adoption of public cloud and modern (cloud- or container-native) architectures. Security also remains critical with WAF (33%) and botnet protection (32%) right behind. Closing out the top five are SDN (31%) and common optimization services including TCP and WAN optimization, caching, and compression (31%).

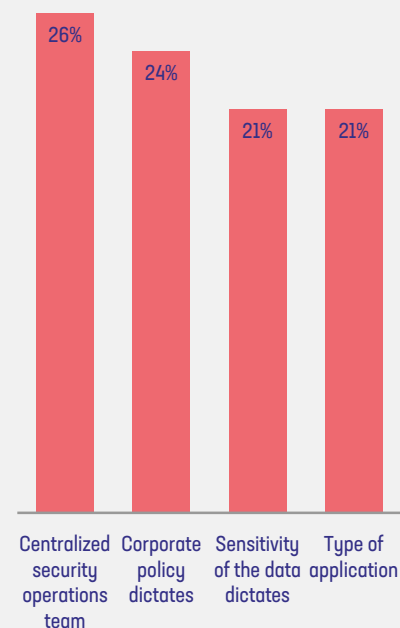
Application services enable organizations to efficiently implement security to build trust. Security is strategic to organizations in Latin America because it is one of the foundational requirements for excellent customer experience. Even the most conservative companies are finding that their customers expect a rich experience like the ones offered by Google. Customers expect to be engaged personally, but personalization requires data and organizations need to prove that they are worthy guardians of personally identifiable information (PII).

One of the best ways to protect applications and the data that flows through them is with a robust web application firewall. With 65% of respondents in Latin America currently deploying a WAF, and another 33% planning to deploy one in the next 12 months, it's clear that keeping web applications secure is a priority for organizations. When asked about how they decide which of their apps should be protected by a WAF, the top two answers were that a centralized security team makes the decision (26%) or compliance or corporate policy dictates (24%). Following right behind were responses that indicated the sensitivity of the data (21%) or the type of the application (21%) were key criteria in making the decision.

Despite the importance of security according to senior leaders in Latin America, 71% of respondents report a skills gap in this very area. The biggest divide lies in the discipline of protecting their applications from attack and breach according to 46% of respondents, with network security (39%) and public cloud security (32%) close behind.

WE ASKED:

How do you decide which applications will be protected by a WAF?
Select all that apply.



WE LEARNED:

Organizations in Latin America decide which apps to protect with a WAF using several equally important criteria.

FIGURE 09: Criteria for determining WAF deployment



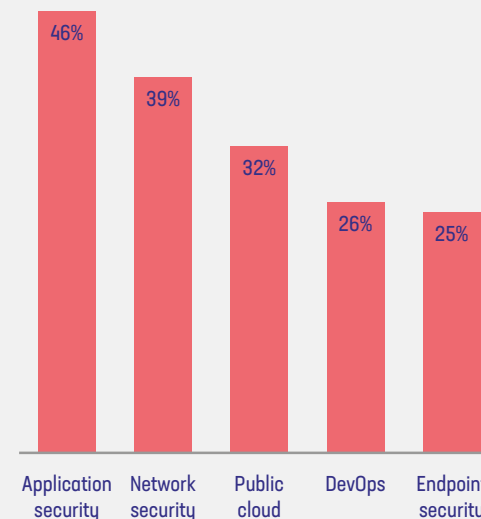
The location of those apps matters as well. Organizations report a lower confidence in their ability to withstand an application-layer attack in the public cloud. While 59% report they are confident in their ability to protect applications in an on-premises data center, only 47% of organizations are confident in their ability to protect applications in the public cloud.

F5 INSIGHTS FOR KEY FINDING 04

Challenged by a skills gap and heterogeneous environments, organizations focus on security application services to bolster use cases that tie directly to business outcomes of reducing risk and fraud, as well as enhancing customer experience. Achieving a successful application deployment necessitates taking full advantage of the wealth of application services available across categories (security, availability, performance, identity) and generations of application architectures. Choosing the appropriate strategy means selecting application services that can be leveraged across these dimensions to reduce complexity and overcome skills deficits.

WE ASKED:

In which areas do you have a security skills gap or deficit in your organization? Select all that apply.



WE LEARNED:

Organizations in Latin America are struggling to make up a skills deficit in application and network security.

FIGURE 10: Security skills gaps by discipline



05

83% of organizations in Latin America still place primary responsibility for app services with IT operations, with more than half moving to DevOps-inspired teams.

As we've long suspected, operations and infrastructure teams continue to shoulder primary responsibility for selecting and deploying application services. However, as organizations expand their cloud- and container-native app portfolios, DevOps groups are taking more responsibility for app services.



IT Operations and DevOps Want Choice in Application Services

With all the hype surrounding DevOps and subsequent “Ops” movements, it is ironic that the one group left out is IT operations. This is fascinating given that our research has confirmed what we’ve long suspected: IT operations teams are primarily responsible for deploying app services—whether on premises or in the public cloud.

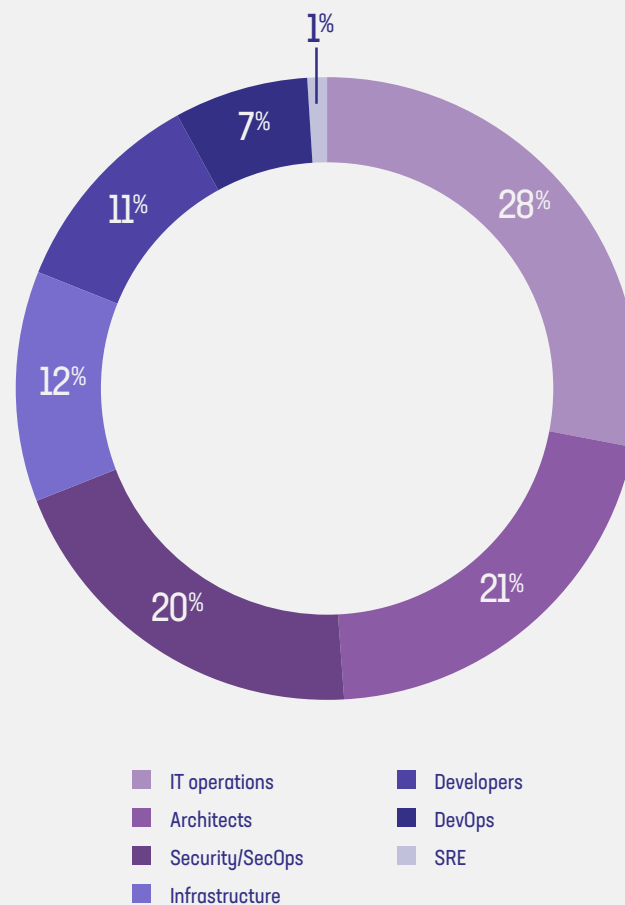
However, it’s also no surprise to find that as organizations transform from single-function to modern ops-oriented team structures, responsibility begins to shift from IT operations and NetOps to SecOps and DevOps. This dynamic is proof of the next phase of maturity we are starting to witness in DevOps. Initial projects are beginning to scale, and the need to demonstrate business value and meet defined performance metrics necessitates a focus on application services.

One obvious reason for this change in focus is the ongoing shift of application services into modern architectures. Cloud- and container-native applications are in many ways more dependent on infrastructure for scale and availability than previous app architectures. DevOps teams are intimately involved with the CI/CD pipeline, which, for cloud- and container-native apps, includes a growing portfolio of application services such as Ingress control, service mesh, service discovery, and good old-fashioned load balancing. As application services continue to distribute across the data path and become integrated with app infrastructures, we expect DevOps teams in Latin America to increase their responsibility for securing, optimizing, and managing applications.

That IT operations is primarily responsible for the deployment and operation of app services may offer insight into the explosive preference for containers as a form

WE ASKED:

Which roles within your organization are primarily responsible for deploying and operating application services in the public cloud? Select one.



WE LEARNED:

IT operations and infrastructure teams retain primary responsibility for app services in Latin America.

FIGURE 11: Primary responsibility for deploying app services in the public cloud



factor. Containers deliver the platform independence and native support for a modern infrastructure-as-code approach that eases the day-to-day role of IT operations. This provides the ability to establish repeatable deployments at scale, a critical capability for organizations making progress on their digital transformation efforts. Respondents in Latin America reported preferring containers (19%) over hardware (18%) and software (10%) this year.

What's striking is the strength of the preference for containers over virtual appliances across roles. Cloud-related roles, developers, and SRE/DevOps are all twice as likely to prefer containers over virtual appliances. This shift toward containers speaks to the rising number of cloud-native applications dependent upon an architecture that relies on app services for execution and operation.

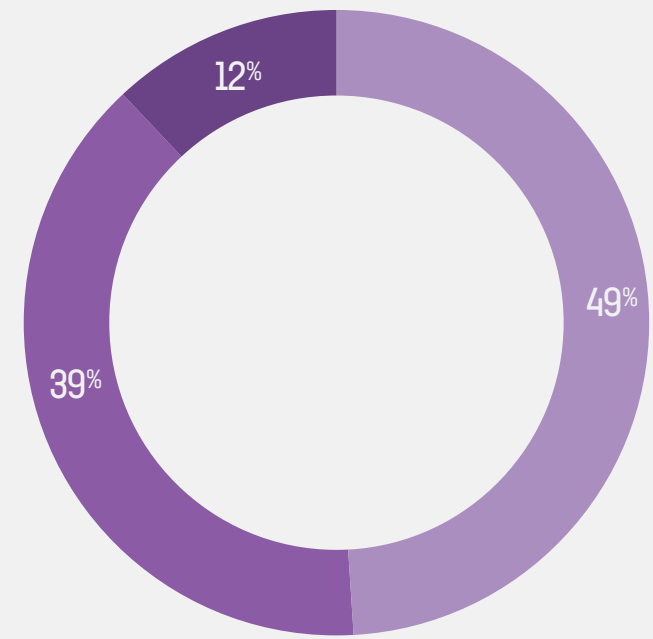
As application services continue to distribute across the data path and become integrated with app infrastructures, we expect DevOps teams to increase their responsibility for securing, optimizing, and managing applications.

Additional form factor options for app services on premises should not be dismissed lightly. In Latin America, 11% of respondents indicated a desire for app services “as a service” (which is quite a bit higher than their global counterparts), while 7% would prefer a web/app server plugin. Another 4% would like to consume app services as an application library.

With no clear “favorite” form factor, the winner here remains choice. This freedom of choice is necessary for the operations roles. They are tasked with deploying and operating a platform for the entire organization, a platform that is flexible enough to deliver legacy applications without significant modernization or refactoring, as well as capture new application workloads—all while simultaneously minimizing organizational risk.

WE ASKED:

How would you best describe your IT infrastructure and operations (I&O) organization? Select one.



■ Single function teams
■ Combined operations team
■ Collection of small, cross-functional I&O teams

WE LEARNED:

More than half of IT organizations in Latin America utilize DevOps-inspired teams.

FIGURE 12: IT organizational structure

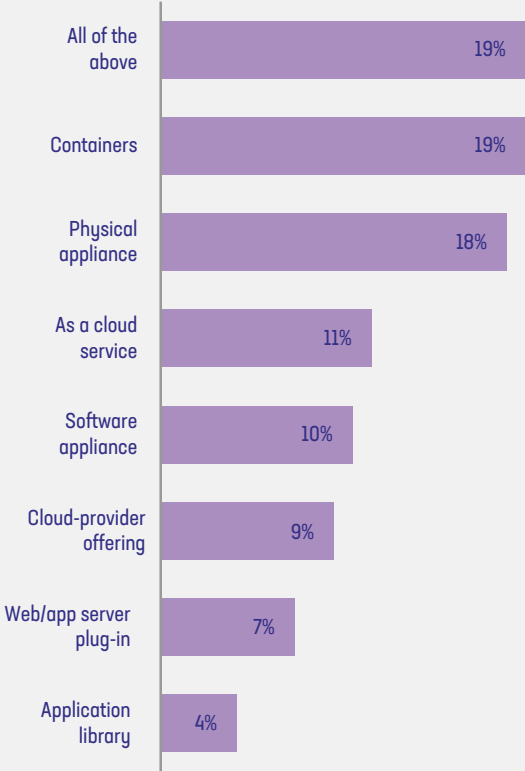


F5 INSIGHTS FOR KEY FINDING 05

As application portfolios transition to more modern architectures and IT organizations begin to align around more collaborative team structures, application services must evolve to provide ease of use for all skill sets within IT organizations. Maintaining a consistent set of app services while supporting choice in their infrastructure and platforms is key for both IT operations and DevOps teams as they work together to support the business.

WE ASKED:

For on-premises application services, what is your preferred form factor? Select one.



WE LEARNED:

Organizations in Latin America want choices in the way they deploy application services.

FIGURE 13: Preferred form factor for app services on premises



CONCLUSION

Most organizations engaged in digital transformation expect similar outcomes.

First, it's vital to be able to deliver a superior (and secure) customer experience that will help attract and retain customers. Second, enterprises want to see improvements in business agility that allow them to nimbly pivot and respond to new opportunities or changes in the market. Lastly, they expect a tangible time to value that benefits everyone—from the developers building the code to the DevOps teams delivering it to the operations teams in charge of deployment and ongoing operations.

Enterprises face several challenges as they evolve. Infrastructure lock-in limits their autonomy and ability to move at the speed of the business. Complex compliance requirements and an ever-evolving threat landscape slow speed to market and sometimes impact the end-customer experience of their applications. And each new application architecture or infrastructure environment introduces dozens of new tools along the data path from the application code to the customer experience. These tools help organizations develop, deploy, manage, and secure their applications. But, if implemented wrong, they can also increase operational complexity, require new skills, and, as a result, raise costs.

As shown by the responses to the 2020 State of Application Services survey in Latin America, most organizations are just now entering the second phase of digital transformation, automating more parts of the network and incorporating continuous deployment principles to improve productivity and enhance customer experiences. While the current gains may feel modest—and the challenges intense—organizations are persisting toward the third stage of digital transformation to create completely new business opportunities. Given the heterogeneity of application architectures and infrastructures in use, the most efficient way to do this is through a consistent set of multi-cloud application services that empower organizations to leverage data and applications while laying the groundwork for dramatic improvements in the future.

Once complexity is reduced and applications can be supported, optimized, and managed with a consistent set of application services that spans application architectures and infrastructure environments, organizations can really begin to leverage the data captured by these apps using AI-driven analytics. The scale, agility, and complexity of the digital enterprises of today and tomorrow require that applications have the ability to automatically adjust to operating and business conditions. We predict that these new capabilities will breed the next wave of application services designed to collect, analyze, and act on the telemetry generated by apps and their infrastructure.

And so, while we remain enthusiastic about the automation and process optimization that's changing business in Latin America now, our sights will soon turn to the next phase of digital transformation in which insights and data create massive opportunities. In this next stage of the journey, we believe that organizations throughout the region will use these new application services to enhance the performance, security, operability, and adaptability of their apps—which will help grow the business and deliver the digital experiences that customers demand.

Until next year...



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