

The Future of the Enterprise WAN: Too Complex to Ignore?

Global Industry Report
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CATO
NETWORKS

The Future of SD-WAN. Today.

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Executive Summary

In this year's networking survey, we wanted to delve into what factors drive, support, or inhibit WAN transformation projects. Essential to that goal was understanding the role simplification plays in enterprise networks.

Many IT leaders engaged by Cato point to the rising complexity of their networks. It's not just that IT managers are expected to reduce costs by migrating from costly MPLS services to inexpensive and unsecure Internet connectivity. Alone that would be challenging, often necessitating a rethinking of network security architectures. But simultaneously, IT professionals are being tasked with expanding the scope of the WAN to include cloud datacenters, cloud applications, and mobile users. Existing management and connectivity tools are often discrete, leading to redundancies, knowledge gaps, and process inefficiencies all of which undermine IT's goal of being more efficient and agile.

To those ends, we explored how cloud, mobility, and security impact MPLS buyers transitioning to the new stage of SD-WAN, SD-WAN 3.0. With SD-WAN 1.0, solutions provided basic link bonding for aggregating and improving last-mile availability and obtaining more bandwidth. SD-WAN 2.0 introduced application-aware, policy-based routing for improved application performance. But both versions of SD-WAN were focussed on networking, connecting offices across the Internet or MPLS.

SD-WAN 3.0 goes a step further, converging advanced security with SD-WAN and expanding SD-WAN's scope to include *all* applications for the *entire* enterprise. Global, low-cost backbones allow enterprises to migrate entirely off of MPLS. Native cloud connectivity simplifies the integration of cloud datacenters and cloud applications. SD-WAN tunnel overlays extend to endpoints, bringing mobile devices – not just locations – into the WAN. More broadly, the shift from branch-focused SD-WAN point solutions to a holistic SD-WAN architecture enables faster, simpler WAN design and delivery.

About the Survey

A total of 1606 respondents took "Future of the Enterprise WAN: Too Complex to Ignore?" survey between January 8, 2018 and January 22, 2018. This report focussed on those organizations with MPLS as their backbone, a total of 712 respondents.

The respondents represent a cross section of the IT market. Nearly a third (28%) of the respondents were from organizations with less than 11 locations ^{q11}, 57% indicate their organization had 2-4 physical datacenters. Most companies were headquartered in the US (68%) or Europe (22%) ^{q7}. Respondents came from across the industry with "telecommunications" (18%), "computers & electronics" (18%), and "manufacturing" (12%) being the most popular sectors ^{q41}.

Simplification

The SD-WAN Story of 2018

The complexity of today's network, and the push for a simpler one, expresses itself in many ways. At times, IT professionals explicitly point to "complexity" as a challenge. In other instances, complexity is implicit, such as when they express interest in "network automation" or point to concerns around selecting, integrating, and managing multiple tools and platforms.

WAN Simplification: Critical for 2018

Specific findings from our research pointing to the importance of simplification include:

Most Popular Use Case for 2018

Simplify network or security

cited as the most popular (50% of respondents) use case for 2018 ^{Q3}

Primary Networking Challenges for 2018

39%

ranked "equipment maintenance and updates" as the number two challenge ^{Q4}

35%

ranked "managing the network" as the number four challenge ^{Q4}

Primary Security Challenges for 2018

39%

Cost of buying and maintaining security appliances and software

34%

Enforcing corporate security policy on mobile users ^{Q5}

Simplicity is still a challenge for SD-WAN solutions

32%

see SD-WAN appliances as "too complex" ^{Q29}

25%

see SD-WAN services as "too complex" ^{Q30}

If SD-WAN is to develop fully in 2018 and allow enterprise to truly transform their networks, the complete secure networking experience, not just connectivity, must become simpler, more seamless. It's no longer sufficient that SD-WAN only simplifies transport selection between offices. SD-WAN solutions must simplify the complete life cycle for all network elements, converging deployment, maintenance, and management end-to-end into one seamless experience. This includes physical and cloud resources for office and mobile users. With one network infrastructure, IT organizations can and do realize tremendous gains in efficiencies and cost saving, enabling them to reallocate resources to more critical projects. The majority (81%) of those respondents actively planning an SD-WAN deployment in the next 12 months identify "protecting locations and the site-to-site connections from malware and other threats" as a "Critical" or "Very Important" priority in their SD-WAN decision making.

SD-WAN services predominate but must embrace cloud attributes

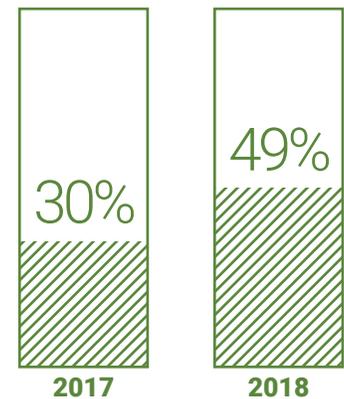
Given the attention placed on simplification, increased adoption of SD-WAN services should come as no surprise. After all, a primary selling point of infrastructure services has always been that the provider assumes the complexity of deploying, managing, and maintaining the infrastructure.

Last year, 30% of respondents identified their SD-WAN supplier as a “service provider” or “carrier”. This year that number has grown to nearly half of respondents (49%) ^{Q27}.

But carrier-managed SD-WAN services remain fundamentally limited. Managed services are built on integrating and repackaging third-party networking and security appliances. As such, co-management is either impossible, limited to one domain, or still requires learning and managing two environments. What's more the hardware costs, required integration effort, and ongoing maintenance – all combine to elevate the price of the service and adversely impact speed and agility.

In short, carrier-managed SD-WAN services fail to capitalize on the unique qualities of the cloud – elasticity, scalability, multi tenancy, and more. By taking advantage of these attributes, an SD-WAN service built for the cloud – SD-WAN as a service (SDWaaS) – can provide an end-to-end service far more affordably than one based on appliances duct taped with a managed service layer.

Respondents identified their SD-WAN supplier as a “service provider” or “carrier”



Cloud datacenters and applications disrupt today's WAN

In large part, the push for simplification stems from our networks expanding to include the cloud. More than half (65% of respondents) indicated their organizations had at least one cloud datacenter with nearly half (45%) respondents indicating two or more datacenters ^{Q35}. As for cloud applications, Microsoft Office 365 was the most popular (75% of respondents) followed by Salesforce.com (30% of respondents).

With cloud datacenters and cloud applications, the traditional MPLS approach of backhauling traffic to a central Internet access point is no longer effective. It adds too much latency to cloud sessions and consumes expensive MPLS bandwidth. Organizations need to rethink their network architectures to accommodate the cloud.



65% of organizations have at least one cloud datacenter ^{Q35}

Cloud datacenter-WAN integration was the third most popular primary use case for the next 12 months ^{Q3}

SD-WAN should be a natural onramp to the cloud. Overall, improving cloud or Internet performance was ranked by 78% as a critical or very important SD-WAN priority.

^{Q19} But traditional SD-WAN solutions are two-sided architectures, requiring an SD-WAN appliance on either end of the connection. Placing such appliances within cloud datacenters is either very complicated, expensive or, in the case of cloud applications, often impossible. An alternative approach is needed, one that brings traffic right to the cloud without any special setup.

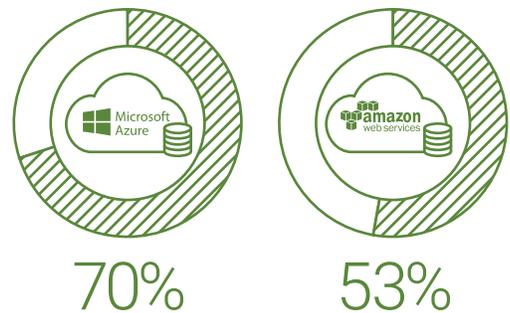
Incidentally, the dominance of Amazon and Google when it comes to everything Internet makes it easy to forget about a “small startup” in Redmond called Microsoft. If our numbers indicate anything, though, enterprises certainly haven’t forgotten their computing roots. Microsoft showed up repeatedly in our survey when investigating cloud services. It was the most popular provider of cloud datacenter services among enterprises (70% of respondents) followed by Amazon AWS (53%). The “big two” aren’t the only options for cloud datacenter services. More than 10% of respondents indicated adoption of Google Cloud and 1% indicated use of Alibaba Cloud Compute Services ^{Q36}.



78%

ranked improving cloud or Internet performance as a critical or very important SD-WAN priority

Most popular provider of cloud datacenter services among enterprises



Firewalls and mobile device security converge in the cloud

More enterprises will secure their branches, cloud datacenters, and mobile users through firewall as a service (FWaaS) and cloud access security brokers (CASBs) in 2018

SD-WAN isn’t the only networking technology going the way of services. With inadequacies of appliances and the shift to cloud datacenters and applications, more enterprises will secure their branches, cloud datacenters, and mobile users through firewall as a service (FWaaS) and cloud access security brokers (CASBs) in 2018.

Securing cloud datacenters has introduced a range of challenges for enterprises. Built-in cloud firewalls require a separate management interface and offer only basic security features. Virtual firewalls placed in cloud datacenters are expensive, and complex to maintain and configure. Lastly, backhauling all cloud traffic through a single datacenter firewall chokepoint is adding too much latency for out-of-the-way fixed and mobile users.

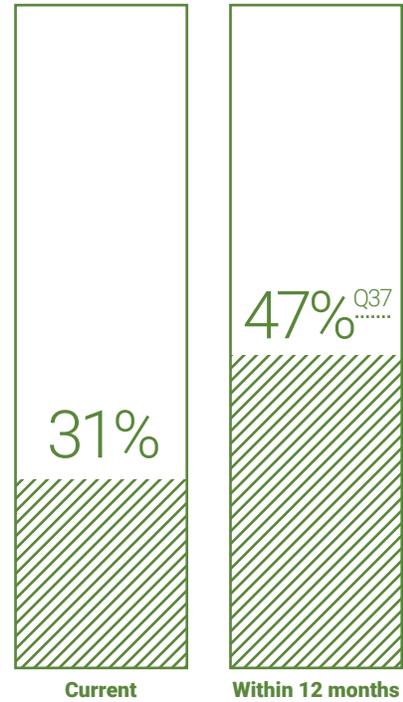
As such, current best practices call for enterprises to build regional hubs and connect them with high-speed, dedicated connections to cloud datacenter services. Dedicated connection services – AWS Direct Connect, Microsoft ExpressRoute, and Google Cloud Dedicated Interconnect – were deployed by the organizations of 31% of respondents with the number expected to grow to about half of respondents (47%) within 12 months ^{Q37}.

But building out regional hubs is expensive and often unfeasible for many organizations. Firewall as a service (FWaaS) offers a way forward. Instead of the enterprises building a regional hub, the FWaaS provider builds regional point-of-presence (PoP) interconnected by a private backbone. Optimized routing to the cloud provider's premium transport peering point allows FWaaS to significantly improve network performance. FWaaS showed the greatest potential of growth of any cloud security solution with 60% expecting to adopt the technology in 12 months ^{Q38}.

At the same time, cloud application adoption causes IT to lose visibility into and control over user traffic, particularly mobile users. Frustrated by the poor performance of secure mobile access solutions, mobile users often end up accessing cloud applications directly, bypassing organizational management and security controls. Enforcing corporate security policies on mobile users was challenging for many respondents (34%) ^{Q5}. Overall, most respondents (78%) indicated some problem when accessing cloud applications with security being the most frequently cited issue (40%) ^{Q33}.

Increasingly, organizations will address those issues by going to the cloud. Of the various approaches for securing access to cloud applications, CASB shows the greatest promise growing from 21% of respondents today to 79% within the next 12 months ^{Q34}.

Dedicated connection services deployment



78% of respondents indicated problems when accessing cloud applications. **Security is the most frequently cited issue.**



34% of respondents define enforcing corporate security policies on mobile users challenging ^{Q5}

MPLS persists as companies search for affordable alternative

Last year we predicted that MPLS services will persist despite SD-WAN adoption. The inherent unpredictability of the Internet, particularly for global connectivity, makes it a poor replacement for MPLS services. And once again, indications point to MPLS' staying power. More than half (57%) of respondents with SD-WAN implementations expect MPLS investments to increase or remain the same ^{Q15}.

The persistence of MPLS stems from the underlying problem of relying on the public Internet as an enterprise backbone. Whereas Internet connectivity has improved and is often sufficient for regional connectivity, the Internet continues to be too erratic, too unpredictable for the consistent, end-to-end connectivity required by loss- or latency- sensitive applications, such as voice.

As such, enterprises often retain an SLA-backed backbone along with the deployment of SD-WANs. MPLS, of course, is the SLA-backed backbone that's known to enterprises, but MPLS is hardly the only choice. In fact, nearly a third (32%) of respondent ranked finding "an affordable and suitable MPLS alternative" a primary use case for 2018 ^{Q3}.

SD-WAN impact on MPLS investments



57% of respondents with SD-WAN implementations expect MPLS investments to increase or remain the same

SD-WAN: Cost savings and more

Cost reductions have been a common refrain for why companies adopt SD-WAN. And while excessive WAN-related costs is a primary motivation for SD-WAN, it's not the biggest driver. Most respondents point to a general WAN modernization effort (38%) ^{Q20} as the reason for moving to SD-WAN.

Yes, MPLS is out of step with the cost structures of today's companies, but its limitations are far more than just costs. Deployment times are far too long. Management is handled solely by providers at a time when respondents prefer co-managing their infrastructure ^{Q25}. In short, MPLS is a WAN for a past era.

Respondents echoed this broader view of SD-WAN's benefits in their objectives for SD-WAN. Increased agility ^{Q23} was the most widely achieved priority by those who implemented SD-WAN, pointing to SD-WAN's ability to address the deployment and provisioning challenges of MPLS. SD-WAN did lead to reduced MPLS costs (42%), but since finding an affordable MPLS alternative continues to be a primary objective for many respondents, organizations should not expect to replace MPLS with an Internet-only backbone.



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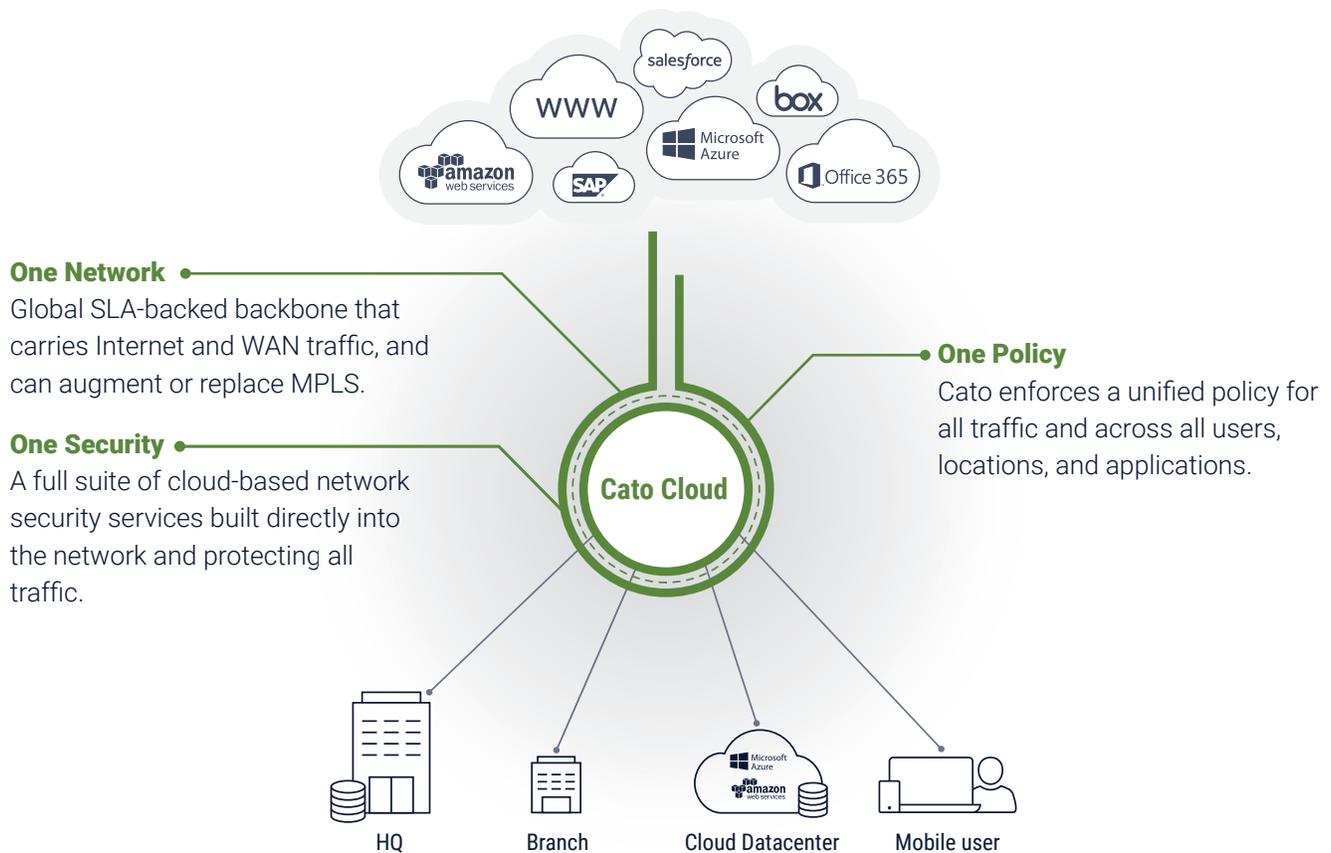
51%

to address the deployment and provisioning challenges of MPLS

Network Simplification: Reduce Costs While Improving Network Agility

Reducing costs and improving agility have seemed mutually exclusive for far too long. And while SD-WAN 2.0 certainly helped bridge that gap, IT managers are still left with purchasing, supporting, and integrating multiple backbones, and networking and security products. Separate management and connectivity tools for fixed and mobile users are still needed, as are complex configurations to connect cloud resources to the SD-WAN. All of which fragments data, hindering efficient visibility and control over the enterprise network.

SD-WAN 3.0 offers a better approach, converging security and networking into a seamless cloud service. One service for mobile and fixed users. The same service connecting private datacenters, cloud datacenters, and cloud applications. With a simpler network, SD-WAN 3.0 solutions like Cato Cloud make network simplification, cost reduction, and better security possible.

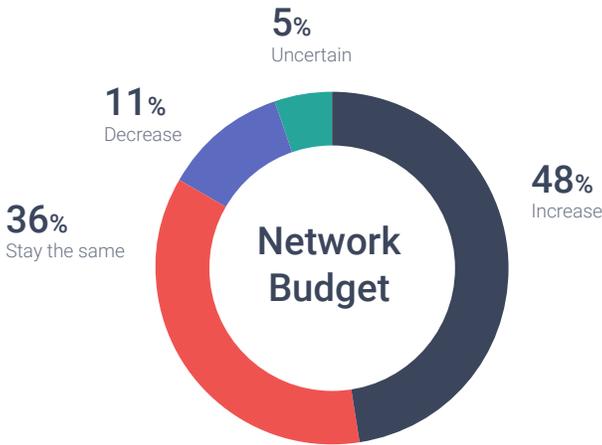


Detailed Survey Results



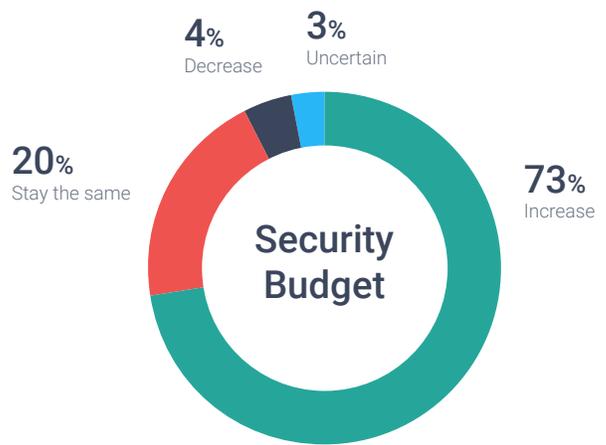
Q1

Over the next 12-24 months, what do you anticipate will happen to your networking budget?



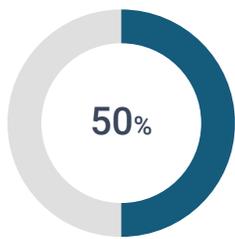
Q2

Over the next 12-24 months, what do you anticipate will happen to your security budget?

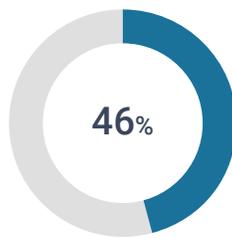


Q3

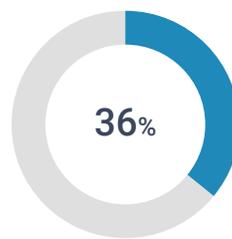
Which of the following use cases will be a primary focus for your company over the next 12 months? (select no more than three)



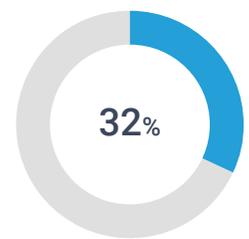
Simplify network or security architectures



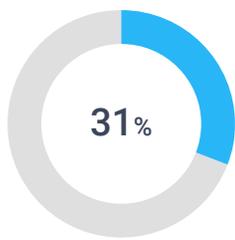
Provide secure, Internet access from any location



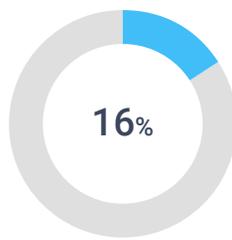
Integrate cloud datacenter(s) into the WAN



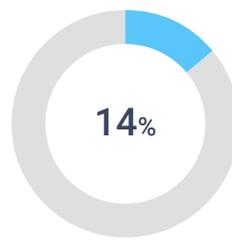
Replace MPLS with a more affordable alternative with suitable performance



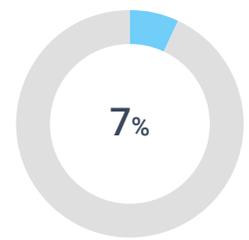
Improve visibility into and control over mobile access to cloud applications, such as Office 365



Decrease the time users wait to access remote servers or transfer files



Eliminate appliances from branch offices

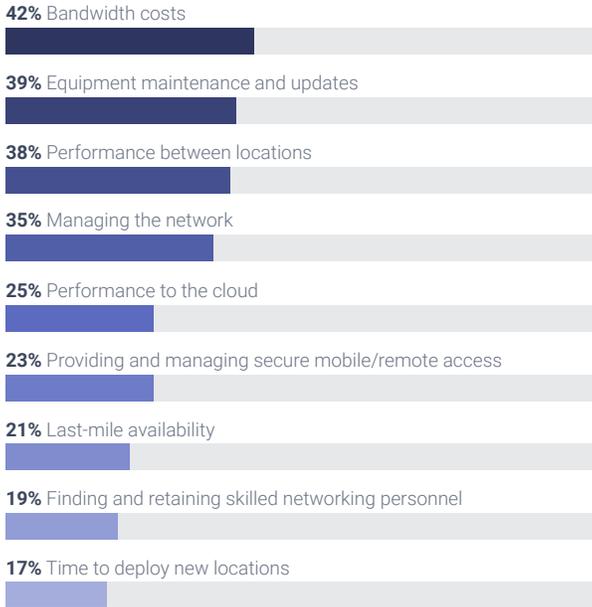


Other

Q4

Identify the primary networking challenges facing your IT organization.

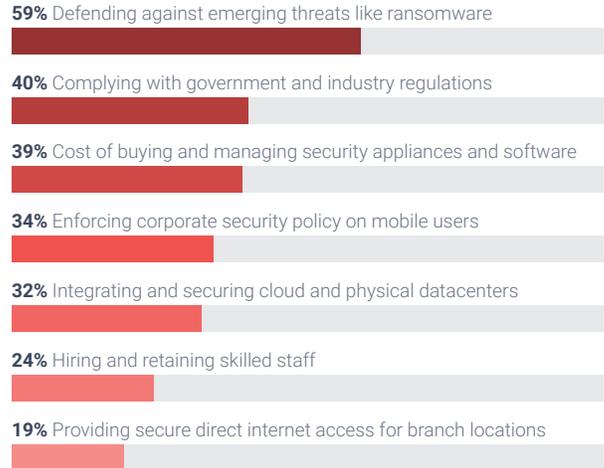
(no more than three)



Q5

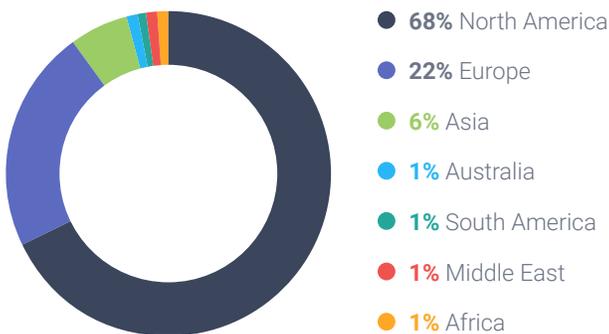
Identify the primary security challenges facing your IT organization.

(no more than three)



Q7

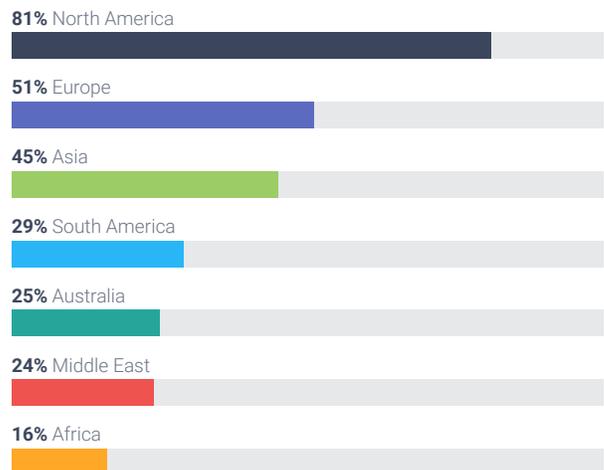
Where is your company headquartered?



Q8

Where does your company have remote sites?

(Select all that apply)



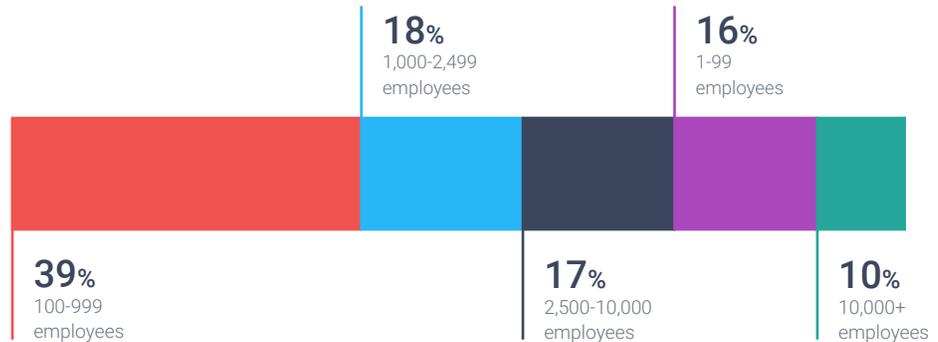
Q9

How many full-time employees are in your company?



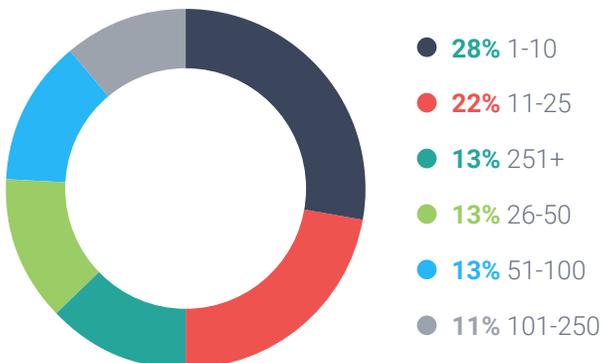
Q10

How many mobile users access your network?



Q11

How many locations are in your network?



Q12

How many physical datacenters are in your organization?



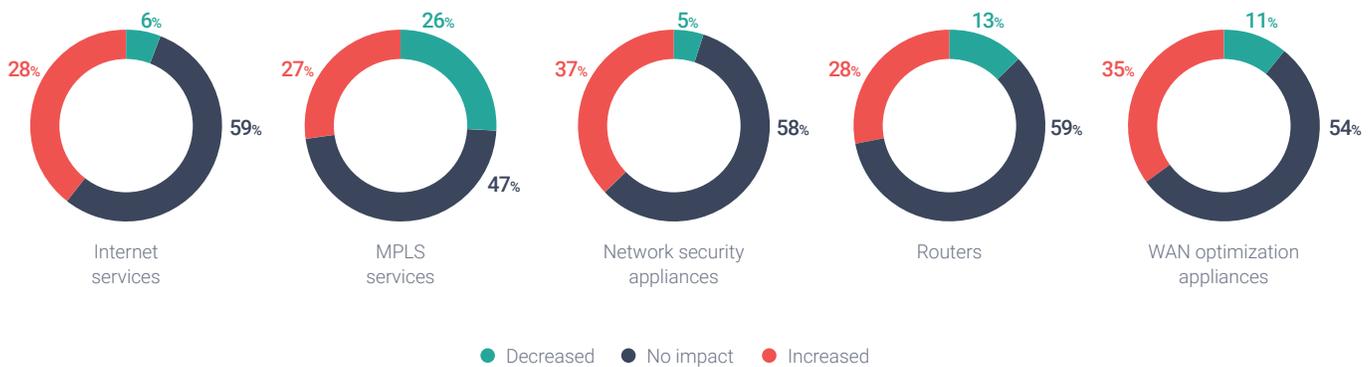
Q14

How familiar would you say you are with SD-WAN as a technology?



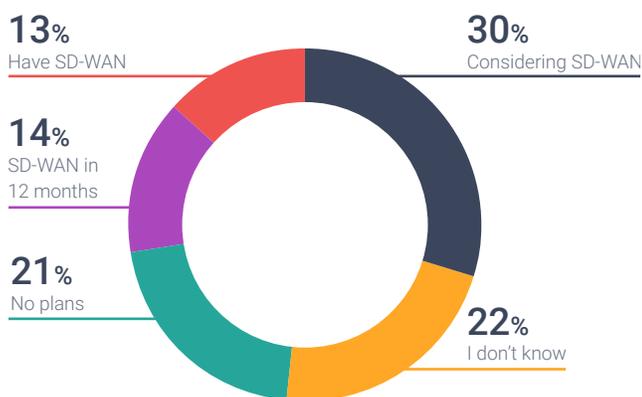
Q15

To what degree has SD-WAN impacted or do you anticipate will impact your investment in the following technologies?



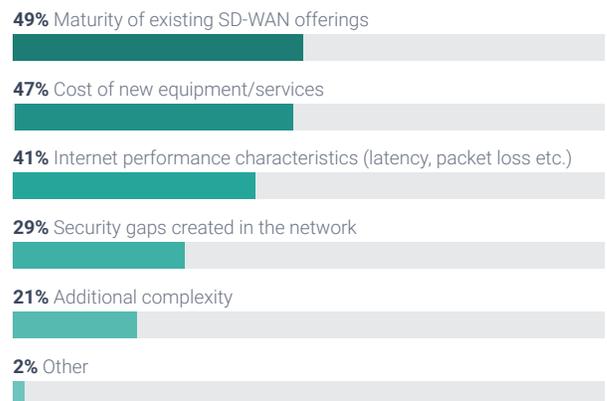
Q16

Do you have or are you planning to deploy SD-WAN?



Q17

When considering an SD-WAN, which of the following factors would you consider to be the biggest barriers to investment?



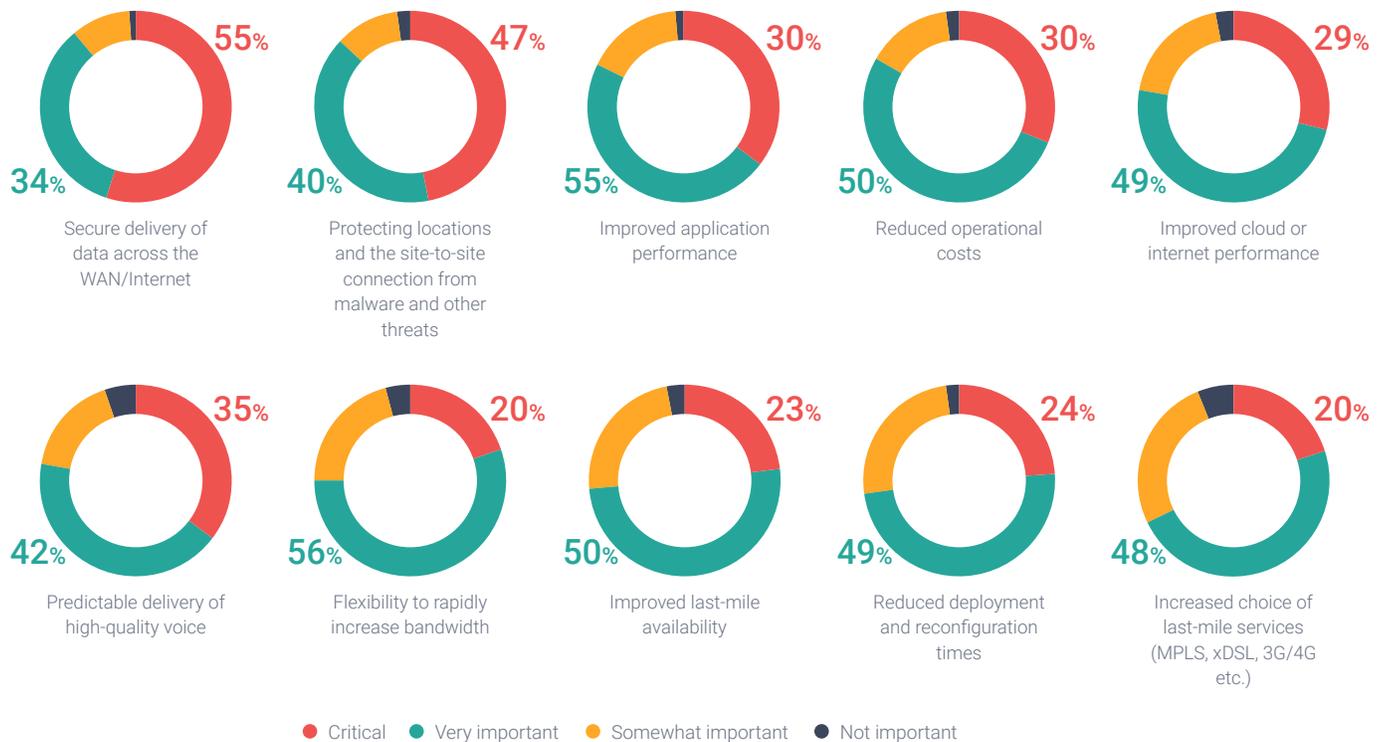
Q18

You're looking for an SD-WAN and must choose between functionality and ease of use. Please move the slider to best reflect your preference.



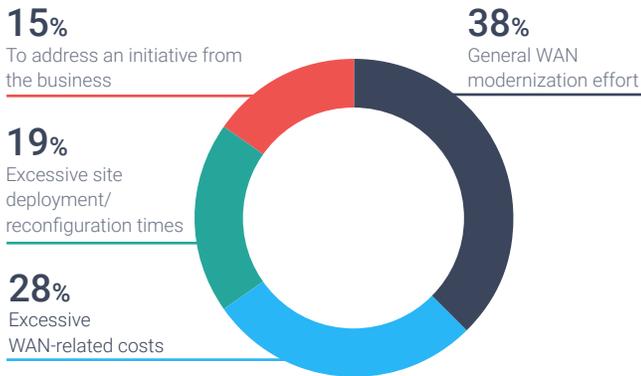
Q19

Please rank the importance of the following SD-WAN priorities in your decision making process.



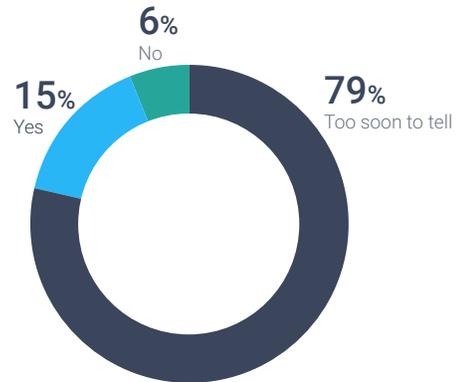
Q20

What was the primary motivation for considering SD-WAN?



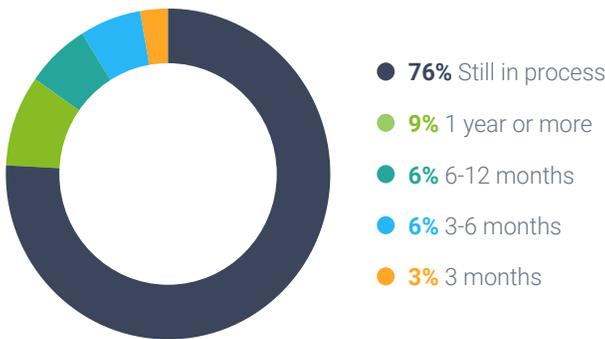
Q21

Has your SD-WAN deployment lived up to expectations?



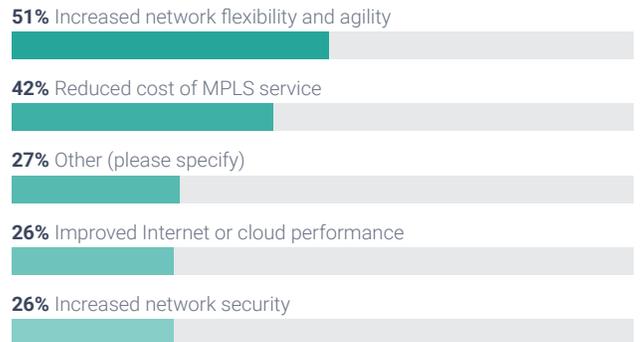
Q22

How long ago did your company complete the bulk of its SD-WAN deployment?



Q23

Which priorities did you achieve after your SD-WAN deployment? (check all that apply)



Q24

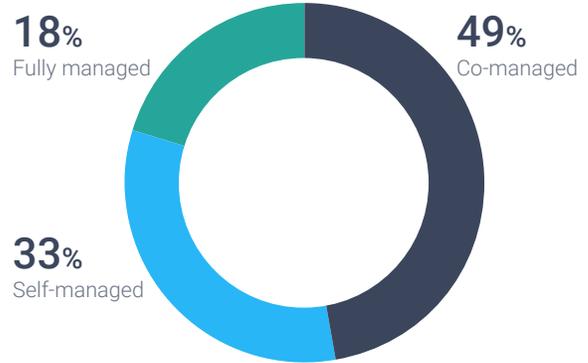
How has your SD-WAN failed to live up to expectations?

(check all that apply)



Q25

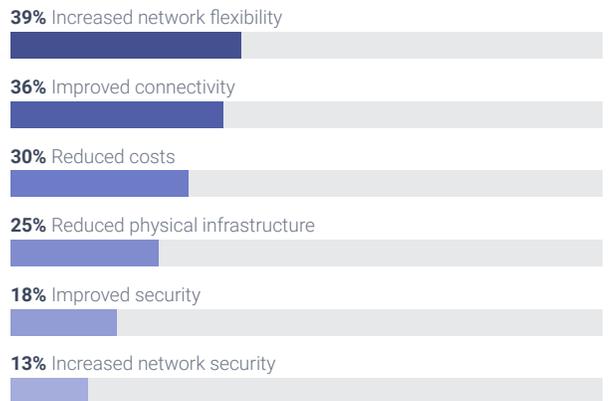
Which of the following is your preferred SD-WAN management architecture?



Q26

How has SD-WAN most positively impacted your organization?

(check all that apply)



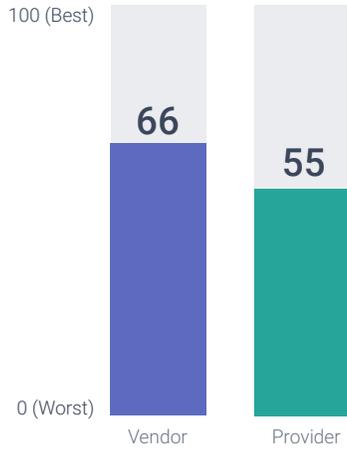
Q27

How would you best describe your SD-WAN provider?



Q28

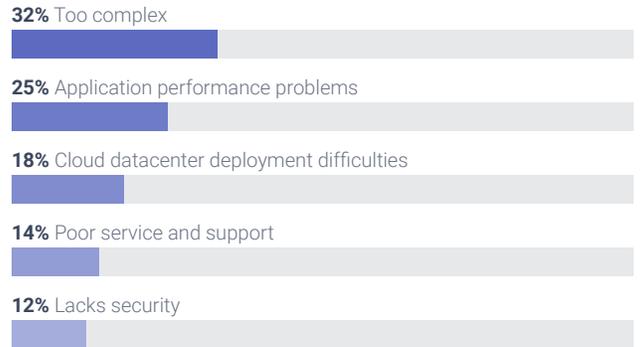
How would you rate your overall experience with your SD-WAN supplier?



Q29

What are your biggest complaints with your SD-WAN vendor?

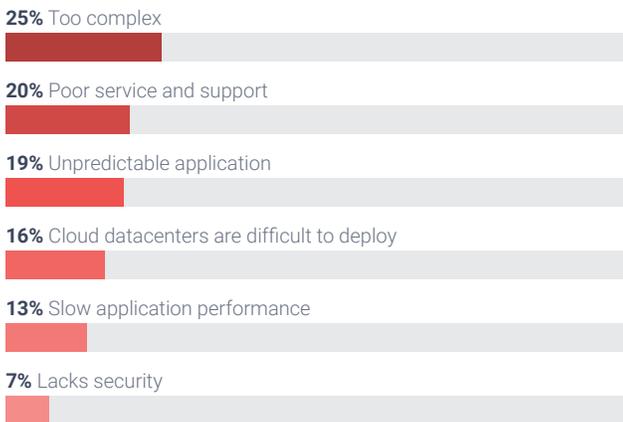
(Select no more than three responses)



Q30

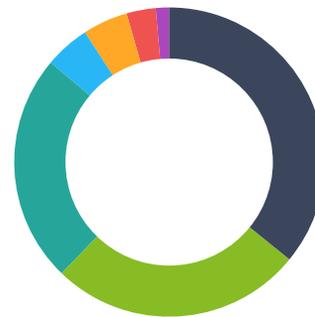
What are your biggest complaints with your SD-WAN provider?

(Select no more than three responses)



Q31

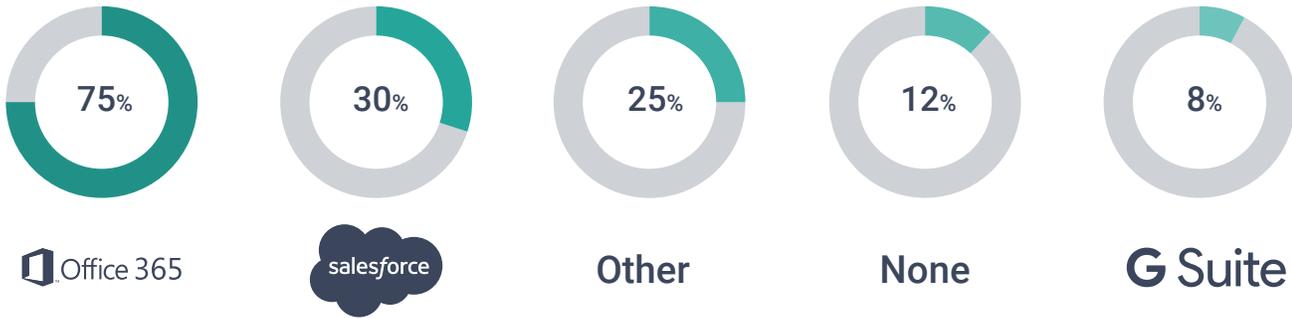
What is the primary reason your organization has not yet or will not deploy an SD-WAN?



- 43% Don't know enough about it
- 28% No real need
- 13% Still under service provider contract
- 6% The products are too new or immature
- 6% The products' security has not been full vetted
- 4% The products are too expensive
- 2% Need a service with predictable loss/latency

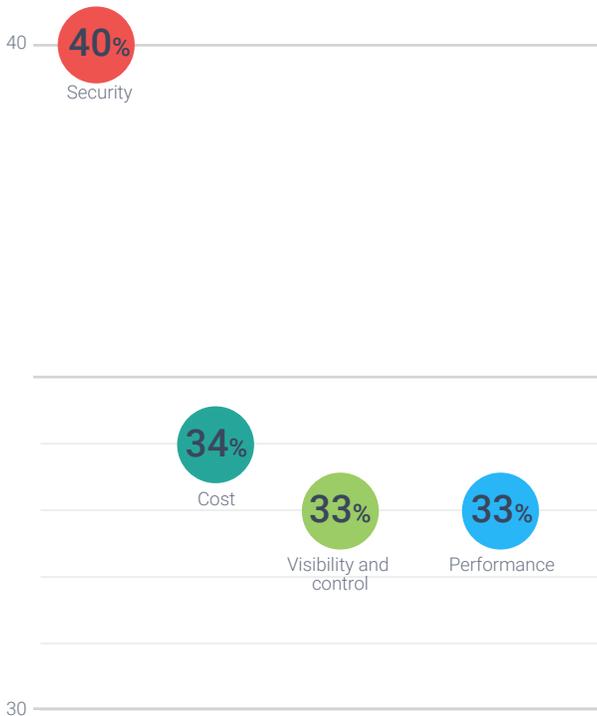
Q32

Which cloud applications does your company officially support?



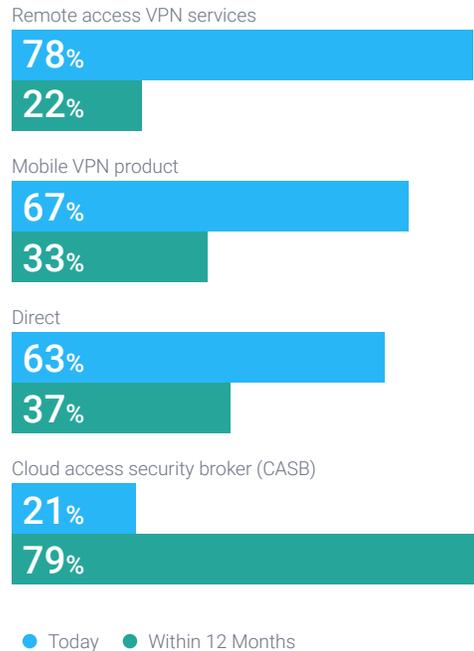
Q33

What are three biggest problems with your company's current approach to cloud application access?



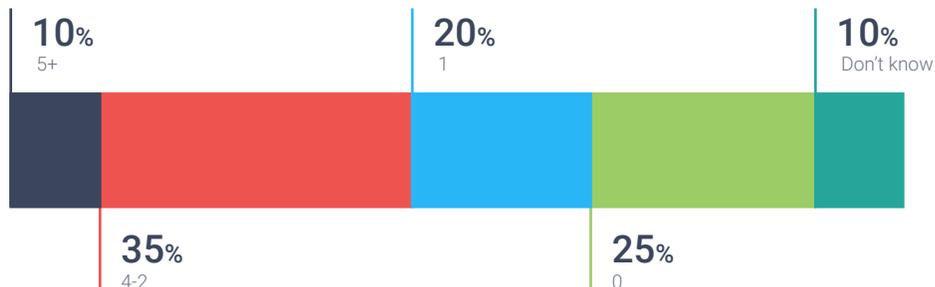
Q34

Which of the following approaches best describes how your company secures access to SaaS and the public cloud today and in the next 12 months?



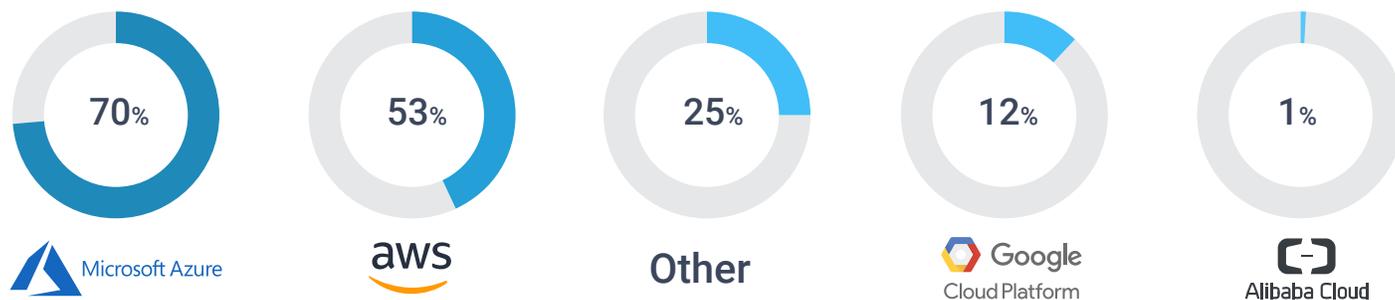
Q35

Indicate the number of cloud datacenters in your organization.



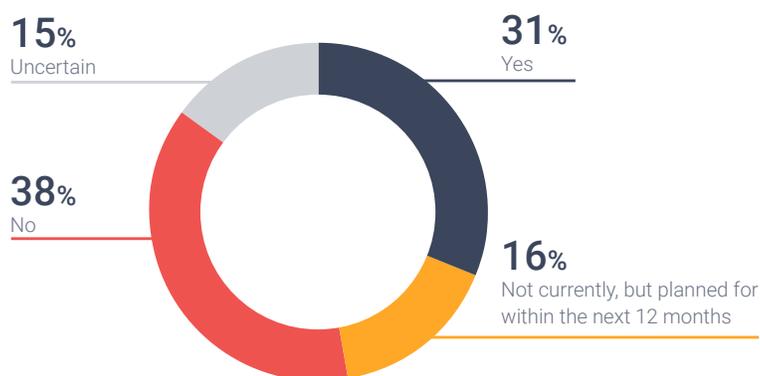
Q36

Indicate the cloud platforms on which your organization runs those cloud datacenters



Q37

Does your company currently pay for dedicated connection services (such as AWS Direct Connect, Microsoft ExpressRoute, Google Cloud Dedicated Interconnect)?



Q38

What architecture does your organization use to secure its cloud datacenter(s)?

Premise-based firewall appliance only



Cloud firewall bundled with the service



Third-party virtual firewalls running in the cloud



Regional hubs with direct connection services



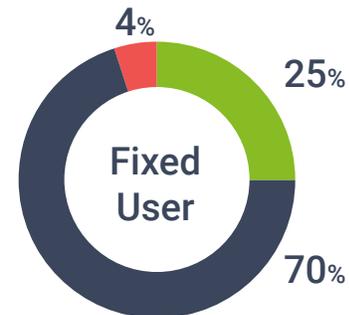
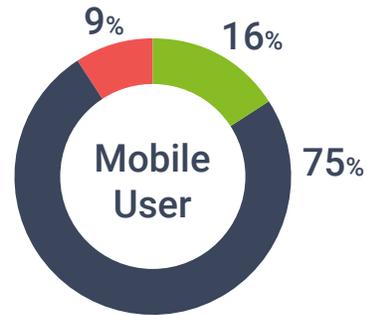
Firewall as a Service (FWaaS)



● Today ● Within 12 Months

Q39

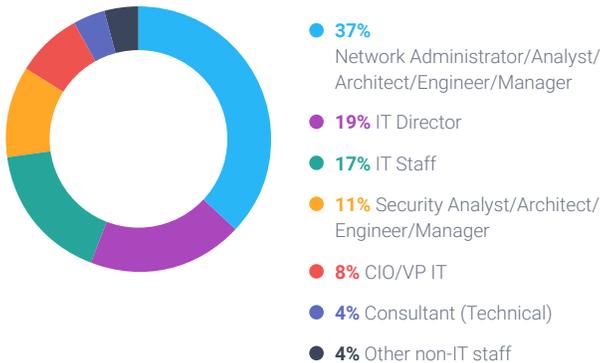
Which of the following best describes your users' experience accessing cloud-based datacenters?



● Excellent ● Acceptable ● Problematic

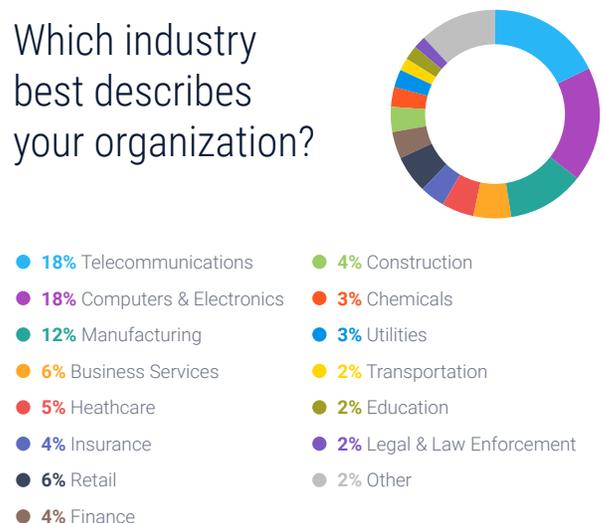
Q40

Which category best describes your title or role?



Q41

Which industry best describes your organization?





Cato Networks provides organizations with a cloud-based and secure global SD-WAN. Cato delivers an integrated networking and security platform that securely connects all enterprise locations, people, and data. Cato Cloud cuts MPLS costs, improves performance between global locations and to cloud applications, eliminates branch appliances, provides secure Internet access everywhere, and seamlessly integrates mobile users and cloud datacenters into the WAN.

Based in Tel Aviv, Israel, Cato Networks was founded in 2015 by cybersecurity luminary Shlomo Kramer, co-founder of Check Point Software Technologies and Imperva, and Gur Shatz, co-founder of Incapsula.

For more information:

www.CatoNetworks.com

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Where do you want to start?



SECURE
CLOUD-BASED
SD-WAN



AFFORDABLE
MPLS
ALTERNATIVE



BRANCH
APPLIANCE
ELIMINATION



CLOUD
DATACENTER
INTEGRATION



MOBILE ACCESS
OPTIMIZATION



SIMPLE
NETWORK
AUTOMATION

Global Backbone. Cloud-Based SD-WAN. Firewall as a Service. All in One

