EXECUTIVE SUMMARY

2020

State of the Network Survey

NETWORKWORLD

IDG QUALITY MATTERS

IDG COMMUNICATIONS, INC.

5G, Edge Computing and SD-WAN poised to take on enterprise networks in 2020

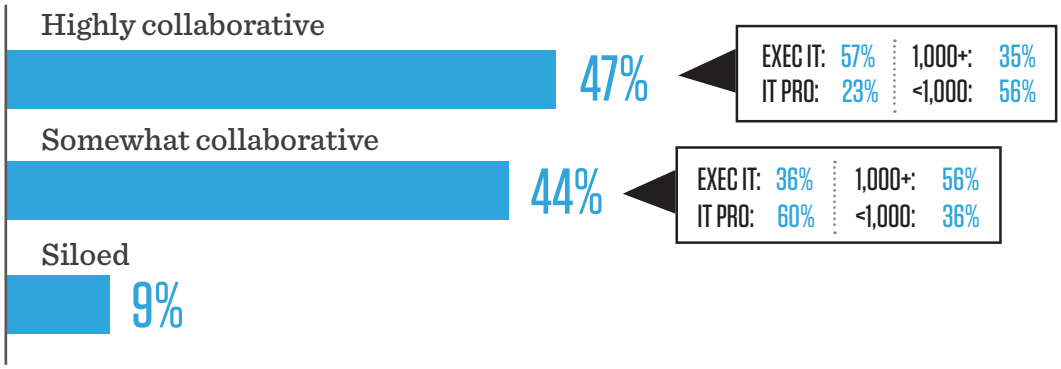
The marathon that is digital transformation continued to test enterprise networks in 2019 and keep IT executives and network professionals on their toes.

As the mobile workforce grows and more apps occupy the cloud than ever before, network professionals are constantly looking to reduce network latency, preserve uptime and save bandwidth – not to mention improving network security and reducing the number of network failures.

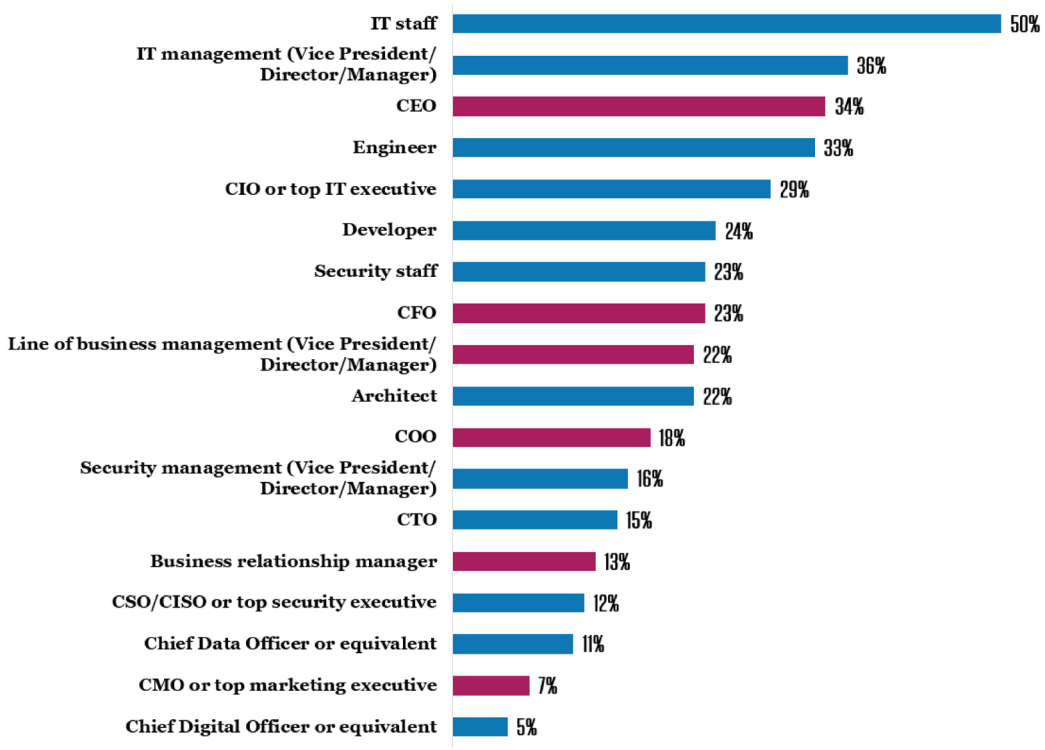
To position their organizations for future growth in 2020, IT leaders are eyeing several new technologies – 5G, edge computing and SD-WAN among them – that promise to bring exceptional speed, agility, resilience and security to enterprise networks.

Network World surveyed 268 IT executives and management with primary networking responsibilities for their organization, to find out what new initiatives they're taking on with existing and emerging network technologies. The State of the Network Report provides a snapshot of what's hot and what's not in enterprise network technologies for 2020.

COLLABORATIVE RELATIONSHIP WITH BUSINESS MANAGEMENT



COLLABORATING THROUGHOUT IT AND BUSINESS



Network and Business Managers Join Forces

The vast majority of network professionals have a highly (47%) or somewhat (44%) collaborative relationship with business managers—attending weekly meetings and having their advice acknowledged, according to the survey. About one third of network professionals communicate regularly with the CEO (34%), CFO (23%) and line of business managers (22%).

Today's Top 3 Network Technologies

Organizations today are entrenched in network technology initiatives that focus on network security, server consolidation and WAN optimization.

Network security monitoring

With the increasing number and complexity of cyber threats, it's not surprising that almost three-quarters of respondents (71%) are either piloting, currently using or upgrading network security monitoring technology. Network security monitoring helps to identify slowdowns and problem areas as well as allows administrators to attack problems as they happen and help prevent future attacks.

Adding to its popularity – regulatory compliance with HIPAA, ISO 27001 and newcomers GDPR and the California Consumer Privacy Act of 2020 often require some form of network monitoring as both a best practice and security measure.

Server consolidation

Server consolidation is popular with 65% of respondents who are currently piloting, using or upgrading the technology. It makes more efficient use of hardware and resources, and saves money, especially considering that so few servers are used to their full capacity.

WAN optimization

More than half of organizations (53%) are currently piloting or using WAN optimization, which was traditionally centered around a single centralized hub or data center where an organization's applications and data are hosted. But today, with widely disparate user communities, many enterprises are now viewing new application-centric or regionally distributed architecture as a far more viable alternative to its predecessor, replacing MPLS sprawl with purpose-built regional hubs.

TECHNOLOGIES WITH THE MOST INTEREST

What's hot on the horizon

Fifth-generation networking, or 5G, the Internet of Things, edge computing and SD-WAN are among the top new technologies that companies have on their radar or are actively researching.

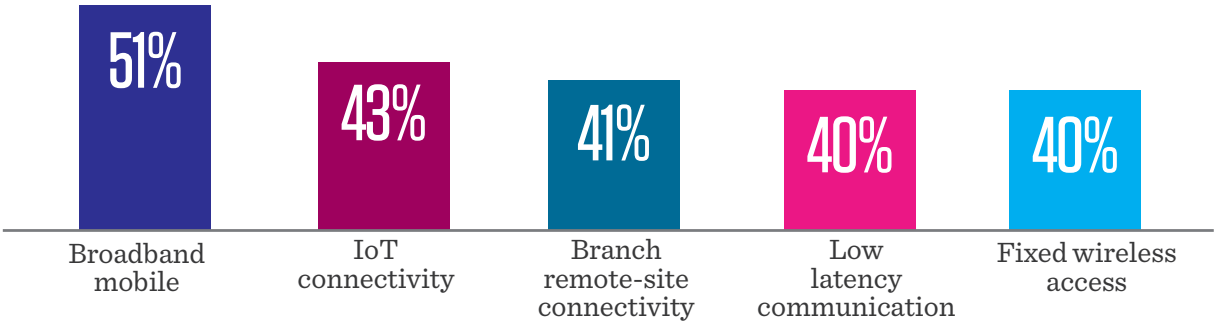
5G

Half (51%) of respondents say that their organization is actively researching 5G, but just 11% are piloting or using 5G, which should not come as a surprise.

5G finally became available in 2019, but so far, it has yet to impress most organizations. That should change as more cities come online and more 5G devices become available. Industry-watchers predict that in 2020 next-generation networks will have a meaningful impact on the masses and be the year of scale for 5G – though its use in enterprises is still loosely defined. Organizations that are interested in 5G expect to use it for broadband mobile (51%), IoT connectivity (43%), branch or remote site connectivity (41%) and for low-latency communications and fixed wireless access (40% each), to name a few.

TOP 10 ACTIVELY RESEARCHED TECHNOLOGIES

EXPECTED USE CASES FOR 5G



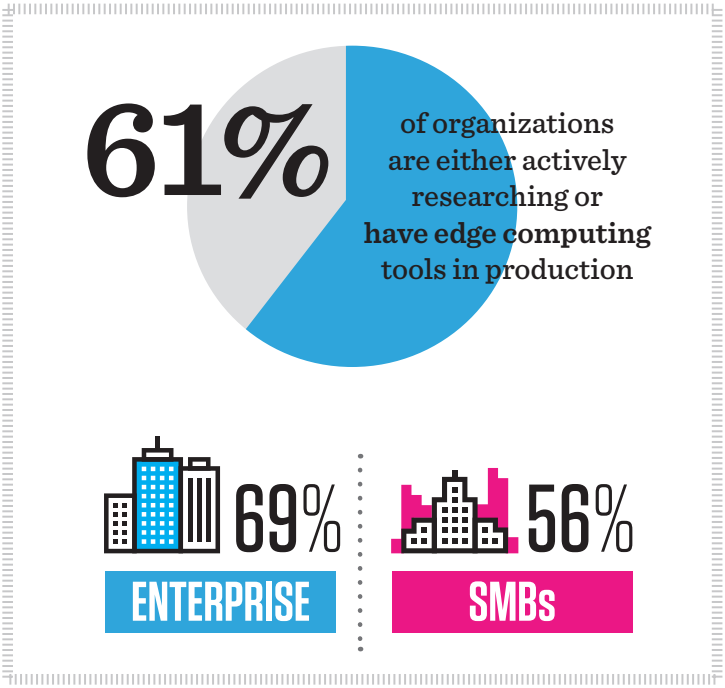
But many organizations will have to wait, because 5G service is still not geographically available for 69% of organizations surveyed. There are also concerns about the cost of 5G and the lack of device support (37% each) and that current infrastructure isn't built to handle 5G (31%), all creating obstacles to adoption.

Still, organizations continue to forge ahead, with 70% planning to start using 5G within the next one to three years, with the average being 2.4 years from now.

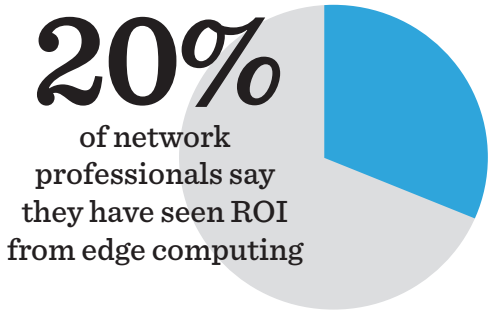
One thing is for certain, 5G will connect even more devices with greater speed, so it makes sense that the Internet of Things is also being actively researched by more than a third (37%) of organizations.

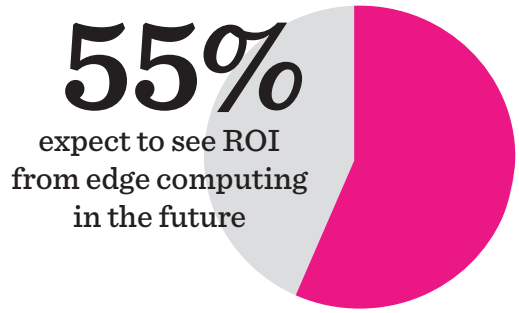
Edge computing

Edge computing is also rising in interest this year, a technology which allows data from IoT devices (sensors or industrial machines) to be analyzed at the edge of the network before being sent to a data center or cloud.



ROI EXPECTED FROM EDGE COMPUTING

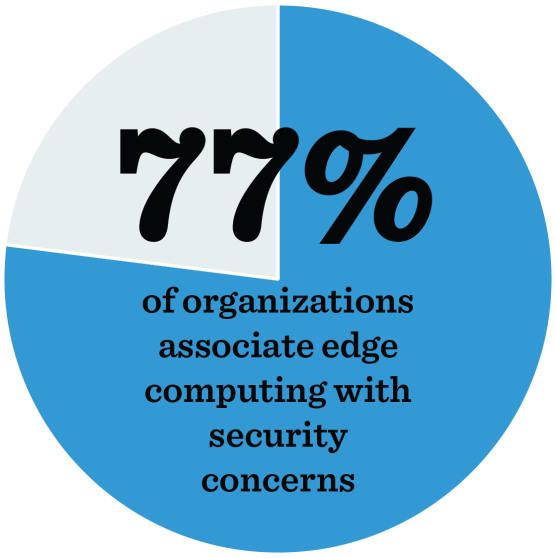




More than one-third of organizations surveyed (36%) already have edge computing tools in production or are piloting initiatives, and another 25% are actively researching the technology. Adopters expect edge computing to reduce network latency and operational expenses, allow real-time data processing and save bandwidth. It is also expected to preserve uptime and resilience by reducing the number of network failures, providing an IoT security framework and reducing the impact of data center outages.

Despite all of the virtues of edge computing, security concerns are still on the minds of the vast majority of respondents (77%). More than half of those citing concerns believe that devices were not built with security in mind (55%), that the need for middleware creates an additional attack surface (51%) and that there are many other potential attack vectors due to the heterogeneous computing environment (51%).

Beyond these network security concerns, an edge computing implementation also affects network management, cloud applications, the data center and IoT devices and sensors. Still, many organizations that have implemented edge computing technology are seeing return on investment (20%), and more than half (55%) expect to see ROI from edge computing in the future.

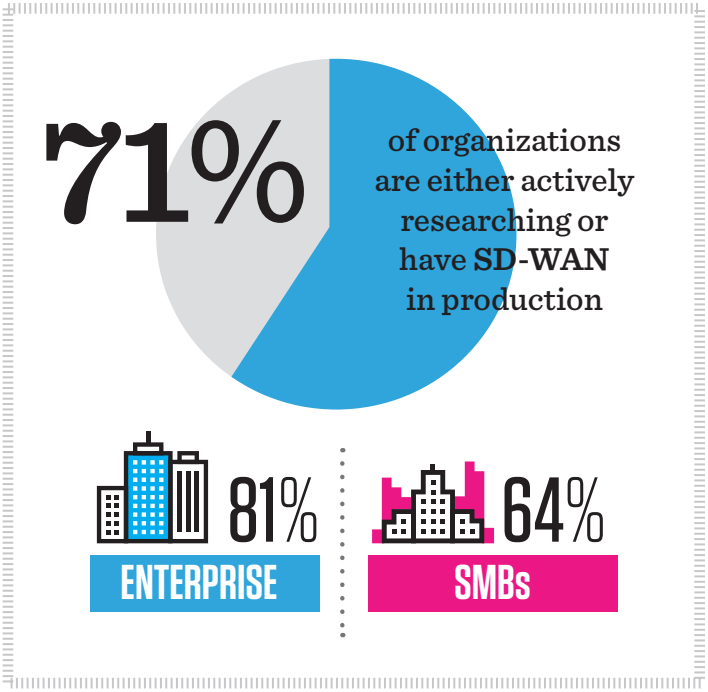


SD-WAN

Next-gen networks today are already requiring SD-WAN, and the market is only expected to grow. IDC predicts that the SD-WAN infrastructure market will grow to $4.5 billion by 2022.

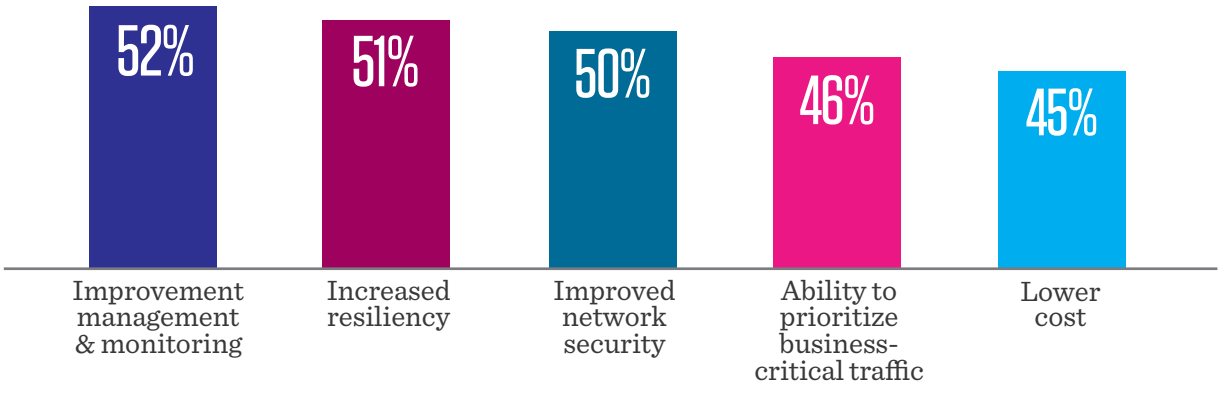
Some 44% of organizations are currently piloting or using SD-WAN, and another 28% have it on their radar.

SD-WAN takes traditional, largely static WAN resources and adds policy-based routing that enables route and usage prioritization based on the needs of the application and its consumers. Organizations expect SD-WAN to improve management and monitoring (52%), increase resiliency (51%), improve network security (50%) and prioritize business-critical traffic (46%) – not to mention lowering costs.



SD-WAN is also expected to advance cloud use by improving bandwidth efficiency, (58%) expanding connectivity options (55%) and encouraging hybrid cloud and multi-cloud use (48% and 41% respectively).

SD-WAN BENEFITS

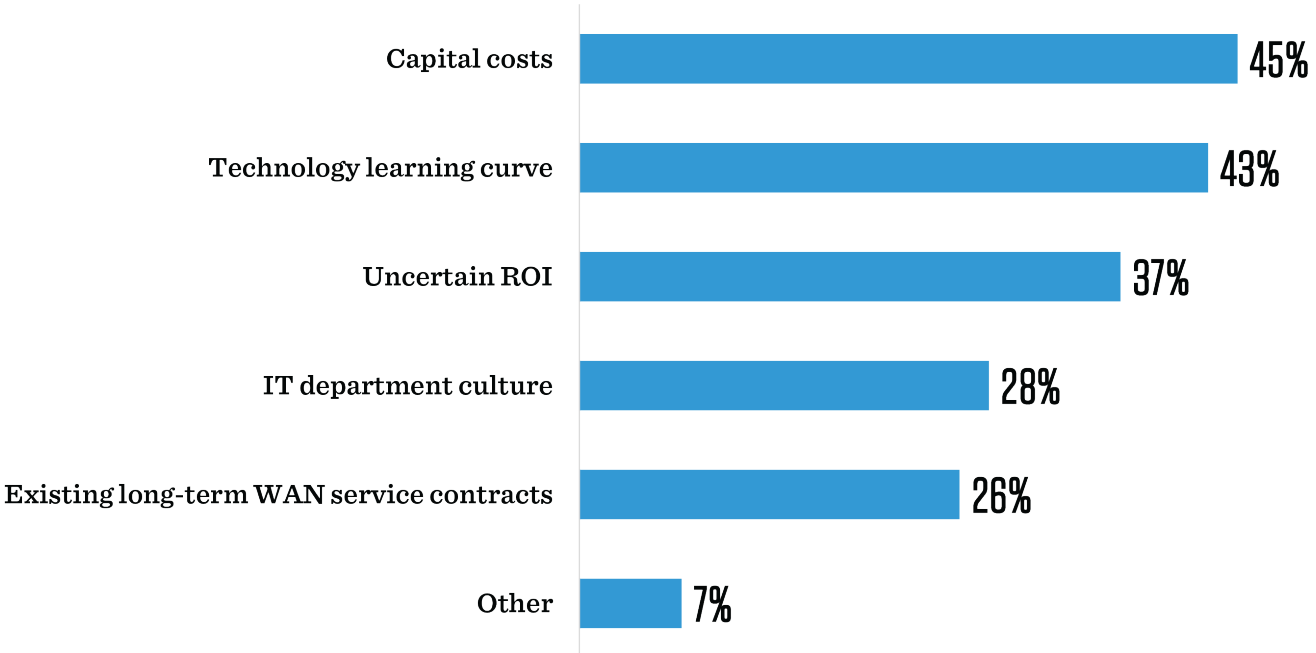


But several potential deal-breakers stand in the way of SD-WAN adoption for the vast majority of organizations (86%). Capital costs were the most cited obstacle (45%), followed by the technology learning curve (43%) and an uncertain ROI (37%).

What's more, about a quarter of organizations will have to wait until their existing long-term WAN service contracts expire before implementing SD-WAN – and that number increases to 35% at large enterprises.

Rounding out the technologies that companies are actively researching are software-defined networking (32%), which allows the network to direct traffic without relying on the hardware to make the decision and positions organizations for new technologies, including IoT devices, cloud-based applications and big data apps – and network function virtualization (30%).

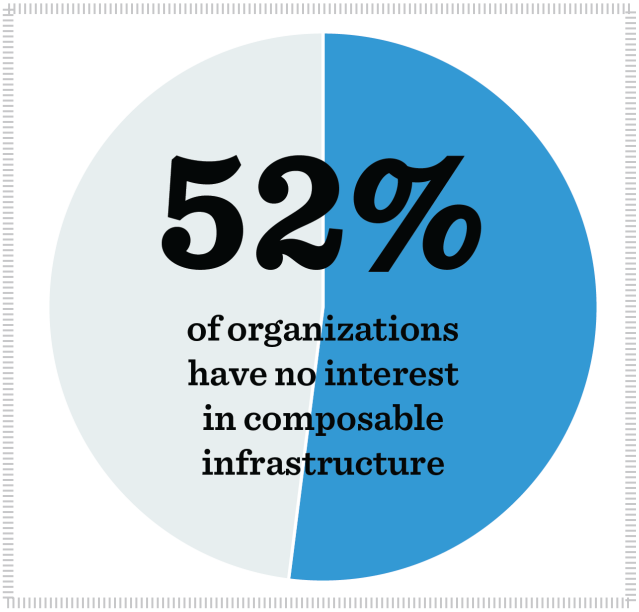
INHIBITORS TO SD-WAN ADOPTION



What's not so hot

Some emerging technologies so far have failed to win the interest of organizations.

More than half (52%) of network professionals are not interested in composable infrastructure, which treats compute, storage and network devices as pools of resources that can be provisioned as needed, depending on what different workloads require for optimum performance.



It's similar to a public cloud in its resource-sharing abilities, except composable infrastructure sits on-premises in an enterprise data center. Last year, 50% of organizations had no plans to pursue the technology, and just 18% had it on their radar.

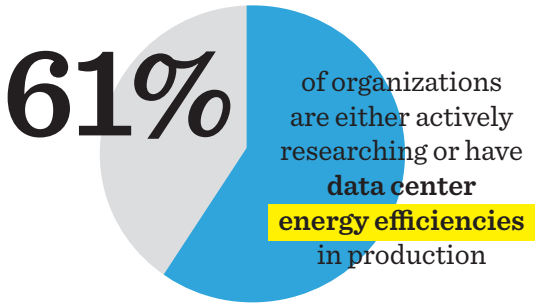
Platform as a Service (PaaS) also failed to gain traction, with 47% of organizations surveyed not interested in the technology right now, followed by Tier 1 application virtualization at 44%.

In search of data center efficiencies

Creating energy and storage efficiencies in the data center are at top of mind for IT executives and network professionals. Some 61% of organizations are either actively researching, piloting, or have data center energy efficiencies in production, and nearly three-quarters (73%) of organizations are pursing or have data center storage efficiencies in production. Much of these improvements will come through upgrades of existing data centers (59%), and industry sectors undergoing the most data center upgrades include government, telecom, education, and service industries.

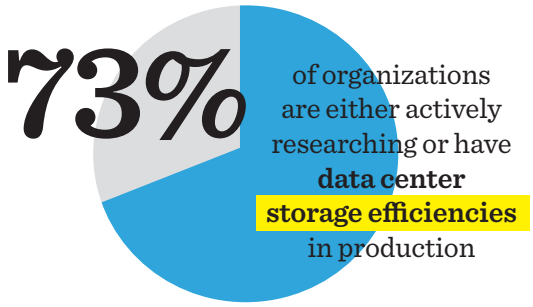
These networking initiatives can't come soon enough for many organizations. Some 30% of respondents say they have experienced at least one data center outage in the past 12 months. Those that have experienced a data center outage in the past 12 months, on average have experienced two outages that each took an average of nine hours to fix.

DATA CENTER ACTIVITY



70% ENTERPRISE

55% SMBs



76% ENTERPRISE

71% SMBs

Looking to the future

Networking professionals will continue to take a central role in shaping IT strategy as the network becomes central to driving new lines of business, saving money and securing the enterprise. 2019 was the year that saw trends like edge computing and SD-WAN start to gain some serious momentum. 2020 marks the expected rollout of a nationwide 5G network and while the technology is still very young, it's poised to shake up the networking space.

And with increased deployment of IoT comes a wealth of valuable data being collected, so look for tech vendors across the board to begin rolling out analytics capabilities to their offerings.

Methodology

Network World's 2020 State of the Network survey was conducted online among members of the IDG audience via email and social promotions between September 2019 and November 2019. The goal of the study was to help tech marketers informtheir product development, marketing and messaging strategies, specifically relating to emerging technologies that impact the network.

ABOUT OUR SURVEY

We surveyed 268 professionals with exposure to network IT at their place of employment for the 2020 State of the Network survey. All of our respondents (100%) said they were on the team that is primarily responsible for networking at their organization. Respondents are closely balanced between enterprise organizations and small and mid-sized firms, with an average of 8,178 employees. (41%) with more than 1,000 employees and small and mid-sized firms (57%) with fewer than 1,000 employees. The top represented industries include technology (18%), manufacturing (10%), services (10%), education (10%), government (8%) and financial services (8%). The majority of respondents are executive IT level (67%), followed by IT professionals (18%), IT management (11%) and only 2% for business management.

EXAMINING THE MARKETPLACE

Research is a valuable tool in understanding and connecting with customers and prospects. Our research portfolio explores our audiences' perspectives and challenges around specific technologies – from analytics and cloud, to IoT and security – examines the changing roles within the IT purchase process, and arms tech marketers with the information they need to identify opportunities.

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