

2018 State of Infrastructure

Companies competing in today's IT landscape are creating ever-increasing volumes of data, placing new demands on enterprise infrastructure.

By Stan Gibson



About the Author



Stan Gibson is an award-winning editor and writer, with 34 years experience covering information technology. Formerly executive editor at eWEEK and PC Week, he is currently principal at Stan Gibson Communications, where he continues to write about all aspects of IT.

Research Summary

- **Survey Name:** Interop ITX and InformationWeek 2017 State of Infrastructure Survey
- **Survey Date:** August 2017
- **Region:** North America
- **Respondent base:** 150 technology professionals involved in the purchase of networking, storage, servers, and/or data center technology at companies of all sizes. The margin of error for the total respondent base (N=150) is +/- 7.9 percentage points.
- **Methodology:** Interop ITX and InformationWeek surveyed infrastructure technology decision-makers involved at North American companies.
 - The survey focused on factors contributing to organizational infrastructure change, infrastructure budgets, planned spending, and infrastructure purchase plans.
 - The survey was conducted online, and respondents were recruited via an email invitation containing an embedded link to the survey. The email invitation was sent to a select group of UBM's audience. All respondents answered affirmatively that they were involved in the planning, implementation, operations, or maintenance of infrastructure systems, including networking, storage, servers, and/or data centers at their organizations.
 - Approximately one-third of the survey respondents held director or manager of IT or networking titles, and just under one-quarter were IT executive management (e.g., CIO, CTO, or VP of IT). A broad spectrum of industries was represented. About one-third of respondents reported their company size as under 100 employees, 45% were at mid-sized companies, and 20% at large companies of 10,000 employees or more. UBM was responsible for all programming and data analysis. These procedures were carried out in strict accordance with standard market research practices.

Executive Summary

Data storage surge points the way to a digital future

Successful companies invest in the future, and the future of many companies is digital. Companies of all sizes, in all industries, are generating and storing more data than ever, and they are investing in storage infrastructure to keep pace with today's needs and build for tomorrow.

According to our State of Infrastructure survey, the single greatest factor driving change in IT infrastructure is the rapid growth of data and data storage technology.

While an increase in data and data storage is not surprising, businesses are not just hoarding digital information. As our survey found, companies are building digital business strategies with the help of big data, predictive analytics and data gathered from the Internet of Things (IoT).

As they build tomorrow's digital businesses, IT leaders say they will have to overcome challenges including cost constraints, a skills gap, and -- above all -- data security requirements.

Storage stood out in our survey, but it's only one of many infrastructure elements covered, along with converged and hyperconverged infrastructure, cloud services, and enterprise networking. We surveyed technology decision makers at companies in a broad range of industries, including education, healthcare, government, manufacturing and consulting/business services. Respondents represented a spectrum of job titles, from CEO to line-of-business management, although most were executives, directors and managers. Fifty-nine percent of companies had fewer than 1000 employees and 41% had more than 1000 employees.

Data triggers broad infrastructure growth

The relentless increase in digital information is spurring a strong and steady surge in data storage, the number one factor driving change in IT infrastructure, according to our State of Infrastructure survey.

"Business is increasing, our market share is increasing, so it makes sense that storage would be increasing," said survey respondent M. Todd Hess, manager of information technology at Ingersoll Production Systems. Ingersoll's data is growing annually between 15% and 20%, a rate that is consistent with nearly half of survey respondents (48%) who say their data is growing between 10% and 24% per year.

While data tends to increase naturally for successful businesses, there is more than to-be-expected growth going on. To fully understand the causes of data increases, we need to go back to our State of IT survey conducted in March 2017. There we learned that big data, Internet of Things (IoT), and analytics are causing data quantities to multiply rapidly. That data growth, in turn, is driving IT leaders to deploy increasing amounts of storage hardware in data centers, to store more data in the cloud, and to increase implementations of virtualization, networking, and data management technologies. And the surge in storage is far from a temporary spike. When we asked in the State of IT survey about the factors that are driving the most change in IT infrastructure, "Growth of storage/data" was the top response with 40%.

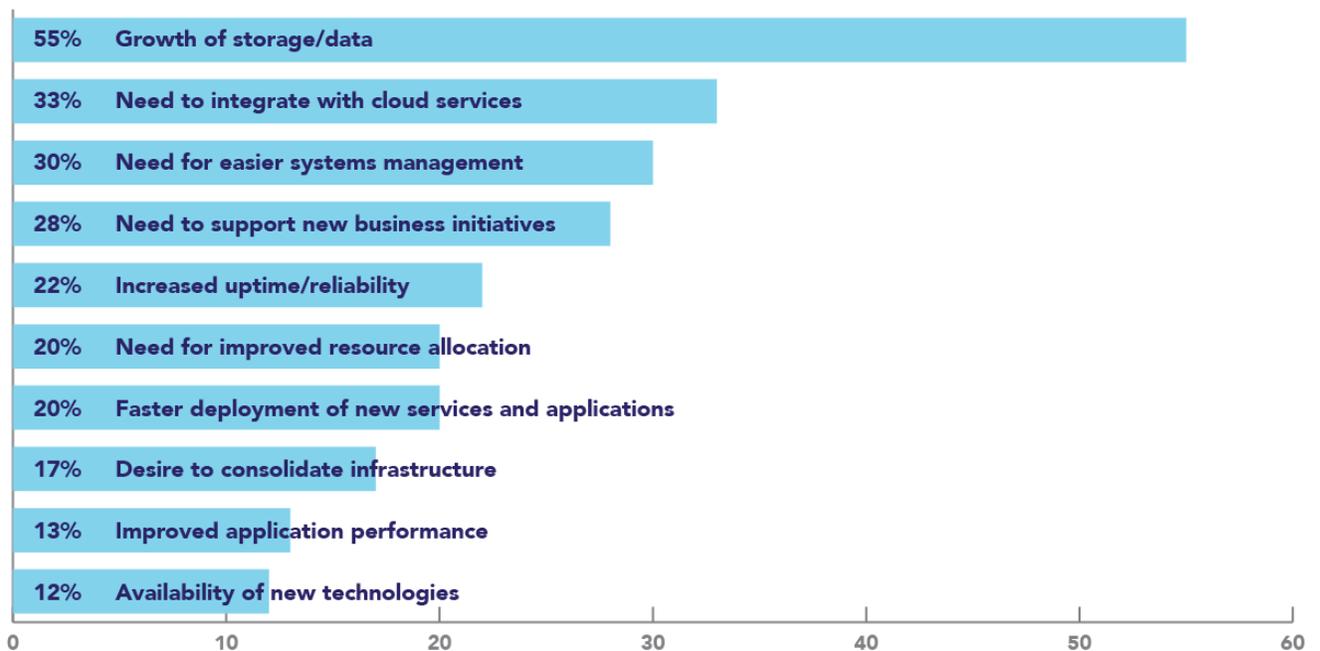
But storage is not all that is growing. Our research took the pulse of all aspects of infrastructure, including data center, virtualization, cloud services, and networking technologies. The results show strong increases in each area. Here's a close look, starting with storage.

Storage, storage, and more storage

The growth of data and storage is by far the biggest factor driving IT infrastructure change. With 55% of respondents choosing it as one of the top three factors, it far exceeds the need to integrate with cloud services, at 33%. And in all probability, the need to integrate with cloud services is itself driven in large part by the need to store more data in the cloud.

What's Driving IT Infrastructure Change

What three factors are driving the most change in your organization's IT infrastructure environment?



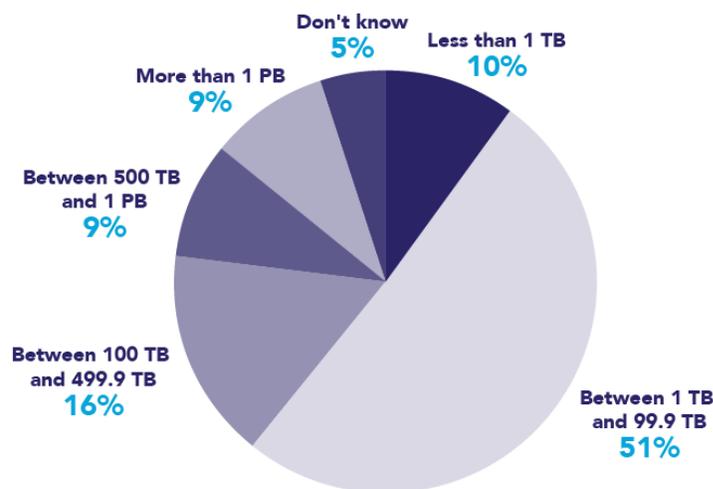
Note: Maximum of three responses allowed

Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

To get an idea of the quantities of data being stored, we asked how much data storage IT leaders have under active management. Most (51%) say between 1 Terabyte and 99 Terabytes. Nine percent say they have more than one Petabyte of storage under active management.

Storage Under Active Management

Approximately how much storage do you have under active management?

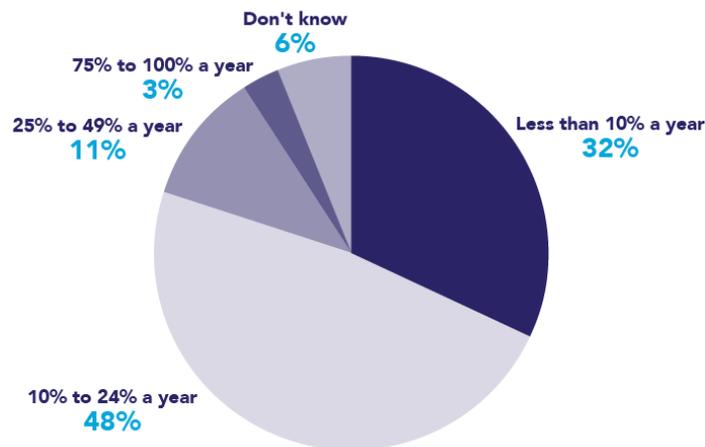


Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

As to the growth rate, 62% say their data is growing at more than 10% per year, and as previously mentioned, 48% say their data is growing between 10% and 24% annually.

Data Growth Rate

What is the growth rate for the overall data you have to store and manage?

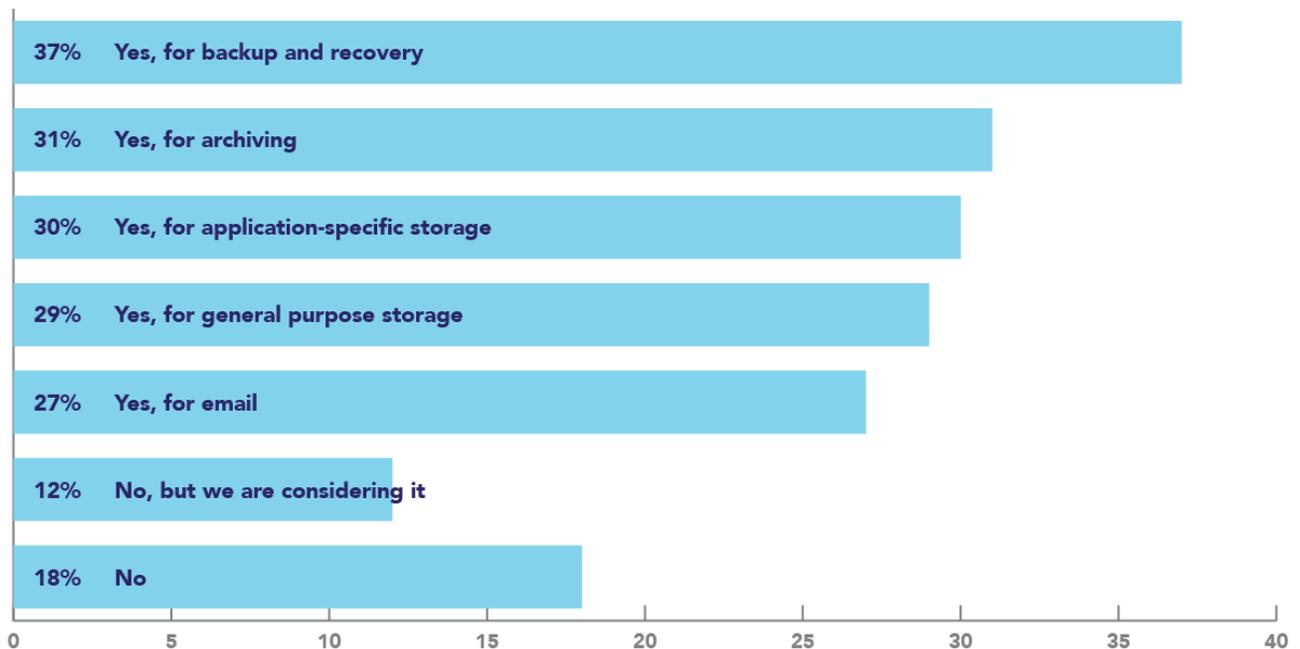


Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Cloud storage services are used for a broad range of reasons, with backup and recovery leading the way at 37%. One survey respondent said he is moving to an almost entirely cloud-based infrastructure. "We just converted over to the cloud a year ago and we have a lot of room to grow. We are not buying new servers, just increasing the instances we are using [in the cloud]," said Scott McEntee, software engineer at Integrated Logistics 2000, Inc., a logistics broker.

Cloud Storage Services

Do you use cloud storage services?



Note: Multiple responses allowed

Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

The company is relying heavily on Amazon Web Services to handle its data, which is growing at approximately 15% annually, according to McEntee. Integrated Logistics 2000 retains data on its customers' billing and shipping activities indefinitely. Consistent with the findings of the State of IT survey, the company is performing analytics on the data, seeking to uncover purchasing patterns and other trends to enable the company to better serve its customers and increase business, McEntee explains.

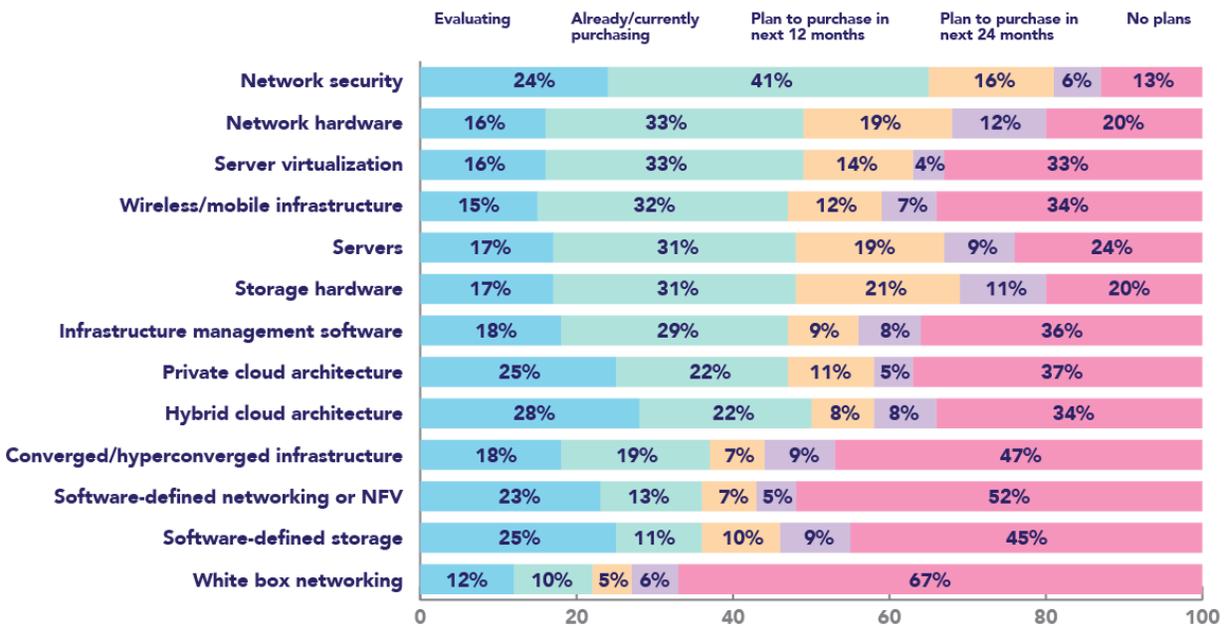
Although the cloud has its attractions, not every company is ready to make the same leap that Logistics 2000 is making. Ingersoll's Hess said he is considering utilizing a cloud service provider for backup, but has not yet gained full confidence in the cloud. "This whole mysterious thing -- it's servers somewhere, but I'd like to know where that is, and that it's secure and reliable."

Storage investments

As to infrastructure purchase plans, 21% say they will purchase storage hardware over the next 12 months, narrowly beating out network hardware and servers, both at 19%.

IT Infrastructure Purchase Plans

What are your purchasing plans for the following infrastructure technologies?

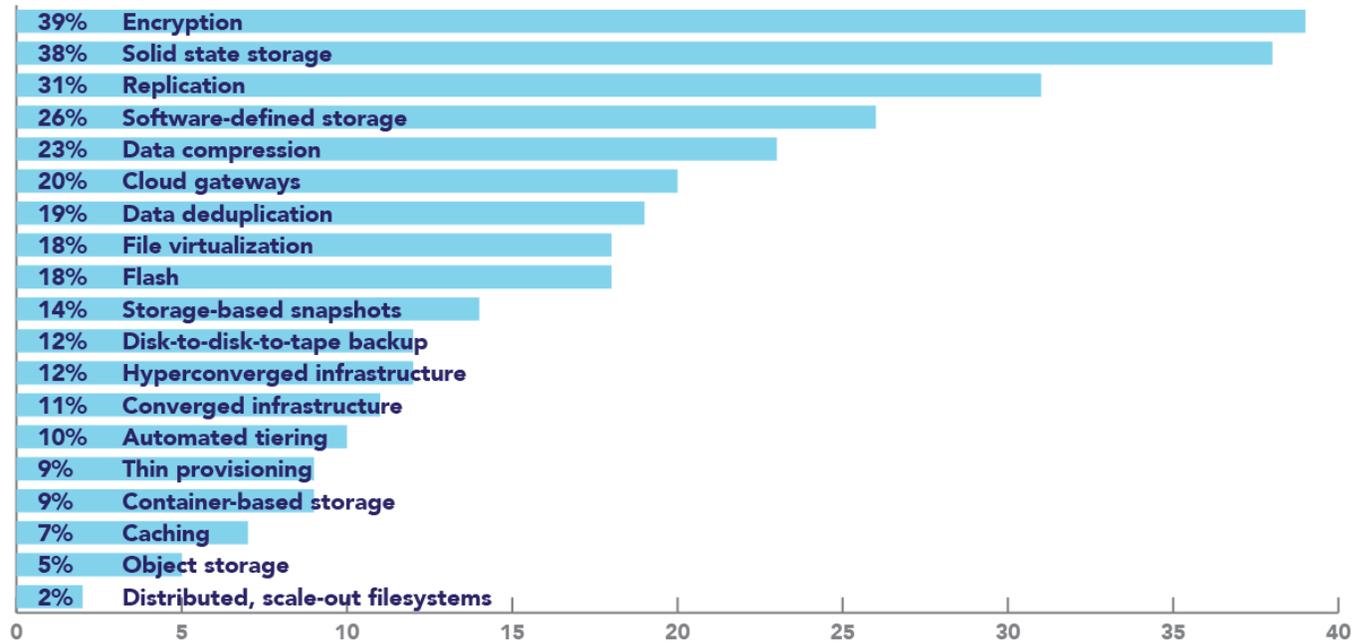


Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

The storage products they will purchase over the next 12 months comprise a lengthy list, led by encryption at 39% and solid-state storage at 38%. Replication (31%), software-defined storage (26%), and data compression (23%) all show strong interest.

Planned Storage Technologies

In which of the following storage technologies does your organization plan to invest in the next 12 months?



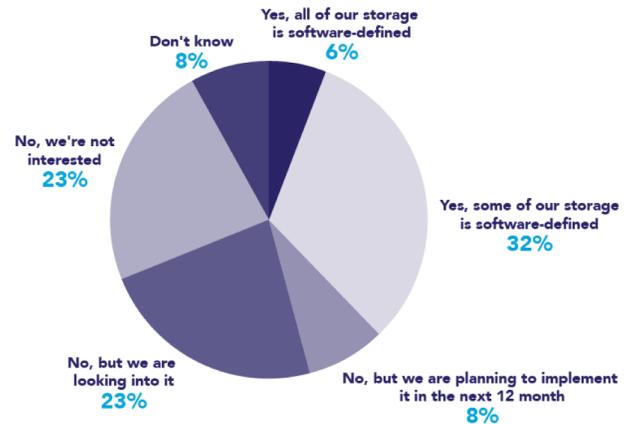
Note: Multiple responses allowed

Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

The survey finds growing interest in storage virtualization, also known as software-defined storage: 38% say some or all of their storage is software-defined, while 31% are planning to implement it in the next 12 months or are looking into it. The purposes to which software-defined storage is being put cover a broad range, with general databases leading the way with 46%, followed closely by backup at 43%.

Storage Virtualization

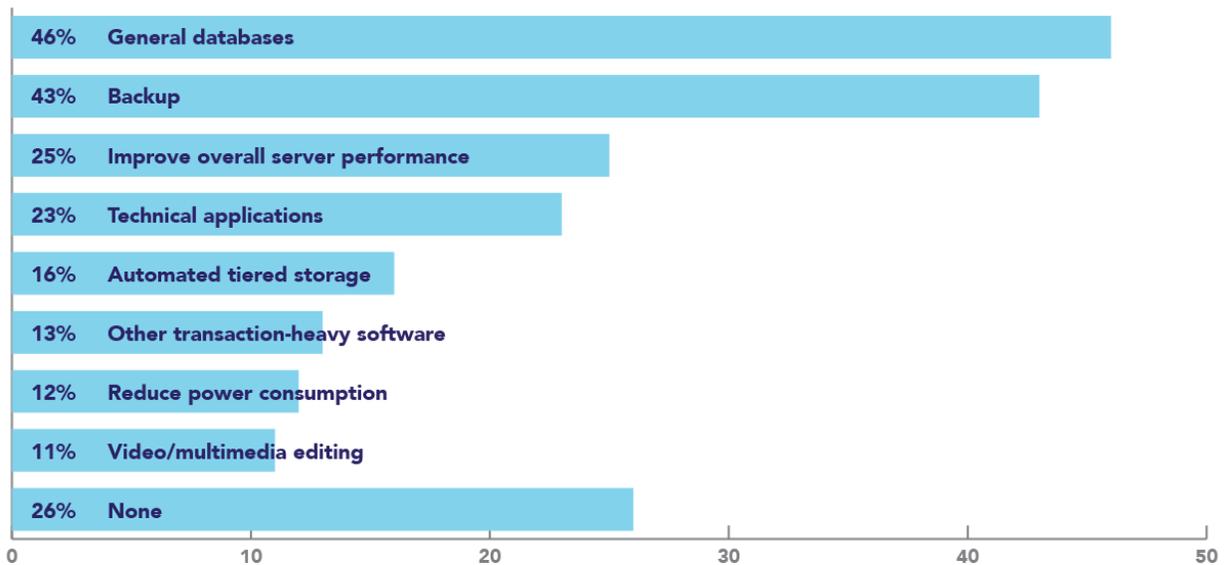
Do you use storage virtualization or software-defined storage?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August

Software-Defined Storage Plans

For which applications or storage requirements are you using or planning to use software-defined storage?



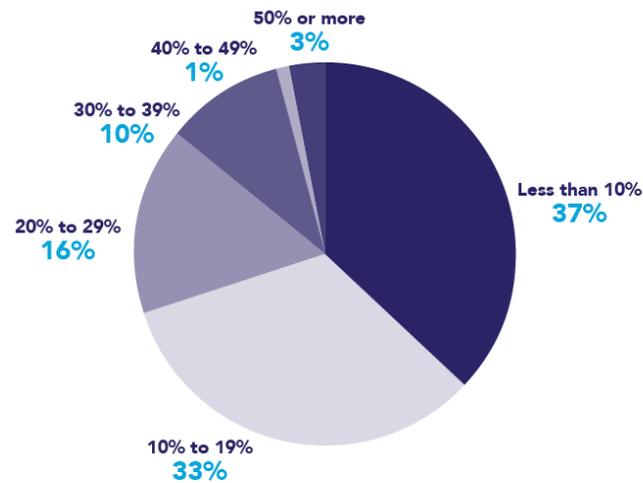
Note: Multiple responses allowed

Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Regarding spending, although 37% say storage accounts for less than 10% of their overall IT budget, 96% say storage spending is up to 39% of their IT budget. Fifty-seven percent say storage spending will increase in the next 12 months, compared to the last 12 months. Of that percentage, 22% say spending will increase more than 10%.

Storage Spending

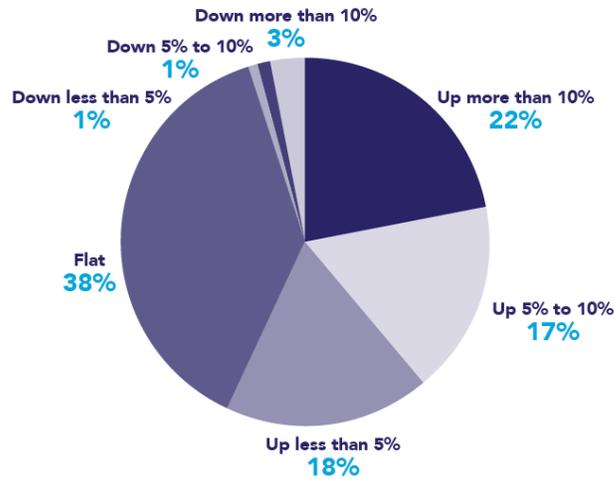
Approximately what percentage of your total IT budget is spent on storage?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Future Storage Spending

Using your best estimate, how will your organization's spending on storage in the next 12 months compare to the last 12 months?



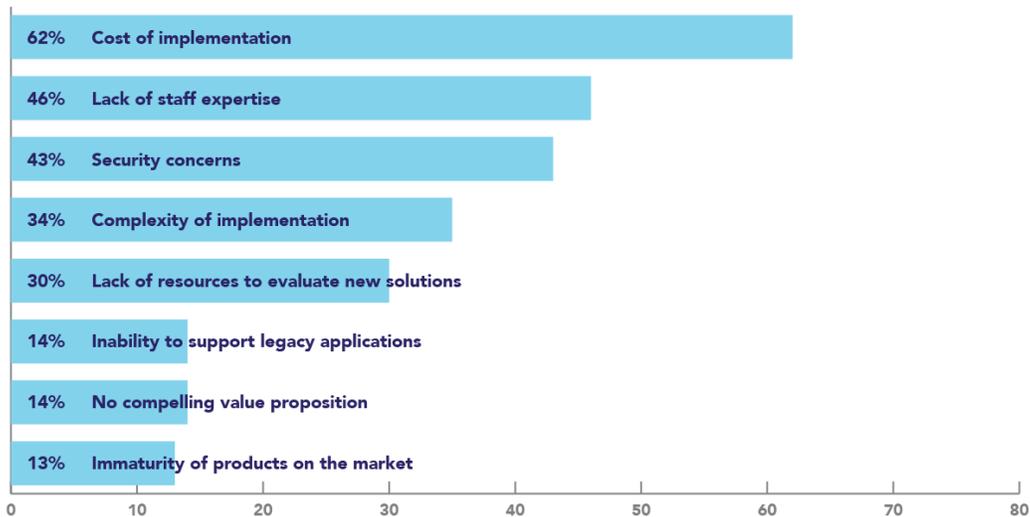
Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Forces shaping infrastructure environments

Although the overall story is one of growth, there are challenges that IT leaders must overcome. Cost of implementation tops the list, with 62% selecting it among their top three inhibitors to modernizing infrastructure. Lack of staff expertise follows at 46% and security concerns is next at 43%.

Inhibitors to Infrastructure Modernization

Which of the following are the top three inhibitors to your organization modernizing its infrastructure



Note: Maximum of three responses allowed

Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

While budget struggles, a gap in skills, and security concerns always rank high among obstacles, security looms this year against the backdrop of the recent WannaCry ransomware outbreak.

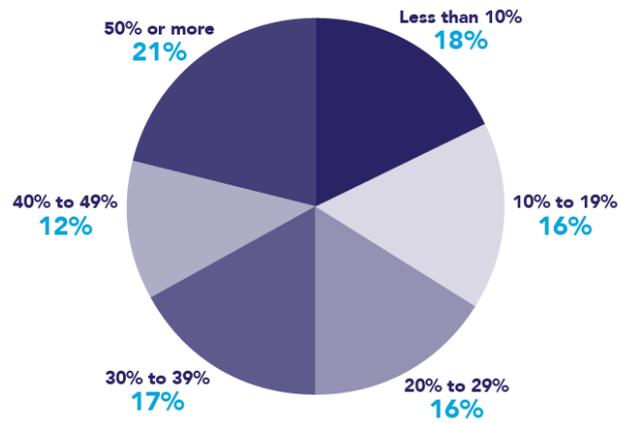
"That's the biggest worry. If we lost access to our data we would be almost dead in the water," said McEntee. Prior to the much-publicized WannaCry attack, Integrated Logistics 2000 suffered a separate ransomware attack in early 2017, according to McEntee.

Data centers: Servers still tops

When it comes to the data center, budgeting covers a broad spectrum. Eighteen percent say they will spend less than 10% on their data centers, while 31% say they will spend 50% or more of their total IT budget on data center facilities, hardware, and operations. Meanwhile, 35% say spending will be flat for the next 12 months, while 54% say spending will increase 5% or more.

Percent of Budget Spent on Data Center

Approximately what percentage of your total IT budget is spent on data center facilities, hardware (servers, storage, networks) and operations?

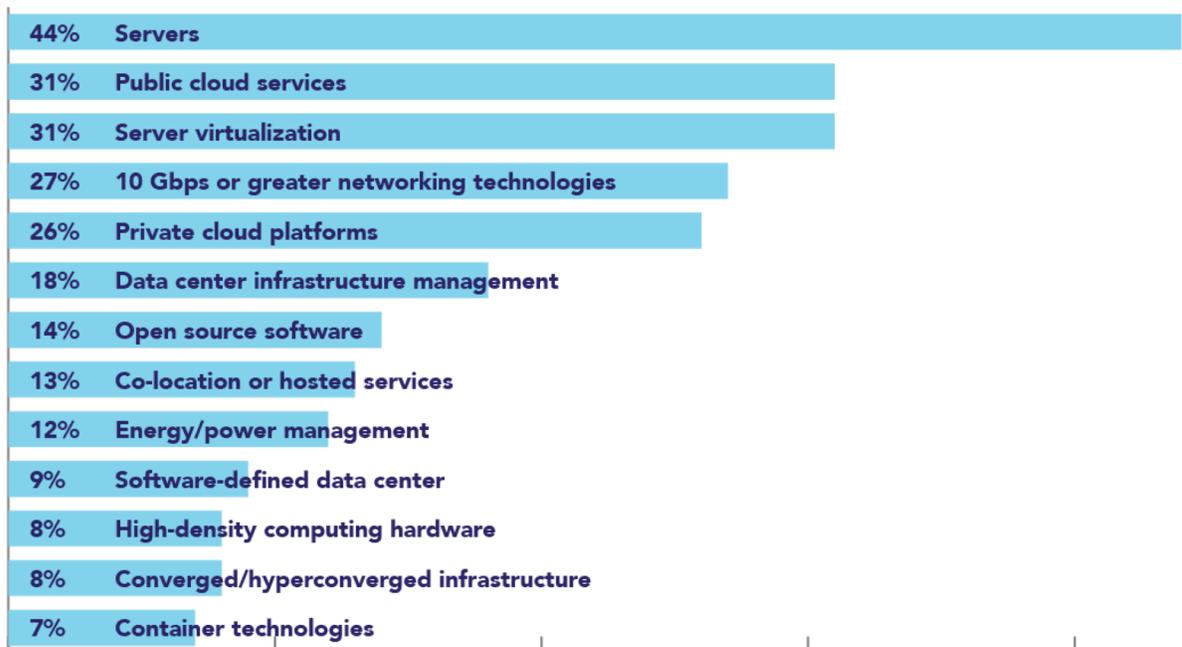


Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

In the data center, servers lead the way as the top investment for the next 12 months with 44% putting them among their top three investment priorities. Public cloud services follow with 31%, tied with server virtualization.

Data Center Planned Technologies

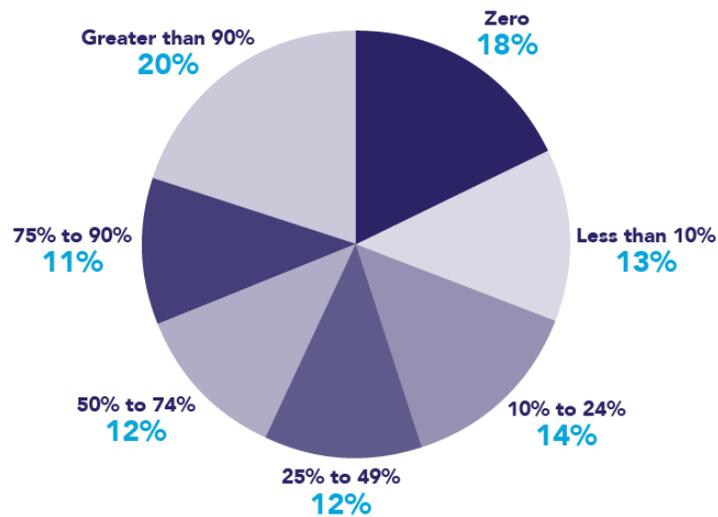
In which data center technologies does your organization plan to invest in the next 12 months?



Virtualized servers have established their place in the data center, although in widely varying degrees. While 20% say they have virtualized 90% of their servers, close to the same number (18%) say they have not yet virtualized any servers. The rest fall more or less evenly in between.

Virtualized Servers

What percentage of your organization's production servers do you expect to have virtualized in the next 12 months?

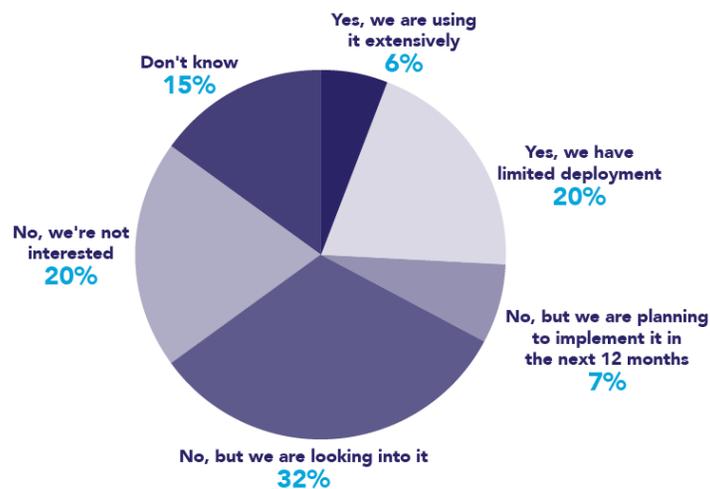


Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Regarding converged or hyperconverged infrastructure, although 20% say they are not interested, 65% are either using it, planning to use it or looking into it. As to the applications for converged or hyperconverged infrastructure, virtual desktop infrastructure (VDI) earns the most interest, at 32%, followed by general database storage (28% and high-performance computing (28%).

Converged Vs. Hyperconverged Infrastructure

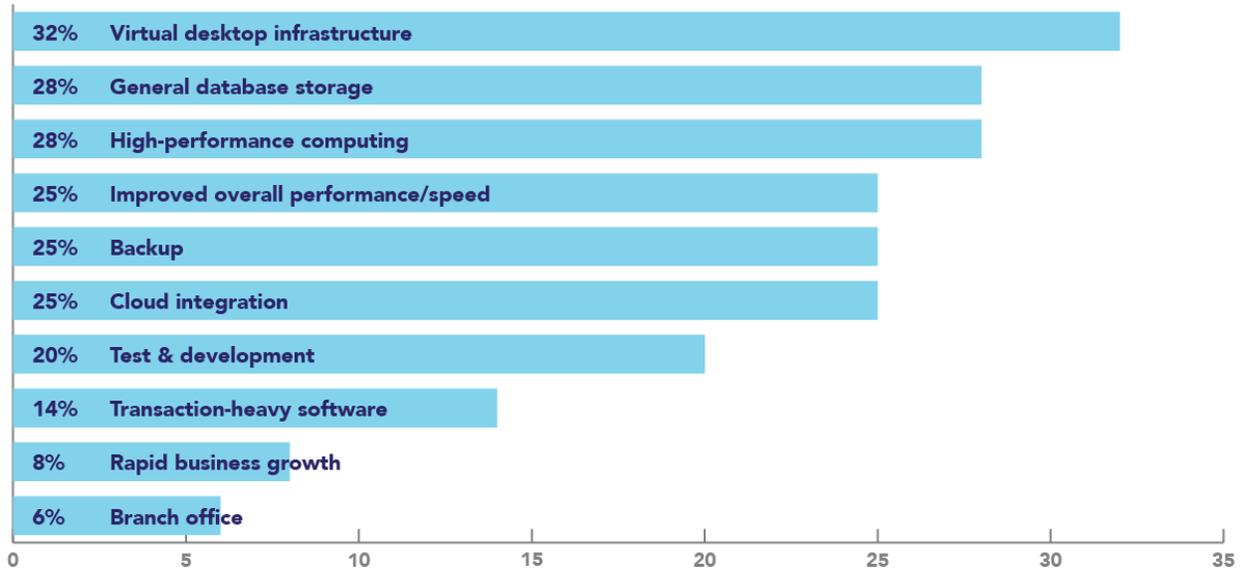
Do you use converged or hyperconverged infrastructure?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Converged Vs. Hyperconverged Infrastructure Use Cases

For which applications or use cases are you using or planning to use converged or hyperconverged infrastructure?



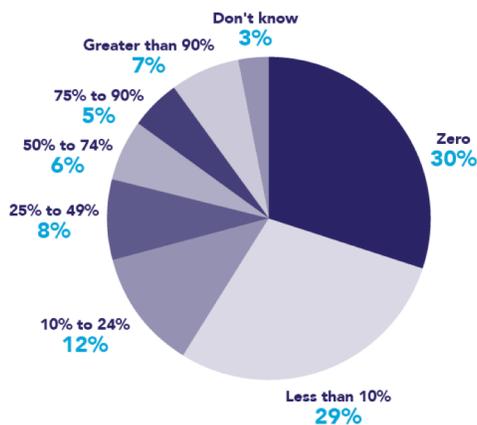
Note: Multiple responses allowed

Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

The majority of respondents are using off-premises facilities to some extent. These include a wholesale data center, collocation facility, or a managed hosting provider. 67% say they are using one or more of these third-party facilities, although 30% say they are not using any.

Systems Housed Off-Premises

What percentage of your current systems are housed in third-party facilities instead of on-premises?



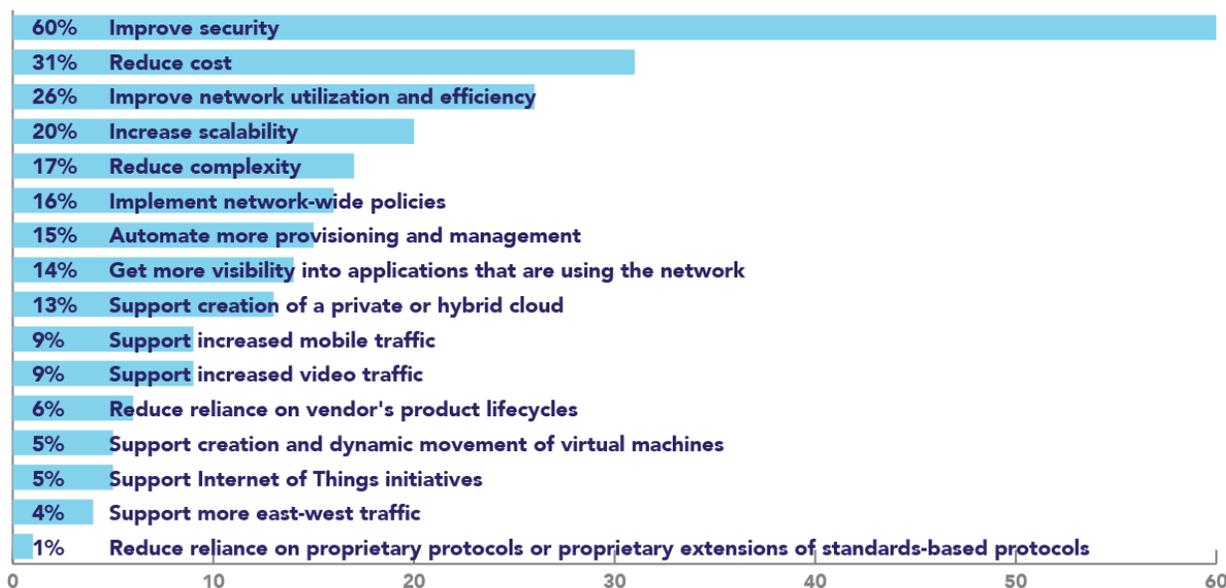
Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Networking: Security matters

By far the biggest motivator for investment in networking technology is to improve security, which gained a whopping 60% of responses among those naming their top three networking challenges. So it is no surprise that by far the leading investment priority for the coming 12 months is network security, with 59% of respondents naming it among their top three priorities. High-speed Ethernet ranks second with 29%, a strong showing indicating that the need for increased bandwidth continues unabated.

Networking Challenges

Which of the following networking challenges are driving investments in networking technology in your organization the most?

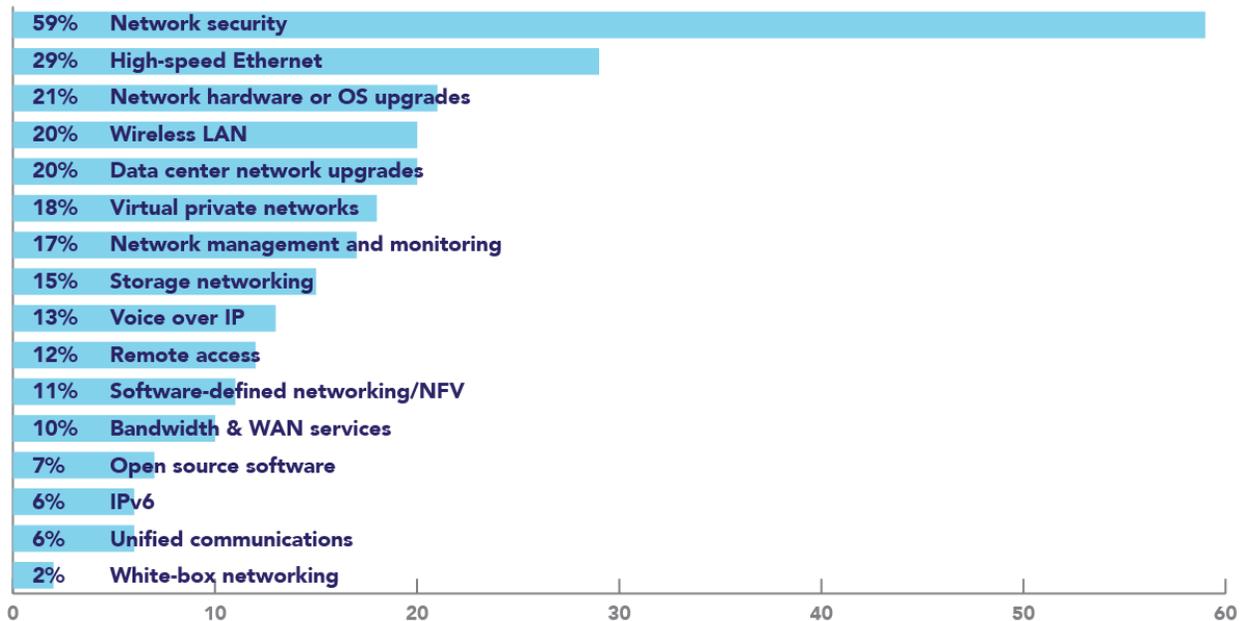


Note: Maximum of three responses allowed

Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Networking Investments

What are your organization's top three priorities for network investments in the next 12 months?



Note: Maximum of three responses allowed

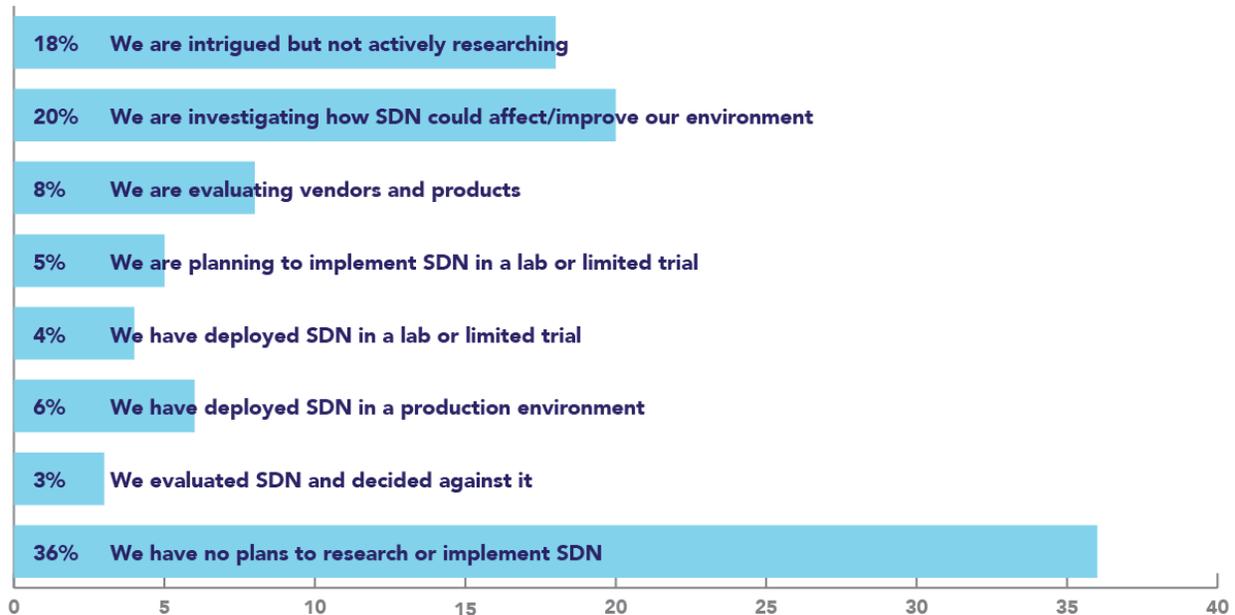
Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Clustered behind are network hardware or OS upgrades (21%), wireless LAN (20%), and data center network upgrades 20%.

The topic of software-defined networking proved an interesting subject for this survey. Although software-defined networking (SDN)/network functions virtualization (NFV) earned only 11% of responses as a top three priority, 20% say they are investigating SDN, 8% are evaluating SDN vendors and products, 5% are planning to implement SDN in a lab or limited trial, 4% have deployed SDN in a lab or trial, and 6% have deployed SDN in a production environment. And 18% say they are intrigued, but not actively researching.

SDN Implementation

Which best describes your company's current involvement with SDN technology?

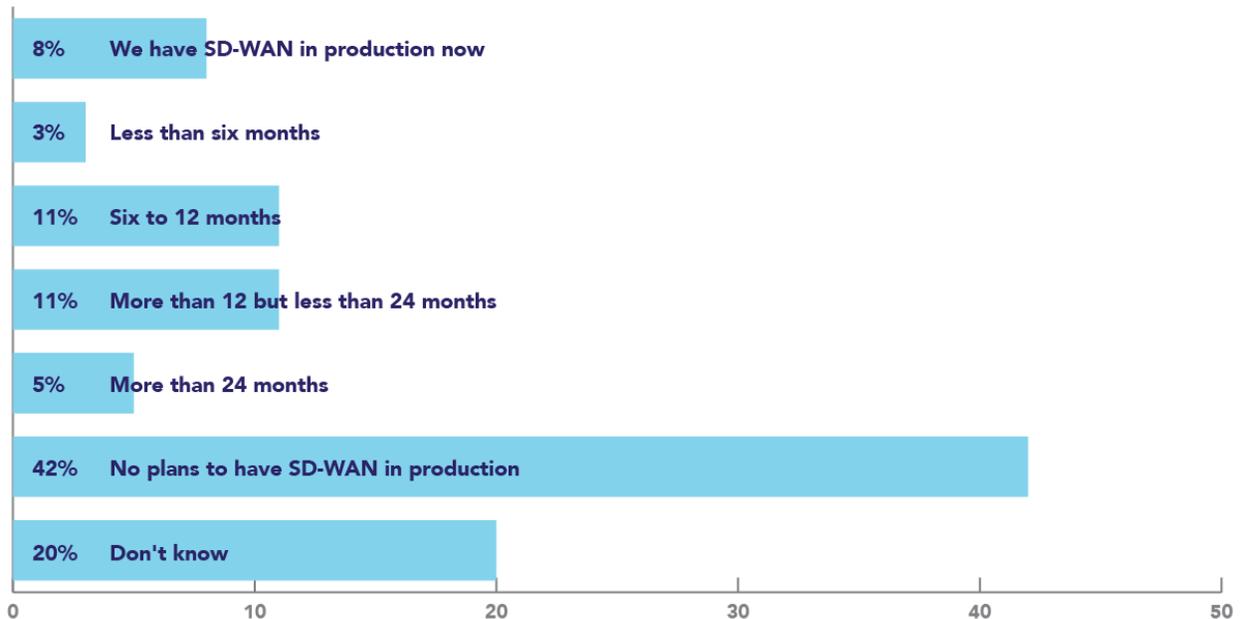


Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Beyond the data center, WAN bandwidth is poised for strong growth, as 69% say demand for WAN bandwidth is expected to increase either significantly (20%) or somewhat (49%). However, SD-WAN, the wide-area application for SDN that is generally thought to have higher deployment rates than SDN in general, garnered lukewarm interest. While 25% say they expect to deploy SD-WAN in the next 6 to 24 months, only 8% are currently using it. And 42% have no plans to put SD-WAN production in place at all. So SDN and its variations seem a low priority at present, but underlying interest is simmering.

SD-WAN Production Timeline

What is your expected timeline to have SD-WAN in production?



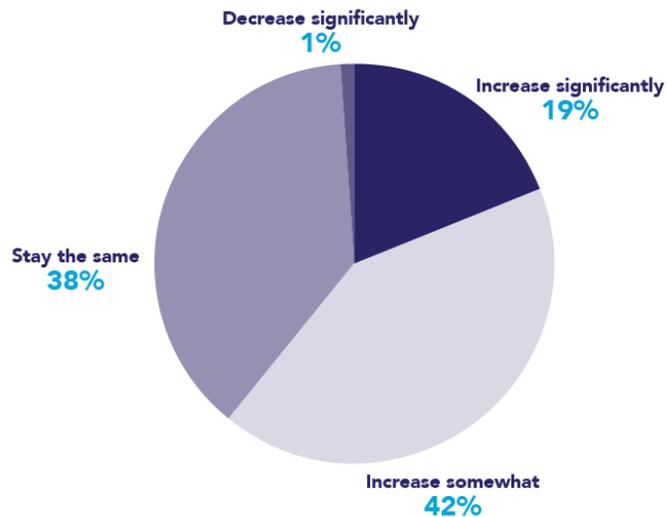
Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Wireless continues to grow

The wireless network has established itself as an essential element of the infrastructure fabric, and it is growing. In the next 24 months, 61% of respondents say wireless traffic will increase either significantly (19%) or somewhat (42%). Although 38% say wireless traffic will stay the same, only one percent say wireless traffic will decrease.

Future Wireless Traffic

In the coming 12 to 24 months, do you expect wireless traffic to increase, decrease, or remain the same?

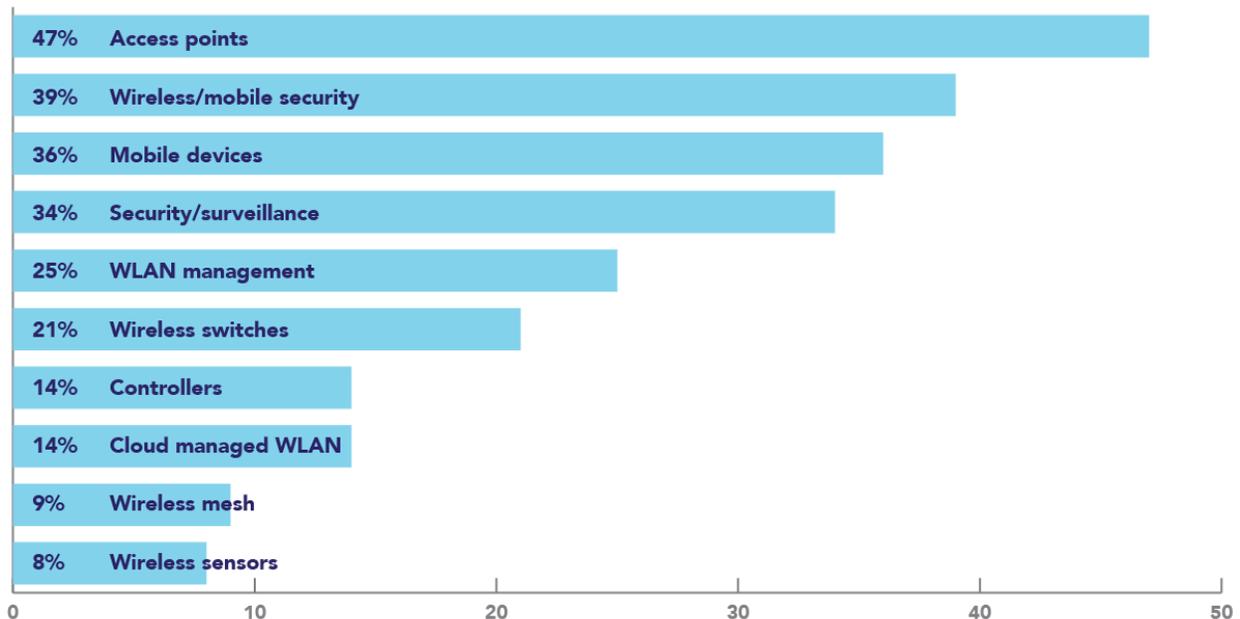


Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Investments in wireless technologies over the next 12 months run the gamut, ranging from wireless access points (47%) to wireless/mobile security (39%), mobile devices (36%), security/surveillance (34%), WLAN management (25%), and wireless switches (21%).

Wireless Investments

In which wireless products do you plan to invest in the next 12 months?



Note: Multiple responses allowed

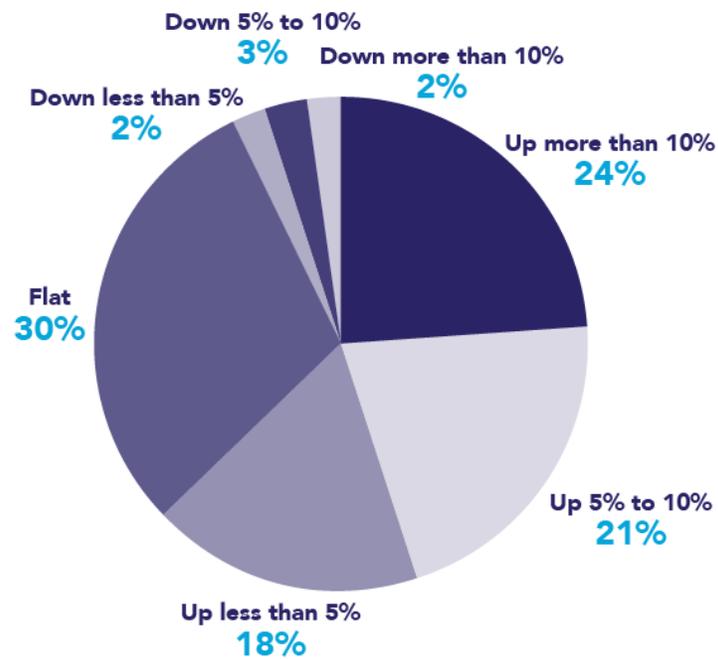
Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

This level of interest indicates that companies are committed to employees and guests operating on a mobile basis within a building or campus. It also means that the security issues that are associated with wireless networks, such as managing a variety of BYOD devices, user authentication, and keeping the guest Wi-Fi network separate from corporate Wi-Fi, are almost certainly of concern to IT leaders. As to the future, as network traffic increases, wireless networks will have to grow to accommodate it.

Appendix

IT Infrastructure Spending

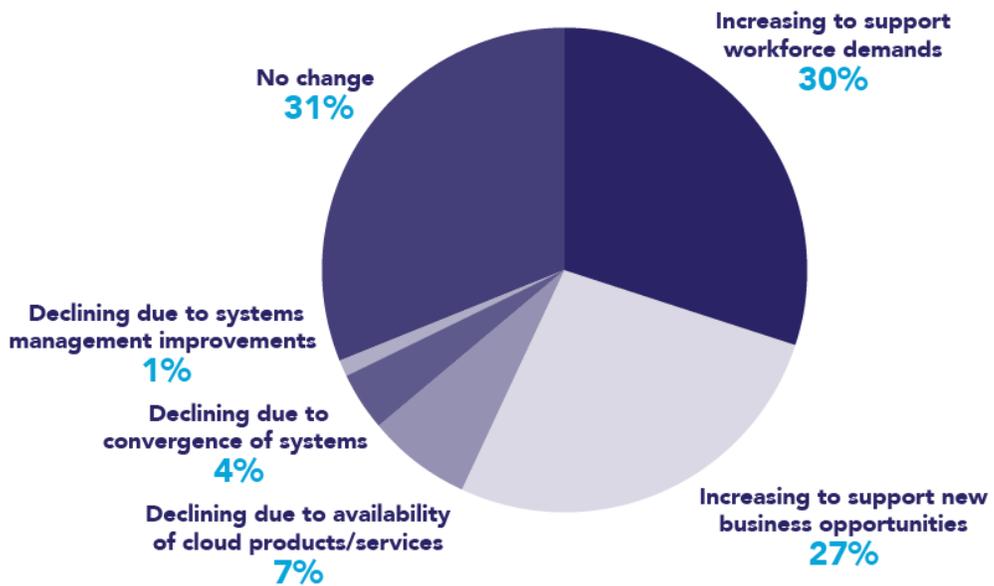
Using your best estimate, how will your organization's spending on IT infrastructure in the next 12 months compare to the last 12 months?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

IT Infrastructure Plans

How would you characterize your organization's plans to build out or support IT infrastructure in the next 12 months compared to the last 12 months?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

IT Infrastructure Budget: Maintenance Vs. Innovation

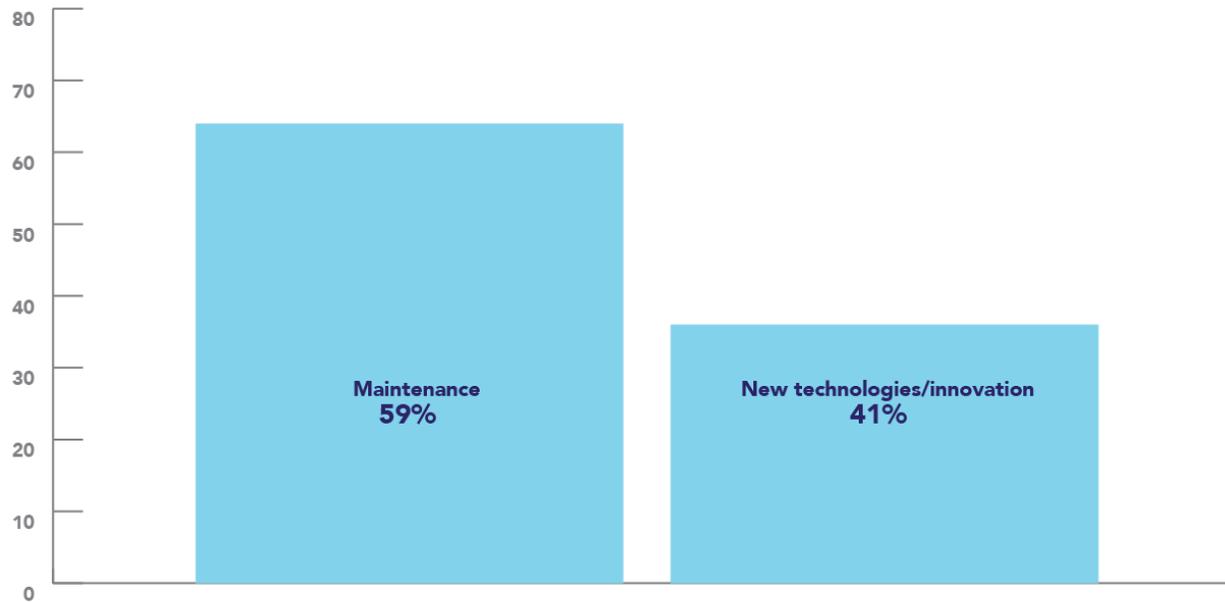
What percentage of your IT infrastructure budget is currently spent on maintenance of existing systems versus adoption of new technologies and innovation in the past 12 months?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

IT Infrastructure Budget Breakdown Looking Forward

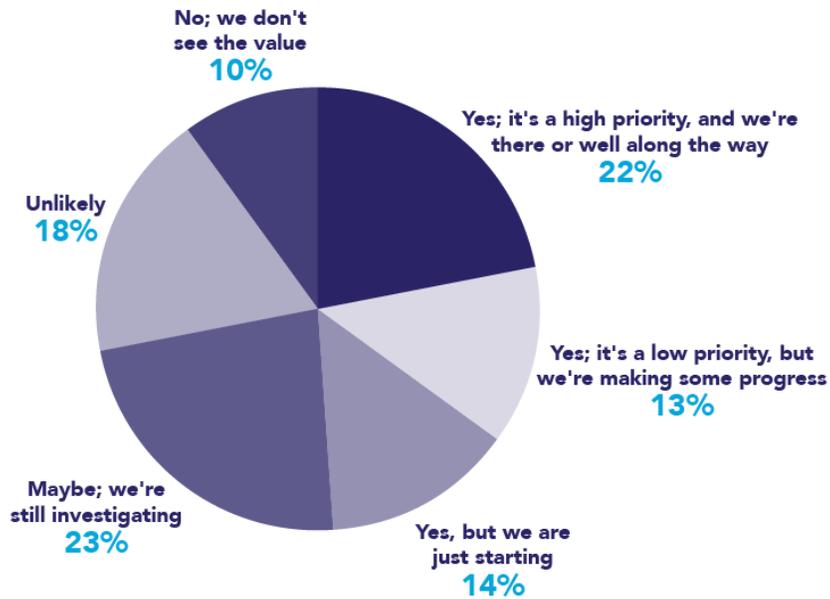
Going forward, what percentage of your IT infrastructure budget will be spent on maintenance of existing systems versus adoption of new technologies and innovation in the coming 12 months?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Private Cloud Usage

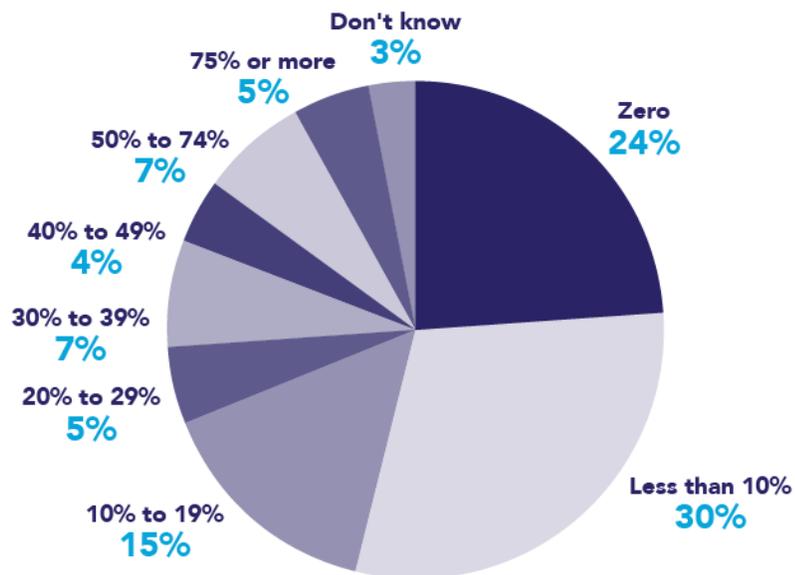
Is your organization using or considering a private cloud?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Public Cloud Usage

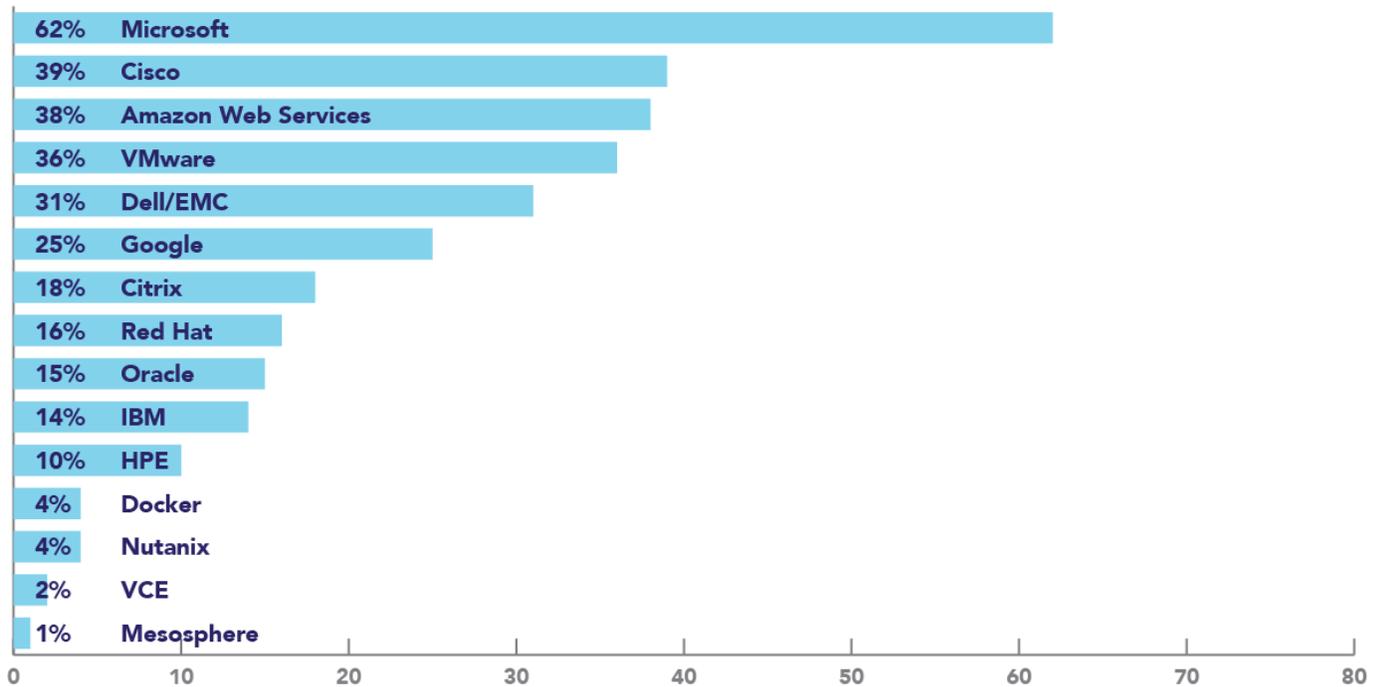
What percentage of your new applications in the next 12 months will use public cloud or SaaS instead of dedicated, private systems?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Data Center Vendors

Which vendors do you currently use for your data center environment, or plan to in the next 12 month

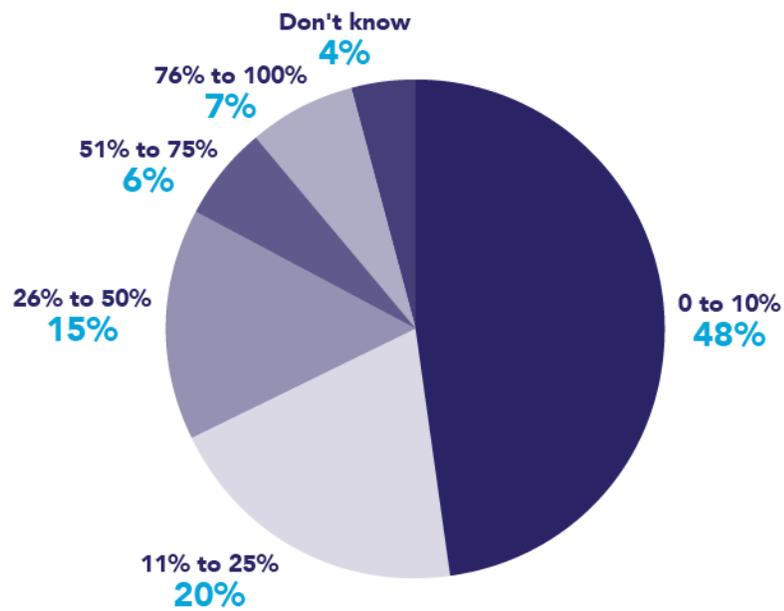


Note: Multiple responses allowed

Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Percent of Storage Hosted in the Cloud

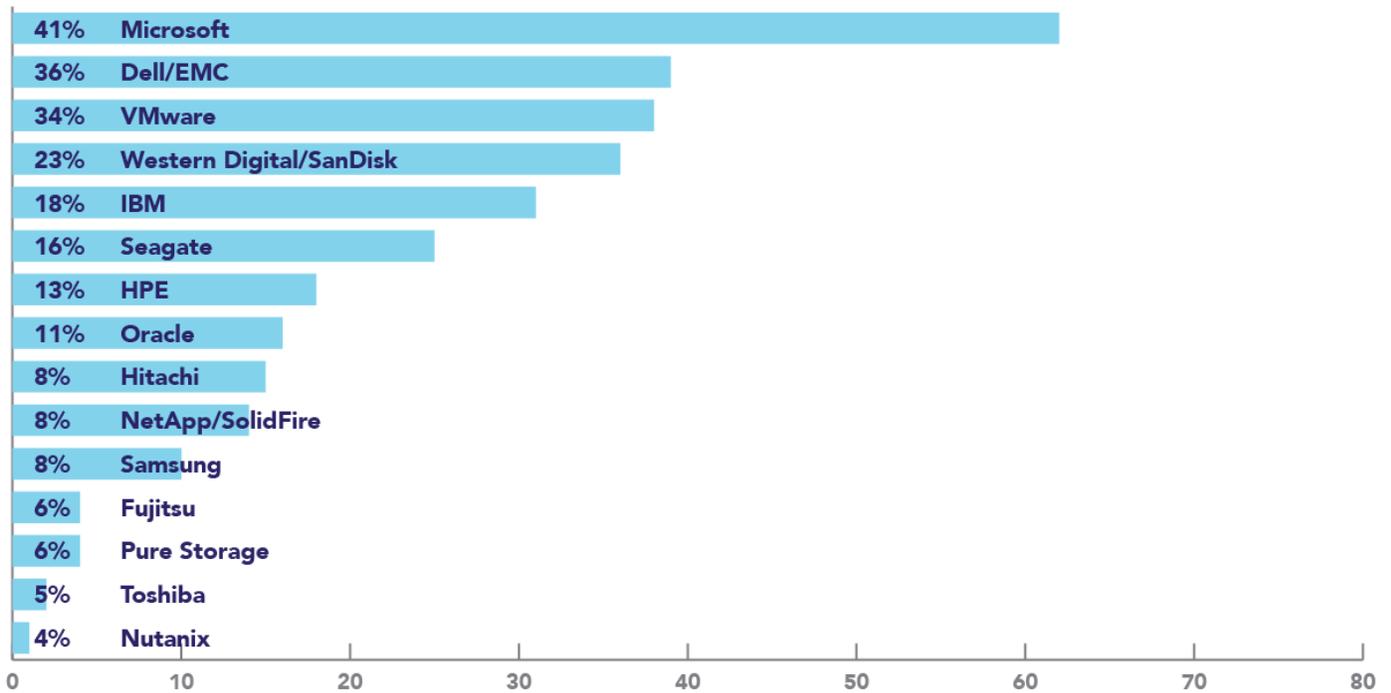
What percentage of storage capacity is hosted in cloud services instead of internal systems?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Storage Vendors

Which vendors do you currently use in your storage environment, or plan to in the next 12 months?

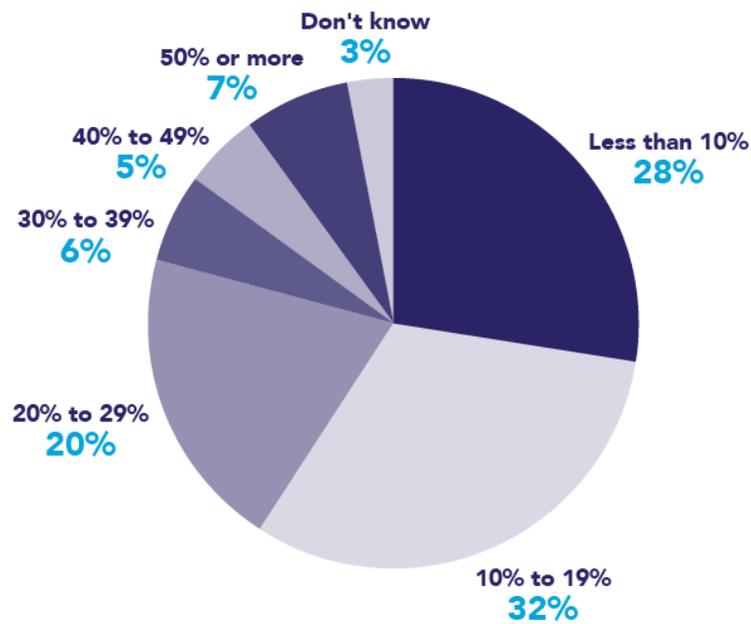


Note: Multiple responses allowed

Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Percent of Budget Spent on Networking

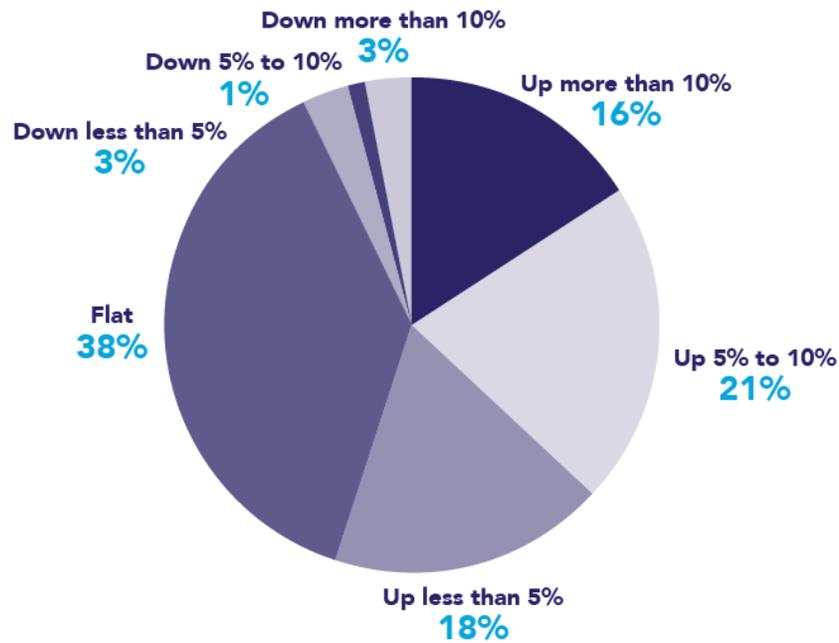
Approximately what percentage of your total IT budget is spent on networking, including wireless and wide area networking?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Networking Spending Plans

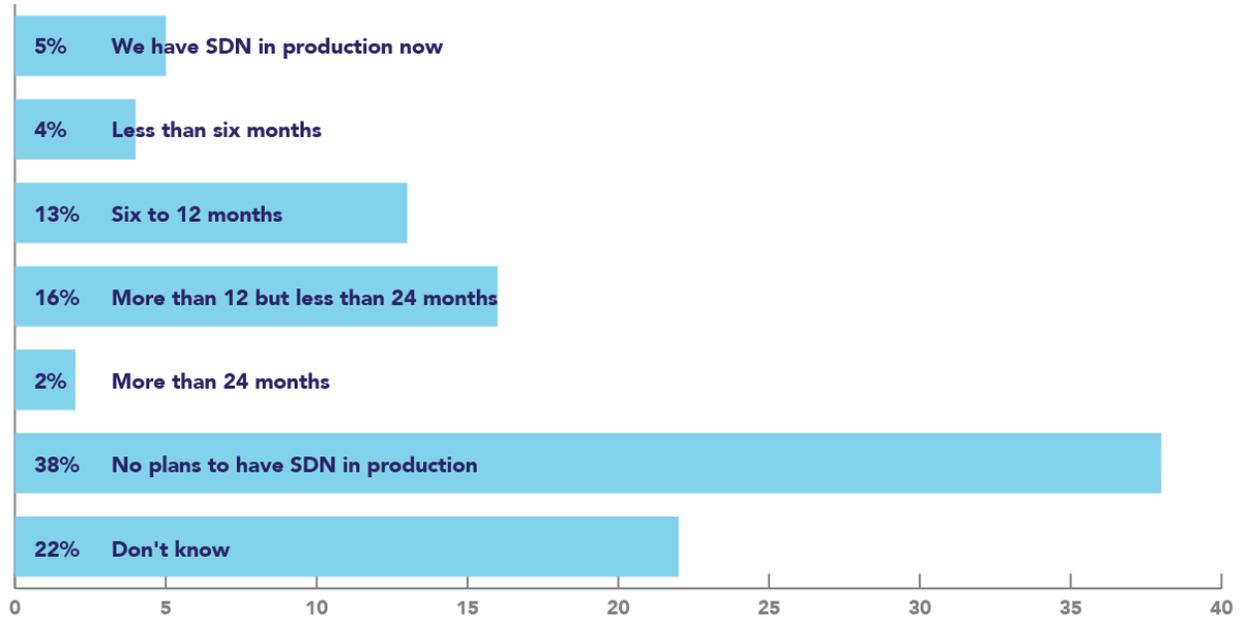
Using your best estimate, how will your organization's spending on networking, including wireless and wide area networking, in the next 12 months compared to the last 12 months?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

SDN Timeline

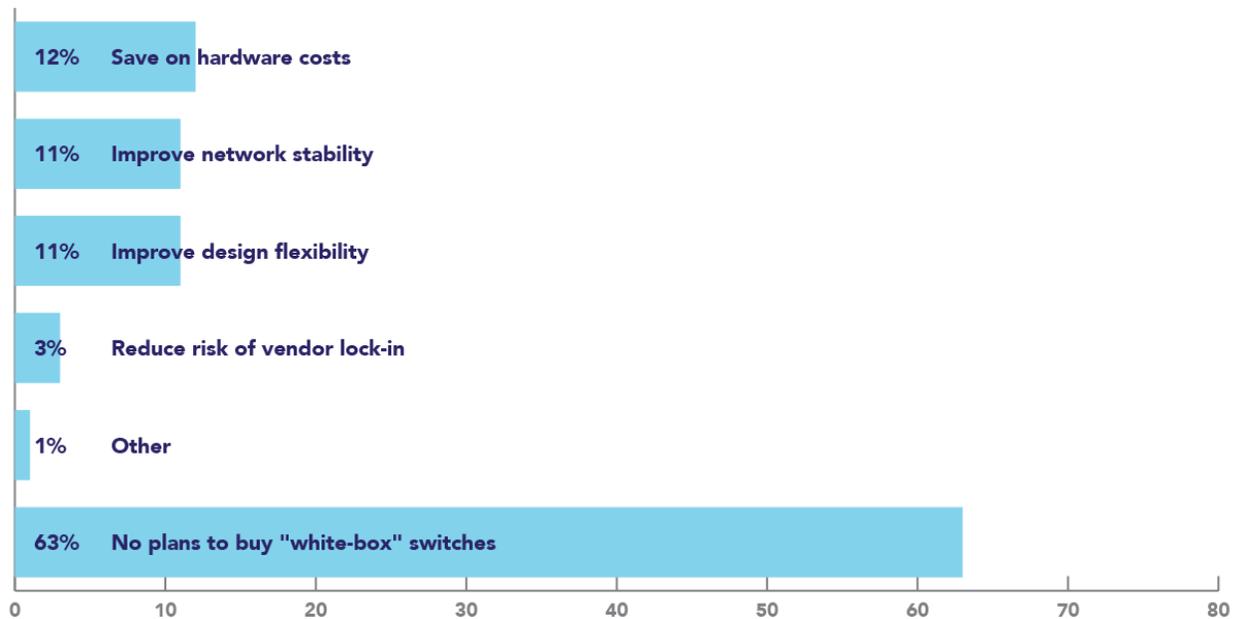
What is your expected timeline to have SDN in production?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

White-Box Switches

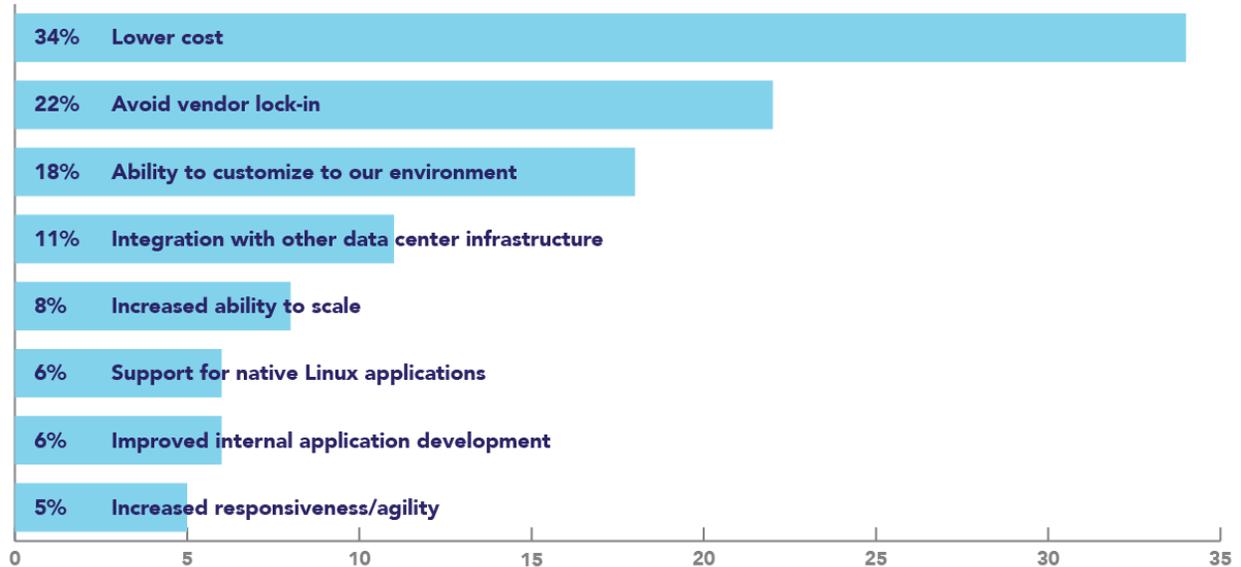
If you currently or plan to buy generic "white-box" switches, what's your top motivator?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Open-Source Network

If you currently or plan to implement open-source network operating system, what are your top motivators?

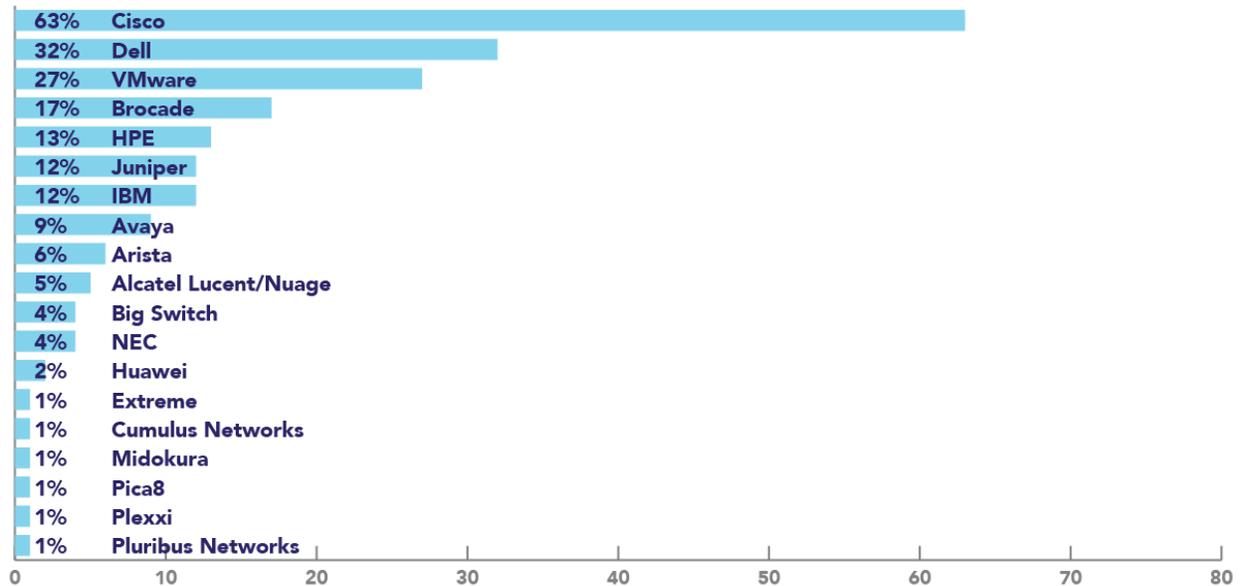


Note: Maximum of three responses allowed

Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Wired Networking Vendors

Which vendors do you currently use in your wired networking environment, or plan to in the next 12 months?

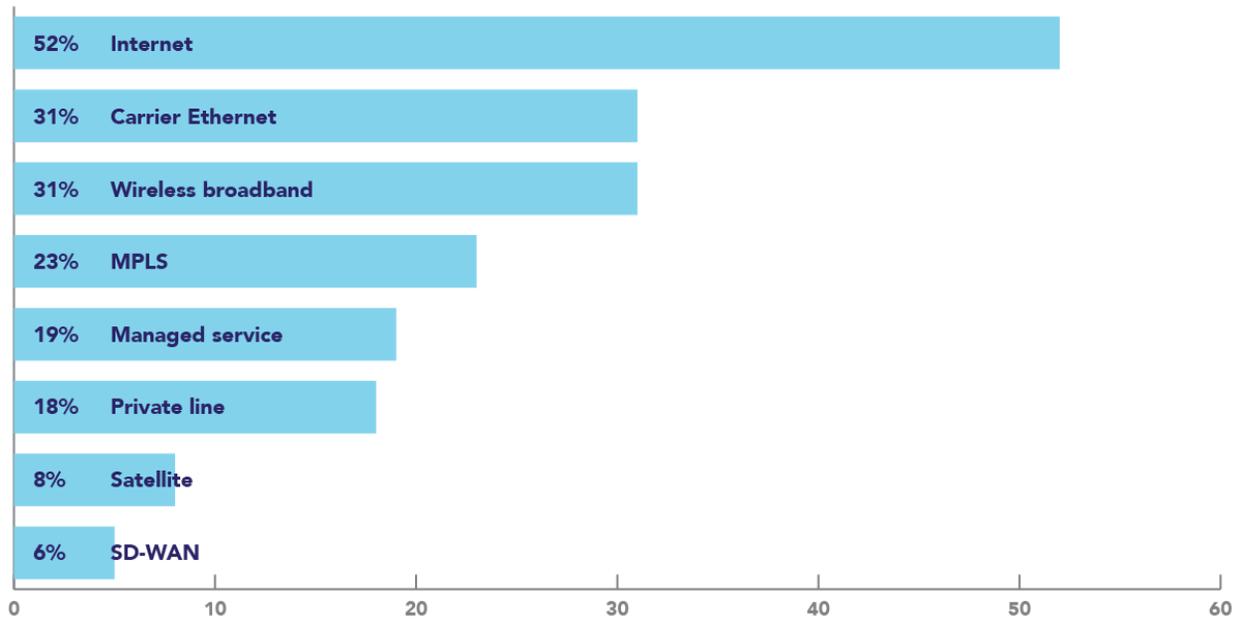


Note: Multiple responses allowed

Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

WAN Connectivity

What type of WAN connectivity does your organization currently use?

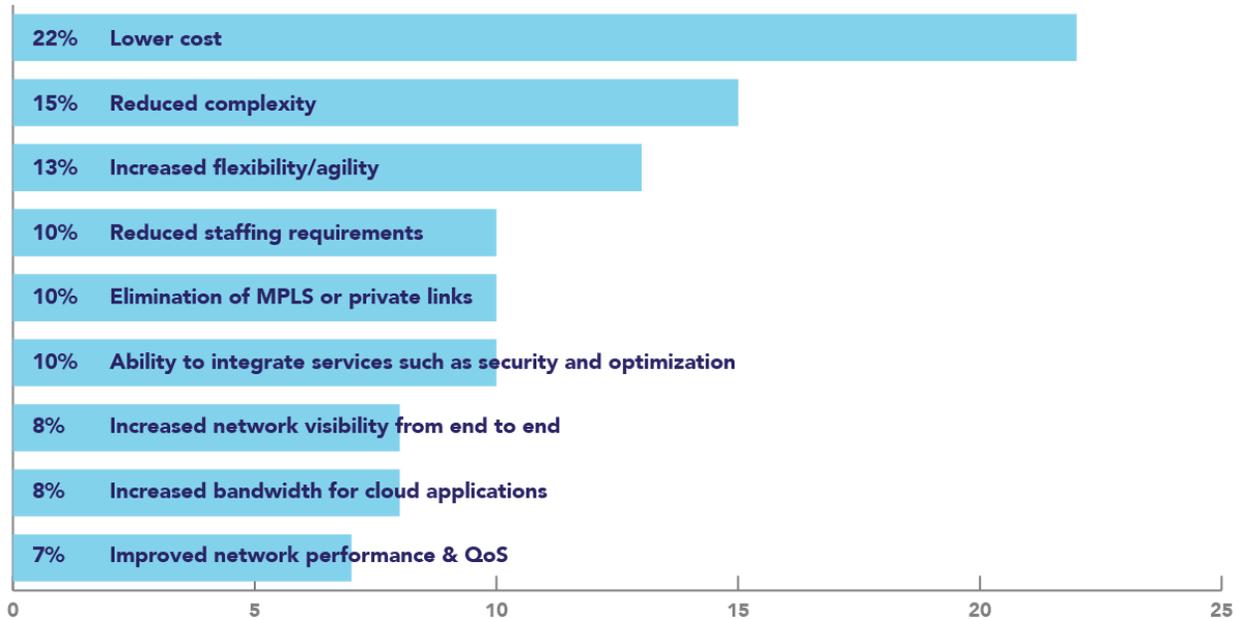


Note: Multiple responses allowed

Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

SD-WAN Considerations

What are your biggest reasons for considering or implementing SD-WAN?

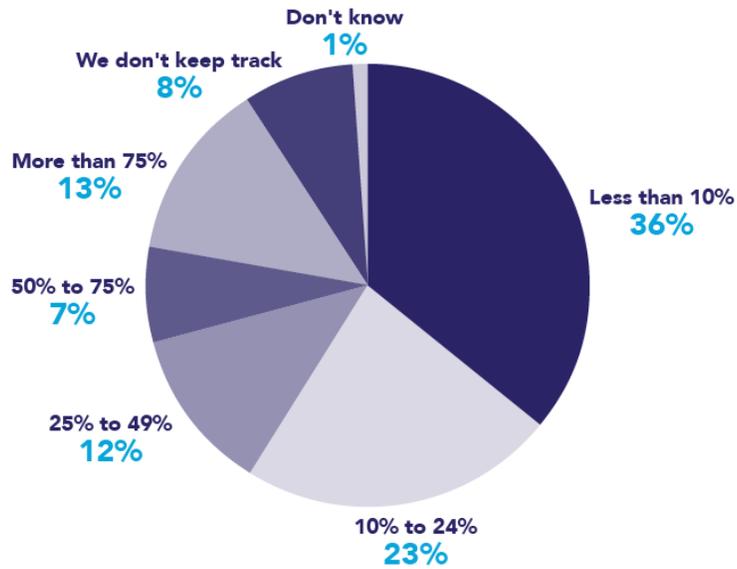


Note: Maximum of three responses allowed

Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Wireless Network Access

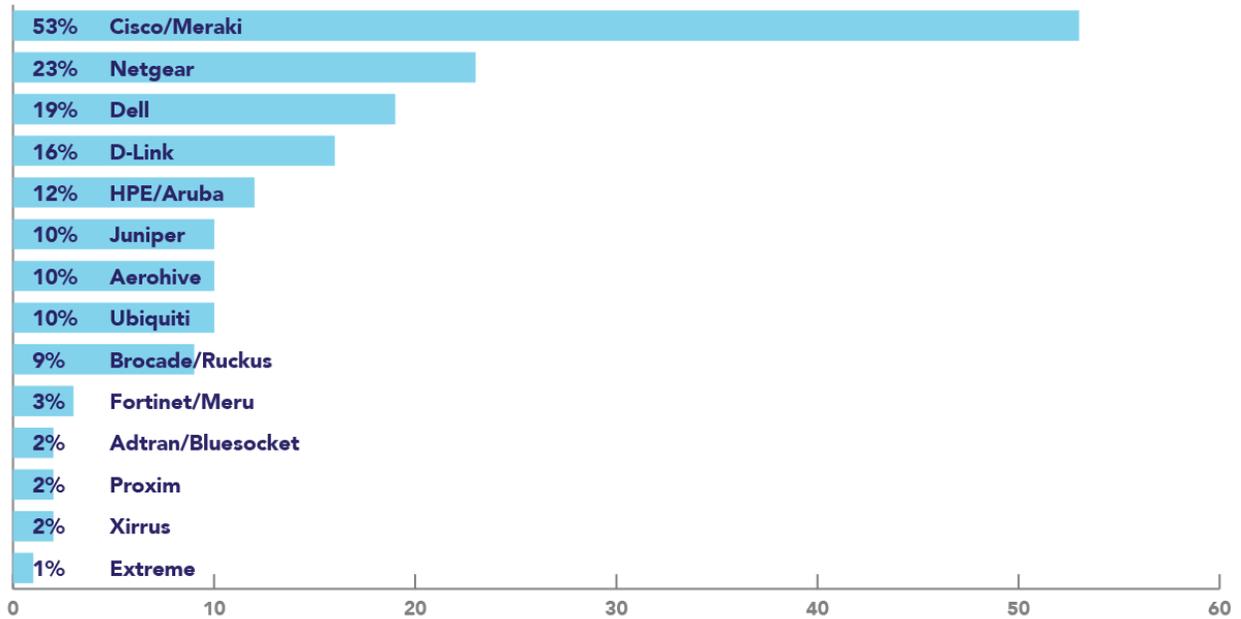
What percentage of your network traffic is sent or received over wireless network access?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Wireless Vendors

Which wireless vendors are in use at your organization?

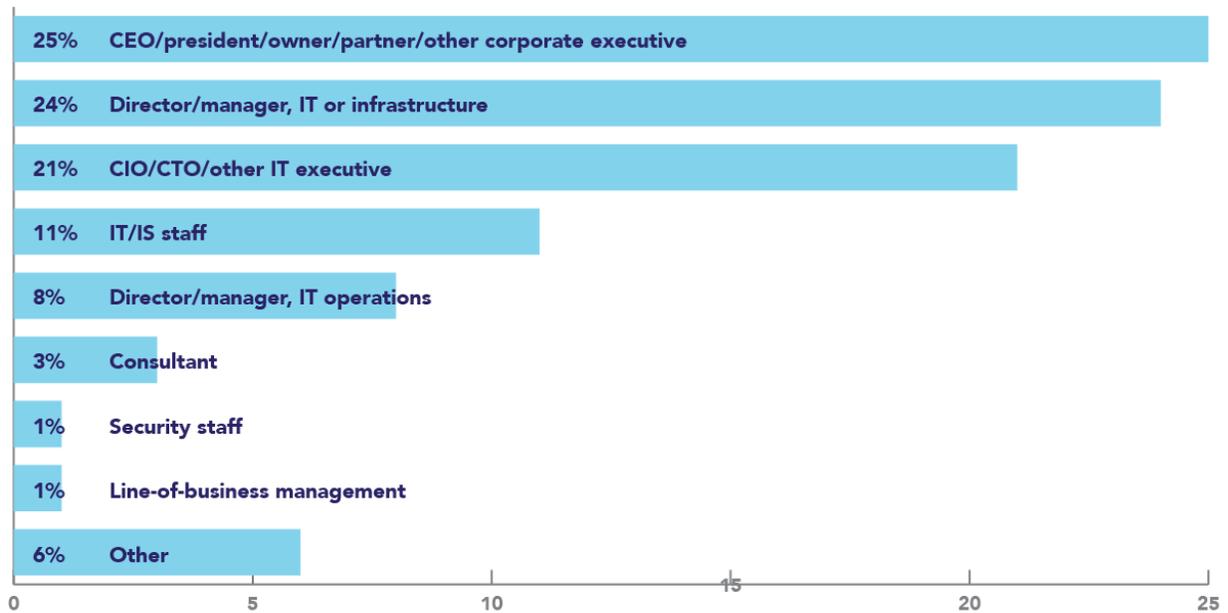


Note: Multiple responses allowed

Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Respondent Job Title

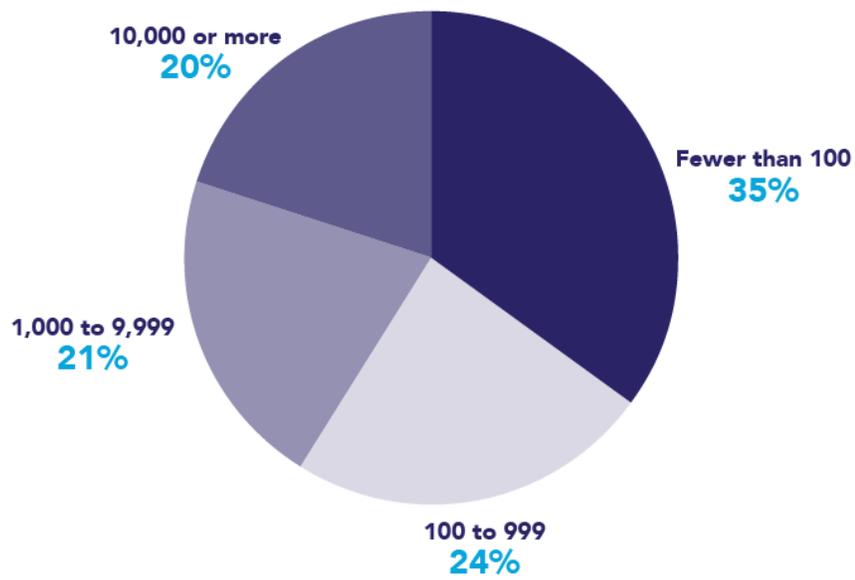
Which of the following best describes your job title?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Respondent Company Size

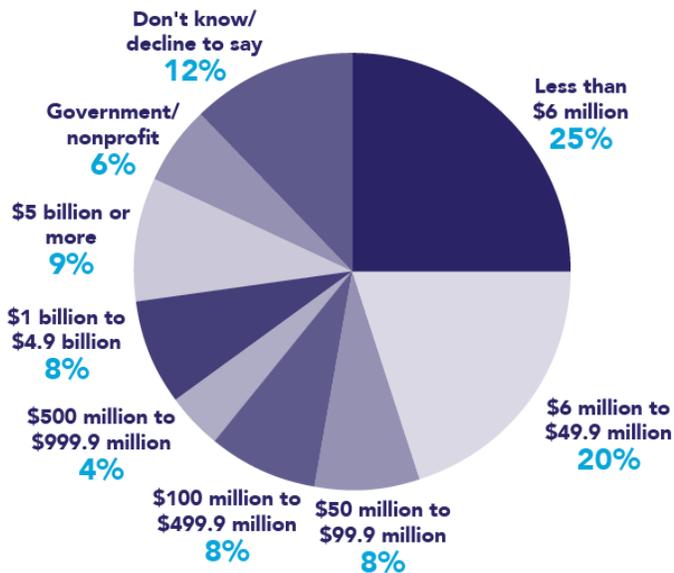
How many employees are in your organization in total?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Respondent Company Revenue

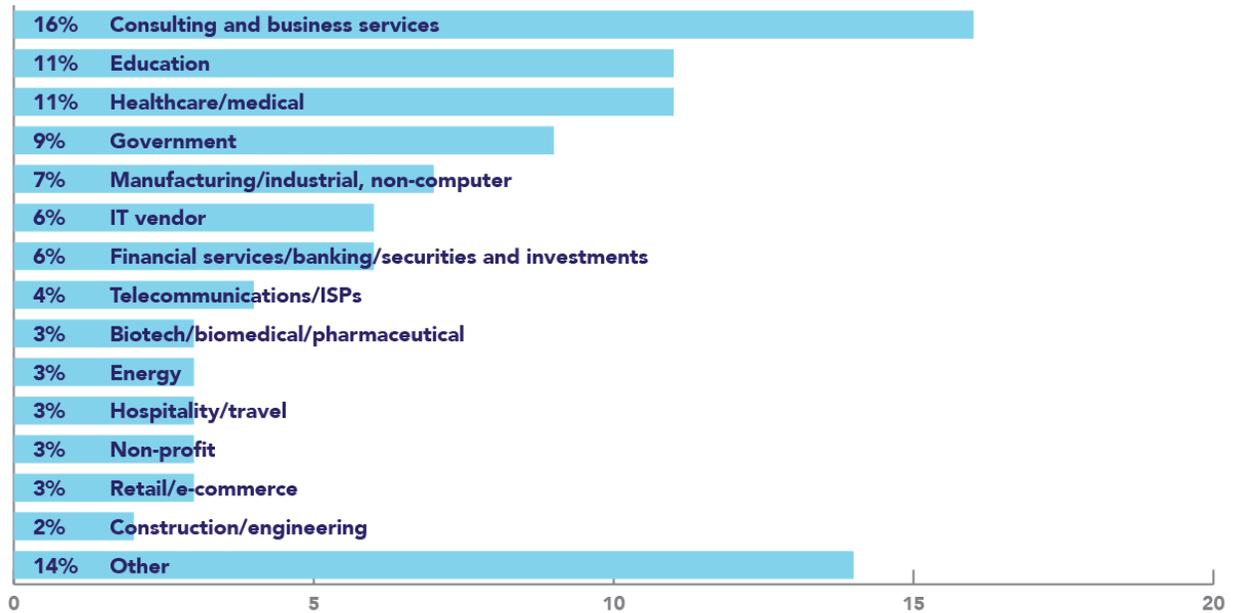
Which of the following dollar ranges includes the annual revenue of your entire organization?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017

Respondent Industry

What is your organization's primary industry?



Data: Interop ITX survey of 150 respondents involved in purchase or management of infrastructure systems, August 2017