

White Paper

Digital-First Strategy Underpins Business Resiliency

Sponsored by: Lumen

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IDC OPINION

Digital enterprises have significant competitive advantages as they provide compelling customer experiences with their ability to serve customers seamlessly. These enterprises have the ability to provide excellent experiences in both virtual and physical worlds, spanning sales, operations, and support. Enterprises embarking on a similar digital journey are challenged with upgrading legacy technologies, dealing with regulatory requirements, and mitigating operational risks. The question arises on how best to implement a digital strategy in light of these challenges. This white paper explores the technology underpinnings of a digital-first strategy and how organizations can benefit from partnerships with service providers to ensure a successful journey.

SITUATION OVERVIEW

Enterprise Business Priorities Drive Digital Strategy

According to IDC research, 50% of companies have embarked on a digital-first strategy to enhance digital resiliency. However, enterprises also face additional challenges in aligning their IT resources and overall mission. Enterprises have identified their top business priorities in general as improving operational efficiency (41%) and employee productivity (37%).

These priorities reflect the need for agility and flexibility to mitigate risk in the face of a diverse range of disruptions, such as economic issues, supply chain issues, and shifting consumer demand and engagement requirements, as well as the ongoing COVID-19 pandemic. A digital-first strategy also means enhancing customer engagement and experience, leveraging innovation and differentiation to stand out from the competition.

One key impact of the pandemic is that in the face of staff and skills shortages, enterprises and public institutions were forced to accelerate the pace of digital transformation. Companies are upgrading legacy infrastructure and migrating applications and data to the cloud while pivoting to the future to meet the new challenges and setting new guardrails to face disruptions of the future. According to the CTO of a large school district: *"While we started the digital transformation process prior to 2020, we accelerated the rollout of laptop computers to students to implement distance learning at home and upgraded our network and security to manage virtual instruction while also leveraging teachers from outside the school district to manage teacher shortage."*

However, the accelerating adoption of cloud is a complex process that spans a wide range of IT and networking platforms. While a few large entities can manage this process in-house, most enterprises

require a tightly orchestrated coterie of partners to assist with migration of software and infrastructure while enhancing, updating, and even automating business processes. This must be done within the context of a secure environment while managing the regulatory and compliance issues important to each vertical.

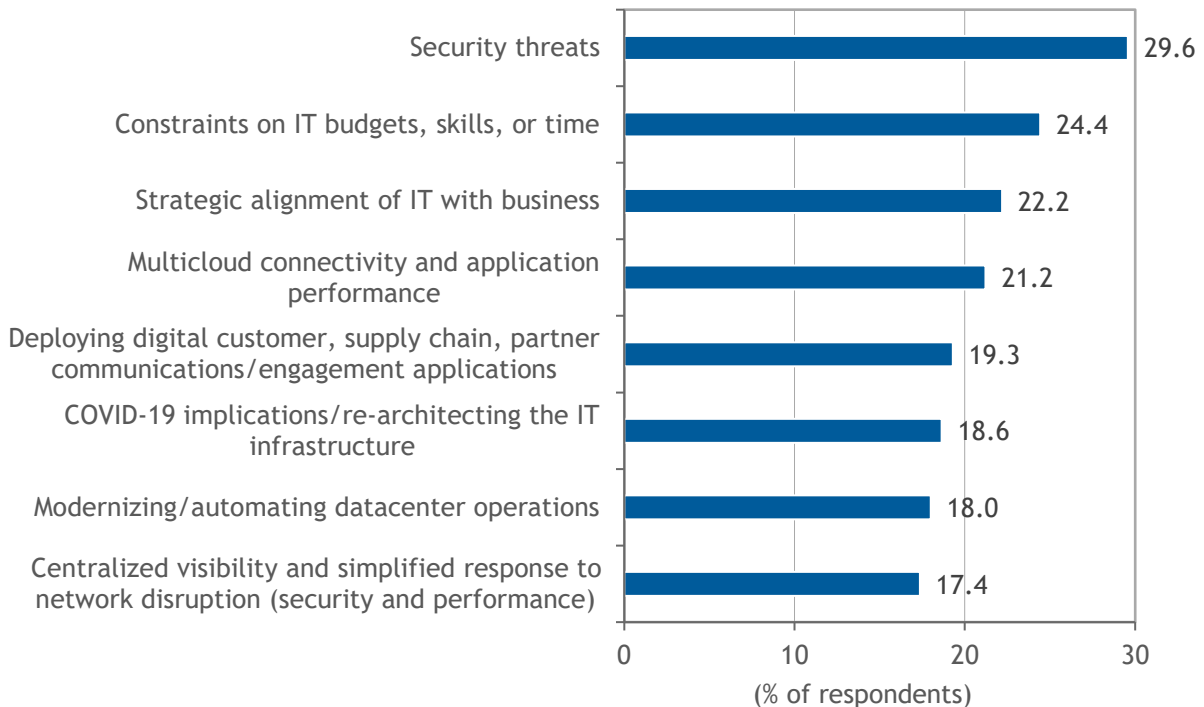
However, challenges persist. As shown in Figure 1, aside from security threats, which remain the top priority for companies over the next three years, managing IT budget constraints and the skills shortage is of critical importance and concern for enterprises. As companies move forward with a digital-first strategy, IT departments are tasked with doing more with less resources, amid a severe skills shortage. Companies are also in the midst of refining and implementing hybrid work policies, which adds an additional level of complexity.

Other key challenges include matching IT technology investments with business priorities, which can change dramatically depending on a myriad list of social and economic disruptions. As companies accelerate the adoption of cloud-based applications, they are also implementing a hybrid and multicloud strategy leveraging private cloud and multiple public cloud platforms. In this scenario, orchestrating the consistent performance of applications is critical to internal and external communications.

FIGURE 1

Network Challenges

Q. What are the biggest IT or network challenges for your organization over the next three years?



n = 311

Source: IDC's *Lumen – Adaptive Networking Survey*, March 2022

In March 2022, IDC conducted research with medium-sized and large organizations (with 500+ employees) in the United States and Canada, which was sponsored by Lumen. Respondents were decision makers, influencers, or users for a number of advanced networking technologies. Respondents were from one of the following industries: education, finance, healthcare/pharma, manufacturing, public sector, or retail. Respondents provided insights on IT infrastructure and networking issues impacting implementation and/or transformation to digital platforms, which included migration to the cloud (hybrid and multicloud adoption), edge compute, software-defined networking (SD-WAN, network as a service [NaaS], and SASE), cloud access, secure network access for remote locations and IoT, and other IT functions. IDC conducted 311 web surveys and followed up with 12 in-depth interviews, including two interviews per vertical market.

The Importance of Networking Providers as Strategy Partners

One of the major themes emanating from the Lumen survey was the positive perceptions among enterprises of the role network providers play as a strategy partner for their IT operations. Organizations have a proactive and partner-oriented view of network technology, seeing it as a solution rather than a tool. Companies are most likely to view their networks as communications platforms that require the agility and flexibility to rapidly scale up to meet business conditions.

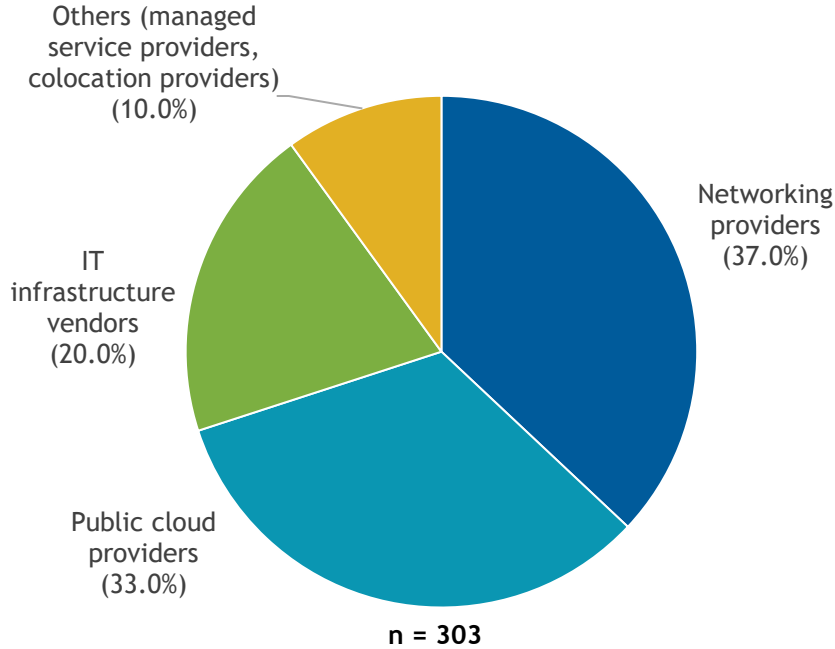
Another key finding is the role of networks in aiding security threats; surveyed organizations said real-time visibility of network events provide a first line of defense against intrusion and other potential security threats. Most importantly, a proactive networking partner can simplify the task of managing multicloud and geographically distributed networks. One of the key pain points mentioned by one CIO is the *"requirement for a network provider that can provide visibility and comprehensive management of multiple disparate local last mile partners."* This managed service capability can save enterprises significant costs and personnel resources that managing multiple regional network providers requires.

While public cloud providers can offer broad-based IT services that help companies host applications in the cloud, enterprises are hesitant to partner exclusively with public cloud platforms (see Figure 2). While companies prefer the control of private cloud for managing sensitive data, a hybrid cloud architecture offers greater flexibility. However, cloud networking can be cost prohibitive. According to IDC survey data, enterprises look to networking providers as their most strategic technology partner when it comes to implementing a digital-first strategy. Networking providers offer a wide range of hybrid networking options and vendor partnerships to facilitate a digital-first strategy. These options include broadband and fiber as well as SD-WAN and cloud access services and both private and public cloud access services. One request of enterprises is that network providers need to continue to improve the cost and provide innovative solutions to compete with IT infrastructure vendors and systems integrators.

FIGURE 2

Choice of Strategic Technology Partners

Q. Which of the following will be your organization's most strategic technology partner when it comes to implementing a digital-first strategy?



Source: IDC's *Lumen – Adaptive Networking Survey*, March 2022

Digital Infrastructure Is a Strategic Imperative for Enterprise Decision Makers

It is no surprise that most enterprises include implementing a digital strategy among their top 3 business priorities (see Figure 3). The survey also indicates that adopting a digital strategy aligns best with the following initiatives:

- Innovation and the ability to deliver innovative customer experiences
- Unified security to effectively address new threats
- Hybrid work involving redefining processes, technologies, and policies to adopt hybrid-first work models

FIGURE 3

Top Business Priorities

Q. What are your organization's top 3 business priorities?



n = 303

Source: IDC's *Lumen – Adaptive Networking Survey*, March 2022

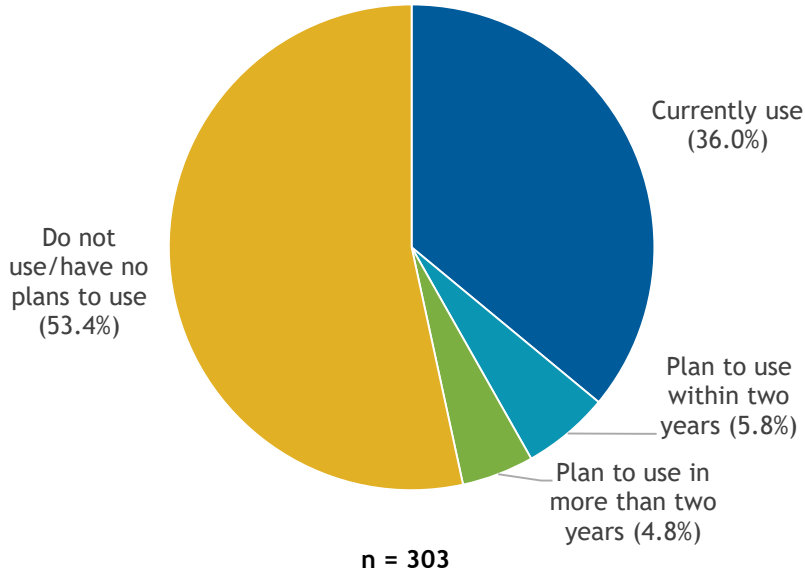
A key underpinning of a digital-first strategy is implementing network transformation. Network transformation enables business agility and improves scale to address unforeseen demands for networking traffic and utilization. "Our biggest requirement is stability in terms of basically the way that we operate. We have to make sure that we have reliability and resiliency," said a CTO of a large U.S. bank.

Software-defined architecture or SD-WAN is the enabling technology for network transformation, and 42% of surveyed enterprises indicated that they are currently using or planning to use it in the next two years (see Figure 4). A large set of those enterprises (53%) plan on integrating cloud-based security with SD-WAN, confirming interest in the emerging SASE solution stack (see Figure 5). The enterprises not planning on implementing SD-WAN are contending with budgetary restrictions, lack of internal support resources, or perceived lack of business benefits.

FIGURE 4

SD-WAN Adoption

Q. Does your organization use or plan to use SD-WAN within the next two years?

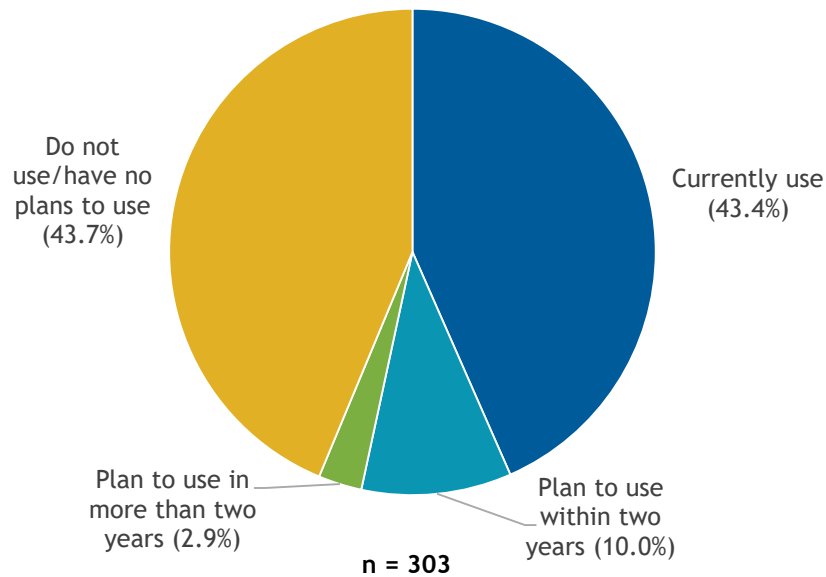


Source: IDC's *Lumen – Adaptive Networking Survey*, March 2022

FIGURE 5

SASE Adoption

Q. Does your organization use or plan to use SASE cloud-based security within the next two years?



Source: IDC's *Lumen – Adaptive Networking Survey*, March 2022

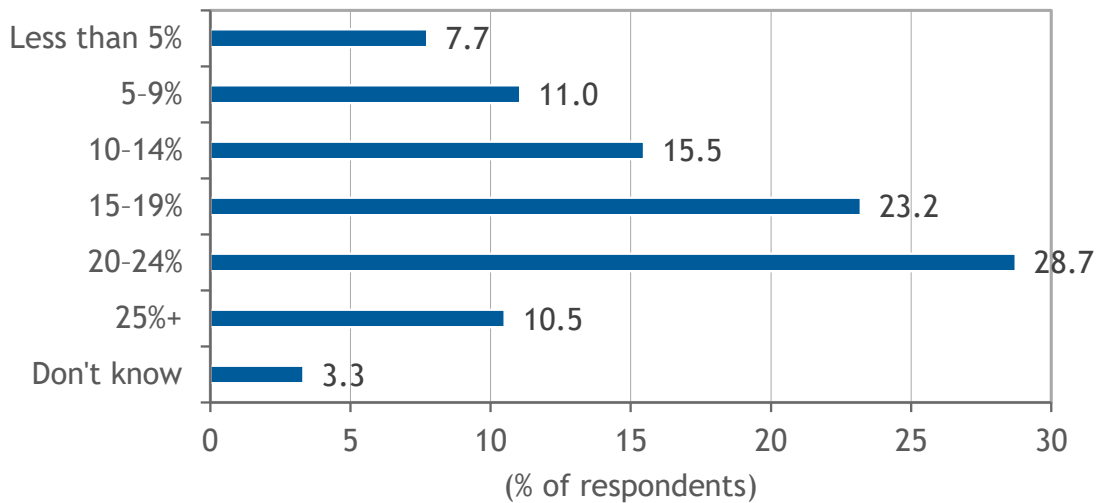
In addition to agility and scale, enterprises expect operational benefits with the implementation of managed SD-WAN services. The survey indicates that about 51% of enterprises achieve 15-25% operational cost savings (see Figure 6). The survey also indicates that cloud-based network security, secure cloud connectivity, and the ability to dynamically add bandwidth are the most valuable features of an SD-WAN solution.

"SD-WAN is definitely something that really makes us a lot more agile, when it comes to providing connectivity for the remote sites, versus having to rely on the traditional point-to-point solutions or having to put a firewall in every office," noted a CIO of a large life sciences company.

FIGURE 6

Managed Services Potential Cost Savings

Q. What operational cost savings has your organization achieved annually by using managed services from a third-party provider instead of managing your network operations internally?



n = 181

Base = respondents who indicated their organization uses or plans to use managed network services/technologies within the next two years

Source: IDC's *Lumen – Adaptive Networking Survey*, March 2022

Edge services are a top agenda item for many enterprises. As shown in Figure 7, the leading use cases of edge services include IoT, content management, media applications, and manufacturing. These use cases span low-latency to ultra-low latency deployment of edge infrastructure. When considering managed edge services providers, enterprises consider security, performance, and operational integration as key criteria. These are valid considerations as edge infrastructure can invite additional security risks, may entail scalability challenges due to more limited capacity than centralized cloud infrastructures, and will require deeper integration with on-premises and cloud applications. Among surveyed enterprises, 74% value the ability to program applications at the edge utilizing development

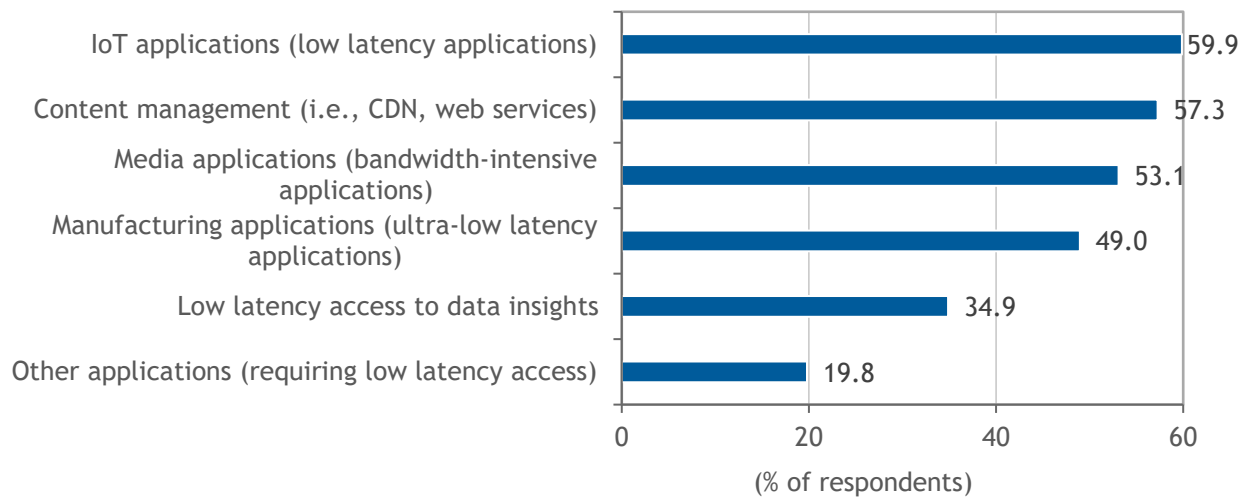
tools such as Java Scripting, containers, and other standardized languages (see Figure 8). Use of these tools will further innovation as they cater to the developer community at large.

"Our engineers have found they like being at home. They don't want to travel to Mexico for three weeks. So augmented reality is going to be important where the operator can use a real-time collaboration technology such as Google Glass or something similar and the other engineer can be in Ohio or Michigan and looking at the part with the operator, and then being able to overlay that with data and screen so that they can actually walk an operator through doing different things," said a CIO of a large automotive manufacturing company.

FIGURE 7

Edge Services Use Cases

Q. What are your organization's main use cases for edge services?



n = 192

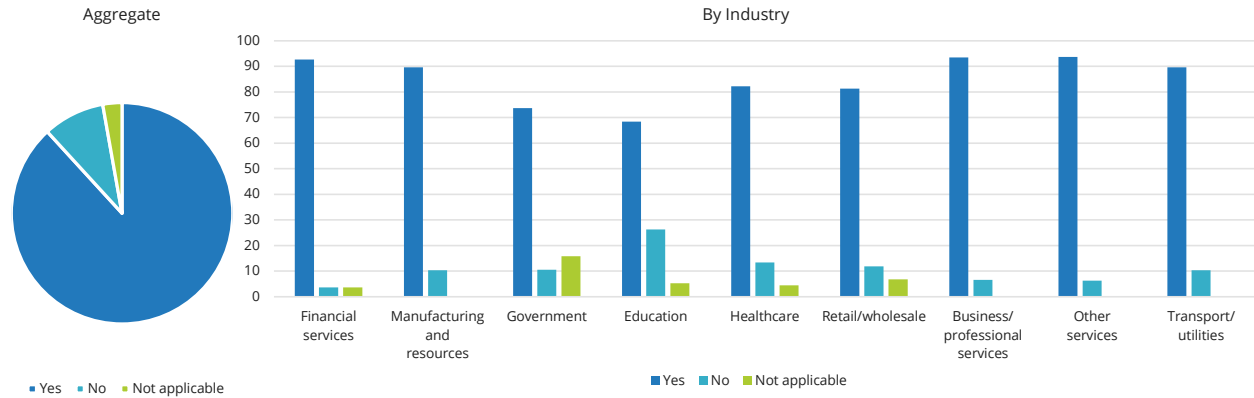
Base = respondents who indicated their organization uses or plans to use edge services/technologies within the next two years

Source: IDC's *Lumen – Adaptive Networking Survey*, March 2022

FIGURE 8

Edge Programmability an Important Capability for Edge Compute

Q. *Is edge programmability (e.g., containers, Java Scripting) an important consideration when choosing an edge platform?*



n = 500

Source: IDC's *Enterprise Communication Survey*, 2021

Broadband and High-Speed Fiber Are Critical Components of Enterprise Strategy

Managing data is one of the most important aspects of IT management for companies and will continue to be crucial over the next few years. IDC is projecting data consumption will grow by 25% over the next five years to 122ZB by 2025. Most of this data will be consumed by enterprises. Implementing the most efficient platform for access and corporate networking is an important aspect of digital transformation.

Network security and secure access to cloud applications are the two most important factors that network providers can offer to help enterprises looking to optimize their networking capabilities. To fulfill the demand for secure, reliable access, enterprises have pivoted to broadband and shared high-speed fiber services over the past two years. The demands presented by hybrid work as well as cost-effective remote access have reshaped enterprise networking and will continue to shape investment over the next few years.

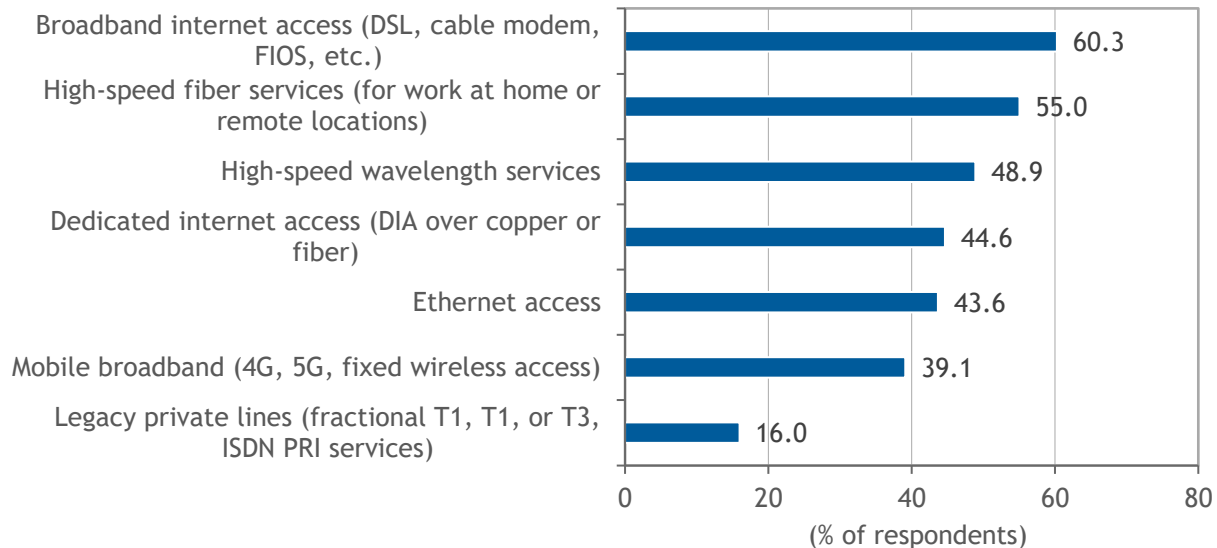
There are a few important aspects to selecting the right network configuration. These include security, capacity, and performance requirements. While shared fiber and broadband are the most cost-effective solutions, dedicated access and WAN circuits offer the highest level of consistent performance including guaranteed SLA for latency and throughput. Companies also use broadband and shared fiber in tandem with VPNs or SD-WANs for remote and work-from-home configurations while leveraging dedicated fiber and Ethernet services for site-to-site and datacenter interconnection.

Figure 9 shows network configurations currently used by enterprises.

FIGURE 9

Network Configuration

Q. You mentioned your organization uses or plans to use broadband/high-speed access services. What network configurations is your organization currently using?



n = 192

Base = respondents who indicated their organization uses or plans to use broadband/high-speed access services

Source: IDC's *Lumen – Adaptive Networking Survey*, March 2022

Network Providers Are Essential Partners Alongside Cloud Providers

Digital transformation can present significant challenges for enterprises that plan on executing a digital strategy with internal resources. There are, however, several advantages that accrue with the choice of a managed network provider. These include:

- Companies mitigating their internal skills gap by leveraging the expertise of network providers to guide them through their digital transformation journey, including initial ramp-up issues
- The availability of a cloud consumption and network-as-a-service model based on monthly recurring charges (A DIY option is generally restricted to a capex model.)
- The flexibility to deploy network resources at the CPE, provider edge, centralized datacenter, or cloud (These flexible deployment models can optimize opex and reduce overall TCO.)
- The choice of managed services spanning fully managed to comanaged, which enables enterprises to have the flexibility to choose a managed services option that best fits their operational needs and budget
- The ability to provide a technology road map and compensate for the lack of internal resources or know-how

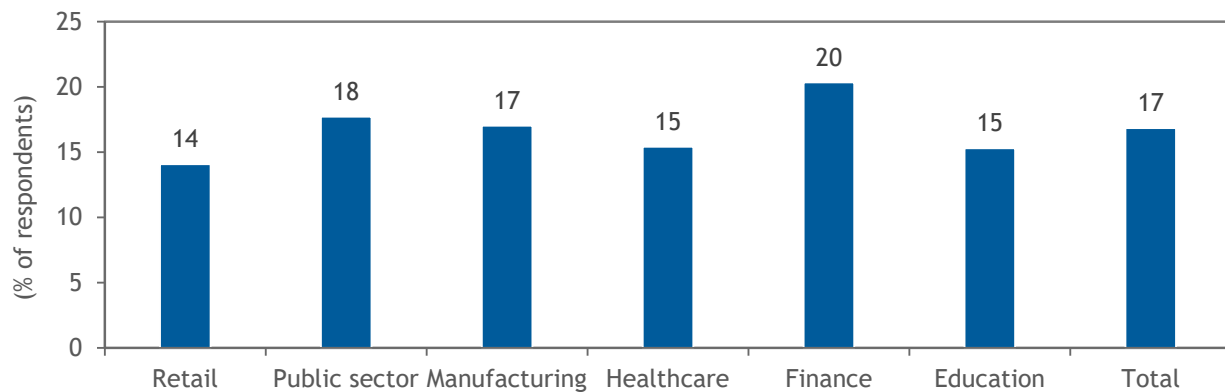
Survey respondents say they achieved 14-20% operational cost savings by using a third-party managed services provider rather than managing networks internally (see Figure 10). A managed service provider can provide integrated security capabilities to mitigate threats by bad actors. Overall, working with managed provider delivers better outcomes.

Organizations achieve 14-20% operational cost savings by using a third-party managed services provider rather than managing networks internally.

FIGURE 10

Mean Operational Cost Savings Achieved by Using Third-Party Managed Services

Q. *What operational cost savings has your organization achieved annually by using managed services from a third-party provider instead of managing your network operations internally?*



n = 181

Base = respondents who indicated their organization uses or plans to use managed network services/technologies within the next two years

Source: IDC's *Lumen – Adaptive Networking Survey*, March 2022

FUTURE OUTLOOK

Implementing a digital strategy should be viewed within the context of a long-term journey that will impact future operations of the enterprise. Managed service providers, technology vendors, and standardization bodies are critical elements in the future development of a digital road map. The future road map should incorporate the following attributes:

- Drive toward automation of processes, enhanced with artificial intelligence/machine learning (AI/ML) capabilities.
- Agree on interoperability standards to enable true global end-to-end services. These include multivendor and inter-carrier interoperability standards.
- Develop open APIs to appeal to the developer community and expand that ecosystem.
- Provide a road map for the integration of edge to cloud applications. This will facilitate the development of low-latency use cases.

- Integrate security across the whole stack to attain the goal of zero trust networks.
- Embrace video streaming technologies to enrich the customer experience. This will include augmented reality/virtual reality (AR/VR) technologies.

The goal is to serve the needs of a massively distributed enterprise and respond to unforeseen events with an agile and responsive network capability.

CONCLUSION

- **Benefits of a digital infrastructure:** There are tangible benefits to implementing a digital-first strategy. These include enhanced operations efficiency and productivity, as well as the ability to provide improved customer service experience.
- **Network providers essential in facilitating enterprise digital strategy:** Enterprises require the expertise of their IT partners including networking providers to assist in establishing a technology road map and implementing a digital strategy.
- **Network providers essential partners alongside cloud providers:** IDC's research shows that enterprises regard network providers as important partners in the digital transformation journey.
- **Broadband and high-speed fiber:** These are cost-effective technologies that are critical components of enterprise digital strategy, providing flexible options for hybrid work models to complement the corporate WAN.
- **Managed services:** Enterprises are open to implementing managed services to leverage the security expertise of network providers and as a cost-effective alternative to in-house IT capabilities.

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