IDC PERSPECTIVE

The Enterprise Network Edge: How Networking Must Evolve in the Campus and Branch and for Remote Workers

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EXECUTIVE SNAPSHOT

FIGURE 1

Executive Snapshot: Rapid Evolutions in the Enterprise Network Edge

The edge of the enterprise network has undergone significant transformations in recent years, causing organizations around the globe to reconsider their enterprise network strategy in the campus and branch and in support of remote and hybrid workers. This IDC Perspective outlines the key technologies enterprises should consider to transform their networks to support new edge use cases.

Key Takeaways

- The edge of the enterprise network is where users and devices access the network. Before the COVID-19 pandemic, this was typically a campus or branch location for enterprises. The rise of remote and hybrid workers, as well as the increase in IoT-connected devices, has caused organizations to rethink the edge of their enterprise network.
- Enterprise-class connectivity must extend to wherever the edge of the enterprise network is — whether that be a campus or branch, a branch of one remote worker site, or an IoT-connected device in the field.
- The network must also extend to multiple endpoints, from public and private clouds to corporate datacenters.

Recommended Actions

- There are a variety of networking technologies enterprises will consider when building out an edge networking strategy.
- Some keys to a successful edge network strategy are having visibility and analytics on network performance and user experience. Another key is leveraging a cloud-based platform for managing the enterprise network, and finally, a third is to leverage advanced automation techniques.
- Any edge network strategy should focus on the business needs of the organization, then consider what networking technology is needed to support those business needs.

Source: IDC, 2022

July 2022, IDC #US49291222

SITUATION OVERVIEW

The edge of the enterprise network is a dynamic and rapidly evolving area. Changes in edge networking have been more than a decade in the making but have intensified in recent years. The enterprise network edge can be thought of as a continuum — on one side are users and devices. Those could be employees in a campus, branch, or working from home. They could be connected devices in a corporate facility or IoT-connected devices in the field. On the other side of the continuum are applications that users and devices rely on. These may be hosted in corporate datacenters or the public cloud (e.g., IaaS or SaaS). Fundamentally, the edge of the enterprise network is where users and devices connect to the enterprise network to access applications.

A decade ago, architecting for the enterprise network edge was relatively straightforward. Most users and devices were in corporate facilities, and most applications were in secure corporate datacenters. The world is much different now. Over the past decade, the applications that businesses rely on have become increasingly distributed across multiple cloud platforms and on-premises locations.

Meanwhile, change has accelerated in the past two years. The COVID-19 pandemic dramatically reshaped how users and devices access distributed applications. There are now more employees working remotely and more IoT devices than ever. In summation, there is now hyperdistribution on both ends of the enterprise network edge continuum: highly distributed users and devices accessing multicloud, distributed applications. Traditional network architectures were not designed to support this new reality. In response, organizations are looking to transform their networks to ensure secure and reliable edge networking while prioritizing high-quality end-user experiences.

This IDC Perspective offers advice for organizations on how to transform their networks to ensure successful edge networking capabilities.

Note: All numbers in this document may not be exact due to rounding.

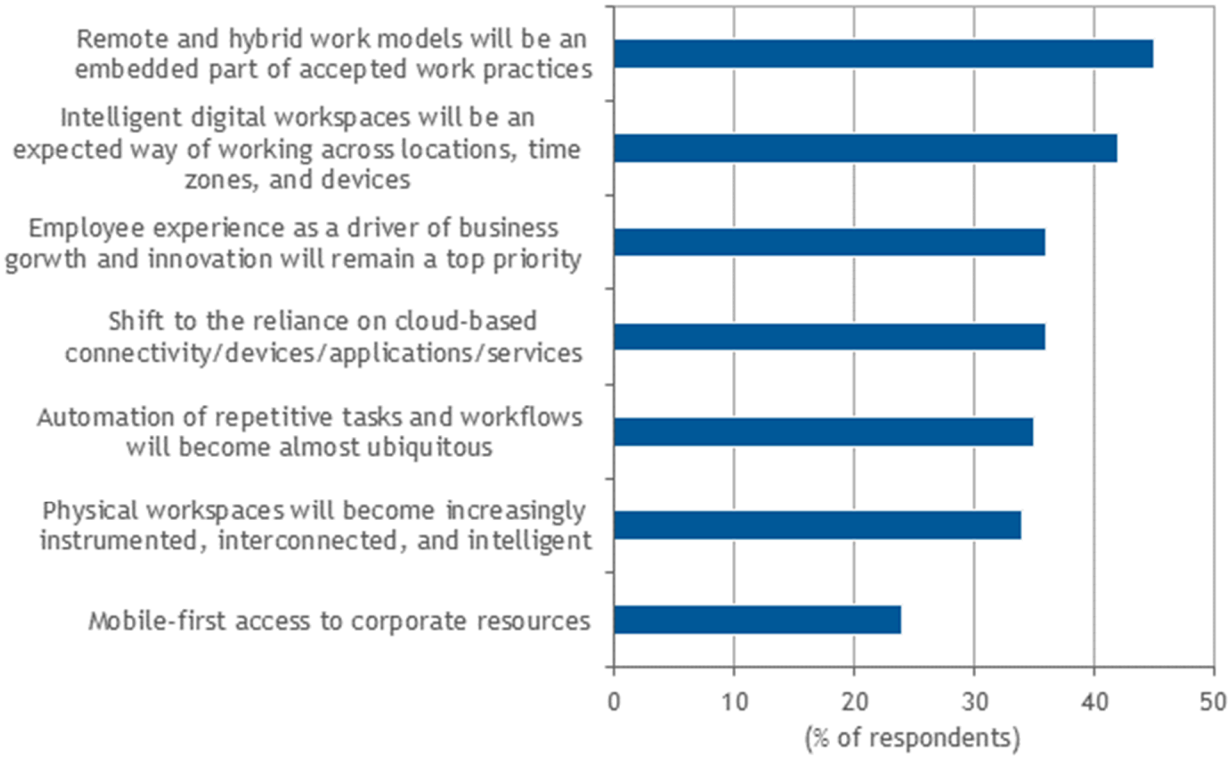
ADVICE FOR THE TECHNOLOGY BUYER

As organizations look to develop an enterprise network edge strategy, a key is to focus on the goals of their broader business. In technology procurement and deployment, the actual implementation of the technology is usually the easy part. The difficult part is ensuring the technology brings the maximum value to the organization. Aligning the technology with the organization's broader business goals will help ensure success. Figure 2 shows the top business priorities for enterprises, specifically since the COVID-19 pandemic began. These principles can help guide how an enterprise network edge strategy can be built.

FIGURE 2

Top Business Priorities Most Likely to Endure from the Pandemic

Q. In your opinion, which work practices and technology advances emerging from the pandemic are most likely to endure within your organization? (Select multiple.)



n = 858

Source: IDC's *Future Enterprise Resiliency and Spending Survey, Wave 11,* December 2021

Based on this survey data, there are a handful of functional areas that organizations can focus on as they build an enterprise network edge strategy, each of which are outlined as follows:

- **Supporting remote/hybrid workers:** IDC has developed a framework for network architectures that support remote and hybrid workers named a branch of one strategy. Branch of one architectures provide secure, enterprise-grade connectivity to remote workers. For some, this could mean supplemental broadband connectivity or a wireless LTE or 5G router. For others, it may mean deploying network infrastructure at remote worker sites (e.g., a WLAN access point or an SD-WAN gateway). Many network infrastructure vendors have come out with specific products aimed at this segment of the market. Certain use cases are leading these investments; *IDC FutureScape: Worldwide Future of Connectedness 2022 Predictions* (IDC #US47438921, October 2021) noted that by 2024, 45% of contact centers supporting finance, retail, and hospitality industries will adopt branch of one architectures, enabling efficient and secure enterprise-class work-from-anywhere experiences.
- **In the reimagined campus/branch:** While campus and branch locations used to be a primary edge of the enterprise network, today, these locations may look very different. For example,

there may be fewer employees in carpeted offices, but the bandwidth requirements in those locations may increase. In other vertical industries, branch sites may be denser than ever (e.g., in retail and higher education). The reimagined campus and branch will have new focus:

- **High-bandwidth, latency-sensitive applications that will flood the network.** The increased use of voice and video collaboration tools is not going away. These high-bandwidth, latency-sensitive applications will cause organizations to consider preparing their networks with advanced LAN technology, including Wi-Fi 6/Wi-Fi 6E, multi-gig Ethernet switching in the access and aggregation layers, and SD-WAN for providing optimized connectivity to multicloud environments.
- **More cohesive management across wired and wireless LAN and SD-WAN.** Enterprise networking can be complex, so organizations should look for efficiencies wherever possible. Some initial places to consider integrated management are more cohesively managing wired and wireless LANs, integrations between LAN and WAN application policies, and cloud-based centralized platforms for managing employees in the office, and at remote locations.
- **Machine learning (ML) and artificial intelligence (AI) enhanced automation.** Network management tools can be powerful platforms that help ease the day 1 installation of network infrastructure, as well as optimize the day N ongoing management of the network. ML and AI systems learn what normal behavior for a network is, and when abnormal actions are detected, they work to identify and — in some cases — automatically remediate security or performance events before they impact users or the business.

- **Enhanced observability:** An important aspect of enterprise edge networking is having visibility and analytics into what is happening in the network. Insights into what users and devices are on the network, which applications they're accessing, what level of performance they have, and many other data points can be streamed in real time to provide an all-encompassing view of the enterprise network. This data is foundational for implementing greater levels of automation and security within the network. It's key that observability can stretch across all points in the enterprise edge network continuum — from remote workers all the way to cloud-based applications.
- **Cloud-based management:** There has been a multiyear trend of enterprise network management platforms increasingly offered from the cloud — as opposed to using on premises. There are a variety of advantages cloud-based management platforms provide including:
  - Centralized management of distributed sites, including campus/branches and remote workers
  - Enabling business continuity by removing the requirement of on-premises deployment, operations, and management
  - Dynamic scalability
  - Faster access to new features
  - Ability to shift from a capex to an enterprise network-as-a-service/opex consumption model

As organizations are looking to support connectivity for campus and branch sites, along with remote and hybrid workers, cloud-managed enterprise networking can become a centralized platform for managing these highly distributed operations.

IDC'S POINT OF VIEW

Enterprise networks are at an inflection point. There have been significant changes in both what is required of the enterprise network and how networks are being architected to meet the needs of the business. Over the past decade, the industry has seen the rise and mainstream adoption of public cloud services. Meanwhile, in the past two years, users and devices that use to access the enterprise network from campus and branches have become distributed too. Enterprise networks today must evolve to reflect this reality. The edge of the enterprise network must now extend from remote workers to the enterprise campus and branch to the public cloud and connected IoT-devices deployed in the field. Ensure your organization has a network architecture strategy that reflects the needs of the business.

LEARN MORE

Related Research

- *How Edge Computing Aligns Connectedness and Trust* (IDC #US47342821, May 2022)
- *Worldwide SD-WAN Infrastructure Market Shares, 2021: Market Continues Rapid Growth Driven by Cloud Adoption and Cost-Saving Opportunities* (IDC #US49044722, May 2022)
- *Worldwide Enterprise WLAN Forecast, 2022-2026* (IDC #US49051522, May 2022)
- *Evaluating Network as a Service Flexible Deployment Options for Your Enterprise Network* (IDC #US48455521, December 2021)
- *IDC MarketScape: Worldwide SD-WAN Infrastructure 2021 Vendor Assessment* (IDC #US47279821, November 2021)

Synopsis

This IDC Perspective offers advice for organizations on how to transform their networks to ensure successful edge networking capabilities.

"As organizations look to digitally transform their businesses, it's becoming clear the network must also transform. The network is how users and devices connect to the business-critical applications that run modern, digital businesses," says Brandon Butler, research manager, Enterprise Networks. "As the rate of change has accelerated in recent years, it's imperative that organizations have a network architecture that can meet the needs of their business not just for today but into the future too."

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