

With companies expanding their usage of a diverse set of connectivity modalities, ensuring the ease of connecting and the efficiency of orchestrating their networks is essential.

Managing Network Operations in a Hybrid Connectivity World

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Questions posed by: Comcast Business

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Q. Wired. Wi-Fi. LTE. 5G. Which one is right for my business?

A. With the constant buzz of advertisements, it is easy to believe that the future of connectivity lies in 5G. But most companies are continuing to rely on a traditional wired connection and the performance of wireless technologies such as Wi-Fi, 4G LTE, and LPWAN. As a result, the choice of connectivity is not an either-or proposition. The reality is that most enterprises already operate in a realm of hybrid connectivity across some of these technologies and will continue to do so as they add 5G as another tool in the toolbox. Companies need to develop a road map for matching connectivity performance to the operating requirements of each use case. For example, is there a need to connect thousands of low-volume temperature sensors? LPWAN may be the appropriate choice. Looking to enable real-time automated worker safety protocols and alerts? Employees' mobility and the need for low latency may mean that the use case is best served by 5G. Conversely, consider the case of a finance department conducting its year-end close process. Though the department itself may be dispersed, it is generally not highly mobile, and the year-end close process is not particularly bandwidth or latency sensitive. In this scenario, existing Wi-Fi should suffice.

Just because a technology is newer or faster does not mean that it is better. Companies need to focus not on an individual connectivity solution but on the business outcome and the connectivity that will enable the use case to deliver that outcome.

Q. What are the key challenges in operating a hybrid connectivity network?

A. As companies deploy new use cases, connectivity traditionally is deployed tactically — laser-focused on the use case performance and outcome. How the connectivity and use case integrate into the broader organization and network operation comes later, if at all, which leads to inefficiencies. Thinking about connectivity strategically creates opportunities to align connectivity not only with the use case but also in ways that can drive cost savings in hardware, managed services, and resource allocation. Additionally, a more integrated approach to hybrid connectivity allows for central management across the organization, helping enable managers create dashboards and monitor network operations in real time. A holistic approach and central management can help companies avoid vendor lock-in, resulting in further managed savings.

In addition, as connectivity types proliferate across the corporate network, so does the number of endpoints. While some of these endpoints are capable of supporting embedded compute that can provide a layer of security, others are mere sensors and may not be as protected from intrusion. A more cohesive approach to connectivity allows for a more robust approach to protecting the network.

Q. How critical are network management and orchestration tools (e.g., SD-WAN) in efficiently running a hybrid network?

A. SD-WAN was architected on software-defined principles with the ability to support hybrid networking, integrate multivendor virtual network functions (VNFs), and provide interoperability across service provider networks. The reality is most deployments tend to be single-vendor solutions with limited integration of multivendor VNFs. SD-WAN, however, provides significant benefits to meet enterprise hybrid connectivity needs, including branch to headquarters, branch to cloud providers, and branch to branch. With the emergence of a widely distributed enterprise and growth of remote workers, management of hybrid network represents a larger challenge for enterprises.

These challenges are best addressed with network management and orchestration layers as follows:

- » Managing the full life cycle of VNF deployment, integration, and utilization, which includes multivendor VNF management
- » Enabling the customer to configure the network and obtain relevant analytics reports through secure access to self-service management tools
- » Achieving the desired goal of application-aware networks with the integration of artificial intelligence/machine learning (AI/ML) with the ability to automate configuration, optimize routing policy, prioritize traffic based on class of service, and react to adverse network conditions

Q. What is the value proposition of working with an external partner to help manage an organization's connectivity?

A. While most organizations have a degree of comfort running their own network, they could benefit from a little outside help managing hybrid connectivity. Few organizations have substantial in-house expertise in wireless connectivity. Partnering with a communications service provider, most of which already operate their own multiband networks and are familiar with the complexity of hybrid connectivity, not only can accelerate deployment time but also can make it easier to incorporate best practices and avoid integration pitfalls. But such partners are not limited to communications service providers. Hyperscalers, systems integrators, professional services firms, and SD-WAN providers can all collaborate to improve the performance of a hybrid connectivity network.

The other advantage of working with an external party is allowing a company to utilize cloud-based network as a service (NaaS), shifting from a capex model to an opex model. Regardless, a company can take various approaches to managing hybrid connectivity, running the gamut from legacy DIY network builds to co-management and fully outsourced NaaS.

Q. Do future trends around the use of edge in the enterprise amplify the need for a cohesive, integrated approach to network connectivity management?

A. Edge services require a robust network to deliver on the needs of low latency, reliability, high performance, and secure access. These critical quality-of-service (QoS) demands will require the support of an agile WAN architecture. SD-WAN architecture can be the right answer due to its architectural underpinnings that support hybrid connectivity, dynamic policy management, application prioritization, and security.

The same benefits that SD-WAN brought to the multicloud era can be realized in edge applications as follows:

- » Support of hybrid connectivity
- » Cost-effective and dynamic bandwidth management
- » Fast deployment enabled by automated provisioning
- » High availability with connectivity
- » Cloud-based security supporting applications
- » Flexibility of hosting edge applications at the CPE device or provider edge subject to meeting latency requirements
- » Management of distributed application through orchestration tools
- » Support of virtualized network services such as VNFs and containers

In summary, the growth of traffic at the edge coupled with the need to address latency, performance, and security requirements elevates the role of SD-WAN as a critical architecture to enable edge services.

About the Analysts



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Ghassan covers the evolution of the Telco Cloud Ecosystem as well as the emerging Virtualized Enterprise Networking services. His primary focus areas include Service Provider SD WAN and Managed Services and emerging NFV-based Virtual Networking Services as well as other Managed WAN Services. In the Hosting and Cloud segment, Ghassan covers Service Provider Managed Hosting Services, including Hybrid Managed Private/Public Cloud Services, Colocation Services, and Secure Cloud Connect and CDN Services.



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