

The Truth About SD-WAN and the Business Transformation Journey

Introduction

It seems as if every organization, large and small, regardless of industry, is in the midst of a digital transformation. And with a migration to the cloud playing a central role in many of these transformations, it's a good time to take a tactical pause and reflect on some key questions businesses should be asking:



Which critical applications should live on-premises or in the cloud?



Which technologies and processes can help us on the path to digital transformation?



Will moving our applications and workloads to the cloud optimize the overall user experience while increasing productivity?



How can we journey to a modernized operations model while maintaining or even strengthening security?



Are the investments we're making in our infrastructure today helping or hindering agile IT?

With these questions in mind, companies need to stay focused on their data, applications, and the delivery of services more than ever. A less critical consideration is where the applications live, as long as they are provided the optimal operating environment and deliver an improved user experience.

One way organizations are doing this is by moving away from traditional Wide Area Networks (WAN) that are rooted in providing access to centralized data centers, to a modern solution that focuses on the application: Software-Defined Wide Area Networks (SD-WAN). These are cloud-based network technologies designed to provide increased bandwidth at lower costs, enhanced security, and other benefits.

The shift to SD-WAN runs tandem with the widespread adoption of cloud and hybrid cloud models. Indeed, the cloud is viewed as a critical element of digital transformation and working with multiple cloud services from different providers has become the new normal for many established enterprises. There is a fundamental search in play: What will offer the business the most agility and efficiency? From another perspective, what new technologies or platforms might be instrumental in achieving key objectives? For those companies that are just starting to do business, having their critical business applications built in and around the cloud seems like the natural way to go.

Organizations are finding that in the cloud era, it's a much better approach to move to SD-WAN, which has emerged as the most effective way to securely connect all users and devices within a multicloud environment to a single fabric. The move to SD-WAN also represents a major shift in network strategy for companies. For years, organizations have been relying on traditional WAN to connect users within particular geographical areas. But for a variety of reasons, this approach may present a number of challenges for digital businesses.

This whitepaper examines the limitations of traditional WAN and describes how and why SD-WAN presents a more viable option for connecting users and devices in today's increasingly complex business environment.

Traditional WAN vs. SD-WAN

Learn how traditional WAN measures up to SD-WAN and how they each fare in terms of supporting cloud-based applications, adjusting for capacity needs, and meeting modern user expectations.

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Big migration to the cloud

There's no question that organizations today rely on online connectivity more than ever. They're moving all kinds of business applications to the cloud, and using Software as a Service (SaaS) offerings such as Microsoft® Office 365® and Salesforce® customer relationship management. A good portion of today's IT infrastructure is also moving to the public cloud, as enterprises look to reduce capital expenditures and increase agility. With data volumes growing at steady rates, the cloud offers the ability to flexibly scale according to business requirements.

An April 2019 report by research firm Gartner Inc. forecasts that the worldwide public cloud services market will grow 17.5% in 2019 to total \$214.3 billion, up from \$182.4 billion in 2018. Gartner said it knows of no vendor or service provider today whose business model offerings and revenue growth are not influenced by the increasing adoption of cloud-first strategies in organizations.¹

Through 2022, Gartner projects the market size and growth of the cloud services industry at nearly **3x** the growth of overall IT services.¹

Recent Gartner surveys show that **more than a third** of organizations see cloud investments as a **top three** investing priority.¹

By the end of 2019, the firm expects that more than **30%** of technology providers' new software investments will shift from **cloud first to cloud-only**.¹

In many cases, users at organizations need access to multiple clouds in order to find and use all of the applications they need to do their jobs. Businesses need to connect not just the main headquarters, branch and home offices, and other remote facilities, but also mobile devices.

In addition to users, devices and things need access to each other and corporate systems. This becomes all the more important with the emergence of the Internet of Things (IoT). A recent report from 451 Research shows that the number of IoT connected devices (excluding PCs, smart TVs, and game consoles) will be about eight billion in 2019; it will reach nearly 14 billion in 2024, for a Compound Annual Growth Rate (CAGR) of 12%.² This has considerable implications for data center infrastructure and services, storage, server, security, networking, and other areas across the IT landscape, as more data is processed at these endpoints.



Drawbacks of traditional WAN

The need for such a high level of connectivity presents significant challenges for traditional WAN technology. Among the issues IT leadership needs to deal with are network latency, a lack of agility to deploy services, and high costs.

For example, backhauling traffic through the main campus for branch and remote offices introduces latency. This can slow down access to systems and cause applications to perform poorly, which in turn can lead to issues such as decreased employee productivity and poor user experience.

The lack of agility hinders the IT department from rolling out new services to users quickly. Given today's need to be fast to market for virtually everything, this can create competitive challenges for organizations. Users and customers want and expect new services to be rolled out quickly.

In terms of costs, circuits are expensive and having those circuits redundantly out at branch offices is an added cost for enterprises. In a traditional WAN infrastructure, traffic is backhauled through the main campus over costly Multiprotocol Label Switching (MPLS) links. MPLS can be three times the price of broadband internet, and circuit provisioning can take up to six months depending upon the location and carrier. WAN overage fees are not uncommon due to the circuits' inability to support the bandwidth needs of newer applications. Cloud-based applications introduce additional bandwidth concerns, with growing amounts of cloud data needing to traverse the network.

Other concerns with traditional WAN infrastructure involve complexity, inefficiency, and security:



A lack of centralized management



Manual configuration of the WAN device at each remote location when policy changes are required



No visibility and control of who or what is consuming bandwidth on the WAN



A lack of secure and reliable WAN transport other than MPLS, and even with MPLS, there's no inherent data plane encryption



Time-consuming troubleshooting with each WAN site in its own silo

Furthermore, on-premises security solutions lack advanced threat detection, which is usually updated daily with cloud-based security platforms. There's also no ability to segment traffic based on critical or sensitive applications, including traffic that falls under the domain of regulations such as the Payment Card Industry Data Security Standard (PCI DSS) and the Health Insurance Portability and Accountability Act (HIPAA).

New traditional WAN services at the branch often require manual installation of extra hardware, which leads to a complex stack of appliances that take up space, consume additional power and cooling resources, and require specific skill sets to manage each individual platform.

Lastly, traditional WAN has slower failover times because, when a failure occurs on a WAN link, the routing protocol takes several seconds to converge, resulting in a poor end-user experience. Legacy WAN isn't application-aware and doesn't consider the performance needs of critical applications versus best-effort traffic.

Global Construction Firm Scales With SD-WAN

Tired of struggling with disjointed and aging network systems, this company is building a new future for themselves with SD-WAN and managed network services.

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SD-WAN — The modern networking approach

As cloud initiatives continue to crop up at many organizations, CIOs and other IT executives are under pressure to reevaluate their WAN requirements. The adoption of cloud services, growing volumes of cloud data, and use of virtualization across traditional WAN architectures has led to performance bottlenecks, which impair user productivity when connecting to cloud applications from branch or remote office locations.

More traffic, more users, more devices, more data, and a greater level of complexity now exists with and on corporate networks. With so much more traffic on the network, organizations are more likely to lose visibility of exactly who or what is on the network. This presents huge security risks. The surface area for attack is growing significantly and with so many new devices becoming connected via IoT, there'll be even more potential attack points. IoT, as a model, also generates more data that needs to be accounted for.

SD-WAN is an excellent network solution for this ever-more-complex environment. This technology simplifies the management and operation of a WAN by decoupling the networking hardware from its control mechanism.

Thinking of deploying SD-WAN?
Here's what you need to know.

Get expert guidance on starting your journey to SD-WAN.

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A key use of SD-WAN is to enable organizations to create higher-performance wide area networks using lower-cost internet access. This allows them to partially or completely replace more costly private WAN technologies such as MPLS. Some SD-WAN solutions allow for individual endpoints to directly join the virtual fabric as a next-generation remote access platform.

SD-WAN is designed to address the shortcomings of traditional WAN technologies.



By enhancing or replacing legacy branch routers with virtualization appliances that can control application-level policies and provide a network overlay, less costly internet links can act more like a dedicated circuit. This makes it easier to set up connections for branch office and other remote personnel.



SD-WAN solutions can be physical or virtual appliances and can be installed in small remote and branch offices, large headquarter facilities, or data centers. They're also available via cloud platforms.



With SD-WAN, a centralized controller is used to set policies such as bandwidth priority and restrictions. The technology takes into account the policies and the availability of network bandwidth to route traffic, which helps ensure that application performance meets service-level agreements.



Policies can be configured once from a central location and then pushed out to a multitude of devices. With an SD-WAN fabric, companies can connect campuses, branch offices, mobile users, devices, and objects connected via IoT.



Strong security is among the biggest benefits of SD-WAN, which can provide secure communications over any transport. Via a Virtual Private Network (VPN) overlay, data plane traffic is encrypted and multitenancy options are available to segment sensitive traffic. Cloud security features can operate on a much larger scale than a typical on-premises WAN.

WAN market developments reflect a big transformation underway, with Software-Defined Networks (SDN) shifting from the data center to the WAN. Research firm IDC says the SD-WAN market will grow at a 30.8% CAGR through 2023 to reach \$5.25 billion.³ The market will likely continue to grow as managing networks becomes even more complex, more applications move to the cloud, more data is created, mobile device usage expands, and IoT devices proliferate.

SD-WAN will be a key component of digital transformation, which encompasses the move to the cloud, the rise of mobility, the emergence of IoT, and the growth of big data analytics; SD-WAN is capable of connecting all of these facets together.

Summary: What to look for in solutions

With so much data and so many applications moving to the cloud every day — and with a growing number of remote and mobile users and devices needing access to information — it's never been more important to deploy the right technology to support connectivity.

In this environment, traditional WAN technology won't cut it. SD-WAN, on the other hand, is well suited to handle the growing demands of the digital age.

Partners such as Insight provide the networking and integrated security solutions needed today. Insight offers a full suite of software-defined services within an integrated network and security portfolio. These include Software-Defined Data Center, Software-Defined Security, Software-Defined WAN, and Software-Defined LAN.

The SD-WAN market is flooded with countless solutions and offerings.

Cut through the noise and find the tailored solution you need to **enable** and **expedite** a digital transformation. With offerings ranging from readiness assessments all the way through SD-WAN managed services, **Insight can help bring clarity to the chaos.**

To learn more about the benefits of SD-WAN and other software-defined solutions, visit solutions.insight.com/solutions/security-and-networking.

You might also find the following resources helpful:

- Whitepaper: "Network Security: An Essential Element of Digital Transformation"
- Whitepaper: "Transforming Network Security: How to Win Against Cyberthreats"
- Whitepaper: "Moving Workloads to the Public Cloud? Don't Forget About Security."
- Whitepaper: "Building a Strong Cybersecurity Program During IT Transformation"

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Sources:

1 Gartner Press Release, "Gartner Forecasts Worldwide Public Cloud Revenue to Grow 17.5 Percent in 2019," April 2, 2019. <https://www.gartner.com/en/newsroom/press-releases/2019-04-02-gartner-forecasts-worldwide-public-cloud-revenue-to-g>

2 451 Research. (August 2019). IoT Market Monitor Report.

3 IDC. (July 2019). Worldwide SD-WAN Infrastructure Forecast, 2019-2023. Doc #US43881619.

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