

The business case for SD-WAN



Traditional MPLS (Multiprotocol Label Switching), used to manage branch connectivity and network traffic, isn't cutting it any more. In its place, SD-WAN (Software Define Wide Area Networks) is mainstreaming. Major enterprises are busy examining SD-WAN as a means of dealing with growing network traffic, triggered by the migration of networks and datacenters to Cloud; the proliferation of Internet of Things (IoT); the focus on collaboration; and by the bottomless demand for wireless end-user devices and rich, bandwidth-intensive applications.

What is changing with SD-WAN?

SD-WAN creates an overlay on the existing network topology. This layer provides enterprises with central control over branch connectivity. They can use this layer to prioritize traffic based on business rules achieving this with greater security using encryption, next generation firewalls, web filtering, and threat management based on location, session, user and application. In

addition, a variety of components can be added to SD-WAN implementation such as controllers for device management and, sometimes, an analytics engine for optimizing cloud workloads and monitoring.

One study in North America found that by 2017, 74% of respondents had already tried the technology in labsⁱ. Not surprisingly, one leading analyst predicts that worldwide SD-WAN infrastructure and services revenues will see a compound annual growth rate (CAGR) of 69.6% and reach \$8.05 billion in 2021ⁱⁱ. Clearly, branch connectivity using traditional WANs - that have not been architected for cloud and have always had security concerns - are primed for retirement.

There are compelling reasons for SD-WAN adoption: The technology reduces latency, it optimizes use of WAN infrastructure, brings down costs and gives better management control (for more details see traditional WAN versus SD-WAN). Today, with 55% of IT budgets taken up by WANs, CTOs are being naturally drawn to SD-WAN.

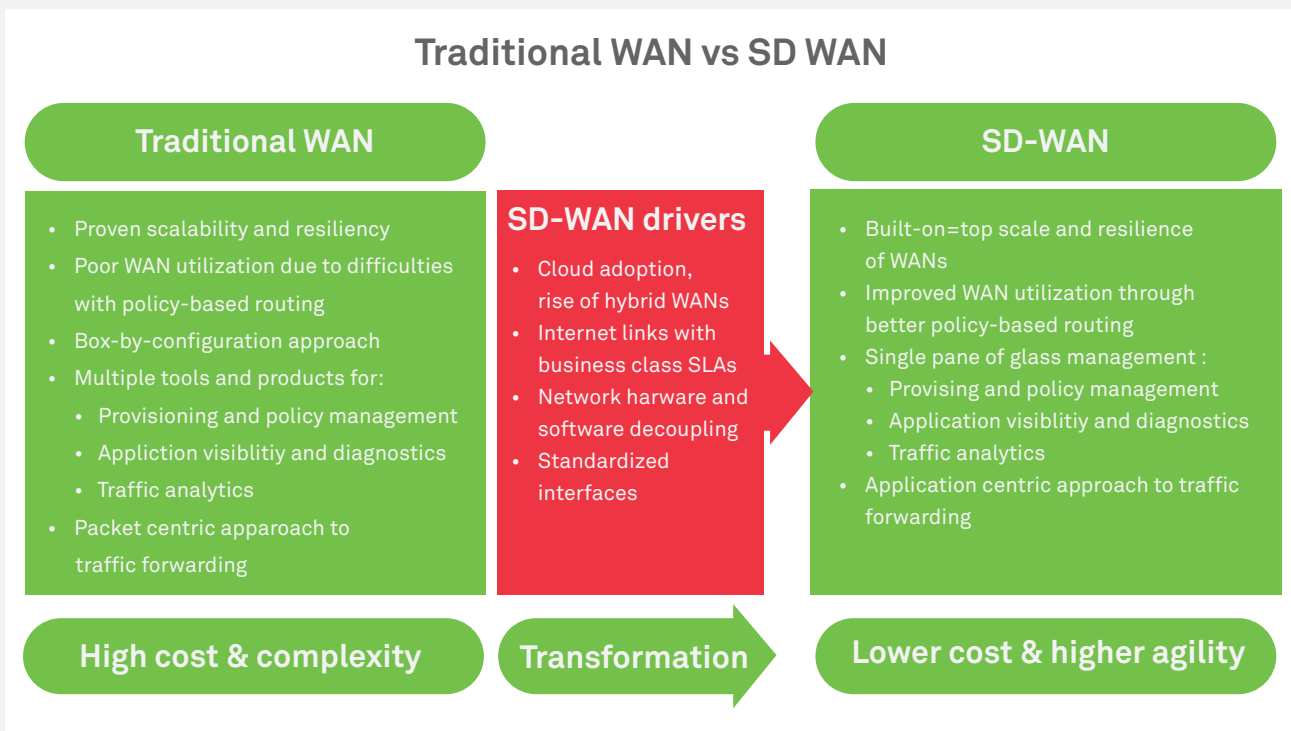


Figure 1: Traditional WAN vs SD WAN

With SD-WAN trending, every CTO must ask, “In which line of my business can SD-WAN bring value and the highest ROI? And what is the business case for SD-WAN?”

Defining the business case

Identifying and defining the business case is the first step in SD-WAN adoption. Typically, businesses will want to increase the available bandwidth as they expand. Doing this with MPLS is expensive. SD-WANs make it easy to increase bandwidth without adding to costs. Often, businesses are in the process of retiring old technology. At this point, they would want to consider SD-WAN and upgrade their infrastructure to take advantage of MPLS, broadband and 4G. Finally, SD-WANs provide visibility into applications allowing administrators to prioritize traffic based on application criticality. This has the net effect of improving user experience and ensuring that business is not affected due to poor bandwidth. The other drivers for SD-WAN adoption include agility and security. Automation can speed up configuration and deployments while traffic from data-sensitive applications can be isolated for enhanced security.

Analyzing the business case

Once the business case is defined and business goals set, effort should be directed to analyzing the business case for appropriate solutions. This involves examining:

- **Network architecture:** This includes understanding the type of routers, links and potential software upgrade required
- **Utilization:** Link utilization and the impact of outbound traffic on inbound and vice versa, along with the type of links (symmetric or asymmetric) which business are constantly trying to optimize
- **Application landscape:** Type of applications, their behavior and SLAs associated with the applications. Special attention needs to be paid to the following category of applications:
 - Real time applications like voice, video, collaboration, etc
 - Applications hosted on a central data center
 - Cloud hosted application that can be accessed via the internet
 - SaaS application that are typically accessed via the internet
- **Security analysis:** This is an important aspect of the analysis, and the solutions implemented must align with compliance requirements of the business. The analysis must include:

- Traffic visibility requirements
- Proxy server architecture
- Compliance and isolation requirements
- **Cost:** Capturing the complete maintenance and management cost of the WAN implementation. This will include:
 - Cost of bandwidth
 - Cost of managing and maintaining WAN hardware

Identifying potential problems

During the analysis stage the technical shortcomings of the WAN need to be understood and documented. This will form a major input in determining the specifications of the SD-WAN. This stage requires data from existing network monitoring platforms or from the service provider, and then subjecting the data to analysis. Some of the key areas to be analyzed include:

Service provider dependency: Is the business dependent on a specific service provider for MPLS links and Internet access? This must be analyzed by location, with respective shares of service providers for MPLS and internet documented separately.

No centralized management: Businesses are heavily invested in traditional WAN management techniques and, more often than not, they have distributed control over the WAN. The management model for SD-WAN is centralized and completely different. Moving from one to the other can be a challenge

Limited automation for configuration: Managing multiple last mile connections, optimizing devices and keeping track of policies is a manual process. But some businesses could partial automation

Hybrid WAN: The extent to which a business uses a hybrid WAN—a mix of MPLS and internet links - determines the effectiveness of an SD-WAN implementation. The intelligence of the SD-WAN decides how to distribute traffic across links





Operational complexity: The complexity of connectivity requirements, bandwidth usage and the number of internet-based applications, will help determine several parameters for an optimal SD-WAN implementation



Bandwidth usage: Bandwidth usage by the growing number of internet applications is critical to predicting costs and meeting target MPLS costs



SaaS and public Cloud demand: Estimating SaaS and Cloud-based traffic will determine the load on the SD-WAN



QoS: By analyzing the WAN configuration, the business will understand how application-wise quality of Service is configured



Business growth: What is the forecast for business growth? Discussions with the business team will define the future roadmap of the SD-WAN initiative

Choosing an SD-WAN

By creating a business case, analyzing it and listing problem areas, the most suitable SD-WAN solutions can be identified. At this stage, the business needs the assistance of an experienced system integrator who can evaluate the multiple SD-WAN choices and determine the best fit solution.

The SD-WAN market is crowded with vendors. It is difficult for a business to determine the technical features that will meet business requirements, overcome existing problems and deliver a future-proof solution. This should be left to the SI partner.

The benefits of SD-WANs are irrefutable. These benefits are technical and commercial in nature. They solve several problems associated with traditional WANs. Going forward, with the increasing adoption of Cloud-based technologies, growing business locations, the need for unified communications and the growth in video-based collaboration a business will be left with no alternative but to capitalize on SD-WAN.

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References

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ⁱⁱ<https://www.idc.com/getdoc.jsp?containerId=prUS42925117>



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