

Secure SD-WAN

Simplifying Connectivity

Over the past few years, there have been remarkable improvements in information and networking technology. Especially in the **Wide Area Network (WAN)**. The most significant of these changes is the technology upgrade from the conventional WAN to the most recent **SD-WAN**.

As its name implies, the **SD-WAN** is an on-prem or in-cloud based software-defined wide-area network of modern technology. Its mode of operation is solely based on software to control services, connectivity, and manage networks between two or more destinations separated by a distance. Usually, the distances are between a data center and remote locations or branches where the network is needed.

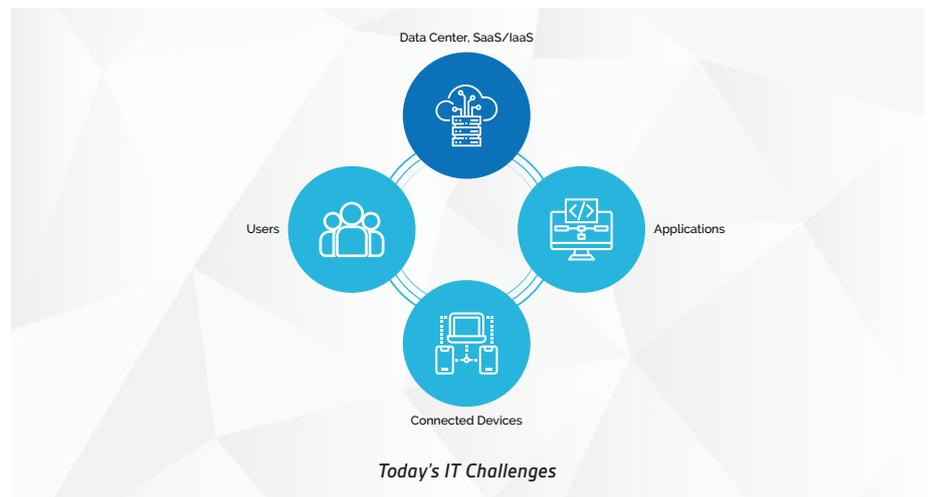
The **SD-WAN** has been able to change how networking gurus view the issue of connectivity optimization. In a more explicit analysis, the SD-WAN can segment, secure and partition traffic that passes from one point to another on WAN.

Organizations distributed geographically might have dozens or even hundreds of branch offices connected to hub / headquarter data centers. Mostly for security reasons, cloud-based application access traffic is often backhauled from the remote branch across expensive WAN links to a hub / HQ site before being redirected to the Internet. This practice, not only is expensive, but performance is often severely compromised due to necessary WAN bandwidth constraints at the remote branch and added latency from backhauling connections

Secure SD-WAN - Simplifying Connectivity

The driving principle of this technology is to aid in simplifying the way big institutions and companies switch links from head offices to branch offices. It also helps them to manage how the links are being utilized for all types of communication; video, data, or voice and even ICS / OT traffic.

As a result, it helps to reduce the cost of communication. So, it is safe to say SD-WAN manages wide-area networks, enables easy deployment of signals, improves connectivity between two distant locations (cloud service provider and branch offices) and subsequently reduces cost.



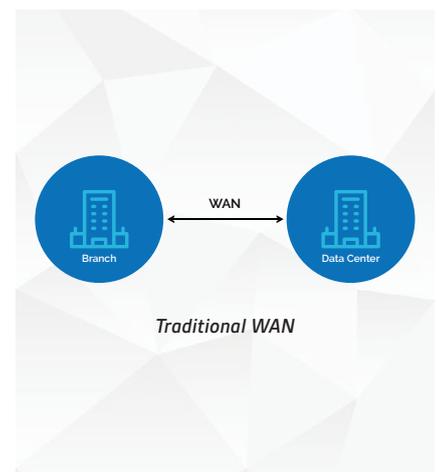
SD-WAN Technology and Cloud

The driving factor for the massive adoption of SD-WAN technology over the traditional WAN is basically to improve the quality of communication and reduce costs. However, there are more other factors that led to the adoption of this technology.

Over the past few years, there has been an increased number of cloud-based applications and containers that can only operate by tapping into the WAN edge. Since SD-WAN technology is more advanced, customers have been able to use it to create a link between data centers and cloud resources.

Since inception, we at DTS Solution are involved in network security architecture design, complex service migrations and building disaster recovery strategies for various mid-to-large enterprises, service providers, financial institutes and energy sector clients.

Overall, there are remote offices and branches with or without technical resources and the biggest challenge is how to provide secure access to head office or secure Internet when the primary link goes down. The SD-WAN benefits speak for themselves, most notable are advanced resilience and security controls, global availability, high performance, visibility and scalability. It is also quite fast to deploy and is elastic and therefore can be increased and reduced in terms of capacity when necessary.



SD-WAN vs IPMPLS

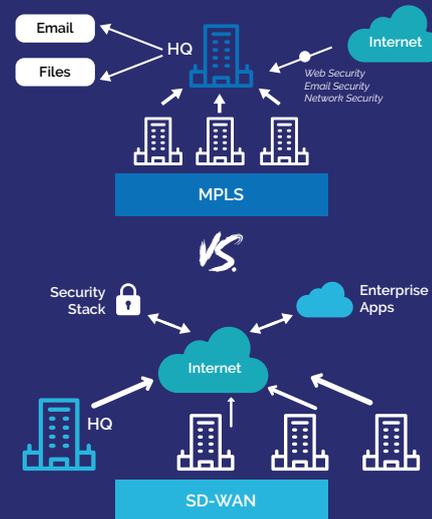
Years before the introduction of SD-WAN technology to the market, there had been a protocol known as the Multiprotocol Label Switching (MPLS). The MPLS is notable for aiding the efficient flow of network traffic between two geographical locations separated at a distance. The mode of operation of MPLS is quite similar to that of routers and switches. In a nutshell, to make a data forwarding decision quickly and efficiently, the MPLS employs a packet-forwarding technology using label to mark a packet's fate how and where it should be routed based on classification of the end user and the ISP.

However, the SD-WAN technology was creatively made from the MPLS technology. Although SD-WAN has more benefits over MPLS. It includes the security of private connectivity and coupled with the fact that MPLS is cloud-based.

One of the failures recorded in MPLS technology is the backup link problem. However, the technology adopted for SD-WAN has been able to correct this defect by introducing a real-time traffic configuration that is based on centralized policy.

To spin up traditional WAN service or trying to enhance an existing production one can take weeks or even months from the time the customer places an order with a service provider, broadband internet services globally are available virtually on demand and way cheaper than private MPLS links. By using broadband for WAN connectivity, a remote branch either same state or another country, can be online in hours instead of weeks.

Comprehending ROI (Return of Investment) for SDN (Software-Defined Networking) in the corporate network or even the head office data center has proven elusive. But with SD-WAN not so much, the ROI is immediately noticeable. With SD-WAN solution customers can now expand or even replace MPLS links with broadband internet services to connect users to applications and lower WAN costs by up to 80%.



SD-WAN vs. MPLS

SD-WAN and Network Security

One of the main importance of SD-WAN includes network security. The advent of cloud-based apps such as Amazon Web Services (AWS), Azure, Office 365 and so on; became the tipping point for a lot of enterprises. This is because their SD-WAN technology allows customers across the globe to set-up secure regional zones. Therefore, it allows them to direct traffic to where they want, securely without interrupting their individual internal security scheme.

The SD-WAN helps to streamline security into connectivity across different points. Using the SD-WAN, it has become quite easy to partition and protect mission-critical traffic against vulnerabilities from other regions. Most especially, in financial and healthcare institutions.

The next-gen firewalls, URL filter, IPS, cloud security, shadow IT and malware protection security features should all be included in building the SD-WAN technology footprint whilst ensuring possible cyber threats from, within, and outside the enterprise can be detected with ease.



Advantages of SD-WAN technology

The global market of SD-WAN continues to upsurge yearly. By prediction, the market could increase to \$5.25 billion in 2023, says IDC (International Data Corporation). The increase in the number of users of the technology is as a result of the following key benefits;

1. In the past few years, users had to connect to corporate data centers when they wanted to access certain business applications. Today, those applications can be accessed in the clouds without necessarily connecting to data centers.
2. The traditional WAN has become obsolete and almost useless due to the introduction of SD-WAN.
3. Long before now, traffic backhauling between two networks with the traditional WAN reduced the performance of applications and introduced latency. Meanwhile, SD-WAN introduces simplification and bandwidth efficiency. It also guarantees easy access to apps without having to sacrifice data security and privacy.
4. The SD-WAN features low cost and optimizes speed. It has been able to curb low-priority applications in the networked system.
5. It features centralized management across networks which in turn reduces the manual involvement of on-site IT staff and manual configuration.
6. Users can choose from the array of vendor and connectivity options.
7. It has increased bandwidth, compared to the traditional WAN.
8. SD-WAN offers predictable services for any enterprise application.
9. It has multiple hybrid links to facilitate resiliency over different upstream connectivity.
10. Last but not the least; enhanced cyber security feature set if the right technology partner for SD-WAN is chosen.