SD-WAN Simplified

velocloud™
by **Broadcom**

What is SD-WAN?

Software-defined wide area network (SD-WAN) is the application of software-based network technologies that virtualize WAN connections to provide agility, performance and reliability for network traffic between remote and branch offices to data centers and the cloud.

SD-WAN leverages cloud hosting to simplify the deployment and management of network devices and employs traffic steering to applications in the data center and the cloud. It combines the bandwidth of broadband with existing WAN connections to more efficiently and cost-effectively connect users to data center and cloud-based applications from any location in the network.

SD-WAN optimizes traffic over multiple available connections (MPLS, broadband, LTE, satellite, fixed wireless access) to deliver traffic across the network, delivering a better user experience to any location. SD-WAN will dynamically steer traffic to the best available link, and if the available links show any transmission issues, it will immediately apply remediation for jitter and packet loss based on policies to ensure performance of the high-priority applications.

Why Is It Changing the Network Game?

Traditionally, enterprises utilized dedicated, private, bandwidth-constrained, expensive MPLS networks for communications between branch offices, to and from headquarter locations, and to access applications and data housed in data centers. Broadband was only considered acceptable as a backup, due to its unreliable performance and security concerns. When cloud-hosted applications, such as Salesforce, Office 365, and Webex, entered the picture and enterprises moved to utilizing these apps on a day-to-day basis, MPLS was inadequate as well, from an architecture or bandwidth perspective. This is because applications in the cloud are reachable over the Internet, and backhauling to the data center is inefficient.

Enterprises needed a method of allowing each enterprise location to quickly access the following, all while maintaining business-grade performance and continuous uptime:

- Every other location in the network
- Data center-located applications and data
- All cloud applications over the Internet

SDN IS AN ARCHITECTURE; SD-WAN IS A TECHNOLOGY

Isn't SD-WAN Really SDN?

Software-defined networking (SDN) is an architecture; SD-WAN is a technology that can be purchased and is built on the foundational concepts of SDN. SD-WAN provides separation of management, control and data planes for better scaling and reliability, by making backup and failover of each plane easier. This prevents a failure in one service plane from affecting the rest of the services. SD-WAN scales design using cloud-hosted gateways for traffic steering to the cloud or the data center. Cloud-based management allows for ubiquitous access across all device types for ease of management.

Benefits of SD-WAN

Network Agility

Because SD-WAN is cloud delivered and software based, it allows for quick adaptation to changing needs, including adding access to cloud-based services, standing up new branches or remote offices, and dynamic steering of all traffic for optimized application and data delivery.

Ease of Deployment

SD-WAN allows for various deployment options for the edge device, including: dedicated hardware, a virtualized appliance, or a hybrid solution (cloud/software and hardware). In each instance, the components connect to a central orchestrator when brought online, and configurations are pushed from the central orchestrator to the edge device. There is no need for a specialized technician to facilitate installation, which saves time and money.

Central Management and Control

A centrally located orchestrator monitors all network activity, alerts when there are problems, and enables the remote remediation of issues. The orchestrator enables the automatic push of updated configurations and application-specific policies to each network node, quickly and efficiently. In addition, it delivers real-time analytics and reporting that can be used for performance monitoring and troubleshooting.

Data Segmentation

The SD-WAN controller can be used to create virtual network segments to isolate data, including PCI data, to ensure data integrity and provide PCI audit compliance.

Segmentation also allows for overlapping IP addresses, which makes it easy to incorporate multiple networks into the system.

AN SD-WAN DEPLOYMENT IS 2.5 TIMES LESS EXPENSIVE THAN TRADITIONAL WAN ARCHITECTURES

Cost Reduction

Gartner reports that an SD-WAN deployment is 2.5 times less expensive than traditional WAN architectures. The root of this reduction is attributed to the following:

- Augmenting existing infrastructure, such as MPLS and leased lines, with broadband, LTE, and other connection types increases agility and reduces costs for bandwidth.

- Centralizing the management and control of network activity eliminates the need to send out trained technicians to assess and repair issues, which reduces problem identification and associated remediation costs.

- Allowing pay-as-you-go plans (subscription models) defrays high upfront investment costs and ongoing maintenance and upgrade fees.

- Zero-touch provisioning allows quick branch deployments and reduces time to accessibility, as all deployment functions are managed from the central IT home office.

- A flexible deployment model can either interoperate with the branch office router or replace it.

- Deploying application-specific hardware or software at each branch location is eliminated, as the SD-WAN edge devices can host virtual services and direct access to cloud-based services.

For more in-depth information on SD-WAN, visit the VeloCloud SD-WAN website.