

VMware SD-WAN by VeloCloud

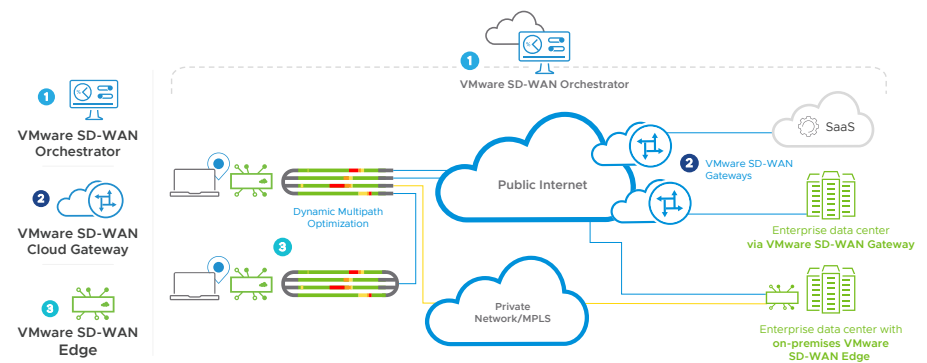


Introducing VMware SD-WAN by VeloCloud

VMware SD-WAN™ by VeloCloud® is a cloud-delivered solution for network operators and application owners who want to ensure high application performance and availability for their end users while lowering networking costs. VMware SD-WAN ensures a reliable and resilient wide area network (WAN), with a choice of connection types, including: Multiprotocol Label Switching (MPLS), LTE, WiFi and broadband. VMware SD-WAN combines multiple links and uses traffic steering technology to select the best path for each application to ensure consistent performance and overcome quality issues and outages. It can detect slight degradation that would affect application performance, improve performance over a single link using congestion mitigation technology and adapt without any noticeable impact to the user experience.

VMware SD-WAN enables enterprises to securely support application growth, network agility, and simplified branch implementations while delivering high-performance, reliable branch access to cloud services, private data centers and software as a service (SaaS) based enterprise applications. VMware SD-WAN is built on software-defined networking principals to address end-to-end automation, application continuity, branch transformation, and security from the data center and cloud to the edge. The VMware SD-WAN solution consists of hosted or on-premises cloud gateways; branch office appliances and data center appliances; a central orchestrator to automate policies; and virtual services insertion capabilities.

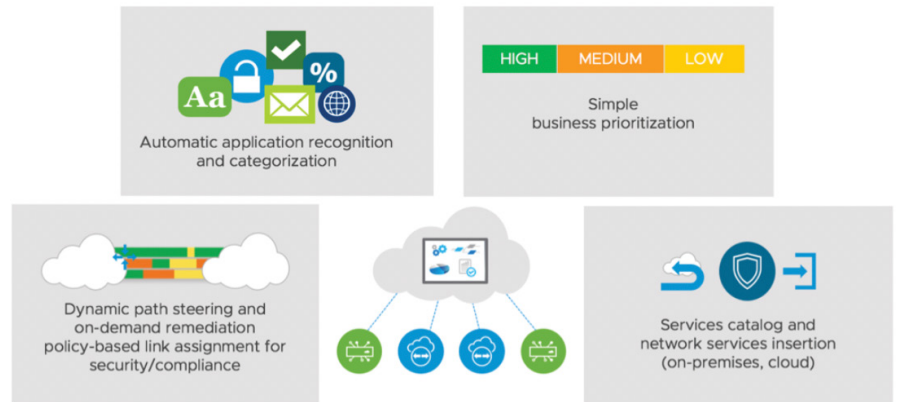
VMware SD-WAN Benefits



Why You Need VMware SD-WAN

- If you have branch/remote offices that you need to bring up quickly, that require more bandwidth or better link quality, or have applications such as voice or video (that are sensitive to congestion), VMware SD-WAN will make a significant difference in link performance.

Business Policy Driven SD-WAN



- If you are using SaaS applications (such as Salesforce.com, Google Mail, AWS, or Office 365), VMware SD-WAN provides seamless connectivity without traffic backhaul to the data center.
- If you need to provide virtual private network (VPN)/encrypted services, offer per-packet load balancing for encrypted traffic or need to create on-the-fly, point-to-point communications between endpoints securely.
- If you want to have full management and visibility of your WAN and each edge end-point at the touch of your fingertips, VMware SD-WAN will measure and monitor the health of your links, adapt and react to any issues, remediate, do forward error correction (FEC) and steer the traffic as needed.

VMware SD-WAN Components

VMware SD-WAN Gateways

A distributed network of gateways, deployed around the world or on-premises at service providers, provide scalability, redundancy and on-demand flexibility. VMware SD-WAN Gateways optimize data paths to all applications, branches, and data centers along with the ability to deliver network services to and from the cloud.

VMware SD-WAN Orchestrator

A cloud hosted or on-premises secure and scalable web-based central management tool provides simplified configuration, provisioning, monitoring, fault management, logging, and reporting. The VMware SD-WAN Orchestrator enables the simple implementation of business-based policies for application delivery simplifying application traffic management.

VMware SD-WAN Edge

Zero-touch enterprise-class appliances that provide secure optimized connectivity to applications in any location, including private data centers, public clouds and hybrid deployments. The VMware SD-WAN Edge performs deep application recognition, application and packet steering, performance metrics and end-to-end quality of service. They can host virtual network function (VNF) services simplifying branch office deployments of network services. VMware SD-WAN Edges deliver highly available deployment with a redundancy protocol. They integrate with the existing network with support for open shortest path first (OSPF) routing protocol and benefit from dynamic learning and automation. The VMware SD-WAN Edge is available as a hardware-based appliance, a virtual appliance, and on the cloud marketplace on Amazon Web Services (AWS) and Azure. It can also be loaded in a virtual machine (VM) on a server or as a VNF.

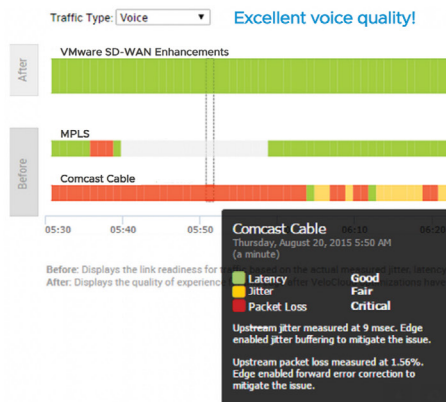
VMware SD-WAN Features

Dynamic Multipath Optimization™ (DMPO)

VMware DMPO provides automatic link monitoring, auto-detection of provider and autoconfiguration of link characteristics, routing and quality of service (QoS) settings. VMware DMPO delivers subsecond blackout and brownout protection to improve application availability. It remediates link degradation through FEC, activating jitter buffering and synthetic packet production.

VMware DMPO in Action

Assured application performance over any type of link



Continuous Link Monitoring

- Drives automation and optimization

Dynamic Per Packet Steering

- Sub-second steering without session drops
- Aggregated bandwidth for single flows

On-Demand Remediation

- Protects against concurrent degradation
- Enables single link performance

Zero-Touch Provisioning

Appliances automatically authenticate, connect, and receive configuration instructions once they are connected to the Internet in a zero-touch deployment.

Security Service Chaining

Transparently forward select traffic to the cloud-based security service based on business-policy definition without any branch-by-branch or application-based configuration.

Network Functions Virtualization Infrastructure

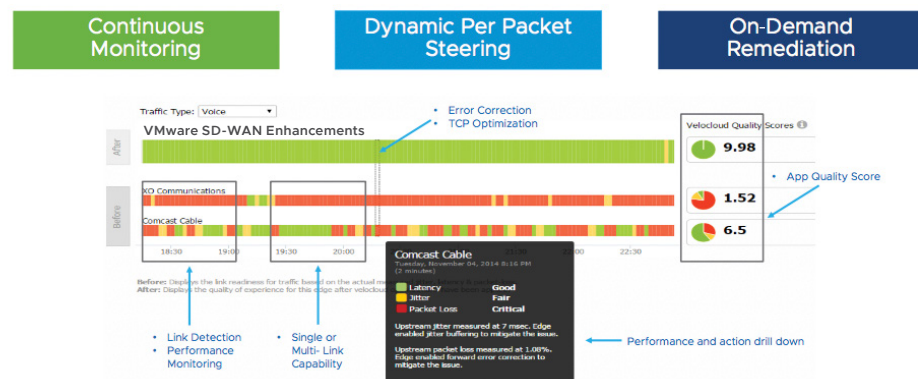
The solution provides for service chaining using an Network Functions Virtualization (NFV) infrastructure for service delivery. The VMware SD-WAN Virtual Edge can be deployed on a virtual customer premises equipment (vCPE). Several of these are tested and in use.

Application Visibility

Recognition and classification of 2,500+ applications and sub applications without the need to deploy separate hardware or software probes within each branch location. The solution intelligently learns applications and adds them to the cloud-based application database. Services such as firewall, intelligent multipath, and Smart QoS may be controlled through the solution's application-aware business policy control.

Assured Application Performance Over Any Link

MPLS, Internet broadband and LTE circuits



Application Performance Monitoring

VMware SD-WAN continuously computes a VMware SD-WAN quality score to assess performance of critical voice, video, or data applications at any given time with the ability to alert IT staff. This analysis provides administrators a comprehensive before and after view into application behavior on individual links and the VMware SD-WAN enhancements.

Any Connection Type

The solution provides the ability to use any connection type, including; LTE, Wi-Fi and Satellite, along with landlines so that any site can be quickly connected to the network.

Network Agnostic Virtual Overlay

The VMware SD-WAN solution creates a virtual network overlay that can run over any underlying physical network.

Payment Card Industry Data Segmentation

VMware SD-WAN Orchestrator can easily be used to create virtual network segments to isolate data including Payment Card Industry (PCI) data, to ensure PCI audit compliance. The VMware SD-WAN solution is certified by PCI certification agencies including CoalFire.

Multiregion SD-WAN

The VMware solution allows for creating a multiregion SD-WAN overlay where virtual links can span service provider networks without the need to change the underlying network, thereby enabling full connectivity for global corporations.

Cloud VPN

One-click, site-to-site cloud VPN is a VPNC-compliant IPsec VPN to connect SD-WAN sites and non-SD-WAN sites while delivering real-time status and health updates of VPN sites.

For more information about VMware SD-WAN, visit www.velocloud.com.