

Achieve the Performance and Simplicity of SD-WAN with NFV



VMware SD-WAN combined with the VMware vCloud NFV platform provides the benefits of end-to-end software-defined networking—from the remote enterprise branch to the hybrid data center.

VMware SD-WAN™ by VeloCloud® combines the economics and flexibility of hybrid WAN with the speed of deployment and low maintenance of cloud-based services. The VMware SD-WAN virtual overlay aggregates multiple WAN links (private/MPLS, cable, DSL, 4G LTE) at the branch office for optimized and secure connectivity to enterprise and cloud data centers. The solution dramatically simplifies the WAN with cloud-based orchestration for zero-touch deployments, policy-based configurations, and enterprise-wide visibility.

The VMware SD-WAN Edge by VeloCloud is a physical or virtual appliance that can be zero-IT-touch provisioned from the cloud for secure, optimized connectivity to applications and data. Edges are deployed at branches, regional service hubs, and enterprise data centers. The multitenant VMware SD-WAN Gateways by VeloCloud are deployed globally at top-tier cloud data centers and by service provider partners to provide a highly scalable, on-demand cloud network service. The VMware SD-WAN overlay delivers Dynamic Multipath Optimization (DMPO) that performs application steering and link remediation, as needed, across multiple links for a high-bandwidth, high-performance service. The VMware SD-WAN Orchestrator by VeloCloud provides centralized management, real-time monitoring, and one-click provisioning of virtual services.

The VMware network functions virtualization (NFV) platform is a key component of the software-defined data center (SDDC) that is redefining the hybrid data center infrastructure.

Managed SD-WAN service

Solutions powered by VMware vCloud NFV

Delivering business-critical applications to enterprise branches over the WAN poses several challenges for both enterprises and service providers. The VMware joint network solution virtualizes WANs with software-defined principles based on the VMware vCloud® NFV™ platform and VMware SD-WAN. This joint solution addresses the following problems:

- Large-scale deployments of critical applications, such as the VMware Horizon® View™ virtual desktop, unified communications, and others, that are inhibited by expensive bandwidth. Inexpensive broadband WAN links are widely available but are unreliable and complex to support.
- Deploying network services on demand is hindered by complex provisioning and monitoring requirements. Enterprise branches want network services, such as SD-WAN, firewall, and VPN, to be deployed on demand without the need of a branch visit by IT.
- Performance and management problems that are a result of poor visibility and control of WAN links.

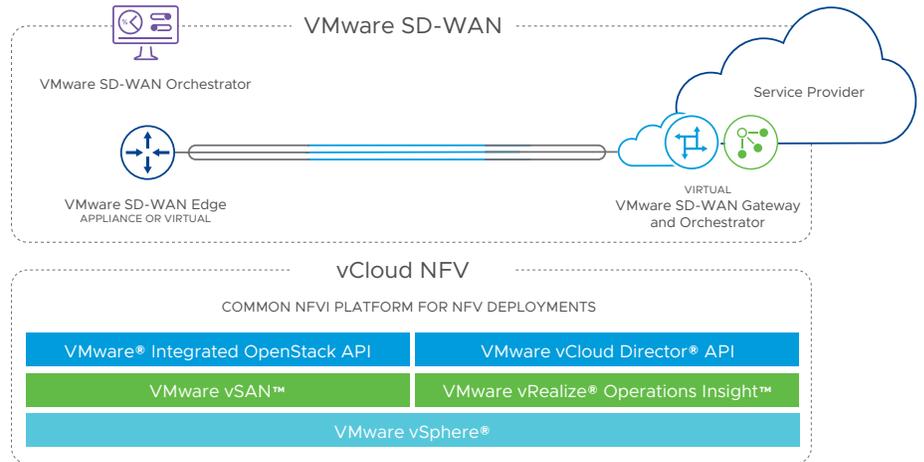


FIGURE 1: The VMware joint network solution.

VMware SD-WAN

With application-aware, per-packet steering and on-demand remediation, VMware SD-WAN DMPO assures performance for demanding real-time applications, including unified communications and virtual desktop infrastructure (VDI) such as Horizon View.

VMware SD-WAN can be deployed as zero-touch appliances, virtual appliances, or hosted as multitenant services platforms. Business-level policies enable one-click, policy-based service chaining of traffic to enterprise service hubs on the branch edge or in the cloud.

Managed cloud on-ramp

The VMware SD-WAN system of cloud gateways uniquely provides a managed cloud on-ramp. Unlike best effort, direct branch-to-cloud alternatives, the complete capabilities of VMware SD-WAN are deployed at the doorstep of cloud applications to optimize and secure connectivity to the complete capabilities of VMware SD-WAN and network/cloud security services.

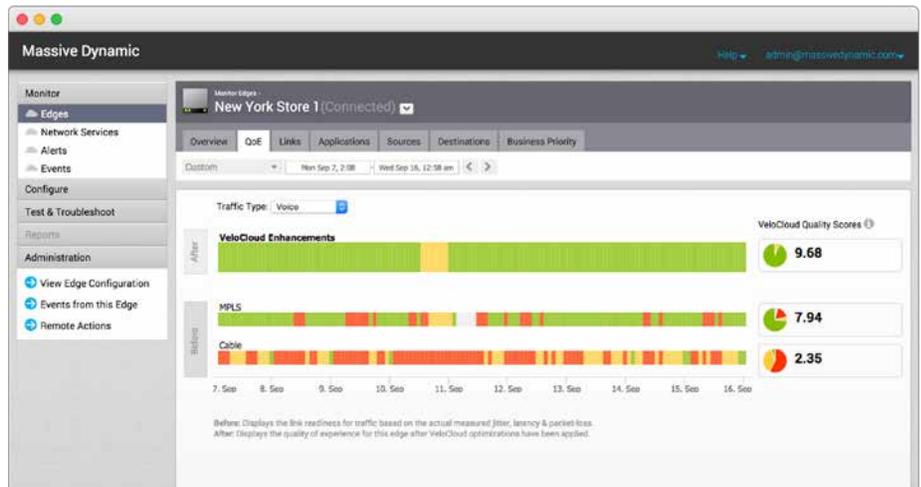


FIGURE 2: VMware SD-WAN dashboard.

How it works

VMware SD-WAN DPMO is delivered by the unique combination of three capabilities.

Continuous monitoring

Automatic detection and monitoring of any attached WAN circuits provides a real-time assessment of WAN capacity and performance profile, including latency, jitter, and packet loss on a unidirectional basis. This automates the provisioning of sites, as configurations don't need to be manually done on a site-by-site basis depending on the particular circuits available. The current performance profile also drives the dynamic app steering and on-demand remediation.

Dynamic app steering

Based on the business priority and the current link conditions, recognized application flows are steered on a per-packet basis to the optimal link or links. Critical applications such as Horizon View can be steered midstream without interruption as brownout conditions are detected on any WAN link. Dynamic app steering enables sub-second reaction to any brownout or blackout occurrences, as well.

On-demand remediation

In addition to being able to steer around brownouts, if all links experience degradations concurrently or only one link is available, then on-demand remediation of packet loss or jitter ensures performance for critical applications.

SD-WAN on an NFV platform

The VMware SD-WAN solution can be deployed in enterprise WAN and service provider data center architectures incrementally and with ease of operations via the vCloud NFV capabilities. The joint solution assures performance and on-demand service availability for enterprises either over the Internet or a hybrid WAN while dramatically improving deployment time, availability, and reducing costs.

Virtual edge on VMware ESXi in the branch with VMware SD-WAN

Enterprise customers prefer easy deployment of network services from SD-WAN to firewalls provisioned from a central location to minimize trips to remote offices or reliance on local IT, and eliminate stacks of physical appliances. This enables IT and service providers to dramatically reduce costs.

The VMware SD-WAN Edge is delivered as a virtual network function and deployed on any x86 platform running the VMware ESXi™ hypervisor. VMware SD-WAN Orchestrators and distributed controllers provide resilient management and monitoring of the VMware SD-WAN Edges. These components can be hosted by a service provider or deployed on premises at the enterprise as software components.

On-demand network service provisioning from regional data centers

Enterprises are adopting the on-demand provisioning and chaining of network services from centralized regional locations. However, forwarding traffic from multiple distributed offices over the WAN is complex and onerous for IT to maintain consistency and availability of these services.

The VMware SD-WAN business policy framework enables one-click service insertion from central locations, eliminating complex configurations and management. With this business policy framework, services can be inserted and removed on demand based on branch characteristics, applications, and business objectives. Software-defined agile configuration of the WAN, as well as virtual deployments of the SD-WAN services, complement the SDDC capabilities provided by the VMware NSX® platform.

Joint solution benefits

In summary, the combined solution provides the following benefits:

- Assured carrier-grade application performance over the SD-WAN virtualized network
- End-to-end software-defined management of the WAN and the data center
- Rapid deployment of branches and scaling of cloud data centers
- Multi-vendor services insertion and policy-based chaining
- Enterprise-wide visibility and operational control
- Reduced infrastructure, WAN circuit, and operations costs
- Ensured protection for all resources in both the branch and data center via advanced, integrated security