

Nuage Networks facilitates Extranet VPNs among multiple business partners with end-to-end policy-based control and automation

Introduction

Enterprises around the world have long relied on virtual private networks (VPNs) to provide secure, reliable and high-capacity networking between their remote sites, branch offices and corporate IT hubs. In most cases, at least some if not a majority of the corporate network traffic is routed over VPN services from network service providers. They provide the quality of service, security and network availability that is not assured by commercial broadband Internet connections.

Many enterprises also have business partners or affiliates that require access to their internal enterprise resources — applications or mission-critical data — and require the same high-level network security, quality and availability as enterprise VPN services provide. These multi-party private networks are generally referred to as “Extranets”, as opposed to purely internal private corporate networks, or “intranets”.

One example of an Extranet is a tightly integrated set of supply chain partners that need to connect to each other’s manufacturing and logistics applications to facilitate orders and shipments in a timely, automated fashion. Another Extranet example is a financial network of banking and financial institutions that need to share information for clearing payments, access shared financial applications and exchange account information.

Software-defined wide area networking (SD-WAN) provides an alternative to current VPN technology and dramatically reduces VPN networking costs and operational expenses for global enterprises. This technology is now providing the same benefits to multi-party private Extranets. Nuage Networks Virtualized Network Services (VNS) SD-WAN solution provides policy-based control to simplify the management and automation of Extranets, while maintaining security controls and accelerating the time to integrate new Extranet partners and sites.

Key business benefits

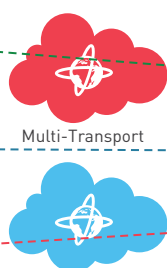
Accelerated on-boarding to support new partners and projects with minimal to no operational overhead

Nuage Networks VNS automates VPN Extranet connectivity with on-demand network configuration and provisioning. Centralized policy templates simplify connectivity setup and related IT tasks for integrating new partners and sites to the Extranet such as providing secure access to critical applications. Site connectivity and partner integration can take hours rather than weeks, as with traditional VPN services.

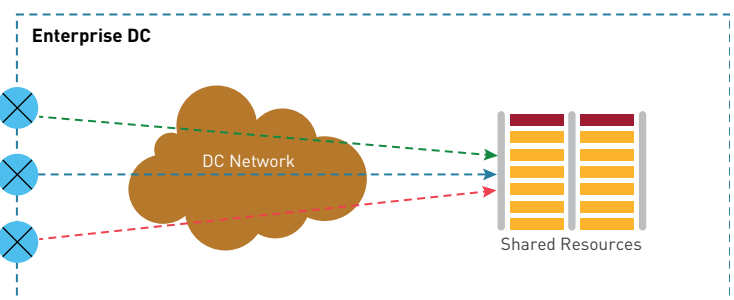
Improved network security policy enforcement, centralized controls and reduced risk

Organizations that use the hub-and-spoke model to provide partner access to key enterprise resource planning (ERP) applications can maintain security policy controls centrally, without relying on partners to configure access controls. Control for branch network policies is also retained centrally, not by remote technicians, helping to reduce security risk and ensure oversight and compliance. Nuage Networks VNS is a PCI DSS-compliant solution and provides IPSec secure VPN communications between partners and sites.

Partner Untrusted Network (Extranet)



Enterprise Trusted Network



The Challenges

Enterprises provide Extranet connectivity to mission-critical applications and data to support business relationships among partners. Business partners typically access the shared resources via high-quality IP/MPLS connections or IPSec VPNs. This creates complexity in the overall network architecture, and likely additional overhead, cost and complexity for partners that need to establish additional specific VPN connectivity, including:

- Installation, configuration and maintenance of customer premises equipment (CPE) devices, typically edge routers, at partner Extranet sites
- Manual custom setup for partner and Extranet site CPE
- Securing traffic over multiple connections to centralized resources
- Isolating partner Extranet activity to avoid information leaks between business partners

Traditional VPN setup also offers no centralized secure way to apply policy and configurations across the Extranet infrastructure, as global updates are required. Each partner Extranet connection must be managed separately with their own change windows. There is also no central control over partner Extranet sites and remote network appliances. It requires technical hands-on expertise at each location for setup and troubleshooting, usually with untrusted personnel at the partner site.

Additional Extranet requirements

To ensure uninterrupted and effective electronic communication between business partners, enterprises require the following security considerations for Extranets:

- Extranets and the intranet must be separate networks, but with common policy partners and shared applications
- Full segmentation at the enterprise data center gateway where resources are located
- Secure connections over multiple transport networks, including the carrier's IP/MPLS service and public internet service
- Overlapping IP addresses for multiple partners or end users
- Single policy for both intranet and Extranet domains for security and routing controls
- Centralized control plane to manage, monitor and troubleshoot all partner and remote site connectivity
- Partner Extranet connectivity needs to be isolated without information leaks between partners
- Full redundancy at each level to ensure uninterrupted partner Extranet connectivity.

The solution

Nuage Networks VNS is the leading SD-WAN platform to bring SDN principles and policy-based automation to WAN connectivity. Having evolved from telco-grade network operating system technology used in some of the world's most scalable routers, VNS

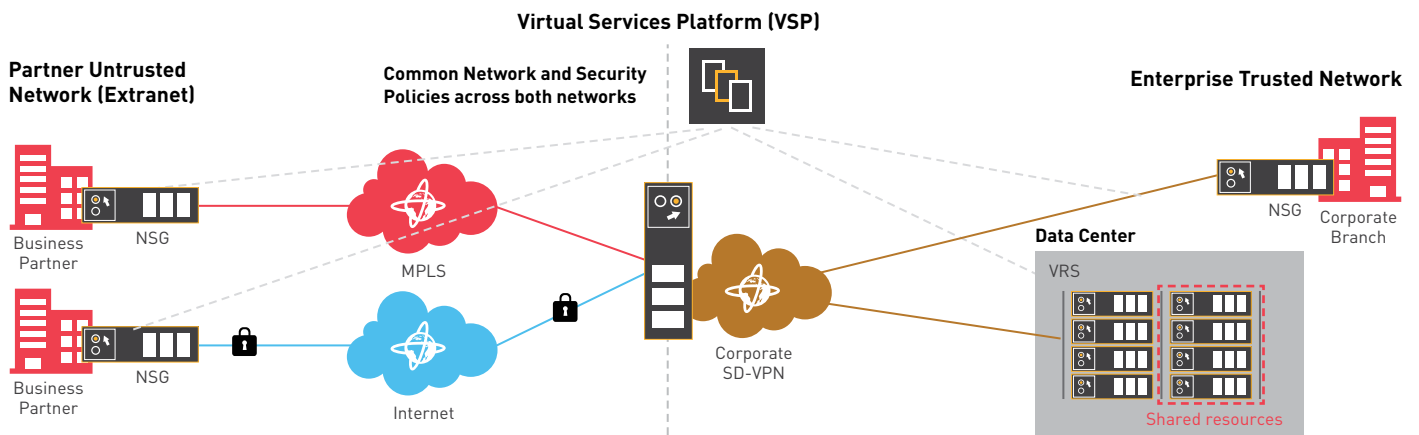
employs many of the same principles used in mission-critical IP/MPLS VPN infrastructures, on which traditional Extranets have relied. Nuage Networks unifies the management and provisioning of virtual networks regardless of the underlying network technology, allowing seamless integration of IP/MPLS and broadband internet-connected sites and partners.

Nuage Networks VNS provides a broad spectrum of network and services automation to accelerate IT processes as well as increase the efficiency of the Extranet. A centralized Extranet partner is able to maintain complete policy control of all sites and all regions. A centrally managed set of policies are automatically deployed to remote partner equipment to maintain proper configurations and enforcement. This reduces the complexity and control at the remote site dramatically, accelerates the time to complete set-up and updates and removes many potential security risks.

Nuage Networks VNS enables:

- **End-to-end secure connectivity:** The Nuage Networks NSG-BR (border router) functionality extends seamless connectivity between disparate networks. It connects untrusted domains (partner Extranet networks) to the core enterprise trusted network and provides the gateway functionality for partner Extranet connectivity.

Nuage Networks seamless end-to-end secured connectivity solution for business partner Extranet connectivity





- **Centralized access and security**

controls: Using the centralized policy, an enterprise can enforce network wide security policy at each partner. Using VNS, an enterprise can also trigger events in case there is any abnormality in the network. Any unwanted traffic can be blocked at the source Extranet site and malicious traffic never enters the core enterprise network.

- **Network isolation:** NSG-BR extends the overlay tunnels (VXLAN or IPSec) from partner Extranet sites to the applications inside the enterprise network, creating and managing a single SDN overlay between partners. This also reduces the overall firewall and de-militarized zone (DMZ) setups within the enterprise network.

- **Segmentation and multi-tenancy:**

NSG-BR also enables connectivity between multiple partner domains with a single appliance. This eliminates the need to have a separate head-end device for each partner. NSG-BR also ensures network traffic isolation between partners to make sure that information (such as routes) is not leaked between partner domains.

- **Redundancy at each level:**

Nuage Networks VNS provides full redundancy at each network level, access, node and WAN links, offering zero-downtime to partners' connectivity and business continuity.

- **Savings in CAPEX and OPEX:**

VNS provides centralized configuration and management of all the end points including policy and security configurations. Zero-touch bootstrapping removes the need to send technicians on-site, reducing operational complexity and training. Nuage Networks offers a range of remote site integration solutions for partner sites, including virtual appliances running on commodity PC hardware, without the need for dedicated VPN routers.

For more information:

<http://www.nuagenetworks.net/products/virtualized-network-services/>