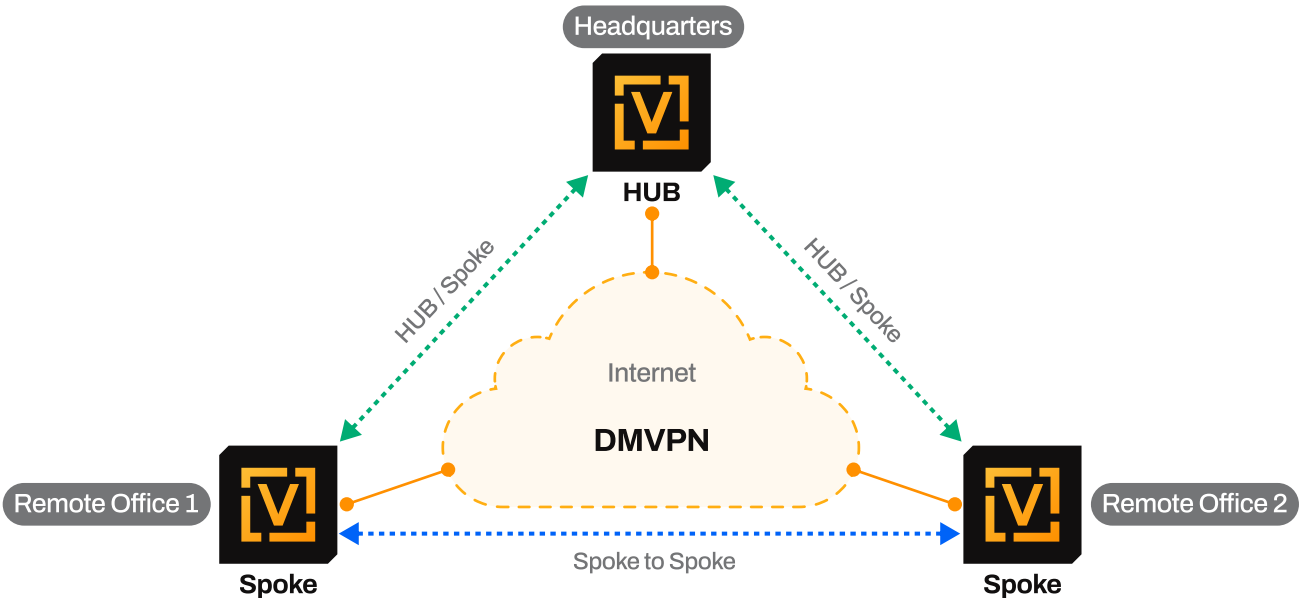
VyOS Networks

SOLUTION BRIEF

VYOS UNIVERSAL ROUTER FOR DMVPN

Introduction

Dynamic Multipoint VPN (DMVPN) is a dynamic multipoint VPN solution that enables the creation of secure and scalable VPN networks between multiple sites, without the need to manually configure tunnels between each pair of sites. It uses protocols such as GRE (Generic Routing Encapsulation), IPsec for encryption, and NHRP (Next Hop Resolution Protocol) for dynamic tunnel discovery.



Benefits of DMVPN

- **Scalability**

  Traditional hub-and-spoke VPN architectures require manual configuration of tunnels between all sites, which becomes complex and unmanageable as the number of sites grows. DMVPN simplifies this by allowing spokes to dynamically establish direct tunnels with each other as needed (spoke-to-spoke communication), reducing the load on the central hub and improving performance.

- **Reduced Configuration and Maintenance**

  With DMVPN, there's no need to pre-configure every possible tunnel between remote sites. This minimizes administrative overhead and makes network expansion or modification much easier.

- **Improved Performance and Efficiency**

  Direct spoke-to-spoke tunnels reduce latency and bandwidth usage by avoiding unnecessary traffic through the hub site. This is particularly beneficial for applications like voice, video, and inter-branch communication.

- **Enhanced Security**

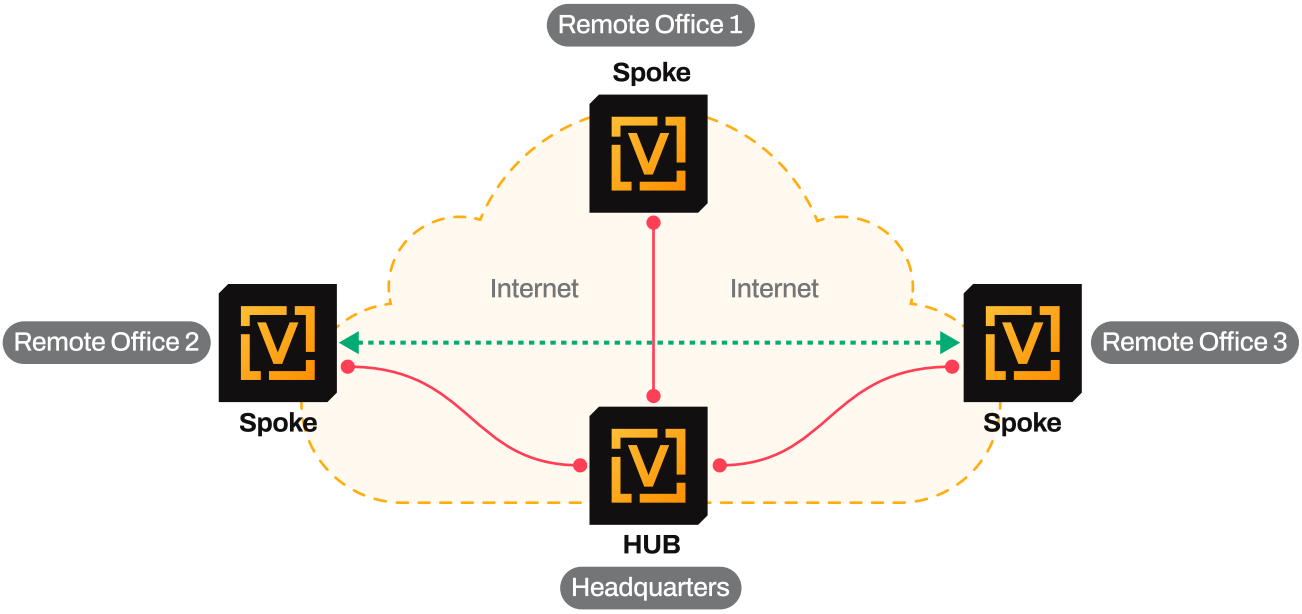
  By integrating IPsec encryption, DMVPN ensures that data is securely transmitted across the internet or any untrusted network. Each dynamic tunnel is encrypted, maintaining confidentiality and integrity.

- **Dynamic Routing Support**

  DMVPN supports dynamic routing protocols like EIGRP, OSPF, and BGP over the tunnels, enabling automatic route exchange and improved network resiliency.

Use Case for Companies

Companies with multiple branch offices, remote locations, or mobile workers can greatly benefit from DMVPN. It provides a cost-effective way to create a fully-meshed VPN infrastructure without the need for complex configurations. Whether it's a retail chain, a multinational corporation, or a government agency, DMVPN helps ensure secure, flexible, and high-performance interconnectivity between all sites, even as the organization grows or changes.



How VyOS Can Help Build a DMVPN Network

VyOS is a feature-rich, open-source network operating system that runs on standard hardware or virtual machines. It supports a wide range of routing, VPN, and security features — including components required for a DMVPN deployment.

Key DMVPN Components and VyOS Support:

- **GRE Tunnels (Generic Routing Encapsulation)**

  VyOS fully supports GRE tunnels, which are used in DMVPN to encapsulate traffic between sites over the public internet or other transport networks.

- **IPsec Encryption**

  VyOS integrates strongSwan, providing robust IPsec support. You can encrypt GRE tunnels to ensure data confidentiality and integrity.

- **NHRP (Next Hop Resolution Protocol)**

  VyOS support for NHRP that provides the dynamic tunnel endpoint discovery mechanism (endpoint registration, and endpoint discovery/lookup).

- **Dynamic Routing Protocols**

  VyOS supports OSPF, BGP, and RIP, enabling automatic routing updates over the dynamic tunnels, a key part of scalable DMVPN deployments.

Benefits of Using VyOS for DMVPN-like Architectures

Cost-effective:
Being open-source, VyOS eliminates expensive licensing fees associated with proprietary DMVPN solutions.

Flexible Deployment:
VyOS can run on bare-metal, virtual machines, containers, and cloud platforms (AWS, Azure, etc.), giving companies flexibility in where and how they deploy DMVPN nodes.

Customizable and Transparent:
As VyOS is based on Linux, advanced users can tweak or automate configurations using shell scripts or APIs, giving more control over DMVPN-like setups.

Secure and Stable:
VyOS leverages well-established Linux networking tools ensuring a secure and stable foundation for VPNs.

Companies seeking open-source, cost-effective alternatives for connecting multiple sites securely and dynamically, VyOS offers a powerful platform to implement DMVPN.

sales@vyos.io
vyos.io