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GWR/GWRI

Advantages of Geneko DMVPN Technology

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What is DMVPN?

Very useful, flexible and scalable tunneling technology. DMVPN is the preferred solution for organizations requiring encrypted WAN connectivity between remote sites. In other words, DMVPN provides easy way to connect number of different sites/locations into one protected VPN with encrypted traffic (figure 1).

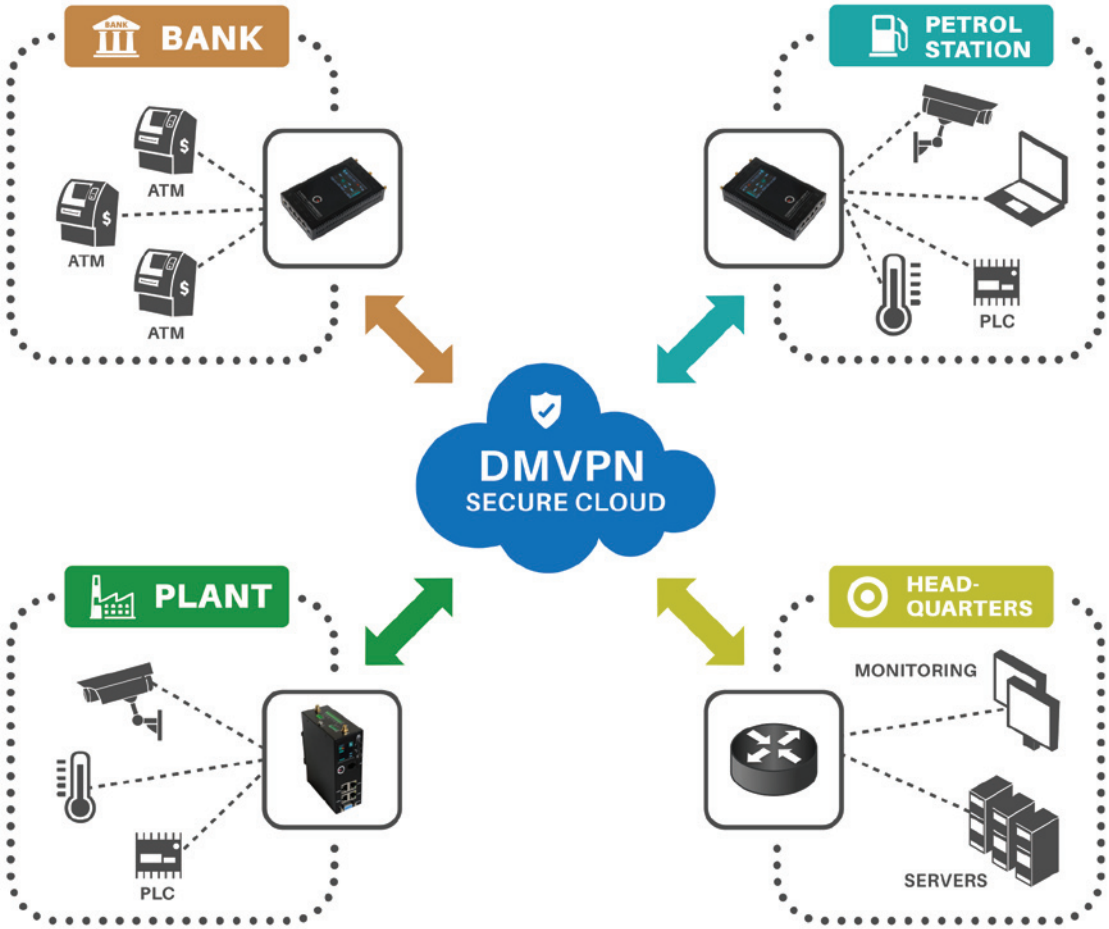

Figure 1: DMVPN provides protected connection

Why DMVPN?

- On-demand full mesh connectivity with simple hub-and-spoke configuration
- Automatic IP Security (IPsec) triggering for building an IPsec tunnel
- Minimum deployment for adding/removing remote sites
- Reduced latency and multicast support
- Possible to deploy routing protocols over DMVPN

Deployment Scenarios

DMVPN can be deployed in two ways:

1. **Hub-and-spoke deployment model:** In this traditional topology, remote sites (spokes) are aggregated into a head end VPN device at the corporate headquarters (hub). Traffic from any remote site to other remote sites would need to pass through the hub device. DMVPN supports dynamic routing and IP Multicast while significantly reducing the configuration effort (figure 2).

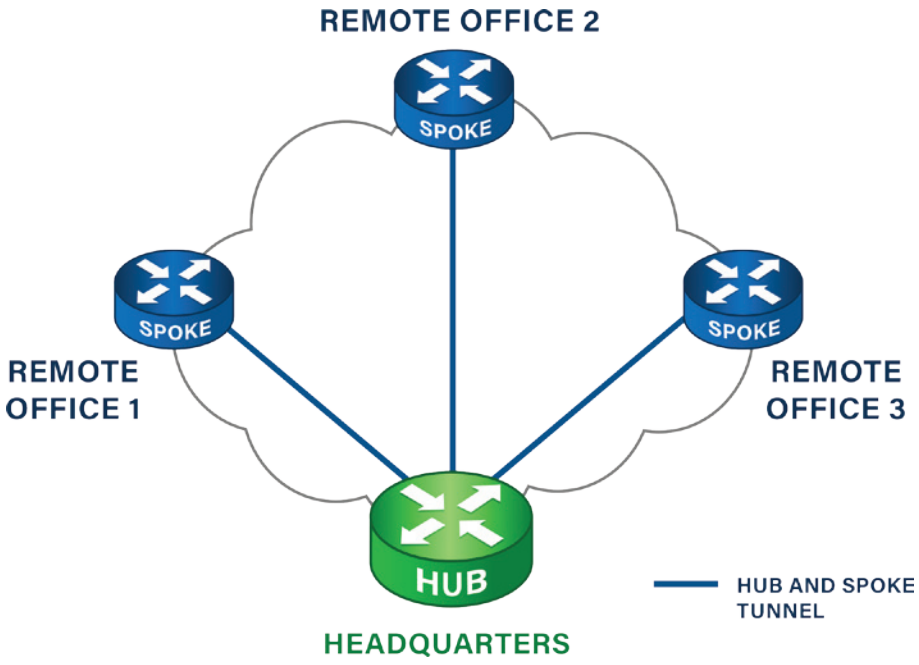

Figure 2: DMVPN hub and spoke

2. **Spoke-to-spoke deployment model:** DMVPN allows the creation of a full-mesh VPN, in which traditional hub-and-spoke connectivity is supplemented by dynamically created IPsec tunnels directly between the spokes. With direct spoke-to-spoke tunnels, traffic between remote sites does not need to traverse the hub; this eliminates additional delays and conserves WAN bandwidth (figure 3).

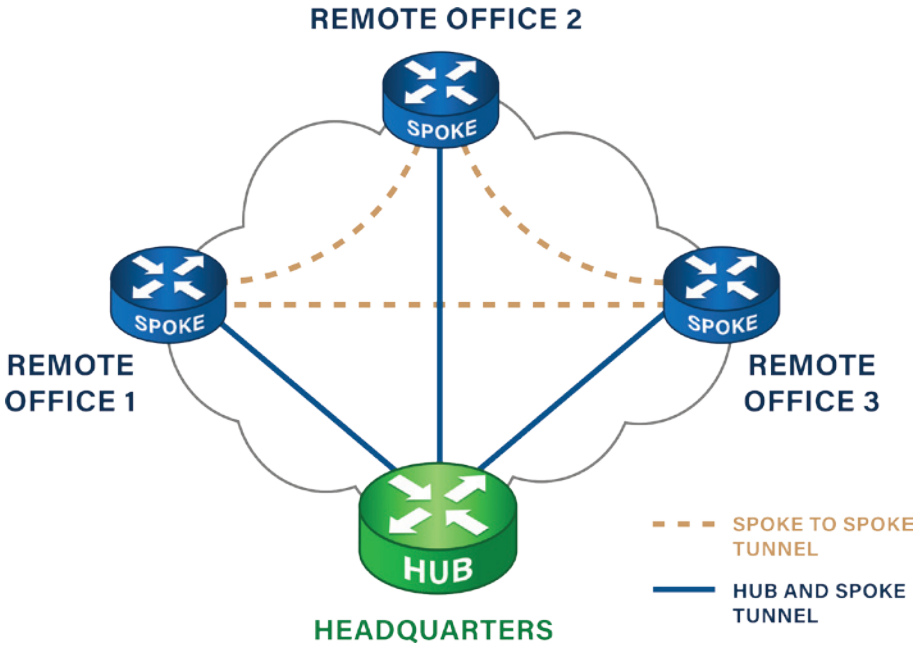

Figure 3: DMVPN full mesh

Applications

Medium-sized and large enterprises

In industries such as M2M and IoT, finance, insurance, or retail, numerous sites are typically connected to the corporate headquarters and servers. Critical applications such as bank ATMs, point of sale (POS) machines or PLC electronic devices are deployed over these connections. DMVPN allows these sites to connect over the Internet or Mobile private APN, providing privacy and data integrity while meeting the performance requirements of business-critical applications. First example could be connecting ATM machines to bank headquarters (figure 4).

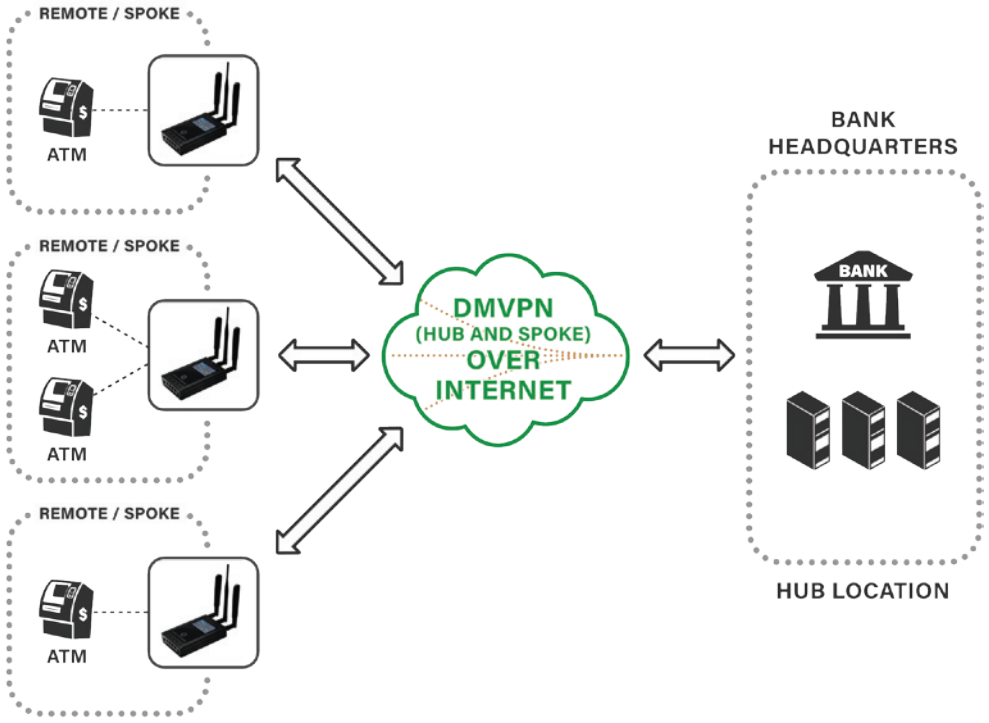

Figure 4: DMVPN hub and spoke connecting of ATM machines

Second typical application is in M2M industry with SCADA to PLC connection (figure 5).

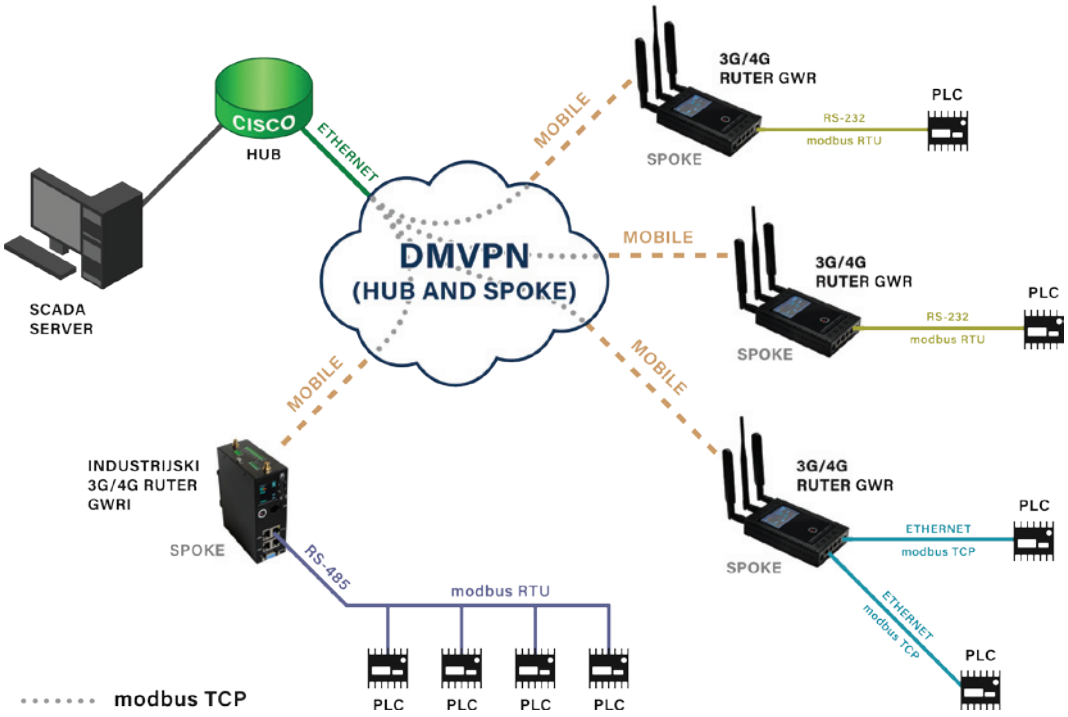

Figure 5: DMVPN hub and spoke deployment for SCADA – PLC communication

Enterprise extranet

Large enterprises frequently require connectivity to many business partners. DMVPN can be used to secure traffic between the enterprise and various partner sites, providing network segregation by helping to ensure that no spoke-to-spoke traffic is allowed, even through the hub. Good example can be Petroleum Company which connects different partners petrol stations, oil platforms, refineries, plants, monitoring systems... into one network (figure 6).

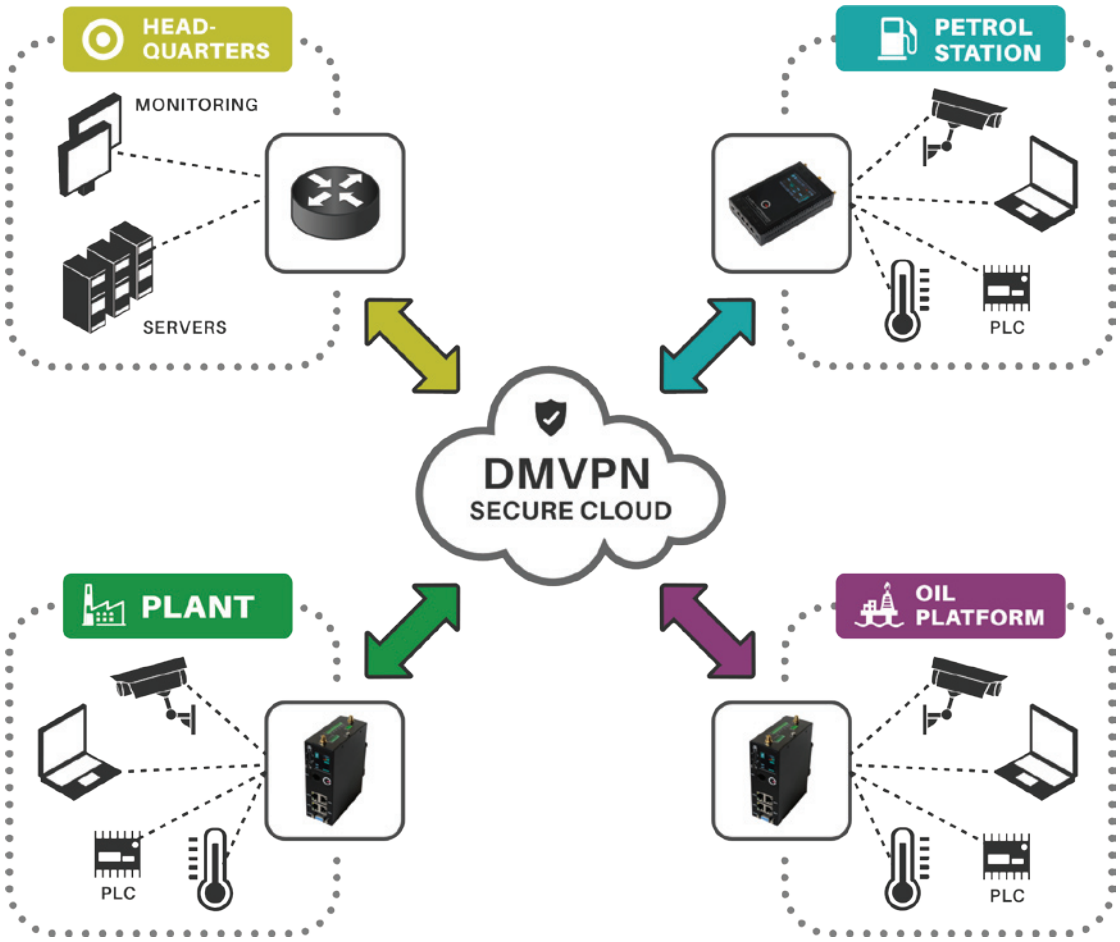

Figure 6: DMVPN full mesh deployment in petrol industry

Enterprise WAN connectivity backup

DMVPN can be used as a backup connection for MPLS circuit. In this case primary connection is via MPLS and DMVPN over Internet is hot-standby backup. In case that MPLS goes down, DMVPN will handover traffic immediately. Because DMVPN uses relatively cheap internet connections this is optimal solution to build reliable connection between branch sites and headquarters. Good example can be connecting ATM machines to bank headquarters (figure 7).

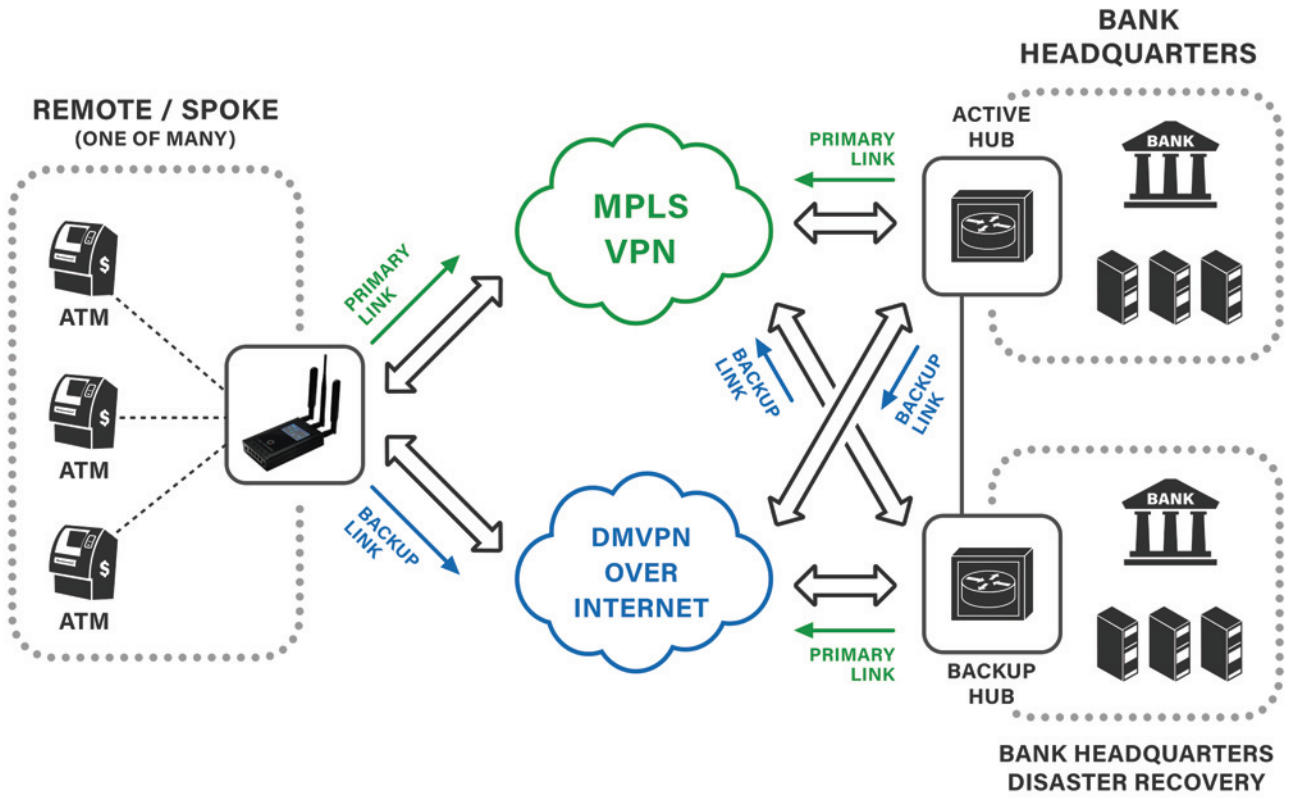

Figure 7: DMVPN can be used as a backup connection for MPLS

GENEKO DMVPN solution

Geneko DMVPN implementation

Geneko DMVPN solution is Linux based and implemented on GWR 3G/4G series of routers. It is very convenient, practical, easy to deploy and relatively cheap solution. For smaller networks Geneko routers can easily play both hub and spoke roles. However, in medium and large enterprises Geneko routers could be much better placed on remote/spoke sites. That is practical and cheap solution to connect remote sites with hub location. Typical solution will be to use big CISCO routers on hub and Geneko GWR 3G/4G routers on remote/spoke sites.

Geneko DMVPN advantages

- Easy to configure via web interface
- Minimum deployment for adding/removing remote sites
- Possible to deploy static and dynamic routing on DMVPN tunnel
- Reduced latency and multicast support
- Pre shared key and certificate based authentication
- Possible to use hostnames with DDNS
- Interoperability with CISCO in building DMVPN infrastructure
- Variety of WAN technologies: Ethernet, Wi-Fi, Mobile (Dual SIM) and ADSL

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GENEKO

Bul. Despota Stefana 59a
11000 Belgrade • Serbia

Phone: +381 11 3340-591, 3340-178
Fax: +381 11 3224-437

e-mail: gwrsupport@geneko.rs
www.geneko.rs