

Cisco Easy Virtual Network



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What Is the Value of EVN?

Easy Virtual Network (EVN) is an IP-based network virtualization solution that helps enable network administrators to provide traffic separation and path isolation on a shared network infrastructure. EVN uses existing Virtual Route Forwarding (VRF)-Lite technology to:

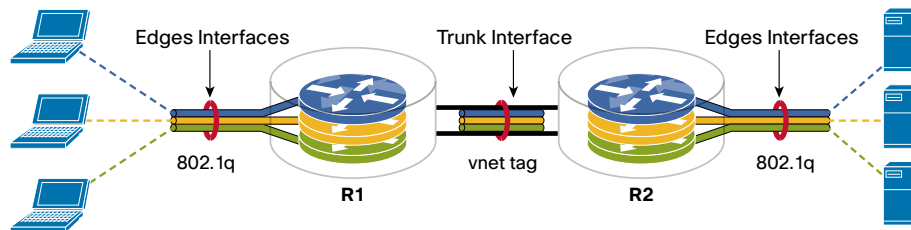
- Simplify Layer 3 network virtualization
- Improve shared services support
- Enhance management, troubleshooting, and usability

What Problems Does It Help Solve?

- EVN reduces network virtualization configuration significantly across the entire network infrastructure with the **Virtual Network Trunk**. The traditional VRF-Lite solution requires creating one subinterface per VRF on all switches and routers involved in the data path, creating a lot of burden in configuration management.

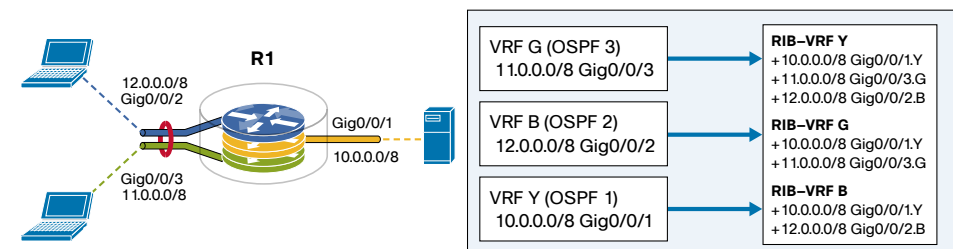
EVN removes the need of per VRF subinterface by using “vnet trunk” command. This helps reduce the amount provisioning across the network infrastructure as shown in figure 1.

Figure 1. VNET Trunk



- EVN improves shared services support with **route replication**. Multiple EVN users may require common sets of services such as Internet connectivity, email, video, Dynamic Host Configuration Protocol (DHCP), or Domain Name System (DNS). Traditionally, sharing common services can be achieved through importing and exporting routes between virtual networks using Border Gateway Protocol (BGP), which is complex. EVN's route replication feature allows each virtual network to have direct access to the Routing Information Base (RIB) in each VRF, allowing the ability to:
 - Link routes from a Shared VRF to several segmented VRFs but still maintain separation where it is required
 - Remove dependency on the BGP route target and route distinguisher, simplifying both configuration and complexity of importing and exporting routes
 - Remove duplicate routing tables or routes, saving memory and CPU, as illustrated in Figure 2

Figure 2. Route Replication





- EVN enhances network virtualization troubleshooting by making VRF-Lite easier to deploy, operate, and scale. A **routing context** command mode allows network operators to perform troubleshooting issues that pertain specifically within a VRF without specifying the VRF name in every command. For example, after entering a routing context, operators can perform these actions:

```
Router# routing-context vrf red
Router%red#
Router%red# show ip route      # routing table output for VRF red
Router%red# ping 10.1.1.1     # Ping result using VRF red
Router%red# telnet 10.1.1.1   # Telnet to 10.1.1.1 in VRF red
Router%red# traceroute 10.1.1.1 # Traceroute output in VRF red
```

EVN Feature Summary

- Pure IP alternative to Multiprotocol Label Switching (MPLS)
- Supports up to 32 virtual networks
- Backward compatible with VRF-Lite
- Supports Open Shortest Path First (OSPF) and Enhanced Interior Gateway Routing Protocol (EIGRP) as the Interior Gateway Protocol (IGP)
- Can be deployed with traditional MPLS VPNs or MPLS VPNomGRE
- Supports shared services using route replication
- Full integration with Nonstop Forwarding (NSF)/Stateful Switch Over (SSO), In-Service Software Upgrade (ISSU), and Virtual Switching System (VSS)
- Supports routing context, traceroute, debug condition, Cisco-VRF-MIB, and VRF-aware Simple Network Management Protocol (SNMP)

Why Cisco?

- Cisco provides the only comprehensive, single-vendor, architectural-based network virtualization solution available today.
- Cisco is the leader in LAN switching, routing, and network virtualization.
- Cisco provides award-winning technical support to help organizations implement sustainable business practices.
- Cisco and its partners can help customers deploy a robust, dependable solution by taking a lifecycle approach that addresses all aspects of deployment, operations, and optimization.

For More Information

For more information, please visit:

<http://www.cisco.com/go/evn>.