

Configure TLOC-Extension Using vManage Feature Template

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Introduction

This document describes how to configure TLOC-Extension using vManage feature template.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Use of vManage Feature Template
- Two (2) vEdge devices must be successfully onboarded on vManage

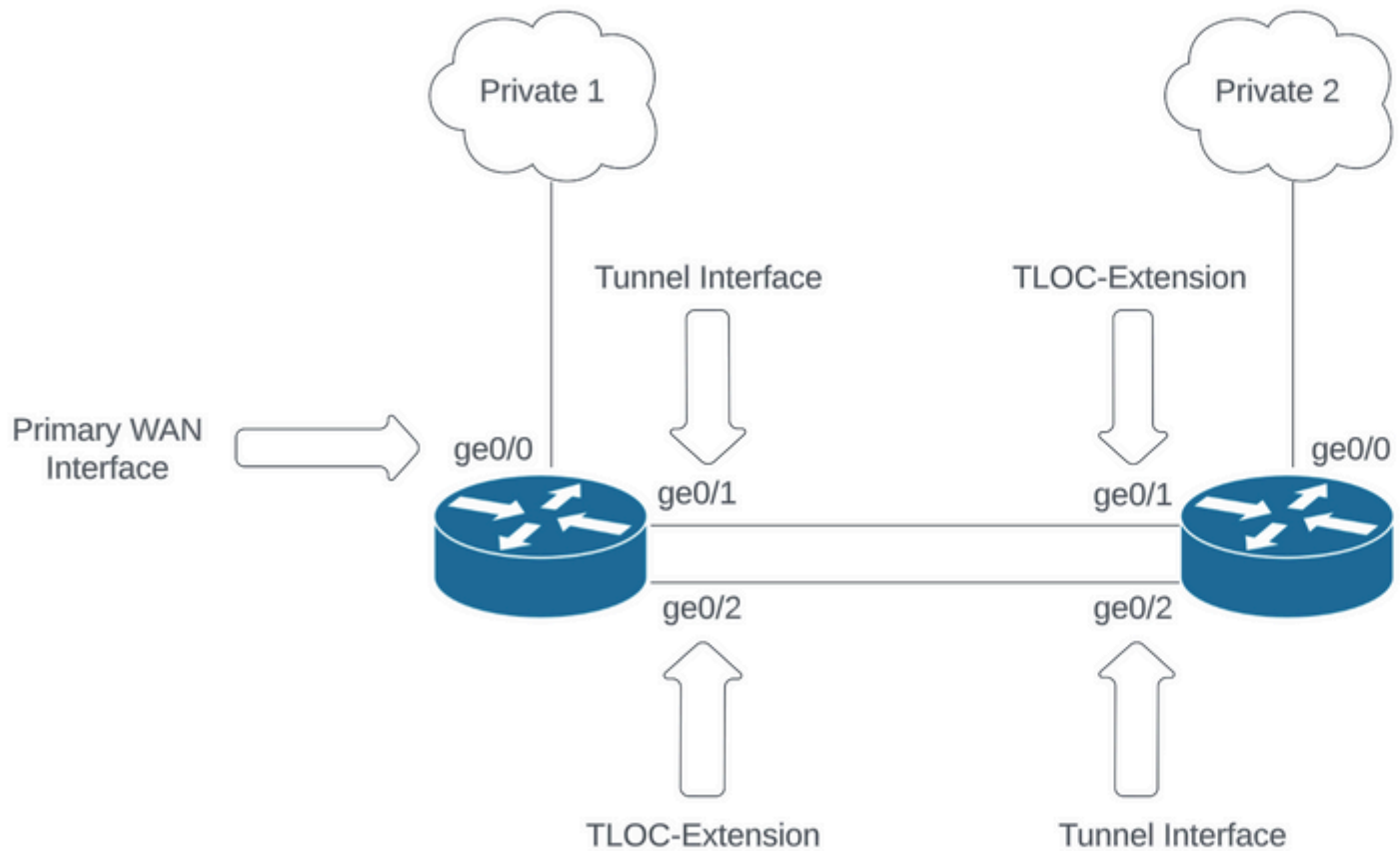
Components Used

The information in this document is based on these software and hardware versions:

- Cisco vManage version 20.6.3
- vEdge 20.6.3

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Network Diagram



Network Topology

Configurations

This document assumes you already have the rest of the feature templates configured. The same feature template workflow applies for Cisco IOS® XE SD-WAN devices.

Create a total of 4 feature templates to apply to vEdge device template.

VPN Feature Template

This feature template includes VPN 0, VPN Interface Ethernet (Primary WAN connection), VPN Interface Ethernet (Tunnel/NoTlocExt), and VPN Interface Ethernet (TlocExt/NoTunnel).

The screenshot shows the Viptela configuration interface. The 'Feature Template' tab is selected, and the 'Add Template' button is highlighted. The 'Select Devices' search bar is also highlighted. The 'VPN' feature template is selected, and the 'VPN Interface Ethernet' sub-template is highlighted.

state. Select the specific device values for interface, description, and IP address. Ensure Tunnel interface is set to **Off**.

Feature Template > VPN Interface Ethernet > Site35_TLOC_Ext_NoTunnel

Device Type: ISR 1100 6G (Viptela OS),ISR 1100X 6G (Viptela OS),ISR 1100 4GLTE* (Viptela OS),ISR 1100 4G (Viptela OS),ISR 1100X 4G (Viptela OS)

Template Name: Site35_TLOC_Ext_NoTunnel

Description: Site 35 TLOC Extension Template without Tunnel Config

Basic Configuration Tunnel NAT VRRP ACL/QoS ARP 802.1X Advanced

BASIC CONFIGURATION

Shutdown: Yes No

Interface Name: [TLOC_NoTunnel_Interface]

Description: [TLOC_NoTunnel_Interface_Description]

Dynamic Static

IPv4 Address: [TLOC_NoTunnel_Interface_IP]

Secondary IP Address (Maximum: 4):

DHCP Helper:

Block Non Source IP: Yes No

Bandwidth Upstream:

Bandwidth Downstream:

IPv4 IPv6

TUNNEL

Tunnel Interface: On Off

Cancel Update

TLOC-EXT/NO Tunnel Interface Basic configuration

Add TLOC-Ext interface in Advanced Section.

Feature Template > VPN Interface Ethernet > Site35_TLOC_Ext_NoTunnel

Basic Configuration Tunnel NAT VRRP ACL/QoS ARP 802.1X **Advanced**

ADVANCED

Duplex:

MAC Address:

IP MTU: 1500

PMTU Discovery: On Off

Flow Control: autoneg

```
vpn 0
interface ge0/0
ip address 10.201.237.120/24
ipv6 dhcp-client
nat
!
tunnel-interface
encapsulation ipsec
color private1
max-control-connections 1
no allow-service bgp
allow-service dhcp
allow-service dns
allow-service icmp
allow-service sshd
no allow-service netconf
no allow-service ntp
no allow-service ospf
no allow-service stun
allow-service https
!
no shutdown
!
interface ge0/1
description TunnelInterface_NoTLOCExt
ip address 192.168.30.4/24
tunnel-interface
encapsulation ipsec
color private2
max-control-connections 1
no allow-service bgp
allow-service dhcp
allow-service dns
allow-service icmp
no allow-service sshd
no allow-service netconf
no allow-service ntp
no allow-service ospf
no allow-service stun
allow-service https
!
no shutdown
!
interface ge0/2
description TLOC_NoTunnelInterface
ip address 192.168.40.4/24
tloc-extension ge0/0
no shutdown
!

ip route 0.0.0.0/0 10.201.237.1
ip route 0.0.0.0/0 192.168.30.5
!
Site35_vEdge1#
```

Site35_vEdge2

```
Site35_vEdge2#
Site35_vEdge2#
Site35_vEdge2#
Site35_vEdge2# sh run vpn 0
vpn 0
interface ge0/0
ip address 10.201.237.66/24
ipv6 dhcp-client
nat
!
tunnel-interface
encapsulation ipsec
color private2
max-control-connections 1
no allow-service bgp
allow-service dhcp
allow-service dns
allow-service icmp
allow-service sshd
no allow-service netconf
no allow-service ntp
no allow-service ospf
no allow-service stun
allow-service https
!
no shutdown
!
interface ge0/1
description TL0C_NoTunnelInterface
ip address 192.168.30.5/24
tloc-extension ge0/0
no shutdown
!
interface ge0/2
description TunnelInterface_NoTLOCExt
ip address 192.168.40.5/24
tunnel-interface
encapsulation ipsec
color private1
max-control-connections 1
no allow-service bgp
allow-service dhcp
allow-service dns
allow-service icmp
no allow-service sshd
no allow-service netconf
no allow-service ntp
no allow-service ospf
no allow-service stun
allow-service https
!
no shutdown
!
ip route 0.0.0.0/0 10.201.237.1
ip route 0.0.0.0/0 192.168.40.4
!
Site35_vEdge2#
```

Verification

1. The template is successfully attached to both devices.

Total Task: 2 | Success : 2

Search

Status	Message	Chassis Number	Device Model	Hostname	System IP
Success	Done - Push Feature Template Con...	ISR1100-4GLTEGB-FGL2347LHT6	ISR 1100 4GLTE* (Viptela OS)	vEdge	10.10.10.17
<pre> [25-Jul-2022 18:16:20 UTC] Checking and creating device in vManage [25-Jul-2022 18:16:21 UTC] Generating configuration from template [25-Jul-2022 18:16:27 UTC] Device is online [25-Jul-2022 18:16:27 UTC] Updating device configuration in vManage [25-Jul-2022 18:16:27 UTC] Sending configuration to device [25-Jul-2022 18:16:40 UTC] Completed template push to device. [25-Jul-2022 18:16:41 UTC] Template successfully attached to device </pre>					
Success	Done - Push Feature Template Con...	ISR1100-4GLTENA-FGL2347LJ1G	ISR 1100 4GLTE* (Viptela OS)	vEdge	10.10.10.19
<pre> [25-Jul-2022 18:16:20 UTC] Checking and creating device in vManage [25-Jul-2022 18:16:20 UTC] Generating configuration from template [25-Jul-2022 18:16:26 UTC] Device is online [25-Jul-2022 18:16:26 UTC] Updating device configuration in vManage [25-Jul-2022 18:16:27 UTC] Sending configuration to device [25-Jul-2022 18:16:38 UTC] Completed template push to device. [25-Jul-2022 18:16:41 UTC] Template successfully attached to device </pre>					

Template push success

2. Control connection is up via Primary WAN and TLOC-Ext Interface.

Site35_vEdge1# show control connections

PEER TYPE	PEER PROT	PEER SYSTEM IP	SITE ID	DOMAIN ID	PEER PRIVATE IP	PEER PRIV PORT	PEER PUBLIC IP	PEER PUB PORT	PEER ORGANIZATION
vsmart	dtls	10.10.10.3	1	1	10.201.237.137	12446	10.201.237.137	12446	rcdn_sdwan_lab
vsmart	dtls	10.10.10.3	1	1	10.201.237.137	12446	10.201.237.137	12446	rcdn_sdwan_lab
vmanage	dtls	10.10.10.1	1	0	10.201.237.91	12446	10.201.237.91	12446	rcdn_sdwan_lab

Site35_vEdge1#

Control connection verification 1

Site35_vEdge2# show control connections

PEER TYPE	PEER PROT	PEER SYSTEM IP	SITE ID	DOMAIN ID	PEER PRIVATE IP	PEER PRIV PORT	PEER PUBLIC IP	PEER PUB PORT	PEER LOCAL C
vsmart	dtls	10.10.10.3	1	1	10.201.237.137	12446	10.201.237.137	12446	private2
vsmart	dtls	10.10.10.3	1	1	10.201.237.137	12446	10.201.237.137	12446	private2
vmanage	dtls	10.10.10.1	1	0	10.201.237.91	12446	10.201.237.91	12446	private2

Control connection verification 2

Use Cases

Depending on local site design, TLOC-Extension can also be implemented using L2 or L3 TLOC-Extension.

1. L2 TLOC-Extension: These extensions are in same broadcast domain or in same subnet.
2. L3 TLOC-Extension: These extensions are separated by a L3 device and can run any routing protocol (is

TLOC and TLOC extension interfaces are supported only on L3 routed interfaces. L2 switchports/SVIs cannot be used as WAN/Tunnel interfaces and can only be used on the service side.

â—◆ LTE also is not used as a TLOC extension interface between WAN Edge routers.

â—◆ L3 TLOC extension is only supported on Cisco IOSXE SD-WAN routers and they are not supported on vEdge routers.

â—◆ TLOC extension does not work on transport interfaces which are bound to loopback tunnel interfaces.

Related Information

- [Cisco Technical Support & Downloads](#)