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# Introduction

This document provides Virtual eXtensible LAN (VXLAN) configuration examples. VXLAN is a MAC-in-UDP technology that provides Layer 2 connectivity between distant network sites across an IP network. VXLAN is typically used in data centers for multitenant services.

## Prerequisites

This document is not restricted to specific software or hardware versions.

The configuration examples in this document were created and verified in a lab environment, and all the devices were started with the factory default configuration. When you are working on a live network, make sure you understand the potential impact of every command on your network.

This document assumes that you have basic knowledge of VXLAN.

## General restrictions and guidelines

As a best practice, do not configure multiple VXLAN tunnels to use the same source and destination IP addresses.

Link aggregation group membership is mutually exclusive with Ethernet service instance-to-VSI mappings on a Layer 2 interface. Do not map a VSI to an Ethernet service instance on a Layer 2 interface if the interface is in a Layer 2 aggregation group.

Ethernet service instance bindings of VSIs are mutually exclusive with QinQ and VLAN mapping on a Layer 2 Ethernet interface or Layer 2 aggregate interface. Do not configure these features simultaneously on the same interface. Otherwise, the features cannot take effect.

Do not configure VLAN mapping, QinQ, or MAC-based VLAN on a Layer 2 Ethernet interface or Layer 2 aggregate interface that acts as the outgoing interface for traffic of VXLAN tunnels. Otherwise, the features cannot take effect.

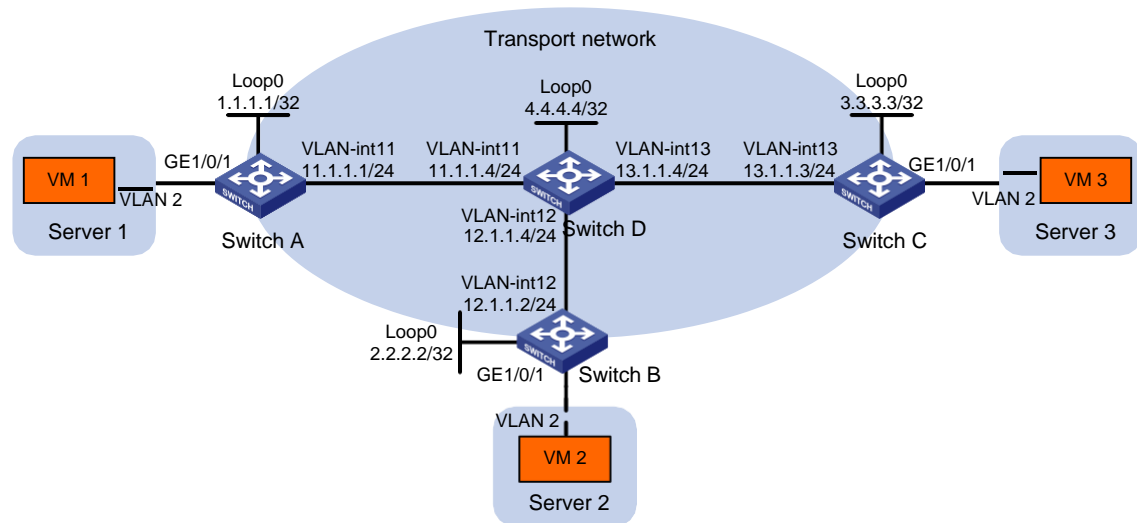
## Example: Configuring VXLAN Layer 2 forwarding

### Network configuration

As shown in [Figure 1](#):

- Configure VXLAN 10 as a unicast-mode VXLAN on Switch A, Switch B, and Switch C to provide Layer 2 connectivity for the VMs across the network sites.
- Manually establish VXLAN tunnels and assign the tunnels to VXLAN 10.

**Figure 1 Network diagram**



## Analysis

To ensure that the switches in the transport network can reach one another, configure a routing protocol on the switches to advertise routes for interfaces, including the loopback interfaces. In this example, OSPF is used.

To assign Switch A, Switch B, and Switch C to a VXLAN network, create VXLAN tunnels on the switches and assign the tunnels to the VXLAN.

To assign the customer traffic of a VLAN to a VXLAN, you must perform the following tasks:

- Create an Ethernet service instance on the interface that receives the traffic.
- Configure the Ethernet service instance to match the VLAN.
- Map the Ethernet service instance to the VSI on which the VXLAN is created.

## Applicable hardware and software versions

The following matrix shows the hardware and software versions to which this configuration example is applicable:

Hardware	Software version
SC 3570 switch series	Release 11xx
SC 5525 switch series	Release 63xx, Release 65xx, Release 6615Pxx, Release 6628Pxx
SC 5520 switch series	Release 63xx, Release 65xx, Release 6615Pxx, Release 6628Pxx
SC 3170 switch series	Not supported
SC 3130 switch series	Not supported

## Restrictions and guidelines

Execute the **undo vxlan ip-forwarding** command on each VTEP to enable Layer 2 forwarding for VXLANs on the VTEPs.

# Procedures

## Setting the system operation mode

# Set the system operation mode to VXLAN on Switch A, Switch B, and Switch C. This step uses Switch A as an example.

```
<SwitchA> system-view
```

```
[SwitchA] switch-mode 1
```

Reboot device to make the configuration take effect.

```
[SwitchA] quit
```

```
<SwitchA> reboot
```

Start to check configuration with next startup configuration file, please wait..

.....DONE!

Current configuration may be lost after the reboot, save current configuration?

[Y/N]:y

This command will reboot the device. Continue? [Y/N]:y

## Configuring IP addresses for interfaces

**# Configure IP addresses for interfaces on Switch A.**

```
<SwitchA> system-view
[SwitchA] vlan 11
[SwitchA-vlan11] port gigabitethernet 1/0/2
[SwitchA-vlan11] quit
[SwitchA] interface vlan-interface 11
[SwitchA-Vlan-interface11] ip address 11.1.1.1 24
[SwitchA-Vlan-interface11] quit
[SwitchA] interface loopback 0
[SwitchA-LoopBack0] ip address 1.1.1.1 32
[SwitchA-LoopBack0] quit
```

**# Configure IP addresses for interfaces on other switches in the same way the IP addresses are configured on Switch A. (Details not shown.)**

## Configuring a routing protocol on the transport network

**# Configure OSPF to advertise routes for Switch A.**

```
[SwitchA] ospf 1 router-id 1.1.1.1
[SwitchA-ospf-1] area 0
[SwitchA-ospf-1-area-0.0.0.0] network 1.1.1.1 0.0.0.0
[SwitchA-ospf-1-area-0.0.0.0] network 11.1.1.0 0.0.0.255
[SwitchA-ospf-1-area-0.0.0.0] quit
[SwitchA-ospf-1] quit
```

**# Configure OSPF to advertise routes for Switch B.**

```
[SwitchB] ospf 1 router-id 2.2.2.2
[SwitchB-ospf-1] area 0
[SwitchB-ospf-1-area-0.0.0.0] network 2.2.2.2 0.0.0.0
[SwitchB-ospf-1-area-0.0.0.0] network 12.1.1.0 0.0.0.255
[SwitchB-ospf-1-area-0.0.0.0] quit
[SwitchB-ospf-1] quit
```

**# Configure OSPF to advertise routes for Switch C.**

```
[SwitchC] ospf 1 router-id 3.3.3.3
[SwitchC-ospf-1] area 0
[SwitchC-ospf-1-area-0.0.0.0] network 3.3.3.3 0.0.0.0
[SwitchC-ospf-1-area-0.0.0.0] network 13.1.1.0 0.0.0.255
[SwitchC-ospf-1-area-0.0.0.0] quit
[SwitchC-ospf-1] quit
```

**# Configure OSPF to advertise routes for Switch D.**

```
[SwitchD] ospf 1 router-id 4.4.4.4
[SwitchD-ospf-1] area 0
[SwitchD-ospf-1-area-0.0.0.0] network 4.4.4.4 0.0.0.0
[SwitchD-ospf-1-area-0.0.0.0] network 11.1.1.0 0.0.0.255
[SwitchD-ospf-1-area-0.0.0.0] network 12.1.1.0 0.0.0.255
```

```
[SwitchD-ospf-1-area-0.0.0.0] network 13.1.1.0 0.0.0.255
[SwitchD-ospf-1-area-0.0.0.0] quit
[SwitchD-ospf-1] quit
```

## Configuring VXLAN settings

### Configuring Switch A

**# Enable L2VPN.**

```
[SwitchA] l2vpn enable
```

**# Enable Layer 2 forwarding for VXLANs.**

```
[SwitchA] undo vxlan ip-forwarding
```

**# Create VSI *vpna* and VXLAN 10.**

```
[SwitchA] vsi vpna
```

```
[SwitchA-vsi-vpna] vxlan 10
```

```
[SwitchA-vsi-vpna-vxlan10] quit
```

```
[SwitchA-vsi-vpna] quit
```

**# Create a VXLAN tunnel to Switch B. The tunnel interface name is **Tunnel 1**.**

```
[SwitchA] interface tunnel 1 mode vxlan
```

```
[SwitchA-Tunnel1] source 1.1.1.1
```

```
[SwitchA-Tunnel1] destination 2.2.2.2
```

```
[SwitchA-Tunnel1] quit
```

**# Create a VXLAN tunnel to Switch C. The tunnel interface name is **Tunnel 2**.**

```
[SwitchA] interface tunnel 2 mode vxlan
```

```
[SwitchA-Tunnel2] source 1.1.1.1
```

```
[SwitchA-Tunnel2] destination 3.3.3.3
```

```
[SwitchA-Tunnel2] quit
```

**# Assign Tunnel 1 and Tunnel 2 to VXLAN 10.**

```
[SwitchA] vsi vpna
```

```
[SwitchA-vsi-vpna] vxlan 10
```

```
[SwitchA-vsi-vpna-vxlan10] tunnel 1
```

```
[SwitchA-vsi-vpna-vxlan10] tunnel 2
```

```
[SwitchA-vsi-vpna-vxlan10] quit
```

```
[SwitchA-vsi-vpna] quit
```

**# On GigabitEthernet 1/0/1, configure Ethernet service instance 1000 to match VLAN 2.**

```
[SwitchA] interface gigabitethernet 1/0/1
```

```
[SwitchA-GigabitEthernet1/0/1] port link-type trunk
```

```
[SwitchA-GigabitEthernet1/0/1] port trunk permit vlan 2
```

```
[SwitchA-GigabitEthernet1/0/1] service-instance 1000
```

```
[SwitchA-GigabitEthernet1/0/1-srv1000] encapsulation s-vid 2
```

**# Map Ethernet service instance 1000 to VSI *vpna*.**

```
[SwitchA-GigabitEthernet1/0/1-srv1000] xconnect vsi vpna
```

```
[SwitchA-GigabitEthernet1/0/1-srv1000] quit
```

```
[SwitchA-GigabitEthernet1/0/1] quit
```

### Configuring Switch B

**# Enable L2VPN.**

```

[SwitchB] l2vpn enable

# Enable Layer 2 forwarding for VXLANs.
[SwitchB] undo vxlan ip-forwarding

# Create VSI vpna and VXLAN 10.
[SwitchB] vsi vpna
[SwitchB-vsi-vpna] vxlan 10
[SwitchB-vsi-vpna-vxlan10] quit
[SwitchB-vsi-vpna] quit

# Create a VXLAN tunnel to Switch A. The tunnel interface name is Tunnel 1.
[SwitchB] interface tunnel 1 mode vxlan
[SwitchB-Tunnel1] source 2.2.2.2
[SwitchB-Tunnel1] destination 1.1.1.1
[SwitchB-Tunnel1] quit

# Create a VXLAN tunnel to Switch C. The tunnel interface name is Tunnel 2.
[SwitchB] interface tunnel 2 mode vxlan
[SwitchB-Tunnel2] source 2.2.2.2
[SwitchB-Tunnel2] destination 3.3.3.3
[SwitchB-Tunnel2] quit

# Assign Tunnel 1 and Tunnel 2 to VXLAN 10.
[SwitchB] vsi vpna
[SwitchB-vsi-vpna] vxlan 10
[SwitchB-vsi-vpna-vxlan10] tunnel 1
[SwitchB-vsi-vpna-vxlan10] tunnel 2
[SwitchB-vsi-vpna-vxlan10] quit
[SwitchB-vsi-vpna] quit

# On GigabitEthernet 1/0/1, configure Ethernet service instance 1000 to match VLAN 2.
[SwitchB] interface gigabitethernet 1/0/1
[SwitchB-GigabitEthernet1/0/1] port link-type trunk
[SwitchB-GigabitEthernet1/0/1] port trunk permit vlan 2
[SwitchB-GigabitEthernet1/0/1] service-instance 1000
[SwitchB-GigabitEthernet1/0/1-srv1000] encapsulation s-vid 2

# Map Ethernet service instance 1000 to VSI vpna.
[SwitchB-GigabitEthernet1/0/1-srv1000] xconnect vsi vpna
[SwitchB-GigabitEthernet1/0/1-srv1000] quit
[SwitchB-GigabitEthernet1/0/1] quit

```

## Configuring Switch C

```

# Enable L2VPN.
[SwitchC] l2vpn enable

# Enable Layer 2 forwarding for VXLANs.
[SwitchC] undo vxlan ip-forwarding

# Create VSI vpna and VXLAN 10.
[SwitchC] vsi vpna
[SwitchC-vsi-vpna] vxlan 10
[SwitchC-vsi-vpna-vxlan10] quit

```

```
[SwitchC-vsi-vpna] quit

# Create a VXLAN tunnel to Switch A. The tunnel interface name is Tunnel 1.
[SwitchC] interface tunnel 1 mode vxlan
[SwitchC-Tunnel1] source 3.3.3.3
[SwitchC-Tunnel1] destination 1.1.1.1
[SwitchC-Tunnel1] quit

# Create a VXLAN tunnel to Switch B. The tunnel interface name is Tunnel 2.
[SwitchC] interface tunnel 2 mode vxlan
[SwitchC-Tunnel2] source 3.3.3.3
[SwitchC-Tunnel2] destination 2.2.2.2
[SwitchC-Tunnel2] quit

# Assign Tunnel 1 and Tunnel 2 to VXLAN 10.
[SwitchC] vsi vpna
[SwitchC-vsi-vpna] vxlan 10
[SwitchC-vsi-vpna-vxlan10] tunnel 1
[SwitchC-vsi-vpna-vxlan10] tunnel 2
[SwitchC-vsi-vpna-vxlan10] quit
[SwitchC-vsi-vpna] quit

# On GigabitEthernet 1/0/1, configure Ethernet service instance 1000 to match VLAN 2.
[SwitchC] interface gigabitethernet 1/0/1
[SwitchC-GigabitEthernet1/0/1] port link-type trunk
[SwitchC-GigabitEthernet1/0/1] port trunk permit vlan 2
[SwitchC-GigabitEthernet1/0/1] service-instance 1000
[SwitchC-GigabitEthernet1/0/1-srv1000] encapsulation s-vid 2

# Map Ethernet service instance 1000 to VSI vpna.
[SwitchC-GigabitEthernet1/0/1-srv1000] xconnect vsi vpna
[SwitchC-GigabitEthernet1/0/1-srv1000] quit
[SwitchC-GigabitEthernet1/0/1] quit
```

## Verifying the configuration

1. Verify the VXLAN settings on the VTEPs. This example uses Switch A.

# Verify that the VXLAN tunnel interfaces on the VTEP are in up state.

```
[SwitchA] display interface tunnel
Tunnel1
Current state: UP
Line protocol state: UP
Description: Tunnel1 Interface
Bandwidth: 64 kbps
Maximum transmission unit: 1464
Internet protocol processing: Disabled
Last clearing of counters: Never
Tunnel source 1.1.1.1, destination 2.2.2.2
Tunnel protocol/transport UDP_VXLAN/IP
Last 300 seconds input rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec
Last 300 seconds output rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec
Input: 0 packets, 0 bytes, 0 drops
```



Output: 0 packets, 0 bytes, 0 drops

Tunnel2

Current state: UP

Line protocol state: UP

Description: Tunnel2 Interface

Bandwidth: 64 kbps

Maximum transmission unit: 1464

Internet protocol processing: Disabled

Last clearing of counters: Never

Tunnel source 1.1.1.1, destination 3.3.3.3

Tunnel protocol/transport UDP\_VXLAN/IP

Last 300 seconds input rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec

Last 300 seconds output rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec

Input: 0 packets, 0 bytes, 0 drops

Output: 0 packets, 0 bytes, 0 drops

**# Verify that the VXLAN tunnels have been assigned to the VXLAN, and the VXLAN tunnels and Ethernet service instances are in up state.**

[SwitchA] display l2vpn vsi verbose

VSI Name: vpna

VSI Index	: 0
VSI State	: Up
MTU	: 1500
Bandwidth	: -
Broadcast Restrain	: -
Multicast Restrain	: -
Unknown Unicast Restrain	: -
MAC Learning	: Enabled
MAC Table Limit	: -
MAC Learning rate	: -
Drop Unknown	: -
Flooding	: Enabled
Statistics	: Disabled
VXLAN ID	: 10

Tunnels:

Tunnel Name	Link ID	State	Type	Flood proxy
Tunnel1	0x5000001	Up	Manual	Disabled
Tunnel2	0x5000002	Up	Manual	Disabled

ACs:

AC	Link ID	State	Type
GE1/0/1 srv1000	0	Up	Manual

**# Verify that the VTEP has learned the MAC addresses of remote VMs.**

[SwitchA] display l2vpn mac-address

MAC Address	State	VSI Name	Link ID/Name	Aging
cc3e-5f9c-6cdb	Dynamic	vpna	Tunnel1	Aging
cc3e-5f9c-23dc	Dynamic	vpna	Tunnel2	Aging
--- 2 mac address(es) found ---				

2. Verify that VM 1, VM 2, and VM 3 can ping each other. (Details not shown.)

# Configuration files

- Switch A:

```
#
undo vxlan ip-forwarding
#
ospf 1 router-id 1.1.1.1
area 0.0.0.0
network 1.1.1.1 0.0.0.0
network 11.1.1.0 0.0.0.255
#
vlan 2
#
vlan 11
#
l2vpn enable
#
vsi vpna
vxlan 10
tunnel 1
tunnel 2
#
interface LoopBack0
ip address 1.1.1.1 255.255.255.255
#
interface Vlan-interface11
ip address 11.1.1.1 255.255.255.0
#
interface GigabitEthernet1/0/1
port link-mode bridge
port link-type trunk
port trunk permit vlan 1 to 2
#
service-instance 1000
encapsulation s-vid 2
xconnect vsi vpna
#
interface GigabitEthernet1/0/2
port link-mode bridge
port access vlan 11
#
interface Tunnel1 mode vxlan
source 1.1.1.1
destination 2.2.2.2
#
interface Tunnel2 mode vxlan
source 1.1.1.1
destination 3.3.3.3
```

```

#
return

```

- **Switch B:**

```

#
undo vxlan ip-forwarding
#
ospf 1 router-id 2.2.2.2
area 0.0.0.0
network 2.2.2.2 0.0.0.0
network 12.1.1.0 0.0.0.255
#
vlan 2
#
vlan 12
#
l2vpn enable
#
vsi vpna
vxlan 10
tunnel 1
tunnel 2
#
interface LoopBack0
ip address 2.2.2.2 255.255.255.255
#
interface Vlan-interface12
ip address 12.1.1.2 255.255.255.0
#
interface GigabitEthernet1/0/1
port link-mode bridge
port link-type trunk
port trunk permit vlan 1 to 2
#
service-instance 1000
encapsulation s-vid 2
xconnect vsi vpna
#
interface GigabitEthernet1/0/2
port link-mode bridge
port access vlan 12
#
interface Tunnel1 mode vxlan
source 2.2.2.2
destination 1.1.1.1
#
interface Tunnel2 mode vxlan
source 2.2.2.2
destination 3.3.3.3

```

```

#
return
• Switch C:
#
  undo vxlan ip-forwarding
#
ospf 1 router-id 3.3.3.3
  area 0.0.0.0
    network 3.3.3.3 0.0.0.0
    network 13.1.1.0 0.0.0.255
#
vlan 2
#
vlan 13
#
  l2vpn enable
#
vsi vpna
  vxlan 10
    tunnel 1
    tunnel 2
#
interface LoopBack0
  ip address 3.3.3.3 255.255.255.255
#
interface Vlan-interface13
  ip address 13.1.1.3 255.255.255.0
#
interface GigabitEthernet1/0/1
  port link-mode bridge
  port link-type trunk
  port trunk permit vlan 1 to 2
#
  service-instance 1000
    encapsulation s-vid 2
    xconnect vsi vpna
#
interface GigabitEthernet1/0/2
  port link-mode bridge
  port access vlan 13
#
interface Tunnel1 mode vxlan
  source 3.3.3.3
  destination 1.1.1.1
#
interface Tunnel2 mode vxlan
  source 3.3.3.3
  destination 2.2.2.2

```

```

#
return
• Switch D:
#
ospf 1 router-id 4.4.4.4
 area 0.0.0.0
   network 4.4.4.4 0.0.0.0
   network 11.1.1.0 0.0.0.255
   network 12.1.1.0 0.0.0.255
   network 13.1.1.0 0.0.0.255
#
vlan 11
#
vlan 12
#
vlan 13
#
interface LoopBack0
 ip address 4.4.4.4 255.255.255.255
#
interface Vlan-interface11
 ip address 11.1.1.4 255.255.255.0
#
interface Vlan-interface12
 ip address 12.1.1.4 255.255.255.0
#
interface Vlan-interface13
 ip address 13.1.1.4 255.255.255.0
#
interface GigabitEthernet1/0/1
 port link-mode bridge
 port access vlan 11
#
interface GigabitEthernet1/0/2
 port link-mode bridge
 port access vlan 12
#
interface GigabitEthernet1/0/3
 port link-mode bridge
 port access vlan 13
#
return

```

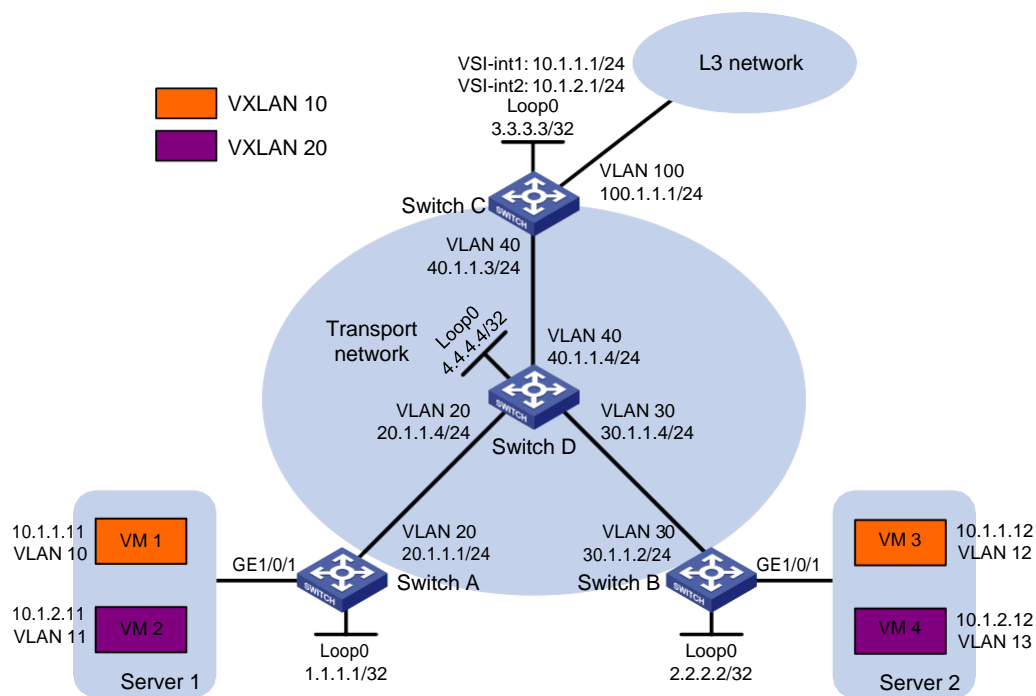
# Example: Configuring a centralized VXLAN IP gateway

## Network configuration

As shown in Figure 2:

- Configure VXLAN 10 and VXLAN 20 as unicast-mode VXLANs on Switch A, Switch B, and Switch C.
- Manually establish VXLAN tunnels and assign the tunnels to VXLAN 10 or VXLAN 20. Make sure VM 1 and VM 3 belong to VXLAN 10 and VM 2 and VM 4 belong to VXLAN 20.
- Configure a centralized VXLAN IP gateway on Switch C to provide gateway services for VXLAN 10 and VXLAN 20.

Figure 2 Network diagram



## Analysis

To ensure that the switches in the transport network can reach one another, configure a routing protocol on the switches to advertise routes for interfaces, including the loopback interfaces. In this example, OSPF is used.

To assign Switch A, Switch B, and Switch C to VXLANs, create VXLAN tunnels on the switches and assign the tunnels to the VXLANs.

To assign the customer traffic of a VLAN to a VXLAN on Switch A or Switch B, you must perform the following tasks:

- Create an Ethernet service instance on the interface that receives the traffic.
- Configure the Ethernet service instance to match the VLAN.

- Map the Ethernet service instance to the VSI on which the VXLAN is created.

For Switch C to provide centralized VXLAN IP gateway services for VXLANs, you must perform the following tasks:

- Create a VSI interface for each VXLAN on the switch.
- Assign an IP address to each VSI interface.
- Specify the VSI interfaces as the gateway interfaces for VXLANs.

For Layer 3 nodes in the transport network to reach the VMs, configure a routing protocol on Switch C to advertise routes for VSI interfaces and VLAN-interface 100. In this example, OSPF is used.

## Applicable hardware and software versions

The following matrix shows the hardware and software versions to which this configuration example is applicable:

Hardware	Software version
SC 3570 switch series	Release 11xx
SC 5525 switch series	Release 63xx, Release 65xx, Release 6615Pxx, Release 6628Pxx
SC 5520 switch series	Release 63xx, Release 65xx, Release 6615Pxx, Release 6628Pxx
SC 3170 switch series	Not supported
SC 3130 switch series	Not supported

## Procedures

### Setting the system operation mode

# Set the system operation mode to VXLAN on Switch A, Switch B, and Switch C. This step uses Switch A as an example.

```
<SwitchA> system-view
[SwitchA] switch-mode 1
Reboot device to make the configuration take effect.
[SwitchA] quit
<SwitchA> reboot
Start to check configuration with next startup configuration file, please wait..
.....DONE!
Current configuration may be lost after the reboot, save current configuration?
[Y/N]:y
This command will reboot the device. Continue? [Y/N]:y
```

### Configuring IP addresses for interfaces

# Configure IP addresses for interfaces on Switch A.

```
<SwitchA> system-view
[SwitchA] vlan 20
[SwitchA-vlan20] port gigabitethernet 1/0/2
[SwitchA-vlan20] quit
[SwitchA] interface vlan-interface 20
```

```
[SwitchA-Vlan-interface20] ip address 20.1.1.1 24
[SwitchA-Vlan-interface20] quit
[SwitchA] interface loopback 0
[SwitchA-LoopBack0] ip address 1.1.1.1 32
```

# Configure IP addresses for interfaces on other devices in the same way the IP addresses are configured on Switch A. (Details not shown.)

## Configuring a routing protocol on the transport network

# Configure OSPF to advertise routes for Switch A.

```
[SwitchA] ospf 1 router-id 1.1.1.1
[SwitchA-ospf-1] area 0
[SwitchA-ospf-1-area-0.0.0.0] network 1.1.1.1 0.0.0.0
[SwitchA-ospf-1-area-0.0.0.0] network 20.1.1.0 0.0.0.255
```



```
[SwitchA-ospf-1-area-0.0.0.0] quit
[SwitchA-ospf-1] quit

# Configure OSPF to advertise routes for Switch B.
[SwitchB] ospf 1 router-id 2.2.2.2
[SwitchB-ospf-1] area 0
[SwitchB-ospf-1-area-0.0.0.0] network 2.2.2.2 0.0.0.0
[SwitchB-ospf-1-area-0.0.0.0] network 30.1.1.0 0.0.0.255
[SwitchB-ospf-1-area-0.0.0.0] quit
[SwitchB-ospf-1] quit

# Configure OSPF to advertise routes for Switch C.
[SwitchC] ospf 1 router-id 3.3.3.3
[SwitchC-ospf-1] area 0
[SwitchC-ospf-1-area-0.0.0.0] network 3.3.3.3 0.0.0.0
[SwitchC-ospf-1-area-0.0.0.0] network 40.1.1.0 0.0.0.255
[SwitchC-ospf-1-area-0.0.0.0] quit
[SwitchC-ospf-1] quit

# Configure OSPF to advertise routes for Switch D.
[SwitchD] ospf 1 router-id 4.4.4.4
[SwitchD-ospf-1] area 0
[SwitchD-ospf-1-area-0.0.0.0] network 4.4.4.4 0.0.0.0
[SwitchD-ospf-1-area-0.0.0.0] network 20.1.1.0 0.0.0.255
[SwitchD-ospf-1-area-0.0.0.0] network 30.1.1.0 0.0.0.255
[SwitchD-ospf-1-area-0.0.0.0] network 40.1.1.0 0.0.0.255
[SwitchD-ospf-1-area-0.0.0.0] quit
[SwitchD-ospf-1] quit
```

## Configuring basic VXLAN settings

### Configuring Switch A

```
# Enable L2VPN.
[SwitchA] l2vpn enable

# Enable Layer 2 forwarding for VXLANs.
[SwitchA] undo vxlan ip-forwarding

# Create VSI vpna and VXLAN 10.
[SwitchA] vsi vpna
[SwitchA-vsi-vpna] vxlan 10
[SwitchA-vsi-vpna-vxlan10] quit
[SwitchA-vsi-vpna] quit

# Create VSI vpnb and VXLAN 20.
[SwitchA] vsi vpb
[SwitchA-vsi-vpb] vxlan 20
[SwitchA-vsi-vpb-vxlan10] quit
[SwitchA-vsi-vpb] quit

# Create a VXLAN tunnel to Switch B. The tunnel interface name is Tunnel 1.
[SwitchA] interface tunnel 1 mode vxlan
[SwitchA-Tunnel1] source 1.1.1.1
```

```
[SwitchA-Tunnel1] destination 2.2.2.2
[SwitchA-Tunnel1] quit
```

**# Create a VXLAN tunnel to Switch C. The tunnel interface name is Tunnel 2.**

```
[SwitchA] interface tunnel 2 mode vxlan
[SwitchA-Tunnel2] source 1.1.1.1
[SwitchA-Tunnel2] destination 3.3.3.3
[SwitchA-Tunnel2] quit
```

**# Assign Tunnel 1 and Tunnel 2 to VXLAN 10.**

```
[SwitchA] vsi vpna
[SwitchA-vsi-vpna] vxlan 10
[SwitchA-vsi-vpna-vxlan10] tunnel 1
[SwitchA-vsi-vpna-vxlan10] tunnel 2
[SwitchA-vsi-vpna-vxlan10] quit
[SwitchA-vsi-vpna] quit
```

**# Assign Tunnel 1 and Tunnel 2 to VXLAN 20.**

```
[SwitchA] vsi vpb
[SwitchA-vsi-vpb] vxlan 20
[SwitchA-vsi-vpb-vxlan20] tunnel 1
[SwitchA-vsi-vpb-vxlan20] tunnel 2
[SwitchA-vsi-vpb-vxlan20] quit
[SwitchA-vsi-vpb] quit
```

**# On GigabitEthernet 1/0/1, configure Ethernet service instance 1000 to match VLAN 10.**

```
[SwitchA] interface gigabitethernet 1/0/1
[SwitchA-GigabitEthernet1/0/1] service-instance 1000
[SwitchA-GigabitEthernet1/0/1] port link-type trunk
[SwitchA-GigabitEthernet1/0/1] port trunk permit vlan 10 11
[SwitchA-GigabitEthernet1/0/1-srv1000] encapsulation s-vid 10
```

**# Map Ethernet service instance 1000 to VSI vpna.**

```
[SwitchA-GigabitEthernet1/0/1-srv1000] xconnect vsi vpna
[SwitchA-GigabitEthernet1/0/1-srv1000] quit
```

**# On GigabitEthernet 1/0/1, configure Ethernet service instance 2000 to match VLAN 11.**

```
[SwitchA-GigabitEthernet1/0/1] service-instance 2000
[SwitchA-GigabitEthernet1/0/1-srv2000] encapsulation s-vid 11
```

**# Map Ethernet service instance 2000 to VSI vpb.**

```
[SwitchA-GigabitEthernet1/0/1-srv2000] xconnect vsi vpb
[SwitchA-GigabitEthernet1/0/1-srv2000] quit
[SwitchA-GigabitEthernet1/0/1] quit
```

## Configuring Switch B

**# Enable L2VPN.**

```
[SwitchB] l2vpn enable
```

**# Enable Layer 2 forwarding for VXLANs.**

```
[SwitchB] undo vxlan ip-forwarding
```

**# Create VSI vpna and VXLAN 10.**

```
[SwitchB] vsi vpna
[SwitchB-vsi-vpna] vxlan 10
```

```
[SwitchB-vsi-vpna-vxlan10] quit
[SwitchB-vsi-vpna] quit
```

**# Create VSI vpnb and VXLAN 20.**

```
[SwitchB] vsi vpnb
[SwitchB-vsi-vpnb] vxlan 20
[SwitchB-vsi-vpnb-vxlan10] quit
[SwitchB-vsi-vpnb] quit
```

**# Create a VXLAN tunnel to Switch A. The tunnel interface name is Tunnel 1.**

```
[SwitchB] interface tunnel 1 mode vxlan
[SwitchB-Tunnel1] source 2.2.2.2
[SwitchB-Tunnel1] destination 1.1.1.1
[SwitchB-Tunnel1] quit
```

**# Create a VXLAN tunnel to Switch C. The tunnel interface name is Tunnel 2.**

```
[SwitchB] interface tunnel 2 mode vxlan
[SwitchB-Tunnel2] source 2.2.2.2
[SwitchB-Tunnel2] destination 3.3.3.3
[SwitchB-Tunnel2] quit
```

**# Assign Tunnel 1 and Tunnel 2 to VXLAN 10.**

```
[SwitchB] vsi vpna
[SwitchB-vsi-vpna] vxlan 10
[SwitchB-vsi-vpna-vxlan10] tunnel 1
[SwitchB-vsi-vpna-vxlan10] tunnel 2
[SwitchB-vsi-vpna-vxlan10] quit
[SwitchB-vsi-vpna] quit
```

**# Assign Tunnel 1 and Tunnel 2 to VXLAN 20.**

```
[SwitchB] vsi vpnb
[SwitchB-vsi-vpnb] vxlan 20
[SwitchB-vsi-vpnb-vxlan20] tunnel 1
[SwitchB-vsi-vpnb-vxlan20] tunnel 2
[SwitchB-vsi-vpnb-vxlan20] quit
[SwitchB-vsi-vpnb] quit
```

**# On GigabitEthernet 1/0/1, configure Ethernet service instance 1000 to match VLAN 12.**

```
[SwitchB] interface gigabitethernet 1/0/1
[SwitchB-GigabitEthernet1/0/1] port link-type trunk
[SwitchB-GigabitEthernet1/0/1] port trunk permit vlan 12 13
[SwitchB-GigabitEthernet1/0/1] service-instance 1000
[SwitchB-GigabitEthernet1/0/1-srv1000] encapsulation s-vid 12
```

**# Map Ethernet service instance 1000 to VSI vpna.**

```
[SwitchB-GigabitEthernet1/0/1-srv1000] xconnect vsi vpna
[SwitchB-GigabitEthernet1/0/1-srv1000] quit
```

**# On GigabitEthernet 1/0/1, configure Ethernet service instance 2000 to match VLAN 13.**

```
[SwitchB-GigabitEthernet1/0/1] service-instance 2000
[SwitchB-GigabitEthernet1/0/1-srv2000] encapsulation s-vid 13
```

**# Map Ethernet service instance 2000 to VSI vpnb.**

```
[SwitchB-GigabitEthernet1/0/1-srv2000] xconnect vsi vpnb
[SwitchB-GigabitEthernet1/0/1-srv2000] quit
```

```
[SwitchB-GigabitEthernet1/0/1] quit
```

## Configuring Switch C

**# Enable L2VPN.**

```
[SwitchC] l2vpn enable
```

**# Create VSI **vpna** and VXLAN 10.**

```
[SwitchC] vsi vpna
```

```
[SwitchC-vsi-vpna] vxlan 10
```

```
[SwitchC-vsi-vpna-vxlan10] quit
```

```
[SwitchC-vsi-vpna] quit
```

**# Create VSI **vpnb** and VXLAN 20.**

```
[SwitchC] vsi vpb
```

```
[SwitchC-vsi-vpb] vxlan 20
```

```
[SwitchC-vsi-vpb-vxlan10] quit
```

```
[SwitchC-vsi-vpb] quit
```

**# Create a VXLAN tunnel to Switch A. The tunnel interface name is **Tunnel 1**.**

```
[SwitchC] interface tunnel 1 mode vxlan
```

```
[SwitchC-Tunnel1] source 3.3.3.3
```

```
[SwitchC-Tunnel1] destination 1.1.1.1
```

```
[SwitchC-Tunnel1] quit
```

**# Create a VXLAN tunnel to Switch B. The tunnel interface name is **Tunnel 2**.**

```
[SwitchC] interface tunnel 2 mode vxlan
```

```
[SwitchC-Tunnel2] source 3.3.3.3
```

```
[SwitchC-Tunnel2] destination 2.2.2.2
```

```
[SwitchC-Tunnel2] quit
```

**# Assign Tunnel 1 and Tunnel 2 to VXLAN 10.**

```
[SwitchC] vsi vpna
```

```
[SwitchC-vsi-vpna] vxlan 10
```

```
[SwitchC-vsi-vpna-vxlan10] tunnel 1
```

```
[SwitchC-vsi-vpna-vxlan10] tunnel 2
```

```
[SwitchC-vsi-vpna-vxlan10] quit
```

```
[SwitchC-vsi-vpna] quit
```

**# Assign Tunnel 1 and Tunnel 2 to VXLAN 20.**

```
[SwitchC] vsi vpb
```

```
[SwitchC-vsi-vpb] vxlan 20
```

```
[SwitchC-vsi-vpb-vxlan20] tunnel 1
```

```
[SwitchC-vsi-vpb-vxlan20] tunnel 2
```

```
[SwitchC-vsi-vpb-vxlan20] quit
```

```
[SwitchC-vsi-vpb] quit
```

## Configuring the centralized VXLAN IP gateway

**# Create VSI-interface 1 and assign the interface an IP address. The IP address will be used as the gateway address for VXLAN 10.**

```
[SwitchC] interface vsi-interface 1
```

```
[SwitchC-Vsi-interface1] ip address 10.1.1.1 255.255.255.0
```

```
[SwitchC-Vsi-interface1] quit
```

**# Specify VSI-interface 1 as the gateway interface for VSI `vpna`.**

```
[SwitchC] vsi vpna
[SwitchC-vsi-vpna] gateway vsi-interface 1
[SwitchC-vsi-vpna] quit
```

**# Create VSI-interface 2 and assign the interface an IP address. The IP address will be used as the gateway address for VXLAN 20.**

```
[SwitchC] interface vsi-interface 2
[SwitchC-Vsi-interface2] ip address 10.1.2.1 255.255.255.0
[SwitchC-Vsi-interface2] quit
```

**# Specify VSI-interface 2 as the gateway interface for VSI `vpnb`.**

```
[SwitchC] vsi vpnb
[SwitchC-vsi-vpnb] gateway vsi-interface 2
[SwitchC-vsi-vpnb] quit
```

**# Configure OSPF to advertise routes for the VSI interfaces and VLAN-interface 100.**

```
[SwitchC] ospf 2 router-id 3.3.3.3
[SwitchC-ospf-2] area 0
[SwitchC-ospf-2-area-0.0.0.0] network 10.1.1.0 0.0.0.255
[SwitchC-ospf-2-area-0.0.0.0] network 10.1.2.0 0.0.0.255
[SwitchC-ospf-2-area-0.0.0.0] network 100.1.1.0 0.0.0.255
[SwitchC-ospf-2-area-0.0.0.0] quit
[SwitchC-ospf-2] quit
```

## Verifying the configuration

1. Verify the VXLAN settings on the VTEPs. This example uses Switch A.

**# Verify that the VXLAN tunnel interfaces are in up state.**

```
[SwitchA] display interface tunnel
Tunnel1
Current state: UP
Line protocol state: UP
Description: Tunnel1 Interface
Bandwidth: 64 kbps
Maximum transmission unit: 1464
Internet protocol processing: Disabled
Last clearing of counters: Never
Tunnel source 1.1.1.1, destination 2.2.2.2
Tunnel protocol/transport UDP_VXLAN/IP
Last 300 seconds input rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec
Last 300 seconds output rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec
Input: 0 packets, 0 bytes, 0 drops
Output: 0 packets, 0 bytes, 0 drops

Tunnel2
Current state: UP
Line protocol state: UP
Description: Tunnel2 Interface
Bandwidth: 64 kbps
```

Maximum transmission unit: 1464

Internet protocol processing: Disabled

Last clearing of counters: Never

Tunnel source 1.1.1.1, destination 3.3.3.3

Tunnel protocol/transport UDP\_VXLAN/IP

Last 300 seconds input rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec

Last 300 seconds output rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec

Input: 0 packets, 0 bytes, 0 drops

Output: 0 packets, 0 bytes, 0 drops

**# Verify that the VXLAN tunnels have been assigned to their respective VXLANs, and the VXLAN tunnels and Ethernet service instances are in up state.**

[SwitchA] display l2vpn vsi verbose

VSI Name: vpna

VSI Index : 0  
VSI State : Up  
MTU : 1500  
Bandwidth : -  
Broadcast Restrain : -  
Multicast Restrain : -  
Unknown Unicast Restrain: -  
MAC Learning : Enabled  
MAC Table Limit : -  
MAC Learning rate : -  
Drop Unknown : -  
Flooding : Enabled  
Statistics : Disabled

VXLAN ID : 10

Tunnels:

Tunnel Name	Link ID	State	Type	Flood proxy
Tunnel1	0x5000001	Up	Manual	Disabled
Tunnel2	0x5000002	Up	Manual	Disabled

ACs:

AC	Link ID	State	Type
GE1/0/1 srv1000	0	Up	Manual

VSI Name: vpb

VSI Index : 1  
VSI State : Up  
MTU : 1500  
Bandwidth : -  
Broadcast Restrain : -  
Multicast Restrain : -  
Unknown Unicast Restrain: -  
MAC Learning : Enabled  
MAC Table Limit : -  
MAC Learning rate : -  
Drop Unknown : -  
Flooding : Enabled  
Statistics : Disabled

VXLAN ID		: 20			
Tunnels:					
Tunnel Name	Link ID	State	Type	Flood proxy	
Tunnel1	0x5000001	Up	Manual	Disabled	
Tunnel2	0x5000002	Up	Manual	Disabled	
ACs:					
AC		Link ID	State	Type	
GE1/0/1 srv2000		0	Up	Manual	

## 2. Verify the configuration on the VXLAN IP gateway:

# Verify that the VXLAN tunnel interfaces are in up state.

```
[SwitchC] display interface tunnel
Tunnel1
Current state: UP
Line protocol state: UP
Description: Tunnel1 Interface
Bandwidth: 64 kbps
Maximum transmission unit: 1464
Internet protocol processing: Disabled
Last clearing of counters: Never
Tunnel source 3.3.3.3, destination 1.1.1.1
Tunnel protocol/transport UDP_VXLAN/IP
Last 300 seconds input rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec
Last 300 seconds output rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec
Input: 0 packets, 0 bytes, 0 drops
Output: 0 packets, 0 bytes, 0 drops

Tunnel2
Current state: UP
Line protocol state: UP
Description: Tunnel2 Interface
Bandwidth: 64 kbps
Maximum transmission unit: 1464
Internet protocol processing: Disabled
Last clearing of counters: Never
Tunnel source 3.3.3.3, destination 2.2.2.2
Tunnel protocol/transport UDP_VXLAN/IP
Last 300 seconds input rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec
Last 300 seconds output rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec
Input: 0 packets, 0 bytes, 0 drops
Output: 0 packets, 0 bytes, 0 drops

# Verify that the VSI interfaces are in up state.
[SwitchC] display interface vsi-interface
Vsi-interfacel
Current state: UP
Line protocol state: UP
Description: Vsi-interfacel Interface
Bandwidth: 1000000 kbps
Maximum transmission unit: 1500
```

Internet Address: 10.1.1.1/24 (primary)

IP packet frame type: Ethernet II, hardware address: 0000-fc00-458d

IPv6 packet frame type: Ethernet II, hardware address: 0000-fc00-458d

Physical: Unknown, baudrate: 1000000 kbps

Last clearing of counters: Never

Last 300 seconds input rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec

Last 300 seconds output rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec

Input: 0 packets, 0 bytes, 0 drops

Output: 0 packets, 0 bytes, 0 drops

Vsi-interface2

Current state: UP

Line protocol state: UP

Description: Vsi-interface2 Interface

Bandwidth: 1000000 kbps

Maximum transmission unit: 1500

Internet Address: 10.1.2.1/24 (primary)

IP packet frame type: Ethernet II, hardware address: 0000-fc00-458d

IPv6 packet frame type: Ethernet II, hardware address: 0000-fc00-458d

Physical: Unknown, baudrate: 1000000 kbps

Last clearing of counters: Never

Last 300 seconds input rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec

Last 300 seconds output rate: 0 bytes/sec, 0 bits/sec, 0 packets/sec

Input: 0 packets, 0 bytes, 0 drops

Output: 0 packets, 0 bytes, 0 drops

**# Verify that the VXLAN tunnels have been assigned to VXLANs 10 and 20, VSI-interface 1 is the gateway interface of VSI *vpna*, and VSI-interface 2 is the gateway interface of VSI *vpnb*.**

[SwitchC] display l2vpn vsi verbose

VSI Name: vpna

VSI Index : 0  
VSI State : Up  
MTU : 1500  
Bandwidth : -  
Broadcast Restrain : -  
Multicast Restrain : -  
Unknown Unicast Restrain: -  
MAC Learning : Enabled  
MAC Table Limit : -  
MAC Learning rate : -  
Drop Unknown : -  
Flooding : Enabled  
Statistics : Disabled

Gateway interface : VSI-interface 1

VXLAN ID : 10

Tunnels:

Tunnel Name	Link ID	State	Type	Flooding proxy
Tunnel1	0x5000002	Up	Manual	Disabled
Tunnel2	0x5000003	Up	Manual	Disabled



VSI Name: vpnb

VSI Index : 1  
VSI State : Up  
MTU : 1500  
Bandwidth : -  
Broadcast Restrain : -  
Multicast Restrain : -  
Unknown Unicast Restrain: -  
MAC Learning : Enabled  
MAC Table Limit : -  
MAC Learning rate : -  
Drop Unknown : -  
Flooding : Enabled  
Statistics : Disabled

Gateway interface : VSI-interface 2

VXLAN ID : 20

Tunnels:

Tunnel Name	Link ID	State	Type	Flooding proxy
Tunnel1	0x5000002	Up	Manual	Disabled
Tunnel2	0x5000003	Up	Manual	Disabled

# Verify that Switch C has created ARP entries for the VMs.

[SwitchC] display arp

Type: S-Static	D-Dynamic	O-Openflow	R-Rule	M-Multiport	I-Invalid
IP address	MAC address	VLAN/VSI name	Interface	Aging	Type
10.1.1.11	0000-1234-0001	vpna	Tunnel1	20	D
10.1.1.12	0000-1234-0002	vpna	Tunnel2	19	D

# Verify that Switch C has created FIB entries for the VMs.

[SwitchC] display fib 10.1.1.11

Destination count: 1 FIB entry count: 1

Flag:

U:Useable G:Gateway H:Host B:Blackhole D:Dynamic S:Static  
R:Relay F:FRR

Destination/Mask	Nexthop	Flag	OutInterface/Token	Label
10.1.1.11/32	10.1.1.11	UH	Vsi1	Null

### 3. Verify the network connectivity for VMs:

# Verify that VM 1, VM 2, VM 3, and VM 4 can ping each other. (Details not shown.)

# Verify that VM 1, VM 2, VM 3, VM 4, and VLAN-interface 100 (100.1.1.1) on Switch C can ping each other. (Details not shown.)

## Configuration files

- Switch A:

```
#  
undo vxlan ip-forwarding  
#
```

```

ospf 1 router-id 1.1.1.1
  area 0.0.0.0
    network 1.1.1.1 0.0.0.0
    network 20.1.1.0 0.0.0.255
#
vlan 10
#
vlan 11
#
vlan 20
#
  l2vpn enable
#
vsi vpna
  vxlan 10
    tunnel 1
    tunnel 2
#
vsi vpnb
  vxlan 20
    tunnel 1
    tunnel 2
#
interface LoopBack0
  ip address 1.1.1.1 255.255.255.255
#
interface Vlan-interface20
  ip address 20.1.1.1 255.255.255.0
#
interface GigabitEthernet1/0/1
  port link-mode bridge
  port link-type trunk
  port trunk permit vlan 1 10 to 11
#
  service-instance 1000
    encapsulation s-vid 10
    xconnect vsi vpna
#
  service-instance 2000
    encapsulation s-vid 11
    xconnect vsi vpnb
#
interface GigabitEthernet1/0/2
  port link-mode bridge
  port access vlan 20
#
interface Tunnel1 mode vxlan
  source 1.1.1.1

```

```

    destination 2.2.2.2
#
interface Tunnel2 mode vxlan
    source 1.1.1.1
    destination 3.3.3.3

```

- **Switch B:**

```

#
undo vxlan ip-forwarding
#
ospf 1 router-id 2.2.2.2
    area 0.0.0.0
        network 2.2.2.2 0.0.0.0
        network 30.1.1.0 0.0.0.255
#
vlan 12
#
vlan 13
#
vlan 30
#
l2vpn enable
#
vsi vpna
    vxlan 10
        tunnel 1
        tunnel 2
#
vsi vpnb
    vxlan 20
        tunnel 1
        tunnel 2
#
interface LoopBack0
    ip address 2.2.2.2 255.255.255.255
#
interface Vlan-interface30
    ip address 30.1.1.2 255.255.255.0
#
interface GigabitEthernet1/0/1
    port link-mode bridge
    port link-type trunk
    port trunk permit vlan 1 12 to 13
#
service-instance 1000
    encapsulation s-vid 12
    xconnect vsi vpna
#
service-instance 2000

```

```

        encapsulation s-vid 13
        xconnect vsi vpnb
#
interface GigabitEthernet1/0/2
    port link-mode bridge
    port access vlan 30
#
interface Tunnel1 mode vxlan
    source 2.2.2.2
    destination 1.1.1.1
#
interface Tunnel2 mode vxlan
    source 2.2.2.2
    destination 3.3.3.3

```

- **Switch C:**

```

#
ospf 1 router-id 3.3.3.3
    area 0.0.0.0
        network 3.3.3.3 0.0.0.0
        network 40.1.1.0 0.0.0.255
#
ospf 2 router-id 3.3.3.3
    area 0.0.0.0
        network 10.1.1.0 0.0.0.255
        network 10.1.2.0 0.0.0.255
        network 100.1.1.0 0.0.0.255
#
vlan 40
#
vlan 100
#
    l2vpn enable
#
vsi vpna
    gateway vsi-interface 1
    vxlan 10
        tunnel 1
        tunnel 2
#
vsi vpnb
    gateway vsi-interface 2
    vxlan 20
        tunnel 1
        tunnel 2
#
interface LoopBack0
    ip address 3.3.3.3 255.255.255.255
#

```

```

interface Vlan-interface40
 ip address 40.1.1.3 255.255.255.0
#
interface Vlan-interface100
 ip address 100.1.1.1 255.255.255.0
#
interface GigabitEthernet1/0/2
 port link-mode bridge
 port access vlan 40
#
interface GigabitEthernet1/0/3
 port link-mode bridge
 port access vlan 100
#
interface Vsi-interface1
 ip address 10.1.1.1 255.255.255.0
#
interface Vsi-interface2
 ip address 10.1.2.1 255.255.255.0
#
interface Tunnel1 mode vxlan
 source 3.3.3.3
 destination 1.1.1.1
#
interface Tunnel2 mode vxlan
 source 3.3.3.3
 destination 2.2.2.2
#
return

```

- **Switch D:**

```

#
ospf 1 router-id 4.4.4.4
 area 0.0.0.0
   network 4.4.4.4 0.0.0.0
   network 20.1.1.0 0.0.0.255
   network 30.1.1.0 0.0.0.255
   network 40.1.1.0 0.0.0.255
#
vlan 20
#
vlan 30
#
vlan 40
#
interface LoopBack0
 ip address 4.4.4.4 255.255.255.255
#
interface Vlan-interface20

```

```
    ip address 20.1.1.4 255.255.255.0
#
interface Vlan-interface30
    ip address 30.1.1.4 255.255.255.0
#
interface Vlan-interface40
    ip address 40.1.1.4 255.255.255.0
#
interface GigabitEthernet1/0/1
    port link-mode bridge
    port access vlan 20
#
interface GigabitEthernet1/0/2
    port link-mode bridge
    port access vlan 30
#
interface GigabitEthernet1/0/3
    port link-mode bridge
    port access vlan 40
#
return
```