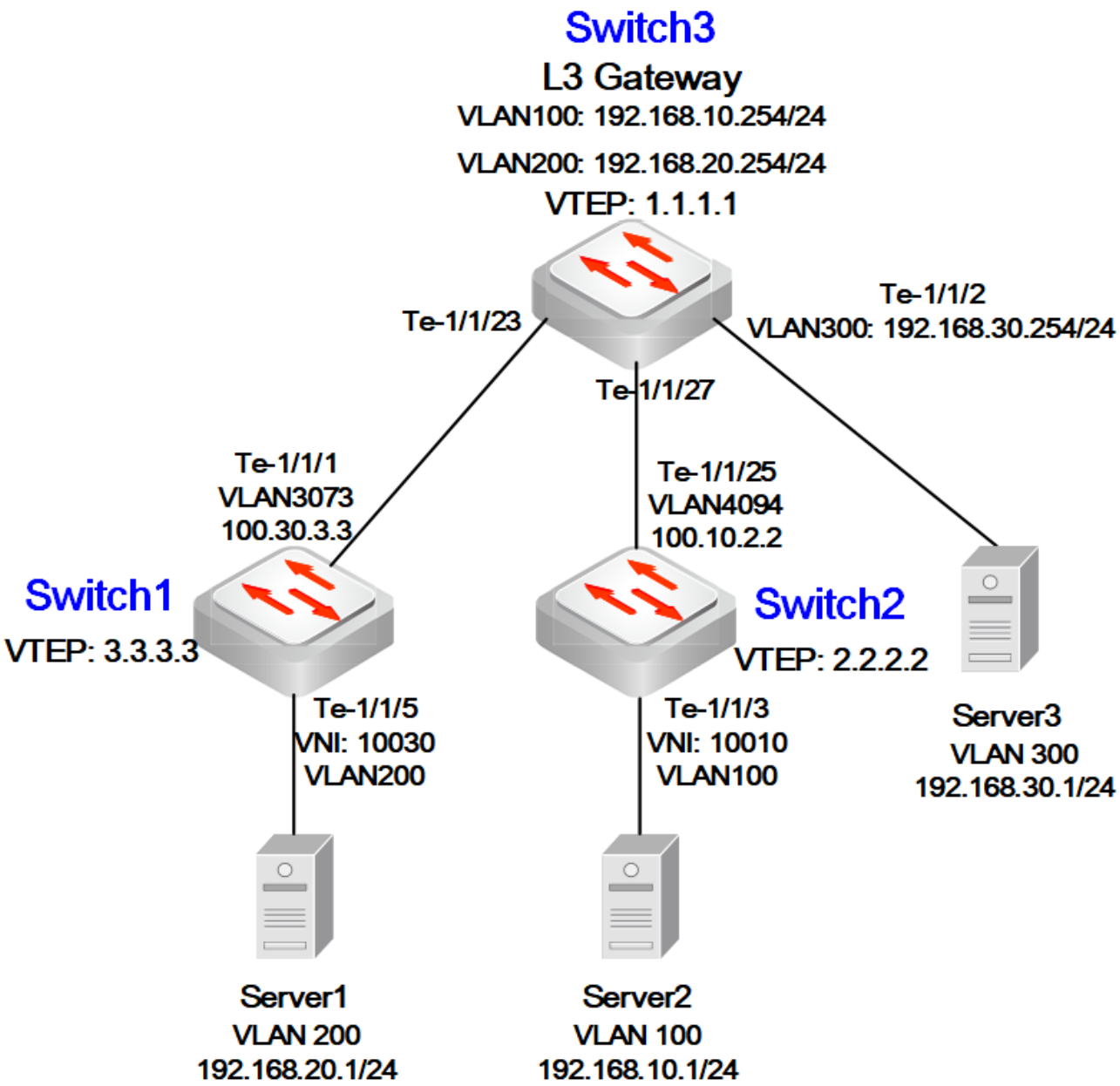
Example for Configuring VXLAN for Different Subnets

- Networking Requirements
  - Figure 1 VXLAN Networking Topology with Centralized Gateway Deployment
- Procedure
  - Switch1
  - Switch2
  - Switch3
- Verify the Configuration

Networking Requirements

Figure 1 VXLAN Networking Topology with Centralized Gateway Deployment



As shown in **Figure 1**, in the centralized gateway scenario, an enterprise has its own servers in different data centers, Server 1 belongs to VLAN 200, Server 1 belongs to VLAN 100 and Server 3 belongs to VLAN 300. Server 1, Server 2 and Server 3 are located in different network segments. Cross-subnet packet forwarding needs to be implemented through a centralized Layer 3 gateway.

Configure different servers on different network segments to communicate with each other through a VXLAN centralized Layer 3 gateway by the following roadmap:

1. Configure static routes on Switch 1, Switch 2, and Switch 3 respectively to ensure network connectivity at the underlay network.
2. Configure VXLAN access network on Switch 1, Switch 2 and Switch 3 respectively to differentiate service flow.
3. Configure VXLAN tunnels on Switch 1, Switch 2 and Switch 3 respectively to forward service flow.
4. To enable users of different network segments to communicate with each other, configure VXLAN Layer 3 gateway on Switch 3. The following steps include how to configure VXLAN Layer 3 gateway:

   a) Configure VXLAN mapping of VNI to VLAN:

   set vxlans vni <*vni_id*> **vlan** <*vlan_id*>

   b) Configure L3 VLAN interface:

   set vlans vlan-id <*vlan_id*> **l3-interface** <*interface_name*>

   c) Configure the IP the L3 VLAN interface:

   set l3-interface vlan-interface <*interface_name*> **address** <*IP_address*> **prefix-length** <*prefix_length*>

Procedure

This section describes the steps of configuring VXLAN for different subnets on Switch1, Switch2 and Switch3.

Switch1

Step 1 Configure the VLANs.

```
admin@Switch1# set vlans vlan-id 200
admin@Switch1# set vlans vlan-id 3073
admin@Switch1# set vlans vlan-id 3073 l3-interface vlan3073
admin@Switch1# set l3-interface vlan-interface vlan3073 address 100.30.3.3 prefix-length 24
admin@Switch1# set interface gigabit-ethernet te-1/1/1 family ethernet-switching native-vlan-id 3073
admin@Switch1# set interface gigabit-ethernet te-1/1/5 family ethernet-switching port-mode trunk
admin@Switch1# set interface gigabit-ethernet te-1/1/5 family ethernet-switching vlan members 200
```

Step 2 Enable IP routing and configure the route.

```
admin@Switch1# set ip routing enable true
admin@Switch1# set l3-interface loopback lo address 3.3.3.3 prefix-length 32
admin@Switch1# set protocols static route 1.1.1.1/32 next-hop 100.30.3.4
```

Step 3 Configure VXLAN tunnel.

```
admin@Switch1# set vxlans source-interface loopback address 3.3.3.3
admin@Switch1# set vxlans vni 10030 vlan 200
admin@Switch1# set vxlans vni 10030 flood vtep 1.1.1.1
```

Step 4 Commit the configurations.

```
admin@Switch1# commit
```

Switch2

Step 1 Configure the VLANs.

```
admin@Switch2# set vlans vlan-id 100
admin@Switch2# set vlans vlan-id 4094
admin@Switch2# set vlans vlan-id 4094 l3-interface vlan4094
admin@Switch2# set l3-interface vlan-interface vlan4094 address 100.10.2.2 prefix-length 24
admin@Switch2# set interface gigabit-ethernet te-1/1/25 family ethernet-switching native-vlan-id 4094
admin@Switch2# set interface gigabit-ethernet te-1/1/3 family ethernet-switching port-mode trunk
admin@Switch2# set interface gigabit-ethernet te-1/1/3 family ethernet-switching vlan members 100
```

Step 2 Enable IP routing and configure the route.

```
admin@Switch2# set ip routing enable true
admin@Switch2# set l3-interface loopback lo address 2.2.2.2 prefix-length 32
admin@Switch2# set protocols static route 1.1.1.1/32 next-hop 100.10.2.1
```

Step 3 Configure VXLAN tunnel.

```
admin@Switch2# set vxlans source-interface loopback address 2.2.2.2
admin@Switch2# set vxlans vni 10010 vlan 100
admin@Switch2# set vxlans vni 10010 flood vtep 1.1.1.1
```

Step 4 Commit the configurations.

```
admin@Switch2# commit
```

Switch3

Step 1 Configure the VLANs.

```
admin@Switch3# set vlans vlan-id 100 l3-interface vlan100
admin@Switch3# set vlans vlan-id 200 l3-interface vlan200
admin@Switch3# set vlans vlan-id 300 l3-interface vlan300
admin@Switch3# set vlans vlan-id 3073 l3-interface vlan3073
admin@Switch3# set vlans vlan-id 4094 l3-interface vlan4094
admin@Switch3# set l3-interface vlan-interface vlan100 address 192.168.10.254 prefix-length 24
admin@Switch3# set l3-interface vlan-interface vlan200 address 192.168.20.254 prefix-length 24
admin@Switch3# set l3-interface vlan-interface vlan300 address 192.168.30.254 prefix-length 24
admin@Switch3# set l3-interface vlan-interface vlan3073 address 100.30.3.4 prefix-length 24
admin@Switch3# set l3-interface vlan-interface vlan4094 address 100.10.2.1 prefix-length 24
admin@Switch3# set interface gigabit-ethernet te-1/1/2 family ethernet-switching native-vlan-id 300
admin@Switch3# set interface gigabit-ethernet te-1/1/2 family ethernet-switching port-mode trunk
admin@Switch3# set interface gigabit-ethernet te-1/1/23 family ethernet-switching native-vlan-id 3073
admin@Switch3# set interface gigabit-ethernet te-1/1/27 family ethernet-switching native-vlan-id 4094
```

Step 2 Enable IP routing and configure the route.

```
admin@Switch3# set ip routing enable true
admin@Switch3# set l3-interface loopback lo address 1.1.1.1 prefix-length 32
admin@Switch3# set protocols static route 2.2.2.2/32 next-hop 100.10.2.2
admin@Switch3# set protocols static route 3.3.3.3/32 next-hop 100.30.3.3
```

Step 3 Configure VXLAN tunnel.

```
admin@Switch3# set vxlans source-interface loopback address 1.1.1.1
admin@Switch3# set vxlans vni 10010 flood vtep 2.2.2.2
admin@Switch3# set vxlans vni 10030 flood vtep 3.3.3.3
```

Step 4 Configure VXLAN mapping of VNI to VLAN.

```
admin@Switch3# set vxlans vni 10010 vlan 100
admin@Switch3# set vxlans vni 10030 vlan 200
```

Step 5 Commit the configurations.

```
admin@Switch3# commit
```

Verify the Configuration

- You can use the **run show vxlan tunnel** command to display the VXLAN tunnel information and tunnel state.

```
admin@Switch1# run show vxlan tunnel
Total number of tunnels: 1

VNI 10030, Encap:service-vlan-delete, Decap:service-vlan-add-replace
  src addr:3.3.3.3, dst addr:1.1.1.1, state:UP
  traffic type:all
  nexthops:100.30.3.4
  output ports:te-1/1/1

admin@Switch2# run show vxlan tunnel
Total number of tunnels: 1

VNI 10010, Encap:service-vlan-delete, Decap:service-vlan-add-replace
  src addr:2.2.2.2, dst addr:1.1.1.1, state:UP
  traffic type:all
  nexthops:100.10.2.1
  output ports:te-1/1/25

admin@Switch3# run show vxlan tunnel
Total number of tunnels: 2

VNI 10010, Encap:service-vlan-delete, Decap:service-vlan-add-replace
  src addr:1.1.1.1, dst addr:2.2.2.2, state:UP
  traffic type:all
  nexthops:100.10.2.2
  output ports:te-1/1/27

VNI 10030, Encap:service-vlan-delete, Decap:service-vlan-add-replace
  src addr:1.1.1.1, dst addr:3.3.3.3, state:UP
  traffic type:all
  nexthops:100.30.3.3
  output ports:te-1/1/23
```

- You can use the **run show vxlan address-table** command to display the VXLAN MAC address table.

```
admin@Switch1# run show vxlan address-table
VNID           MAC address          Type        Interface          VTEP
-----------    -----------------    -------     ---------------    --------------
10030          00:00:00:00:22:22    Dynamic     te-1/1/5
10030          50:9a:4c:e6:7b:71    Dynamic                        1.1.1.1
Entries in access port:  1
Entries in network port: 1

admin@Switch2# run show vxlan address-table
VNID           MAC address          Type        Interface          VTEP
-----------    -----------------    -------      ---------------  --------------
10010          00:00:00:00:44:44    Dynamic     te-1/1/3
10010          50:9a:4c:e6:7b:71    Dynamic                        1.1.1.1
Entries in access port:  1
Entries in network port: 1


admin@Switch3# run show vxlan address-table
VNID           MAC address            Type         Interface            VTEP
-----------    -----------------      -------      ----------------     ---------------
10010          00:00:00:00:44:44      Dynamic                           2.2.2.2
10030          00:00:00:00:22:22      Dynamic                           3.3.3.3
Entries in access port:  0
Entries in network port: 2
```

- You can use the **run show vxlan arp** command to display the ARP table on Switch 3.

```
admin@Switch3# run show vxlan arp
IP-ADDRESS       MAC-ADDRESS  VNI      REMOTE-VTEP    Interface           Status        Age
--------------  -----------------     --------       ---------------     ----------    -------
192.168.10.1     00:00:00:00:44:44     10010          2.2.2.2             Dynamic       0
192.168.20.1     00:00:00:00:22:22     10030          3.3.3.3             Dynamic       0
```