EVC Local Connect

Local connect (Layer 2 point to point service) is a point to point connection. It transparently transmits packet between two service instances which are configured on the same box. Local connect only connects two end points (service instances) without learning any Mac addresses. This is different from the traditional L2 bridging.

Note Packet is not forwarded based on MAC addresses.

Information About EVC Local Connect

Prerequisites for EVC Local Connect

- EVC Local connect and global bridge domain configurations requires Avanced Metro IPAccess license.

- Ensure EFPs are configured without any Bridge-Domain or Xconnect mapped to it.

Restrictions for EVC Local Connect

- EVC local connect is not supported on port-channel interfaces.

- CFM is *not* supported on EVC which contains local connect.

- L2 Protocol Tunnel are *not* supported.

- Ethernet Loopback is *not* supported.

- EVC local connect over Trunk is *not* supported.

• Port based local connect is *not* supported.

• Egress filtering based on encapulation, vlan translation, terminal and facility loopback are *not* supported

• Local Connect members without service instances will *not* work.

• On point-point connection storm control should not be applied. However, with local connect, broadcast storm control gets applied.

• For IP multicast, IGMP and PIM control packets get punted to CPU and then re-injected into the hardware path. The same thing applies to DHCP control packets too.

Scaling

• With the 8k SDM template enabled, there can be 4000 local connects configured. This total EFP scale can be divided among cross-connect and local- connect and there is no fixed limit on the division numbers.

• Local Connect does not share Internal Bridge-Domain space with L2VPN.

• Local Connect is scaled by half of total EFP scale. EFP scale is 8000 on RSP3-400 and 4000 on RSP3-200 modules.

How to Configure EVC Local Connect

Configuring EVC Local Connect

Before You Begin

Ensure that service instances are configured with proper encapsulations and rewrites as needed.

Procedure

Follow this procedure to establish an EVC local connection:

Configuring Service Instance 1

```
enable
configure terminal
interface GigbitEthernet0/1/6
service instance 1 ethernet
encapsulation dot1q 2
end
```

Configuring Service Instance 2

```
enable
configure terminal
interface GigabitEthernet0/1/7
service instance 2 ethernet
encapsulation dot1q 2
end
```

EVC Local Connect for Service Instances 1 and 2

```
enable
configure terminal
l2vpn xconnect context efp2
member GigabitEthernet0/1/6 service-instance 1
member GigabitEthernet0/1/7 service-instance 2
no shut
end
```

Configuring EVC Local Connect as Interworking VLAN

Interworking VLAN is configured in the **l2vpn xconnect** command for local connect, if the local connect both member EFPs has different encapsulation types as default or untagged or vlan range. Follow this procedure to configure EVC local connect using internetworking VLAN.

Before You Begin

Ensure that service instances are configured with proper encapsulations and rewrites as needed.

Procedure

```
enable
configure terminal
l2vpn xconnect context connect1
member GigbitEthernet0/3/4 service-instance 1
member GigbitEthernet0/3/7 service-instance 1
interworking vlan
end
```

Verifying EVC Local Connect Configuration

Verifying EVC Local Connect Configuration

```
show l2vpn service xconnect name efp2

Legend: St=State    XC St=State in the L2VPN Service    Prio=Priority
        UP=Up       DN=Down             AD=Admin Down    IA=Inactive
        SB=Standby  HS=Hot Standby      RV=Recovering    NH=No Hardware
        m=manually selected

  Interface          Group       Encapsulation             Prio  St  XC St
  ---------          -----       ----
-- -----
VPWS name: efp2, State: UP
  Gi0/1/6                        Gi0/1/6:2(Eth VLAN)          0     UP  UP
  Gi0/1/7                        Gi0/1/7:2(Eth VLAN)          0     UP  UP
```

Verifying not Configured EVC Local Connect

```
show l2vpn service xconnect name efp2

Legend: St=State    XC St=State in the L2VPN Service    Prio=Priority
        UP=Up       DN=Down             AD=Admin Down    IA=Inactive
        SB=Standby  HS=Hot Standby      RV=Recovering    NH=No Hardware
        m=manually selected

  Interface          Group       Encapsulation             Prio  St  XC St
```

```
   ---------        -----       -------------                  ----  --  -----
Xconnect entry does not exist
```

Verifying EVC Local Connect with Interworking VLAN

```
show l2vpn service name test1

Legend: St=State     XC St=State in the L2VPN Service      Prio=Priority
        UP=Up       DN=Down            AD=Admin Down     IA=Inactive
        SB=Standby  HS=Hot Standby     RV=Recovering     NH=No Hardware
        m=manually selected

  Interface         Group       Encapsulation                 Prio  St  XC St
  ---------         -----       -------------                 ----  --  -----
VPWS name: test1, State: UP
  Gi0/1/6                       Gi0/1/6:1(Ethernet)           0     UP  UP
  Gi0/1/7                       Gi0/1/7:10(Eth VLAN)          0     UP  UP
```

Verifying Traffic Statistics

```
show interface gig0/1/6 | in pack

  30 second input rate 43604000 bits/sec, 43955 packets/sec
  30 second output rate 0 bits/sec, 0 packets/sec
     1521946 packets input, 188721304 bytes, 0 no buffer
     0 packets output, 0 bytes, 0 underruns

show interface gig0/1/7 | in pack

  30 second input rate 0 bits/sec, 0 packets/sec
  30 second output rate 43131000 bits/sec, 43482 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     1523724 packets output, 188941776 bytes, 0 underruns

show ethernet service instance id 1 interface gig0/1/6 stats

Port maximum number of service instances: 4000
Service Instance 1, Interface GigabitEthernet0/1/6
   Pkts In    Bytes In    Pkts Out   Bytes Out
   1300224   161227776          0           0


show ethernet service instance id 2 interface gig0/1/7 stats

Port maximum number of service instances: 4000
Service Instance 2, Interface GigabitEthernet0/1/7
   Pkts In    Bytes In    Pkts Out   Bytes Out
         0          0     1300226   161228024
```

Configuration Examples

Example: Configuration Example for EVC Local Connect

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```
show run interface GigabitEthernet0/1/6

Building configuration...

Current configuration : 142 bytes
!
interface GigabitEthernet0/1/6
 no ip address
 negotiation auto
 no keepalive
 service instance 1 ethernet
  encapsulation dot1q 10
 !
end

show run interface GigabitEthernet0/1/7

Building configuration...

Current configuration : 142 bytes
!
interface GigabitEthernet0/1/7
 no ip address
 negotiation auto
 no keepalive
 service instance 1 ethernet
  encapsulation dot1q 10
 !
end

show run | sec localconnect1

l2vpn xconnect context localconnect1
member GigabitEthernet0/1/6 service-instance 1
member GigabitEthernet0/1/7 service-instance 1
```

Example: Configuration Example for EVC Local Connect as Interworking VLAN

Example: Configuration Example for EVC Local Connect as Interworking VLAN

```
show run interface GigabitEthernet0/3/4

Building configuration...

Current configuration : 165 bytes
!
interface GigabitEthernet0/3/4
no ip address
negotiation auto
```

```
service instance 1 ethernet
  encapsulation dot1q 1
!
end

show run interface GigabitEthernet0/3/7

Building configuration...

Current configuration : 127 bytes
!
interface GigabitEthernet0/3/7
no ip address
negotiation auto
service instance 1 ethernet
  encapsulation default
!
end

show run | sec localconnect2

l2vpn xconnect context localconnect2
interworking vlan
member GigabitEthernet0/3/4 service-instance 1
member GigabitEthernet0/3/7 service-instance 1
```

Use Cases or Deployment Scenarios

Ingress is VLAN list and Egress is fixed VLAN

If you have the configuration where, Ingress has encapsulations as a list of VLAN and Egress is a fixed VLAN. You need to configure interworking VLAN in **l2vpn xconnect** command to enable local connect and the state of the connection to be UP.

A notification is displayed when you have not configured interworking VLAN.

The following configuration describes the scenario:

```
enable
configure terminal
interface GigabitEthernet0/1/6
service instance 1 ethernet
encapsulation dot1q 2,4,5-8,10
end

enable
configure terminal
interface GigabitEthernet0/1/7
service instance 2 ethernet
encapsulation dot1q 5
end

enable
configure terminal
l2vpn xconnect context efp2
member gigabitEthernet 0/1/6 service-instance 1
member gigabitEthernet 0/1/7 service-instance 2
no shut
end

% Incomplete xconnect configuration. Please configure interworking.
```

You can verify the configuration using the **show l2vpn service xconnect name name**

```
show l2vpn service xconnect name efp2

Legend: St=State    XC St=State in the L2VPN Service      Prio=Priority
        UP=Up       DN=Down           AD=Admin Down       IA=Inactive
        SB=Standby  HS=Hot Standby    RV=Recovering       NH=No Hardware
        m=manually selected

  Interface         Group        Encapsulation                  Prio  St  XC St
  ---------         -----        -------------                  ----  --  -----
VPWS name: efp2, State: UP
  Gi0/1/6                        Gi0/1/6:1(Ethernet)            0     UP  UP
  Gi0/1/7                        Gi0/1/7:5(Eth VLAN)            0     UP  UP
```