



## Provisioning Multiple Devices

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This chapter describes how to configure multiple devices, Layer 2 (L2) “switches” and Layer 3 (L3) “routers,” using the IP Solution Center (ISC) provisioning process. This chapter contains the following major sections:

- [NPC Ring Topology, page 12-1](#)
- [Ethernet-To-The-Home, page 12-9](#)

### NPC Ring Topology

This section describes how to create a Ring Topology, connect the CE starting and PE-POP ending points, and configure the Named Physical Circuits (NPC) from end to end, using the IP Solution Center (ISC) provisioning process.

This section contains the following sections:

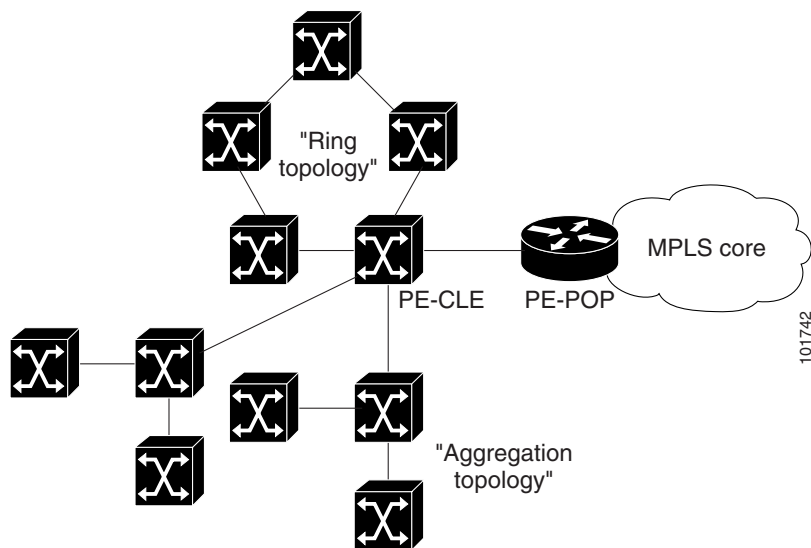
- [Ring Topology Overview, page 12-1](#)
- [Creating a Ring of Three PE-CLE, page 12-2](#)
- [Configuring NPC Ring Topology, page 12-4](#)

### Ring Topology Overview

Service providers are now looking to offer L2 and L3 services that must integrate with a common MPLS infrastructure. ISC supports two basic L2 topologies to access L3 MPLS networks:

- Ring Topology
- Aggregation Topology (“Hub and Spoke”)

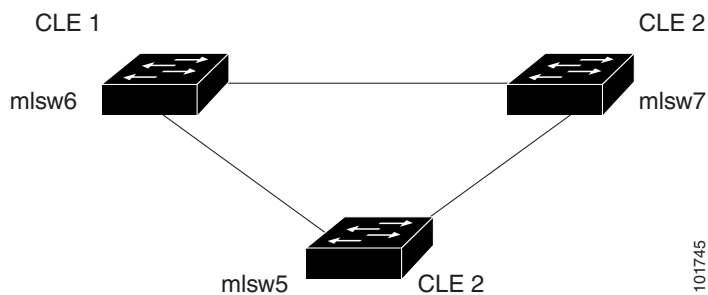
[Figure 12-1](#) shows an example of these two basic L2 access topologies.

**Figure 12-1** L2 Access Topologies

## Creating a Ring of Three PE-CLE

In its simplest form, the Ring Topology is a tripartite structure that comprises at least three PE- CLE. A PE-POP and a Multi-VRF CE can also be part of a Ring.

Figure 12-2 shows an example ring of three Catalyst 3550 switches: mls w5, mls w6, and mls w7.

**Figure 12-2** A Ring of Three PE-CLE

To create a Ring Topology in ISC, follow these steps:

- 
- Step 1** Log in to ISC.
  - Step 2** Go to **Service Inventory > Inventory and Connection Manager**.
  - Step 3** Click **NPC Rings** in the TOC under **Named Physical Circuits**.  
The NPC Rings window appears, as shown in Figure 12-3.

**Figure 12-3 NPC Rings**

NPC Rings

Show NPC rings with name matching

Showing 0 of 0 records

| #                 | Name |
|-------------------|------|
| Rows per page: 10 |      |

Go to page: 1 of 0

**Step 4** Click **Create** to continue.

The Create Ring window appears, as shown in Figure 12-4.

**Figure 12-4 Create Ring**

Create Ring

| #  | Source Device                                                 | Source Interface        | Destination Device                        | Destination Interface        |
|----|---------------------------------------------------------------|-------------------------|-------------------------------------------|------------------------------|
| 1. | <input type="checkbox"/> <a href="#">Select source device</a> | Select source interface | <a href="#">Select destination device</a> | Select destination interface |
| 2. | <input type="checkbox"/> <a href="#">Select source device</a> | Select source interface | <a href="#">Select destination device</a> | Select destination interface |
| 3. | <input type="checkbox"/> <a href="#">Select source device</a> | Select source interface | <a href="#">Select destination device</a> | Select destination interface |

**Step 5** Click **Select source device** in the first cell.

The Show Devices window appears, as shown in Figure 12-5.

**Note**

The Show Devices drop-down window in Figure 12-5 should show *CLE* rather than *PE*. This is a known application error. You cannot initiate this process with a PE-POP or a CE. You must begin with a PE-CLE.

**Figure 12-5 Show Devices**

Show  devices where  matching

Showing 1-1 of 1 records

| #  | Select                           | Device Name     | Provider Name | Region Name | PE Role Type |
|----|----------------------------------|-----------------|---------------|-------------|--------------|
| 1. | <input checked="" type="radio"/> | mlsw6.cisco.com | PROVIDER-X    | NORTH-X     | PE_CLE       |

Rows per page: All Go to page: 1 of 1

**Step 6** To search for a specific CLE, enter the *source device* in the **matching** dialog-box and click **Find**.

**Step 7** Choose the CLE and click **Select**.

The Create Ring window appears, as shown in Figure 12-6.

Figure 12-6 Create Ring

Create Ring

| #  | Source Device                  | Source Interface | Destination Device | Destination Interface |
|----|--------------------------------|------------------|--------------------|-----------------------|
| 1. | <input type="checkbox"/> mlsw6 | FastEthernet0/3  | mlsw7              | FastEthernet0/3       |
| 2. | <input type="checkbox"/> mlsw7 | FastEthernet0/2  | mlsw5              | FastEthernet0/4       |
| 3. | <input type="checkbox"/> mlsw5 | FastEthernet0/3  | mlsw6              | FastEthernet0/2       |

Edit Cross Links

Insert

Delete

Save

Cancel

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- Step 8** Continue from left to right and from top to bottom to fill the table with the appropriate Device and Interface information, which would be based on a network diagram from your own environment.



**Note**

If you had used the network diagram in [Figure 12-8](#) to populate the Create Ring table, it would contain the above information at the end of this process.

- Step 9** Click **Save** to save your ring in the Repository.

The NPC Rings window appears, as shown in [Figure 12-7](#)

Figure 12-7 NPC Rings

NPC Rings

Show NPC rings with name matching 

Find

Showing 1 - 1 of 1 record

| #  | <input type="checkbox"/> | Name                    |
|----|--------------------------|-------------------------|
| 1. | <input type="checkbox"/> | 1-mlsw6-FastEthernet0/3 |

Rows per page: 10 

Go to page: 1 of 1 

Go

Create

Edit

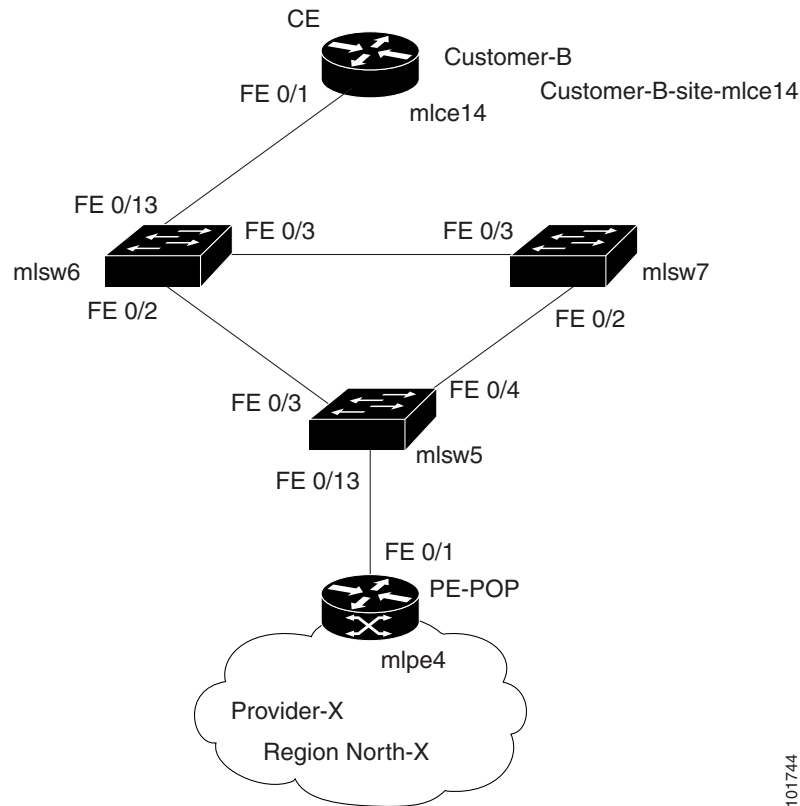
Delete

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Proceed to [Configuring NPC Ring Topology, page 12-4](#).

## Configuring NPC Ring Topology

[Figure 12-8](#) shows an example of the Ring Topology (three CLE) inserted between a CE (**mlce14**) and a PE-POP (**mlpe4**).

**Figure 12-8 The Ring Topology**

To configure end-to-end connectivity (CE > Ring (PE-CLE) > PE), follow these steps:

- Step 1** Log in to ISC.
- Step 2** Go to **Service Inventory > Inventory and Connection Manager > Named Physical Circuits**. The Named Physical Circuits window appears, as shown in [Figure 12-9](#).

**Figure 12-9 Named Physical Circuits**

The screenshot shows the "Named Physical Circuits" window. It includes a search bar with "Show NPCs where" and a dropdown menu set to "Name". There is a "Find" button. Below the search bar, it says "Showing 0 of 0 records". A table with columns "#", "Source Device", "Source Interface", "Destination Device", "Destination Interface", and "Name" is visible. The table is empty. At the bottom, there are "Create" and "Delete" buttons. The "Rows per page" is set to 10. The "Go to page" is set to 1 of 1.

- Step 3** Click **Create**. The Create Named Physical Circuits window appears, as shown in [Figure 12-10](#).

**Figure 12-10** Create a Named Physical Circuit

| # | Device | Incoming Interface | Outgoing Interface | Ring |
|---|--------|--------------------|--------------------|------|
|---|--------|--------------------|--------------------|------|

Insert Device Insert Ring Add Device Add Ring Delete Save Cancel

**Step 4** Click **Add Device**.

The Select Devices window appears (not shown).

**Step 5** Choose the CE and then click **Select**.

The Create a Named Physical Circuit window appears, as shown in [Figure 12-11](#).

**Figure 12-11** Create a Named Physical Circuit

| #  | Device                                     | Incoming Interface | Outgoing Interface | Ring |
|----|--------------------------------------------|--------------------|--------------------|------|
| 1. | <input checked="" type="checkbox"/> mlce14 |                    |                    |      |

Insert Device Insert Ring Add Device Add Ring Delete Save Cancel

**Step 6** Click **Add Device**.

The Select Devices window appears, as shown in [Figure 12-12](#).

**Figure 12-12** Choose Devices

Show PE devices where Device Name Matching \* Find

Showing 1 - 7 of 7 records

| #  | Device Name                            | Provider Name | Region Name | PE Role Type |
|----|----------------------------------------|---------------|-------------|--------------|
| 1. | <input type="radio"/> mlpe1            | Provider-X    | West-X      | PE_POP       |
| 2. | <input type="radio"/> mlpe2            | Provider-X    | West-X      | PE_POP       |
| 3. | <input type="radio"/> mlpe3            | Provider-X    | West-X      | PE_POP       |
| 4. | <input checked="" type="radio"/> mlpe4 | Provider-X    | West-X      | PE_POP       |
| 5. | <input type="radio"/> mlsw5            | Provider-X    | North-X     | PE_CLE       |
| 6. | <input type="radio"/> mlsw6            | Provider-X    | North-X     | PE_CLE       |
| 7. | <input type="radio"/> mlsw7            | Provider-X    | North-X     | PE_CLE       |

Rows per page: 50 Go to page: 1 of 1 Go

Select Cancel

**Step 7** Choose the PE and then click **Select**.

The Create a Named Physical Circuit window appears, as shown in [Figure 12-13](#).

**Figure 12-13** Create a Named Physical Circuit

| #  | Device                                     | Incoming Interface        | Outgoing Interface        | Ring |
|----|--------------------------------------------|---------------------------|---------------------------|------|
| 1. | <input checked="" type="checkbox"/> mlce14 |                           | Select outgoing interface |      |
| 2. | <input type="checkbox"/> mlpe4             | Select incoming interface |                           |      |

**Step 8** Click **Insert Ring**.

The Show NPC Rings window appears, as shown in Figure 12-14.

**Figure 12-14** Create a Named Physical Circuit

Show NPC rings with Ring Name Matching \* Find

Showing 1 - 1 of 1 record

| #  | Ring Name               |
|----|-------------------------|
| 1. | 1-m1sw6-FastEthernet0/3 |

Rows per page: 10 Go to page: 1 of 1 Go

**Step 9** Choose an NPC Ring and click **Select**.

The Create a Named Physical Circuit window appears, as shown in Figure 12-15.

**Figure 12-15** Create a Named Physical Circuit

| #  | Device                                            | Incoming Interface        | Outgoing Interface        | Ring                    |
|----|---------------------------------------------------|---------------------------|---------------------------|-------------------------|
| 1. | <input type="checkbox"/> mlce14                   |                           | Select outgoing interface |                         |
| 2. | <input checked="" type="checkbox"/> Select device | Select incoming interface |                           | 1-m1sw6-FastEthernet0/3 |
| 3. | <input type="checkbox"/> Select device            |                           | Select outgoing interface | 1-m1sw6-FastEthernet0/3 |
| 4. | <input type="checkbox"/> mlpe4                    | Select incoming interface |                           |                         |

**Step 10** Choose a device with an available check box and click **Select device**.

The Show PE Devices window appears, as shown in Figure 12-16.

**Figure 12-16 Show PE Devices**

Showing 1 - 3 of 3 records

| #  | Device Name                           | Provider Name | Region Name | PE Role Type |
|----|---------------------------------------|---------------|-------------|--------------|
| 1. | <input type="radio"/> mls5            | Provider-X    | North-X     | PE_CLE       |
| 2. | <input checked="" type="radio"/> mls6 | Provider-X    | North-X     | PE_CLE       |
| 3. | <input type="radio"/> mls7            | Provider-X    | North-X     | PE_CLE       |

Rows per page: 10 Go to page: 1 of 1

Select Cancel

**Step 11** Choose a PE-CLE and click **Select**.

The Create a Named Physical Circuit window appears (not shown).

**Step 12** Choose the incoming and outgoing interfaces for the CE, CLE, and PE until complete.

**Step 13** Choose the remaining device with the darkened check box.

The Create a Named Physical Circuit window appears, as shown in [Figure 12-17](#).

**Figure 12-17 Create a Named Physical Circuit**

Create a Named Physical Circuit

| #  | Device                                     | Incoming Interface | Outgoing Interface | Ring                   |
|----|--------------------------------------------|--------------------|--------------------|------------------------|
| 1. | <input checked="" type="checkbox"/> mlce14 |                    | FastEthernet0/1    |                        |
| 2. | <input type="checkbox"/> mls6              | FastEthernet0/13   |                    | 1-mls6-FastEthernet0/3 |
| 3. | <input type="checkbox"/> mls5              |                    | FastEthernet0/13   | 1-mls6-FastEthernet0/3 |
| 4. | <input type="checkbox"/> mlpe4             | FastEthernet0/1    |                    |                        |

Insert Device Insert Ring Add Device Add Ring Delete Save Cancel

**Step 14** Click **Save**.

The Named Physical Interfaces window appears, with the Ring Topology displayed, as shown in [Figure 12-18](#).

**Figure 12-18**     **Named Physical Circuits**

| #  | <input type="checkbox"/> | Source Device | Source Interface | Destination Device | Destination Interface | Name                                                  |
|----|--------------------------|---------------|------------------|--------------------|-----------------------|-------------------------------------------------------|
| 1. | <input type="checkbox"/> | mlsw5         | FastEthernet0/13 | mlpe4              | FastEthernet0/1       | 1-(mlsw5-FastEthernet0/13)<==>(mlpe4-FastEthernet0/1) |
| 2. | <input type="checkbox"/> | mlsw6         |                  | mlpe4              | FastEthernet0/1       | 2-(mlsw6-)<==>(mlpe4-FastEthernet0/1)                 |
| 3. | <input type="checkbox"/> | mlsw7         |                  | mlpe4              | FastEthernet0/1       | 3-(mlsw7-)<==>(mlpe4-FastEthernet0/1)                 |
| 4. | <input type="checkbox"/> | mlce14        | FastEthernet0/1  | mlpe4              | FastEthernet0/1       | 4-(mlce14-FastEthernet0/1)<==>(mlpe4-FastEthernet0/1) |

Showing 1 - 4 of 4 records

Rows per page: 10     Go to page: 1 of 1     Create     Delete

## Ethernet-To-The-Home

This section describes how to configure Ethernet-To-The-Home (ETTH) using the IP Solution Center (ISC) provisioning process. This section contains the following sections:

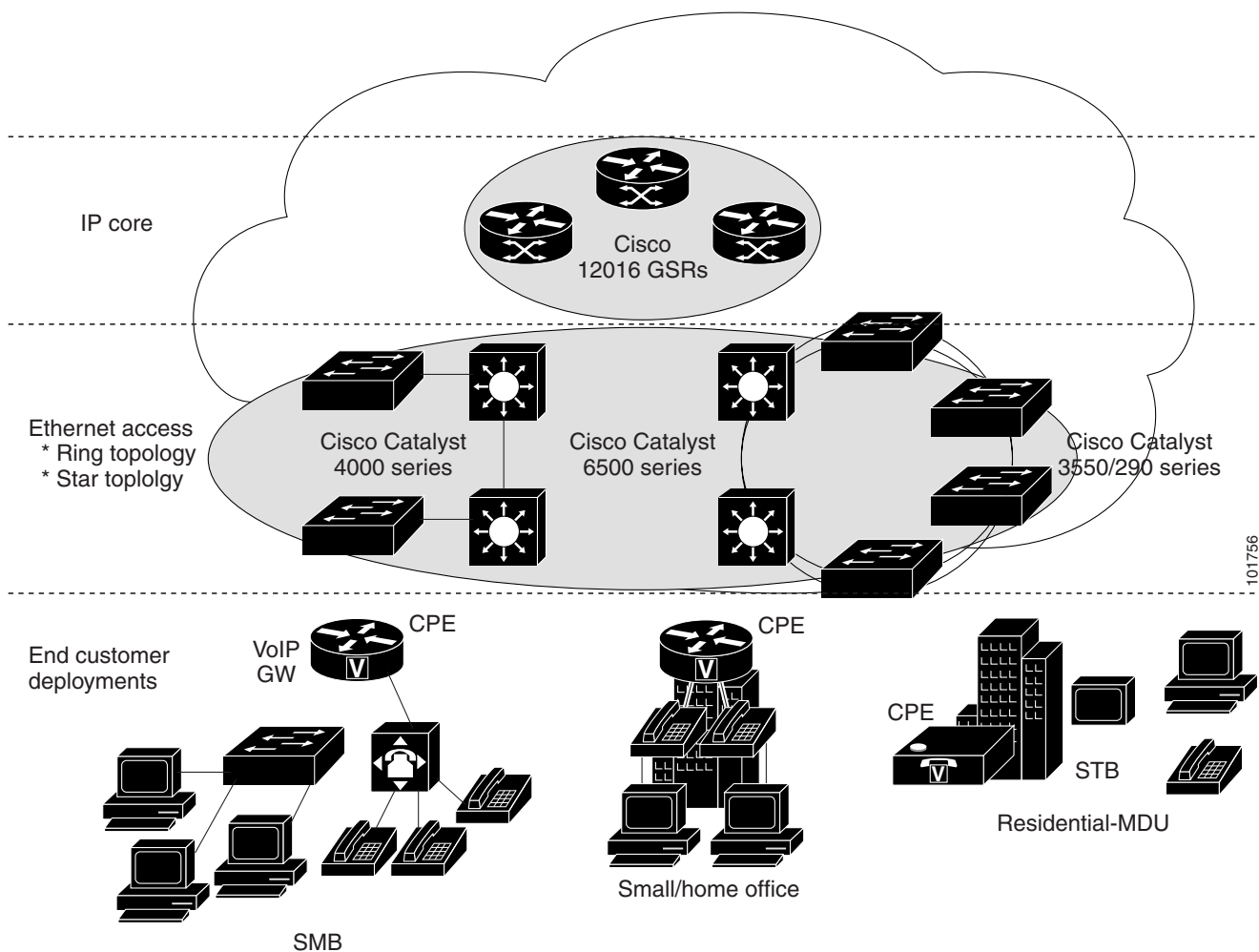
- [ETTH Overview, page 12-9](#)
- [Configuring ETTH, page 12-11](#)
- [Residential Service, page 12-15](#)

## ETTH Overview

ETTH is part of the Cisco ETTx solution, which contains both ETTH and Ethernet-to-the-Business (ETTB). ETTB is supported in ISC with the L2VPN Metro Ethernet service feature. Unlike ETTB, whose customers are mainly business customers, ETTH is targeted at residential customers.

[Figure 12-19](#) shows an overview of the Cisco ETTx solution.

Figure 12-19 Cisco ETTx Solution



From a provisioning standpoint, the main difference between ETTB and ETTH is the consideration of resource scalability. For example, with ETTB, each business customer is allocated one or more VLAN(s).

With ETTH, it is not practical to assign a unique VLAN to each residential customer. The practical solution is to have all, or a group of residential customers, share the same VLAN and use common technology, such as a private VLAN (PVLAN) or a protected port, to guarantee traffic isolation.

Another difference between ETTB and ETTH is that most of the ETTB customers use an Ethernet trunk port while ETTH customers use an access port. In ISC, the access port is fully supported, with CE present or with no CE.

ETTH needs to support multicast based services, such as video, on a shared media such as a ring. Typically, Internet Group Management Protocol (IGMP) with Multicast VLAN Registration (MVR) would be the technology used to support these services.

## Access Domain Management

To provide more flexibility in managing an access domain, you can define a management VLAN. Once defined, the management VLAN is used to construct the list of VLANs allowed on the trunk port for all non-UNI ports.

You can also specify how the VLAN allowed list is constructed in a trunk port for a domain, if the list is not on the device. This feature is implemented for L2VPN DCPL parameter. It is available for Layer 2 access to MPLS VPN as well.

As a part of Layer 2 access management, ISC provides the ability to create MAC access lists by specifying the MAC addresses to be allowed or blocked.

## ISC ETTH Implementation

The ISC MPLS VPN implementation of ETTH consists of the following three sub-features:

- [PVLAN or Protected Port, page 12-11](#)
- [Access Port, page 12-11](#)
- [IGMP with MVR, page 12-11](#)

### PVLAN or Protected Port

This feature is used to isolate traffic within a PVLAN. It prevents traffic from flowing between two UNIs.

- PVLAN is only supported on the Catalyst 4500/6500 switches and Cisco 7600 router.
- Protected Port is only supported on the Catalyst 2950/3550 switches.

### Access Port

In ISC, the untagged Ethernet default is supported in the CE present and no CE scenarios. You can choose between two encapsulations: Dot1q and Default.

The Default encapsulation only indicates that the traffic comes in from the CE is untagged. The UNI, which is always a Dot1q port, puts a tag on it before transmitting it. UNI has two options to handle this untagged traffic. It functions as an access port or a trunk port. For this reason, the GUI adds one more item for you to choose.

### IGMP with MVR

This feature applies to a very specific user service and network topology. It is used for multicast video on a hub and spoke or ring network. However, it is not up to ISC to decide when it is used. ISC only makes it available and the network application running above ISC must invoke it when needed.

## Configuring ETTH

To configure ETTH in ISC MPLS VPN, follow these steps:

- 
- |               |                                                                           |
|---------------|---------------------------------------------------------------------------|
| <b>Step 1</b> | Log in to ISC.                                                            |
| <b>Step 2</b> | Go to <b>Service Design &gt; Policies</b> .                               |
| <b>Step 3</b> | From the Policies window, choose a Service Policy and click <b>Edit</b> . |

- Step 4** From the Policy Type window, click **Next**.  
The MPLS Policy Editor - Interface window appears, as shown in [Figure 12-20](#).

**Figure 12-20 MPLS Policy Editor - Interface**

MPLS Policy Editor - Interface

| Attribute                           | Value                    | Editable                            |
|-------------------------------------|--------------------------|-------------------------------------|
| Reset all Attribute editable flags: |                          | <input checked="" type="checkbox"/> |
| <b>PE Information</b>               |                          |                                     |
| Interface Type:                     | ANY                      |                                     |
| Interface Format:                   |                          |                                     |
| Interface Description:              |                          | <input checked="" type="checkbox"/> |
| Shutdown Interface:                 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Auto-Pick VLAN ID:                  | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Link Speed:                         | None                     | <input checked="" type="checkbox"/> |
| Link Duplex:                        | None                     | <input checked="" type="checkbox"/> |
| ETTH Support:                       | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <b>CE Information</b>               |                          |                                     |
| Interface Type:                     | ANY                      |                                     |
| Interface Format:                   |                          |                                     |
| Interface Description:              |                          | <input checked="" type="checkbox"/> |

- Step 2 of 5 -

< Back Next > Finish Cancel

- Step 5** To enable ETTH, click the **ETTH Support** check box.  
The ETTH UNI Information check boxes appear between the **ETTH Support** check box and the CE Information, as shown in [Figure 12-21](#).

**Figure 12-21 ETTH UNI Information**

|                              |                                     |                                     |
|------------------------------|-------------------------------------|-------------------------------------|
| ETTH Support:                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <b>UNI Information</b>       |                                     |                                     |
| Private VLAN/Protected Port: | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| IGMP Snooping with MVR:      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| <b>CE Information</b>        |                                     |                                     |

- Step 6** To enable Private VLAN or Protected Port, click the **Private VLAN/Protected Port** check box.  
**Step 7** To enable IGMP Snooping with MVR, click the **IGMP Snooping with MVR** check box.  
Three new UNI Information options appear, as shown in [Figure 12-22](#).

**Figure 12-22** *ETTH UNI Information Options*

| UNI Information              |                                                                              |                                     |
|------------------------------|------------------------------------------------------------------------------|-------------------------------------|
| Private VLAN/Protected Port: | <input checked="" type="checkbox"/>                                          | <input checked="" type="checkbox"/> |
| IGMP Snooping with MVR:      | <input checked="" type="checkbox"/>                                          | <input checked="" type="checkbox"/> |
| Mode:                        | <input checked="" type="radio"/> Compatible<br><input type="radio"/> Dynamic | <input checked="" type="checkbox"/> |
| Query Time:                  | <input type="text" value=""/> (1-100)                                        | <input checked="" type="checkbox"/> |
| Immediate:                   | <input type="checkbox"/>                                                     | <input checked="" type="checkbox"/> |

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**Step 8** Choose UNI Information options:

- **Mode**
  - **Compatible**—Multicast addresses are statically configured on the device.
  - **Dynamic**—IGMP snooping is configured on the device.
- **Query Time**—Determines how often the device is queried for membership.
- **Immediate**—Removes the interface from the forwarding table immediately, when the session ends.

**Step 9** Complete the standard steps and click **Save**.

**Step 10** Go to **Service Inventory > Inventory and Connection Manager > Service Requests**.

**Step 11** From the Service Requests window, choose a Service Request and click **Edit**.

**Step 12** From the MPLS Service Request Editor window, click the **Link Attribute** cell.

The MPLS Link Attribute Editor - Interface window appears, as shown in [Figure 12-23](#).

**Figure 12-23 MPLS Link Attribute Editor - Interface**

**MPLS Link Attribute Editor - Interface**

| Attribute                    | Value                                                                        |
|------------------------------|------------------------------------------------------------------------------|
| <b>PE Information</b>        |                                                                              |
| PE                           | enswosr1                                                                     |
| Interface Name:              | GE-WAN9/2: <input type="text"/>                                              |
| Interface Description:       | <input type="text"/>                                                         |
| Shutdown Interface:          | <input type="checkbox"/>                                                     |
| CE Encapsulation: ⓘ          | DOT1Q ▾                                                                      |
| Auto-Pick VLAN ID:           | <input checked="" type="checkbox"/>                                          |
| Link Speed:                  | None ▾                                                                       |
| Link Duplex:                 | None ▾                                                                       |
| ETTH Support:                | <input checked="" type="checkbox"/>                                          |
| <b>UNI Information</b>       |                                                                              |
| Private VLAN/Protected Port: | <input checked="" type="checkbox"/>                                          |
| Secondary VLAN ID: ⓘ         | 567 (1-4094)                                                                 |
| IGMP Snooping with MVR:      | <input checked="" type="checkbox"/>                                          |
| Mode:                        | <input checked="" type="radio"/> Compatible<br><input type="radio"/> Dynamic |
| Query Time:                  | 80 (1-100)                                                                   |
| Multicast IP Address:        | <input type="button" value="Edit"/>                                          |
| Multicast VLAN ID:           | 888 (1-4094)                                                                 |
| Immediate:                   | <input checked="" type="checkbox"/>                                          |

Note: \* - Required Field

- Step 1 of 4 -

< Back Next > Finish Cancel

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**Step 13** Edit the following Link Attribute specific UNI Information:

- **Secondary VLAN ID**—Enter a *VLAN ID* for the Private VLAN, which is supported only on the Catalyst 4000 switch.
- **Multicast IP Address**—See [Step 14](#).
- **Multicast VLAN ID**—Enter a *VLAN ID* for the Multicast VLAN.

**Step 14** Click **EDIT**.

The Multicast IP Addresses dialog box appears, as shown in [Figure 12-24](#).

**Figure 12-24 Multicast IP Addresses**

| Multicast IP Addresses   |                                |                   |
|--------------------------|--------------------------------|-------------------|
| Select                   | Multicast IP Address (a.b.c.d) | Counter (1 - 256) |
| <input type="checkbox"/> | 224.3.3.1                      | 12                |

Add Delete OK Cancel

**Step 15** Edit the following Link Attribute specific UNI Information:

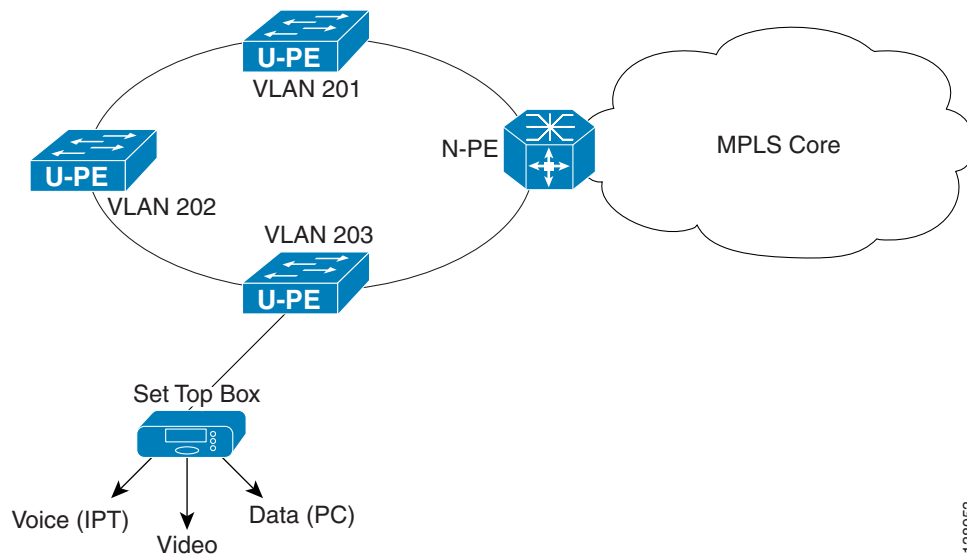
- **Multicast IP Address**—Enter an *IP Address* for the join the multicast group, which allows users to have access to video on demand, for example.
- **Counter**—Enter a *count* to determine the number of contiguous IP addresses starting with the Multicast IP Address.

**Step 16** Click **OK**.

**Step 17** Complete the standard steps for creating an SR and click **Save**.

## Residential Service

A group of residential customers can share the same VLAN on the same UNI switch with traffic isolation on different UNI interfaces. On an N-PE, a VRF SVI is defined for all the residential services from the same UNI switch (see [Figure 12-25](#)).

**Figure 12-25 Residential Services**

# Policy for Residential Services Over Shared VLAN

A special policy must e created by enabling Shared VLAN.

- Step 1

Log in to ISC.
- Step 2

Go to **Service Design > Policies**.
- Step 3

From the Policies window, click **Create > MPLS Policy**.  
The Policy Type window appears (see [Figure 12-26](#)).

Figure 12-26 Policy Type

MPLS Policy Editor - Policy Type

| Attribute     | Value                                                                                                                                         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Policy Name * | mlResServ1                                                                                                                                    |
| Policy Owner: | <div><input type="radio"/> Customer</div> <div><input type="radio"/> Provider</div> <div><input checked="" type="radio"/> Global Policy</div> |
| Policy Type:  | <div><input checked="" type="radio"/> Regular: PE-CE</div> <div><input type="radio"/> MVRFCE: PE-CE</div>                                     |
| CE Present:   | <input type="checkbox"/>                                                                                                                      |

Note: \* - Required Field

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- Step 4

In the Policy Name field, enter a policy name.
- Step 5

Under Policy Owner, click the **Global Policy** radio button.
- Step 6

Under Policy Type accept **Regular: PE-CE**.
- Step 7

Under CE Present, uncheck the check box, then click **Next**.  
The MPLS Policy Editor - Interface window appears (see [Figure 12-27](#)).

**Figure 12-27**     *Interface Settings*

**MPLS Policy Editor - Interface**

| Attribute                                  | Value                               | Editable                            |
|--------------------------------------------|-------------------------------------|-------------------------------------|
| <b>Reset All Attribute Editable Flags:</b> |                                     | <input checked="" type="checkbox"/> |
| <b>PE Information</b>                      |                                     |                                     |
| Interface Type:                            | ANY                                 |                                     |
| Interface Format:                          |                                     |                                     |
| Interface Description:                     |                                     | <input checked="" type="checkbox"/> |
| Shutdown Interface:                        | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Auto-Pick VLAN ID:                         | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Use SVI:                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Link Speed:                                | None                                | <input checked="" type="checkbox"/> |
| Link Duplex:                               | None                                | <input checked="" type="checkbox"/> |
| ETTH Support:                              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Standard UNI Port:                         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| <b>UNI Information</b>                     |                                     |                                     |
| Shared VLAN:                               | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |
| Private VLAN/Protected Port:               | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| IGMP Snooping with MVR:                    | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| <b>UNI Security Information</b>            |                                     |                                     |
| Disable CDP:                               | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Filter BPDU:                               | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| Use Existing ACL Name:                     | <input type="checkbox"/>            |                                     |
| UNI MAC Addresses:                         | <input type="button" value="Edit"/> | <input checked="" type="checkbox"/> |
| UNI Port Security:                         | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

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- Step 8** Check the **Use SVI:** check box, then wait for the screen to refresh.
- Step 9** Check the **ETTH Support:** check box, then wait for the screen to refresh.
- Step 10** Check the **Standard UNI Port:** check box, then wait for the screen to refresh.
- Step 11** Check the **Shared VLAN:** check box, then wait for the screen to refresh.
- Some fields are now grayed-out.



**Note** Because this policy enables ETTH Support and Shared VLAN, these attributes become unavailable at the link level.

- Step 12** Check the **Private VLAN/Protected Port:** check box, wait for the screen to refresh, then click **Next**.
- Step 13** In the IP Address Scheme window, you can continue by clicking **Next**.
- Step 14** In the Routing Information window, you can continue by clicking **Next**.
- Step 15** In the VRF and VPN Member window, you can finish creating this policy by clicking **Finish**.

## Service Requests

- Step 1** Log in to ISC.
- Step 2** Go to **Service Inventory > Inventory and Connection Manager > Service Requests**.

- Step 3** From the Service Requests window, click **Create > MPLS VPN**.  
The Select MPLS Policy window appears.
- Step 4** Choose the policy you configured for Shared VLAN Residential Services, then click **OK**.  
The MPLS Service Request Editor window appears.
- Step 5** In the MPLS Service Request Editor window, click **Add Link**, then wait for the window to refresh.
- Step 6** Click the active field **Select U-PE**.
- Step 7** Choose a PE device, then click **Select**.
- Step 8** From the active drop-down list, choose an interface, then wait for the window to refresh.
- Step 9** Under Link Attributes column, click the active **Add** field.  
The Interface window appears (see [Figure 12-28](#)).

**Note**

Because the policy created for this feature enables ETTH Support and Shared VLAN, these attributes become unavailable at the link level.

**Figure 12-28**      **Interface Attributes**

**MPLS Link Attribute Editor - Interface**

| Attribute                       | Value                               |
|---------------------------------|-------------------------------------|
| <b>PE Information</b>           |                                     |
| PE                              | mlpe5                               |
| Interface Name:                 | FastEthernet8/25. (1-4294967295)    |
| Interface Description:          |                                     |
| Shutdown Interface:             | <input type="checkbox"/>            |
| CE Encapsulation:               | DOT1Q                               |
| VLAN ID *                       | 55 (1-4095)                         |
| Auto-Pick VLAN ID:              | <input type="checkbox"/>            |
| Use SVI:                        | <input checked="" type="checkbox"/> |
| Link Speed:                     | None                                |
| Link Duplex:                    | None                                |
| ETTH Support:                   | <input checked="" type="checkbox"/> |
| Standard UNI Port:              | <input checked="" type="checkbox"/> |
| <b>UNI Information</b>          |                                     |
| Shared VLAN:                    | <input checked="" type="checkbox"/> |
| Private VLAN/Protected Port:    | <input checked="" type="checkbox"/> |
| Secondary VLAN ID:              | (1-4094)                            |
| IGMP Snooping with MVR:         | <input type="checkbox"/>            |
| <b>UNI Security Information</b> |                                     |
| Disable CDP:                    | <input type="checkbox"/>            |
| Filter BPDU:                    | <input type="checkbox"/>            |
| Use Existing ACL Name:          | <input type="checkbox"/>            |
| UNI MAC Addresses:              | <a href="#">Edit</a>                |
| UNI Port Security:              | <input type="checkbox"/>            |

Note: \* - Required Field

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- Step 10** Enter a valid **VLAN ID** value, then click **Next**.  
The IP Address Scheme window appears (see [Figure 12-29](#)).

**Figure 12-29** Entering IP Address Scheme

**MPLS Link Attribute Editor - IP Address Scheme**

| Attribute                           | Value                            |
|-------------------------------------|----------------------------------|
| <b>PE-CE Interface Address/Mask</b> |                                  |
| IP Numbering Scheme:                | IP Numbered ▾                    |
| Automatically Assign IP Addresses:  | <input type="checkbox"/>         |
| PE Interface Address/Mask *:        | <input type="text"/> (a.b.c.d/e) |
| Secondary IP Address/Mask - 1 *:    | <input type="text"/> (a.b.c.d/e) |
| Secondary IP Address/Mask - 2 *:    | <input type="text"/> (a.b.c.d/e) |
| DHCP Helper IP Address *:           | <input type="text"/> (a.b.c.d)   |

Note: \* - Required Field

**Step 11** Enter valid values for each required field, then click **Next**.

**Step 12** In the Routing Information widow (see [Figure 12-30](#)), check any applicable items, then click **Next**.

**Figure 12-30** Selecting Routing Information

**MPLS Link Attribute Editor - Routing Information**

| Attribute                          | Value                               |
|------------------------------------|-------------------------------------|
| <b>PE-CE Routing Information</b>   |                                     |
| Routing Protocol                   | NONE ▾                              |
| CeC Support:                       | <input type="checkbox"/>            |
| Redistribute Static (BGP only):    | <input checked="" type="checkbox"/> |
| Redistribute Connected (BGP only): | <input checked="" type="checkbox"/> |

Note: \* - Required Field

**Step 13** In the VRF and VPN window (see [Figure 12-31](#)), for Maximum Route Threshold (required field), accept the default value, or enter a new value.

**Figure 12-31** Selecting VRF and VPN Attributes

**MPLS Link Attribute Editor - VRF and VPN**

| Attribute                                                                | Value                                                                            |
|--------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| <b>VRF Information</b>                                                   |                                                                                  |
| Export Map:                                                              | <input type="text"/>                                                             |
| Import Map:                                                              | <input type="text"/>                                                             |
| Maximum Routes:                                                          | <input type="text"/> (1-4294967295)                                              |
| Maximum Route Threshold *:                                               | 80 (1-100)                                                                       |
| VRF Description:                                                         | <input type="text"/>                                                             |
| Allocate New Route Distinguisher:                                        | <input type="checkbox"/>                                                         |
| VRF And RD Overwrite:                                                    | <input type="checkbox"/>                                                         |
| <b>VPN Selection</b>                                                     |                                                                                  |
| PE VPN Membership *:                                                     |                                                                                  |
| Select                                                                   | Customer VPN Provider CERC Is Hub                                                |
| <input type="checkbox"/>                                                 | LuanCustomer LuanVPN1 LuanProvider LuanCERC1 <input checked="" type="checkbox"/> |
| <input type="button" value="Add"/> <input type="button" value="Delete"/> |                                                                                  |

Note: \* - Required Field

**Step 14** Under VPN Selection (required), click **Add**.

**Step 15** From the CERC window, choose the desired PE VPN Membership, then click **Done**.

**Step 16** Back in the VRF and VPN window, click **Finish**.

**Step 17** To complete this task and save your changes, in the MPLS Service Request Editor window, click **Save**.

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