

IEEE P802.1Qcp YANG Instance
Document
IEEE 802 Plenary Meeting

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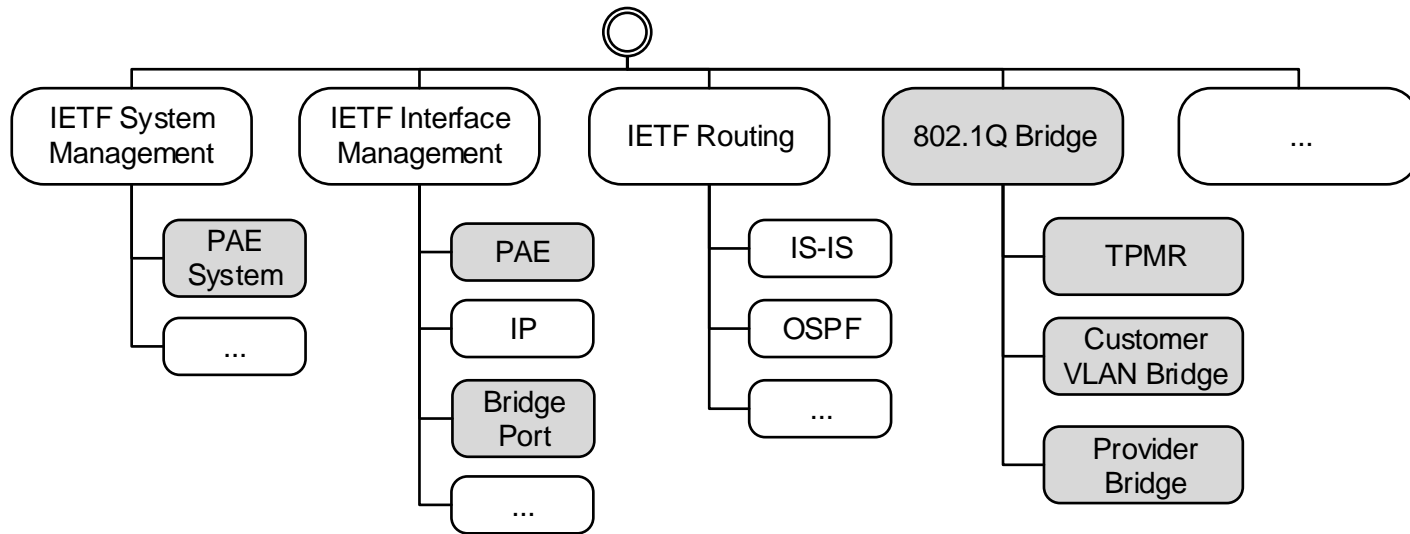
Introduction

- This package provides “configuration instances” of various aspect of the P802.1Qcp version D1.1 YANG modules

802.1Qcp YANG Structure and Relationships

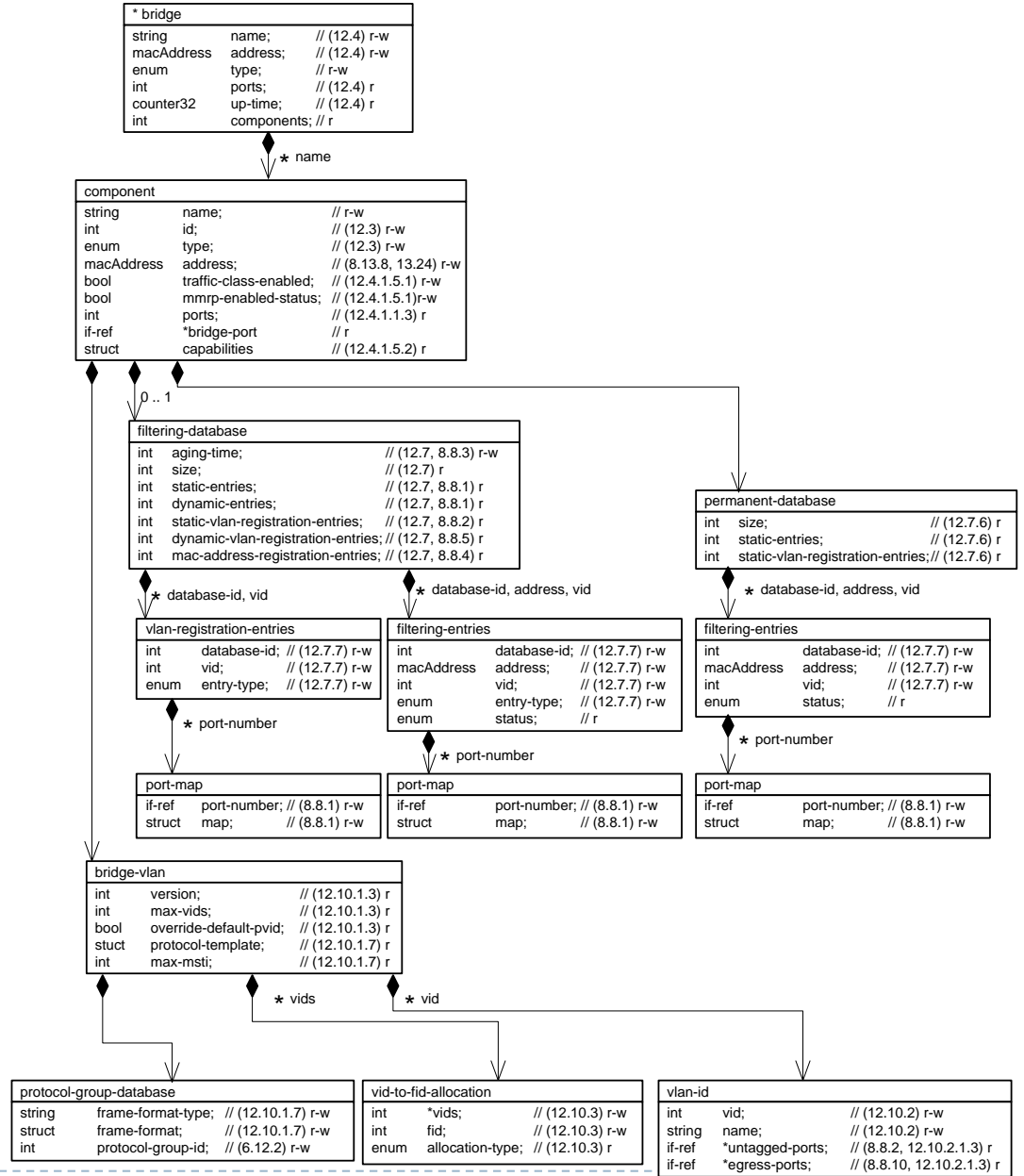


- The following hi-level YANG structure and relationships were defined



Generic IEEE 802.1Q Bridge Model

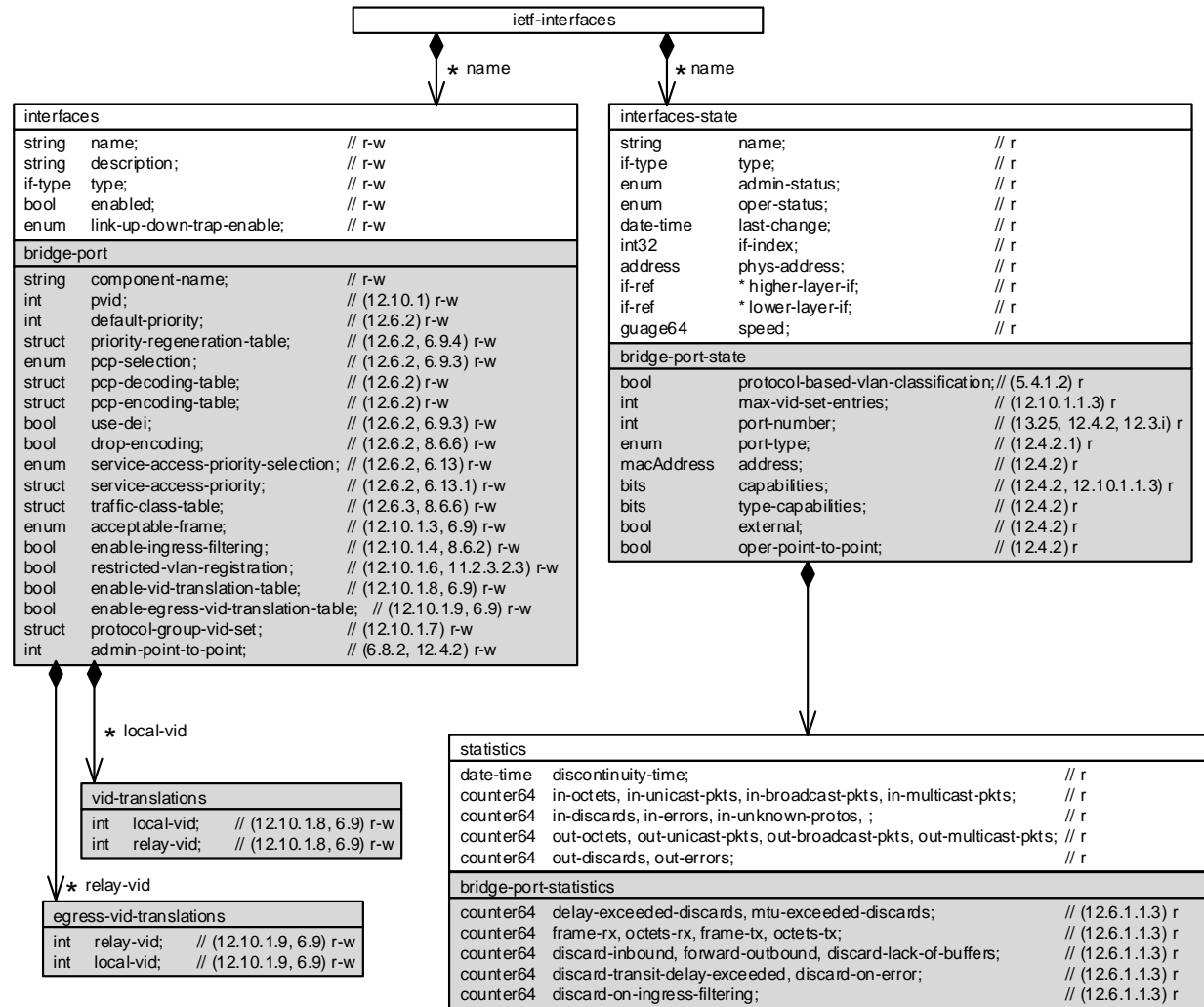
- The various bridge types (i.e., Two-Port MAC Relay, Customer VLAN Bridge, and Provider Bridge) are derivatives of this generic 802.1Q Bridge model
- It is an objective that this generic Bridge model can gracefully accommodate even more complex Bridges (e.g., Provider Backbone Bridges, etc.)



Generic IEEE 802.1Q Bridge Port Model



- The Bridge Port model is an augmentation (e.g., extension) of the IETF Interface Management Model (RFC 7223)



- Data attributes in white are generic Interface (RFC7223)
- Data attributes in grey are IEEE 802.1Q Bridge Port specific

Example Customer VLAN Bridge Configuration



- Configuration example of a **Customer VLAN Bridge** with two bridge ports

1

```
<bridges xc:operation="create">
  <bridge>
    <name>theCVB</name>
    <address>01-12-23-34-45-AF</address>
    <bridge-type>customer-vlan-bridge</bridge-type>
    <component>
      <name>myComponent</name>
      <type>c-vlan-component</type>
      <address>01-12-23-34-45-56</address>
    </component>
    <bridge-vlan>
      <vlan>
        <vid>1001</vid>
        <name>vid1001</name>
      </vlan>
    </bridge-vlan>
  </bridge>
</bridges>
```

- a) Bridge and associated C-VLAN Component created as a result of configuration
- b) Configure VLANs supported by the Bridge

Example Customer VLAN Bridge Configuration



2

```
<interfaces xc:operation="create">
  <interface>
    <name>if1</name>
    <type>ethernetCsmacd</type>
    <bridge-port>
      <component-name>myComponent</component-name>
      <port-type>cvlan-bridge-port</port-type>
      <enable-vid-translation-table>true</enable-vid-translation-table>
    </bridge-port>
  </interface>
  <interface>
    <name>if2</name>
    <type>ethernetCsmacd</type>
    <bridge-port>
      <component-name>myComponent</component-name>
      <port-type>cvlan-bridge-port</port-type>
    </bridge-port>
  </interface>
</interfaces>
```

- c) CVLAN Bridge Ports are created and associated with the C-VLAN Component

Example Customer VLAN Bridge Configuration



```
3 <bridges xc:operation="create">
  <bridge>
    <name>theCVB</name>
    <component>
      <name>theComponent</name>
      <vlan-registration-entry>
        <database-id>42</database-id>
        <vids>2-300,1000-2000</vids>
        <entry-type>static</entry-type>
        <port-map>
          <port>1</port>
        </port-map>
        <port-map>
          <port>2</port>
        </port-map>
      </vlan-registration-entry>
    </component>
  </bridge>
</bridges>
```

- d) Configure VLAN port membership via static VLAN registration entries.

Example Static FDB Entry Configuration



e) Configuration example of static FDB entries.

4

```
<bridges>
  <bridge>
    <name>theCVB</name>
    <component>
      <name>theComponent</name>
      <filtering-database>
        <filtering-entry>
          <database-id>12</database-id>
          <vids>1001</vids>
          <address>01-AB-BC-CD-DE-EF</address>
          <entry-type>static</entry-type>
          <port-map>
            <port>1</port>
          </port-map>
        </filtering-entry>
        <filtering-entry>
          <database-id>12</database-id>
          <vids>1001</vids>
          <address>01-AB- BC-CD-DE-EE</address>
          <entry-type>static</entry-type>
          <port-map>
            <port>2</port>
          </port-map>
        </filtering-entry>
      </filtering-database>
    </component>
  </bridge>
</bridges>
```

Example VID Translations Configuration



- f) Configuration example of [ingress] VLAN identifier translations table.

5

```
<interfaces>
  <interface>
    <name>if1</name>
    <bridge-port>
      <vid-translations>
        <local-vid>20</local-vid>
        <relay-vid>1020</relay-vid>
      </vid-translations>
      <vid-translations>
        <local-vid>21</local-vid>
        <relay-vid>1021</relay-vid>
      </vid-translations>
    </bridge-port>
  </interface>
</interfaces>
```

Example VID Translations Configuration



g) Configuration example of priority code point encoding and decoding tables.

Reference Table 6-2 and 6-3 in 802.1Q-2014, clause 6.9.3.

6

```
<interfaces>
  <interface>
    <name>if1</name>
    <bridge-port>
      <pcp-decoding-table>
        <pcp>8P0D</pcp>
        <priority-map>
          <priority-code-point>1</priority-code-point>
          <priority>3</priority>
          <drop-eligible>>false</drop-eligible>
        </priority-map>
        <priority-map>
          <priority-code-point>3</priority-code-point>
          <priority>1</priority>
          <drop-eligible>>false</drop-eligible>
        </priority-map>
      </pcp-decoding-table>
      <pcp-encoding-table>
        <pcp>8P0D</pcp>
        <priority-map>
          <priority>3</priority>
          <drop-eligible>>false</drop-eligible>
          <priority-code-point>1</priority-code-point>
        </priority-map>
      </pcp-encoding-table>
    </bridge-port>
  </interface>
</interfaces>
```

Example TPMR Configuration



- Configuration example of a **TPMR**

1

```
<bridges xc:operation="create">
  <bridge>
    <name>theTPMR</name>
    <address>01-12-23-34-45-AF</address>
    <bridge-type>two-port-mac-relay-bridge</bridge-type>
    <component>
      <name>myComponent</name>
      <type>d-bride-component</type>
      <address>01-12-23-34-45-56</address>
    </component>
  </bridge>
</bridges>
```

- a) Create the TPMR Bridge along with its Bridge Component

Example TMR Configuration



2

```
<interfaces xc:operation="create">
  <interface>
    <name>if1</name>
    <type>ethernetCsmacd</type>
    <bridge-port>
      <component-name>myComponent</component-name>
      <port-type>d-bridge-port</port-type>
    </bridge-port>
  </interface>
  <interface>
    <name>if2</name>
    <type>ethernetCsmacd</type>
    <bridge-port>
      <component-name>myComponent</component-name>
      <port-type>d-bridge-port</port-type>
    </bridge-port>
  </interface>
</interfaces>
```

- b) Create Bridge Ports and associated with the Bridge Component

Example Provider Edge Bridge Configuration



- Configuration example of a **Provider Edge Bridge** with two bridge ports

1

```
<bridges xc:operation="create">
  <bridge>
    <name>thePEB</name>
    <address>01-12-23-34-45-AF</address>
    <bridge-type>provider-edge-bridge</bridge-type>
    :
  </bridge>
</bridges>
```

- a) S-VLAN Component will be auto-created. This Component is associated with the Bridge (e.g., thePEB).

Example Provider Edge Bridge Configuration



2

```
<interfaces xc:operation="create">
  <interface>
    <name>if1</name>
    <type>ethernetCsmacd</type>
    <bridge-port>
      <port-type>customer-edge-port</port-type>
      <cvid-registration>
        <cvid>200</cvid>
        <svid>2000</svid>
      </cvid-registration>
    </bridge-port>
  </interface>
</interfaces>
```

- b) A CEP is created along with the CVID registration entry associated with the CEP
- c) As a result of the CEP creation, a C-VLAN Component will be auto-created.
- d) A PEP gets auto-created based on the CEP and the SVID to which the CVID is mapped, and will be attached to the C-VLAN Component

Example Provider Edge Bridge Configuration



3

```
<bridges>
  <bridge>
    <name>thePEB</name>
    <component>
      <name>myCComp</name>
    </component>
  </bridge>
</bridges>
```

- e) Associate the C-VLAN Component with the Bridge (i.e., thePEB)
- f) A CNP will be auto-created and will be attached to the S-VLAN Component ({CEP, SVID}→CNP) associated with the Bridge (i.e., thePEB)

Example Provider Edge Bridge Configuration



4

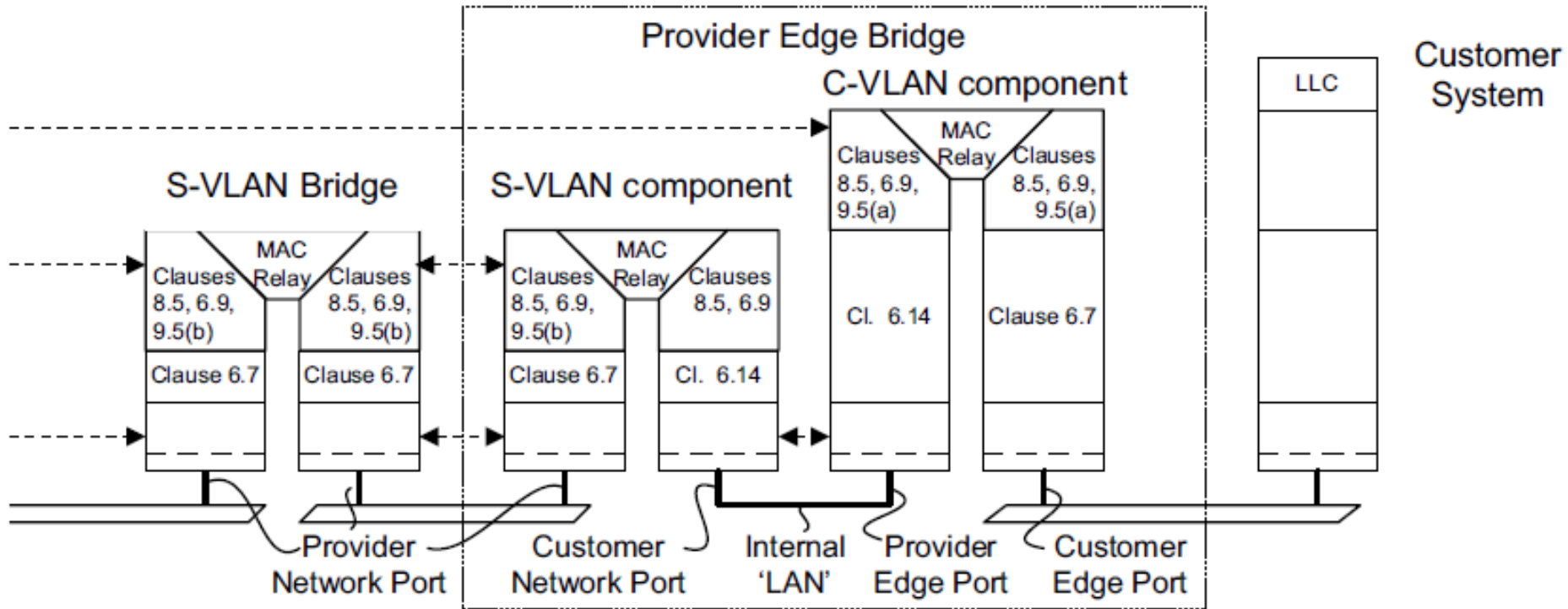
```
<interfaces xc:operation="create">
  <interface>
    <name>if2</name>
    <type>ethernetCsmacd</type>
    <bridge-port>
      <component>mySComp</component>
      <port-type>provider-network-port</port-type>
    </bridge-port>
  </interface>
</interfaces>
```

- g) A PNP is created and associated with the S-VLAN Component.

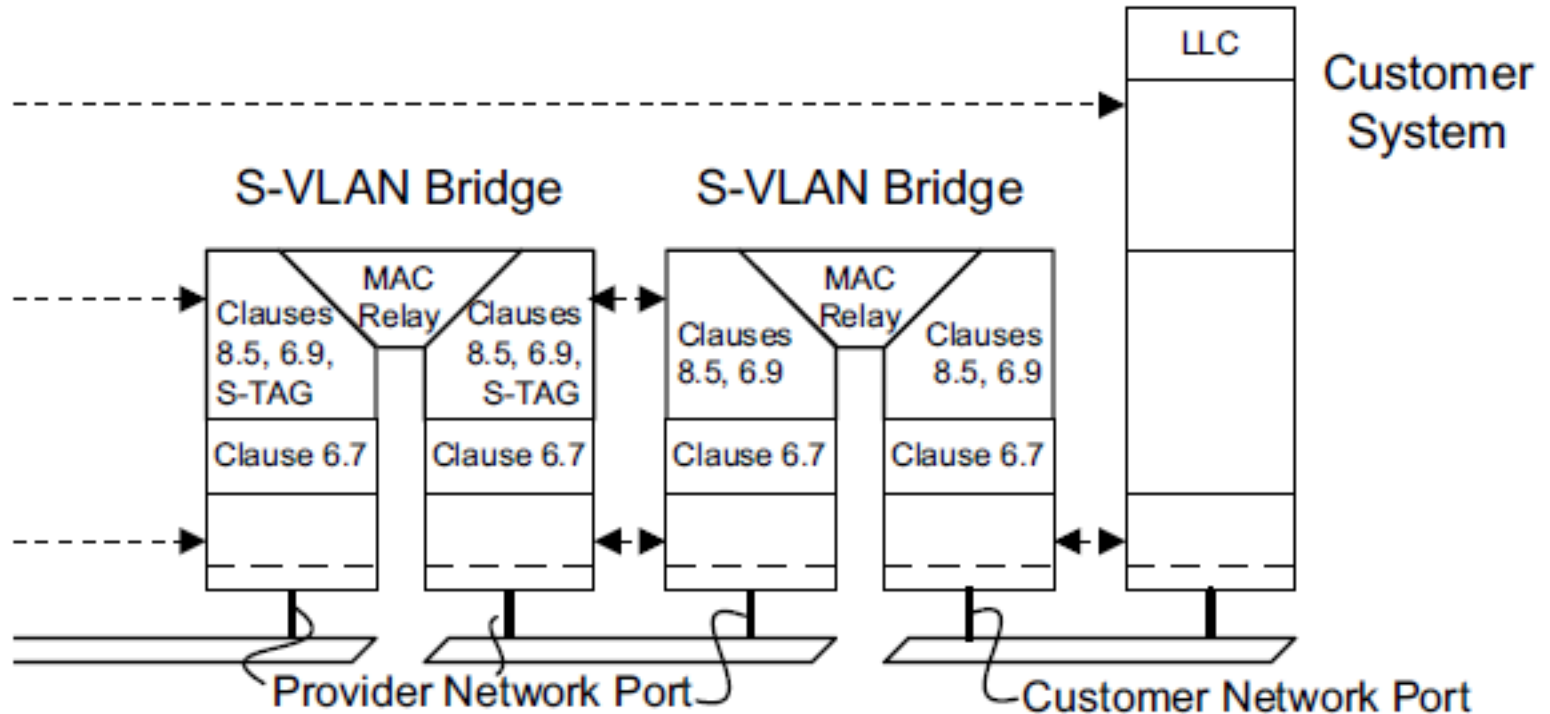
Backup Material

Provider Bridged Networks Service Interfaces

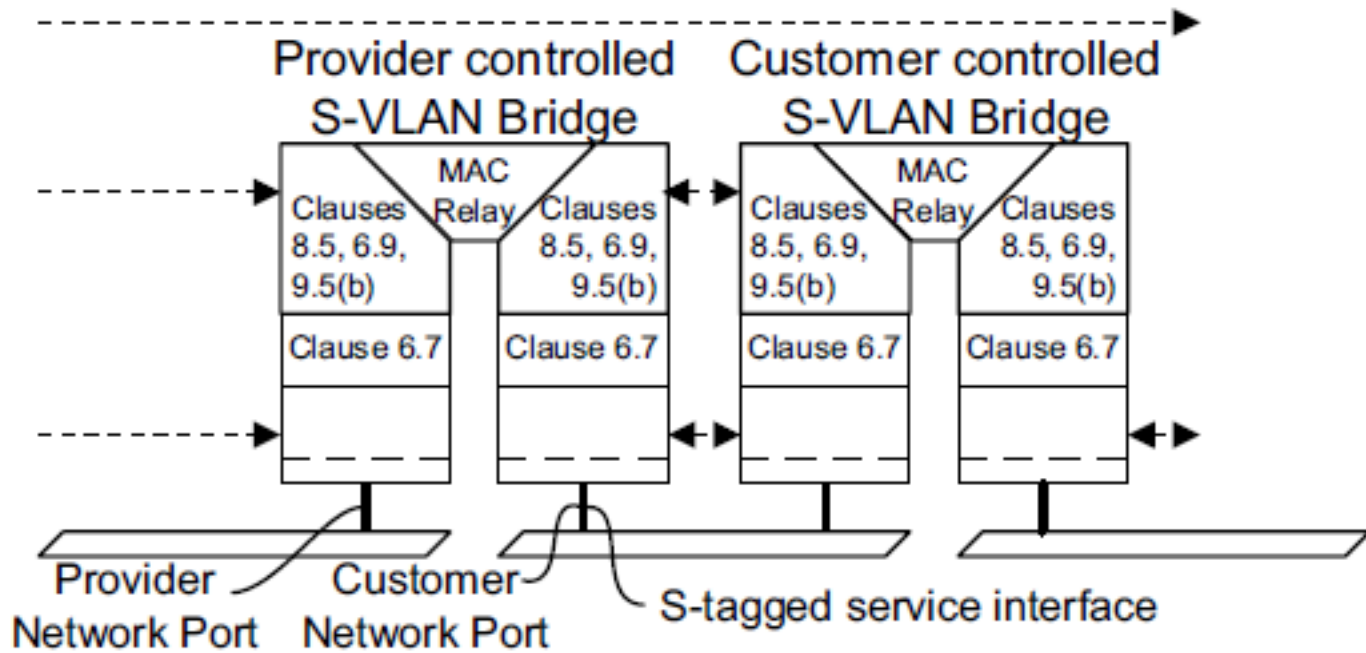
C-tagged Service Interface to a PBN



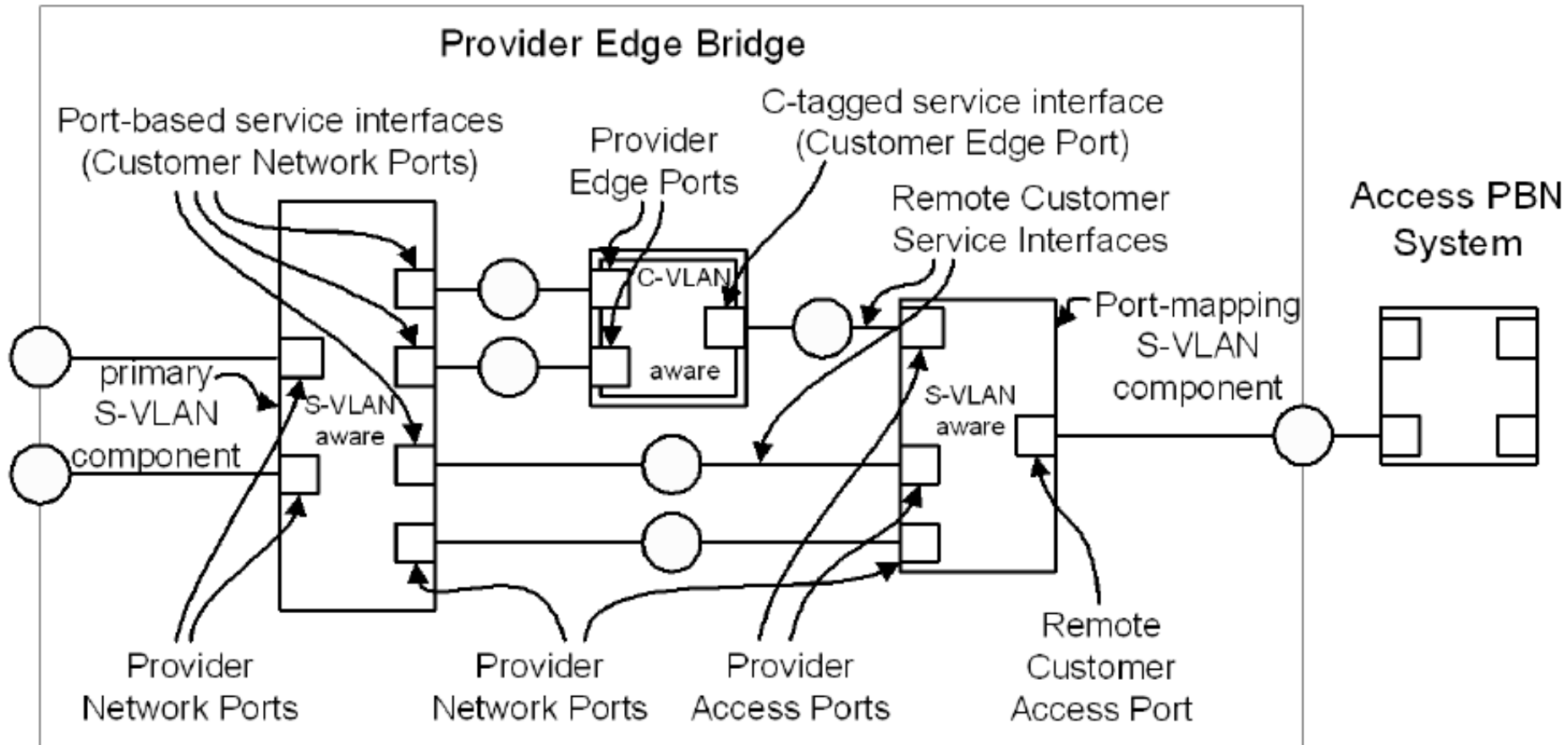
Port Based Service Interface to a PBN



S-tagged Service Interface to a PBN



RCSIs to a PBN



Remote Customer Access Ports (RCAPs)

