Dynamic Bandwidth Sharing

The Cisco cBR series router enables dynamic bandwidth sharing (DBS) on integrated cable (IC) and wideband (WB) cable interfaces.

Your software release may not support all the features that are documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. The Feature Information Table at the end of this document provides information about the documented features and lists the releases in which each feature is supported.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to http://tools.cisco.com/ITDIT/CFN/. An account on http://www.cisco.com/ is not required.

Contents

Hardware Compatibility Matrix for the Cisco cBR Series Routers

Note The hardware components that are introduced in a given Cisco IOS-XE Release are supported in all subsequent releases unless otherwise specified.

Table 1: Hardware Compatibility Matrix for the Cisco cBR Series Routers

Cisco CMTS Platform	Processor Engine	Interface Cards
Cisco cBR-8 Converged Broadband Router	**Cisco IOS-XE Release 16.5.1 and Later Releases** Cisco cBR-8 Supervisor: • PID—CBR-SUP-250G • PID—CBR-CCAP-SUP-160G	**Cisco IOS-XE Release 16.5.1 and Later Releases** Cisco cBR-8 CCAP Line Cards: • PID—CBR-LC-8D30-16U30 • PID—CBR-LC-8D31-16U30 • PID—CBR-RF-PIC • PID—CBR-RF-PROT-PIC • PID—CBR-CCAP-LC-40G • PID—CBR-CCAP-LC-40G-R • PID—CBR-CCAP-LC-G2-R • PID—CBR-SUP-8X10G-PIC • PID—CBR-2X100G-PIC Digital PICs: • PID—CBR-DPIC-8X10G • PID—CBR-DPIC-2X100G Cisco cBR-8 Downstream PHY Module: • PID—CBR-D31-DS-MOD Cisco cBR-8 Upstream PHY Modules: • PID—CBR-D31-US-MOD

Information About Dynamic Bandwidth Sharing

DBS for Integrated and Wideband Cable Interfaces

Prior to DOCSIS 3.0 standards, cable service flows were associated with a single cable interface, which in turn corresponded to a physical downstream on a line card. Under DOCSIS 3.0 standards, cable service flows can be associated with more than one downstream channel.

DBS is the dynamic allocation of bandwidth for IC and WB cable interfaces sharing the same downstream channel. The bandwidth available to each IC, WB cable, or narrowband channel is not a fixed value—it depends on the configuration and the traffic load on the IC or WB cable.

DBS enables high burst rates with DOCSIS 2.0 cable modems as well as DOCSIS 3.0 cable modems. The DBS feature continues working across line card and Supervisor switchovers with no loss of functionality.

How to Configure Dynamic Bandwidth Sharing

Dynamic bandwidth sharing is enabled by default on the integrated and wideband cable interfaces on the Cisco cBR router. You can configure the bandwidth allocation for the WB and IC interfaces.

Important Dynamic bandwidth sharing cannot be disabled on the Cisco cBR router.

This section contains the following procedures:

Configuring DBS for a Wideband Cable Interface

Perform the following to configure the bandwidth allocation for a wideband cable interface.

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**interface wideband-cable** *slot/subslot/portwideband-channel* **Example:** `Router(config)# interface wideband-cable 1/0/0:0`	Configures a wideband cable interface.
Step 4	**cable rf-channel channel-list** *grouplist* [**bandwidth-percent** *bw-percent*] **Example:** `Router(config-if)# cable rf-channel channel-list 10 bandwidth-percent 50`	Configures the bandwidth allocation for the wideband channel interface.

Configuring DBS for an Integrated Cable Interface

Perform this procedure to configure the bandwidth allocation for an integrated cable interface.

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**interface integrated-cable** *slot/subslot/portrf-channel* **Example:** `Router(config)# interface integrated-cable 1/0/0:0`	Enters the cable interface mode.
Step 4	**cable rf-bandwidth-percent** *bw-percent* **Example:** `Router(config-if)# cable rf-bandwidth-percent 50`	Configures the bandwidth allocation for the integrated cable interface.

Verifying the Dynamic Bandwidth Sharing Configuration

Use the following commands to verify the dynamic bandwidth sharing information:

- **show controllers Integrated-Cable** *slot/subslot/port* **bandwidth rf-channel**—Displays the bandwidth information for RF channels.

  Following is a sample output of the command:

```
Router# show controllers integrated-Cable 2/0/0 bandwidth rf-channel

Ctrlr    RF       IF          CIR(Kbps)    Guar(Kbps)
2/0/0    0        In2/0/0:0   7500         13750
                  Wi2/0/0:0   7500         13750
                  Wi2/0/0:1   3750         10000
2/0/0    1        In2/0/0:1   7500         13750
                  Wi2/0/0:0   7500         13750
                  Wi2/0/0:1   3750         10000
2/0/0    2        In2/0/0:2   7500         12500
                  Wi2/0/0:0   7500         12500
                  Wi2/0/0:1   7500         12500
2/0/0    3        In2/0/0:3   7500         12500
                  Wi2/0/0:0   7500         12500
                  Wi2/0/0:1   7500         12500
2/0/0    4        In2/0/0:4   7500         12500
                  Wi2/0/0:0   7500         12500
                  Wi2/0/0:1   7500         12500
2/0/0    5        In2/0/0:5   7500         12500
                  Wi2/0/0:0   7500         12500
                  Wi2/0/0:1   7500         12500
2/0/0    6        In2/0/0:6   7500         12500
```

```
                 Wi2/0/0:0    7500         12500
                 Wi2/0/0:1    7500         12500
2/0/0    7       In2/0/0:7    7500         12500
                 Wi2/0/0:0    7500         12500
                 Wi2/0/0:1    7500         12500
2/0/0    8       In2/0/0:8    7500         18750
                 Wi2/0/0:1    7500         18750
                 Wi2/0/0:2    7500         0
2/0/0    9       In2/0/0:9    7500         18750
                 Wi2/0/0:1    7500         18750
                 Wi2/0/0:2    7500         0
2/0/0    10      In2/0/0:10   7500         18750
                 Wi2/0/0:1    7500         18750
                 Wi2/0/0:2    7500         0
2/0/0    11      In2/0/0:11   7500         18750
                 Wi2/0/0:1    7500         18750
                 Wi2/0/0:2    7500         0
2/0/0    12      In2/0/0:12   7500         37500
                 Wi2/0/0:2    7500         0
                 Wi2/0/0:3    7500         0
2/0/0    13      In2/0/0:13   7500         37500
                 Wi2/0/0:2    7500         0
                 Wi2/0/0:3    7500         0
```

- **show controllers Integrated-Cable** *slot/subslot/port* **bandwidth wb-channel**—Displays the bandwidth information for wideband channels.

  Following is a sample output of the command:

```
Router# show controllers Integrated-Cable 2/0/0 bandwidth wb-channel

Ctrlr    WB       RF         CIR(Kbps)    Guar(Kbps)
2/0/0    0                   60000        102500
                 2/0/0:0    7500         13750
                 2/0/0:1    7500         13750
                 2/0/0:2    7500         12500
                 2/0/0:3    7500         12500
                 2/0/0:4    7500         12500
                 2/0/0:5    7500         12500
                 2/0/0:6    7500         12500
                 2/0/0:7    7500         12500
2/0/0    1                   82500        170000
                 2/0/0:0    3750         10000
                 2/0/0:1    3750         10000
                 2/0/0:2    7500         12500
                 2/0/0:3    7500         12500
                 2/0/0:4    7500         12500
                 2/0/0:5    7500         12500
                 2/0/0:6    7500         12500
                 2/0/0:7    7500         12500
                 2/0/0:8    7500         18750
                 2/0/0:9    7500         18750
                 2/0/0:10   7500         18750
                 2/0/0:11   7500         18750
                 2/0/0:32   0            0
                 2/0/0:33   0            0
                 2/0/0:34   0            0
                 2/0/0:35   0            0
2/0/0    2                   60000        0
                 2/0/0:8    7500         0
                 2/0/0:9    7500         0
                 2/0/0:10   7500         0
                 2/0/0:11   7500         0
```

```
2/0/0:12   7500          0
2/0/0:13   7500          0
2/0/0:14   7500          0
2/0/0:15   7500          0
2/0/0:64   0             0
2/0/0:65   0             0
2/0/0:66   0             0
2/0/0:67   0             0
```

- **show controllers Integrated-Cable** *slot/subslot/port* **mapping rf-channel**—Displays the mapping for RF channels.

  Following is a sample output of the command:

```
Router# show controllers integrated-Cable 2/0/0 mapping rf-channel

Ctrlr    RF       IC %       IC Rem     WB         WB %      WB Rem
2/0/0    0        20         1          2/0/0:0    20        1
                                       2/0/0:1    10        1
2/0/0    1        20         1          2/0/0:0    20        1
                                       2/0/0:1    10        1
2/0/0    2        20         1          2/0/0:0    20        1
                                       2/0/0:1    20        1
2/0/0    3        20         1          2/0/0:0    20        1
                                       2/0/0:1    20        1
2/0/0    4        20         1          2/0/0:0    20        1
                                       2/0/0:1    20        1
2/0/0    5        20         1          2/0/0:0    20        1
                                       2/0/0:1    20        1
2/0/0    6        20         1          2/0/0:0    20        1
                                       2/0/0:1    20        1
2/0/0    7        20         1          2/0/0:0    20        1
                                       2/0/0:1    20        1
2/0/0    8        20         1          2/0/0:1    20        1
                                       2/0/0:2    20        1
2/0/0    9        20         1          2/0/0:1    20        1
                                       2/0/0:2    20        1
2/0/0    10       20         1          2/0/0:1    20        1
                                       2/0/0:2    20        1
```

- **show controllers Integrated-Cable** *slot/port/interface-number* **mapping wb-channel**—Displays the mapping for wideband channels.

  Following is a sample output of the command:

```
Router# show controllers integrated-Cable 2/0/0 mapping wb-channel

Ctrlr    WB       RF         WB %    WB Rem
2/0/0    0        2/0/0:0    20      1
                  2/0/0:1    20      1
                  2/0/0:2    20      1
                  2/0/0:3    20      1
                  2/0/0:4    20      1
                  2/0/0:5    20      1
                  2/0/0:6    20      1
                  2/0/0:7    20      1
2/0/0    1        2/0/0:0    10      1
                  2/0/0:1    10      1
                  2/0/0:2    20      1
                  2/0/0:3    20      1
                  2/0/0:4    20      1
                  2/0/0:5    20      1
                  2/0/0:6    20      1
                  2/0/0:7    20      1
```

```
                    2/0/0:8     20      1
                    2/0/0:9     20      1
                    2/0/0:10    20      1
                    2/0/0:11    20      1
                    2/0/0:32    20      1
                    2/0/0:33    20      1
                    2/0/0:34    20      1
                    2/0/0:35    20      1
2/0/0     2         2/0/0:8     20      1
                    2/0/0:9     20      1
                    2/0/0:10    20      1
                    2/0/0:11    20      1
                    2/0/0:12    20      1
                    2/0/0:13    20      1
                    2/0/0:14    20      1
                    2/0/0:15    20      1
                    2/0/0:64    20      1
                    2/0/0:65    20      1
                    2/0/0:66    20      1
                    2/0/0:67    20      1
2/0/0     3         2/0/0:12    20      1
                    2/0/0:13    20      1
                    2/0/0:14    20      1
                    2/0/0:15    20      1
                    2/0/0:16    20      1
                    2/0/0:17    20      1
```

Additional References

Related Documents

Related Topic	Document Title
Cisco CMTS cable commands	*Cisco CMTS Cable Command Reference*

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/support

Feature Information for Dynamic Bandwidth Sharing

Use Cisco Feature Navigator to find information about the platform support and software image support. Cisco Feature Navigator enables you to determine which software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to the https://cfnng.cisco.com/ link. An account on the Cisco.com page is not required.

Note The following table lists the software release in which a given feature is introduced. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Table 2: Feature Information for Dynamic Bandwidth Sharing

Feature Name	Releases	Feature Information
Dynamic bandwidth sharing	Cisco IOS XE Everest 16.6.1	This feature was integrated into Cisco IOS XE Everest 16.6.1 on the Cisco cBR Series Converged Broadband Routers.