GCPP Support for Remote PHY

This document provides information on the Generic Control Protocol Principal (GCPP) support on Cisco cBR-8 series routers.

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.

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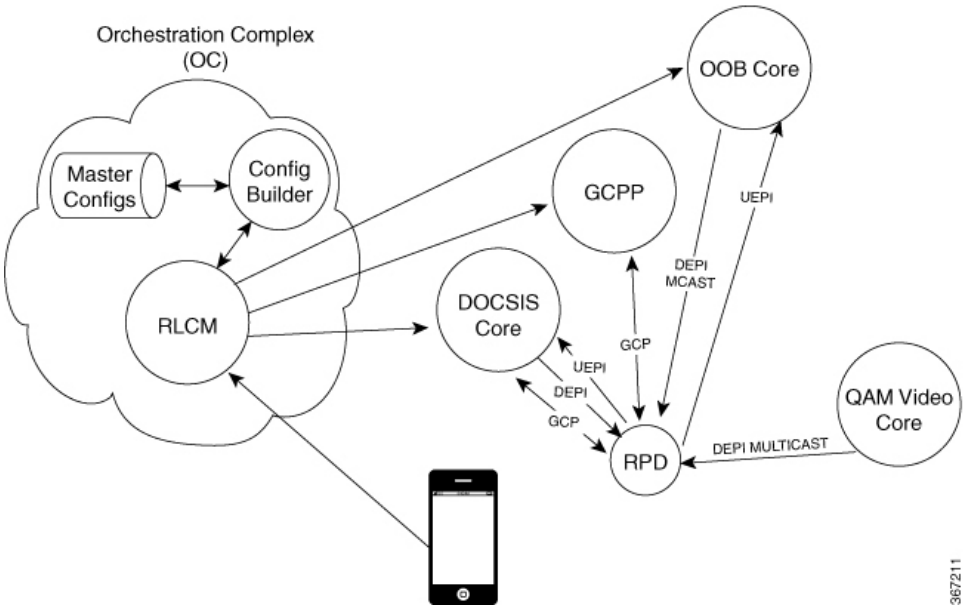
Information About GCPP Support

The Generic Control Protocol (GCP) sets up a control plane tunnel over a generic transport protocol such as TCP or UDP. GCP is used to program the remote PHY system upstream and downstream parameters from the CMTS. It is also used to control the remote PHY system.

The Remote PHY architecture with GCPP (Generic Control Protocol Principal) server, includes separate DOCSIS, QAM video and OOB cores. To enable the use of multiple RPHY cores, the architecture utilizes a GCP Principal Core (GCPP). Initially, the RPDs contact and authenticate with the GCPP core, which also configures the RPDs in its domain in coordination with the Cores (DOCSIS, QAM video, and OOB).

Without the GCPP core, cBR8 is the principal core for RPD. However, in this GCPP architecture, the GCPP server is the principal core and the Cisco cBR8 is an auxiliary core.

Figure 1: Remote PHY Architecture with GCPP



The Cisco 2x2 RPD software supports configurable GCP keepalive timeout parameter.

Hardware Compatibility Matrix for Cisco Remote PHY Device

Note Unless otherwise specified, the hardware components introduced in a given Cisco Remote PHY Device Software Release are supported in all subsequent releases.

Table 1: Hardware Compatibility Matrix for the Cisco Remote PHY Device

Cisco HFC Platform	Remote PHY Device
Cisco GS7000 Super High Output Node	Cisco 1x2 / Compact Shelf RPD Software 2.1 and Later Releases
Cisco GS7000 Super High Output Intelligent Node (iNode)	Cisco 1x2 / Compact Shelf RPD Software 4.1 and Later Releases Cisco Intelligent Remote PHY Device 1x2 • PID—iRPD-1X2= • PID—iRPD-1X2-PKEY=

Note The -PKEY suffix in the PID indicates units that enable the SCTE-55-2 Out-of-Band protocol support.

GCPP Core

GCPP core provides containerized services for automating deployments, managing applications, the initial authentication of the RPDs, and configuring RPD features and video services. The Principal Core does not provide any services (video or data).

The GCPP configures RPDs using GCP with the details of the other Cores that will configure it and the resources that will be configured by those Cores. The GCPP then performs the RPD operational configuration and the video and OOB service configuration. By the end of this process, the RPD will have its operational configuration and video and OOB services set up.

The GCPP core performs the following three primary functions:

- Initial authentication of the RPD
- Initial configuration of the RPD, including the list of cores to which it connects and the resources that those other cores will configure
- Configuration of the multicast sources that the RPD uses to populate QAM video (broadcast and narrowcast) channels

GCPP allows integrating videos on a standardized, single video platform. It also provides the configuration of the RPD's video channels, removing the requirements from the Video Core to support RPD authentication and GCP configuration.

How to Configure GCPP Core

This section contains the following:

Adding GCPP Core IP Address

Add the GCPP core IP address in the original CNR RPD policy if your RPD helper address is cnr8/auto-cnr. Or add the DHCP pool with the GCPP core/CCAP core in the USD.

Configuring Cisco cBR for Enabling GCPP

To set the GCPP server as the core server, configure Cisco cBR to remove the principal keyword under RPD configuration.

```
cable rpd <RPD name>
 identifier <RPD ID>
 core-interface <slot/subslot/port>
  principal             <<<<<<<<<<< remove it, gcpp is the principal core
  rpd-ds <port-ID> downstream-cable <slot/sub-slot/controller> profile <ID>
  rpd-us <port-ID> upstream-cable <slot/sub-slot/controller> profile <ID>
 core-interface <slot/subslot/port>
  rpd-ds <port-ID> downstream-cable <slot/sub-slot/controller> profile <ID>
r-dti <ID>
 rpd-event profile <ID>
 rpd-55d1-us-event profile <ID>
```

Configuration Example

This section provides example of Cisco cBR-8 Converged Broadband Router configuration when GCPP is the core.

Example: GCPP Configuration

```
cable rpd p1_0719
 identifier 0004.9f00.0719
 core-interface Te6/1/2
  rpd-ds 0 downstream-cable 6/0/17 profile 7
  rpd-us 0 upstream-cable 6/0/17 profile 7
 core-interface Te6/1/1
  rpd-ds 0 downstream-cable 6/0/3 profile 17
r-dti 6
 rpd-event profile 0
 rpd-55d1-us-event profile 0
```

Feature Information for GCPP Support

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 GCPP Support

Feature Name	Releases	Feature Information
GCPP Support	Cisco 1x2 RPD Software 4.1	This feature was introduced on the Cisco Remote PHY Devices.