



IMPLEMENTING CISCO'S CONVERGED CABLE ACCESS PLATFORM (CBR-8)

COURSE OVERVIEW

cBR-8 is the next generation in Cisco's series of CMTS (Cable Modem Termination System) platforms. Cisco's uBR 10K (Universal Broadband Router) previously offered industry-leading CMTS functionality – the cBR-8 is now Cisco's flagship CMTS offering. The Cisco cBR-8 CCAP (Converged Cable Access Platform) CMTS provides many technology advancements and performance enhancements, while reducing the overall cost per subscriber. These advanced capabilities include: four times the capacity (number of cable modems/subscribers per CMTS) at double the speed of currently available DOCSIS 3.0 solutions (10K). The cBR-8 provides maximum flexibility for the future adoption of innovative network architectures including Remote PHY (RPHY), SDN, and Virtual CMTS (vCMTS). The cBR-8's native support of DOCSIS 3.1 allows cable operators to deliver ultra-broadband services with maximum downstream speeds approaching 10 Gbps per subscriber and 1 Gbps upstream. Note: Cisco 10K supports all versions up to DOCSIS 3.0. cBR-8 supports up to 3.1.

WHO WILL BENEFIT FROM THIS COURSE?

This course is designed for technical professionals who need to know how to deploy Cisco CMTS and associated equipment. The primary audience for this course includes:

- Cable Operator Network Operation Center personnel
- System Engineer/Integrator/Solutions support personnel
- Channel partners, resellers

PREREQUISITES

Following are the strongly recommended prerequisites for this cable training course:

- NCTI DOCSIS Network Overview

Students should have foundational knowledge and/or experience with –

- DOCSIS principles of operation
- Cisco IOS Command Line Interface (CLI)

COURSE OBJECTIVES

You will learn the cBR-8 architecture, deployment best practices, security features, and perform key DOCSIS 3.0 and 3.1 configuration tasks during hands-on labs.



COURSE OUTLINE

DOCSIS Primer

- DOCSIS Characteristics
- Available Spectrum
- TDM/TDMA/ATDMA/SCDMA and Channel types

cBR-8 Architecture and Hardware Overview

- Hardware Overview
- Chassis Installation
- System Level Troubleshooting
- Lab – Discovery

Software Overview and MAC Domain Configuration

- cBR-8 Differences (versus uBR 10K)
- Software and Configuration
- Lab – Bringing up a MAC Domain
- 1:2 Combining
- Lab – 1 by 2 Combining

Bonding and Bonding Resiliency

- Downstream Resiliency
- Upstream Resiliency
- Lab – Wideband Resiliency
- Battery Backup

Security Features

- Dynamic Shared Secret (DMIC)
- Cable Source Verify
- Cable ARP Filtering
- BPI+ Policy Enforcement
- Privacy Hotlist

DOCSIS Load Balancing

- Basic DOCSIS Load Balancing CLI
- Advanced DOCSIS Load Balancing Configuration



- Verification and Troubleshooting
- Lab – DOCSIS Load Balancing
- Additional Load Balancing Features

cBR-8 Features

- cBR-8 Call Home
- Smart Licensing
- High Availability for Supervisor and Line Card
- cBR-8 Patching – Sub-Package Mode
- cBR-8 CPU Protection
- Punt Path Rate Limiting (PPRL)

DOCSIS 3.1 Architecture

- Greenfield Reference Architecture
- Physical Layer Properties
- PHY Link Channel (PLC)
- Modulation Characteristics
- MAC and DOCSIS Upper Layers
- MAC Protocol Operation
- Cable Modem Registration (DOCSIS 3.1)

DOCSIS 3.1 Configuration

- DOCSIS 3.1 Downstream
- DOCSIS 3.1 Downstream Configuration
- Downstream Verification
- Lab – Configuring DOCSIS 3.1 Downstream
- DOCSIS 3.1 Upstream
- DOCSIS 3.1 Upstream Configuration
- Upstream Verification
- Lab – Configuring DOCSIS 3.1 Upstream

cBR-8 Modem Troubleshooting

- Modem Registration flowchart
- Cable modem MAC states
- Modems failing registration or BPI+
- Modems not coming up in wideband mode



- General modem-focused troubleshooting
 - Lab – Troubleshooting
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