Advanced Services’ Cisco Data over Cable Service Interface Specification (DOCSIS) 3.0

The Cisco® Data Over Cable Service Interface Specification (DOCSIS) 3.0 course covers primary cable modem termination system (CMTS) standards and concepts, provides hands-on expertise, and establishes important foundation knowledge for bidirectional channel bonding and other advanced-service cable technologies. While this course focuses on implementing DOCSIS® services on the Cisco uBR10012, the learning experiences from this course also apply to other CMTSs that support DOCSIS 3.0 technology.

Duration
Three days.

Target Audience
This course is for technical professionals who design, implement, and operate Cisco CMTS equipment and who deploy DOCSIS 3.0 features in cable networks.

The following are considered the primary audience for this course:

- Cable operator engineers
- Cable operator network operations center personnel
- System integrators
- System engineers

Course Objectives
Upon completion of this course, you should be able to:

- Identify the pre-DOCSIS 3.0 Cisco technology and deployment foundation underpinning current DOCSIS 3.0 downstream channel bonding
- Describe the component parts of the DOCSIS 3.0 specification set and explain primary aspects in block-diagram form
- Explain modular and integrated CMTS concepts and how they relate to DOCSIS 3.0
- Relate downstream channel bonding terms and acronyms to Cisco uBR10012 downstream channel bonding hardware and software releases
- Identify Cisco uBR10012 hardware combinations required for downstream channel bonding
- Configure and verify Cisco uBR10012 for downstream channel bonding operations
- Use new Cisco uBR10012 features and featurettes for best system performance in mixed DOCSIS 1.x/2.0 and DOCSIS 3.0 downstream channel-bonded environments
- Use lessons learned from earlier worldwide downstream channel bonding deployments
- Describe next steps in channel bonding that build upon Cisco uBR10012 downstream channel bonding and enable still more advanced services

Course Prerequisites

Following are the prerequisites for this course:

- Students should have knowledge of the Cisco CMTS equipment and should be able to establish, without assistance, a configuration for the Cisco uBR10012.
- Students must have attended or have equivalent knowledge and experience of the Cisco Introduction to Cisco Cable Routing (ICCR) course and the Advance Cisco Cable Routing (ACCR) course.

To locate Cisco courses that cover the listed prerequisites, go to the Cisco Training and Events webpage at www.cisco.com/web/learning/index.html.

Course Outline

The course outline is as follows:

- Course Introduction
- DOCSIS 3.0 Specification
- Understanding DOCSIS 3.0 Theory of Operation and CMTS Architecture
- CableLabs DOCSIS 3.0 Qualification and Cisco CMTS Naming Conventions
- DOCSIS 3.0 Terms
- Cisco uBR10012 DOCSIS 3.0
- Downstream Channel Bonding Commands
- Troubleshooting
- Channel Bonding Tips

Lab Outline

The lab outline is as follows:

- Preplan Cisco uBR10012 and DOCSIS 3.0 deployment scenarios
- Configure the Cisco uBR10012 CMTS, the Cisco RF Gateway, and the DOCSIS Timing Server
- Configure the Cisco Wideband SPA (controller modular cable
- Configure two Cisco wideband RF channels
- Configure two primary downstream channels/channel grouping domains
- Configure a fiber node
- Configure DOCSIS timing and control card
● Configure load balancing group
● Configure an interface for upstream load balancing
● Add downstream channels to the load balancing group
● Configure Cisco uBR10012 high availability and N+1 redundancy
● Configure dynamic bandwidth sharing (DBS) on the Cisco uBR10012
● Steer all voice-enabled cable modems to the line card downstream channel

Lab Topology

Figure 1 shows the lab topology that is used in this course.

Figure 1. Cisco DOCSIS 3.0 Reference Architecture
Registration Information
For more information about schedules and registration for this course, contact aeskt_registration@cisco.com.

For More Information
For more information about Advanced Services Education course offerings, including custom training options, as well as Advanced Services Curriculum Planning Services and the Advanced Services Technical Knowledge Library (TKL), refer to the Advanced Services Education website at www.cisco.com/go/ase.