

# Remote PHY Deep Dive (R-PHY)



**Days:** 1

**Description:** Remote PHY (R-PHY) is a key component in the cable industry's adoption of a Distributed Access Architecture (DAA). This Deep Dive course examines Cisco's deployment of R-PHY architecture and devices. Remote PHY (R-PHY) is a key component in the cable industry's adoption of a Distributed Access Architecture (DAA). DAA and R-PHY are foundational technologies for future innovative network architectures such as Virtual CMTS (vCMTS), Cloud Native Broadband Router (cnBR), and Full-duplex DOCSIS. R-PHY enables the migration of physical layer (PHY) functions (such as RF Spectrum generation) from the Headend to the network edge - leading to more robust RF networks. The deployment of DAA/R-PHY, coupled with DOCSIS 3.1, allows cable operators to deliver ultrabroadband services with maximum downstream/upstream speeds approaching 10 Gbps/1 Gbps respectively.

**Course Objectives:** You will learn the Remote PHY architecture, Remote PHY Device (RPD) installation, CLI commands used for verification and monitoring, deployment best practices, and perform key R-PHY configuration tasks during hands-on labs.

## OUTLINE:

### DISTRIBUTED ACCESS ARCHITECTURE CONCEPTS

- Use cases for DAA
- Cisco R-PHY network components
- The Evolution of PHY
- Maintaining network 'time'

### REMOTE PHY ARCHITECTURE

- Headend architecture
- Supported devices
- Node and Shelf Installation

### DEPLOYMENT CONSIDERATIONS/OPTIONS

- DAA architecture components
- CIN design
- Timing considerations

### RPD INITIALIZATION

- Communication protocols
- Initialization process
- Clock synchronization process
- Lab – PTP Clock Initialization

### R-PHY CONFIGURATION AND MONITORING

- Interface
- Lab – DPIC Port Connectivity

- Controller profiles
- Lab – RPD Configuration
- Fiber Node
- Lab – Wideband Interface and Fiber Node
- Verification using CLI Commands
- CCAP
- RPD

### ADVANCED DEPLOYMENT OPTIONS

- BEST practices and optimization
- New technology/features
- Video and Out-of-band support
- Lab – Implementing R-PHY Video
- Smart PHY