Increased Capacity for Cisco Modular Converged Cable Access Platform

Converged Cable Access Platform Overview

With the accelerated growth of video traffic and social networking applications, speed and scalability are critical factors for keeping consumers happy. The Cisco® Visual Networking Index (VNI) forecasts that by 2013, annual global IP traffic will reach two-thirds of a zettabyte (1 trillion gigabytes), video traffic will exceed 90 percent of global consumer traffic, and global online video will make up 60 percent of consumer Internet traffic (up from 32 percent in 2009).

As consumer demand for high-quality media on any device grows daily, cable operators are considering new intelligent solutions and architectures to deploy services. Cisco provides an end-to-end, DOCSIS 3.0-capable solution supporting multiple services to multiple devices over the same infrastructure to both residential and commercial subscribers. These solutions allow cable operators to provide subscribers with the best possible quality of experience, while minimizing operating expenses and differentiating next-generation services from those of their competitors.

Figure 1. Cisco Performance Routing Engine 5

Converged Cable Access Platform (CCAP) is a new cable access architecture that combines the functions of two key technologies: cable modem termination systems (CMTS), which powers DOCSIS-based high-speed broadband services, and Edge QAM, which powers video services. Combining the two functions on a single port helps service providers reduce rack space, save power, and address the increasing demand for narrowcast services, such as voice, data and video content on multiple screens.

Cisco Solution: Modular CCAP

As part of its ongoing CCAP migration plan to help cable service providers converge broadband and video traffic on a single port, Cisco introduces two new high-density products for its flagship Cisco uBR10012 Universal Broadband Router and Cable Modem Termination System (CMTS), the cable industry's leading CMTS platform. Together, the new Cisco uBR10012 Performance Routing Engine 5 (PRE-5) and Cisco 3G Shared Port Adapter (3G SPA) effectively double the router's downstream capacity, from a total of 576 to 1152 downstreams, without requiring any additional rack space. The new line cards will allow cable service providers to take full advantage of their existing platform, while adopting an incremental deployment approach to using more ports, with a pay-as-you-grow business model.

Features and Benefits

Key features of Cisco Performance Routing Engine 5 (Figure 1):

- Enables up to eight MC3GX60V line cards and eight 3G SPAs in a single Cisco chassis, creating a new maximum of 1,152 downstream channels
- Supports deployment of 18, 24, or 36 DOCSIS channels per service group at scale
- Provides four Enhanced Small Form-Factor Pluggable (SFP+) ports for WAN backhaul that free up SPA slots and enables up to 40 Gbps of downstream throughput
- Delivers 60 Gbps maximum system aggregate throughput (40 Gbps downstream plus 20 Gbps upstream)
- Supports up to 10 mpps for both IPv4 and IPv6 with commonly used features
- Improves IPv6 forwarding from 5 mpps to 9 mpps
- Provides four SFP+ ports for board-to-board connection
- Provides two USB ports for upgrades and data logging

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Key features of the Cisco 3G Shared Port Adapter (Figure 2):

- The adapter is designed for M-CMTS and M-CCAP architectures to provide greater bandwidth per service group
- Each card supports up to 3 Gbps of downstream capacity, or 72 downstream channels
- The uBR10012 chassis can support up to eight additional SPA cards, adding 576 downstream channels to the chassis
- Two SFP+ ports and 1 SFP port on the front panel support 1+1 redundancy.

Figure 2. Cisco 3G Shared Port Adapter

Why Cisco?

Cisco has years of experience, leadership, and a record of innovation in the cable industry. This background uniquely positions Cisco to understand the needs of cable operators and to design products to meet those needs. Our goal is to help cable operators deliver superior service while reducing operating expenses. The Cisco PRE-5 and 3G SPA provide investment protection for customers who have already deployed the Cisco uBR10012 router successfully, and give new customers a proven path to deliver carrier-class data, voice, and video services to subscribers. The Cisco uBR10012 platform provides a cost-effective solution for the move to CCAP and the current and future needs of cable operators.

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