DOCSIS® — Project Primer

Overview

The Cable Modem & The CMTS

Cable modems are devices at the subscriber premises that convert digital information into a modulated radio frequency (RF) signal in the upstream direction, and convert the RF signals to digital information in the downstream direction. Another piece of equipment, called a cable modem termination system (CMTS), performs the converse operation for multiple subscribers at the cable operator's headend. .

DOCSIS

Cable television operators have transitioned from a traditional core business of entertainment programming to a position as full-service providers of video, voice, and data telecommunications services. Cable modems based on Data Over Cable Service Interface Specifications (DOCSIS®) are among the fundamental devices making this transition possible. To date, the most successful and cost-effective method for providing high-speed data services is via cable modems compliant with the DOCSIS specifications.

Cable Modems Versus DSL

With more than 25.4 million high-speed Internet access customers in North America, the cable modem has become the broadband connection of choice for many Internet users. In fact, cable modem deployments have outstripped the nearest rival broadband technology, digital subscriber line (DSL), by a significant margin. Yet there is still room for growth since the total penetration of broadband access technologies in the U.S. is currently only 40 percent. *(All statistics as of Q3 2005, Kinetic Strategies, Inc.)*

DOCSIS: The Past and The Future

The four successive versions of the DOCSIS cable modem: DOCSIS 1.0, DOCSIS 1.1,and DOCSIS 2.0, and, now in development, DOCSIS 3.0, provide increasing levels of capabilities and functionality, while maintaining multi-vendor interoperability and full backward and forward compatibility of DOCSIS.

Features

- DOCSIS 1.0 provides basic broadband Internet connectivity for one or more devices in the home. Among other things, it includes the ability to rate-limit (cap) a particular customer's data rate to a cable operator selected value.
- DOCSIS 1.1 provides improved operational flexibility, security, and quality-of-service (QoS) features.
- DOCSIS 2.0 includes increased upstream reliability and throughput for symmetric services.
- DOCSIS 3.0 provides a number of enhancements, most notably, channel bonding, support for IPv6,and support for IPTV. Channel bonding provides cable operators with a flexible way to significantly increase downstream speeds to a minimum of 160 Mbps, and upstream throughput up to a minimum rate of 120 Mbps to customers.

Benefits

- DOCSIS 1.0 cable modems made the interoperability of cable technology a reality for cable operators and cable subscribers.
- DOCSIS 1.0 made the standardization of cable modems possible. As a result, placed downward pressure on cable modem prices causing them to drop from $500 to $50.
- DOCSIS 1.1 enables the cable operator to configure guarantees on the data rates and/or the latency of the service.
- DOCSIS 2.0 increases upstream throughput to 30 Mbps of capability.
- DOCSIS 3.0 will allows cable operators to provide data rates in the hundreds of megabits and potentially gigabits per second.

Services Enabled

- DOCSIS 1.0 provides the cable industry-platform the delivery of high-speed data on cable modems.
- DOCSIS 1.1 paves the way for high-quality digital voice, interactive gaming, and commercial service level agreements (SLAs).
- DOCSIS 2.0 increases upstream throughput resulting in an increase in the capacity to deliver high-speed data.
- DOCSIS 3.0 will enables direct competition with VDSL and FTTx service offerings from the telcos, and will provides a platform for the evolution of the cable video business into IPTV.

For further information, please contact CableLabs at 303.661.9100.