

INTERNET ARCHIVE

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About this capture

navigation

- Main Page
- Community Portal
- Current events
- Recent changes
- Random article
- Help
- Contact Wikipedia
- Donations

search

Go Search

toolbox

- What links here
- Related changes
- Upload file
- Special pages
- Printable version
- Permanent link
- Cite this article

in other languages

- Български
- Deutsch
- Español
- Français
- Nederlands
- 日本語
- Русский
- Svenska

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DOCSIS

From Wikipedia, the free encyclopedia

Data Over Cable Service Interface Specification (DOCSIS) is an international standard developed by [CableLabs](#) which defines the communications and operation s The first DOCSIS specification was version 1.0, issued in March of 1997, with revision 1.1 following in April of 1999. Owing to increased demand for symmetric, real-tir The [International Telecommunications Union Telecommunications Standardization Sector](#) (ITU-T) has adopted two DOCSIS variants as international standards. DOCS As frequency allocation band plans differ between US and European CATV systems, DOCSIS standards have been modified for use in Europe; these are published un bandwidth in EuroDOCSIS architectures permits more bandwidth to be allocated to the downstream data path (taken from a user's point of view, "downstream" is used Japan employs other variants of DOCSIS.

All DOCSIS technical documentation, to include lists of DOCSIS-certified equipment, is available at <http://www.cablemodem.com> .

Contents [hide]

1 Features

1.1 DOCSIS 3.0

2 Equipment

3 Transfer rate

4 See also

5 External links

Features

DOCSIS provides great variety in options available at [OSI](#) layers 1 and 2, the [Physical](#) (PHY) and [Media Access Control](#) (MAC) layers.

- **Physical layer:**
 - Channel Width: DOCSIS 1.0/1.1 specified channel widths between 400 KHz and 3.2 MHz. DOCSIS 2.0 specifies 6.4 MHz, but is backward compatible to the ea
 - Modulation: DOCSIS 1.0/1.1 specifies that 64- or 256-level [QAM](#) (64-QAM or 256-QAM) be used for modulation of downstream data, and [QPSK](#) and 16-level [Q](#)
- **MAC layer:** DOCSIS employs deterministic access methods, specifically [TDMA](#) and [S-CDMA](#). In contrast to the contention-based MAC [CSMA/CD](#) employed in [Ethe](#)

Throughput: All of these features combined enable a total upstream throughput of 30.72 [Mbit/s](#) per channel (although the upstream speed in DOCSIS 1.0 and 1.1 is lim

DOCSIS 3.0

Currently under development, DOCSIS 3.0 is expected to feature "channel bonding", which enables multiple downstream and upstream channels to be used together a

Equipment

A DOCSIS architecture includes two primary components: a cable modem (CM) located at the customer premises, and a [cable modem termination system](#) (CMTS) loc A typical CMTS is a device which hosts downstream and upstream ports (it is functionally similar to the [DSLAM](#) used in [DSL](#) systems). For duplex communication betw downstream ports - the additional upstream ports provide ways of compensating for noisy lines (until DOCSIS 2.0, they were required to provide higher upstream spee Before a cable company can deploy DOCSIS 1.1 or above, it must upgrade its HFC network to support a return path for upstream traffic. Without a return path, the old chances are high that DOCSIS 1.1 or higher can be implemented.

The customer PC and associated peripherals are termed Customer Premise Equipment (CPE). The CPE are connected to the cable modem, which is in turn connecte cable modem's configuration; the CM configuration is changed to adjust for varying line conditions and customer service requirements.

Transfer rate

Most DOCSIS cable modems have caps (restrictions) on upload and download rates. These are set by transferring a configuration file to the modem via [TFTP](#) when th offering 8 Mbit/s downstream and 768 kbit/s (96 kB/s) upstream as a more expensive higher tier. These differing speed offerings are made possible by loading a differe Another major cable provider, [Cox Communications](#) recently upgraded their base package to 6 MBit/s downstream and 512 kbit/s (64 kB/s) upstream in select markets downstream and 2 Mbit/s upstream on their base package and 15 Mbit/s downstream and 2 Mbit/s upstream for the premier package.

[Cablevision](#), serving New Jersey, New York City, and Long Island, currently offers the fastest 'basic' cable internet service ([Optimum Online](#)) in the US with 15 Mbit/s D Narad Networks) is currently in beta testing and is slated for release in 2006.

The operator [LGI](#) (<http://lgi.com/>) (formerly [UGC](#), locally known as [UPC](#)) in [Austria](#), [Belgium](#), The [Czech Republic](#), [France](#), [Hungary](#), [Ireland](#), The [Netherlands](#), [Norw](#)

One downstream channel can handle hundreds of cable modems. As the system grows, the CMTS can be upgraded with more downstream/upstream ports. If the HFC Some users have attempted to override the bandwidth cap and gain access to the full bandwidth of the system (often as much as 30 Mbit/s) by uploading their own cor

See also

- [DOCSIS Set-top Gateway](#)

External links

- [CableLabs](#)
- [Everything You Need to Know About Next-gen Broadband](#)
- [Information about DOCSIS in German](#)
- [DOCSIS Project](#) *docsis* is a small program that can be used to generate binary configuration files for DOCSIS-compliant cable modems.

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