

DOCSIS® 4.0 Technology

Enabling multi-gigabit symmetric speeds over HFC networks

Speeds That Power the Technologies of Tomorrow

The applications and technologies of the future—such as interactive video conferencing, remote learning and health care tools, Internet of Things (IoT) devices and virtual reality (VR) capabilities—will rely on multi-gigabit symmetric speeds that are much higher than what we typically experience today.



The 10G Showcase demonstrated multi-gigabit symmetric speeds.

Multi-Gigabit Symmetric Services

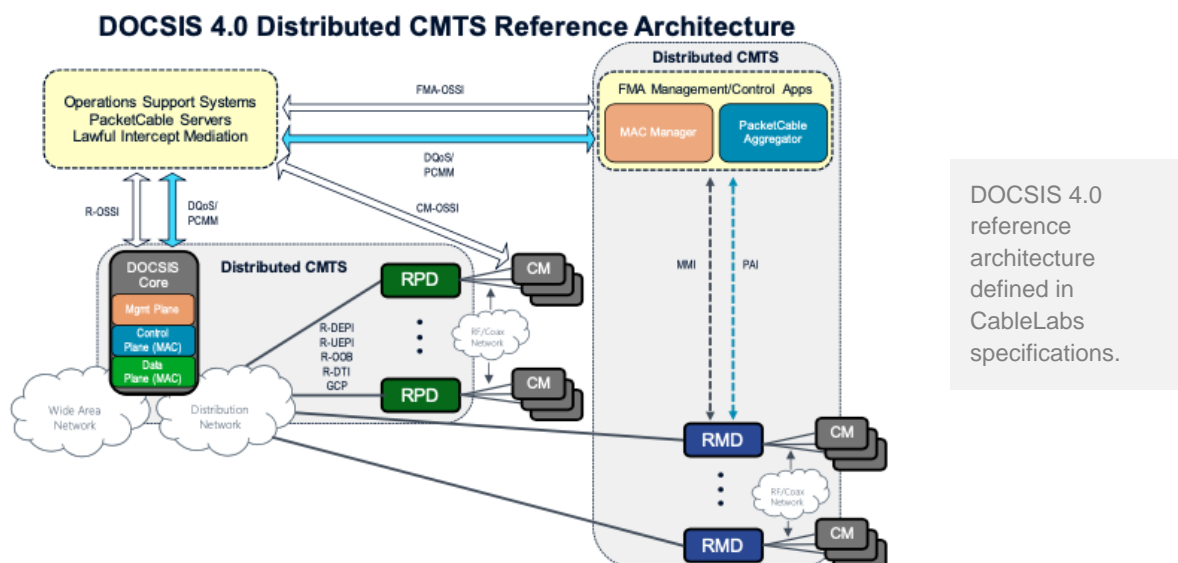
CableLabs has been working with operators and vendors for more than five years to bring DOCSIS 4.0 technology to market. The technology supports up to 10 Gbps speeds downstream capacity and up to 6 Gbps upstream capacity, easily allowing for multi-gigabit symmetric services over hybrid fiber-coax (HFC) networks. At the CableLabs 10G Showcase in April 2022, 9 Gbps downstream and 6 Gbps upstream data rates were demonstrated.

Providing Operators Flexibility

DOCSIS 4.0 networks have a range of options to help operators maximize the capacity they get from their spectrum. Full Duplex (FDX) DOCSIS 4.0 enables dynamic use of the lower end of the spectrum, enabling downstream and upstream channels below the band split. Frequency Division Duplex (FDD), commonly referred to as Extended Spectrum DOCSIS (ESD) technology, extends the spectrum up to 1794 MHz. With both typically leveraging Distributed CCAP Architecture, FDX and ESD support symmetric services at much higher data rates than commonly available today.

CableLabs' Readiness

CableLabs and its subsidiaries have a broad range of efforts ongoing to support the deployment of DOCSIS 4.0 technology. In addition to developing the specifications and standards, these efforts include CableLabs Certification for DOCSIS 4.0 devices, new and updated SCTE® DOCSIS training, and a working group on network operations tools.



Certification: DOCSIS 4.0 Acceptance Test Plans have been published, and CableLabs is prepared to certify new cable modems as soon as they are ready. Certification ensures multi-vendor device interoperability, which facilitates consumer choice, advances the widespread deployment of DOCSIS 4.0 devices, and lowers costs to operators and consumers. Details on CableLabs Certification programs available from Kyrio can be found at www.kyrio.com/cablelabs-docsis-packetcable.

Specifications: Although the DOCSIS 4.0 specifications are stable, operators and vendors are still discovering best approaches for deploying interoperable systems. CableLabs continues to facilitate engineering changes to update the DOCSIS 4.0 specifications. Also, both FDX and ESD modes of operation benefit from new amplifier, node and tap technologies. SCTE has developed several new standards for these devices. The DOCSIS 4.0 Specification Suite is available at www.cablelabs.com/specifications.

Training: SCTE has an interactive online course overviewing DOCSIS 4.0 architecture and technology. This 10-hour course, available now, is targeted to support management and technical staff that need early awareness of DOCSIS evolution. Details about the course and a link to enroll are available in the SCTE Course Catalog at www.scte.org/education. A comprehensive bootcamp-format class is under development and will be available in 2023.

Working group: SCTE has initiated a Standards working group specifically to look at requirements and practices to support DOCSIS 4.0 deployment, maintenance and operations. If you're interested in this work, please email Dean Stoneback (dstoneback@scte.org) or contact standards@scte.org.

Learn More

Visit www.cablelabs.com/technologies/docsis-4-0-technology to learn more about DOCSIS 4.0 technology.

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