CableOS® Core

CMTS SOFTWARE

Running on a 1-RU server, CableOS® Core cable modem termination system (CMTS) software powers the Harmonic CableOS virtualized cable access solution.

Featuring the industry's first software-based CMTS, the first end-to-end Remote PHY system, and leading RF port density, the end-to-end CableOS solution provides cable operators with unprecedented scalability, agility and cost savings. CableOS Core software serves as the heart of the solution, performing all CMTS functions, including common control, management and forwarding of IP traffic across the cable access network. The high-performance software is capable of processing tens of gigs of capacity per rack unit. All DOCSIS-related applications, such as DSG and PacketCable, are supported, as are IPv4 and IPv6 services.

CableOS Core software runs on an Intel® x86 server to provide the advantages associated with IT economics and Moore's Law. With CableOS, operators no longer need to purchase space-consuming and expensive hardware-based CMTS platforms, and can break away from the cycle of needing to upgrade hardware every three years to accommodate capacity growth requirements. Regular CableOS software upgrades accelerate the introduction of new features, including high-layer DOCSIS 3.1 capabilities, and capacity is gained simply by adding new 1-RU servers. CableOS also aligns with industry virtualization initiatives, enabling greater operational elasticity and orchestration.

In addition to the Core software, the CableOS portfolio includes a full range of Pebble RPD-based enclosures, including the Ripple-1 and Shell-1 Remote PHY nodes, the Reef and Wave-1 remote PHY shelves (RPS) and the Wave-1 NDF/R module, as well as the 55-1 software-based OOB Core, and the NSG Pro and ProStream X Video Engines. Fundamentally changing the business dynamics of cable delivery, the solution introduces cable operators to unprecedented scalability, agility and cost savings. CableOS supports centralized and distributed cable access architectures that enable the fast deployment of IP-based and legacy data, video, and voice services — and sustainable capacity growth. All CableOS components work together to resolve space and power constraints in the headend and hub, eliminate dependence on hardware upgrade cycles, and provide multi-dimensional scaling.

All components of CableOS CMTS software are instrumented with telemetry that provides deep insight into system and services state. Telemetry data feeds cloud based CableOS Central services that provide intuitive graphical dashboards, data analytics and generate smart alerts. Together with CableOS Central operations that provide 24/7 monitoring, the data is continuously reviewed by a team of domains experts to ensure system stability, the best customer quality of experience and high operational efficiency.

Large-scale CableOS deployments consisting of multiple geographically distributed clusters are made easy with the simple yet powerful graphical interface of cloud based CableOS Sonar service. The service features end-to-end configuration, templates, intuitive workflows, and built-in auditing.

HIGHLIGHTS

- Sustainable capacity growth over the long term
- End-to-end support for centralized and distributed architectures
- Enables the migration to multi-gigabit broadband capacity
- Resolves space and power constraints in the headend and hub
- Supports fast deployment of new IP-based data, video and voice services
- Leverages latest technology innovations, including full-spectrum DOCSIS 3.1 and NFV
- Eliminates the need for hardware upgrade cycles
- Easily scales from a small deployment to one with many tens of service groups
- Provides high availability
- Field-proven solution deployed globally across a variety of footprints with thousands of RPDs connected and millions of connected devices

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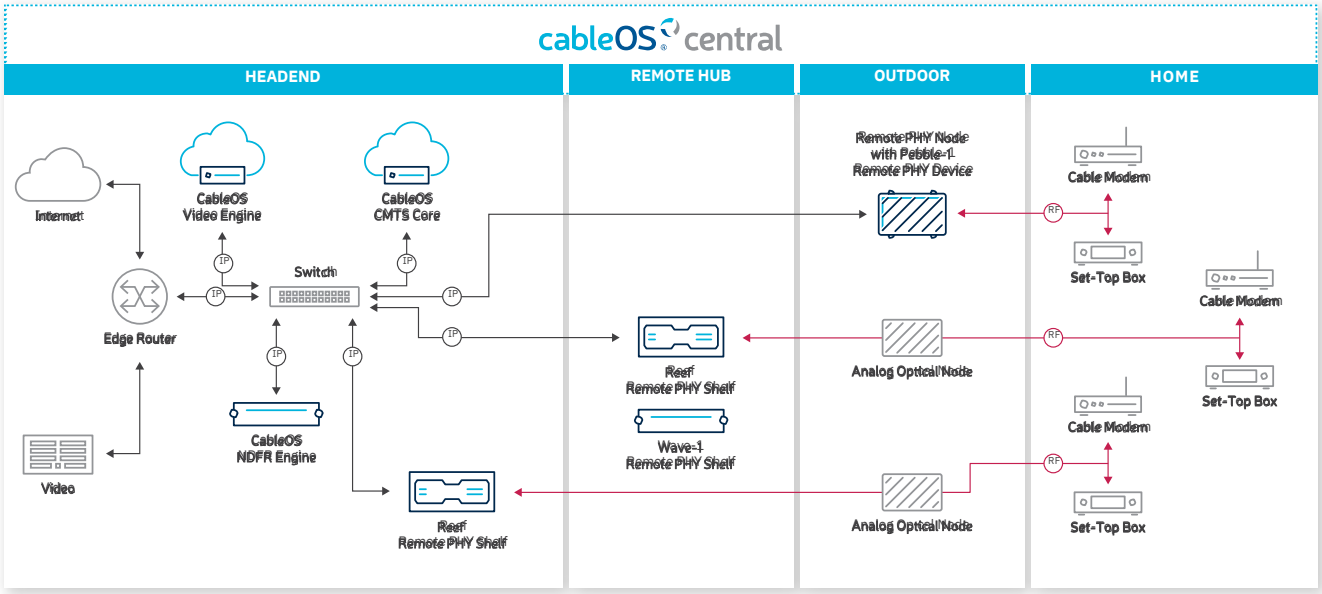

SPECIFICATIONS

STANDARDS-BASED INTEROPERABILITY

- Business Services over DOCSIS Layer 2 Virtual Private Networks (BSoD)
- Common Open Policy Service (COPS)
- DOCSIS 1.1, 2.0, 3.0, and 3.1 (including OFDMA and TaFDM)
- DOCSIS Set-Top Gateway (DSG)
- DQoS-Lite
- EuroDOCSIS
- Generic Control Plane (GCP)
- Lawful Intercept (LI)
- Narrowband Digital Forward (NDF) and Narrowband Digital Return (NDR)
- PacketCable 1.0, 1.5, 2.0
- PacketCable Multimedia (PCMM)
- Radio Frequency Over Glass (RFoG)
- Remote Downstream External PHY Interface
- Remote PHY Shelf (RPS) and Remote PHY Device (RPD) Support
- Remote Upstream External PHY Interface
- SCTE 55-1 OOB
- SCTE 55-2 OOB via NDF/R
- Timing: NTP, IEEE-1588, BMCA
- Upstream Extended Transmit Power

SUBSCRIBERS MANAGEMENT

- Custom DHCP/DHCPv6 Options
- DHCP Lease Query
- DHCP Relay (Option 82)
- IPv4, IPv6
- Prefix Delegation
- RIPv1, RIPv2
- Static CPE
- Sub Bundles

SECURITY MANAGEMENT

- BPI+
- Dynamic Shared Secret
- Early Authentication and Encryption (EAE)
- Enhanced Security with Core Firewall
- IPSEC for CCAP Core and RPD Mutual Authentication
- IPSEC for LI
- MD5 Authentication
- Simple Certificate Enrollment Process (SCEP)
- Source Address Verification
- Subscriber Management Filters
- TFTP Proxy

CONFIGURATION, MANAGEMENT AND MONITORING

- Command Line Interface (CLI), including Configuration Templates
- Configuration for Pebble-1 Analog Overlay (AO) model
- IPDR/SP
- Logging Facility
- SNMP Remote Query
- SNMP v2/v3
- SSHv2
- Standard CableLabs, DOCSIS, IETF and Harmonic Private MIBs
- TACACS+ AAA and RADIUS Authentication
- Telnet
- Telemetry-based Analytics

QUALITY OF SERVICE (QOS)

- Configurable DEPI/UEPI CIN QoS
- Harmonic “Ideal” Per-Packet Scheduling
- Multi-Level Hierarchical QoS
- Weighted-Fair Queuing (WFQ) and Strict Priority (SP)

DOCSIS AND REMOTE PHY RELATED FEATURES

- Admission Control
- CMTS Steering
- Configurable CM-STATUS report and hold-off
- DEPI Latency Measurement (DLM)
- Dynamic Bonding Group Assignment
- Dynamic Downstream and Upstream Modulation Profiles Change
- GCP Principal and DOCSIS AUX Core mode support
- Ingress Noise Cancellation
- Partial Service
- PNM: Leakage Detection for Commsonic, Trilithic, Arcom
- PNM: Viavi XPERTrak
- Proprietary RCP
- Restricted Load Balancing Groups (RLBG)
- Service Class Names
- Spectrum Management, including narrow/wide-band FFT
- Static and Dynamic Cable Modem Load Balancing

NETWORKING RELATED FEATURES

- Configurable MTU
- Protocol Throttling
- Proxy ARP/ND

HIGH-AVAILABILITY AND SOFTWARE UPGRADE

- High Availability
- Out of Service and In Service Software Upgrade

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