*The **Entra** Access Controller is the "brains" of the unified cable access solution that delivers significant performance gains and substantial savings on capital and operating expenses (CAPEX/OPEX) for operators, and allows for easy migration to an all-IP, all-fiber network.*

The Entra Access Controller leverages software-defined networking (SDN) to centralize control of the entire unified cable access solution. The Access Controller virtualizes the Converged Cable Access Platform (CCAP) and manages all components of the solution.

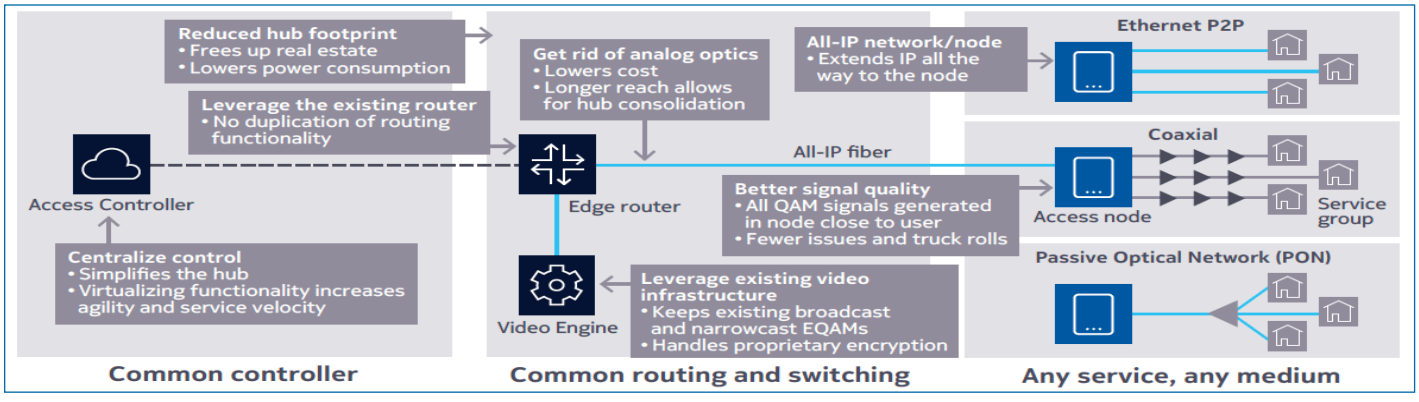
Built on an industry standard Linux OS, the Access Controller can be installed on commercial off-the-shelf (COTS) hardware anywhere within the operator's network and can run on bare metal servers or a virtual machine.

Operators can choose between a command-line interface (CLI) and WebGUI for onboard system management, or leverage Simple Network Management Protocol (SNMP) or NETCONF

to configure and control the Access Controller from any third-party management application. From a single CLI, point-and-click interface, or programmatically using an SDN orchestrator, operators can configure and manage a large and widely deployed network of access nodes.

With full support for standard Internet Protocol Detail Record (IPDR) schemas and standard CableLabs, SCTE, IP networking and DOCSIS management information bases (MIBs), the solution easily integrates into existing billing and management systems.

Entra unified cable access solution



Highlights

- CLI and WebGUI for configuration and management
- Customizable network dashboard to align the interface with operational workflows
- Centralized software license management
- CCAP OSSI-based configuration and management framework
- SDN orchestration using programmatic NETCONF interface
- Geographic representation of nodes using Google Maps
- SSHv2, SSL for secure remote access
- Paired deployment for high availability (1+1)
- Scales to support hundreds of access nodes per Access Controller instance
- Centralized cloud-based management framework
- Simple and intuitive configuration and management of all attached network devices
- Instant access to the entire unified cable access deployment, including maintenance state, channel and network statistics and operational alarms/events
- Seamless integration with existing OSS/BSS systems
- Pay-as-you-grow pricing model with the use of flexible software licenses

Components

Virtual CCAP Control Plane

Interfaces with the existing OSS/BSS
- Policy managers and recordkeeping servers (RKSs) for PacketCable services
- IPDR and SNMP servers for exporting customer billing information
- Other provisioning systems or SDN orchestrators for end-user service provisioning and management

Virtual CCAP Orchestrator

Discovers and configures all components in the unified cable access solution to enable a plug and play architecture
Maintains the internal system topology database
Virtualizes/Abstracts each of the system components to eliminate the need for individual configuration or maintenance

License Manager

Administers all licenses for the system, allocating them on-demand to the access nodes based on the system configuration
Enables the pay-as-you-grow pricing model
Dramatically simplifies license management for operators and enables them to flexibly and easily allocate the license resources where required

Element Manager

Provides an alternative management paradigm for the entire system
Enables operators to use a GUI to perform all of the functions available in the virtual CCAP CLI

CLI

Controls and manages all aspects of system operations, including provisioning, troubleshooting and maintaining the unified cable access deployment
Built on top of the YANG model specified in the CableLabs CCAP operations support system interface (OSSI) specification

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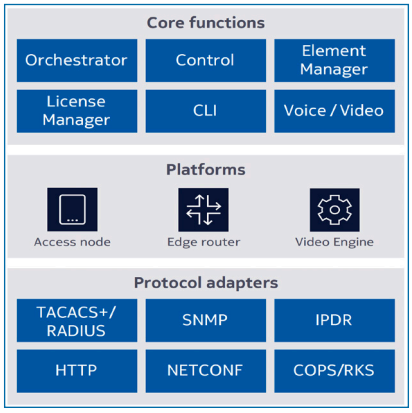
Publish Date: 2020-August-19 (r01)

Application Integration Platform



Enabling "Smart-Hands" workflows fordata center deployments

- Pre-installed RedHat OS 7.7*
- Serial port enabled for "smart-hands" login
- Pre-loaded with Entra Access Controller software (RMD, R-OLT)
- X86-based server for demanding scalable v-DAA applications

Data center management

- Redundant power supply units
- IPMI 2.0 compliant
- Front panel power on/off
- Dell EMC OpenManage systems management

Key Features

- Small 1RU form factor
- Hot-swappable modular design
- Zero-tool installation and servicing
- High efficiency power supplies
- VAC and VDC powering options
- 4 post sliding rack rails included
- Bare metal option supported
- Supports up to 200 SF-4X (PON) Nodes or 300 HFC Nodes

Access Controller

Specifications	
Form factor	1U rack
Dimensions	17.08 x 31.8 inches (434 x 808.5 mm)
Processor	Intel Xeon Silver 4210 2.2G, 10C/20T, 9.6GT/s, 13.75M Cache, Turbo, HT (85W) DDR4-2400
Memory	48GB (6x 8GB RDIMM, 3200MT/s, Single Rank)
Drives	1TB 7.2K RPM SATA 6Gbps
Embedded NIC	Broadcom 57416 Dual Port 10GbE BASE-T Broadcom 57412 Dual Port 10GbE SFP+ & 5720 Dual Port 1GBE BASE-T
I/O	RS-232, VGA, 4X USB
Power	Dual, Hot-plug, Redundant Power Supply (1+1), 750W
Operating System	RedHat 7.7*
Software	All EAC (GAC) Releases 18.2.1 and higher

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