

Next-generation Access Technology for the Converged Interconnect Network

Innovative new digital services, an enhanced customer experience, and operational efficiencies will be enabled as cable operators or Multiple-System Operators (MSOs) roll out Distributed Access Architectures (DAAs) and bring packet-based connectivity to the access network. Cable operators are looking to packet-based infrastructures that will deliver optimum performance and make it possible to introduce new services efficiently and quickly.

MSOs pursuing DAA

The cable industry's vision for delivering symmetric 10 Gb/s networks, or 10G, will be achieved with a collection of architectures and technologies including DAA and extending fiber deep with digital fiber nodes—Remote PHY and Remote MACPHY Devices (RPDs/RMDs). A foundational part of this transition is overhauling the network between headends, hub sites, and RPDs/RMDs—a new Ethernet/IP network the industry refers to as the Converged Interconnect Network (CIN). DAA further enables cable operators to virtualize legacy functions with cloud architectures to achieve operational efficiencies. Ciena builds the Adaptive Network™ for MSOs, supporting their DAA strategies and CIN deployments.

What is a Converged Interconnect Network? Learn more



DAA is based on distributing functions, traditionally done in the headend, and paves the way for virtualization. The CIN is a packet-based network within DAA that connects service cores such as the Converged Cable Access Platform (CCAP) in the headend to RPDs/RMDs in the access network that are used to distribute Physical (PHY)-layer and Medium Access Control (MAC) functions. Figure 1 provides a reference architecture as MSOs transition to DAA and extend fiber deeper in their access networks.

Benefits

5170: Primary Aggregation of RPD/RMD traffic in Hub Sites

- 4 x 100GbE (QSFP28) and 40 x 1/10GbE (SFP+)
- Energy-efficient, 1RU

5171: Primary Aggregation of RPD/RMD, 10G PON, mobile backhaul in Hub Site or Outside Plant

- 4 x 25/10/1GbE and 36 x 10/1GbE fixed ports
- Temperature-hardened (-40°C to +65°C); 2RU with shallow depth (10"/254mm)

10G XGS-PON: Universal Edge Access solution

- Deployment with Ciena's Packet Networking portfolio (5162, 517x, and 39xx)
- 10G PON OLT SFP+ transceiver can support up to 128 customers