DEV Introduces Distributed CCAP Nodes for DOCSIS 3.1 Remote MAC-PHY Applications
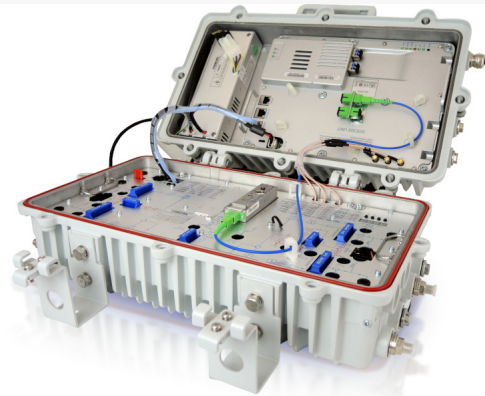
Moving MAC and PHY layers to the remote access node eliminates the need for headend CMTS/CCAP systems and increases throughput to more than 10 Gbps.

FRIEDBERG, HESSEN, GERMANY, January 15, 2019 /EINPresswire.com/ -- DEV Systemtechnik (www.dev-systemtechnik.com) has launched a range of Distributed CCAP solutions to the European cable network market. The DOCSIS 3.1 compliant access node comes with complete CMTS functionality.

The next major step in the evolution of DOCSIS networks is the move towards Distributed Access Architecture (DAA) topology that increases capacity and reduces costs compared to solutions based on traditional headend CMTS/CCAP.

Distributed CCAP DOCSIS 3.1 Outdoor Node

Distributed CCAP DOCSIS 3.1 Indoor Node

D-CCAP Node in the Network Infrastructure

Leapfrogging Remote PHY topology, which only moves the signal generation layer (PHY) to the access node, the Remote MAC-PHY approach transfers both the PHY and the DOCSIS processing (MAC) layers to the access node.
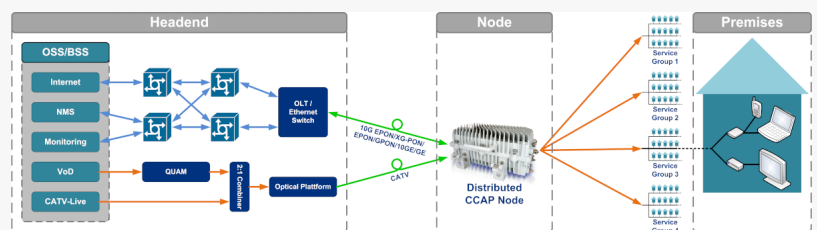
With the Remote PHY concept, the physical separation of the two layers however, poses synchronization and communication challenges, particularly if the MAC and PHY layers are integrated in platforms from different manufacturers and/or are located remote from one another. Both layers must however, be able to communicate with each other error-free. To achieve this a sophisticated Ethernet time system is applied so that Remote PHY and CMTS can be synchronized.

In the Remote MAC-PHY approach on the other hand, in addition to the physical (PHY) layer, the MAC layer is also moved to the access nodes. Therefore headend CMTS becomes redundant as its features are already integrated into the remote access node. The use of Distributed CCAP technology offers not only great savings in costs, but also limits space requirements and lowers energy consumption in the headend. Furthermore, any potential timing and latency issues caused by the physical separation of the two layers are thus avoided because the MAC and PHY layers are located in the same device.

Another benefit of moving to Distributed CCAP is minimizing the proportion of the analog transmission path. This enables simplified network management and reduces potential signal-to-noise ratio (SNR). The higher signal quality enables higher QAM modulations in the networks which, in the end, provide significantly higher transmission speeds. With the latest generation of Distributed CCAP devices, which support up to 1,000 cable modems per system, a maximum data throughput of more than 10 Gbps per node can be reached.

Distributed CCAP Nodes are not only suitable for new network infrastructures; they can also be integrated into existing networks to scale the existing infrastructure. With the Remote MAC-PHY topology, Distributed CCAP nodes can be used without changing existing infrastructure simply by replacing the existing HFC optical nodes. Remote MAC-PHY nodes support all common DOCSIS standards and also work in conjunction with Remote PHY devices or conventional CMTS systems.

With D-CCAP Nodes, DEV Systemtechnik GmbH supports European MSOs transition towards demanding Gigabit services over cable networks. Distributed CCAP nodes are available in indoor and outdoor form factors for testing and field use.

DEV Systemtechnik, part of the AXING Group, develops and manufactures a complete range of products and systems for optical and electrical transmission of Radio Frequency (RF) signals via coaxial cable or fiber. For over 20 years DEV has designed, engineered, and manufactured RF transmission equipment for satellite, broadcast, and cable applications. All products are built to meet the highest standards of system availability, reliability and manageability.

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