

# DPC™ DOCSIS PON Controller

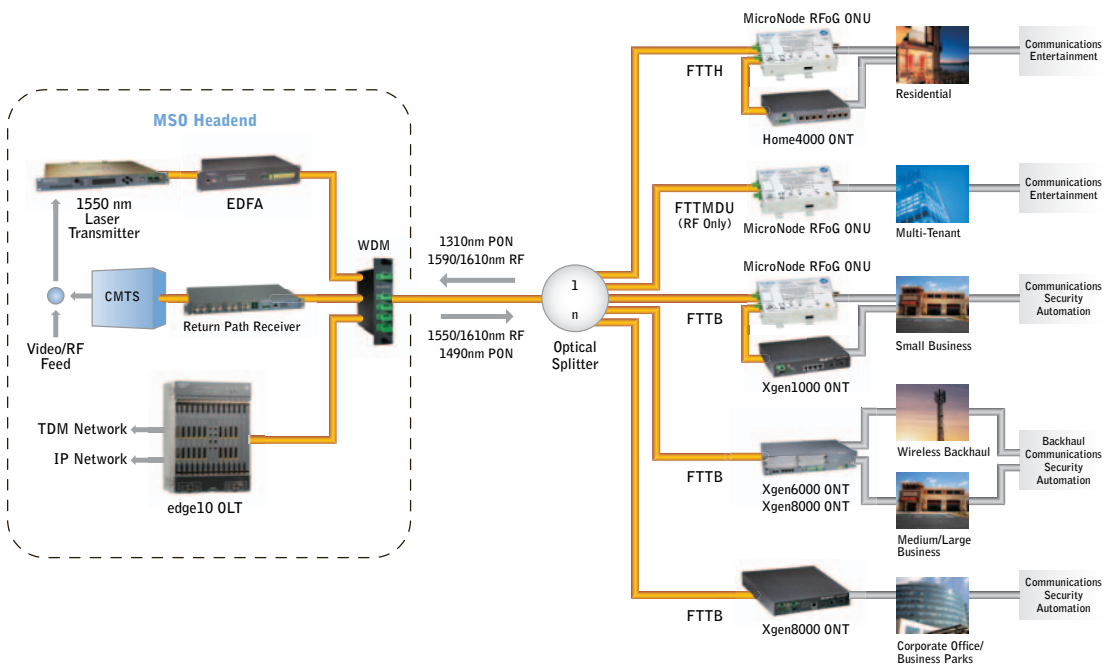


## The Challenge

Cable operators using DOCSIS-based technologies are migrating to deeper fiber architectures to support expanded service offerings for more residential video and faster Internet access. Additionally, they are gaining incremental revenue and market share in the lucrative business services market, with its demands for guaranteed data rates and rich Ethernet services. However, RF-based access networks have their limits, even with DOCSIS 3.0 and beyond.

Business services are particularly challenging. At the physical layer, multiple Ethernet ports, multiple voice ports, and T1/E1 connectivity are commonly needed, but not supported by today's DOCSIS-based CPE, whether they be cable modems, gateways, or eMTAs. At the service layer, delivering a full range of services is problematic as well. While cable modems can meet the current needs of most residences and many small and medium businesses, requirements are evolving. Symmetrical multi-megabit data rates for gaming and HD IPTV, E-line and E-LAN services, native T1/E1 services for businesses as well as cellular backhaul, and the quality assurance measurements of SLA guarantees are becoming increasingly vital features that are stretching the limits of cable modem services.

One of the more popular ways cable operators are responding to these challenges is to overlay an EPON system onto their deep fiber RFoG infrastructure as shown in the following diagram. Another method is to deploy the EPON system as a standalone network, in which case the RFoG technology can be added later.



In either scenario, there are two key advantages. First, the EPON system enables the physical layer and services needed by residential and business subscribers. Multi-port data and voice ONTs with native T1/E1 capabilities deliver rich Ethernet services at guaranteed data rates up to 1Gbps.

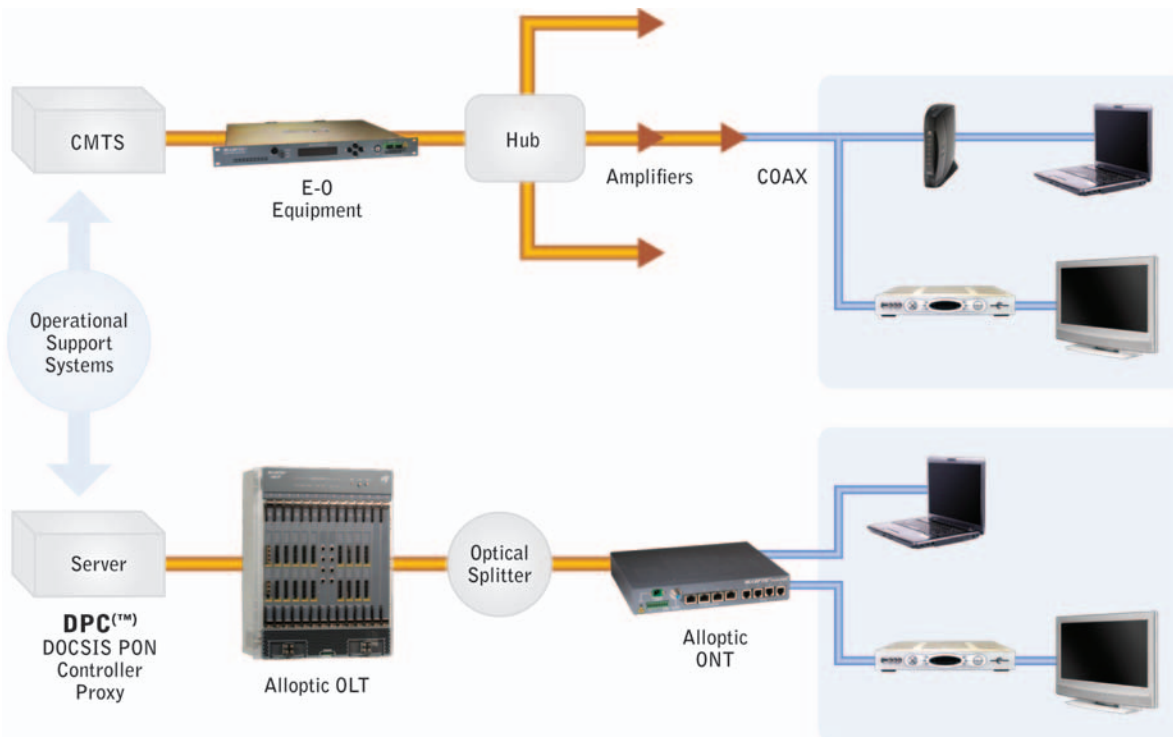
Second, it is fully compatible with existing RF services. Existing subscribers continue without interruption, and the EPON system can be deployed as needed. Costs are controlled while network engineers focus on new service infrastructure.

But there is one concern causing cable operators hesitation – management of the EPON system. **DPC™ from Alloptic solves that problem.**

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For cable operators, the problem with PON is that it is not DOCSIS-managed. Back office systems – OSS and BSS – have developed over a long period to provide flow-through provisioning and control of the DOCSIS network. Those highly-evolved back office systems are keys to keeping operational costs low and have allowed MSOs to scale to serve millions of subscribers. When EPON systems are deployed without DPC, provisioning and management must be done manually – outside the automation of DOCSIS systems. That makes PON systems difficult to scale across large networks and expensive for OAM&P functions.

The DPC PON controller from Alloptic solves the problem by enabling DOCSIS management of Alloptic's EPON system. It is a proxy that resides between the Alloptic OLT and back office systems, acting as a translator between the two. DPC receives DOCSIS configuration files from the configuration server, and translates that data into provisioning information for the Alloptic OLT. From an OSS perspective, the flow-through provisioning of the EPON system takes place in the same way CMTS/cable modems are provisioned. As shown in Diagram 2, the Alloptic OLT takes the place of the CMTS in the access network, and the ONT replaces the traditional cable modem.



With DPC software from Alloptic, network operators can continue to use existing DOCSIS operational support systems while gaining the performance advantages of Alloptic's EPON system. Beyond simply supporting single port devices such as cable modems, Alloptic's DPC solution offers flow-through provisioning for the full Alloptic ONT portfolio with multi-port ONTs, multiple voice ports, and native T1/E1 ports.

**DPC solutions makes EPON practical for cable operators.**

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