Cisco GS7000 Platform

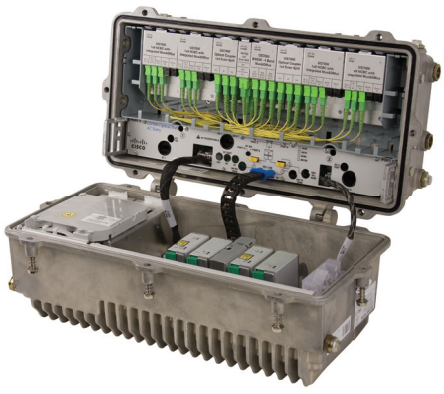
Bringing Your Hub Further into Your Fiber-Deep HFC Plant — *The trend will be to move as much fiber-support components into the nodes or node locations to further enable the fiber deep architectures*

MSOs are migrating to architectures that require deeper and deeper fiber reach; bringing fiber closer and closer to the home. Fiber distances and the need for better fiber utilization will increase. Higher power transmitters and optical amplifiers will be needed to accommodate new distances. To minimize the need for new fiber installations, better fiber utilization (via multiplexer/demultiplexer, couplers/splitters, switches) and improved fiber management will be required. The challenge will be to minimize the amount of capital expenditure, yet have all the required optical components to further enable and optimize this new system.

- Fiber management and fiber coupling (mux/demux, etc.) are typically done at the headend or hub, or within strand-mounted splice enclosures. With the Cisco GS7000 Optical Node/Hub solution, this can now be done at the hub node.
- Optical amplification is typically done at the headend or hub, or with strand-mounted optical amplifiers. This can now be done in the hub node.
- The ability to add redundancy, or enable network switching for survivability, is typically done at the headend or hub. This can now be done in the hub node.

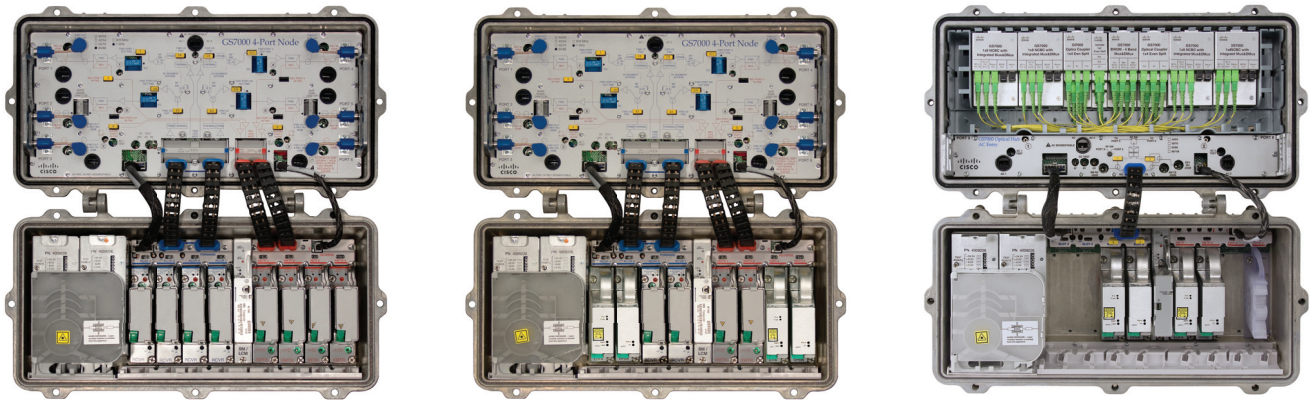
To efficiently manage this new architecture, MSOs will need to expand their fiber plant further and further into their networks, and they are going to need the tools like those in the headend or hub to effectively enable it.

The Cisco® GS7000 platform provides operators with a future-flexible foundation to take fiber deeper and is scalable to expand as services and customer demand expand. Cable operators can deploy our standard 4x4 industry-leading GS7000 optical node, and when ready, deploy fiber deeper into the hybrid fiber coax (HFC) network, taking the first step toward optical hub migration through the addition of optical amplifiers and/or optical switch modules.



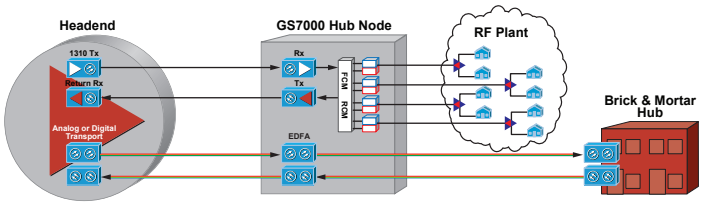
Cisco GS7000 Optical Hub

From GS7000 Node To GS7000 Hub Node To GS7000 Optical Hub



Cisco GS7000 Optical Hub Node

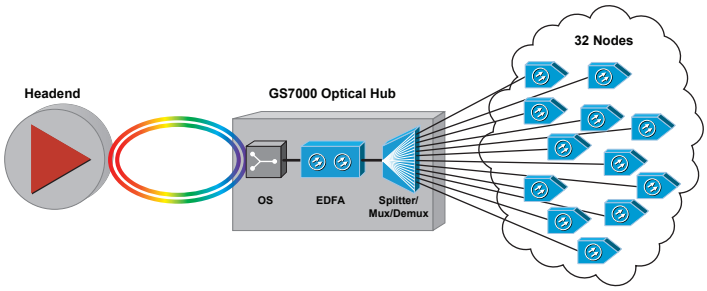
With the Cisco GS7000 Optical Hub Node, cable operators can fully utilize the GS7000 1-GHz Node platform, enabling migration from a standard optical node to a hub node with the installation of optical amplification and switching modules. The Hub Node can then serve as a traditional node feeding the local HFC plant and an optical hub with the optical amplifiers. The Hub Node with the optical amplifiers can service up to 32 nodes at a distance of 50 km with only three fibers.



Erbium-doped fiber amplifiers (EDFAs) are available in 17 dBm, 20 dBm, and 22 dBm for broadcast constant output power. A 17 dBm, or 20 dBm narrowcast constant gain EDFA version is available to fit any architecture for requirements like DWDM narrowcasting.

Cisco GS7000 Optical Hub

The GS7000 Hub Node can migrate to a full optical hub by replacing the RF amplifier section with an expanded fiber management tray, which can accommodate various optical passive devices.



The optical passive tray has the capacity of housing four 1x8 narrowcast/broadcast overlay combiners with integrated multiplexers and demultiplexers. A four-band mux/demux, 1x4 splitter, and a 1x2 splitter are also available. The benefits of these modular passives are: effortless installation and removal; simple troubleshooting; and the capability to use off the shelf fiber jumpers to interconnect active and passive modules. An operator can utilize the fully deployed GS7000 Optical Hub to combine narrowcast/broadcast up to 64 wavelengths feeding 32 nodes.

Monitoring and Control

The GS7000 Optical Node/Hub is available with a local control module and status monitoring. The Status Monitoring Module assesses output levels, power supply status, and switch control settings remotely via an HMS or DOCSIS transponder.

The Local Control Module has the capabilities of making configuration changes in the module setup; performing module firmware/software upgrades in the module remotely; and controlling operation of the optical switches and EDFAs.

Cisco GS7000 Platform

The Cisco GS7000 platform enables operators to initially deploy the GS7000 Optical Node and later migrate to an optical hub throughthe addition of optical amplifiers and/or optical switch modules, easily scaling services along with customer demand and generating more bandwidth for more customers as their need for more services intensifies. As the demand on your optical network expands, you can replace the RF amplifier section with optical passive components to further migrate towards 100 percent optical hub functionality.

Built to be technician-friendly with no custom configuration necessary, the Cisco GS7000 platform is one of the industry's most user-friendly platforms to migrate, and one of the most flexible platforms for all of your optical node and hub needs.