



OpenCon Systems, Inc.

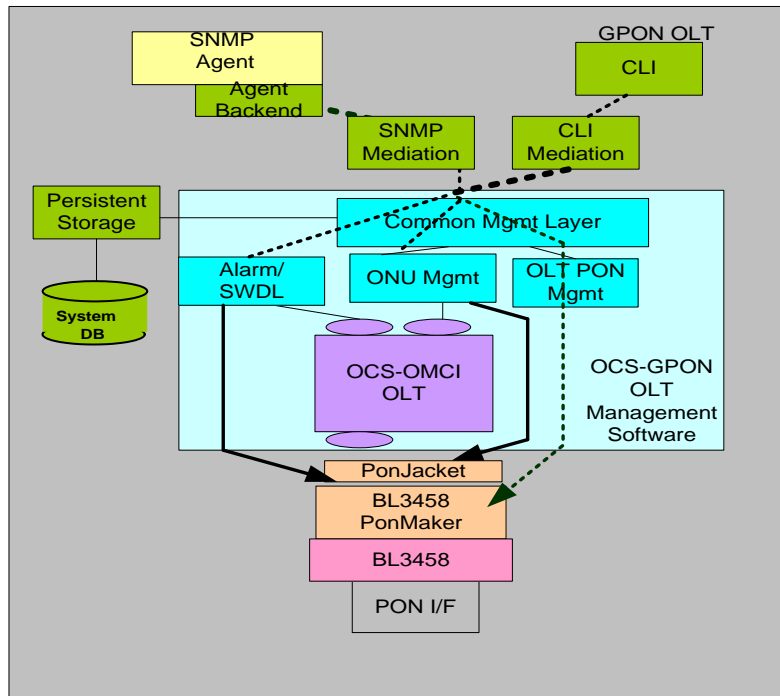
WORLDWIDE COMMUNICATION SOLUTIONS



To meet the 21st century demands of customers, TELCOs are laying optical fiber in the access network to enable connectivity to the high-speed digital highway. The optical fiber medium is best suited to meet bandwidth and real-time requirements of applications such as Voice, Video and Data. The optical fibers are laid to the customer premises (FTTH), to the curb (FTTC) or to the building (FTTB). FTTx is usually delivered via Passive Optical Network (PON). PON allows carriers to deploy fiber to their customers without the need for costly repeaters thereby reducing carrier CAPEX and OPEX.

ITU-T in conjunction with FSAN is driving the Gigabit-Capable Passive Optical Network (GPON) technology via G98x standardization documents which will enable easy inter operation between various Central Office (OLT) and Customer Premises Equipment (ONT/ONU) vendors.

OCS OLT Manager Software Solution is built in top of BroadLight's BL3458 PONJacket and can support chassis-type or pizza box type OLT. It includes G984.4 compliant OMCI Protocol Stack used for Service Configuration on the ONT/ONU. It also includes PON Link Management module manages the PON links in the system. The OLT Manager also supports flexible GEM Port mapping on the ONT/ONU via OMCI and keeps the OLT-ONT MIBs synchronized. Software Upgrade module included in the OLT manager provides on-demand software upgrades to be performed on the ONTs. The OCS-OLT Manager provides a well defined C API for provisioning the OLT system, which can be used by SNMP, WEB or CLI modules. The provisioning database is maintained by the OLT manager in the form of flat files. The following diagram illustrates the various software modules (highlighted in light-blue) that are part of the OCS-OLT Manager software solution.



OCS OLT Manager Solution

Key Features

<p>PON Link Management</p> <ul style="list-style-type: none"> • Supports up to 24 PON links • Link, GPON Protocol Configuration • Link Activation/Deactivation • Periodic Serial Number Acquisition • Periodic Key Exchange 	<p>ONU Management</p> <ul style="list-style-type: none"> • Supports 64 ONTs per PON link • Automatic ONU discovery and Activation • ONT authentication based on serial number and password • GEM Port and Alloc Id assignment • OLT-ONU OMCI MIB synchronization • VID, PBIT, VID+PBIT, UNI Port based GEM Port mapping configuration on the ONT • Flexible GEM Port to TCONT mapping on the ONT • Support Multicast Service Configuration
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	<ul style="list-style-type: none"> • Support file based configuration VoIP service
OMCI Stack <ul style="list-style-type: none"> • Compliant to G984.4 standard • Asynchronous OMCI message handling • OMCI channel keep alive via periodic OMCI GET operation • OMCI Link Recovery mechanism • Easily add new MEs to the OMCI schema via schema generator 	Alarm Handling <ul style="list-style-type: none"> • Support PON link level and ONU level alarm generation to upper level management module • Transfer OMCI alarms from the ONU to upper layer management module • Active and history Alarm Lists
ONT Software Upgrade <ul style="list-style-type: none"> • ONT Image download via OMCI channel • Automatic/Manual/Scheduled Upgrade methods • Batch Mode for upgrading a number of ONTs in parallel. 	Performance, Diagnostic, Remote Test <ul style="list-style-type: none"> • Periodic PM Counter collection at the link and ONT level • 64 bit counters • Remote Test and Diagnostic support OMCI Remote Debug ME
Management Functions <ul style="list-style-type: none"> • Configuration, PM, Alarm, Test& Diagnostic software integrated with Low level protocol modules • OCS Management Layer API for easy Integration with CLI, SNMP and WEB interfaces 	Traffic Classification <ul style="list-style-type: none"> • Classification based on VLAN ID, MAC Address a combination of VLAN ID and MAC Address • MAC Learning with configurable age time • Classification based on VLAN Priority bits (support in the future)