

# Tejas XTN Solutions

## DS1 Circuit Emulation Service ( CES ) Server for PON and Active Ethernet



The continued growth of optical broadband access networks for business customers has dramatically increased the services and bandwidth available in the network. However, legacy DS1 services remain an important and often necessary offering. Using PON and Active Ethernet to deliver DS1 services is an excellent way to converge and simplify access network deployments. Yet, at the OLT, terminating, grooming, and interfacing into existing SONET deployments or handing off to other service providers remains distributed and costly. By using a DS1 CES server, traffic from multiple OLTs can be cost effectively managed on a single device. Proven MEF CES standards, Ethernet interfaces to the OLT and DS1/SONET interfaces to traditional networks enable rapid deployment.

**THIS NEW GENERATION OF DS1 CES SERVER** brings a cost effectiveness to DS1 services for PON and active Ethernet broadband networks unavailable with previous solutions. Working in concert with existing networks it delivers high density with the performance and functionality required for the next phase of network transformation.

**THE STANDARDS BASED SOLUTION** provides flexibility and interoperability. The CES server uses Metro Ethernet Forum ( MEF ) 8 Structure-Agnostic Emulation ; a well proven standard capable of implementing multi-vendor solutions quickly.

**ELIMINATE LOW DENSITY DS1 MODULES IN THE OLT** which often have as few as 8 ports. The continued growth of broadband access networks and the increase in the number of subscribers per OLT mean these low density modules use too many slots to be cost effective.

**INCREASE BROADBAND SERVICES DENSITY AT THE OLT** by removing the low density DS1 modules allowing the OLT to focus on high density and capacity, residential and business, Ethernet service delivery.

**LOWER CAPEX** by concentrating DS1 traffic from many ONTs and multiple OLTs onto a single, high density DS1 CES server, where the price per DS1 port is lowered substantially. As a modular based solution, the CES server can be scaled from 63 to 126 to 315 DS1s.

**REDUCE POWER AND SPACE USAGE** by increasing broadband access density, replacing low density back-to-back low port count solutions and even reducing DS1 panel terminations through the use of OC-n interfaces. The XTN CES server starts at just 2 rack units high.

**MAINTAIN TRADITIONAL DS1 SERVICE OPERATIONS** with optional redundant switch fabrics, 1:n DS1 card level protection and 1:1 SONET interface protection. Or move to a new operational model with lower levels of protection. B8ZS, AMI, facility loopbacks and performance monitoring are available.

**EASILY MANAGE MORE DS1s** through the fully non-blocking software controlled, switch fabric. This flexibility allows for software provisioned connections from the;

- \* OLT to SONET Infrastructure,
- \* OLT to another Service Provider, or
- \* OLT to OLT.

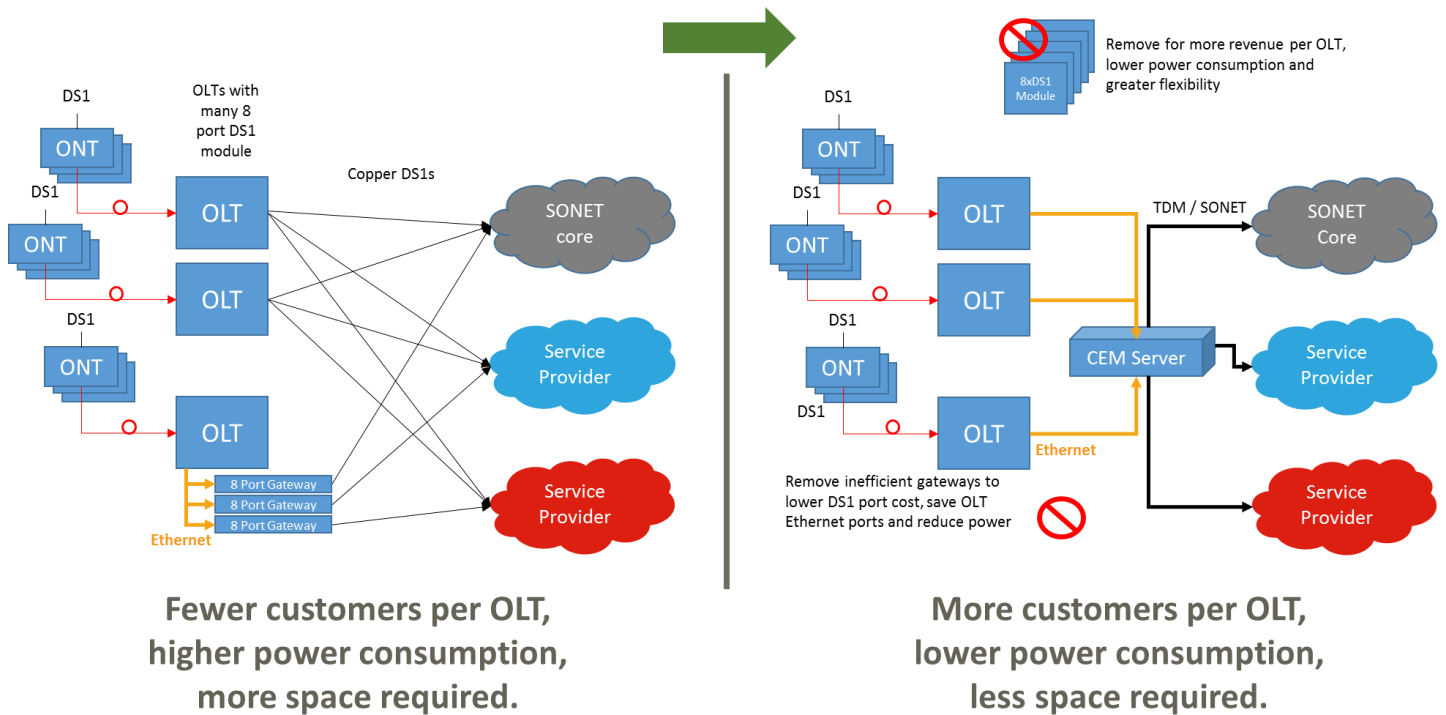
Flexibility in port mapping allow for DS1s to be mapped from;

- \* An Ethernet port to a SONET port,
- \* An Ethernet port to a DS1 port, or
- \* An Ethernet port to an Ethernet port.

**INTEGRATE INTO EXISTING NETWORKS** with standard Ethernet interfaces to the OLT for rapid deployment. Handoff to the SONET/TDM network can be done at the DS1 or OC-n rate. There are also Ethernet, SONET and BITS timing and synchronization options.

**PROVIDE A PATH FOR PACKET SERVICE GROWTH** with the full MEF CE 2.0 feature set and the high capacity switching available in the XTN product portfolio. Ethernet services up to 10GE can be provided over a number of network deployments options including G.8032 and MPLS-TP.





### XTN DS1 CES Server Technologies

#### Async / PDH

Up to 315 DS1 interfaces with optional protection.  
DS1 Inband Loopback

#### SONET

Full suite of SONET interfaces, rates and protection.  
OC-3/12/48

#### Ethernet

100/1000bT, GE and 10GE with VLAN management.

#### MEF 8

MEF 8 compliant services for easy interop.

#### DACS-Like Functionality

Any to Any grooming. RFC 2544 capable.

#### Synchronization / Timing

Traditional BITS, SyncE, 1588v2, ACR and DCR.

#### Network Management

Web GUI, SNMPv2 monitoring and/or light-weight NMS.

#### Packet Transport Network Capabilities

MEF CE 2.0 certified services.  
E-Line, E-LAN, E-Tree, E-Access.  
LAG, G.8032, MPLS-TP.

#### XTN Circuit Emulation Solutions

TJ1400 7-Slot 2RU or 5RU Packet or Hybrid Packet/SONET.  
TJ1400P 1RU Packet.  
TJ1400 18-Slot 7RU Packet.  
TJ5000 Network Management System.