The Optical Transport Network (OTN) defined in ITU-T G.709 allows network operators to converge networks through seamless transport of the numerous types of legacy protocols while providing the flexibility required to support future protocols.

**OTN Advantages**

- Provides a network against uncertain service mix by providing transparent native transport of client signals encapsulating all client management information.
- Performs multiplexing for optimum capacity utilization thereby improving network efficiency.
- Tracks network scalability as well as support for dedicated Ethernet services with service definitions for 16G, 50G, 40G and 100G with higher rates beginning specification.
- Combined with Intelligent Control Plane, enables automated mesh connectivity and SDM mesh restoration for a wide range of clients.

**OTN Layers**

- OTN provides inter-technology connections between nodes.
- OTN maintains connections between nodes with optical transmission features (OTUF).
- OTN transports signals across the network using optical network units (ONUs).
- OTN network nodes include: optical cross connect (OXC), optical multiplexer (OMUX), and optical regenerator (OR).

**OTN Maintenance – Overhead Bytes**

- OTN provides necessary performance monitoring for network elements and network elements.

**OTU Bit Rate Capacity**

<table>
<thead>
<tr>
<th>OTU</th>
<th>OTU Rate (Gbps)</th>
<th>OTU Rate (Gbps)</th>
<th>Client Signals</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTU1</td>
<td>2.488</td>
<td>2.488</td>
<td>STM-1/OC-1, STM-4/OC-4, STM-16/OC-16, STM-64/OC-64</td>
</tr>
<tr>
<td>OTU1x</td>
<td>10.709</td>
<td>10.709</td>
<td>STM-64/OC-144, FC-800, 10GE LAN, LAN (GP), IB (32/64)</td>
</tr>
<tr>
<td>OTU2</td>
<td>11.955</td>
<td>11.955</td>
<td>FC-1200, 10GE LAN, SNAP with/without frame</td>
</tr>
<tr>
<td>OTU3</td>
<td>43.018</td>
<td>40.150</td>
<td>STM-256/OC-768, 40G, B (QDR)</td>
</tr>
<tr>
<td>OTU4</td>
<td>111.899/77</td>
<td>104.355/77</td>
<td>100GQ1</td>
</tr>
</tbody>
</table>

**Acronym guide**

- 16GFC, 32GFC, 25GbE, 50GbE
- OSMC
- OTN Synchronization Message Channel
- ODUflex
- ODUflex containers map services, in 1.25G increments (such as FC1400) more efficiently into OTN rather than dedicating a full 2.5G (ODU1) or 10G (ODU2) per service.
- ODUflex containers can transport a wide variety of multi-rate clients
- Ethernet transport over any distance from metro to LH
- Enhanced SLAs with sub-rated Ethernet
- PLUS: Ethernet transport over any distance from metro to LH

**OTN Applications**

- Optical Transport Module (OTM)
- Optical Transport Network (OTN)
- Optical Transport Unit (OTU)
- Optical Channel (OCh)
- Optical Multi-Channel (OMC)
- Optical Transmission Section (OTS)
- Optical Multiplex Section (OMS)
- Optical Channel (OCh)
- Optical Transmission Unit (OTU)
- Optical Transport Network (OTN)
- Optical Transport Module (OTM)
- Optical Transport Unit (OTU)
- Optical Channel (OCh)
- Optical Transmission Unit (OTU)

**Ciena’s OTN Products**

- 5400 Family
- 6500 Family
- 6500-D2
- 6500-D7
- 6500-S8
- 6500-D14/S14
- 6500-S32
- 6500-T12
- 6500-T24
- 6500-D2
- 6500-D7
- 6500-S8
- 6500-D14/S14
- 6500-S32
- 6500-T12
- 6500-T24

**Further increase network bandwidth efficiencies with a right-sized ODUflex container**