Nokia WaveLite Access 200

2 x 100 Gb, 40 km-reaching, multiservice aggregation muxponder

The Nokia WaveLite Access 200 provides efficient aggregation of enterprise services over optical networks. Supporting Ethernet, Fibre Channel, SDH/SONET or OTN, it is a simple and secure solution for enterprise connectivity and data center interconnect (DCI).

Applications for the WaveLite Access 200 include:
• Enterprise private optical networks connecting operations and offices
• DCI for cloud connection to metro-area private or colocation data centers
• Service provider networks offering enterprise connectivity or cloud DCI.

Part of Nokia’s WaveLite family of private optical networking solutions, it is highly effective for use in enterprise DCI and campus extension or metro access applications where growing capacity needs have challenged the limits of embedded networks.

Features
• Compact 1RU chassis with low power consumption
• Flexible field-replaceable fan units and 1+1 redundant AC/DC power supply
• Central office practice (left-to-right airflow) or data center practice (front-to-back airflow)
• Line-side interface: two QSFP28 ports Black & White (OTU4)
• Client-side interfaces: Ethernet, Fiber Channel, SONET/SDH
• AES-256 encryption and authentication on client and line side

Benefits
• Multiple service or data rate aggregation and transport through a single, compact platform
• Flexible deployment options
• Fast, plug-and-play service activation
• High service availability and resilience
• Highly efficient
• Low total cost of ownership
The platform supports any mix of 10, 40 or 100 Gb Ethernet; 8, 16 or 32G Fibre Channel; 10G SDH/SONET or OTN clients OTU2/2e/3/4 through the use of SFP+, QSFP+ and QSFP28 optical modules. On the line side, the platform utilizes two QSFP28 Black & White interfaces, allowing for simple user line side configuration based on standard pluggable modules.

Built to comply with FIPS 140-2 level 2, the WaveLite Access 200 utilizes AES-256, providing Layer 1 encryption to ensure data integrity.

The WaveLite family is configured through a user-friendly, web-based GUI, allowing for rapid network turn-up. It also can be managed through the Nokia Network Services Platform (NSP) or by direct command line interface (CLI) commands.

### Technical specifications

#### User-configurable operating modes

<table>
<thead>
<tr>
<th>Mode Description</th>
<th>Clients Aggregated to 200G Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual 100G transponder</td>
<td>2 x 100G clients mapped to 200G line</td>
</tr>
<tr>
<td>Dual 40G and 12 x 10G muxponder</td>
<td>2 x 40G clients and up to 12 x 10G multiservice clients aggregated to 200G line</td>
</tr>
<tr>
<td>Quad 40G and quad 10G muxponder</td>
<td>4 x 40G and up to 4 x 10G multiservice clients aggregated to 200G line</td>
</tr>
<tr>
<td>100G transponder and 10 x 10G muxponder</td>
<td>100G client and up to 10x10G multiservice clients aggregated to 200G line</td>
</tr>
<tr>
<td>100G transponder and 1 x 40G and 6 x 10G muxponder</td>
<td>100G client + 1 x 40G client + up to 6 x 10G multiservice clients aggregated to 200G line</td>
</tr>
<tr>
<td>100G transponder and 2 x 32G and 4 x 10G muxponder</td>
<td>100G client +1 x 40G client+ up to 6 x 10G multiservice clients aggregated to 200G line</td>
</tr>
<tr>
<td>2 x 32G and 14 x 10G muxponder</td>
<td>2 x 32G clients and up to 6 x 10G multiservice clients aggregated to 200G line</td>
</tr>
<tr>
<td>20 x 10G muxponder</td>
<td>Up to 20 x 10G multiservice clients aggregated to 200G line</td>
</tr>
<tr>
<td>6 x 32G FC muxponder</td>
<td>Up to 6 x 32G FC clients aggregated to 200G line</td>
</tr>
</tbody>
</table>

#### Line-side characteristics

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line rate</td>
<td>2 x 100G OTU4 - 112 Gbps</td>
</tr>
<tr>
<td>Optical interface</td>
<td>2 x QSFP28 (LR4, CWDM4, ER4)</td>
</tr>
<tr>
<td>Channel plan</td>
<td>Single Black &amp; White wavelength</td>
</tr>
<tr>
<td>FEC mode</td>
<td>ITU-T G.709 GFEC</td>
</tr>
<tr>
<td>Optical monitoring</td>
<td>Tx and Rx power</td>
</tr>
<tr>
<td>Optical span reach</td>
<td>Up to 40 km (with QSFP28 ER4-Lite)</td>
</tr>
</tbody>
</table>

#### Client interfaces

<table>
<thead>
<tr>
<th>Service type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10GbE LAN/WAN, 40GbE LAN, 100GbE, 8G/16G/32G FC, STM-64/OC-192, OTU2, OTU2e, OTU3, OTU4</td>
<td></td>
</tr>
<tr>
<td>Optical interface</td>
<td>Supports standard MSA pluggable modules:</td>
</tr>
<tr>
<td></td>
<td>• 16 x SFP+: SR (850 nm), LR (1310 nm), ER (1550 nm)</td>
</tr>
<tr>
<td></td>
<td>• ZR (1550 nm)</td>
</tr>
<tr>
<td></td>
<td>• 2 x QSFP+: LR-4 (1310nm), SR-4 (850 nm)</td>
</tr>
<tr>
<td></td>
<td>• 2 x QSFP28: SR4 (100/150 m-850 nm), CWDM4 (2 km 1310 nm), LR4 (10 km-1310 nm)</td>
</tr>
<tr>
<td>FEC (for OTN clients)</td>
<td>Zero FEC (for low latency use) - Standards-based G709 FEC (GFEC)</td>
</tr>
</tbody>
</table>

#### Encryption

<table>
<thead>
<tr>
<th>Functionality</th>
<th>Wire speed transparent Layer 1 on client or OTU4 line side</th>
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</thead>
<tbody>
<tr>
<td>Compliance</td>
<td>Designed for compliance toward FIPS 140-2 level 2, NSA suite B</td>
</tr>
<tr>
<td>Cipher</td>
<td>AES-256 GCM (Galois Counter Mode for encryption and authentication)</td>
</tr>
<tr>
<td>Key exchange</td>
<td>Based on Diffie-Hellman elliptic curve algorithm, configurable rotation period</td>
</tr>
<tr>
<td>User authentication</td>
<td>Role-based user/password authentication</td>
</tr>
</tbody>
</table>

#### Protection

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client</td>
<td>Y-cable protection</td>
</tr>
<tr>
<td>Line</td>
<td>1+1 ESCNP non revertive protection (optional via activating licence)</td>
</tr>
</tbody>
</table>
### Network management

**Management ports**
- 2 x RJ-45 LAN port 10/100MBase-T
- 2 x SFP MNG ports 100/1000MBase-X
- RJ-45 serial port
- RJ-45 external alarm port
- OTN GCC0, GCC1 in-band channel, OSC (1510 nm) out-of-band channel

**Protocols**
- FTP, HTTP, HTTPS, RADIUS, SFTP, SNMPv1/v2c/v3, SNTP, SSH, Syslog, TFTP, Telnet

**User interface**
- Web browser over HTTP/HTTPS
- Nokia NSP over SNMP
- CLI over RS-232 or Telnet/SSH
- Mobile device commissioning app (WaveSuite Commissioning Expert system)

**Operations, administration and maintenance (OAM)**
- Facility Loopback (client and line interfaces)
- PRBS, event log, alarms
- Automatic laser shut-down (ALS)

**Performance monitoring**
- Layer 1 PM for all services
- Layer 2 PM for Ethernet
- OTN PM for uplinks
- Optical power RX levels for all optical ports

**Visual indicators**
- LED status indicators for client and line ports
- Management and LAN ports, system
- Critical/Major/Minor and Power Supply alarms

**Software upgrade**
- Hitless, dual image

### Physical and environmental

**Power supply**
- AC (100-240 VAC) and/or DC (-36 to -72 VDC)
- Single or dual feed, 1+1 redundant field replaceable and hot-swappable units

**Power consumption**
- 102W typical (steady state), 160W maximum (at turn-up) under full load

**Cooling unit**
- Hot-swappable fan unit

**Operating temperature**
- 5°C to +50°C

**Operating relative humidity**
- 5% to 85%

**Chassis dimensions**
- Height: 45 mm (1.77 in), 1 RU
- Width: 440 mm (17.32 in)
- Depth: 285 mm (11.22 in)

**Weight**
- 8.5 kg (18.75 lb) (max)

**Mounting**
- 19 in, ETSI, and 23 in

**Design standards and compliance approvals**
- CE, FCC, RoHS, REACH, NEBS

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