MARCONI MHL 3000 METRO

OPTICAL METRO DWDM SOLUTION

C/DWDM PASSIVE

METRO DWDM OADM

METRO DWDM ROADM

The most modular WDM platform on the market
Competitive versions for both Metro and Core
Innovations in agility and capacity/scalability

The Marconi MHL 3000 Metro is part of Ericsson's highly modular, adaptive Marconi MHL 3000 DWDM family. It offers CWDM, OADM and ROADM configurations, which deliver the network simplicity, efficiency, scalability and operational synergies that enable optimized optical networking for edge, metro and metro-core applications.

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MARCONI MHL 3000 METRO

MHL 3000 Metro provides a multi-service solution and the transparent delivery of SDH/SONET, Ethernet, SAN and wavelength services. Highly configurable transponders and muxponders at 2.5, 10 and 40Gbit/s data rates enable bandwidth and operational efficiencies.

Operational complexity is kept to a minimum by the "plug and play" architecture. This simplifies network planning, commissioning, maintenance and control, resulting in reduced network complexity and lower cost of ownership (TCO).

Key features and benefits include:

- High modularity and easy configurability for effective CWDM, OADM, ROADM network applications in linear, ring and mesh topologies

- Multi-direction ROADM delivering agile network connectivity and automatic service provisioning

- Flexible delivery of high-speed data, storage, video and voice services, with outstanding bandwidth utilization

- High scalability for metro networking up to 1.6Tb/s capacity. The platform is prepared for 100Gbit/s

- Full implementation of Optical Transport Networking (OTN/G.709) with end-to-end monitoring

- Dynamic network control and remote service provisioning, reducing TCO

- Intelligent ASON-WSON control Plane features for highest resiliency and lower TCO

Applications

Scalable CWDM to WDM Passive Metro

MHL 3000 Metro provides cost effective short reach applications for metro edge and access networks. It is optimum for low traffic requirements and features best-in-class system density, with minimum footprint, and simplified spare handling for the best possible cost per service.

Cost effective Metro DWDM OADM

The MHL 3000 Metro OADM is perfect for multiple metro and regional applications in linear and ring topologies, where there is little need for network re-configurability.

Agile Metro DWDM ROADM

MHL 3000 Metro DWDM ROADM flexibility enables fast service provisioning, remote reconfigurability and the highest network reliability.

Optional colorless ROADM functionality further increases the network flexibility. It offers remote wavelength tunability for fast service activation, rerouting and best value.

OTN Customer Extension at 2.5Gbit/s

The MHL 3000 2.5Gbit/s OTN Customer Located equipment (CLE) is an ideal solution for effective customer wavelength extension. It delivers multiple services: SDH/SONET, Ethernet, SAN and video, with high-density interfaces and minimum footprint.

Effective multi-service delivery

The MHL 3000 Metro provides protocol independent transport of SDH/SONET, Ethernet and SAN services, making the MHL 3000 suitable for the widest range of network and performance requirements.

MHL 3000 enables router-router interconnect, and relief of congested fiber links by increasing bandwidth capacity.

Remotely reconfigurable service provisioning

The MHL 3000 helps operators plan, build and maintain any architecture for capacity growth. It offers remote lambda service and node configuration upgrades, reducing the need for wavelength pre-planning and allowing optimum node configuration with high traffic availability.

Key Advantages

Modularity and flexibility

The MHL 3000 Metro's modular architecture offers a wide range of configuration options to best address any application from the edge to the metro and the metro core. The level of flexibility can be tuned to serve individual network needs.

MHL 3000 Metro Application
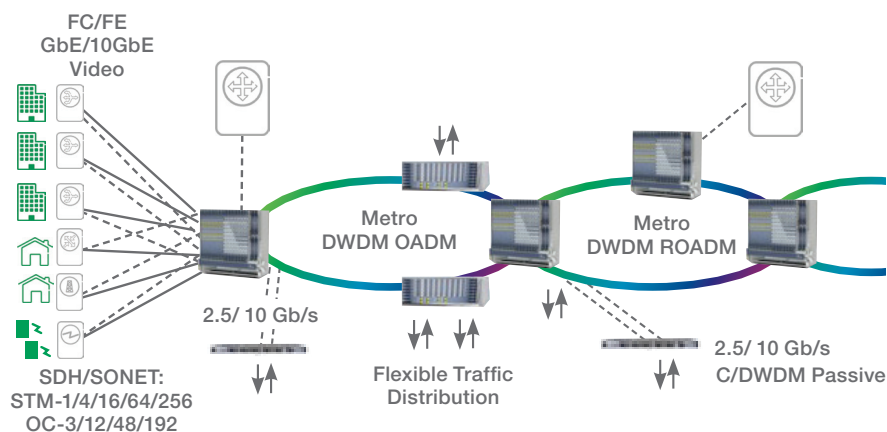
Low cost per service at 2.5G/10G/40Gbit/s

Modular tributary interfaces, multi-channel configuration, as well as tunable and pluggable optics enable the highest level of flexibility and minimum cost per service.

The 2.5Gbit/s Xponder offers a configurable multi-functional card supporting a single or dual transponder with TDM or data aggregation. Full payload and overhead transparency enables easy network planning and full network monitoring, at a minimum cost.

The 10 Gbit/s transponder is available as single and dual multi-rate unit offering the lowest cost for 10G metro service provision. High density and power consumption greatly reduce OpEx.

The fully integrated 40Gbit/s transponder and muxponder offers effective 40Gbit/s transmission in existing 10Gbit/s infrastructures and in new deployments.

Flexible and agile Metro DWDM Networking

MHL 3000 offers cost effective two-way ROADM and multi-way ROADM capabilities to provide the widest range of flexible ROADM options in transparent optical ring and meshed networks. Colorless functionality offers the ability to drop any wavelength or group of wavelengths to any port, saving on inventory, installation and maintenance costs.

High scalability for 1.6Tb capacity

The MHL 3000 DWDM Metro solution scales in-service to 1.6Tbit/s capacity and beyond. It operates at 2.5,10 and 40Gbit/s for wavelength services and 100G is in planning. System modularity allows for very compact configurations, starting with initial traffic requirements, and scaling in-service to house any future traffic growth.

High network reliability

MHL 3000 has a comprehensive optical protection suite to deliver service differentiation at an optimum cost. The ASON control plane, based on the WSON protocol, provides optical path restoration and route diversity, increasing resiliency. The green restoration with card sharing further optimizes the TCO.

Plug and play and … relax

The MHL 3000 Metro offers a wide set of dynamic control and maintenance functionalities.

The MHL 3000 C/DWDM Metro provides simple commissioning and easy maintenance.

Automatic power control delivers fast and in-service upgrades for longer DWDM applications. The ON Planner simplifies network planning, building processes and maintenance of optical networks.

Management

Ericsson's Service On Optical (OSS) manages the full Ericsson Broadband Network product range, delivering an end-to-end, best-in-class management solution with seamless OSS integration.

THE MARCONI MHL 3000 METRO IS PART OF ERICSSON'S MARCONI MHL 3000 DWDM FAMILY

TECHNICAL SPECIFICATIONS MHL 3000 METRO

APPLICATIONS
- Metro C/DWDM passive
- Metro DWDM OADM
- Metro DWDM ROADM
- Multi-reach Core DWDM

TOPOLOGY
- Point-to-point, ring, hubbed, meshed

CAPACITY
- 1.6 Tb/s (40chsx40Gbit/s), scalable to 3.2 Tbit/s (80chsx40Gbit/s), with 28.8Tb per node

CHANNEL RATE
- 2.5,10, 40Gbit/s operation

FIBER TYPES
- G.652, G.653, G.654 and G.655

TRANSMISSION FORMAT
NRZ, RZ, NRZ-DPSK, RZ-DQPSK

NETWORK APPLICATIONS
- Network size: 1000km regional and 4000km core
- Multi-span applications (examples): 29 spans at 20 dB @10Gbit/s, 27 spans at 21 dB @2.5Gbit/s, 15 span x 20dB @ 40Gbit/s
- Typically: 25 nodes per ring

OPTICAL AMPLIFIER MODULES
- Output power from +16 to 20.5dBm
- Gain: up to 29 with 10dB gain range
- Dynamics: 1-40channels (1-80 channels in DWDM Core)
- Embedded optical leveling and control
- Raman amplifier: Co- and Counter-propagating for Core applications

OADM
- CWDM and DWDM OADM
- 2-way C/DWDM OADM
- 4 way DWDM OADM
- Add-drop filter granularity: 1/2/4 channels
- 100% add-drop capacity option

TECHNICAL SPECIFICATIONS
MHL 3000 METRO

ROADM
- ROADM 2 ways,
- Scalable multi-ways ROADM/ WSS, 100GHz, 8 ways
- Colorless and directionless operation
- 100% add-drop capacity

TRIBUTARY CARDS
- 2.5Gbit/s Xponder: 2xSTM16/OC-48, 4xGbE/FC (1G and 2G), 4xSTM-1/4,/OC-3/12 and 4x4G FC, 4xAny
- 10Gbit/s Multirate transponders (10GbE WAN/LAN, STM-64/OC-192/10G WAN/LAN Phy)
- 2x10Gbit/s multirate transponders (2xSTM-64/OC-192/10GbE Wan/LAN/10G FC)
- 10 Gbit/s TDM Muxponder (4xSTM-16/OC-48/ODU-1)
- 10 Gbit/s Data Muxponder (8xGbE/FC)
- 40 Gbit/s transponder (STM-256/OC-768/ODU-3/40GbE)
- 40 Gbit/s inverse multiplexer (4x10G)
- 40G Muxponder (4xSTM-64/OC-192/ODU-2/ 10GbE WAN/Lan Phy/OUT-2/OUT-2e)

PLUGGABLE OPTICS
Grey, C/DWDM SFP/XFP

TUNABILITY FULL C BAND
OPTICAL CONNECTORS

Standard optical connector: SC

High-density card connectors: LC

PERFORMANCE MONITORING
- Standard G.709
- Embedded analogue monitoring
- Optical performance monitoring (G.697)
- Gigabit Ethernet performance monitoring
- Historical registers (15 minutes and 24 hours)

SERVICES
- SDH/SONET/CBR
- STM-1/OC-3/CBR-155 Mbit/s
- STM-4/OC-12/CBR-622 Mbit/s
- STM-16/OC-48/CBR-2.5 Gbit/s

SERVICES (CONT'D)
- STM-64/OC-192/CBR-10 Gbit/s
- STM-256/OC-768/CBR-40 Gbit/s
- Ethernet: Gigabit Ethernet; 10Gbit/s Gigabit Ethernet WAN/LAN-Phy
- Video: 270 Mbit/s
- Storage: FICON, Fiber Channel: 1G/2G/4G/10Gbit/s

MANAGEMENT
- Management protocols: Q Ethernet; OSI or IP-based DCN
- Element Manager: ITU-T 3010
- Q.Protocol: ITU-T G.733, Q.811 and Q.812
- Qecc Protocol: ITU-T G.784

MECHANICAL SPECIFICATIONS
SUBRACK TYPE DIMENSIONS (W x D x H mm)
- Compact subrack 220 x 280 x 450
- Single-row 495 x 280 x 510
- CLE 440 x 220 x 44

RACK
- ETS 300 119-3, ANSI 19"/23"

SUPPLY VOLTAGE
- -48 VDC to -60 VDC nominal

STANDARDS CONFORMANCE
- Optical Safety: IEC 60825, Hazard Level 1M
- CDRH Laser Notice No.50
- Electrical Safety: IEC and UL 60950
- Climatic ETSI 300-019-1-3: Class 3.1e/3.2
- Transport: ETSI 300-019-1-2: Class 2.3
- Storage: ETSI 300-019-1-1: Class 1.2
- NEBS Level 3:GR 63, GR 109
- Acoustic noise: ETSI 300-753
- Electromagnetic Compatibility: ETSI 300-753, FCC Part 15

CERTIFICATION
- IBM GDPS and Server Time Protocol (STP) application