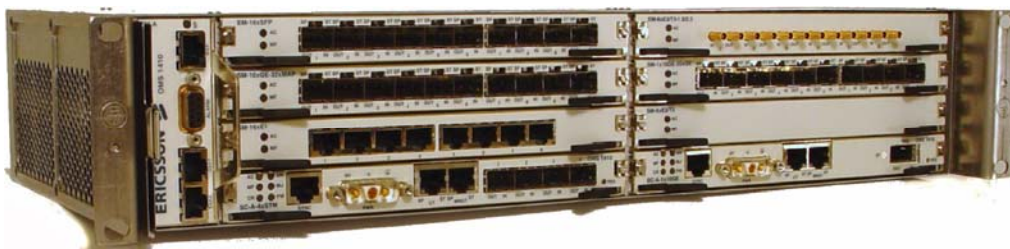


MARCONI OMS 1400

Packet Optical Transport



General

The Marconi OMS 1400 is a family of compact energy efficient multiservice and packet optical transport solutions. Optimized for use in Metro Access networks the OMS1400 provides carrier class Ethernet and TDM services interworking with metro and core Networks based on SDH, Ethernet or IP/MPLS. The OMS 1400 product family is ideal for applications ranging from high capacity customer sites, fixed or mobile backhaul/Radio Access Network (RAN) aggregation and transport. Ideal migration solution enabling a fixed mobile converged network. The OMS 1410 is available in a compact shelf, with 6 inter-changeable traffic modules that include 10/100Mb Ethernet, 1GE, 10GbE and native TDM interfaces E1, E3, T3 and STM-1/4/16.

Key features and benefits for OMS 1400 include:

- Enables smooth migration to all optical packet transport.
- High density (2RU) for space restricted applications (i.e. RAN) and optimum cost.
- Low power consumption (max. 350 W)
- High number of GE interfaces (60xGE and 2x10GE)
- Scalable in-service 20 to 80G of Ethernet and 15 G SDH switching capacity
- Broadband service support, including MEF E-LINE, E-LAN and E-TREE
- MPLS-TP based VPWS and VPLS services
- TDM Services, E1, E3, STM-1/4/16
- Carrier-grade availability and reliability
- Common ServiceOn network management for OPEX efficiency

Applications

Network Transformation

The OMS 1410 has all the key enablers for successful network transformation:

SDH technology has a proven track record for “carrier-class” service delivery. The OMS1410 TDM switching core and flexible interface mix enable operators to exploit existing resources capitalizing on CAPEX and OPEX investment. SDH sets the baseline for reliability and performance, but as the service mix changes, VC-n granularity does not scale efficiently to provide an economical solution for the transport of broadband services on its own.

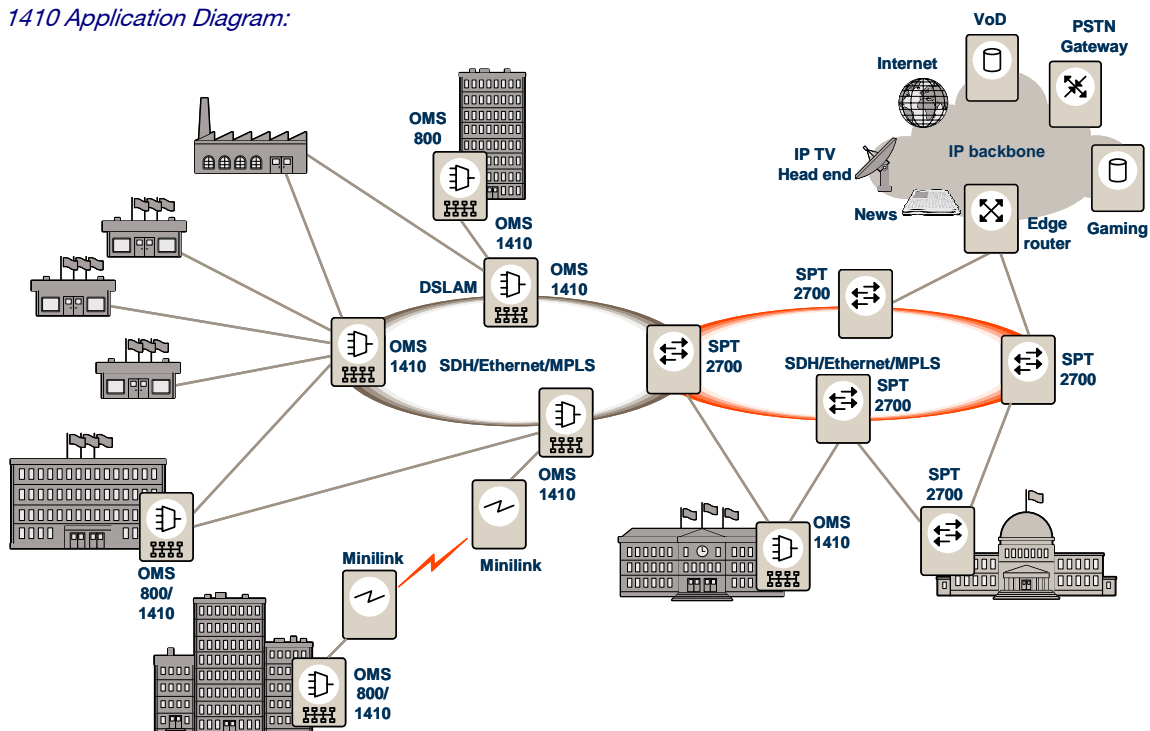
Packet Transport capabilities to address the network evolution requirements as the traffic mix moves towards IP & Ethernet services enabling reduction in CAPEX and OPEX. The OMS 1410 features a scalable packet switch enabling transport of connection oriented services with SDH performance levels.

C/DWDM interface options to maximize fiber utilization and flexibility at the network edge.

Multi Service Delivery

The OMS 1410 dual TDM / IP core switch design and the range of traffic interfaces enables efficient economical delivery of services. It can be configured either for pure TDM or pure Ethernet optical transport solution or a combination.

OMS 1410 Application Diagram:



Ethernet Services in focus

The Ethernet Layer 2 switch in the OMS1410 is based on the latest IEEE standards for Provider Bridging (PB) and Provider Backbone Bridging (PBB) supporting E-Line, E-LAN and E-Tree services (MEF 9 and 14 certified). MPLS-TP functionality will enable support for VPWS and VPLS services.

Flexible Deployment Options

The OMS 1410 supports aggregate speeds ranging up to STM-16 and 10GE, with SFP/XFP based interfaces. Suitable for use in star, ring or point to point networks, it is ideal for applications as a ‘hubbing node’ or as a high capacity customer premises device.

OMS 1410 is an ideal solution for a Service Provider deploying new revenue generating services in less dense geographical areas up to dense business areas, for example as an aggregation device for multi-tenanted unit in a business park.

Radio Access Networks

In fixed and mobile radio access networks, OMS 1400 family ensures economical backhaul solutions, from an ultra-compact (2U) device with high density of 2Mbit/s (for today’s needs) or a 2 Mbit/s Circuit emulation Services (CES) and Ethernet interfaces (for tomorrow’s requirements). Electrical SFP interface options help reduce interfacng costs in the associated radio equipment.

Key Advantages

Scalability and flexibility in design

OMS 1410 has been designed for best scalability and cost without compromising on available features. It has a fully non-blocking VC-12 SDH cross-connect with 15G capacity and a scalable full duplex 80G Ethernet switch. The 2U chassis supports a high port density accommodated in 8 plug-in modules delivering a variety of interface types. On the aggregate side the OMS1410 can support rates of up to 2x2.5Gbit/s (STM-16) or up to 2x10GE.

All Ethernet ports (60XFE/GE) support wireline traffic speeds. The Layer 2 switch supports Prioritization and queuing, VLAN tagging, Provider Bridging (PB), Ethernet OAM, Rapid Spanning Tree Protocol and Extended Ethernet frames (9K). In Ethernet topologies, PB/PBB allows for EVPL and EVPLAN that offers sharing of bandwidth for the best optimization of the WAN fiber usage. Advanced OAM functions are implemented according to ITU and IEEE standards. Alongside these techniques, new control and processes are introduced based on latest Provider Bridging (PB) and Provider Backbone Bridging technology (PBB) and MPLS-TP. Collectively these new standards solve network scalability, resilience issues and enable customer service transparency.

The OMS 1400 series not only simplifies service creation in the Ethernet domain, but also adds new functionalities to existing TDM networks by Ethernet emulation over SDH supported by Generic Framing Procedure (GFP) (gives efficient mapping of Ethernet frames into SDH payloads (VCs)), Link Capacity Adjustment Scheme (LCAS) (gives flexibility to adjust bandwidth in service) and Virtual Concatenation (VCAT) (gives efficient use and allocation of network bandwidth).

Sustainability is a key consideration in modern network planning. In addition to its small physical size the OMS1410 features a low power consumption of 350W max giving 4 - 5W per delivered GigE equivalent.

Carrier Grade reliability and availability

Carrier-class availability is supported through equipment and traffic level protection. At the equipment level the OMS1410 features robust redundant hardware (HW) and resilient software (SW), including protected switch matrixes, module and port level protection for selected modules.

Traffic protection features for Ethernet services include STP/RSTP/MSTP, Link Aggregation and more advanced Traffic Engineering offered by PBB and MPLS-TP. For the SDH layer and Ethernet services transported over it traditional TDM protection mechanisms such as MSP 1+1, SNCP and LCAS are used. In addition Virtual Concatenation (VC) is employed to allow the best use of network bandwidth. By combining VC, LCAS and diverse traffic routing a resilient transport layer for Ethernet services can be built on existing TDM networks with minimum impact.

Resilience and security

MPLS-TP, with its associated OAM functionality, offers operators and service providers the traffic management and sub 50 ms network protection necessary to guarantee SLAs for a wide range of services. Security is handled through strict control of incoming traffic (classification and policing) and via resource control (e.g. admission control).

Management

Ericsson's ServiceOn OSS solution manages the full Ericsson Broadband Network (Optical, Wireless and Broadband Access) product range, delivering end-to-end, best-in-class, service oriented management with seamless OSS integration.



Technical Data

General

The device is designed to meet the appropriate sections of recommendations ITU-T G.703, G.704, G.707, G.783, G.957, G.7041, G.7042, G.841, G.842, G.694.2, G.813, G.8261, Y.1731, G8032, ISDN PRA, IEEE 802.1Q (ad, ag, ah, Qay), 802.3, MEF 3,8, 9,10.1, 11 and 14, RFC 2328, 3147, 3916, 4553, 4664 and 4665

Electrical Interfaces

Ethernet/LAN

10/100 Base-T and 1000 Base-TX

- Connector: RJ45

E1 (2Mbit/s)

- Connector: RJ45 or LFH for 63xE1
- Impedance: 120 ohm balanced, 75 ohm by external patch panel

E3/T3 (34/45 Mbit/s)

- Connector: 1.0/2.3
- Impedance: 75 ohm

STM-1e (155Mbit/s)

- Connector: 1.0/2.3
- Impedance: 75 ohm

Optical Interfaces

Ethernet/LAN

- 100 Base-FX , 100 Base-LX10
- 1000 Base-SX/LX/ZX
- 10GE Base-SR/ER/LR

STM-1

- 1310 nm and 1550 nm options to S1.1, L1.1,
- L-1.2

STM-4

- 1310 nm and 1550 nm options to S4.1, L4.1,
- L-4.2

STM-16

- 1310 nm and 1550 nm options to S16.1, L16.1, L-16.2

CWDM

- 8 wavelengths, multirate

Connector for all – SFP with LC

Synchronisation

Sources

- STM-N (T1), E1 (T2) and 2Mbit/s or 2MHz (T3)

Output

- 2Mbit/s or 2MHz (T4)

Feature

- SSM support

Management

- XML/HTTP
- SDH DCC

Power

DC

- -48VDC ($\pm 15\%$) or -60VDC ($\pm 15\%$)

Dissipation

- 350W (Max)
- 150-250 W (Typ)

EMC/Safety/Temperature

EMC

- EN 300 386

Safety

- EN 60950 and EN 60825

Operating temp

- -5°C to + 45°C according to ETS 300 019-2-3, class 3.2

Mechanics

Dimensions (HxWxD)

- 88 x 445 x 240 mm