MARCONI OMS 2400

Packet Optical Transport

General

The Marconi OMS 2400 is a family of Packet Transport platforms, covering a range of switch and port capacities. It offers network operators and service providers a high level of carrier class Metro Ethernet functionality for evolving Broadband services.

OMS 2400 is positioned as a packet transport node based on Ethernet aggregation and switching for use in metropolitan networks, although its flexibility and scalability (including photonic integration) makes it also suited for core network applications.

OMS 2400 enables the mixed delivery of native Ethernet client signals as well as legacy TDM traffic.

Key features and benefits for OMS 2400 include:

- Ethernet transport switch capacities from 80Gbit/s to 320Gbit/s (full-duplex)
- “Full service Broadband” service support, including business Ethernet (E-LINE, E-LAN, E-TREE) and multimedia services with IPTV based on IGMPv3 snooping and proxy reporting
- Full Layer-2 Provider Bridge functionality for Ethernet traffic switching and transport
- Packet Transport features, such as MPLS-TP and PB/PBB with OAM and Protection Switching

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Applications

The OMS 2400 is optimized to deliver Ethernet Layer 2 VPN services (EPL, M-EPL, EVPL, EVPLAN) for end-to-end services or as an aggregation and grooming function for use with edge routers and BRAS to deliver a wide range of broadband services.

Full Service broadband services

The OMS 2400 is specifically designed to transport IP-based Full Service Broadband services such as VoIP, High Speed Internet, IPTV, VoD, L3 VPNs, and business IP applications. Multicast services based on IGMPv3 snooping allows efficient distribution of high-bandwidth streaming signals both in network paths and towards client equipment.

Resilience and security

MPLS-TP, with its associated OAM functionality, offers operators and service providers' traffic management, sub 50ms network and equipment protection necessary to support a wide range of services and service levels. Security is handled through strict resource control (e.g. admission control) and strict functional plane separation to complement the overall carrier grade requirements.

Network Applications

OMS 2400 family is an ideal choice for aggregating customer services from the metro edge (e.g IP DSLAM traffic) or for aggregating and grooming traffic in the metro/core, in a variety of hubbing, ring or meshing topologies. As well as offering native Ethernet interfaces up to 10Gbit/s, the OMS 2400 has a range of other optical options, including TDM Circuit Emulation, GFP mapping into SDH, CWDM and G.709 DWDM.

The use of plug-in blades and SFP/XFP modules allows the OMS 2400 to be configured and reconfigured to reflect the changing demands as, for example, networks progressively migrate from client data (or CE/PWE3 services) mapped into SDH/SONET (GFP) to full Ethernet presentation. Similarly, on the network facing (aggregate) side, this flexibility enables the OMS 2400 to be used over existing SDH/SONET or Ethernet links, as required.

Support of legacy services

CES technology allows for transporting voice over packet by tunneling TDM traffic, through any type of cell-based or packet-switched network, including ATM and IP/Ethernet. Compared to VoIP, CES supports a much wider range of applications, allows service providers to maintain revenues from legacy TDM services, and lets enterprise clients maintain their existing network infrastructure investment.

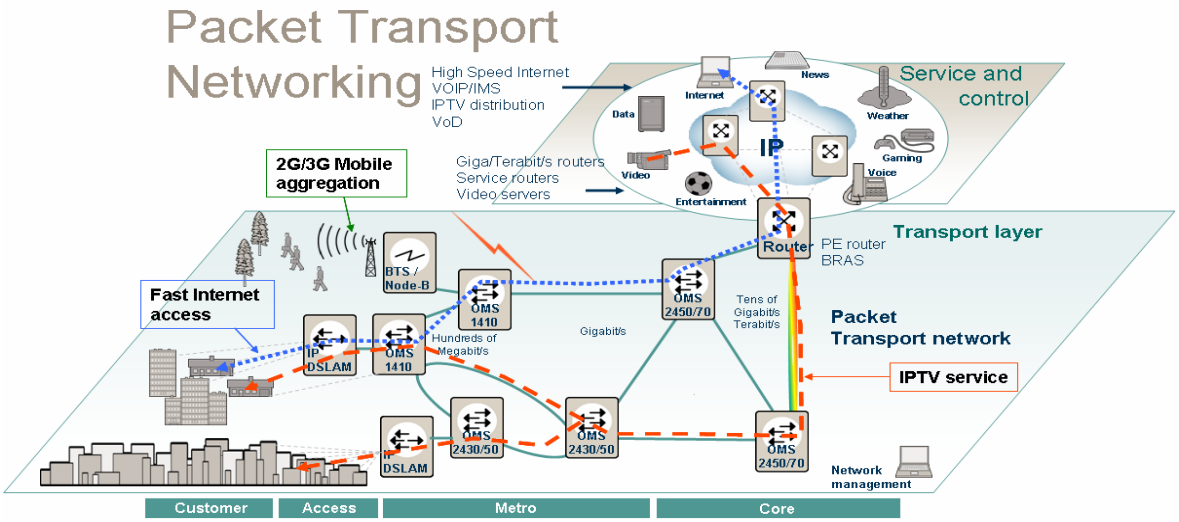
Interoperability with existing TDM networks

Interfacing to existing TDM networks is achieved through the flexible mapping of Ethernet traffic into VCs (VCAT, GFP and LCAS). These technologies provide bandwidth efficient ability to flexibly allocate traffic to Ethernet over SDH links. As a result the OMS 2400 can operate as a hub aggregating packet traffic from other existing MSPPs or as a feeder node into large backbone OCS.

Tailored for today, flexible for tomorrow

The OMS 2400 can be software upgraded in service, while traffic cards may be added with no impact on existing operations. Moreover, with a flexible, low-first-in-cost the OMS 2400 provides a solution for today's needs with the flexibility to change and/or grow for tomorrow.

OMS 2400 Application Diagram:



Key Advantages

OMS 2400 features a carrier class level of scalability to address the growth of operators' packet transport network and services.

OMS 2430	OMS 2450	OMS 2470
Compact subrack	Medium capacity subrack	High capacity subrack
3 boxes per 300mm rack	2 boxes per 300mm rack	1 box per 300mm rack
8 traffic slots	12 traffic slots	16 traffic slots
2 expansion slots	10 expansion LTUs	8 expansion slots
Duplicated hot protected packet switched fabric cards	Duplicated hot protected packet switched fabric cards	1:2 hot protected packet switched fabric cards
80Gb/s switching capacity	160Gb/s switching capacity	320Gb/s switching capacity
Upgradable to 160Gb/s		Upgradable to 640Gb/s
Duplicated central control unit	Duplicated central control unit	Duplicated central control unit
Alarm unit	Alarm unit	Alarm unit
System LTUs for power supply, clock, TMN and LCT access	System LTUs for power supply, clock, TMN and LCT access	System LTUs for power supply, clock, TMN and LCT access

NB: All switching capacity figures are full-duplex.

Scalability and high-density tributaries

OMS 2400 family features a choice of different chassis for effective and scalable solutions for different network scenarios. High-density tributaries, combined with hot-pluggable SFP/XFP modules help deliver maximum revenue generation at low incremental cost.

	OMS 2430		OMS 2450		OMS 2470	
Interfaces	ports		ports		ports	
	card	shelff	card	shelf	card	shelf
Fast	20	100	20	240	40	640
GbE	20	100	20	240	40	640
10GbE	2	16	2	14	4	640
10G OTH	2	16	2	14	4	64
STM1/OC3 CES	8	64	8	96	8	128
STM16/OC48	4	32	4	48	4	64
STM64/OC192	2	16	2	16	2	32
	OMS 2470 with 640G switch fabric					

Reducing OPEX by simpler network operation

The OMS 2400's efficient traffic management, advanced automation features, provisioning tools (ENEA and EPOC) coupled with its Control Plane and ServiceOn network management, makes possible the optimization and simplification of network operation, including I&C. Using end-to-end integrated network management for both SDH/SONET and data paths, network-wide performance monitoring and rapid fault identification, simplifies day-to-day activities for troubleshooting, protection and provisioning.

Optimizing CAPEX in the network

The comprehensive Layer 2 features of the OMS 2400 offers an effective alternative to increasing the capacity of PE and core routers, by handling traffic which the routers do not need to deal with (for example, pass-through traffic and/or leased line business services). This optimizes CAPEX by reducing the need for expensive router resources, whilst the comprehensive protection and shared restoration capabilities of the OMS 2400 makes it possible to reduce network resources devoted to protection paths.

Performance with MPLS-TP and Ethernet

OAM functionality supported by MPLS-TP and Ethernet provide valuable performance visibility for the monitoring of data paths and for fast protection switching. This enables fast and efficient fault location and forwarding mechanisms for remote signaling of failures and defects. The support of MPLS-TP and PB/PBB provide a complete and coherent architecture for handling the operational realities of today's packet networks.

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

ETHERNET LAYER 2:

- VLAN with Priority, Bridging & Provider Bridging, Q-in-Q
- S-VLAN, C-VLAN, Rapid Spanning tree, Multiple Spanning Tree, Link Aggregation and LACP,
- Ethernet OAM, Flow Control, Jumbo frames, Performance history data.
- MEF-9 and MEF-14 certifications.
- Ethernet CoS
- Synchronous Ethernet support.

SWITCH FABRIC:

- 80 G, 160 G (OMS 2430)
- 160 G (OMS 2450)
- 320 G (OMS 2470)

PBB

- IEEE 802.1ah Provider Backbone Bridge and Ethernet OAM.

MPLS-TP:

- LSR, LER, Static and dynamic LSPs, PWE3, E-LINE, E-LAN, E-TREE services
- MPLS-TP OAM, LSP 1+1 and 1:1 protection, ring protection
- CoS mapped on E-LSP and L-LSP
- Control Plane based on OSPF-TE and RSVP-TE.

MULTICAST:

- Layer-2 Multicast, IGMP snooping, MPLS-TP multicast, restoration on MPLS-TP Multicast, PBB multicast and restoration.

PERFORMANCE:

- 4096 VLAN per port , 64 Spanning Tree protocol instances, 16K Service Instances (e.g. E-LAN), 512K MAC max. addresses per service instance.

SDH/SONET:

- VCAT, GFP, LCAS, SDH/SONET alarms and performances, MSP 1+1. Synchronization for EoSDH/SONET ports.

QOS:

- Per flow queuing, shaping and policing, CoS/QoS, DSCP CoS mapping, advanced policing and scheduling algorithms, Broadcast/Multicast storm control, CAC.

OPTICAL INTERFACES AND PLUGGABLE MODULES:

- FastE/GigE SFPs, 10GigE XFPs, STM-n/OC-n SFPs and XFPs, CWDM SFPs, CWDM/DWDM XFPs, 10G OTH tunable interface, ALS on all optical interfaces

SUPPORTED INTERFACES:

- GE/10GE LAN, WAN PHY, C/DWDM, 10G tunable Ethernet over OTH G.709, STM16 and STM64 EoSDH/SONET, STM1/OC3 CES, STM4/OC12 CES.

SUPPORTED TDM AND ATM TRAFFIC:

- Via Circuit Emulation (E1/T1 SAToP, ATM PW) over STM-N/OC-N interfaces.

MANAGEMENT:

- Ericsson CLI, Telnet, FTP, TFTP, SNMPv2 and v3, HTTP/HTML server, Java Craft Terminal, Integrated TDM and Data Network Management System.

ENVIRONMENTAL AND ELECTROMAGNETIC COMPATIBILITY:

- ETSI 300 019 Class 3.2.
- All sub-racks have 300 mm (ETSI standard) depth and full front access.
- ANSI NEBS Level-3 compliance (GR-63-CORE, GR-1089-CORE).

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