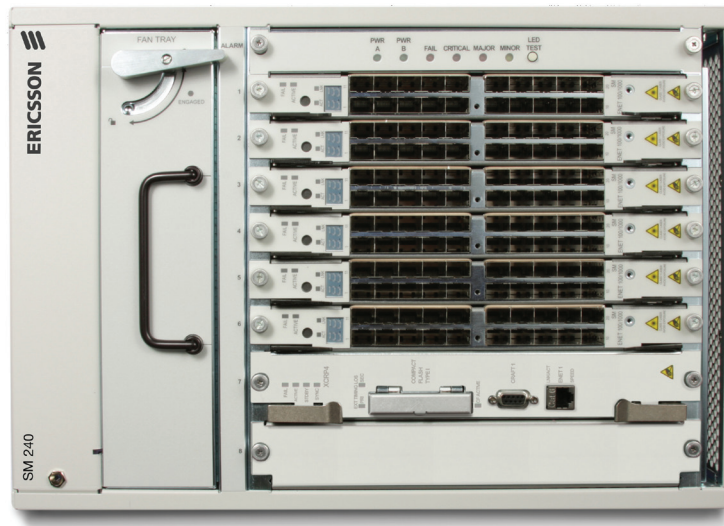


SM 240 METRO-ETHERNET SERVICE TRANSPORT PLATFORM

Purpose-Built for Co-Location Sites and Space Constraint Applications,
the SM 240 Delivers the Same Industry-Leading Service Scalability
of the SM Family in a Compact Form Factor



Key benefits

- Combination of compact form factor and high service scalability deliver unparalleled opex saving in deployments with high recurring lease cost
- Industry leading E-LINE and E-LAN service scalabilities in a mere 7 RU
- 1.15 million integrated traffic management queues for highly granular and deterministic service delivery
- 5 levels of Hierarchical-QoS for differentiated services, including high-quality video and voice service deliveries
- Industry-leading E-LINE scalability – 256,000 circuits based on MPLS Virtual Leased Lines (VLLs) or Ethernet Virtual LANs (VLANs)
- 1.5 million MAC addresses sets a new industry benchmark for metro packet transport
- 8,000 VPLS instances
- MEF 9 and MEF 14 certified
- Distributed architecture and control plane processing with no single point of failure
- Hot swappable cards allow in-service removal and insertion
- Carrier-Grade Design: Engineered to standards for deployment in carrier networks worldwide – NEBS and RoHS compliant
- Support both bridged and routed ATM services
- Voice and Data over ATM –using AAL5 SDU mode and cell mode
- Supports ATM to Ethernet service interworking (e.g, ATM pseudowire, ATM to VLL/ VLAN, VPLS/ H-VPLS)
- Resilient software architecture: Modular design provides stability and protects against protocol errors
- In Service Software Upgrades (ISSU) to minimize network downtime and revenue loss
- High Availability: Supports Non-Stop Forwarding and keeps services running during a route processor fail-over
- High-capacity, efficient multicast replication for high-performance, large scale IP Video deployments

SM 240 for the metro access service transport

The SM 240 is a new Metro-Ethernet Service Transport platform from Ericsson designed to simplify network architectures, lower network costs, and unify metro transport for the fixed and mobile networks.

As a component of the Ericsson metro solution, the SM 240 enables a seamless metro transport transformation, from legacy circuit to IP over Ethernet. The SM 240 leverages the economics of the Metro Ethernet and provides a cost-effective migration path to a packet-based infrastructure by interworking the legacy access protocols to IP/MPLS.

Purpose-built for the co-location sites and space constraint applications, the SM 240's compact form-factor significantly reduces recurring lease cost. Similar to the SM 480, the SM 240 supports the same industry-leading E-LINE and E-LAN service scalabilities.

The SM 240 comes with a full-suite of advanced features designed to deliver the foundational intelligence of the next-generation networks and enable revenue-generating IP services.

Leveraging on its high-density gigabit Ethernet ports and carrier-class architecture, the SM 240 provides a powerful centralized switching function for many devices; including radio controllers, base station controller, appliances and servers in a small to a medium sized central office.

In the area of IP TV, the SM 240 can be deployed in the central office to complement Passive Optical Networks (PON) and DSL head-end units enabling service providers to deliver hundreds of high-definition video channels.

In the business and mobile backhaul applications, the SM 240 provides a highly-extensible E-LINE aggregation platform to backhaul a massive amount of high-value traffic. Each circuit can support a unique Service Level Agreement (SLA) for a high-degree of service personalization.

The SM 240 complements the larger SM 480 to form a complete metro core to metro access solution. It leverages the same hardware and software components - the same line cards, the same SM Route Processors (SMRPs) and the same SE Operating System (SE OS). Both can be managed by the same NetOp Element Management System (EMS) for in-depth device management and Network Service Manager (NSM) for a powerful point and click IP-VPN provisioning.

Fixed mobile convergence

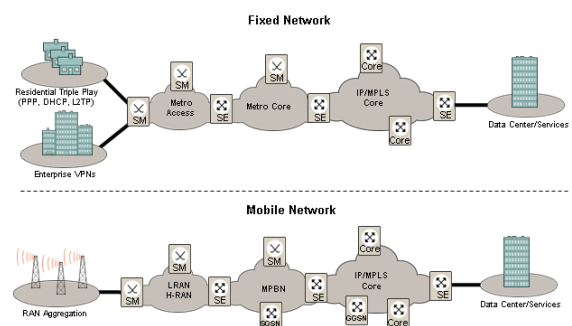
The SM platforms help service providers migrate to IP/Ethernet networks and achieve significant savings by converging disparate access networks onto a single packet based metro Ethernet network. The migration from legacy ATM to Ethernet networks is already occurring in both fixed and mobile networks, and the networks are fast becoming more similar in terms of architecture and functionality.

Service providers have started the migration by upgrading their core networks to carry voice and consumer/business data services for fixed and mobile services. However, fixed and mobile metro core and access networks remain separate. In most cases, service providers who offer both fixed and mobile network services are running two parallel networks that have logical convergence points.

Leveraging the versatile service creation capabilities in the SEOS, the SM platforms provide an ideal platform for service providers to converge their metro and access networks. The diagram below demonstrates similarities in architecture and functionality between fixed and mobile networks.

The biggest obstacle to date in converging parallel networks has been in the management of disparate access protocols and in meeting the stringent Service Level Agreement (SLA) per circuit using IP over Ethernet. Past carrier Ethernet architectures simply can't provide the service scale and the guaranteed service quality.

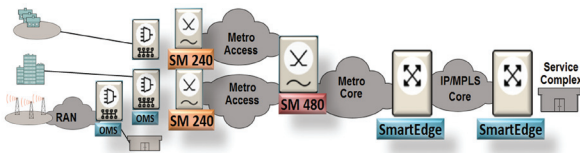
Optimized for throughput, the SM platforms support advanced protocols such as IP/MPLS pseudowires, Q-in-Q, and GRE, each with a deterministic SLA that is shaped, metered and policed by sophisticated integrated traffic manager.



By converging the fixed and mobile networks at the metro with the SM platforms, service providers unify the backhaul traffic over IP and Ethernet. Such consolidation results in operational simplicity that in turns lowers CAPEX spend and increases OPEX saving.

CAPEX saving is a direct result of the reduction in the number of network elements and lower cost of sparring. OPEX savings come from lower power and facilities requirements and reduced operational complexity since the same SEOS can be used to deliver both fixed and mobile services.

Converged Metro Transport



Differentiated layer-2 VPN transport

Purpose built for the most demanding requirements of a metro Ethernet transport network, the SM platforms have unique service level management capabilities not commonly available on traditional carrier switches. These capabilities do not come at the expense of performance, and the SM platforms are equally effective when used for Ethernet transport or a service-oriented Ethernet platform. Examples of service enabling, carrier-class capabilities in the SM 480 include:

- Full protection with 1+1 ATM APS
- Ethernet and ATM pseudowire link aggregation
- Sub 50ms link and node failure protection via Fast Reroute
- Fast asymmetric failure detection leveraging BFD protocol and RSVP-TE
- Granular Layer 2 H-QoS to guarantee services within an MPLS tunnel or VLAN
- Voice and Data over ATM Interworking with Ethernet via MPLS pseudowires (e.g., ATM to VLAN, VLL, or VPLS interworking)

Granular Layer 2 H-QoS provides the ability to extend service control such as bandwidth, accounting beyond the aggregate service model down to the individual service session. For maximum operational efficiency, the provisioning accounting for these advanced service capabilities can be done from a centralized management platform.

Standards-based OAM suite

Purpose built for service providers, the SM platforms are designed for rapid service provisioning, proactive fault monitoring, and comprehensive diagnostic capabilities. When managed by Ericsson's NetOp Network Service Manager (NSM), service providers have the power to provision end-to-end IP VPN circuits, automate provisioning workflows, and monitor end-to-end services with a point and click simplicity.

In addition, Ericsson's NetOp Element Management System (EMS) provides an intuitive GUI interface that can be used to simplify network monitoring and provisioning workflows and tasks. The application leverages standards based monitoring and troubleshooting such as IEEE 802.1ag. It also incorporates other diagnostic mechanisms including:

- Bidirectional Forwarding Detection (BFD)
- Virtual Circuit Connectivity Verification
- MAC ping and traceroute
- LSP ping and traceroute
- CPE ping

Chassis configuration and interface options

The SM 240 supports a 240 Gbps switching capacity with 8 modular slots. Six are payload slots and the other two are for redundant central route processors (SMRPs). A range of Ethernet line cards are available to provide flexible configurations for deployments from the metro edge to the metro core.

- 10 port 1 Gigabit Ethernet line card
- 20 port 1 Gigabit Ethernet line card
- 1 port 10 Gigabit Ethernet line card
- 4 port 10 Gigabit Ethernet line card
- 60 port Fast Ethernet plus 2 port Gigabit Ethernet line card
- 8 port OC-3/STM-1 ATM line card

Device specifications for SM 240

Hardware

Chassis

- Dimensions: 12.2"(H) x 17.3" (W) x 23.7" (D); 31cm(H) x 44cm(W) x 60cm(D)
- 7 RU, 6 chassis per 7' rack
- 19" or 23" rack mountable
- 8 slots, 2 for SM Processors; 6 slots for line cards.
- Cooling airflow: right-side to back
- Backplane capacity: 240 Gbps
- Up to 20Gbps slot to slot forwarding capacity
- Weight: 50lbs (22.7kg) empty, 95lbs (43kg) full

SM processor card

- 2 per chassis (1:1 redundancy)
- Compact Flash slot for secondary storage
- Management ports: craft port: DB-9/RS-232, Asynchronous modem port, Ethernet

Line cards

- Dual Packet Processing ASICs PPA2 or PPA 3 (separate PPAs for ingress and egress packet processing/ traffic management)
- Fully meshed backplane – no slots used for switch fabric card

Card types

- 60 port 10/100TX Ethernet line card with 5 ports mini RJ-21 interfaces and 2 port 100/1000Base-T with RJ-45 interfaces
- 10 port Gigabit Ethernet line card with SFP interfaces
- 20 port Gigabit Ethernet line card with SFP interfaces
- 1 port 10-Gigabit Ethernet line card with XFP interfaces
- 4 port 10-Gigabit Ethernet line card with XFP interfaces
- 8 port OC-3c/STM-1 ATM line card with SFP interfaces

High availability and redundancy

- 1+1 for SM Processors
- Hot standby route processors
- Restartable software processes (i.e. OSPF, SNMP, etc.)
- In Service Software Upgrades

Operating environment

- Temperature: 5 to 40 °C degrees (long term), -5 to 55 °C (short term)
- Humidity: 5-95% non-condensing
- Power Supply: -48VDC nominal
- Optional AC power supply available
- Input current rating per feed: 57A @ -48VDC, 70.2A @ -39VDC
- Input power, max: 2736 VA
- Redundant input power, max 2736 VA
- NEBS Level III, CE Mark, SR-3580, UL 1950, GR-63 Core, GR-1089 Core, ETS 300 386-2, FCC Part 15, EN55022 class A, ETS 300 386-2
- RoHS-5 compliance

Software

Architectural features

- Modular Operating System
- Separation of control, data and service planes
- Independent tasks, each with its own thread and memory space

Network management

- NetOp Element Management System (EMS) for in-depth SM platform management including; configuration, fault management, error reporting, northbound interface and real-time statistics
- NetOp Network Service Manager (NSM) for subscriber circuit monitoring, reporting and IP-VPN provisioning including; VLAN/Q-in-Q, MPLS VLL, VPLS/H-VPLS and ATM PVC circuits

Multicast protocols

- IGMP snooping, IGMP filtering
- PIM, PIM-SSM

Routing protocols

- IS-IS, OSPFv2/v3, RIP v2, RIPng, VRRP (RFC 2338), LDP, RSVP
- LDP tunneling over RSVP LSPs; BFD for OSPF, ISIS, static routes and individual links in 802.3ad link group
- OSPF V3, RIPng, BGP,

Configuration and network management

- RADIUS, TACACS+
- SNMP v1/2/3
- NetOp EMS support for event logs, SNMP traps, interface statistics for troubleshooting and performance monitoring, port views and chassis views.

Transport services

- RSVP-TE, LDP
- VPWS, PWE3
- VPLS, H-VPLS, LAG in VPLS
- GRE, Hard GRE
- 802.1Q Virtual LAN
- Q in Q
- ATM PW, ATM to Ethernet IWF
- Bridged ATM services (RFC 1483)
- Voice and Data over ATM (using AAL5 SDU and cell mode)

Quality of service

- 802.1p Class of Service (CoS), Differentiated Services Code Point (DSCP) ToS, IP Precedence, and MPLS EXP bits
- DiffServ packet marking by ACL, ingress policing, class-based ingress policing and egress shaping; priority queuing and EDRR; RED and WRED; Hierarchical Scheduling

Security

- Reverse Path Forwarding (RPF), Secure ARP, MD5 support for routing protocols, key rollover, RADIUS, TACACS+; Administrative ACLs, packet mirroring and sampling, Secure Shell (SSH) Protocol, Kerberos, SNMPv3, IGMP filtering, SSHv2, VLAN ACLs, IP security router L2 & L3 ACLs

Connectivity and fault management

- 802.1ag (Connectivity Fault Management)
- Virtual circuit connectivity verification (VCCV)
- Bi-direction forwarding detection (BFD)
- LSP Ping and traceroute
- VPLS CPE Ping

Advanced features

- Cross connect support (for L2 traffic)
- Bulk stats
- Dynamically Verified Static Routing
- Policy routing

Ordering information

SM 240 ordering information is available on request. Please contact Ericsson PAIB sales.

Disclaimer

Data Sheet describes Ericsson's current plans for the product. The information provided is for information purposes only and is subject to change without notice. No purchases are contingent upon Ericsson delivering any specific feature or functionality described in this Data Sheet.

Ericsson
100 Headquarters Drive
San Jose, CA 95134-1362 USA
Tel: +1 408 750 5000
Fax: +1 408 750 5599
www.ericsson.com

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