SYSTEMS INTEGRATED

*Innovative and Enduring Systems
Based on Published Standards*

SI Metro 8001

SI METRO 8001

HIGH DENSITY SERVICE AGGREGATION PLATFORM AND CLOUD GATEWAY

Systems Integrated's SI-Metro 8001 is a next generation high density service aggregation platform that provides Carrier Ethernet over both MPLS and Ethernet transport technologies, and is integrated with massive service scalability, carrier class resiliency, and an industry- leading feature set that supports Hierarchical QoS (HQoS), operations administration and management (OAM) capabilities. This best-in class service switch allows carriers to offer cloud-based, business Ethernet and mobile backhaul services to the edge. With 200GE capacity in a compact 1RU chassis, the SI-Metro 8001 provides industry-leading throughput, port density, management and resiliency. Enabling a wide variety of services and an easy migration to a converged service environment, the SI-Metro 8001 is the platform of choice to enable wide-scale Carrier Ethernet adoption, implementation, and transformation.

The SI-Metro 8001 is designed for service providers who need the reliability of the traditional SONET/SDH quality of service and the flexibility to deliver multiple services at 1GE/10GE port rates in a metro Ethernet environment. This carrier-class device offers a full MPLS provider edge (PE) solution with integrated advanced MPLS/HVPLS capabilities in compact form factor, and per port network flexibility with either 1GE/10GE SFP+ in each port.

FEATURES

- 20x1GE/10GE Ports, wire speed non- blocking 200GE switch in 1RU enclosure

- Carrier Ethernet, MPLS & IP transport technologies

- Full MPLS (VPWS, VPLS, HVPLS)

- Layer 3 features support: HW-based L3 forwarding with VRF support using static route, OSPF, IS-IS and BGP routing protocols

- Highly scalable solution to support large amount of services

- Enhanced Hierarchical Quality of Service

- (HQoS) and service granularity support Advanced hardware based OAM MEF CE 2.0, IEEE, ITU-T and IETF standards compliance for multi-vendor interoperability

- Integrated with Management Service – simplifying full lifecycle of network deployment

- ITU-T Y.1731 SLM support, RFC 2544 and Y.1564 network performance testing, MEF46 Latching Loopback

- Extensive service redundancy (xSTP, FRR, G.8032, dual homing, MC-LAG)

- Enhanced control plane and routing features (OSPF, BGP, IS-IS, LDP, RSVP-TE)

- Low power consumption to reduce OPEX

- Redundant hot-swappable DC or AC power supplies & fan tray

- Support for 19" and 23" racks

- Support for short and long-haul optical interconnect

- NEBS Level 3 compliant

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MPLS CLOUD SERVICES SOLUTION

Cloud-based services pose new challenges for service providers. The SI-Metro 8001 addresses these challenges using MPLS to provide low latency L2VPN, high availability, end-to-end service assurance using advanced OAM tools and increased scalability.

The SI-Metro 8001 complements the SI-Metro 8006 cloud gateway and service aggregation platform, and drives high capacity 10GE rings into the aggregation layer to support the high bandwidth required for cloud applications and mobile backhaul networks. With it, Systems Integrated offers service providers cloud-to-edge and cloud-to-cloud services end-to- end, assuring an exceptional level of experience for the end-user while optimizing carrier resources.

ETHERNET/MPLS/IP MULTI 10GE AGGREGATION DEVICE

Advanced Layer 2 networking allows total flexibility in deployment, provisioning, and delivery of Ethernet/MPLS/IP services. Physical and virtual networking capabilities provide automated address management and discovery, bandwidth profiles, advanced traffic classes, and complete control over how subscriber traffic is transported across a service provider's network. Its reliable, non-blocking architecture and redundancy features ensure maximum uptime.

The SI-Metro 8001 leverages Systems Integrated' field proven, carrier grade BiNOX operating system – common among all its platforms – to provide a robust and advanced multi-layer software platform to support operations, administration, and maintenance requirements. Hardware-based QoS and HQoS allows for very high QoS granularity independent of physical ports or services, while an embedded test head supports end-to-end SLA measurement and assurance. It also offers advanced OAM supporting hundreds of services with ITU-T Y.1731

SLM, RFC 2544 and Y.1564 measuring the network performance.

SDN SUPPORT

SI-Metro 8001 provides full SDN support with comprehensive adoption of NETCONF, the network configuration protocol, and YANG, its data modeling language.

KEY APPLICATIONS

Multi-service aggregation of Carrier Ethernet networks

High-density business services and Carrier Ethernet network aggregator

Mobile backhaul Carrier Ethernet/ MPLS aggregator

SDN networks with NETCONF/YANG support

Cloud gateway – cloud to cloud & cloud to edge connectivity

Cost-optimized DSLAM, CMTS and OLTs aggregation

10GE service aggregation

10GE OAM collector

Carrier exchange, interconnect

TECHNICAL INFORMATION

Hardware Characteristics

20x1GE/10GE SFP+ ports, wire speed non-blocking 200GE switching capacity in 1RU, support for short and long-haul optical interconnect

Services

MEF Services: E-LINE, E-LAN, E-TREE, and E-ACCESS L2 Services: IEEE 802.1Q bridging, IEEE 802.1ad Q-in-Q and TLS MPLS Services: VPWS, Full VPLS PE and MTU HVPLS

MPLS Signaling: RSVP-TE, BGP, LDP/T-LDP and Static MPLS IP Services: VRF-Lite, DHCP client/server, VRRP IP Routing: Static routing, OSPFv2, IS-IS and BGPv4

Timing

SyncE

Resiliency

Sub-50ms ITU-T G.8031, ITU-T G.8032, R-APS, Sub-50ms RSVP-TE FRR, secondary LSP, xSTP, resilient link, dual homing VPLS/HVPLS, LAG (Static/IEEE 802.3ad LACP/Multi- chassis), redundant AC/DC power supply

Quality of Service

Per port/EVC/flow single/dual rate limiting, hierarchical rate limit per port/EVC/flow Hierarchical QoS. Support for multi-level SP, WRR and hybrid frames scheduling and shaping, CoS marking and mapping per EVC, flow control for congestion handling

Multicast Management

IGMP snooping v1/v2/v3, IGMP Proxy, Multicast VLAN registration (MVR)

OAM

IEEE 802.3ah EFM, Hardware-based IEEE 802.1ag CFM, OAM over VPLS, MPLS Ping

Testing & Monitoring

Hardware-based ITU-T Y.1564 and RFC 2544 test head, loopback and service performance analyzer, MEF46 Latching Loopback controller & reponder, in-service testing capabilities, ITU-T Y.1731 PM, SM and SLM, Per-port/EVC/VLAN/COS, hardware-based MAC Swap loop-backs, TWAMP w/auto-testing

Management

Console, Telnet, SSHv2, RADIUS, TACACS+, SNMP v1/2/3, xFTP, NTP, DHCP client/server & Zero Touch Provisioning

Security

ACLs, RADIUS, SSHv2, SNMPv3, SFTP, port security, broadcast storm prevention, secured access

General Specifications

Dimensions: 1.75"H (1RU) x 19"W x 20"D (44.45 x 482.6 x 508 mm)

Weight: 12.68lbs. (5.75kg)

Power: Dual redundant, hot-swappable AC/DC 100-240VAC / -48VDC (-36VDC to -60VDC)

Max power consumption: 150W

Operating temp: 0ºC to 45ºC

Extended temp: -5ºC to 55ºC (up to 96 hours)

Humidity: Up to 95%, non-condensing

Fan: Load sharing, speed controlled, hot-swappable

Regulatory Compliance

European CE marking, EN 55022 Class A, CISPR 22 Class A, EN55024: 1998+A1, EMC Immunity

Harmonics: EN 61000-3-2/ IEC 61000-3-2

Voltage fluctuations: EN 61000-3-3/ IEC 61000-3-3

ESD: EN 61000-4-2/ IEC 61000-4-2

RFI-AM: EN 61000-4-3/ IEC 61000-4-3

EFT: EN 61000-4-4/ IEC 61000-4-4

Surges: EN 61000-4-5/ IEC 61000-4-5

Conducted: EN 61000-4-6/ IEC 61000-4-6

Voltage DIP: EN 61000-4-11/ IEC 61000-4-11, EMC Emissions, FCC 47 CFR Part 15 Class A, ICES-003 Issue 4 Class A (Canada), EN 300386, Telcordia GR-1089 issue 4

Environmental Compliance

Full RoHS, NEBS Level 3 compliant

Safety Requirements

UL 60950, EN 60950, IEC 60950, IEC 60825-1, CSA 22.2 No. 950, Class 1 Laser product safety (eye safety)