

ETX-2i-100G

High Speed Carrier Ethernet Demarcation and Aggregation



The global proliferation of mobile, video, and cloud applications creates an increasing demand for high-bandwidth access, generating new opportunities for communication service providers. CSPs are looking to increase revenues by offering new high bandwidth services to large enterprises, data centers, and wholesale customers.

ETX-2i-100G is designed to address the demand for agile, reliable, and assurable services demarcation and aggregation at data rates that exceed 10Gbps.

ETX-2i-100G is capable of delivering up to 100GbE services using a mix of 10GbE and 100GbE interfaces, while offering Carrier Ethernet 2.0 compliant service models, service monitoring, flexibility, and manageability.

FLEXIBLE SERVICE DELIVERY AND ASSURANCE UP TO 100G

ETX-2i-100G enables operators to deliver service level guarantees, by supporting multi-layer diagnostics, fine-grained SLA enforcement, and accurate performance monitoring. Built-in service activation testers support verifying end-to-end network performance.

ETX-2i-100G also offers best in class traffic management capabilities, including an advanced classification engine, VLAN manipulation, and sophisticated service shaping that provides operators full flexibility and control over traffic flows.

ETX-2i-100G support for hierarchical QoS enables delivery of multiple prioritized service types along with best effort services, while efficiently utilizing available network bandwidth.

SDN READY MANAGEMENT AND CONTROL

ETX-2i-100G leverages RAD's field-proven, carrier grade operating system - integrated in the entire ETX-2 family - to provide a familiar and uniform interface for provisioning, administration, and maintenance operations.

ETX-2i-100G can be managed using RADview, RAD's carrier-class NMS, or any SNMP-based management system. The device supports a variety of access protocols, including CLI over Telnet, SNMPv3, and TFTP, with a comprehensive security suite.

ETX-2i-100G implements RAD's unique ZTP process, allowing devices to on-board automatically and securely without human intervention, and enabling operators to provision services easily and reliably.

ETX-2i-100G is delivered ready for SDN transformation with comprehensive support for the NETCONF/YANG protocol, enabling operators to utilize modern network service orchestrators.

FEATURES AND BENEFITS

- Three 100-GbE plus ten 1/10 GbE interface (SFP+)
- MEF-compliant service topologies, including: E-Line, E-LAN, E-Tree, E-Access, and E-Transit services
- ITU-T G.8031 Ethernet linear protection, with sub-50 ms restoration time
- Advanced QoS with hierarchical policing and bandwidth shaping per EVC and EVC.CoS
- Accurate, scalable, hardware-based OAM and PM (ITU-T Y.1731 and TWAMP)
- ITU-T Y.1564 service activation testing at wirespeed
- Advanced management capabilities, fully compatible with the ETX-2 family and supported by RADview EMS/NMS and Performance Monitoring portal
- NETCONF/YANG support for intelligent service orchestration
- Zero-touch provisioning (ZTP) for scalable, secure, and rapid service rollout
- Redundant, hot-swappable AC or DC power supply
- Low power consumption for cost-effective operation
- 19" 1RU form factor

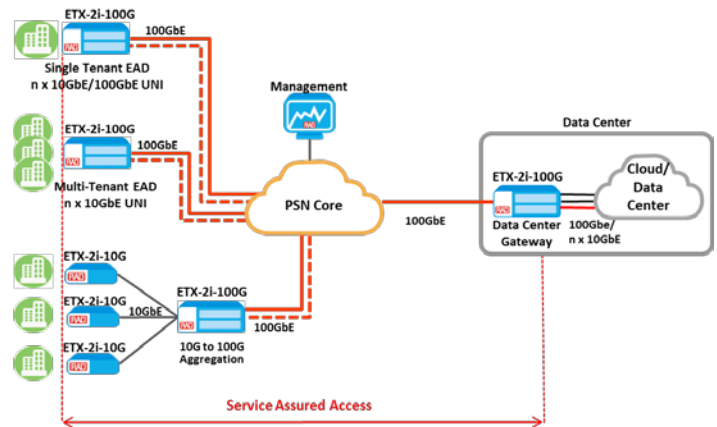


Figure 1 - ETX-2i-100G Demarcation and Aggregation Applications

ETX-2i-100G

High Speed Carrier Ethernet Demarcation and Aggregation

Specifications

INTERFACES

Ethernet Ports

3 QSFP28 100GbE
10 SFP+ 1/10GbE

Management Port

Type: 10/100/1000BaseT
Connector: RJ-45

Control Port

Interface: V.24/RS-232 DCE
Connector: Mini USB
Format: Asynchronous
Data rate: 9.6, 19.2, or 115.2 kbps

BRIDGE

Max. Frame Size

12,288 bytes

Compliance

802.1D, 802.1Q, 802.1ad

Mode

VLAN-aware, VLAN-unaware

VLAN Editing

Inner/outer VLAN editing per VLAN and p-bit values

TRAFFIC MANAGEMENT

Classification

Per port, outer VLAN or outer + inner VLAN, PCP, TOS/DSCP, Ethertype, IP/MAC source/destination address

Policing

Color-aware/unaware dual token bucket with user-configurable CIR,CBS and EIR,EBS

Scheduling

8 CoS per EVC scheduling elements
Strict Priority (SP) and Weighted Fair Queue (WFQ)

Shaping

Per port, per EVC, or per EVC.CoS

OAM AND DIAGNOSTICS

IEEE 802.1ag Connectivity Fault Management (CFM)
IEEE 802.3ah EFM Link-fault OAM
ITU-T Y.1731 PM (SLM; DM)
RFC 5618 TWAMP responder and receiver
TWAMP sender

Service Activation Tests

RFC-2544: 8 built-in testers
ITU-T Y.1564: 8 built-in testers

Loopback Tests

Non-disruptive loopback per flow, with MAC/IP address swap
Loopbacks at Ethernet port level

ICMP Echo

Over L2 and L3 services
Tests IP connectivity (PING)

RESILIENCY

Ethernet Path Protection

G.8031 linear 1:1 protection

Link Aggregation

Load balancing LAG with up to 4 ports in a LAG group (on 10G ports)

MANAGEMENT

Management Options

Local management via LAN port or serial port.
Remote management via in-band VLAN
Password-protected access with authorization levels

Protocols and Security

Secure CLI via SSH
Telnet, SNMPv3, SFTP
NETCONF/YANG management interface
Dual Stack IPv4 and IPv6
RADIUS or TACACS+ authentication
Access Control List (ACL)
Configuration backup and restore

Plug and Play Zero Touch Provisioning

DHCP auto-configuration
XML configuration files download via TFTP/SCP

ELECTRICAL

Power Supply

Hot swappable, redundant PS
AC: 100-240 VAC ($\pm 10\%$), 50/60 Hz
DC: 48VDC (40-60 VDC)

Power consumption: 350W

DIMENSIONS

19" enclosure:

Height: 44 mm (3.46")
Width: 440 mm (17.32")
Depth: 400 mm (15.75")

ENVIRONMENTAL

Storage Temperature: -40 to 85°C
(-40 to 185°F)

Operating Temperature: 0 to 50°C
(32 to 122°F)

Humidity: 5% to 90%, non-condensing

STANDARDS COMPLIANCE

CE 2.0, MEF 6 (E-Line – EPL and EVPL, E-LAN – EPLAN and EVPLAN), MEF 9, MEF10, MEF 14, MEF 20, MEF 36, MEF 46, IEEE 802.3, 802.3u, 802.1D, 802.1Q, 802.1p, 802.3ad, 802.3-2005, 802.1ax, 802.1ag, ITU-T Y.1731, G.8031, G.8262, G.8265, RFC-2544, ITU-T Y.156

ETX-2i-100G

High Speed Carrier Ethernet Demarcation and Aggregation

Ordering

RECOMMENDED CONFIGURATIONS

ETX-2I-100G/ACR/3QSFP/10SFPP

Redundant AC power supply, 1U 19" metal enclosure, 3 QSFP28 Ethernet ports, 10 SFP+ Ethernet ports

SUPPLIED ACCESSORIES

AC power cord

RM-50

HW kit for mounting 19" unit in a 19" rack

OPTIONAL ACCESSORIES

CBL-MUSB-DB9F

Mini-USB cable to connect device to a serial port

ETX-2I-100G-PS/AC

Single AC power supply

RM-53

HW kit for mounting 19" unit in a 19" rack 100mm deep installation

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