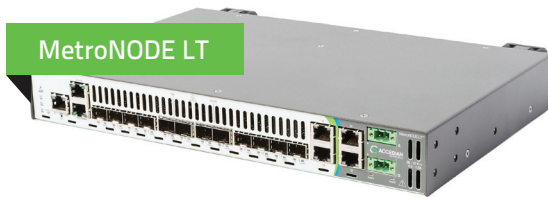


MetroNODE LT™ / LT-S™



Solution Highlights

- High Capacity, ITU-T G.8032v2 Ethernet Ring Protection with up to 8 ERP Instances
- 2 x 10G and 10 x 1G (MetroNODE LT) and 4 x 10G and 8 x 1G (MetroNODE LT-S) to deliver a wide range of configurations and supporting applications for Ethernet business and mobile backhaul services.
- Full service creation functionality with Carrier Ethernet 2.0 service mapping
- High-density service assurance with 1,000 concurrent OAM sessions for Layer 2 and Layer 3 monitoring

As mobile operators and service providers continue to seek advanced Carrier Ethernet solutions to meet the demanding performance assurance needs of their networks, the ability to easily aggregate to 10GbE is not only an opportunity, but a necessity. These carriers are looking to leverage the performance and profitability advantages of Carrier Ethernet Access Platforms (CEAP) to support emerging Telecom Ethernet services requirements.

The Accedian MetroNODE LT™ is a 10GbE, ultra compact networking node that delivers high performance, low latency solutions with best-in-class performance assurance capabilities for high availability network applications, such as; mobile backhaul, Ethernet business services, wholesale services and cloud connectivity – all applications that require Ethernet aggregation. This solution has been optimized for wire-speed throughput, high density services monitoring and advanced service creation and assurance functionality.

Fully programmable solution

The MetroNODE LT is architected to keep pace with the ever changing world of Ethernet services and standards. 100% FPGA based, the MetroNODE LT delivers unmatched programmability enabling this solution to be the most flexible, customizable and future-proof in the industry.

Purpose built for performance

Based on this unique 100% FPGA architecture, the MetroNODE LT has been purpose built for performance. Delivering high-performance service assurance monitoring to mission-critical services, including high-capacity 10GbE applications is no problem. Ensuring quality of service (QoS), bandwidth profile enforcement and traffic conditioning on the highest capacity network links is what this platform was built for. Wire-speed traffic classifiers and advanced packet handling eliminates the delay of store and forward processing common in many platforms, thus providing one of the lowest latency solutions available today. The Accedian MetroNODE LT effortlessly handles 1,000s of flows at full line-rate and all packet sizes. This unique architecture allows the MetroNODE LT to separate packet delivery from test & measurement, streamlining each of these mission critical activities allowing each to scale effortlessly without impacting overall performance.

Built for the needs of 3G and 4G mobile backhaul, Ethernet business services, wholesale access and inter-carrier exchange services, the MetroNODE LT provides unsurpassed Ethernet OAM functionality via ITU-T Y.1731 and IEEE 803.2ah Ethernet OAM, as well as Layer 3 performance monitoring via RFC-5357 TWAMP.

Product models and available interfaces:

- | | |
|---|---|
| • MetroNODE LT: 10 x 1G and 2 x 10G ports | • MetroNODE LT-S: 8 x 1G and 4 x 10G ports |
| • MetroNODE LT-H: 10 x 1G and 2 x 10G ports (hardened unit) | • MetroNODE LT-SH: 8 x 1G and 4 x 10G ports (hardened unit) |
| • MetroNODE LT-G: 10 x 1G and 2 x 10G ports (with GPS) | • MetroNODE LT-SG: 8 x 1G and 4 x 10G ports (with GPS) |
| • MetroNODE LT-GH: 10 x 1G and 2 x 10G ports (hardened unit with GPS) | • MetroNODE LT-SGH: 8 x 1G and 4 x 10G ports (hardened unit with GPS) |

Purpose-built for demanding high-density, QoS-sensitive applications, MetroNODE LT exceeds expectations where traditional network elements might suffer under high traffic loading. No matter how heavy the traffic gets, the MetroNODE LT delivers performance and precision, every time.

Guaranteed performance assurance

The Accedian MetroNODE LT delivers highly scalable, granular and precise Performance Monitoring Metrics along with industry leading Test and Turn-up capabilities with the implementation of functions such as ITU-TUY.1564 and RFC-2544.

Resiliency is of the utmost importance to today's Ethernet networks. The Accedian MetroNODE LT leverages high performance ring protection based on ITU-T G.8032v2 Ethernet Ring Protection with sub 50ms failover switching which enables operators to deliver Carrier-Grade Ethernet Services while achieving network flexibility and resiliency at a low cost.

The MetroNODE LT's implementation of ITU-T G.8032v2 opens the door to additional CAPEX reductions through operation simplification, ease of traffic hand-off between cascaded rings and integrated aggregation of 1GbE links onto a 10GbE ring. By taking advantage of the 8 virtual ring instances supported by a single physical ring, the platform also delivers more predictable traffic engineering by separating various customer flows and allowing for shortest path routing to the ring egress site.

Used in combination with Accedian's 1GbE MetroNIDs™, MetroNODE LT can deliver 100's of fractional 1GbE services over the ITU-T G.8032v2 protected 10GbE ring.

With its EVC add/drop capabilities, MetroNODE LT provides network architects with a flexible and scalable alternative to switches and routers for delivering resilient services over optical network topologies.

Accedian's MetroNODE LT is well suited for use at the customer premises. With its 1G and 10G aggregation capabilities, multi-tenant business units and business parks applications will benefit from the centralized Service OAM, Performance Management, and Test & Turn-up tools available, such as ITU-T Y.1731, ITU-T Y.1564, RFC-2544 and RFC-5357 TWAMP.

With its 2 x 10G UNI interfaces which can deliver 10G or fractional 10G services, along with 8 x 1G UNI drops and 2 x redundant 10G NNI uplinks, the MetroNODE LT-S allows operators the flexibility to deploy 1G and 10G services to existing or new customers, from a single platform.

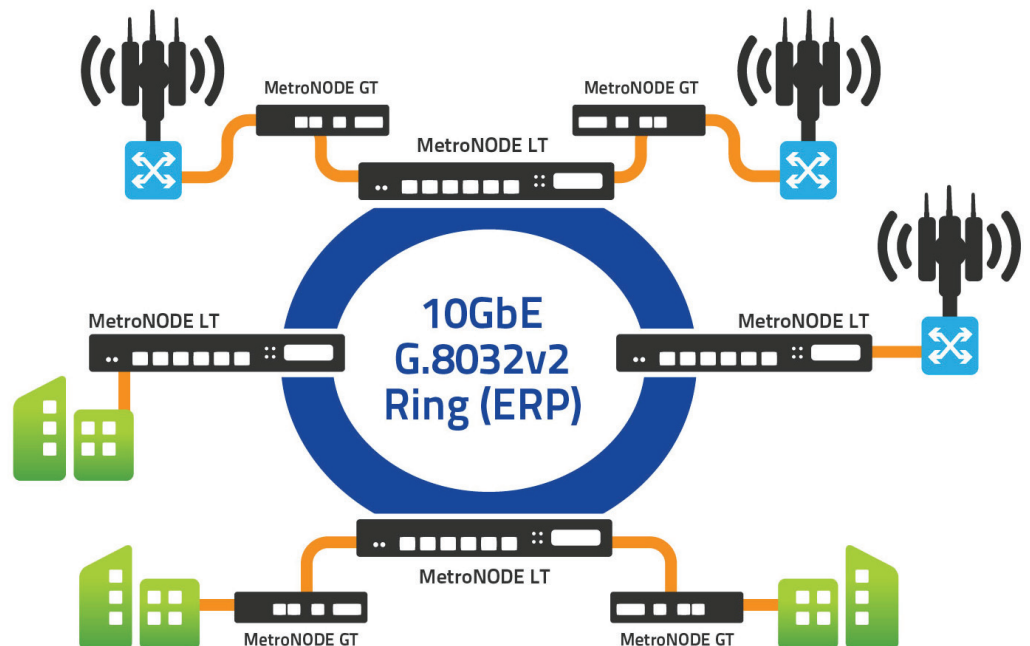


Figure 1.
Mobile Backhaul and
Ethernet Business
Application Resiliency
Through ITU-T 8032v2

MetroNODE LT CPE Applications:

- Application: 1G & 10G aggregation at Multi-tenant & Business parks, direct-connect via Metro-E to closest Provider Edge (PE) Switch/Router
- Best-of-breed OAM, PM, Test & Turn-up!
 - ITU-T Y.1731 (µsec accuracy, 1000 flows), RFC-2544, ITU-T Y.1564, IEEE 1588v2
- 2x local 10G UNI drops for “fractional 10G service”
- 8x local 1G UNI drops
- 2x redundant 10G uplinks

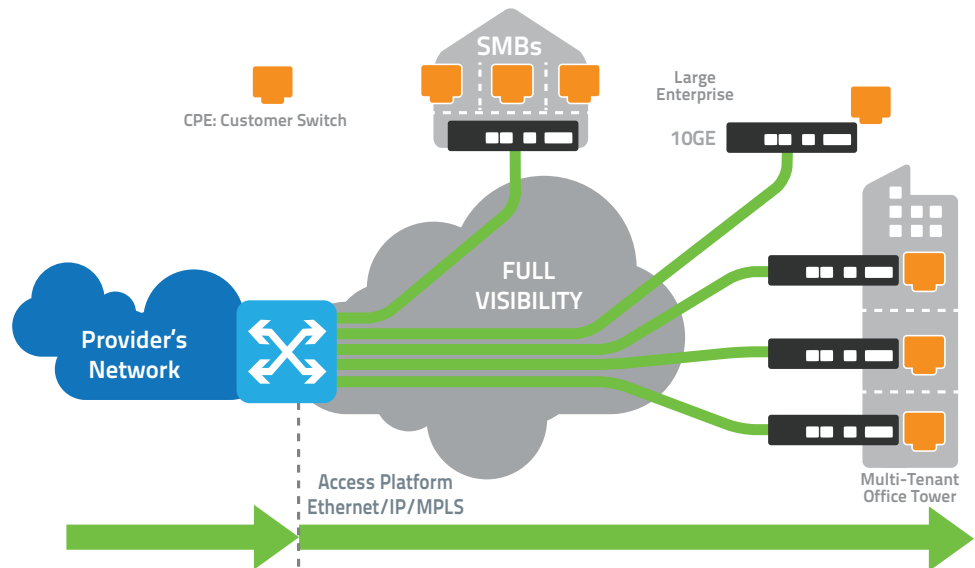


Figure 2. Complete end-to-end visibility

As illustrated in Figure 2, the MetroNODE LT can be used to extend highly resilient protected Ethernet services to support Carrier Ethernet applications including mobile backhaul and business services. Furthermore, with support of ITU-T G.8032v2, MetroNODE LT can be used standalone to deliver protected 10GbE and 1GbE services for mobile backhaul or other Ethernet business services.

Affordable and effective 10G solution at a 1G price point

Affordability without profitability is an empty promise. As mobile operators and service providers consider implementing 1GbE solutions, the MetroNODE LT's disruptive pricing makes it financially compelling to deploy a 10GbE solution Day 1, delivering higher bandwidths and efficiencies to your customers and eliminating the need for future forklift upgrades and additional capital investments.

The MetroNODE LT boasts not only a compelling price, but also reduced deployment costs. How? Through unique functionalities such as Plug & Go™ discovery which allows an operator to quickly install a unit, right out of the box, in the network and remotely manage it without pre-configuration or pre-provisioning.

MetroNODE LT is also the ideal solution to generate revenues from high-touch business services through its advanced SLA management capabilities. This solution empowers mobile operators and service providers to confidently deliver tiered service offerings by providing them with the tools to effectively manage differentiated service bundles, for example Gold, Silver and Bronze. This flexibility allows operators to leverage their access network investments for all service offerings, regardless of class, without the need for additional equipment to provide advanced service OAM capabilities.

Delivering true high performance and precision

Mobile backhaul operators and Ethernet business service providers require flexible and resilient architectures (ring or P2P) with up to 10GbE service creation and performance assurance capabilities. The MetroNODE LT excels under traffic loads which may otherwise be underserved by other vendor's solutions. Key features of MetroNODE LT's precision and performance are:

- Delivery of microsecond resolution of performance measurement at all packet sizes
- Accedian's Fast PAAs™ silicon based OAM processor enables the accurate measurement of network KPIs. Service providers and mobile operators use this to monitor network service quality, without adding delay to the traffic.
- FPGA based data path for wirespeed classification and delivery of user traffic over all packet sizes with extremely low added delay or delay variation.

Flexibility and ease of use

With support for 1000 concurrent OAM sessions, the MetroNODE LT provides standards-based visibility to every tower or business, as well as for every class of service. Assuring vital SLAs, the MetroNODE LT's in-service Performance Assurance Agent (PAA) monitors Ethernet & IP QoS over point-to-point, hub-and-spoke, ring and full mesh topologies to every location, as well as over critical transport infrastructure, such as, the Evolved Packet Core (EPC) in LTE based mobile networks.

Carrier Ethernet service mapping and bi-directional bandwidth policing enable the MetroNODE LT nodes to establish, terminate and optimize up to 250 EVCs per port, for 10G interfaces and 100 EVCs per port for 1G interfaces, delivering unprecedented flexibility to the operator to manage the transport of customer services.

Zero-touch Provisioning

In contrast to other solutions which require pre-provisioning and pre-planning prior to installation, the Accedian MetroNODE LT has zero-touch initial configuration capabilities which allows the mobile operator/service provider to simply unpack the MetroNODE LT from the box, deploy the solution in the network, and then let the Auto Discovery functionality configure the box. This capability, referred to as Plug-&-Go™ configuration, enables faster time to revenue and immediate service turn up. The ability to add network elements from factory default empowers mobile operators and service providers to quickly expand their networks, including ring topology, without prior manual provisioning, in order to have quickest availability of new services.

3G and 4G Wireless backhaul

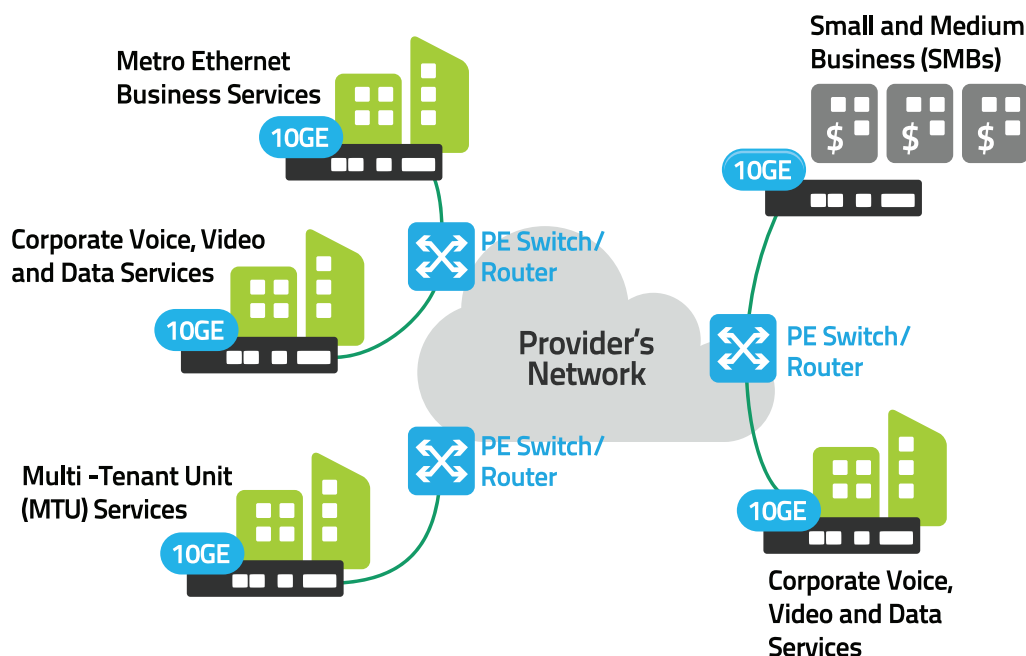
Accedian's robust feature suite provides users with the critical performance monitoring data points that customers demand in order to maintain their SLAs. Used in conjunction with the Accedian EtherNID® and MetroNID™ service demarcation units located at remote cell sites, the MetroNODE LT provides a convenient OAM aggregation point to monitor and guarantee QoS levels for all the services deployed throughout their backhaul network.

Effective Solution for Business Ethernet Services

Enterprise customers are seeing the benefits of moving up to 10GbE to consolidate their WAN connections - which are now carrying critical financial, transactional, real-time communications and distributed computing applications. With SLA management and performance reporting becoming more important every day, the Accedian MetroNODE LT, along with the entire Accedian Networks Performance Assured Networking™ solution, is the preferred solution to ensure all of these critical services are carefully monitored and maintained without impacting the performance of mission-critical services.

Ease of Use with Element Management System (EMS)

The MetroNODE LT is fully integrated into Vision EMS™, Accedian's element management system. From this system, multiple concurrent users can monitor and manage Accedian networks devices, greatly simplifying network operators tasks. From initial install through unit lifecycle administration and maintenance, Vision EMS lets users simplify, secure and accelerate Ethernet service validation, performance monitoring and network management.



As illustrated in Figure 3, MetroNODE LT boosts performance in the network by establishing and terminating Carrier Ethernet services (including those created by MEF-certified network elements from other vendors), conditioning traffic to optimize performance and establish QoS, and aggregating services from the 1GbE and 10GbE client ports. This combination of features allows the MetroNODE LT to replace more expensive switches and routers in many business services and wireless backhaul applications, while enabling Carrier Ethernet services over legacy access and transport networks.

Figure 3. MetroNODE LT in a Business Services Environment



Physical

Dimensions

1.75H x 13.0W x 8.9D in. (45H x 330W x 225D mm)

Weight

~3.0kg or 6.6 lb

Environmental

Standard operating temperature: 0°C to +50°C

External AC/DC power operating temperature: 0°C to +40°C

Hardened operating temperature: -40 + 65°C (at Sea Level)

Restricted Access Locations for all models including hardened models

Storage temperature: -40 + 70 °C

Maximum Altitude: 2,000 meters

Mounting Options

19" Rackmount 1U Horizontal Mounting Bracket kit

23" Rackmount 1U Horizontal Mounting Bracket kit

Recessed 19" Rackmount 1U Horizontal Mounting Bracket kit

Operating/Storage Humidity

5-95% RH non-condensing

Firmware

Embedded Linux-based operating system

Integrated Management

Configuration, Management and Firmware Upgrade

Secure Web GUI via SSL, Secure CLI via SSH, Management VLAN (C/S)

Plug & Go™ Instant Provisioning, Manage in-band via NNI interfaces, out-of-band using dedicated port, Configuration import/export, Remote and Local Syslog, Full integration with Vision EMS™ FCAPS workflow & provisioning automation, as well as various performance monitoring systems

GPS Specific (for the GPS model option only)

GPS Receiver Sensitivity

-140 dBm

-120 dBm Cold Start

Supply Voltage and Current for Active Antenna

3.3V +/- 10%

50mA max.

MTBF (per the Telcordia ST-332 method)

At 25°C 30 years in CO environments

At 40°C 20 years

Model Options

Options

Integrated GPS Receiver (GPS Antenna Input SMA Connector) (-G)

Hardened operating temperature (-H)

External AC/DC power adapter

Warranty

1-year limited warranty covering parts and labor.

Certifications

NEBS Level 3 Compliant

FCC Part 15 / ICES 003 (EMC Class A)

ETSI 300 019 Class 1.1, 2.2, 3.1

CE marking

RoHS and WEEE compliant

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