



Application Highlights

- Segment, monitor and bridge diverse networks
- Integrated turn-up testing and service activation baseline reporting
- Fast, flexible, SLA-backed Carrier Ethernet service creation (point-to-point and multipoint)
- Real-time L2 & L3 performance monitoring and service assurance
- Granular traffic conditioning
- Seamless interoperability in multi-vendor deployments

Product and Application Brief



TE, TE-S, TE-R, TE-RS (Previously MetroNID® TE Series)

Intelligent demarcation and service assurance in a standards-based Element tailored for QoS-critical, delay-sensitive applications.

Ultra-Low Latency Network Edge Service Assurance

The TE Element is a standards-based network edge management device well-suited for demanding Layer 2 and Layer 3 service demarcation applications such as 3G and LTE mobile backhaul or SLA-assured business services.

By combining ultra-low latency processing with the capabilities of a high-end test set in a compact, power-efficient unit, TE Elements give operators the tools to define network boundaries and enable end-to-end service provisioning and assurance with carrier-grade performance.

A hardware-based engine provides advanced performance testing and service creation, making these Performance Elements ideal for carrying diverse traffic priorities and applications without impacting service latency.

To offer flexible, cost-efficient deployment, TE Elements are available in 2 SFP/GbE and 4 SFP/GbE port models, with options for built-in GPS. The TE-R and TE-Rs models support up to 60 unique traffic policies and hierarchical regulators and 120 Level 2-4 filters per port for precise, granular, multi-service, multi-client traffic conditioning.



With MEF 9+14 and NEBS Level 3 certification, no moving parts and 3-way redundant power protection, TE units are truly carrier-grade. A variety of mounting options ease installation at customer premises, cell sites, central offices and aggregation nodes.

Feature Highlights

- Jumbo Frames support (to 10,240 bytes)
- Automated, instant provisioning (Plug & Go™)
- Wire-speed pass-through without adding delay or delay variation
- Real-time packet processing with microsecond measurement resolution
- Layer 2-4 Loopback functionality & third-party test set interoperability
- Thru-traffic per-flow statistics, tapping and filtering

Standards-Based Features

- SNMP v1 and v2c support
- Automated Y.1564 & RFC-2544 test suites
- Multi-vendor Level 2 OAM (802.3ag, Y.1731) and Level 3 QoS (RFC-5357 TWAMP) monitoring and test set interoperability
- Integrated MEF Certified Carrier Ethernet networking

Service Assurance Applications

Performance and Traffic Monitoring

Monitor and measure delay, delay variation, frame loss and continuity, including 1-way performance validation, with microsecond resolution. Verify Ethernet Virtual Connections (EVCs) inservice without affecting customer traffic by measuring flows at full wire-speed (Layer 2 and 3) and achieve multi-flow, multi-service, multi-site performance assurance with real-time SLA assurance over any network. TE Elements support point-to-point, multipoint, and mesh topologies, as well as unicast and multitask testing.

Service Activation Testing

Use the integrated RFC-2544 based test suite to simultaneously test service activation at Layer 2 and 3 of up to two classes of service or two distinct single-CoS services, and verify one-way and two-way measurements and availability for both service configuration and performance parameters.

Per-Flow Loopbacks

Monitor any Layer 2, 3 and 4 flow in realtime using integrated intelligent loopback functionality, defined by VLAN, Service-Level, MAC/IP addresses or any combination of Layer 2 and 4 header criteria. TE units respond to in-band loopup commands from third-party test sets.

Service Creation and Traffic Conditioning Applications

Bandwidth Policing

Police bandwidth and enforce MEFcompliant services by limiting upstream and downstream CIR/EIR, using filtering criteria or for all traffic. Facilitate Carrier Ethernet service provisioning and ondemand/incremental service upgrades.

Zero-Delay Traffic Shaping

Pre-condition traffic to accelerate services and optimize access link bandwidth use. Highest-priority traffic is passed without added delay or delay variation while other traffic is buffered until capacity is available.

Switch-Free Aggregation

Achieve delay-free, multi-port aggregation from up to three ports to a single GbE, or

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from two ports to a single GbE or protected pair. De-aggregate by VLAN, or any combination of Layer 2, 3, and 4 frame criteria.

Service Mapping

Create E-line, E-LAN and E-Tree service directly at the demarcation point. This service mapping capability applies C/V- LAN tags (selective push) and/or configurable service class to traffic meeting detailed Layer 2, 3 and 4 criteria. Result: fast and flexible VLAN to EVC mapping.

Traffic Filtering

Filter wire speed traffic at Layer 1, 2, 3 and 4 (per VLAN, Ethertype, Protocol type, MAC, IP, L2CP, BDPU, User Defined).



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