Net.Edge ductile access point

Bring quality PTP timing to the Edge

Net.Edge

Net.Edge extends Net.Time performance by transporting precise time across the WAN and delivering it through multiple ports to remote locations improving the quality of the signal. Working as a Boundary clock (BC) or Transparent clock (TC) it regenerates and stabilizes the timing signal close remote locations. From the control room to the last mile, Net.Edge preserves time quality across mixed environments facilitating migrations, by means of multiple new ports without the need of replacing existing equipment.

By bringing the time closer to the clients, the last hop is no longer affected by long and variable WAN paths. Devices experience constant delays and faster recovery when traffic or routes change, reducing nuisance alarms and improving the accuracy of the sequence of events. Keep the master in the control room and use Net.Edge to distribute clean time locally, ensuring consistent behavior from bay to bay, regardless of whether the source arrives via fibre, microwave or leased WAN services.

Works with Net.Time and is simple

Expansion is linear: add a Net.Edge unit with multiple ports without the need for panel rewiring or relay changes. Keep Net.Time as the trusted tining source and install Net.Edge wherever ports are required. Net.Edge will then receive the PTP signal, clean it and deliver it. The Net.Edge unit can serve as a local reference at the edge or forward the signal while correcting the path, ensuring on this way that downstream equipment always receives accurate and stable time.

Regenerates timing, bringing it closer to the PTP clients

Built for the field

The Net.Edge is compact, silent and robust, ensuring continuous service in harsh electrical environments. Dual power inputs and resilient networking provide continuous availability during power or WAN outages, while minimizes holdovers and brief interruptions.

Secure and simple management streamlines the roll-out and maintenance of many substations. Use Net.Edge to provide with PTP timing to new bays without the need for new installations, stabilizing remote shelters and improve time quality end-to-end, across the WAN to the most remote substations.

ALBEDO

Applications

PTP ports at the edge

Take the master time from Net.Time and deliver PTP in the WAN or in the Substation multiplying the number of ports (x8) and adapting bit-rates (up to 2,5 GbE) with a 11 Gbps switch matrix. Net.Edge works as a boundary/transparent clock to regenerate the signal close to the load so devices stay aligned.

Timing over the WAN

Carry time across MPLS / Carrier Ethernet and restore its quality at the substation. Service OAM and fast path protection keep timing stable during link events, while ports per bay make expansion easy.

Modernize tele-protection

Keep the relays and move C37.94 / E1 / serial channels onto packet networks without touching the protection devices. Net.Edge supports hitless path switchover and asymmetry monitoring/adjustment to protect distance and differential schemes.

Migration without rewiring

Keep existing 2 Mb/s multiplexers and legacy interfaces while adding IP services directly to Net.Edge. Timing and cyber-security policies extend end-to-end across all services routed.

SCADA, cameras, OT traffic

Aggregate SCADA, RTUs and IP cameras alongside timing. Class-of-service and private circuits (point-to-point or multi-point) keep traffic predictable while timing remains unaffected.

Cybersecure Connections

TDM Legacy Adaptation

Advanced IP services

Multiport TC BC function
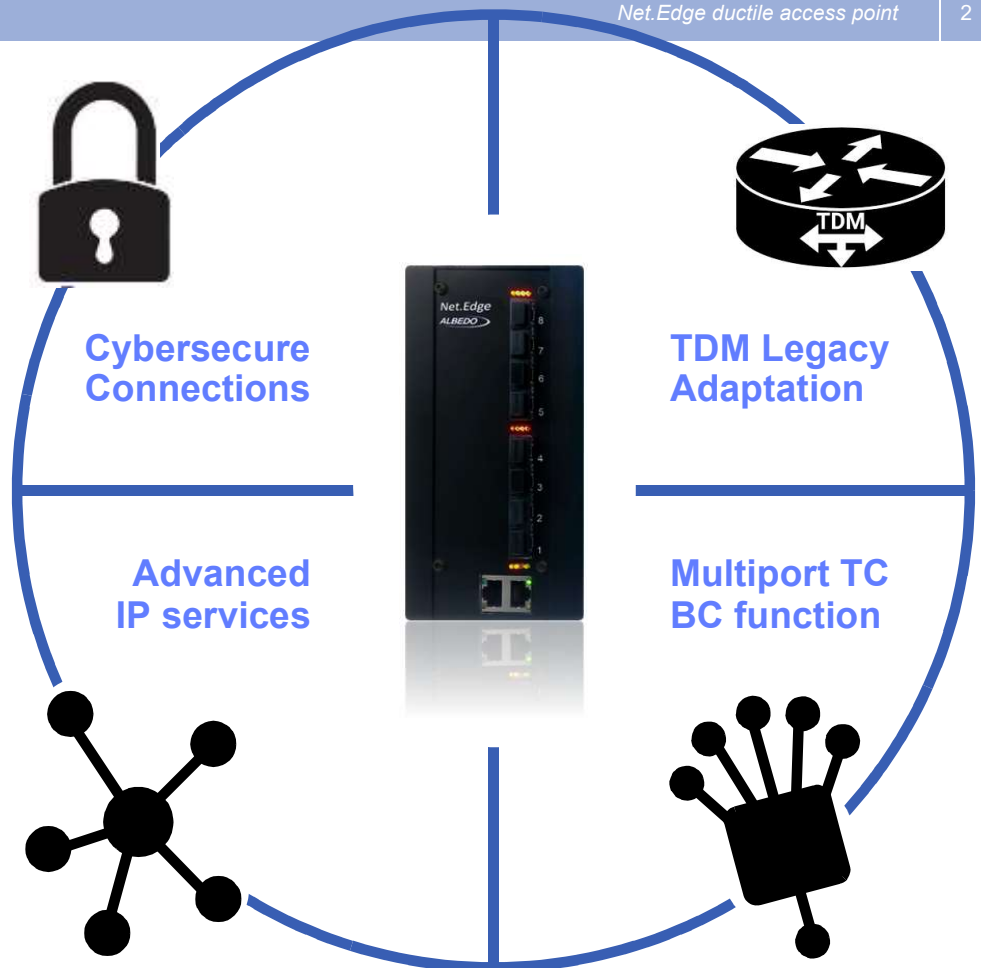
Security for critical links

Optional AES-256 encryption and authentication for transported services; local keying or automated exchange available.

Utility grade build

Small, silent and efficient for hard-to-reach sites. Dual DC inputs and resilient links help maintain service when power or WAN routes change,

Net.Edge has been designed for substation environments (IEC 61850-3 / IEEE 1613), -20…+65 °C, IP40, fanless, ready for continuous operation at the edge.

Beyond the ports

Profile assistance at the edge: assist Power Profile delivery when the WAN is mixed to serve different loads with per-port profile selection.

Time health monitoring: per-port time-quality view (delay, variation, alarms) exposed to NMS for fleet oversight.

Local I/O for timing: NMEA/PPS in/out for verification or discipline, plus optional IRIG-B fan-out to bridge older cabinets.
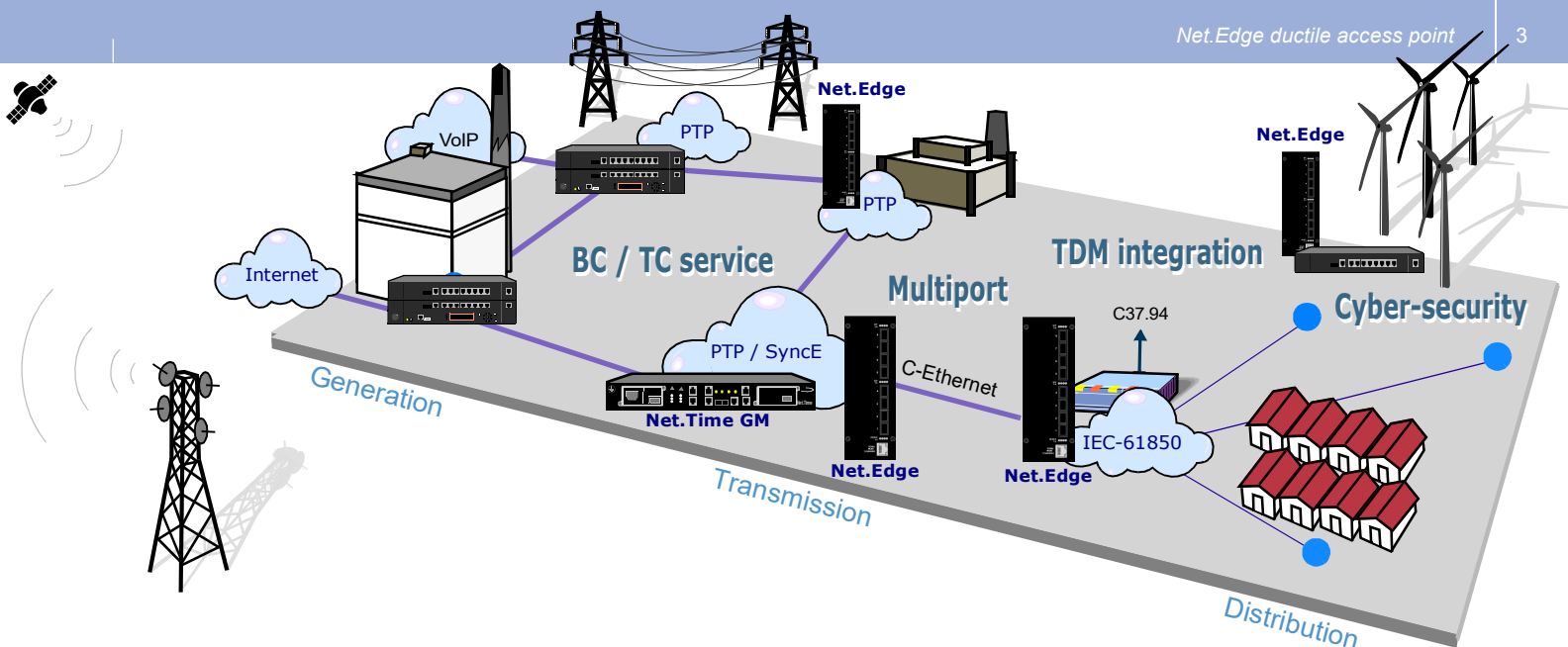
SyncMap NMS

The new ALBEDO's Network Management System (NMS), is designed to deliver complete visibility and control of synchronization infrastructures and communication networks. From a single console, operators can monitor, configure, and optimize both ALBEDO devices and third-party equipment, ensuring seamless operation across generations of technologies.

Performance insight

Comprehensive performance reports allow engineers to evaluate network efficiency and identify opportunities for improvement. This data-driven approach supports predictive maintenance, reduces operational costs, and extends the lifecycle of deployed assets.

Holistic control

Critical infrastructures such as utilities, telecom operators, transport, and defense networks rely on SyncMap to guarantee performance and reliability. The system provides a graphical, real-time interface that makes it easy to supervise network elements, provision services, and analyze the health of the infrastructure. SyncMap goes beyond device management: it enables end-to-end service provisioning and proactive supervision, reducing complexity for engineers and operators.

Move Legacy to Future

Security and reliability

SyncMap has been built with mission-critical requirements in mind. It incorporates robust security mechanisms, continuous monitoring, and automated alarms that immediately warn operators of any abnormal or unauthorized activity. With proven uptimes above 99.99%, SyncMap helps customers meet the most demanding Service Level Agreements (SLAs) and ensures that synchronization and communication services are always available.

Key features

Coverage for both legacy and next-generation synchronization and communication equipment

- Full support for multi-vendor and 3rd-party devices
- Interactive network topology maps for real-time visualization
- Advanced fault detection and alarm management
- Configuration and service provisioning with minimal effort
- Centralized inventory and user administration
- End-to-end performance monitoring and reporting

With SyncMap, ALBEDO customers gain a powerful, flexible, and secure NMS tailored to the unique requirements of critical networks — ensuring that synchronization and communication services remain stable, efficient, and future-proof.

❑

KEY FEATURES

- Modular & Configurable
- 8 optical SFP ports
- 2×2.5GbE + 6×1GbE
- 11 Gbps switch matrix
- MPLS-TP + 1:1 Protection
- VLAN stacking Q-in-Q
- SyncE & IEEE 1588 PTP
- TDM over Packet
- Hitless path protection
- C37.94 asymmetry test
- OAM & performance testing
- Encryption & Authentication
- E&M alarm I/O
- Power Fault Tolerant

BENEFITS

- Multi-port
- Multi-service
- Multi-bit-rate
- Smooth TDM migration
- Cyber secure

APPLICATIONS

- Boundary clock
- Transparent clock
- Power Utilities WAN / LAN
- Data Centers
- Air Traffic Control

Features	
Ethernet ports	• 8 Ethernet SFP ports • 2 x 2,5GbE + 6 x GbE • 11 Gbps switch matrix
MPLS-TP switch	• MPLS-TP with 1:1 Linear Protection • Hitless path protection switchover • Virtual Private Wire & LAN Service (VPLS/VPWS) • 8 x CoS • OAM for MPLS-TP (G.8113.1/G8113.2/Y.1372)
Carrier Ethernet	• Compliant with Metro Ethernet Forum (MEF) • Carrier Ethernet 2.0 • MEF UNI and NNI functionality • OAM & performance testing (RFC 2544, ITU-T Y.1564) • Ethernet Virtual Circuit (EVC) LINE, LAN, TREE • VLAN Stacking Q-in-Q (IEEE 802.1ad)
E&M type Alarms	• 2 x input • 2 x output
TDM over Packet	• Optional TDM SFP adapters • V.24 • E1 • C37.94 • C37.94 asymmetry measurement & adjustments
Synchronization	• SyncE • IEEE 1588 NMEA and PPS interfaces for PTP synchronization • C37.238 power profile
Security	• Optional AES-256-GCM user data encryption and authentication • Manual key configuration or Automated key exchange

Platform	
Ergonomics	• Compact 95×175×130mm enclosure • Operation Temperature: -20…+65°C • Fanless Operation
Environmental	• IP classification: IP40 • IEC61850-3 compliant • IEEE1613 compliant
Power	• Two battery inputs • 24 – 110V DC • Power consumption 20W (max.)

General	
Description	• An industrial IP access point for the next generation critical communications
Made by	• Designed by DNWP • Manufactured in Finland
Warranty	• 18 months

ALBEDO Telecom

First in Power