Telco Systems
A BATM Company

T-Metro

Modular Metro Ethernet Access Platform

Compact, cost-effective TDM/IP convergence
Routing Switch for Ethernet/MPLS rings

T-Metro is a carrier class metro routing switch. It has been designed to enable building Metro IP rings, using only T-Metro boxes or combining them with edge routers.

The T-Metro has several unique features that make him **the most powerful machine of its kind** in the market. It can be compared with several times more expensive edge routers.

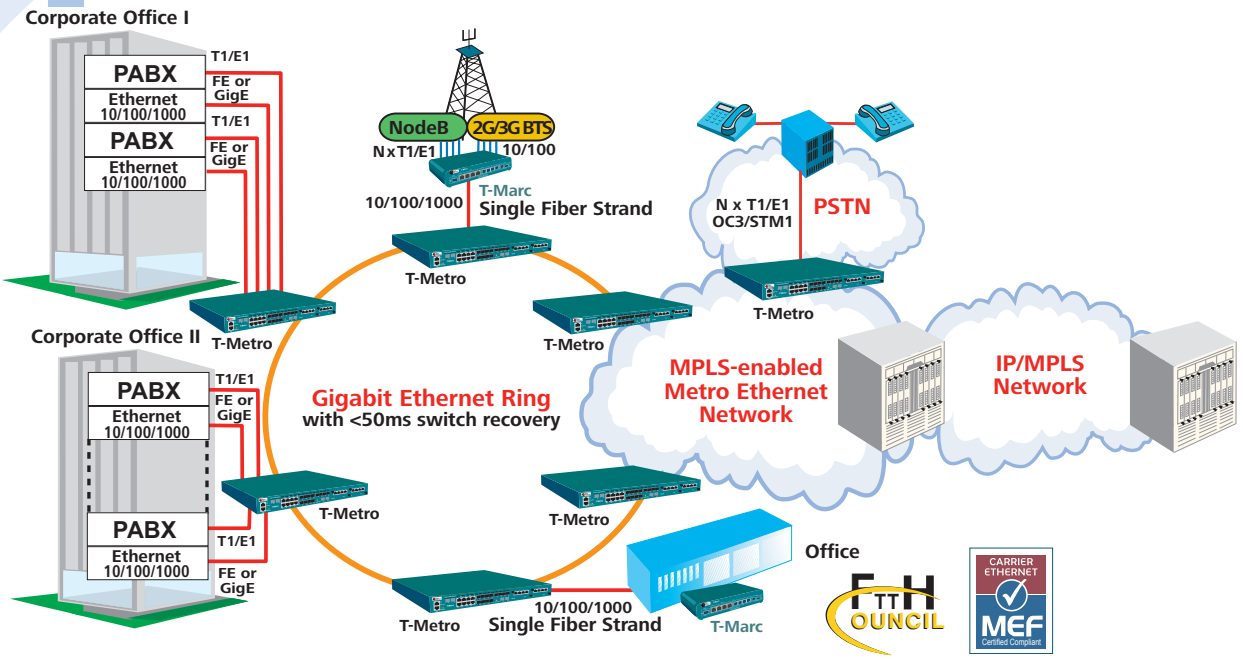
Among the main features: Guaranteed Recovery Time < 50ms (15ms average) based on Multiple/Rapid Spanning Tree (M/RSTP). It gives the **IP Network Ring recovery which is better** than traditional SDH/SONET. Building IP-rings have never been easier.

- Security and quality of service based on HQoS, MPLS and HVPLS. The T-Metro basic version (TM-100) comes with basic MPLS, when adding an internal very powerful network processor board the TM-100 turns into TM-200 that provides full MPLS/HVPLS and IPV6 capabilities with the proper BiNOS software. (See ordering information).
- 2 x Modules of 4 x T1/E1 (or fractional T1/E1) Circuit Emulation board (CES) can be field upgraded into the unit, STM-1 to follow. Special CES, modules that can carry precise cellular backhaul is available.
- The T-Metro is also very modular with 8 x 10/100BaseTx ports and 12 x 100BaseFx that can be fitted with extensive array of SFP's: multi, single mode and bidirectional (CWDM).
- All ports are non blocking and operate at wire speed. The T-Metro is powered by the Telecom grade multi layer BiNOS EMS software that is used as standard by several Telecoms (TL-1 version available as well). BiNOS comes in 3 main flavors according to the sophistication level required in the network.
- The BiNOSCenter™ - EMS is available as well. Yet, the BiNOSCenter™ can operate with several NMS/OSS systems that exist in the market. ■

Product Highlights

- Full Layer 2 & 3 Telecom grade Metro routing access switch
- Modular, scalable architecture
  - Up to 8 T1/E1s CES
  - Up to 6 Packetized T1/E1s
  - Up to 6 Packetized T3/E3s
  - Up to 8 x 10/100BaseTXs
  - Up to 12 x 100BaseFXs
  - Up to 2 x 1000BaseX uplinks
- Full MPLS/HVPLS support
- Full MSTP/RSTP support (Ring Topology)
- T1/E1 CES support including 2G/3G cellular backhaul
- Enhanced security and protection mechanisms
- Non-blocking wire-speed
- Compact 1RU pizza-box
- Field upgradable, redundant hot-swappable, power supplies and optics
- Powered by Telecom grade multi-layers EMS BiNOS Software
- Works & Interoperable with many vendors NMS/OSS

Ethernet Access Ring



Specifications

- High modularity, MPLS/HVPLS MTU-s with CES, 10/100, and Gigabit Ethernet at wire speed
- Carrier-class redundancy and load balancing mechanisms
- Advanced ring implementation using Multi/rapid spanning tree (MSTP/RSTP) convergence < 50msec switch recovery
- Featuring Service Level Agreement (SLA) using Advanced OAM (IEEE-802.1ag, 802.1aj, 802.3ah) and HQoS tools
- TDM encapsulation over Packet using IETF-PWE3-SAToP, CESoPSN
- Rate-limiting and policy enforcement
- Transparent LAN services (Q-in-Q), H/VPLS
- Advanced Layer 2 and 3 Switching, Routing
- Advanced Video support (IGMP1/2 Snooping, PIM-SW/DM; IGMP quick zapping (22ms), Multicast VLAN Registration (MVR))
- Advanced Security features (IEEE 802.1x, RFC2138 RADIUS, Wire-speed ACL, DoS (Denial of Service) protection)
- Wide-range of management options and tools (Java Web, CLI Serial, TELNET, SNMPv3, SSH2, Syslog, RMON, TFTP)

General

Dimensions	(HxWxD) 1.75''x19''x16.5'', 44 x 440 x 419 mm
Power	-48VDC (-36VDC to -60VDC) 100-240VAC, 90W max.
Weight	10.8 lbs, 4.9 Kg max
Operating temp:	0°C to 45°C (Short term extended temp (-20°C to 60°C))
Humidity	Up to 95%, non-condensing

Emission and Safety Regulations

Safety: EN/IEC 60950, EN60825, UL1950, CSA 22.2
EMC: EN55022
Immunity: EN61000
NEBS level 3, FCC class A, VCCI class 1, UL/CUL, VE (EMI, EMS, LVD)

Features and Benefits

- Triple play delivery over Giga Ethernet (MPLS/HVPLS)
- Multi-layer transport, Ethernet and TDM service delivery – Pseudowire CES, services extension node, VPNs, E-Line, E-LAN, Internet access, and more...
- Reduces OPEX and CAPEX
- NEBS Level 3 compliant
- Carrier-class redundancy, resiliency and load balancing
- Cost-effective, flexible metro Ethernet ring solution

Ordering Information

Chassis and Power Suppliers

Part Number	Description
TM-100 *T-Metro*	T-Metro Base platform: 8 x 100BaseTX, 12 x100BaseFX (unpopulated SFP), 2 x1000BaseX (unpopulated SFP), 2 extension slots, 2 power supply slots (order separately) software: BiNOS ML + Basic MPLS
TM-200 *Enhanced T-Metro*	T-Metro as above + 2 x 1000BaseX ports which provides HQOS (MPLS/HVPLS) software: BiNOS-ML-Adv
Power Supplies	
TM-ACPS	AC (110 to 220 VAC) power supply module up to 2 per unit
TM-DCPS	DC (-48VDC) power supply module dual feed up to 2 per unit
CES Module and Specifications	
TM-CES	4-port T1/E1CES. Connector RJ-48C, distance 6000 ft (1.9 km) Up to two (2) modules per unit, delivering up to 8 T1/E1s or 4+4 full protection
TM-CES-HPCS	As above + High Precision Clock Synchronization (HPCS) (G.823 synchronization interface compliant)
Software Upgrades	
BiNOS-ML-Adv	BiNOS-Multi-Layer advanced license - provides enhanced layer 3 features. BiNOS ML-Advanced is required for Enhanced MPLS and HQoS support in TM-200, optional in TM-100

***For full list of Optical and PDH modules, please contact our sales department, any of our branches or authorized distributors**

AIRLINX Communications, Inc.
Box 253
Greenville, NH 03048
E-mail: sales@airlinx.com
Tel: (888) 224-6814
Fax: (603) 878-0530

SPECIFICATIONS