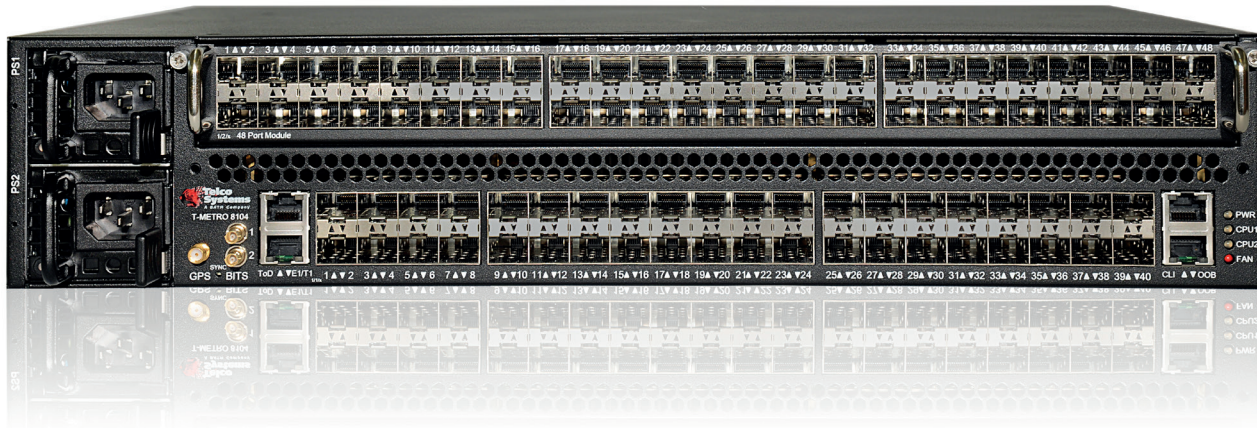


## T-Metro 8104

### MODULAR 1.2Tb MULTI-SERVICE AGGREGATION PLATFORM



#### THE NEED

**VERSATILE & ROBUST Network Edge platforms** are essential for telecom providers, aiming to cater for multi-service offerings. In order to be able to adapt for traditional WAN connectivity blended with added-value services, the demand today is for a high-performance rapidly deployable service platform with advanced features and low cost per port.

#### THE SOLUTION

Telco Systems T-Metro 8104 is the Industry's leading MEF CE3.0-ready, modular, multipurpose, ultra-high capacity 1.2Tb service aggregation platform. It enables L2/ L3 VPN services, aggregate impressive number of 1/10Ge interfaces and hence assure rapid adaptability to service providers' changing service offerings while preserving business strategies.

- Interchangeable modules:  
Expand-as-you-grow
- 100 GE hardware OAM capabilities
- L2/L3 over MPLS capabilities
- Hot swappable power supplies and fans
- CPU redundancy\*
- Compact 13.7" deep chassis

The T-Metro 8104 offers next-generation capabilities. It combines a high-density, standalone and SLA-enabling Carrier Ethernet platform with powerful switching capacity of up to 1.2Tb. Its service scalability, carrier-class resiliency, and advanced features include L2 & L3 VPN, QoS & OAM, for multiple use cases, including Off Net aggregation, Direct Internet Access (DIA), mobile backhaul (MBH), and optional testing diagnostics.

**Telco Systems T-Metro 8104** is offered as a basic future-proof 2U high full rack unit, with optional cards for expanding the number of ports. Its advanced features include 100GE OAM, CPU redundancy\*, hot-swappable fans, dual power supplies (AC/DC).

The innovative **T-Metro 8104** is built from the ground up to be a leading adaptable and dependable aggregation platform for service providers.

**Business agility growth:** The Telco Systems modular design supports multiple use cases, saves on training and support, as well as reduces TCO. It also enables to rapidly deploy new services and effectively offers a controllable growth.

**Reduce OPEX and CAPEX:** Significantly reduce cost of deployment and management with a single, flexible platform. One platform that handles impressive number of traffic sources for multi-service environment.

**BUSINESS SERVICES**



- L2/L3 VPN
- Off-net/on-net
- Multi-tenancy support
- 100GE Hardware OAM
- Flexible SLA Management

**E-RATE/EDUCATION**



- Campus network interconnectivity and aggregation
- 100GE Hardware OAM
- Flexible SLA management
- Modular Hardware
- Multi-tenancy support

**CLOUD & DATA CENTER CONNECTIVITY**

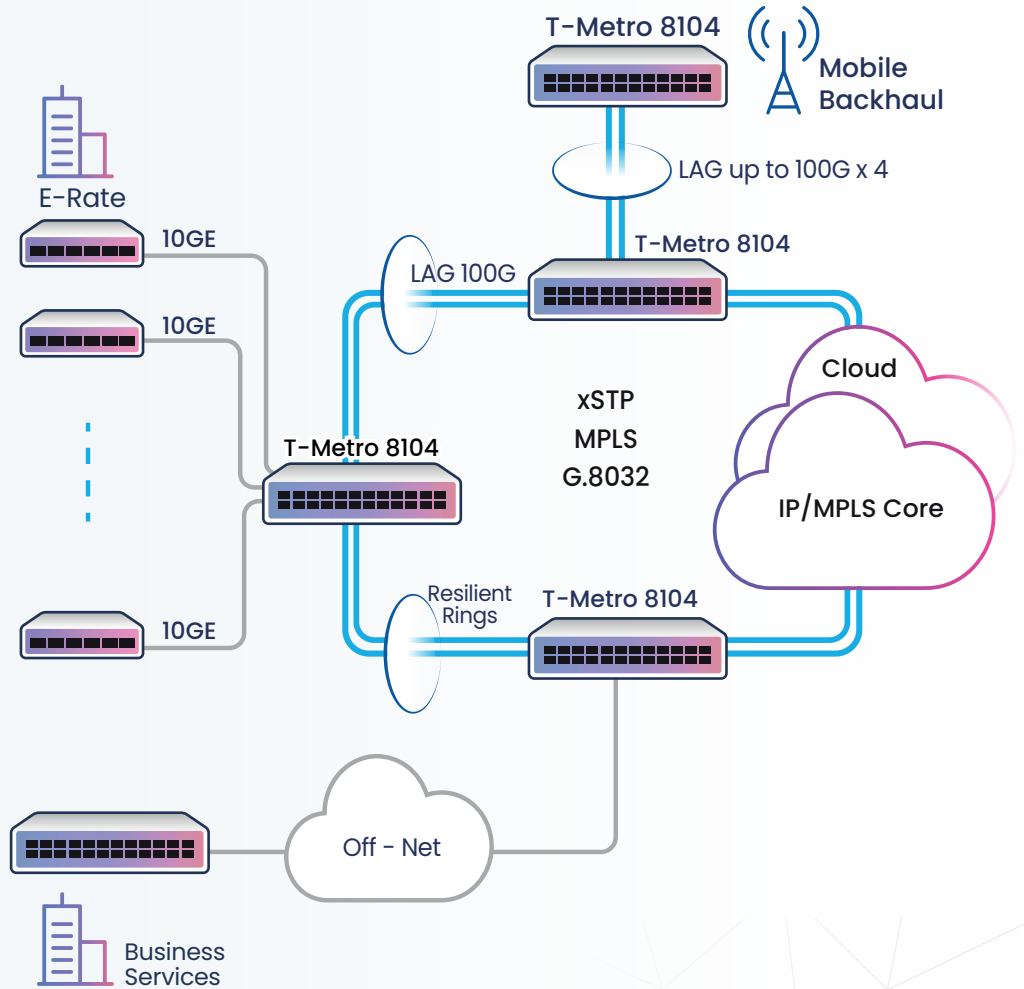


- Any cloud
- High bandwidth
- Low latency
- Flexible SLA management
- Assured connectivity

**MOBILE BACKHAUL**



- 100GE HW OAM
- Segment Routing
- Flexible SLA Management
- Synchronization\*
- Low Latency



Interfaces	Services Assurance	Service Support	Resiliency	Synchronization*
Up to: <ul style="list-style-type: none"> <li>• 4x100GE + 40x10GE</li> <li>• 88x10GE</li> </ul>	<ul style="list-style-type: none"> <li>• Hardware-based CFM</li> <li>• ITU-T Y.1564 and RFC2544 test head and service performance analyzer</li> <li>• In-service testing capabilities</li> <li>• ITU-T Y.1731 SLM/DMM per port/EVC/VLAN/COS</li> <li>• MEF 46,48,49 - SAT Power Play</li> <li>• TWAMP</li> </ul>	<ul style="list-style-type: none"> <li>• PLS L3 VPN over BGP</li> <li>• IEEE 802.1Q bridging</li> <li>• IEEE 802.1ad Q-in-Q</li> <li>• 2-tag management (push / pop / swap) for c-tag and s-tag</li> <li>• MPLS L2VPN</li> <li>• Full VPLS PE, MTU, HVPLS, VPWS</li> <li>• BFD support</li> </ul>	<ul style="list-style-type: none"> <li>• Sub-50ms RSVP-TE FRR</li> <li>• Dual-homing VPLS/HVPLS</li> <li>• Secondary LSP</li> <li>• ITU-T G.8032, xSTP, resilient links</li> <li>• LAG (Static/IEEE 802.3ad LACP/Multi-chassis)</li> <li>• CPU redundancy*</li> </ul>	<ul style="list-style-type: none"> <li>• IEEE 1588v2 PTP</li> <li>• Synchronous Ethernet</li> <li>• External Timing Interfaces:                             <ul style="list-style-type: none"> <li>• Bits in or out (1.544Mb/s, 2.048MHz and 2 Mb/s)</li> <li>• Frequency in or out (1.544MHz, 2.048MHz, and 10MHz)</li> <li>• 1pps and ToD in or out</li> <li>• (NMEA 0183, MSTs)</li> </ul> </li> </ul>

## TECHNICAL SPECIFICATIONS

<b>Hardware Characteristics</b>	40xSFP+ or 4xQSFP28 + 40xSFP+ or 88xSFP+ ports. Wire speed non-blocking up to 1.2Tbps full duplex switching capacity in 2RU
<b>Services</b>	IEEE 802.1Q bridging, IEEE 802.1ad Q-in-Q (TLS), MPLS L2VPN- Full VPLS PE, MTU HVPLS, VPWS, MPLS L3 VPN (BGP), can act as CE and PE
<b>Synchronization</b>	SyncE, IEEE 1588v2 PTP External Timing Interfaces: -BITS in or out (1.544Mb/s, 2.048MHz and 2 Mb/s) -Frequency in or out (1.544MHz, 2.048MHz, and 10MHz) -1pps and ToD in or out (NMEA 0183, MSTs)
<b>Resiliency</b>	Sub-50ms RSVP-TE FRR, TI-LFA, secondary LSP ITU-T G.8032, xSTP, resilient link, dual homing VPLS/HVPLS, BFD, LAG (Static/IEEE 802.3ad LACP/Multi-chassis), CPU redundancy*
<b>Quality of Service</b>	Per port/EVC/flow single/dual rate limiting Hierarchical rate limit per port/EVC/flow SP, WRR and hybrid frames scheduling CoS marking and mapping per EVC
<b>Multicast Management</b>	IGMP v1/v2/v3
<b>OAM</b>	Hardware-based IEEE 802.1ag CFM, IEEE 802.3ah EFM
<b>Testing &amp; Monitoring</b>	MEF 46, 48, 49 ITU-T Y.1564 and RFC2544 test head and performance analyzer In-service testing capabilities, ITU-T Y.1731 SLM/DMM Per port/EVC/VLAN/COS, hardware-based flexible MAC-based loopbacks
<b>Management</b>	Console, Telnet, SSHv2, Radius, TACACS+, SNMP v1/2/3, xFTP, NTP, DNS resolver, NETCONF
<b>Network Protocols</b>	MPLS/L3: IS-IS, OSPF, BGP, RSVP-TE, LDP, Segment Routing L2: xSTP, G.8032, LACP, MC-LAG, L2-Tunneling
<b>Security</b>	ACLs, RADIUS, SSHv2, SNMPv3, SFTP, port security, broadcast storm prevention, secure access
<b>General Specifications</b>	Dimensions 2RU H x 19"W x 13.7"D (133.35 x 482 x 350mm) Weight: 9kg - 14.5kg Power: Dual redundant, hot-swappable AC or DC 24/-48VDC Max power consumption: 400W Operating temperature: 0°C to 50°C Humidity: Up to 95%, non-condensing Fan: Load sharing, speed controlled, hot-swappable
<b>Regulatory Compliance</b>	European CE marking, EN 55032 Class A, CISPR 22 Class A, EN55035: 1998+A1, EMC Immunity, Harmonics: EN 61000-3-2/ IEC 61000-3-2, Voltage fluctuations: EN 61000-3-3/ IEC 61000-3-3, ESD: EN 61000-4-2/ IEC 61000-4-2, RFI-AM: EN 61000-4-3/ IEC 61000-4-3, EFT: EN 61000-4-4/ IEC 61000-4-4, Surges: EN 61000-4-5/ IEC 61000-4-5, Conducted: EN61000-4-6/ IEC 61000-4-6, Voltage DIP: EN 61000-4-11/ IEC 61000-4-11, EMC Emissions, FCC 47 CFR Part 15 Class A, ICES-003 Issue 4 Class A (Canada), EN 300386, Meets Telcordia GR-1089 issue 4
<b>Environmental and Safety</b>	Full RoHS, NEBS3 compliant IEC/EN/UL 62368-1, IEC 60950, IEC 60825-1, CSA 22.2 No. 950, Class 1 Laser product safety (eye safety)

## ORDERING INFORMATION

Part Number	Part Number
<b>T-Metro 8104 Base</b>	T-Metro8104 service aggregation platform High capacity 2RU high, 13.7" deep includes: 40xSFP+ ports, Hot swappable fans, Hot swappable two (2) DC/AC PSU
<b>T-Metro 8104 SFP+ Full</b>	T-Metro8104 service aggregation platform High capacity 2RU high, 13.7" deep includes: 40xSFP+ ports + expansion of 48xSFP+ ports and an OAM card, Hot swappable two (2) DC/AC PSU
<b>T-Metro 8104 100GE Full</b>	T-Metro8104 service aggregation platform High capacity 2RU high, 13.7" deep includes: 40xSFP+ Ports + expansion of 4xQSFP28 (100GE) ports and OAM card Hot swappable Fans, Hot swappable two (2) DC/AC PSU
<b>Ext-T-Metro 8104-48SFP</b>	Expansion module for T-Metro 8104 Base with 48xSFP+Ports
<b>Ext-T-Metro 8104-100GE</b>	Expansion module for T-Metro 8104 Base with 4xQSFP28 Ports
<b>Ext-T-Metro 8104-OAM</b>	Expansion module for T-Metro 8104 Base. Enables hardware OAM capabilities

\* Subject to Roadmap

## ABOUT TELCO SYSTEMS

Telco Systems delivers a portfolio of carrier Ethernet and MPLS-based demarcation, aggregation, and uCPE solutions that enables service providers to create intelligent, service-assured, CE 2.0-compliant networks for mobile backhaul, business services, and cloud networking. Telco Systems end-to-end Ethernet, SDN/NFV-ready product portfolio delivers significant advantages to service providers, utilities, and city carriers competing in a rapidly evolving telecommunications market. Telco Systems is a wholly owned subsidiary of BATM Advanced Communications.

To learn more, visit Telco Systems at <http://www.telco.com>