

Service Providers' Quick Guide: Upgrading 1GE Networks to 10GE and Beyond

A practical guide for scaling Carrier Ethernet networks with BATM Networks' T-Series portfolio

Introduction

For over **50 years**, BATM Networks has been delivering **carrier-grade network devices** trusted by more than 300 service providers worldwide. Our Telco Systems T-Series switches are proven in the field, enabling scalable, reliable, and cost-efficient Carrier Ethernet access networks that keep operators competitive in an ever-accelerating digital world.

Today, skyrocketing bandwidth demand driven by cloud services, video streaming, enterprise applications, and 5G backhaul is pushing **1GE networks to their limits**. Stop-gap measures like link aggregation (LAG) or wavelength-division multiplexing (xWDM) add cost and complexity without addressing the long-term challenge.

This guide explores how service providers can modernize their access and aggregation networks by migrating from 1GE to **10GE (and even 100GE) using BATM Networks' T-Series portfolio**.

This Buyer's Guide Shows You How to:

- 01** Migrate your **1GE Metro Ethernet Access Network to 10GE** at the cost of 1GE
- 02** Reduce **CAPEX/OPEX** by consolidating functions into compact, efficient devices
- 03** Deliver **higher bandwidth, lower latency, and SLA assurance** to your customers



The Challenge of Legacy 1GE Networks

Service providers face mounting operational and financial pressure as legacy networks strain under exponential traffic growth:

- **Exploding demand:** OTT apps (Netflix, YouTube, gaming, enterprise cloud) overwhelm 1GE infrastructure.
- **SLA risks:** Meeting strict latency, bandwidth, and uptime requirements becomes increasingly difficult.
- **Rising CAPEX/OPEX:** More ports, more fiber, more power consumption, all while revenues grow more slowly.

The result? Providers risk losing customers and revenue unless they **upgrade capacity while reducing complexity.**

The Smart Migration Path

Upgrading does not need to mean overspending or forklift replacements. The T-Series offers a step-by-step migration path:

- **1GE → 10GE:** Extend the life of your access network by upgrading key sites and rings.
- **10GE → 100GE:** Scale into high-density aggregation and core connectivity without replacing your entire infrastructure.
- **Service-driven growth:** Upgrade per hop, per site, and at your own pace, aligned to customer demand.

Migration Benefits

- ✓ **Lower CAPEX & OPEX:** Consolidate multiple functions into fewer, more efficient devices.
- ✓ **Simplified management:** Advanced OAM, QoS, and SLA monitoring built into hardware.
- ✓ **Resiliency by design:** Sub-50ms failover with G.8031, G.8032, FRR, and dual-homing.

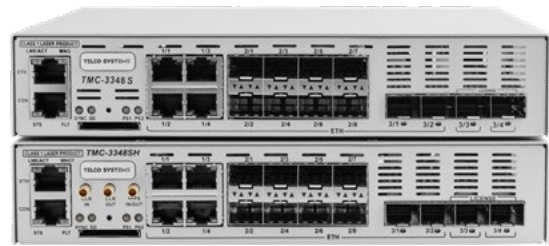
T-Marc 3348 (TM-3348):

High-Performance 1GE/10GE Demarcation Device

The T-Marc 3348S/SH is a best-selling Carrier Ethernet 2.0/MPLS/L3 NID that enables operators to scale efficiently at the network edge.

Highlights:

- ✓ **Ports:** 4 × 1GE/10GE SFP+ (2 active, 2 license-upgradable), 8 × 1GE fiber, 4 × 1GE copper.
- ✓ **Flexibility:** IEEE 802.1q, Q-in-Q, MPLS, L3VPN, TWAMP.
- ✓ **Compact form factor:** 1RU high, half-rack wide (two units per rack).
- ✓ **Advanced OAM:** Built-in Y.1731, CFM, RFC2544, and Y.1564 test head.
- ✓ **Applications:** Business Ethernet, mobile backhaul, enterprise cloud connectivity.



T-Metro 8104 (TM-8104):

Flexible 1GE/10GE/100GE Aggregation Switch

A scalable 2RU device, delivering up to 1.2 Tbps switching capacity, designed for high-density aggregation and multi-service environments.

Highlights:

- ✓ **Base model:** 40 × 1/10GE ports.
- ✓ **Upgradable:** To 88 × 1/10GE or 4 × 100GE ports.
- ✓ **Carrier-grade resiliency:** Sub-50ms recovery, dual-homing, and CPU redundancy.
- ✓ **Service support:** MPLS L2/L3 VPN, VPLS, VPWS, E-Rate, mobile backhaul.
- ✓ **Use cases:** Wholesale Ethernet aggregation, data center connectivity, DIA.



T-Metro 8106 (TM-8106):

High-Capacity 100GE-Ready Aggregation Switch

The T-Metro 8106 expands capacity for operators needing dense 10GE/100GE aggregation in metro and core environments.

Highlights:

- ✓ **Base model:** 16 × 1/10GE + 2 × 100GE ports.
- ✓ **Upgradable:** To 64 × 1/10GE or 6 × 100GE ports.
- ✓ **Advanced services:** MPLS L2/L3 VPN, IPv6 dual-stack, carrier-of-carriers demarcation.
- ✓ **Built-in SLA tools:** Hardware OAM, Y.1564, RFC2544, TWAMP.
- ✓ **Use cases:** Cloud/data center interconnect, large-scale business Ethernet, premium broadband.



Feature	T-Marc 3348S/SH	T-Metro 8104	T-Metro 8106
Role	Edge Demarcation NID (1GE/10GE)	Aggregation & Service Switch (1GE/10GE/100GE)	High-Capacity Aggregation & Service Demarcation (10GE/100GE)
Form Factor	1RU, half-rack wide (compact)	2RU, modular chassis	2RU, modular chassis
Capacity	52 Gbps non-blocking	Up to 1.2 Tbps switching	Up to 1.2 Tbps switching
Ports	4×1GE/10GE SFP+ (2 active, 2 license-upgradable) + 8× 1GE fiber + 4×1GE copper	Base: 40×1/10GE + 4×40/100GE; up to 88×10GE	Base: 16×1/10GE + 2×100GE; up to 64×1/10GE or 6×100GE
Services	MPLS L2/L3, L3VPN, IEEE 802.1q, Q-in-Q	MPLS L2/L3 VPN, VPLS, VPWS	MPLS L2/L3 VPN, IPv4/6 dual stack, Carrier-of-Carriers
Resiliency	Sub-50ms failover, LAG/MC-LAG, FRR, G.8032	Sub-50ms FRR, dual-homing, up to 44 LAGs, CPU redundancy	Sub-50ms FRR, TI-LFA, dual-homing, up to 44 LAGs
OAM / SLA Tools	Hardware-based: Y.1731, RFC2544, Y.1564, CFM	Hardware-based OAM, SAT, TWAMP	Hardware-based OAM, SAT, TWAMP
Use Cases	Business Ethernet, mobile backhaul, enterprise cloud	WholeSales Aggregation, DC interconnects, NNI and DIA	WholeSales Aggregation, DC interconnects, NNI and DIA
Best Fit	First step upgrade from 1GE → 10GE	Flexible aggregation at 10GE/100GE scale	High-density 100GE-ready metro/core deployments

Upgrade Smarter, Scale Confidently

The demand for bandwidth will only continue to rise. Service providers that rely on outdated 1GE networks face increasing costs, complexity, and customer churn.

With BATM Networks' T-Series portfolio, you can:

- Upgrade to 10GE and 100GE with confidence.
- Simplify operations with built-in OAM, QoS, and SLA tools.
- Reduce CAPEX/OPEX by consolidating multiple devices.
- Prepare your network for the next decade of growth.

About BATM

BATM is a global leader in advanced Networks and Cybersecurity solutions, serving telecom operators, governments, and enterprises in over 50 countries.

BATM Networks division powers the edge of innovation with secure, scalable Carrier Ethernet devices (T-Series, X-Series) and virtualized edge management through Edgility.

BATM Cyber division secures the world's most sensitive data with next-generation quantum-encryption and protection.

Together, we deliver carrier-class infrastructure and security for mission-critical environments worldwide.

Connect with BATM Networks today to explore how the T-Series can power your next network upgrade. Contact us at salesnetworks@batm.com or visit our website www.telco.com.