Optical Transport Network Router Supplier - Hardware Deep-Dive and Performance Specification

SYSTEM OVERVIEW

The Optical Transport Network (OTN) Router Supplier platform, designated as the OTR-8800 Series, represents a paradigm shift in converged packet and optical transport. Engineered for the high-performance core and edge of service provider networks, this system integrates Layer 3 routing intelligence with native OTN switching and dense wavelength division multiplexing (DWDM) interfaces. Designed to eliminate the traditional layered network architecture, the OTR-8800 reduces CapEx and OpEx while delivering deterministic sub-50ms protection and carrier-grade availability of 99.999%.

INTERNAL ASIC & BACKPLANE

At the heart of the OTR-8800 resides the fifth-generation Network Processor (NPU-5) and a unified cross-connect ASIC (Fabric-EX). The distributed architecture leverages a non-blocking Clos switching fabric, providing up to 25.6 Tbps of switching capacity per system. The backplane employs high-speed NRZ and PAM-4 signaling, supporting up to 112 Gbps per serial lane. Key internal capabilities include:

- Integrated OTN framing and Forward Error Correction (FEC) on all 100G/400G optics
- Programmable pipeline for MPLS-TP, SR-MPLS, and IPv6 segment routing
- Hardware-based encryption (MACsec and IPsec) at line rate with zero latency penalty

POWER & THERMAL MECHANISMS

The platform supports N+1 power entry modules (AC or -48V DC) with independent circuit protection. The thermal design utilizes front-to-back airflow with variable-speed fan trays, capable of operating from -5°C to +55°C ambient. Acoustic output is optimized for central office deployment, maintaining < 72 dBA at 25°C.

PHYSICAL LIMITS

Maximum power consumption: 1800W (fully loaded chassis). Mean Time Between Failures (MTBF) exceeds 450,000 hours (Telcordia SR-332). Physical dimensions for the 5RU chassis: 222mm (H) x 442mm (W) x 760mm (D). Weight: 42 kg fully configured.

PARAMETER REGISTRY

TECHNICAL SPECIFICATIONS

Parameter	**Specification**
Form Factor	5RU Modular Chassis (19-inch rack mount)
Switching Capacity	25.6 Tbps (non-blocking)
Power Supply	2+2 Redundant, AC (100-240V) or DC (-48V), 1800W max
Port Density	32 x 400GE (QSFP-DD) or 64 x 100GE (QSFP28) or 128 x 10/25GE (SFP28)
OTN Mapping	ODU0, ODUflex, ODU2, ODU4, ODUCn on any port
Latency	< 5 microseconds (store-and-forward,

	1500-byte frame)
Operating Temperature	-5°C to +55°C (long-term)
MTBF	450,000 hours (Telcordia SR-332, Issue 4)

GLOBAL SUPPORT INFRASTRUCTURE

The OTR-8800 is fully managed via the Unified Network Management System (UNMS) or standard NETCONF/YANG models. Global field support includes 4-hour on-site replacement for hardware modules, 24/7 TAC, and a spare parts depot located in key logistics hubs (Americas, EMEA, APAC). Firmware updates and security patches are signed and delivered via the secure customer portal, with a ten-year guaranteed support lifecycle from the date of last order.