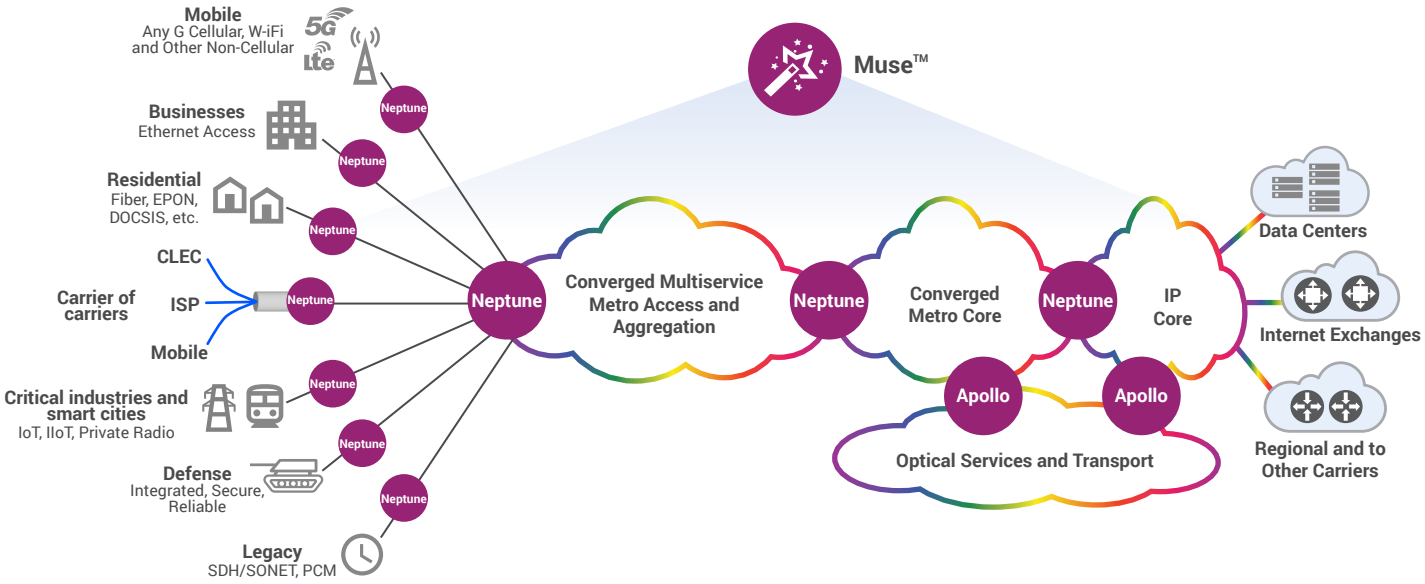
Neptune NPT-1020

Metro Access Transport for Packet and TDM

Netptune (NPT) is a family of carrier-class MPLS-based multiservice packet-optical transport platforms, offering best-in-class Carrier Ethernet and packet transport solutions for the metro. Neptune streamlines end-to-end metro service delivery by combining carrier-grade service assurance, visibility, and control, with packet efficiency and unparalleled L1 to L3 multiservice support. Neptune offers converged support for Ethernet, MPLS, OTN, and WDM to provide a powerful, flexible solution for high-performance services and Elastic MPLS. SDN and NFV capabilities allow Neptune to evolve to meet the rapidly-changing metro environment.

NPT-1020 is an extremely compact multiservice packet transport platform, supporting Ethernet, TDM, and MPLS-TP. Its 1RU height and 60Gbps packet switch make it optimized as a high-capacity CPE. Support for native TDM and TDM over CES/CEP make NPT-1020 ideal for operators looking for a modern packet platform on which to evolve their legacy TDM network. With such a rich and robust feature set, NPT-1020 is well-suited for a wide variety of applications and networking scenarios. These include; CES for TDM migration, mobile backhaul, wholesale services, residential multiplay, business VPNs, and mission-critical service delivery. Like all Ribbon's transport products, NPT-1020 is managed by Ribbon's Muse™ software suite.

Elastic Multiservice | **Carrier-Grade Service Assurance** | **Fully-Managed Across TDM and Packet** | **Elastic Scalability**



Technical Specifications

Packet	Switch: 60 Gbps (10 GbE based configuration)/10 Gbps (GbE configuration) Services: MEF CE2.0 (E-Line, E-LAN, E-Tree, E-Access) PN- and VPN-based Ethernet and IP, MPLS-TP Rooted multipoint for multicast and IPTV Max. Interfaces: 16 x 10/100/1000 Base-T 8 x 100/1000 Base-X 4 x 10GE
TDM	Matrix: 2.5 Gbps with 4/3/1 connectivity (100% Low order granularity) Services: Native TDM, CES (SAToP, CESoPSN and CEP) Max. Native Interfaces: 3 x STM-4, 4 x STM-1, 3 x DS3/E3, 84 x E1 Max. CES Interfaces: 32 x E1/T1, 4 x STM-1/OC-3, 1 x STM-4/OC-12
WDM	CWDM, DWDM, muxponder, amplifiers
Timing and Synchronization	SyncE with ESMC, 1588v2, external timing 1PPS and TOD, internal stratum 3 clock (holdover state), primary and secondary sources (supports SSM bits), ACR, DCR, loop timing on SAToP, TDM bits (T3/T4), and SNTP
Protection and restoration	Hardware redundancy for power supply units, IO protection (IOP), RSTP/MSTP, G.8032 Ethernet Ring Protection (ERP), MPLS-TP FRR, Dual FRR, 1:1 Linear protection, PW Redundancy (PWR), Multisegment PW, IEEE 802.3ad Ethernet Link Aggregation (LAG) with LACP, Multichassis LAG (MC-LAG)
OAM	Ethernet OAM (IEEE802.3AH, IEEE 802.1ag, and ITU-T Y.1731 PM), MPLS-TP OAM (G8113.2)(CC/AIS/RDI/LB/LT/DM), Bidirectional Forwarding Detection (BFD), RFC 2544 Generator, Y.1564 -Ethernet service activation (SLA)
Traffic management	Traffic classification (based on Port, VLAN, Port+VLAN, IEEE 802.1p and DSCP), Diffserv-based TM, Network Connection Admission Control (CAC), 8 Classes of Service (CoS)
Topologies	Mesh, dual homing , multi-ring, ring, star, linear
Security	RADIUS (client authentication), SSH 2, SW integrity verification (SHA-2), SFTP, Access Control List (ACL), IEEE802.1x, control channel HMAC-256, public key authentication, port blocked by default
Management	MUSE Lightsoft NMS, EMS-NPT, SNMPv2/v3, LCT, LightAPPS
Power over Ethernet (PoE+)	Up to 30W
Performance monitoring	Electrical, colored C/DWDM, tunable, non-colored, Compact SFP (CSFP)SFP+, bidirectional SFPs/SFP+
Operating temperature range	-40 VDC to -72 VDC, 110 VAC to 230 VAC
Operating RH range	5% to 95%
Environmental standards	NEBS –GR-63 Core, GR-1089 Core, ETS 300 019-1-3 Class 3.3, ETS 300 019-2-3 Class 3.3, IEEE 1613 (electric utility substations), IEC 61850-3 (electric utility substations), EN 61000-6-5 (immunity for substations)
Safety	EN60950-1
EMC	EN 300 386
Physical dimensions	H x W x D: 1.7" x 18.3" x 10.4" / 44 x 465 x 263 mm

Expansion Unit

OTN	Services: Ethernet, storage, video, SDH/SONET Max. service interfaces: 48 x 1GE, STM-1/4/OC-3/12/FC-1, 24 x STM-16/OC-48/FC-2, 12 x FC-4, 3 x 10GBE/FC-8/FC-12/STM-64/ OC-192, 30/24/12 x SDI/HD-SDI/HD-SDI3G, Max. transport interfaces: 24 x OTU-1, 3 x OTU-2/e
Packet	Max. service Interfaces: 36 x 10/100base-T, 36 x 100 base-X, 12x100/1000 Base-X, 24x10/100/1000 Base-T
TDM	Max. service interfaces: • Native: 189 x E1, 9 x E3/DS3, 12 x STM-1 • CES: 96 x E1 • Native or CES: 72 x (n x 64Kbps ,FXO, FXS, 2/4W E&M, V24 (RS232), V35, V36 ,V11, RS422, RS449, C37.94, OMNI, CODIR, G.703 64K) over TDM or packet

Specifications subject to change without notice

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