

The NEON product is the latest multi-service, large-capacity packet access and aggregation device, It uses IP MPLS technology as the core, supports 100G, 25G, 10G, GE/FE, E1, WDM, STM1 service interfaces. The NEON provides a comprehensive and scalable features of layer 2 VPN (L2VPN), Layer 3 VPN (L3VPN) and PWE3 services with routing technologies, MPLS technologies, TDMoP technologies. It is well suited for the cost-effective delivery of Indian Railways IP MPLS & SDN network. The router shall provide a Non-Blocked switching matrix - upto system capacity.



HIGHLIGHTS

L2 CAPABILITIES & PROTECTION

Supports Layer 2 features, IEEE802.1q, IEEE 802.1P, IEEE 802.1ad. Support LAG/LACP, primary/secondary link aggregation, G.8031, G.8032, G.8131, TE Hot-standby, Traffic Engineering FRR, PW protection, and LSP protection. Support provide carrier-class 50ms switching protection. Supports multi-chassis LAG for aggregation of links across two chassis. Supports point to Point & Point to Multipoint LSP for Unicast and Multicast traffic.

LAYER 3 CAPABILITIES

Supports full suite routing features including IPv4 & IPv6 routing protocols functions, OSPF, BGP, IS-IS, OSPFv3, IS-ISv6, BGP4, Segment Routing or similar protocol and Circuit emulation. Supports BGP Prefix independent control (EDGE & Core).

MULTISERVICE

Supports multiple services types, including L2VPN, L3VPN, PWE3 service. Up to 16xE1 interfaces for connecting legacy TDM network. Support WDM As network evolves, it is critical for carriers to deploy advanced OAM to monitor the health and performance of the network, including Hardware-based BFD, MPLS-TP OAM and Y.1731 features they supply multi-layer continuity check, frame delay, frame jitter and packet loss measurement mechanism and RFC2544, Y.1564 supply the throughput of the network. Supports performance monitoring for Layer-2 and layer-3 services (Y.1731/Y.1564, TWAMP, SAA or equivalent). Supports BFD with Interval of 10ms or less. Supports more than 64 BFD sessions.

SYNCHRONIZATION TECHNOLOGY

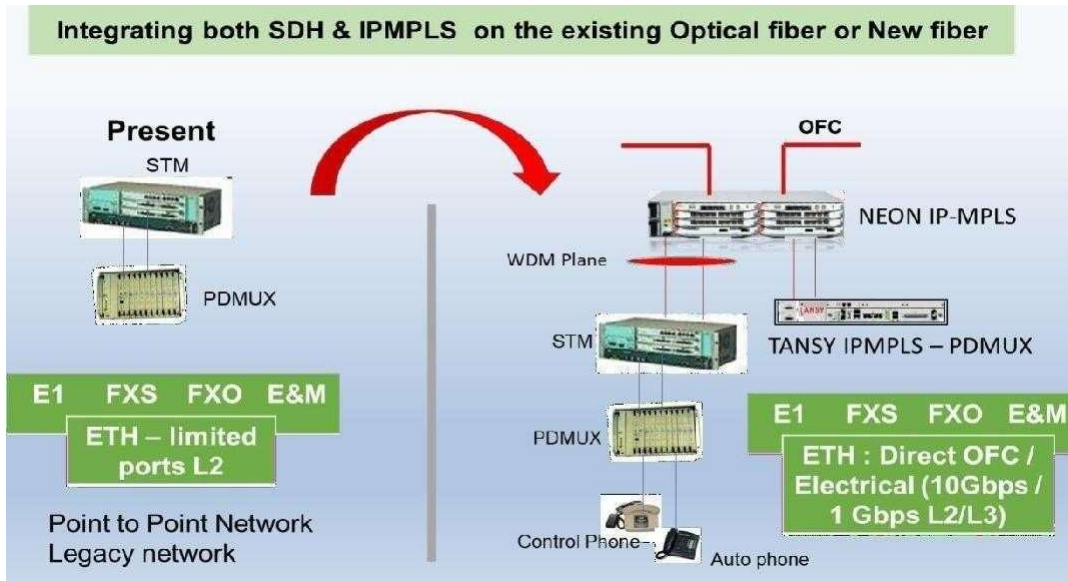
Support IEEE 1588V2, SyncE, Timing ports- TOD in, TOD out, NTP, SYNC/BITS interface /similar timing protocol required for LTE network.

HOT - SWAPPABLE

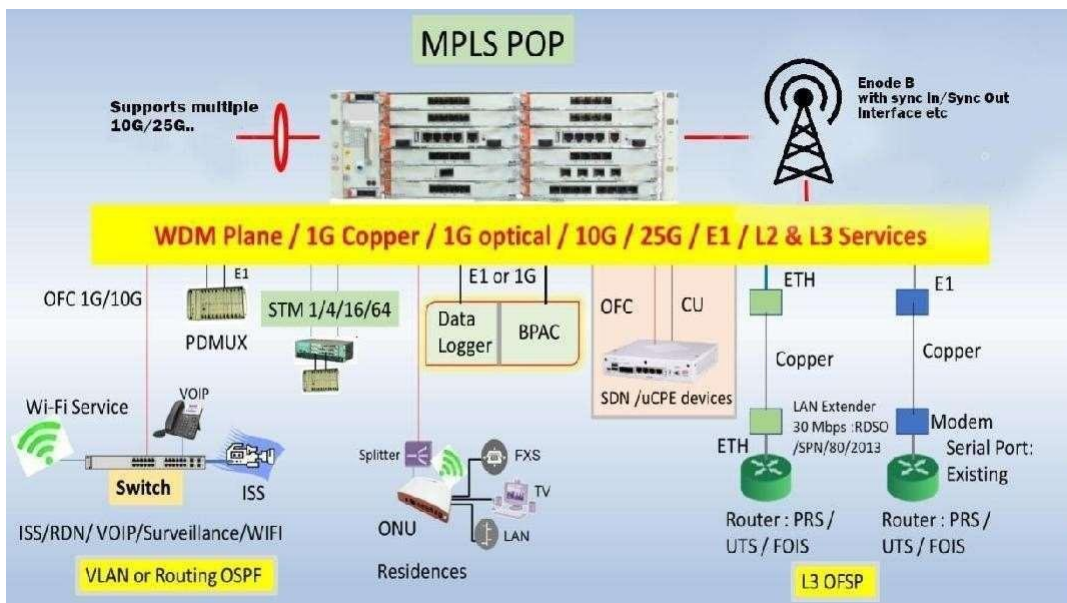
Support Hot-Swappable controller cards, Fan tray interface cards and Field Replaceable Unit (FRU).

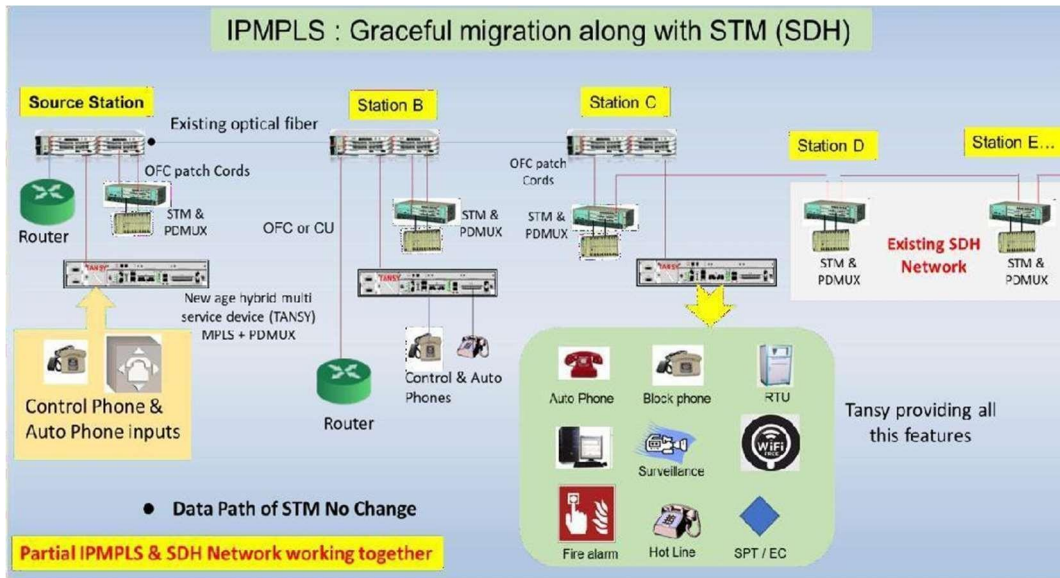
ALARMS

External alarms provided vide LED indicators notifying various status of the device and through NMS with audible alarms and provision of extending through NEG port.



NEON assists Indian Railways to migrate to IPMPLS in a seamless manner by using the existing optical fibre or new optical fiber or mix of both. It is a versatile device supporting amazing through-put as required for a strong back bone like Indian Railways





It supports multiple interfaces and features to able to cater to the needs of Indian Railways from legacy to pure IP and also work as back bone for SDN network or Whitebox for devices connected to the network

TEAM LINK SMART SFP (STM1)

Team Link SMART SFP : Assisting Railways to migrate with ease

SMART SFP

- Supports STM1
- Supports Channelized STM1
- Plug & Play
- Support STM 4 / 16 / 64 if required

FEATURES	
L2 FEATURES	Support IEEE802.1q, IEEE 802.3ad, IEEE 802.1ab, mirror IEEE 802.3ah, IEEE 802.1ag, ITU-T.Y.1731, IETF RFC2544.
L3 FEATURES	Support IPv4 Routing Protocol : OSPF, IS-IS, BGP4, static routing. Support IPv6 routing protocol : OSPFv3, IS ISv6, BGP4+, static routing Support IPv6, IPv4 dual stack. Support dynamic and static ARP, support DHCP.
MPLS FEATURES	Support DP, L2VPN (VPWS/VPLS). Support MPLS/BGP 3VPN, MPLS-TE.
QOS	Support DiffServ mode based on flow classification, flow classification based on VLAN, 802.1p, VLAN+802.1p . Support WRED, CAR ratelimit (RFC2697, RFC2698, RFC4115, MEF10) Support port-based traffic shaping, support 8 priority queues per port. Supports per-service, per-forwarding class queuing & shaping features. Supports 3 level HQOS on all kind of Ethernet interface with minimum 8K hardware queues Support IP Application Mapping. The list of IP match criteria should include Source IP address and mask, Destination IP address and mask, IP protocol, UDP source port, TCP source port, UDP destination port, TCP destination port. Support critical applications SCADA, VOICE, Video. VLAN Cos differentiation: appropriate service differentiation must be applied according to the 802.1p bits. This will require the mapping of the 802.1p bits to DSCP values and EXP - bits in the MPLS header when the service is offered over a partially MPLS - enabled network. The router shall provide following QoS features : -> Classification and hierarchical scheduling, WRR, strict priority (SP) profiled scheduling a& Multi - tier policing and shaping. -> Similar QoS shall be supported for all types of Ethernet interface including bundled interfaces.
OAM & SLA	IEEE 802.3ah, IEEE 802.1ag, ITU-T.Y.1731
PROTECTION	BFD for IP/RSVP/LDP/LSP/PW/RRRP/OSPF/ISIS/BGP.Y.1564 RFC2544 LAG/LACP, Active and standby Trunk, G.8032, VRRP
SYNCHRONIZATION	TE FRR, TE-Hotstandby, LSP1:1, PW Redundancy Support SyncE Support IEEEv2SDN, EVPN
IP - MPLS	Supports interoperability with routers of other multiple OEMs Supports 64k IPv4 & 64k IPv6 routes.
PROTOCOLS	Supports IPv4 and IPv6, IGMP, MLD, and PIM-SM & SSM, ECMP, NGMVPN. Supports Multicast troubleshooting tools like Mtrace and mfib ping or equivalent troubleshooting mechanism. Supports 6PE and 6VPE mode for IPv6 transport over IPv4. Multicast routes more than 1K supported. Supports Internet Group Management Protocol (IGMP) v1, v2 and v3. Supports SNMPv1/v2/V3. Security forms an integral part of a network design to protect both the end - customers and the network infrastructure. The solution that the vendor proposes shall have the necessary provisions to implement the necessary security measures. Supports Access Control List to filter traffic based on Source & Destination IP Subnet, Source & Destination Port, Protocol Type -(IP, UDP, TCP, ICMP etc.) & Port Range. Supports aggregation of more than eight links as part of single aggregation on a network. Supports more than : 500 MPLS layer-3 VPN's, 500 MPLS VPLS, 500 MPLS Layer-2 PWs. Supports more than 100 multicast groups. IEEE 1588v2 Precision timing protocol (PTP) & Synchronous Ethernet support for Network synchronization.
SECURITY	Supports Black hole filtering: dropping of traffic destined for a specific prefix at wire speed Supports Ingress and egress packet filtering based on L2-L4 criteria at wire speed. The possibility to log the actions on individual filter rules supported. Supports AAA support: Accounting, Authorization and Authentication of users and commands Support of local authentication, TACACS+ and Radius. Supports Authentication of routing protocol updates: IS-IS, OSPF, BGP Supports secure shell network protocol SSH. Protection of local services (HTTP, small UDP/TCP servers, DHCP, TELNET, SSH) based on L2-L4 criteria.

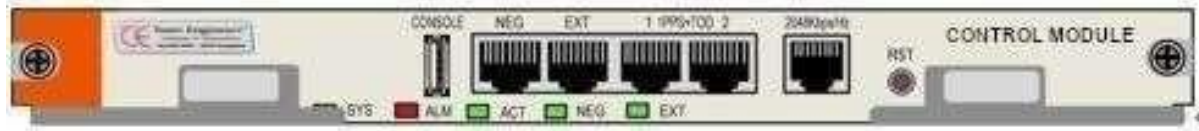
SPECIFICATIONS

PHYSICAL FEATURES	Switching capability : 350Gbps (full-duplex) Interfaces: Type: 100G, 25G, 10G, GE/FE, E1, WDM. STM1x12, 2x100G/8x25G/32x10G 6x10G+48xGE/FE,64xE1 Console Port, NEG Port
POWER SPECIFICATIONS	Power supply: DC: -48V (-40V~-57V) Power consumption: <300W
USER CONDITIONS	Operating temp: -15°C ~ 65°C Relative humidity of operating(long-term)10% RH~90% RH(Indoor), no condensation
DIMENSIONS	444mm×220mm×133mm, standard sized 19-inch rack
HIGH	3U

COMPLIANCES

STANDARDS & PROTOCOLS	IEEE802.3 IEEE802.u IEEE802.3ad Link Aggregation IEEE802.1p IEEE802.1Q VLAN IEEE802.1ad QinQ IEEE802.1ag CFM ITU-T.Y.1731 Services OAM RFC2544 RFC2328 OSPFv2 RFC4271 BGPv4,RFC3107 BGPv4 RFC4760 MP-BGPRFC3985 PWE3 C2547 BGP/MPLS VPN RFC5659 Multi-Segment PWE3 RFC5880 BFD RFC5086 CESoPSN RFC4553 SAToP
RDSO	STT/TAN/IP-MPLS/2020(Software/Environmental / Hardware)

NEON-NXU



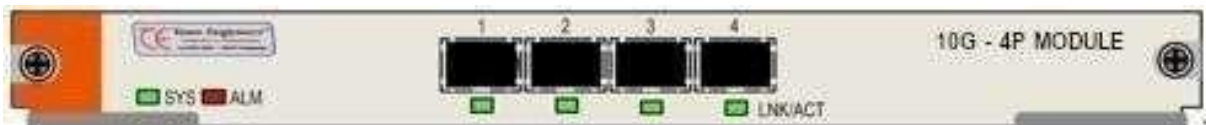
NEON-RC1-100G



NEON-RK4-25G



NEON-RX4-10G



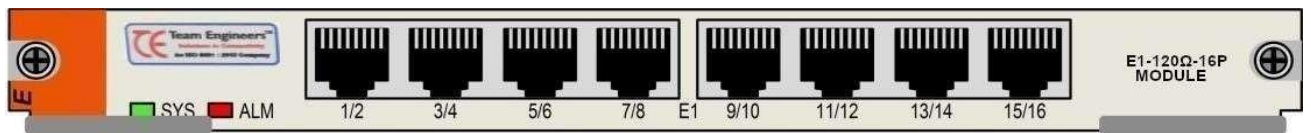
NEON-STM1-4P



NEON-RG8-1G



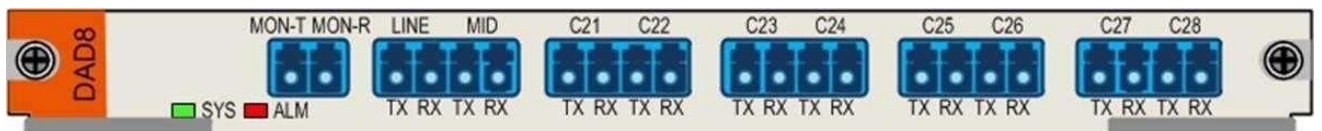
NEON-RE16-BL-E1



NEON-OMD8-WDM



NEON-DAD8 : DWDM



ORDERING INFORMATION	
NEON - DC	NEON Entire chassis, including fan and 2 DC power supplies (1+1 hot standby field replaceable) DC power feeds: -48VDC
NEON - NXU	Main Control Card & Standby (Dual Control Card Support) 1+1 Protection
NEON - RC1 NEON - RK4 NEON - RX4	100G Service Card 25G Service Card 10G Service Card
NEON - RG8	GE Service Card
NEON - RE16 - BL NEON - OMD8	CES E1 Service Card WDM Service Card
NEON - STM1 (RS4)	4 x STM 1 Module Channelized / SMART SFP
NEON - DAD8	DWDM Module 4 WAY EAST & 4 WEST
NEON - 01	LER Router Type - 1
NEON - 02	LER Router Type - 2
NEON - 03	LER Router Type - 3
NEON - LSR	LSR Router

