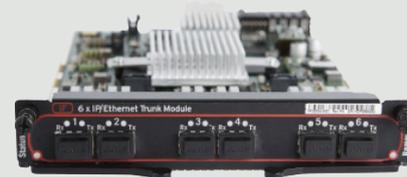


IP/Ethernet Trunk module

Reliable media transport over IP for the Nimbra 600 MSR

MODULE



The 6-port IP/Ethernet Trunk Module enables multi-service media transport over IP with industry-leading Quality of Service.

The 6-port IP/Ethernet Trunk Module provides scalable and cost-efficient media transport over IP with guaranteed Quality of Service and end-to-end performance management.

The IP/Ethernet Trunk Module for the Nimbra 600 MSR enables efficient QoS transport of native video, audio and IP services over IP/MPLS/Ethernet infrastructure, for demanding media and broadcasting applications.

The IP/Ethernet module extends the usage of the Nimbra 600 series multiservice switches to transport services not only over fiber, WDM and SDH/SONET networks, but also over packet based network infrastructure, making Nimbra a true “any service over any media” platform.

Service-Centric Network Management

The IP/Ethernet Trunk Module supports Net Insight’s service-centric network management concept. Services are provisioned, monitored, and protected without any need for advanced IP traffic engineering or any interaction with the IP service provider. New services are provisioned end-to-end without affecting any ongoing transmissions and independently of the IP core network.

The IP/Ethernet Trunk Module is provisioned at setup only and each port can allocate trunk bandwidth in steps of 0.5 Mbps, for transport of any mix of video, audio and IP services.

QoS enhanced links

In addition to the advanced management and network protection features found on all Nimbra trunk modules, the IP/Ethernet Trunk Module implements Forward Error Correction (FEC) to protect the

link from bit errors or packet drops that occurs as the traffic traverses the underlying packet network. Advanced clock recovery mechanisms are used to preserve a high QoS in terms of jitter and wander.

Performance Monitoring

The IP/Ethernet Trunk continuously monitors the performance of the underlying IP network in terms of:

- Statistical counters and Packet Delay Variation (PDV) gauges on the MSR trunk links (MSR to MSR), even if it consists of multiple IP hops.
- Ethernet statistics on the link to the next IP router.

The performance monitoring is done on actual data path traffic and does not require the extra overhead or equipment of external probing systems. Performance monitoring can be consolidated over time and/or topology to produce reports for SLA follow-up.

KEY FEATURES

Service aware media networks.

A Nimbra MSR network is capable of looking at each individual media service within the core network without any grouping into service classes - to make the network truly aware of each individual service.

Lossless routing.

From ingress port to egress port, a Nimbra MSR never loses a single packet. Lossless routing is possible thanks to dedicated QoS allocation per service, together with Net Insight's unique time synchronization.

QoS enhanced links.

At each hop, the Nimbra MSR performs specific tasks to improve the QoS of the underlying IP network. This functionality consists of Forward Error Correction to reduce packet loss, traffic shaping to facilitate resource allocation and resynchronization to reduce jitter and wander.

Service-centric network management.

In a Nimbra MSR network, each service can be provisioned, monitored and protected individually, on demand and on an end-to-end basis.

6 ports for link diversity and aggregation.

The module is equipped with 6 independent SFP ports.

Bandwidth granularity.

The IP/Ethernet trunk bandwidth may be defined in steps of 0.5 Mbps to allow for cost-effective resource utilization.

Enhanced QoS.

FEC (Forward Error Correction) buffers and advanced play-out functions are implemented to minimize potential Quality of Service degradations caused by the underlying packet network.

Full multiservice support.

The IP/Ethernet interface may carry a variety of services, such as DVB-ASI, SDI, AES/EBU, E1/T1, and Ethernet.

Advanced clock recovery.

Automatic clock recovery circuitry that adapts to packet network jitter/wander levels, with automatic fall-back to local or external reference.

TECHNICAL SPECIFICATIONS

Form factor: Plug-in unit for Nimbra 680/688, uses 1 slot

Physical Interface:

Interface type: SFP ports
Number of ports: 6
Supported SFPs: 1000BASE-T, 1000BASE-SX/LX
Port speed: 10, 100 or 1000 Mbps full duplex auto sensing (1000BASE-T), 1000 Mbps (1000BASE-SX/LX)
Capacity: 6 Gbps

Mapping:

Encapsulation: DTM over DPP-IP/UDP/IP/Ethernet
FEC: 1-10 columns, 4-20 rows, rows x columns <= 100
BW granularity: 0.512 Mbps

Supported standards:

IEEE 802.3 Ethernet
IEEE 802.1Q Virtual LANs
IEEE 802.1p Ethernet User Priority
RFC2474 IP Diffserv Priority
RFC826, RFC903 Address Resolution protocols ARP
RFC768 User Datagram Protocol UDP

Performance management:

24h/15m bins: ES/SES/UAS/BBE/SS
IP: DPP-IP counters
Ethernet: MIB-2/ifgroup and RMON
PDV Max, RMS, 99.9%
Synchronization: Normal, Degraded, Failed

Fault management:

Defects: dLOS, dLOF, dLOP, dLOM, dAIS, dRDI, dDEG
Alarms: Communication and Equipment

Maintenance:

Hardware: Hot swap
Firmware: Remote SW/FW upgrade

Network Management:

SNMP: v1/v2c/v3
Element Manager: Web GUI, CLI
Network Manager: Nimbra Vision

Timing and Synchronization:

Modes: Network timing
Hold-over/Local
External references

Environmental conditions:

Operating temp: 5 to 40 °C (41 to 104 °F)
(short term): -5 to 55 °C (23 to 131 °F)
Storage temp: -40 to 70°C (-40 to 156 °F)
Relative humid: 10% to 90% (non-condensing)

Power consumption: <40W

Regulatory compliance:

Safety: IEC/EN 60950-1
CE marking: 93/68/EEC
EMC: ETSI EN 300 386
FCC Part 15 sub-part B
RoHS directive: 2002/95/EC

Ordering information:

NPS0055-6001 6 x IP/Ethernet Trunk Module

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