

10GE/1GE Trunk Module

High capacity media transport over IP for the Nimbra 600 MSR

MODULE



The 2-port 10GE/1GE Trunk Module enables multiservice media transport over IP/Ethernet with industry-leading Quality of Service.

The 10GE/1GE Trunk Module enables cost-efficient media transport over high capacity IP infrastructure with guaranteed Quality of Service and end-to-end performance management.

The 10GE/1GE Trunk Module for the Nimbra 600 MSR enables multiservice QoS transport of native video, audio and IP services over high-capacity IP/MPLS/Ethernet infrastructure, for demanding media and broadcasting applications.

Service Aware Media Networks

The 10GE/1GE Trunk Module is typically used to interface a service aware media network with the underlying high capacity IP core network. By creating a media service overlay, the network becomes aware of each individual media service. Each service can be provisioned, monitored and protected, not only as a member of a class of service, but individually, on-demand and on an end-to-end basis.

In addition to the advanced management and network protection features found on all Nimbra trunk modules, the 10GE/1GE Trunk Module implements Forward Error Correction (FEC) to protect the link from bit errors or dropped packets. Advanced clock recovery mechanisms are used to preserve a high QoS in terms of jitter and wander.

Service-Centric Network Management

The 10GE/1GE Trunk Module supports Net Insight's service-centric network management concept. Services are setup, managed, and monitored 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 10GE/1GE trunk is provisioned at setup only and can allocate trunk bandwidth from 1 Mbps to the full link capacity (1 or 10 Gbps) in steps of 0.5 Mbps, for transport of any mix of video, audio and IP services.

Performance Monitoring

The 10GE/1GE 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.

2 ports for link diversity and aggregation.

The module is equipped with 2 independent SFP/SFP+ ports for 1GE or 10GE SFPs.

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 fallback to local or external reference.

TECHNICAL SPECIFICATIONS

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

Physical Interface:

Interface type: SFP/SFP+ ports
Number of ports: 2
Supported SFPs: 10GBASE SR/LR/ER, 1000BASE-T/SX/LX/ZX
Port speed: 10, 100, 1000 Mbps and 10 Gbps

Mapping:

Encapsulation: DTM over DPP-IP/UDP/IP/Ethernet
FEC: 2-20 columns, 4-20 rows, rows x columns <= 100
BW granularity: 0.512 Mbps
Backplane modes: 10 Gbps or 5 Gbps
Transport capacity: Max 18242 slots, 10GE (sum of both interfaces)

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
PDV Max, RMS, 99.9%
Ethernet: MIB-2/ifgroup and RMON
Synchronization: Normal, Degraded, Failed

Maintenance:

Hardware: Hot swap
Firmware: Remote SW/FW upgrade

Network & Fault Management:

Alarms: Communication and Equipment
SNMP: v1/v2c/v3
Element Manager: Web GUI, CLI
Network Manager: Nimbra Vision

Timing and Synchronization:

Modes: Network timing
Hold-over/Local
External reference

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: <50W

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:

NPK0022-TR01 1GE Trunk Module Kit
NPK0022-TR10 10GE Trunk Module Kit
NPS0056-6001 10GE Module
NPM0036-01GU 1GE Uplink Option
NPM0036-10GU 10GE/1GE Uplink Option

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