

# Nimbra 390

One box solution for  
Media Transport over IP

## NIMBRA 390



The Nimbra 300 series is used in more DTT networks than any other comparable solution. Nimbra 390 is the 4<sup>th</sup> generation from the industry leader.

The Nimbra 390 MSR combines native video/audio transport with carrier-class Metro Ethernet switching to provide a high quality multiservice solution for demanding applications in the media and broadcast industry.

Nimbra 390 is a flexible access and edge MSR for true multiservice transport, targeting the increasing need for advanced Ethernet services and IP QoS transport. The Nimbra 390 is optimized for use in DTT distribution networks but may also be used for multi-service contribution of video, audio and data.

### True multiservice networking

With 8 built-in Gigabit Ethernet ports, 4 built-in SFP up-link ports, that can host up to 16 QoS trunk connections and two slots for Nimbra 300 series plug-in units, Nimbra 390 provides QoS transport over IP/MPLS/Ethernet or SDH/SONET networks for a large variety of video, audio and data applications. Available service interfaces include: Ethernet, ASI, SDI, AES/EBU, STM-1, E1/T1 and DS3/E3. The built-in Ethernet access (RJ45 + SFP ports) with support for advanced Ethernet services and hitless 1+1 protection switching, enables guaranteed QoS transport also for services carried over Ethernet.

### Lossless routing and QoS Enhanced links

Thanks to dedicated QoS allocation per service and Net Insight's unique time synchronization mechanisms, not a single packet is lost going through the Nimbra 390. What goes in to the MSR comes out of the MSR in perfect shape. To recover from imperfections in the carrier network, the Nimbra 390 also performs forward error correction and traffic re-shaping per hop.

### Synchronization

The Nimbra 390 can optionally be augmented with a unique Time Transfer functionality, to provide near-GPS quality timing via fiber for reliable timing support, independent of GPS that may suffer from availability issues and may not be compatible with national security policies.

### One-box solution for DTT transport

With support for any topology, QoS multicast, with advanced IP QoS probing functionality and Net Insight's Service-Centric Network Management, Nimbra 390 is ready to take on the task of nationwide DVB-T distribution and BMN contribution networks. With support for redundant power supplies, in-service hardware swap and various protection mechanisms, Nimbra 390 ensures reliable and trouble-free operation.

# KEY FEATURES

## Service aware media networks.

A Nimbra MSR network handles each service separately to make the network truly aware of, and provide QoS resources for, 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 jitter and wander reduction.

## Easy end-to-end service provisioning.

MSR signalling, with resource allocation and connection admission control provides for a guaranteed QoS for each service.

## Unique multicast capabilities.

The Nimbra MSR provides easy point-and-click provisioning of QoS multicast services, over any infrastructure and without relying on complicated and error prone IP/MPLS multicast.

## Service-centric network management.

Each service can be provisioned, monitored and protected individually, on demand and on an end-to-end basis.

## Multiservice.

The Nimbra 390 supports a broad range of services, such as studio and broadcast video, data and voice, on the same platform.

## Advanced Ethernet functionality.

Nimbra 390 provides unique capabilities to ensure QoS for end-to-end flows using per flow hard resource reservation combined with admission control mechanisms. The Ethernet Transport Service (ETS) supports Ethernet (Virtual) Private Line/LAN/Tree services, with QoS assurance, to fit virtually all services carried over Ethernet.

## Prepared for Smart SFPs.

In four of the eight Ethernet ports optical or "Smart" SFPs may be inserted. Together with the ETS QoS transport any service provided by the Smart SFP can be carried with 100% QoS.

## Unique timing capabilities.

With support for Time Transfer over IP and IRIG-B interface for Time-of-Day delivery the Nimbra 390 integrates data transport with precision time transport that provides near GPS timing quality over fiber.

## Extensive management options.

The Nimbra 390 can easily be managed by CLI, Web GUI, Nimbra Vision™ or 3rd party network management systems.

# TECHNICAL SPECIFICATIONS

**Dimensions:** 88mm(3.5")x445mm(17.5") x240mm(9.4"), (HxWxD) IEC 60297 (19"), ETSI EN 300 119 compatible.

**Number of slots:** 2, for Nimbra 300 series plug-in modules.

## Fixed Gigabit Ethernet Access:

Interface: 4 x 1000BASE-T, RJ45, 4x SFP bays for Gigabit Ethernet SFPs.  
Standards: 802.1Q/1p, Diffserv, Jumbo frames, bridged or transparent mode, fault propagation, hitless 1+1 protection switching.  
Capacity: 10 Gbps Ethernet switch capacity, 8 virtual Ethernet switches.

**Fixed uplink ports:** 4x IP/Ethernet: 1000BASE-T (10/100/1000) or 1000BASE-SX/LX/ZX SFPs.  
Up to 16 trunks can be mapped on the four uplink ports. Trunks support DTC (Dynamic Trunk Capacity) and 1D/2D FEC.

**MSR Switch capacity:** 5 Gbps (inter-module)

## Power:

Input: 2 x -48 VDC (-60 to -40 VDC) (115/230VAC with external converter)  
Dissipation: <90W fully equipped

## Synchronization:

Input: 2.048 MHz (1.544 Mhz), ITU-T G.703.13  
Output: 2.048 MHz, ITU-T G.703.13.  
Internal oscillator: Stratum 3  
Time Transfer: 2 x 1 PPS + 2 x 10 MHz, 50 Ohm BNC, in/out (optional) IRIG-B004 ToD interface

**Alarm I/O:** DSUB-9, 6 inputs / 1 output

## Performance Management:

Based on ITU-T G.826 with 15min/24h bins.  
Parameters: ES/SES/UAS/BBE/SS.  
IP link statistics with real-time precision monitoring of packet delay variation properties.

## Management:

SNMP v1/v2c/v3, Element Manager, Nimbra Vision

## 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)

## Regulatory compliance:

Safety: IEC/UL/EN60950-1  
Laser safety: CFR 21 1040.10/11  
EMC: FCC 15 Class A, EN 300 386  
CE marking: 93/68/EEC

## Available plug-in units:

8 x SDI Video Access, 8 x ASI transport Access, 4 x OC-3/STM-1 Access, 4 x DS3/E3 Access, 8 x E1/T1 Access, 8 x AES/EBU Access, 4 x DS3/E3 Trunk, 4 x OC-3/STM-1 Trunk, 2 x OC-12/STM-4 Trunk, 2 x OC-48/STM-16 Trunk

## Ordering information:

NPK0024-DWB1 Nimbra 390 Base Unit (1 trunk incl)  
NPM0041-MT3F Additional Trunk feat lic  
NPM0045-3EAF Ethernet Access feat lic  
NPM0020 -300F Ethernet Switching feat lic  
NPM0035-EH3F Hitless ETS 1+1 feat lic  
NPM0017-36T1 Time Transfer RTU license  
NPM0042-IR3R IRIG-B RTU license  
NPA0031-3120 AC/DC Converter

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