NMX™
DIGITAL SERVICE MANAGER

Harmonic’s NMX™ Digital Service Manager is the definitive video network management solution, encompassing a powerful set of tools for monitoring and managing Harmonic compressed digital video and audio systems.

NMX allows operators to run their technical infrastructure in a way that parallels their business — as a series of revenue-generating workflows rather than as a set of discrete hardware components. Available for both traditional hardware-based infrastructures and next-generation, virtualized environments, NMX offers a simple and intuitive interface for creating and modifying channel lineups. It can also be used to set system parameters, whether encoding or rate-shaping; in this instance, the underlying equipment is automatically reconfigured to accommodate the new settings. Status for services and hardware, including alarms, is passed through to the top level, ensuring that problems are quickly detected and resolved. Redundancy is automated.

Adding, reconfiguring or removing services or equipment is fast, easy and error-free with NMX. Templating, wizards, consolidated data views and powerful cut-and-paste functions are available for both service and system modifications. A three-pane layout affords the operator an easier overview into their service paths through the network elements.

NMX is designed for 24x7 management of Harmonic Electra® encoders, ProStream® stream processors, the new generation of XOS appliances including packager for OTT applications and other components in the workflow. It can run on a single computer or be distributed across multiple servers for maximum availability. Service and configuration data are stored in a reliable, industrial-strength database. NMX provides multi-level security, ensuring full control of operational privileges. In addition, a comprehensive audit trail and consolidated alarm log pinpoint hardware or operational problems.

In a virtualized video infrastructure featuring the VM versions of Electra X and ProStream X, NMX is used to perform the application-level management and provisioning. NMX provides the video network group creation, service configurations, application alarm/events/fault monitoring and failover in the same way it manages and provisions dedicated video-processing appliances. NMX server itself can be deployed as a VM running under VMware vSphere®.

NMX is highly scalable and extensible, growing in tandem with the environment it supports. The client/server architecture supports both the centralized management of even the most geographically distributed environments, as well as the remote management of a centralized environment, all using standard TCP/IP LAN/WAN technologies. The use of standard-based interfaces enables NMX to interconnect with other subsystems, including umbrella management, conditional access, automation, and scheduling. As the managed environment grows in scope and scale, NMX can distribute its processes across multiple PC platforms, as necessary, providing inexpensive raw processing power.

Moreover, through historical analysis, NMX offers detailed reporting of bandwidth usage and alarm behaviors, allowing operators to identify system-wide trends and improve overall network stability.

HIGHLIGHTS

- Service-oriented to work the way operators work
- “Input to output” GUI and functionality
- Template, spreadsheet, and wizard-based configuration for fast system setup
- Scalable to any size system
- Manage traditional hardware-based and virtualized video infrastructures
- Centralized management of geographically distributed systems
- Distributed processing for high availability
- Flexible redundancy management
- Global Recovery System management through umbrella NMX feature
- Powerful automation interface
- Internal DPI server supports SCTE standard digital program insertion cue message injection
- User administration/security/audit trail tools
- Extensible third-party device monitoring using GPI closures and SNMP
- Historical and statistical analysis of bandwidth and alarm behaviors
- Advanced automation and scheduling engine
FEATURE SUMMARY
Network, Service Control & Provisioning
Redundancy Support (1:1, N:1, N:M)
Basic Alarm Package (Pending alarms, history alarms, status colors on icons)
PSI/SI Package (PSI/SI table support, private descriptors)
CAS Package
Advanced Alarm Package (Advanced alarm configuration, alarm forwarding, consolidated alarm viewer)
Security Management Package (Full user administration tools, audit trail)
Automation Server Package (Access the automation server and scheduling engine)
Distributed Management Package (Monitoring and control of geographically distributed systems)
NMX PC Fail-Safe Package (NMX 1:1 redundancy, auto-restart)
Available as a VM
Maximum number of connected client applications: 25

APPLICATIONS
Satellite
Centralized or distributed cable
Virtualized Video Infrastructure
VOD
Multiscreen
Terrestrial
Telco
Network distribution
Backhaul
Network PVR

USER-FRIENDLY
Templates at device and system level
Cut, copy and paste functions
Wizard-based setup
Batch-driven automation tools
Spreadsheet tool User-friendly

SERVICE MANAGEMENT
Simple template-based service setup
Extraction of service information
Service level or PID level manipulation
Service tracking across topology
Dynamic PSI/SI table generation
Completely flexible private descriptor generation
Virtual service and stream management
Service-oriented alarms and analysis
Program suspend/resume

TOPOLOGY MANAGEMENT
Graphical view of network and devices
Geographical background maps
Multi-level maps
Component backplane views
Cut, copy and paste replication
Template-based topologies
Online and offline operation

CONFIGURATION MANAGEMENT
Device, module and port-level configuration
Consolidated views for easy setup
Template-based configuration

FAULT MANAGEMENT
Manual or automatic redundancy switching
Router-based, path-based or IP-based redundancy mechanisms
GPI (contact closure) device monitoring tool
SNMP-based monitoring of third-party hardware
Alarm configuration
Monitoring and alarm logging, highlights affected services and hardware
Standard PERL scripting tool for automatic emails, pages or SMS messaging on fault conditions
SNMP-based alarm forwarding agent with alarm filtering

SECURITY MANAGEMENT
Full user administration tools for multi-user environments
LDAP user authentication support
Multi-level access privilege
Access can be geographically limited
Lockouts to manage secure modifications in multi-user operations
Comprehensive audit trail

TABLE SUPPORT
MPEG-2, DVB, ATSC compliant
PSI/SI generation
Flexible descriptor generation
Accepts PSI/SI from external sources

CONDITIONAL ACCESS SUPPORT
DVB Simulcrypt V3
OpenCAS
AES
Full CAS redundancy support
Internal EIS

TRAFFIC/AUTOmATION/EIS INTERFACES
Advanced scheduler with timeline user interface
Easy external triggering of user-defined service/configuration states
DVB EIS-Muxconfig support
DVB SIMPCOMP-MUXNOTIFY support
Internal EIS
Extensive coverage and easy to integrate RESTful API
Internal DPI server supports SCTE standard DPI cue message injection

SOFTWARE MANAGEMENT
Storage and distribution of software for easy update across distributed networks
Background download

NMx FAIL-SAFE MANAGEMENT
Automatic 1:1 NMX server redundancy
Auto-restart capability
Powerful catalog and service plan backup/restore management
**MONITORING SOLUTIONS**
Integrated with multiple monitoring solution vendors for an integrated headend
Control and integration with a wide array of decoders

**STATISTICAL ANALYSIS**
Statistical analysis of alarm behavior
Inventory and device status reports

**STANDARDS-BASED**
SNMP
XML
TCP/IP
REST

**DEPLOYMENT OPTION: APPLIANCE**
Server model: HPE ProLiant DL360 Gen10
Hard Drives: Dual SSDs - RAID1 – hot swappable
NIC: Four 1GbE ports (RU45)
Power: Dual redundant power supplies, hot swappable
100/240 VAC, 50/60 Hz input
Max power @ Room temp – 265W (904 BTU)
Max power @ Max temp – 325W (1109 BTU)

Environmental:
Operating temperature: 10°C to 35°C (50°F to 95°F)
Non-operating temperature: -30°C to 60°C (-22°F to 140°F)
Operating humidity: 8% to 90%
EMC Class A: FCC, CE, VCCI, KC, CCC, TCVN, Ctick, BSMI
Product Safety: US/CA NRTL, CB Scheme, BIS, CCC, EAC, BSMI
Product Materials: EU RoHS, China RoHS, EU REACH, WEEE

Physical:
1-RU server
Dimensions (HxWxD): 4.3 x 43.5 x 70.7 cm (1.7 x 17.1 x 27.8 in)
Weight: 15kg (33 Lbs)

Management (IPMI):
Yes
HW alarm monitoring Integrated in NMX SW (thru iLO).


**DEPLOYMENT OPTION: VM OR CUSTOM HARDWARE**

**Recommended System Requirements:**
Processor: 16 virtual CPUs (Intel® Xeon® processor E5-2620 equivalent)
Memory: 32 GB RAM
Disk size: 480 GB
NIC: Four 1GbE ports
Operating System (for Custom Hardware): Windows Server 2019 / SQL Server 2017 (included in NMX ova file)

**ORDERING INFORMATION**
LIC-NMX-BASE: NMX Software Enterprise version 7 and beyond – License
LIC-NMX-BASE-BCKP: NMX Software Base Backup License (for 1+1 Redundancy).
LIC-NMX-BASE-VM: NMX (VM) Software Enterprise version 8.5 and beyond – License
LIC-NMX-BASE-BCKP-VM: NMX (VM) Software Base Backup License (for 1+1 redundancy), version 8.5 and beyond
SW-NMX-REST-API-E: Software license for Managing and Monitoring devices and services using NMX Restful API
SW-NMX-EIS-E: Software license to enable NMX Internal EIS (Event Information Scheduler) – ProStream CAS
SW-NMX-DCO-E: NMX Client License (Designer, Operator) – one is provided in NMX base SW. One license per additional client to be connected at the same time
SW-NMX-SEO-E: NMX Software Stream Editor License. Stream editor client – one is provided in NMX base SW. One license per additional client to be connected at the same time
LIC-NMX-DEVICE-CONF: Software license for Management of device whose configuration is under NMX control (Electra X/XOS, ProStream X, SDI routers and 21 switches, etc). Per device. Monitoring-only devices does not require any license
SW-NMX-DEMO-E: NMX Demo license – Temporary enables all software option – 90 Days