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NMX™

Digital Service Manager

HIGHLIGHTS

- Service-oriented to work the way operators work
- "Input to output" GUI and functionality
- Template and wizard-based 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
- Easy lineup changes using any-to-any technology
- 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

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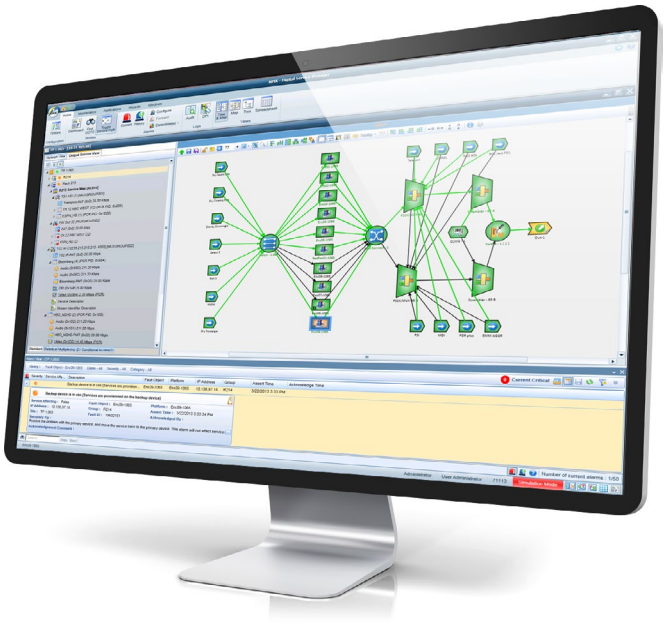

Harmonic's NMX™ Digital Service Manager is the definitive video network management solution, encompassing a powerful set of tools for monitoring and managing Harmonic compressed digital video and audio systems.

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.

With the addition of Harmonic any-to-any technology, NMX allows users to easily modify and deploy new channel lineups on the fly with minimal disruption. A new 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® with ACE® stream processors/transcoders, ProMedia® multiscreen applications and servers, 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 Electra XVM virtualized media processor, 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 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 standards-based interfaces enables NMX to interconnect with other subsystems, including 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.

FEATURE SUMMARY

- Network 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)
- Statistics Package (VOD utilization statistics, alarm statistics, inventory reports)
- 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 clients: 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 toolUser-friendly
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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 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
- 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
- Full XML-based service 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

MONITORING SOLUTIONS

- Integrated with multiple monitoring solution vendors for an integrated headend
- Real-time correlation with multiple MPEG-2 analyzers
- Control and integration with a wide array of decoders

STATISTICAL ANALYSIS

- Statistical analysis of bandwidth utilization for VOD systems
- Statistical analysis of alarm behavior
- Inventory and device status reports

STANDARDS-BASED

- SNMP
- XML
- TCP/IP

RECOMMENDED SYSTEM REQUIREMENTS (VM DEPLOYMENT)

- 16 virtual CPUs (Intel® Xeon® processor E5-2600 equivalent)
- 16-GB memory 1333 MT/s equivalent or higher
- 160-GB SAS 10K or higher hard disk
- Four 1-GbE BaseT ports

MINIMUM SYSTEM REQUIREMENTS (VM DEPLOYMENT)

- Four virtual CPUs (Intel® Xeon® processor E3-1220 equivalent)
- 4-GB memory 1333 MT/s equivalent or higher
- 80-GB SATA (7.2K) or higher hard disk
- Two 1-GbE BaseT ports

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