NView NNM Network Management System

Raisecom network management system, NView NNM, covers the lower two layers (Network Element Layer and Element Management Layer) in the TMN architecture and implements fault management, configuration management, performance management, and security management in the FCAPS (Fault, Configuration, Accounting, Performance, Security) model. NView NNM system manages over all Raisecom network manageable devices from over ten product lines. It is a C/S structured system, in which several Clients can work opposite one Server. This provides carriers great convenience when monitoring and managing devices. All Raisecom network manageable devices have either an internal or an external SNMP agent for communicating with EMS (Element Management System), and a uniform platform is designed for managing all devices in the network on one topology.

A northbound interface is available on the system for the integration to network management systems implementing full FCAPS functions on the higher three levels (Network Management Layer, Service Management Layer and Business Management Layer) of TMN architecture.

C/S Structure and System Deployment

NView NNM Installation and Upgrade

- The installation will install all function components, except for the Performance Management components, and EMS (Element Management System) for all Raisecom product lines.
- Separate installation, deployment, and un-installation of Performance Management
- Uniform upgrade manager controls all upgrade and version rollback
- Recommended hardware configuration for running NView NNM system

<table>
<thead>
<tr>
<th>Complete Installation</th>
<th>Client Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>RAM</td>
</tr>
<tr>
<td>Pentium 4 3GHz</td>
<td>4G</td>
</tr>
<tr>
<td>Pentium 4 2GHz</td>
<td>2G</td>
</tr>
</tbody>
</table>

This is the hardware configuration that we recommend when you deploy a NView NNM system. It guarantees the smooth operating of the system. The requirements on hardware configuration may increase as the capacity of the network under management increases.

- Operation system for running NView NNM system
  - Windows 2003 Server
  - Windows XP
- Monitor resolution requirements
  - Recommended: 1152 x 864
  - Minimal: 1024 x 768
- Database in support
  - MySQL 5.0 or above
  - When choose to install database during the installation of NView NNM, the system will install MySQL 5.0 as database.
- Client auto-upgrade function
  - A distributed deployed Client will detect the upgrades on the Server and automatically complete the corresponding upgrades.
Function and Features

Topology Management

- Multi-level topology displaying
- Manual or automatic topology arrangement
- Device node auto-discovery mechanism
- Device sub-graph auto-drawing mechanism
- Clear indication of current alarm status and device offline status
- Quick location of point of failure in the network
- Topology style customization

- Synchronization mechanism that guarantees the system showing real-time status of network resources
- Uniform platform for online devices polling and offline device detecting
- Resource type and idle slot statistics report per subnets

Configuration Management

- Uniform platform for different EMS, different devices sharing topology, resource, fault, performance, security functions
- User-friendly device status displaying on device panels drawn by EMS
- Real-time status changing feedback for every operation
- Data center provided for centralized management of firmware upgrade and configuration files upload/download
- Batch configuration of SNMP parameters

Resource Management

- Unified management tool for different resources, like devices, chassis, cards, and ports
- Comprehensive resource description, including customer and fault information
- Uniform query platform for quick search of resources

Alarm Management

- Synchronization mechanism that guarantees the system showing real-time status of network resources
- Uniform platform for online devices polling and offline device detecting
- Resource type and idle slot statistics report per subnets
Function and Features

- Standard five-level alarm displaying
- Separate lists for current and historical alarm management
- Grouped alarm monitoring interface defined according to customer's need
- Customized alarm filter rules that filter the displaying of events with less importance
- Automatic alarm list clearing service
- Alarm forward service that forwards alarms received on NView NNM to third-party platform via SNMP
- Alarm locating and troubleshooting library makes fault removal quicker and easier

- Uniform performance management platform for all devices under management
- Tailored deployment for network of different capacity
- Monitor device CPU and RAM utilization
- Collect PON/Ethernet/UNI/SDH port real-time and historical performance data
- Performance graph drawn on the basis of performance data collected
- Performance data export

Customer Management

- Centralized customer information management
- Customer-based resource management
- Customer-based fault management
- Customer information import and export

- Multi-domain multi-authority management
- Different user profiles have different read and/or write authorities over devices in different subnets
- Client access control mechanism
- Unauthorized login deny mechanism
- Keeps system and device operation logs and supports log export

Performance Management
### Product Line under NView Management

**NView NNM Platform, Components and EMS for different product lines**

<table>
<thead>
<tr>
<th>NView NNM Platform</th>
<th>Performance Management Component (Optional)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Element Management System</strong></td>
<td></td>
</tr>
<tr>
<td>EoPDH Aggregation Gateway</td>
<td>RC953E series RC959 series</td>
</tr>
<tr>
<td>EoS DH</td>
<td>RC702 series</td>
</tr>
<tr>
<td>SDH A&amp;D Multiplexer</td>
<td>OPCOM3100 series</td>
</tr>
<tr>
<td>MSAP</td>
<td>OPCOM3500E</td>
</tr>
<tr>
<td>PCM</td>
<td>RC3000-15 RC3000E</td>
</tr>
<tr>
<td>TDMoverIP</td>
<td>RC1201 series</td>
</tr>
<tr>
<td>Chassis with SNMP Agent</td>
<td>RC001/2 series RC006 series Managing over modular mEdia converters, interface converters, G.SHDSL modems, PDH multiplexers, CWDM dEvices, and other last mile access devices</td>
</tr>
<tr>
<td>CWDM</td>
<td>OPCOM100 series</td>
</tr>
<tr>
<td>EPON</td>
<td>ISCOM5xxx/6xxx series</td>
</tr>
<tr>
<td>DSLAM</td>
<td>DLCOM2096</td>
</tr>
<tr>
<td>EoC</td>
<td>ISCOM4902</td>
</tr>
<tr>
<td>Ethernet Switches</td>
<td>ISCOM2xxx series</td>
</tr>
<tr>
<td>Ethernet Demarcation</td>
<td>RC551E series</td>
</tr>
<tr>
<td>Packet Transportation</td>
<td>IPN series oPN series</td>
</tr>
</tbody>
</table>

* The Performance Management Component only works with EPON EMS and Ethernet switch EMS at this stage. The support on other product lines is under development.

### Ordering Information

<table>
<thead>
<tr>
<th>NView NNM</th>
<th>NView NNM platform is the network management system developed by Raisecom to manage over all Raisecom devices. NView NNM provides a uniform platform for all Raisecom network manageable devices. Topology management component, resource management component, alarm management component, security management component, log management component and EMS (Element Management System) for all Raisecom product lines are integrated in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Management Component</td>
<td>Performance Management Component for NView NNM platform. Collect and manage real-time and historical performance data of devices and different types of ports on devices.</td>
</tr>
<tr>
<td>License</td>
<td>License file that verifies the legality of NView NNM series products. The License file defines the device types and the number of nodes to be managed on NView NNM platform.</td>
</tr>
</tbody>
</table>