Network Manager 6.1
Network operations management software

NEC Corporation
NEC brings together and integrates technology and expertise to create the ICT-enabled society of tomorrow. We collaborate closely with partners and customers around the world, orchestrating each project to ensure all its parts are fine-tuned to local needs. Every day, our innovative solutions for society contribute to greater safety, security, efficiency and equality, and enable people to live brighter lives.
Product Overview
MasterScope is a series of Integrated System Management Software products which enables simple operation and supports controlling whole IT system.

### Corporate Management

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<th>Asset Management</th>
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<td>Virtual DataCenter Automation Cloud Manager</td>
<td>AssetSuite</td>
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### Operations Management

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<td>DeploymentManager</td>
<td>NEC SigmaSystemCenter</td>
<td>NetBackUp NetWorker Symantec Enterprise Vault</td>
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<td>PrintCenter V</td>
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### System Management

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<th>Storage Management</th>
<th>Application Management</th>
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<td>SystemManager</td>
<td><strong>Network Manager</strong></td>
<td>iStorageManager</td>
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<tr>
<td></td>
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<td>Performance Monitor Suite</td>
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</table>

*System Manager is included in MISSION CRITICAL OPERATIONS*
MasterScope offers integrated system management for Network, Hardware, and Application layer.

**Target Monitoring layer**
- **Application Performance / Service Level**
  - Performance or service level (mail, Web, DNS etc)
- **Log**
  - Logs from OS or applications
- **Service and process**
  - Windows service, process activation and/or alive status
- **Resource**
  - OS level performance, (CPU, memory, disk capacity etc).
- **Network**
  - Alive status of servers by ICMP (plus SNMP trap monitoring)
- **Hardware failure**
  - Hardware failures (HDD, fan, temperature etc)
- **Storage**
  - Storage operation status or configuration management

**Details**
- **Application Performance / Service Level**: Performance or service level (mail, Web, DNS etc)
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- **Service and process**: Windows service, process activation and/or alive status
- **Resource**: OS level performance, (CPU, memory, disk capacity etc).
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- **Storage**: Storage operation status or configuration management

**Product lineup in MasterScope**
- **Application management “Application Navigator”**
- **Server management “SystemManager”**
- **Network management “Network Manager”**
- **Each HW vendor’s tool (ESMPRO for EXPRESS Server)**
- **Storage management “iStorageManager”**

*System Manager is included in MISSION CRITICAL OPERATIONS*
Common Problems in Network Management

Unpredictable Problems

Can’t we predict it before it happens somehow??

Finding Root Cause

Too many alarms!
I can’t see what the problem is...

Router Management

Backup files of all the router settings should be managed in case of failure, but there are too many...

Equipment Settings

Can’t figure out what those commands mean... but engineers cost a lot!

Loss from the problem

Stable operation with less expense is desired

Too much expense
Solution for the Network Management

- **Monitoring the status of network devices**: Problem has been *solved* before it grows into a big one!
- **Pick up only important alarms**: Yes, this is the **root cause**!
- **Backup and restore the configuration files for multivendor devices **at once**!**
- **Modify settings easily even in the multivendor environment!**
- **Reduce the labor cost by automating the job**
- **Modify the equipment settings through user-friendly GUI display**

*MasterScope Network Manager will provide the solution to it!!*
System Management Examples

**Customer’s Request**

- To know which devices are connected to the network
- To detect network failure quickly
- To monitor the network traffic status
- To make the backup of configuration files for multivendor network devices

**Solution by MasterScope Network Manager**

- Discover the connected network devices automatically and display them on the Map View. Also, equipment list can be created (CSV file).
- In addition to the alarm function on the manager, report function via E-mail/Flashers are also available.
- Traffic information is collected to monitor threshold or to create performance report.
- Various functions are available, such as automatic configuration backup for multivendor management, historical management, and differential reference for modification of settings.

Handle multivendor network environment easily!
Product Features
Features and Benefits

Improve efficiency in the network management!

- Alarm and performance monitoring
- Backup & restore configuration file and firmware for maintenance
- Design & configuration function to support network construction

MasterScope Network Manager

Generic network management system

More functions available

Network Monitoring

Network Maintenance

Network Construction

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Flexible Network Management

**Multivendor Management**

- Status, SNMP, and SYSLOG monitoring functions are available for multivendor devices.
- Maintenance/construction support function can be used for major vendor products.

**Monitoring Function**

- Servers in the network

**Maintenance/construction Support Function**

- NEC
- Alaxala Networks
- Allied Telesis
- Brocade
- Cisco Systems
- Extreme Networks
- F5 Networks
- HP
- YAMAHA

Can monitor all devices supporting TCP/IP and/or SNMP. SYSLOG monitoring function is also available.
Network Manager has been deployed at 6,000 various customers from government, manufacturing, retail and so on.

<table>
<thead>
<tr>
<th>Business type</th>
<th>Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Government</strong></td>
<td>K city Office, T waterworks bureau, N fire office, O town hall, K prefectural police, F prefectural police, H agricultural administration office</td>
</tr>
<tr>
<td><strong>Manufacturing</strong></td>
<td>Amada, A auto-mobile manufacturer, B pharmaceutical manufacturer, C material manufacturer, D electrical appliance manufacturer</td>
</tr>
<tr>
<td><strong>Retail</strong></td>
<td>A hypermarket, C electrical appliance store</td>
</tr>
<tr>
<td><strong>Energy / Carrier / Broadcast</strong></td>
<td>TV Asahi, A electric power company, D carrier</td>
</tr>
<tr>
<td><strong>Transportation service</strong></td>
<td>A railway company, C Airline service company</td>
</tr>
<tr>
<td><strong>Financial industry</strong></td>
<td>A bank, B bank, C bank</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>W University, W prefectural university, H medical school</td>
</tr>
<tr>
<td><strong>Healthcare</strong></td>
<td>N hospital, K general hospital, T university hospital</td>
</tr>
</tbody>
</table>
Functions and Features
Functions List

**Configuration Management**
- Manage complicated network easily by checking visually
  1) Network map view function
  2) Graphical panel view function

**Failure Management**
- Report network failure quickly

**Performance Monitoring**
- Monitor network performance efficiently
  1) Performance Report function
  2) Collect and analyze traffic data

**Configuration File Management**
- Manage configuration files of multivendor products

**Firmware Management**
- Upgrade firmware easily and quickly
The map for the physical location of the troubled node is also available.

- The color of the icons on the map changes after receiving alerts, enabling you to identify which Branch has the failure at a glance.
- Also, you can drill down and identify failed NODE, by creating a map with physical connections of network devices.

Auto-discovery function will find the connected network devices and create icons automatically. Place icons on the map according to the actual position.
Node Management (Visualized Console) #2

<Graphical Panel View>

- Check the status of ports by graphical panel view.
- Monitor the device as if they are in front of you.

- Visually check the status of ports
- Display the graphical panel view for each device
- The panel view is displayed from icon on maps

NodeManager Function

Cisco Catalyst 3550
Cisco Catalyst 2960
Failure Management

<Alert Report Function>

- An administrator is notified quickly whenever specific alerts are received.

The type of report

**E-Mail**
E-mail is sent to an administrator. (SMTP Authentication is supported)

**Flasher**
Flasher is turned on and sound alert is activated. An alert is notified to you via light and sound.

**Executing command**
(bat, cmd, exe, etc.)
Arbitrary commands are executed.

**Sending an SNMP Trap**
The received alert information is forwarded to other SNMP Manager.

This mail transmitted by the automatic operation.

```
GENERATEDDATE:2012/04/05
GENERATEDTIME:22:18:09

NODE: C3750G-24T
SEVERITY: WARNING
APPLICATION: updown:UpDownCheck
OBJECT: Warning

MESSAGEID: 23
MESSAGETEXT: Failed to communicate with the node
```

Network Monitoring
Performance Monitoring #1

<Traffic Report Function>

- Traffic report function helps to analyze the traffic data transition.
- You can also specify the condition of alert threshold with data analysis.

Create daily/weekly/monthly/yearly traffic report by only setting the node and port number

Threshold violation can be confirmed easily

Alerts are generated when data exceeds the threshold.

Conditions of alert threshold
- Detects the continuous threshold violation
- Detects the threshold violation has occurred specified number of times (or more) within the specified period
<Traffic Data Analysis>
- Collect sFlow data to analyze the traffic in detail.
- Collect and analyze traffic data for each protocol, IP address, and service port.
- Capable of identifying the source and destination of any unusual traffic.

NOTE: It collects the traffic information from Equipment supporting sFlow(Datagram Ver.4/5)

* sFlow (RFC3176) = protocol that can monitor the traffic flow by switch/router between end to end.
<Configuration File Management>

- Make the configuration backup from more than 1 node.
- By remote batch distribution of configuration, workload reduced to less than 1/8
- Save backup files taken in the past, sorted by generation date.
- Difference viewer function allows you to check the modified part easily.

Make backup, only by selecting the node list and then execute the backup.
Firmware Management

- Upgrade the firmware for multivendor network devices at once.
- It saves time, as the firmware can be installed to many devices at once.

You can also restart devices to reflect applied firmware, by specifying the schedule.
Overview of MasterScope Network Manager Features

- **Overview**
  - Improve the efficiency in network management by supporting operations such as monitoring, maintenance, and construction of the network.

- **Advantages**
  - Manages multivendor network environment efficiently.
  - Detects network failures and helps to find out root cause quickly.
  - Supports maintenance and construction of the network apart from monitoring.

- **Example Scenarios**
  - Besides monitoring the H/W (network devices and servers), quick response to failure, specification of root cause etc., is also essential.
  - Detailed monitoring of important network devices is required.
  - Performance analysis is required because the network bandwidth is low.
  - Efficiency must be improved in making backup of configuration files.
  - Integrated management of routers (failure/WAN traffic) is required, even though the devices are scattered.
System Examples
Various Nodes Management

The shortage of resources is prevented beforehand by monitoring various nodes, such as N/W device, a server, and a printer by SNMP.

- The shortage of H/W resources is detected beforehand by monitoring CPU / Memory / Disk usage rate etc. (*).
- Device monitoring can be started in no time by using SNMP standard protocol.
- By adding MasterScope SystemManager, servers can be monitored in detail.

(*) Device should support HOST-RESOURCES-MIB
Network Manager provides management function for Cisco Nexus 5000 / 2000 configuration. Reduces administrator’s effort through easily understandable map display!

Network Manager supports multiple vendors such as BIP-IP series, AX series, and ServerIron. This reduces load of administrator during operation and failure.

Network Manager displays Nexus 5000/2000 physical configuration in detail, and enables to localize failure place rapidly.

Detect the failure at a glance. Network Manager easily enables to specify failure of Nexus2000, not Nexus5000.
Network Manager supports Unified management for ProgrammableFlow and Legacy N/W devices

1. **Config Mgmt**: Auto detect ProgrammableFlow and legacy N/W devices, Visualize physical topology and devices status
2. **Failure Mgmt**: Display alerts, Visualize failures, Notify Alerts
3. **Performance Mgmt**: Traffic Monitoring, Threshold Monitoring, Traffic flow (sFlow) Reports
4. **Config File Mgmt**: Automatic config file backup, File version Mgmt, Display differences between 2 versions

【Operation Image】
- Receive alerts for Virtual N/W fault (VTN fault)
- Check alerts and N/W map
- Launch PFC GUI from PFC Icon
- Confirm the status of VTN on PFC GUI

Network Manager

- Auto detect N/W devices
- Display alerts
- Performance Report

Launch PFC GUI from PFC Icon

PFC GUI

Unified Mgmt

1. Display status of N/W devices
2. Alert
3. Display differences between 2 versions

PFC: ProgrammableFlow Controller
PFS: ProgrammableFlow Switch
Network Provisioning

Automatic network resource provisioning according to the changes in server configuration by integration with SigmaSystemCenter

- Add server
- Load Balancer
- Switch
- Blade Server
- The server is added to a load balancer configuration
- SigmaSystemCenter
- The server's network is enabled. (VLAN setting)
- Network Manager
- Network Provisioning

SigmaSystemCenter management console
## Network Manager (Functions List)

### Function Summary

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<th>Function</th>
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<tr>
<td><strong>Node Management</strong></td>
<td>&lt;Manage complex network easily with visualized console&gt;</td>
</tr>
</tbody>
</table>
| Map View                      | • Automatically detect devices and put corresponding icons on the map.  
  • Topology management (can display cables for connection).  
  • Visualize the communication path of selected 2 nodes.                                           |
| Front Panel View              | • Display the front panel of network devices to check the status of port/slot.                                                               |
| **Failure Management**        | <Monitor network devices>                                                                                                                     |
| Status Monitoring             | • Dead/alive monitoring of routers, switches, and servers.  
  (supports IPV4, IPV6 SNMP1, 2c, 3)  
  • Threshold monitoring of link status or traffic for each interface.  
  • Enables to execute E-mail, PATLITE and command notifications whenever specific alerts are detected.  
  • Consolidate all alerts of same kinds to enable easy monitoring for administrator.  
  • Enables trap type transfer of alert information to high level equipment.                      |
| SNMP TRAP Monitoring          | • Collect information from network devices automatically, triggered by specific SNMP trap.                                                    |
| SYSLOG Monitoring             | • Store, monitor, notify the SYSYLOG regardless of the model.                                                                                |
| **Performance Management**    | <Manage network performance efficiently>                                                                                                       |
| Creating Report              | • Create daily/weekly/monthly/yearly report of the traffic data.  
  • Export the collected performance information to CSV file.  
  • Collect communication flow information (sFlow version 4/5) to analyze the details of traffic. |
# Resource Manager (Functions List)

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<tr>
<th>Function</th>
<th>Function Summary</th>
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<td><strong>Configuration File Management</strong></td>
<td><em>&lt;Efficient management of multivendor environment&gt;</em></td>
</tr>
<tr>
<td>Backup/Generation mgmt</td>
<td>• Backup configuration files from multiple devices at once</td>
</tr>
<tr>
<td></td>
<td>• Compare and display the result of two selected configuration files</td>
</tr>
<tr>
<td>Restore</td>
<td>• Restore configuration files to multiple devices at once</td>
</tr>
<tr>
<td>Setting Change Monitor</td>
<td>• Monitor the modification of configuration files and send alerts</td>
</tr>
<tr>
<td><strong>Firmware Management</strong></td>
<td><em>&lt;Easy upgrade of firmware&gt;</em></td>
</tr>
<tr>
<td>Firmware Installation</td>
<td>• Install or restart firmware remotely</td>
</tr>
<tr>
<td></td>
<td>• Restart firmware after installation on scheduled time</td>
</tr>
<tr>
<td><strong>Command Execution</strong></td>
<td><em>&lt;Executing commands to devices&gt;</em></td>
</tr>
<tr>
<td>Command Execution</td>
<td>• Execute commands to devices on schedule, to obtain information or change the configuration periodically</td>
</tr>
</tbody>
</table>

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# Network Provisioning (Functions List)

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<th>Function</th>
<th>Function Summary</th>
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<tr>
<td><strong>Provisioning linkage function</strong></td>
<td>Being linked with SigmaSystemCenter, it is able to actively change the VLAN settings of switches under multivendor environment, according to the load or failure status of the servers. Supported VLAN type: Port VLAN</td>
</tr>
<tr>
<td>VLAN setting function</td>
<td>Being linked with SigmaSystemCenter, it is able to actively change the VLAN settings of switches under multivendor environment, according to the load or failure status of the servers. Supported VLAN type: Port VLAN</td>
</tr>
<tr>
<td>Load Balancer setting function</td>
<td>Being linked with SigmaSystemCenter, it is able to actively change the Load Balancer settings of switches under multivendor environment, according to the load or failure status of the servers. Supported Load Balancing setting type: RoundRobin, LeastConnection, Weighted, Response Time. Supported Session Preservation setting type: SSL, sticky, cookie hash</td>
</tr>
</tbody>
</table>
Realize simple and integrated system operation

If you have any questions about MasterScope, please contact below by e-mail

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