

# OpenView Product Management of Linux Systems

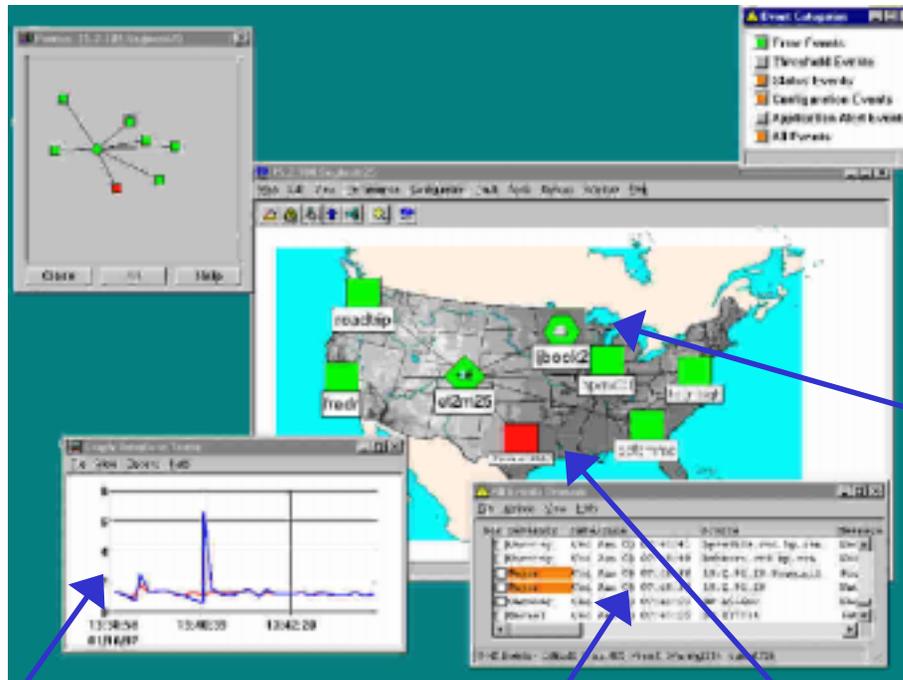
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HP Customer Education

# Outline

- - How Network Node Manager Discovers Linux Systems
- - How OpenView operations for HP-UX (IT Operations) can manage events of Linux Systems
- - How Omniback can manage the backups of Linux Systems

# Network Node Manager



Discovery & Mapping

Data Collection & Graphing

Event Log & Automated Actions

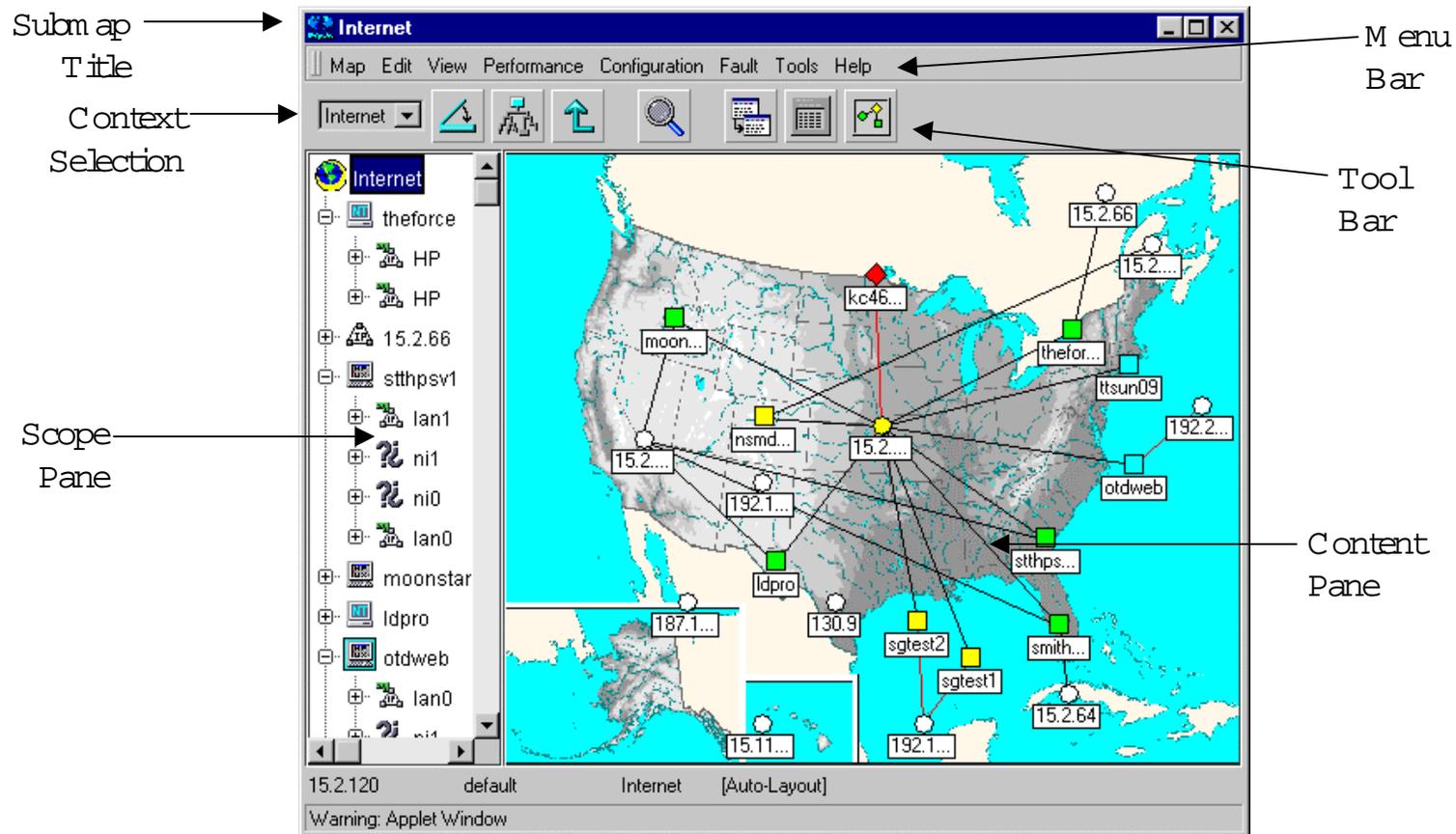
Monitoring

- Proactive problem resolution
- Out of the box Event Correlation
- Out of the box Excel reporting
- Access from anywhere with new Java GUI
- Out of the Box discovery, polling and identification of network elements
- Integration with many 3rd party products

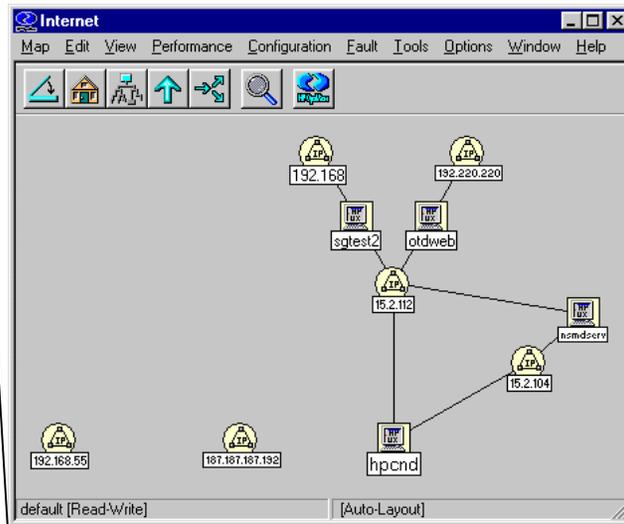
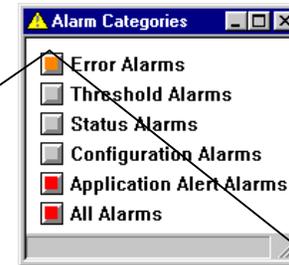
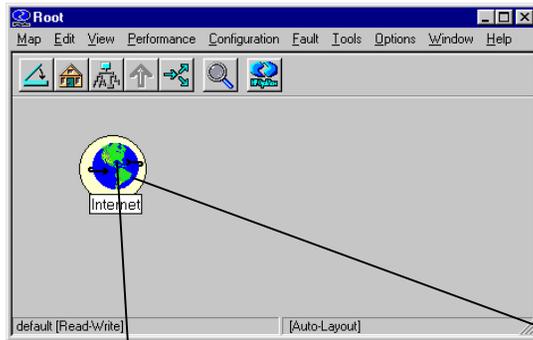
# Basic Features of NNM

- What is NNM
- How does it discover the network
  - Non SNMP Nodes

# The Network Presenter Window



# Basic NNM Windows



The 'Error Alarms Browser' window displays a table of alarm events. The table has columns for 'Ack', 'Cor', 'Severity', 'Date/Time', 'Source', and 'Message'. The status bar at the bottom indicates '3 Alarms - Critical:0 Major:3 Minor:0 Warning:0 Normal:0 (1 acknowledged)'.

Ack	Cor	Severity	Date/Time	Source	Message
<input type="checkbox"/>		Major	Wed May 13 17:40:59	fcpuff.cnd.hp.com	pmd lost contact
<input type="checkbox"/>		Major	Thu Jul 02 12:38:06	fcpuff.cnd.hp.com	pmd lost contact
<input checked="" type="checkbox"/>		Major	Mon Jul 20 09:39:21	fcpuff.cnd.hp.com	pmd lost contact

# SNMP agent on Linux Systems

- How is Linux installed by Default
- Starting up SNMP Agent
- Creating RC script
  - Loading additional MiBs

# Network Node Manager Discovery of Linux Systems

- How NNM Discovers Linux Systems
  - SysobjID
    - RedHat Linux with UCD SNMP Agent  
.1.3.6.1.4.1.2021.250.10
  - SysDescription
    - Configure in `/etc/snmp`.

# Mibs Supported by SNMP Agent

- MIB 2 Mibs - SNMP2, SNMP
- Operating System Mibs
  - Memory Utilization
  - Process Management
- Private Enterprise Mibs
- UCD Extensible Mibs
  - Execute Commands by SNMP Agent

# NNM Symbols for Linux

- NNM – No customized Linux symbol
- OpenView operations for HP-UX has customized symbol for Linux but it is not used in discovery.

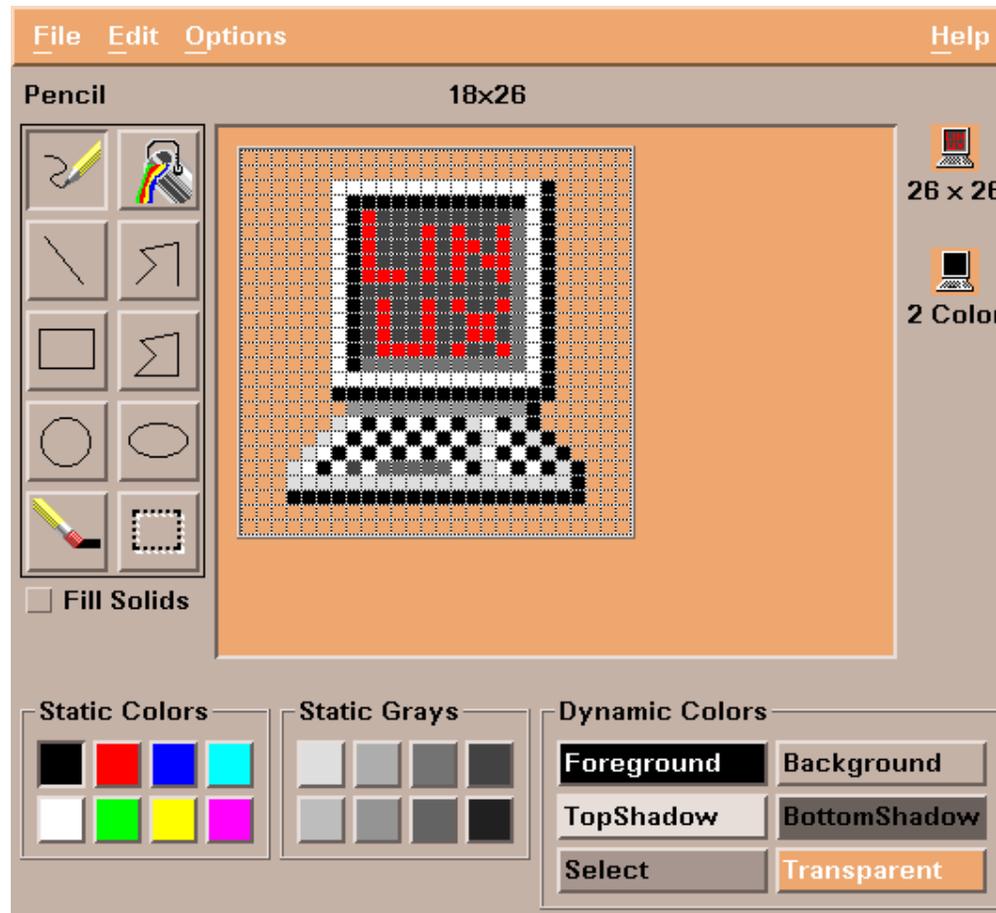
# Customizing a symbol a for Linux System

- Can be done for NNM on UX or NT
- Create a Symbol Registration File
- Example (using NNM on HP-UX)
  - Copy computer symbols and customize them
- Fixing Linux Systems already discovered
  - ovtopofix -l

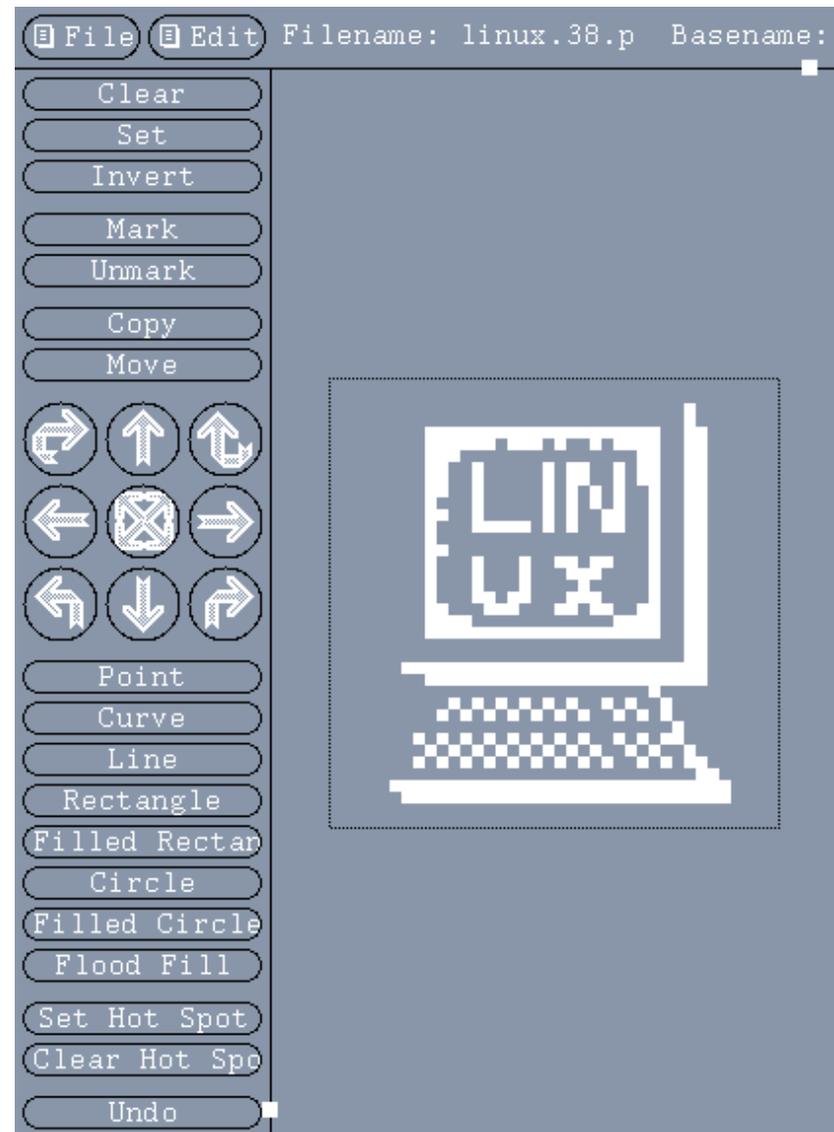
# Customizing a symbol for a Linux System

- Create ICON file
- Create Bitmap file
- Register Symbol
- Configure NNM to use symbol for Linux Systems

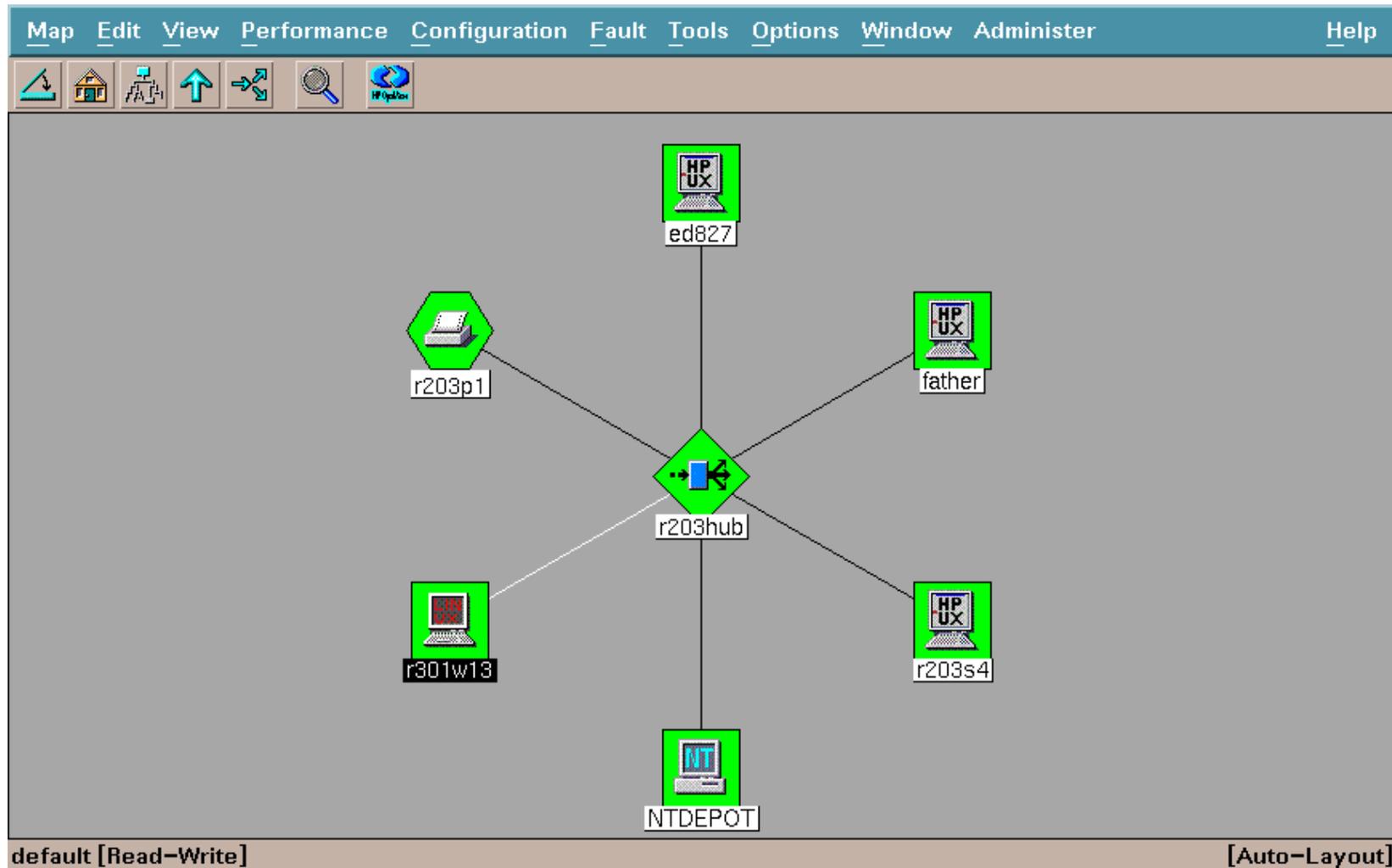
# Icon File Example



# Bitmap file Example



# Final Submap with Linux System



# NNM Summary

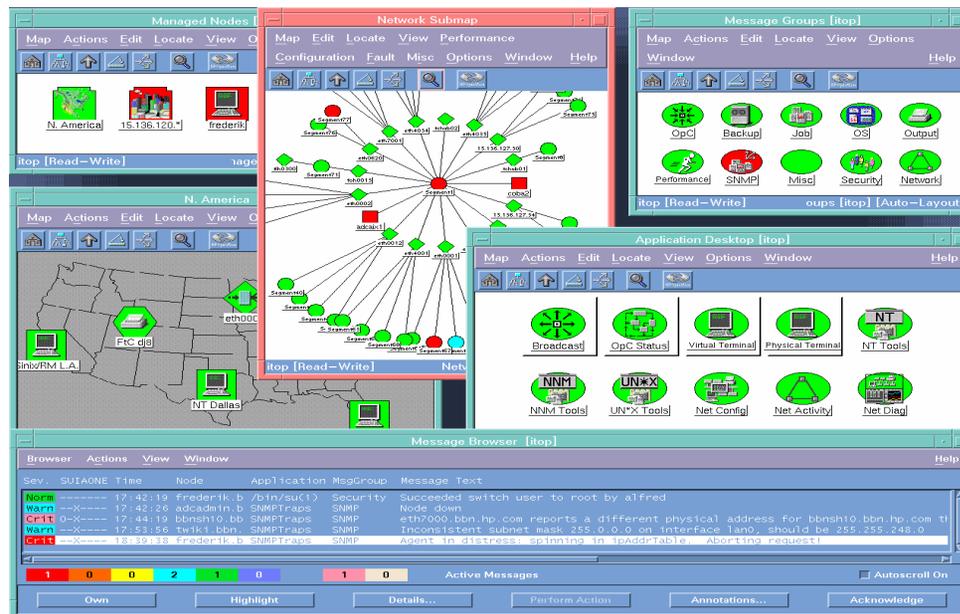
- For Discovery
  - Turn on SNMP Agent
- For Management
  - Copy Mibs from Linux system to SNMP-MIBs directory on NNM System
  - Load Mibs
  - Create customized symbol

# OpenView operations for HP-UX

- What it is
- User Interface
- Action Concepts and Execution
  - Automatic and Operator initiated
- Operator Instructions
  - Pre-defined instructions
  - Instruction text interface
- Notification Services and Trouble Ticket Interfaces
- Note: May be referred to as IT Operations (ITO) or OpCenter (OpC)

# OpenView operations for HP-UX

- **Message Group Window**
- Organize messages by application, function, or any other combination to solve problems faster



## Message Browser

- Provides in-depth message details and user guidance to help solve problems
- Describes actions initiated automatically, as well as those available to be initiated by operators

**Application Desktop**

- Integrated management "toolbox" for solving problems
- Launch other OpenView or HP tools, as well as third-party and custom tools

# Java GUI Client Area

The screenshot displays the HP OpenView IT/Operations Java GUI Client Area. The window title is "HP OpenView IT/Operations [turbogui.bbn.hp.com] [opc\_op]". The menu bar includes File, Edit, View, Actions, Window, and Help. The main interface is divided into several sections:

- Operation View:** A toolbar with various icons for navigation and actions.
- Nodes:** A tree view on the left showing a hierarchy of nodes. The "Nodes" folder is expanded, showing sub-nodes like "all 15 .<\*>", "all <\*>.bbn", "hp\_ux", "bippus", "turbogui", "jester", "NT", and "test\_nodes". The "Message Groups" folder is also expanded, showing "local Application", "Variables", "hello", "ITO Status", "Variable \$OPC\_EXT\_NC", and "Motif SAM".
- Filtered Active Messages:** A table on the right displaying a list of active messages. The table has columns for Severity, SUIAONE, Date, Time, Node, Applica..., and Msc. The messages are color-coded by severity: Warning (cyan), Critical (red), and Normal (green).
- Client Area:** A yellow callout box with the text "Client Area" pointing to the main content area.
- Summary Bar:** A bar at the bottom of the messages table showing counts for different severity levels: 7 (Critical), 0 (Warning), 0 (Normal), 20 (Info), 47 (Debug), 0 (Trace), 5 (Error), and 10 (Fatal).

View only the latest messages on the server

Severity	SUIAONE	Date	Time	Node	Applica...	Msc
Warning	--X----	08/12/98	01:37:42	turbogui.bbn.h...	HP IT/O...	OpC
Warning	--X----	08/12/98	01:02:25	turbogui.bbn.h...	HP IT/O...	OpC
Critical	--X----	08/11/98	17:43:41	turbogui.bbn.h...	HP IT/O...	OpC
Critical	--X----	08/11/98	17:43:41	turbogui.bbn.h...	HP IT/O...	OpC
Critical	--X----	08/11/98	17:30:31	turbogui.bbn.h...	HP IT/O...	OpC
Critical	--X----	08/11/98	17:30:30	turbogui.bbn.h...	HP IT/O...	OpC
Critical	--X----	08/11/98	17:30:30	turbogui.bbn.h...	HP IT/O...	OpC
Normal	--X-X--	08/11/98	17:25:14	turbogui.bbn.h...	alarmg...	Perfc
Critical	--X-X--	08/11/98	17:20:09	turbogui.bbn.h...	alarmg...	Perfc
Normal	--X-X--	08/11/98	17:15:04	turbogui.bbn.h...	alarmg...	Perfc
Warning	--X-X--	08/11/98	17:10:56	turbogui.bbn.h...	alarmg...	Perfc
Critical	--X-X--	08/11/98	17:10:55	turbogui.bbn.h...	alarmg...	Perfc

# Template Management

Template Groups  
in hierarchy

Templates within the  
selected Template Group

Add various template types  
or  
Create a template group  
to hold templates

Message Source Templates 1 [opc\_admin]

Templates Edit View Window Help

Template Groups

- [Toplevel]
- Default
  - AIX
    - AIX with HACMP
    - DYNIX/ptx
    - Digital UNIX
    - ECS Agent
    - ECS Management Server
    - HP-UX 10.x
    - HP-UX 11.x
    - IRIX
    - MC/ServiceGuard
    - MPE/iX
    - => Management Server
    - NCR
    - NetWare
    - OS/2
    - Olivetti
    - PerfView

Type	Name	Desc
Message	opcmgs(113)	default
Logfile	Cron (10.x/11.x HP-UX)	HP-UX
Logfile	Su (10.x/11.x HP-UX)	HP-UX
Monitor	disk_util	Monitor
Monitor	distrib_mon	Monitor
Monitor	mondbfile	Monitor
Monitor	proc_util	Monitor process
Monitor	swap_util	Monitor SWAP u
Trap	SNMP 6.0 Traps	Message Condit
Trap	SNMP ECS Traps	Message Condit

Context Menu:

- Add Logfile...
- Add Message...
- Add Monitor...
- Add Trap...
- Add Console...
- Add Schedule...
- Add EC...
- Add Group...

Toolbar:

- Add Group...
- Modify...
- Copy...
- Delete From All...
- Get Template Selections
- Delete From Group
- Conditions...
- Circuit...
- Options...

# Log File Template Configuration

**Add Logfile**

Template Name: [ ] Description: [ ]

Logfile: [ ]

**Monitoring Options**

File to be executed: [ ]

File to be read: [ ]

Polling Interval: 1 m

Logfile Characterset: ASCII

Read from Last File Position  
 Read from Begin (First Time)  
 Read from Begin (Always)

Message on No Logfile  
 Close after Read

**Message Defaults**

Severity	Node	Application	Message Group	Object
unknown	[ ]	[ ]	[ ]	[ ]

Instructions... Advanced Options...

OK Cancel Help

# Pattern Matching in Conditions

**Condition No. 1**

**Description**  
Failed remote login

**Condition**  
**Node**  
**Message Text**  
FAILED <@.user> <@.tty> <@.host> <\*.date> <\*.time>

- Suppress Matched Condition  
 = Suppress Unmatched Condition  
 + Message on Matched Condition

**Set Attributes**

Severity	Node	Application	Message Group	Object
Unclassified				<user>
	<b>Message Text</b> Failed login of <user> on <tty> from <host> at <time> <date>			
	<b>Message Type</b>			

**Actions**

On Server Log Only (put directly into History Log)

Automatic	Node	Command	Anno.	Ackn.
<input type="checkbox"/>		_check_valid_user.sh <user>	No	No
<input type="checkbox"/>		...terminated	No	No

Forward to Trouble Ticket  
 Notification

OK Cancel Test Pattern Matching... Help

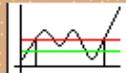
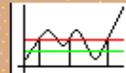
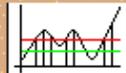
Match the incoming pattern to variables

Use variable as parameters to alter message text

Use parameters as part of running actions

# Monitor Configuration GUI

Modify Threshold Monitor

<b>Monitor Name</b>	<input type="text" value="cpu_util"/>	<b>Description</b>	<input type="text" value="Monitor CPU utilization"/>		
<b>Monitor</b>	<input type="text" value="Program"/>	<b>Monitor Program or MIB ID</b>	<input type="text" value="cpu_mon.sh cpu_util"/>		
	<b>Polling Interval</b>	<input type="text" value="2m"/>	<b>On Node</b>	<input type="text" value=""/>	
<b>Threshold Type</b>	<input type="radio"/>  <b>Maximum</b>		<input type="radio"/>  <b>Minimum</b>		
			<input type="radio"/>  <b>with Reset</b>		
			<input type="radio"/>  <b>without Reset</b>		
			<input type="radio"/>  <b>Continuous</b>		
<b>Message Defaults</b>	<b>Severity</b>	<b>Node</b>	<b>Application</b>	<b>Message Group</b>	<b>Object</b>
	<input type="text" value="warning"/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
				<input type="button" value="Instructions..."/>	<input type="button" value="Advanced Options..."/>
<input type="button" value="OK"/>		<input type="button" value="Cancel"/>		<input type="button" value="Help"/>	

# Agent Technology

- Intelligent Autonomous
  - Agent Pushed by OVO server or manually installed.
- Monitoring any aspect of system and applications
  - Logfiles
  - Scheduled commands
  - API for programs to send alarms
- Templates can be created to manage virtually any application, logfile or process.

# Linux specific Support

- Default templates for Linux
- What they do

# Templates

- Logfiles
  - Cron: /var/log/cron
  - Logins : /var/log/wtmp
  - Messages : /var/log/messages
- Monitors
  - MailQueueLength
  - Sendmail
  - Performance Monitors: CPU Util ,Disk Util,Swap Util
- OpCmsg
  - Same as standard opcmsg API

# OpenView Operations for HP-UX/Solaris Summary

- Versions of Product that support Linux Agents
  - 4.X (ITO) Supports Redhat 5.2
  - 5.0 (ITO) Supports Redhat 5.2 with Patch
  - 5.3 (ITO) Supports Redhat 5.2
    - (Standard All Agents bundle)
  - 5.3 (ITO) Supports Redhat 6.X
    - 10.X       **PHSS\_21627**
    - 11.x       **PHSS\_21628**
    - Solaris     **ITOSOL\_00034**
  - 6.0 OpenView operations for HP-UX/Solaris
    - Supports Redhat 6.X and 2.X kernels

# OmniBack II

- What is it
  - Centralized and Decentralized Backup tool
- Product Features
  - Utilization of High Capacity Backup Devices
  - Centralized scheduling and Management
  - User Interface may be on multiple different Operating Systems



HP OpenView

# HP OpenView OmniBack II Main GUI



HP OmniBack II

Restore files, file systems,  
new logical volumes, etc.

Install clients and  
integrations.

Configure pools of media for  
use in backups.  
Configure devices to perform  
the backups.



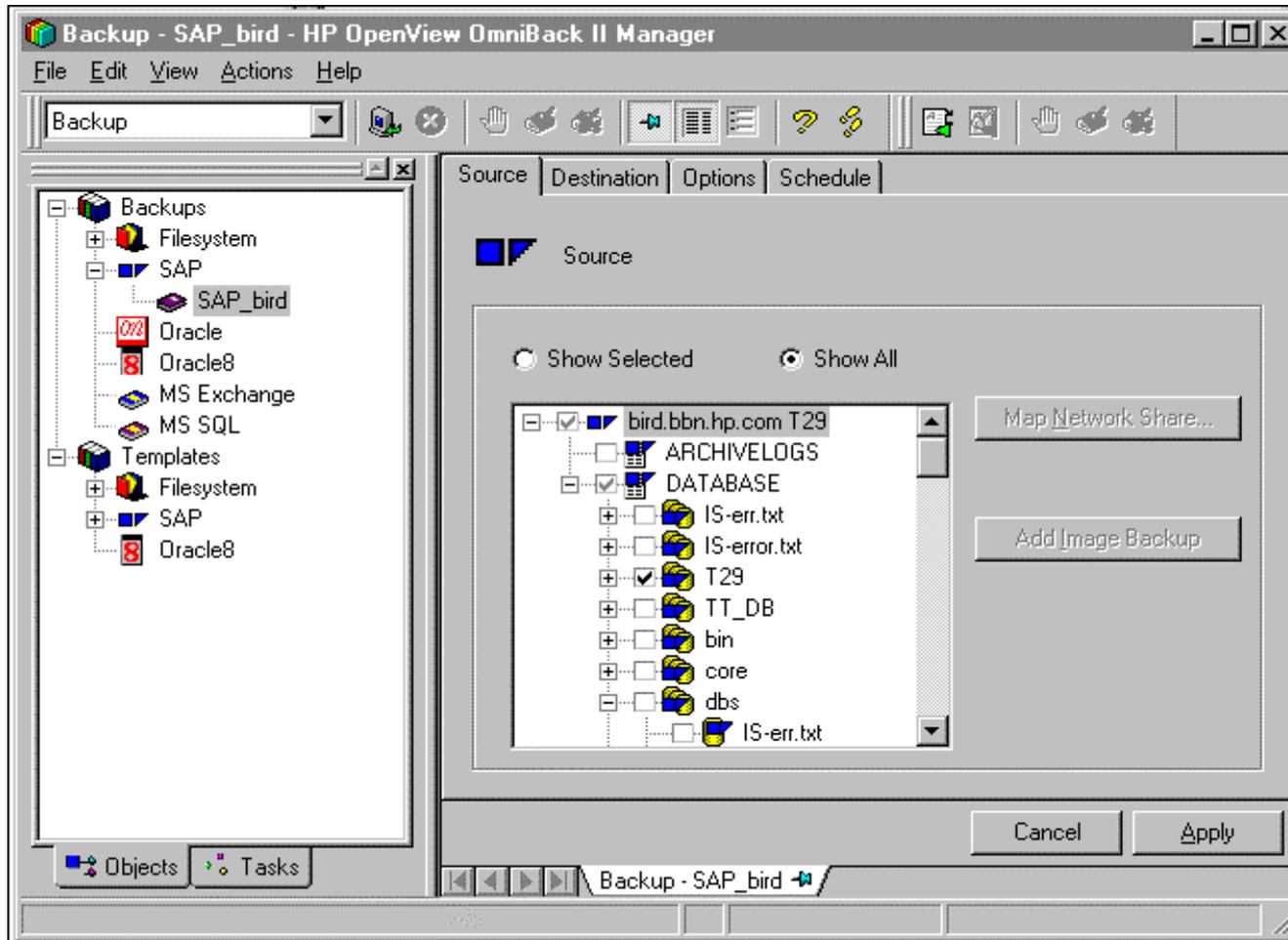
Create backup  
specifications (data lists),  
then schedule them.

Watch backups in progress  
or check the status of  
completed backups and  
restore.

Configure user access and  
privileges (local and  
remote).

Get online help.

# OmniBack II NT GUI



Reduced operational cost

- Central control through Manager-of-Managers

Reduced equipment costs

- Library sharing between multiple systems
- Investment protection through support of large tape libraries and silos (HP, StorageTek, EMASS/GRAU, ATL,)

# Backup Concept

- Network Backup
- Disk Agent
- Media Agent
- Datalists
- Scheduling
- GUI
- Web management

# OmniBack Licensing

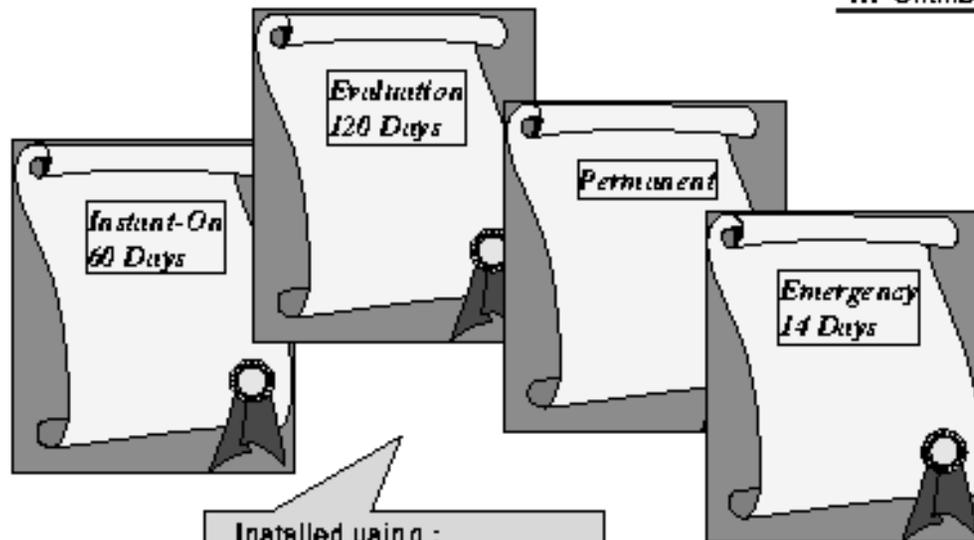


HP Open View

## Licensing



HP OmniBack II

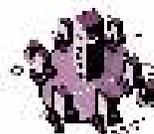


Installed using :  
GUI  
Command Line Interface  
Editing `lic.dat`



HP OpenView

# Reporting - Web Interface



HP OmniBack II

WebReporting Internet Explorer

Address: http://www.hp.com/.../omni2/...

## HP OpenView OmniBack II

OmniBack II Database Size Report (scorpio.uksr.hp.com)

Media Management DB

Table	Size (MB)	Records Used	Records Total	Used
Devices	22	1	10	10%
Devices	22	0	10	0%
Cartridges	22	17	22	77%
Cartridge Info	222	0	22	0%
Media	22	2	10	20%
Media	22	17	22	77%

Catalog DB

Table	Size (MB)	Records Used	Records Total	Used
Accession	0.01	22	42	52%
Media	0.01	22	42	52%
Media (copy)	0.01	22	42	52%
Media Info	0.01	22	240	9%
Locations	0.01	22	22	100%
Media (copy)	1.67	2222	2222	100%
Locations	4.08	222	222	100%

Extension Files

No records found.

# Agent Initialization

- Works with inetd daemon
- installs in /usr/omni
- started through request to inetd process

# Linux Support

- Installation of Disk Agent
  - Cannot push it from Cell Server (2.55, 3.0)
  - Push available with OmniBack 3.1,3,5
- Import System
- No GUI Available on Linux system
  - User Interface Option provides OmniBack commands
- Linux Backup Devices cannot be used

# Version support

- OmniBack 2.55
  - Unsupported Agent (install tarball)
- OmniBack 3.0
  - Unsupported Agent (install tarball)
- OmniBack 3.1
  - Supported Disk Agent Platform
- OmniBack 3.5
  - Supported Disk Agent Platform
- Omniback 4.0
  - Supported Disk Agent Platform

# Integration Summary

- NNM
- OpenView operations for HP-UX/Solaris
- OmniBack
- Late Breaking
  - Drig Software
    - Linux Agent for ManageX

# Questions