

InterWorks 2000

1/16/2000

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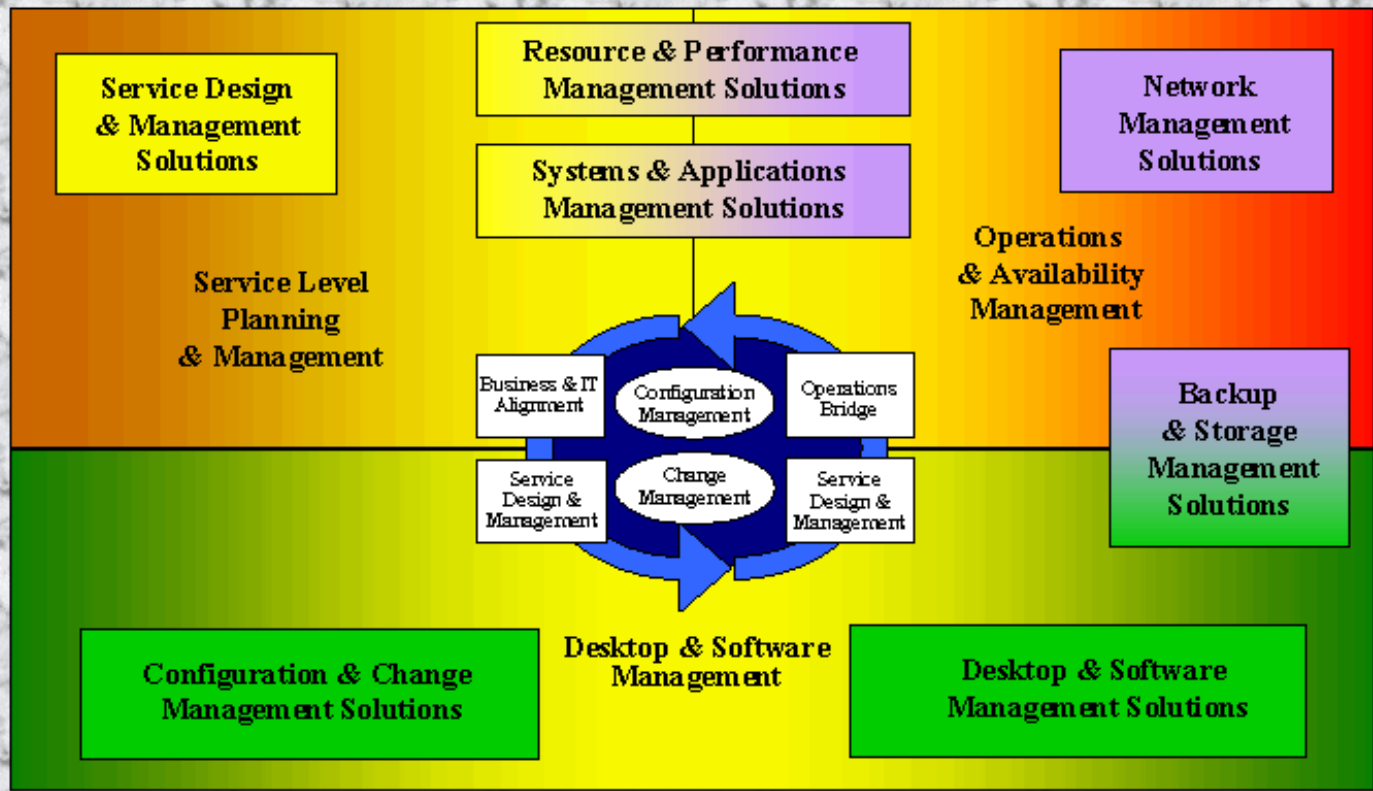
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HP's UNIX and NT-Based Network and System Management Tools



A Presentation for InterWorks 2000

by

Tammy Sealey and Stan M. Zitello

Hewlett-Packard Company



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Abstract

Purpose

This presentation is intended for System/Network Administrators and IT Management Personnel with an intermediate technical competency level. The tutorial is intended to show the new Unix and NT based tools available from Hewlett-Packard for performing Enterprise Wide Network and System Management. The presenters will demonstrate the trend within these tools to provide an ever-increasing amount of product functionality via web-based technologies.

What attendees will learn

1. Customers will learn about HP's Unix and NT based NSM tools.
2. Customers will learn about managing their network across the Web.
3. Customers will learn how the tools can be configured to interface to their world.

Abstract

In the last 18-24 months there have been a number of Network and System Management (NSM) tools either newly released or revised in a major way. Some of these tools are only available for HP-UX, some for Windows NT, and still others are available for both HP-UX and Windows NT. There is no doubt that a major trend within the OpenView Software Division (OVSD) has been the creation of tools for the NT platform. At the same time, there has also been a push to make the capabilities of the NSM tools, no matter the platform they are architected on, available using web-based technologies, such as via WWW browsers or standalone JAVA applets. Among the tools we will be discussing and demonstrating will be Network Node Manager (which is available for both Unix and NT), IT Operations (Unix with agents for NT), and ManageX (NT). Our discussions will include an overview of the OpenView framework, and where each of these tools fits within it.



Abstract

Abstract (continued)

We will also provide the customers with information to enable them to decide the appropriate tool for their requirements. One of the features of these tools which we will demonstrate is their ability to inform the user of their monitored parameter over/under flows via many techniques, such as email, paging, annunciator devices, etc. One of the hallmarks of the OVSD products has been this ability to conform to the need of the users environment.

The presentation will begin with a technical overview of IT/Operations. The purpose of this tool is to be proactive in monitoring your applications in a multi-vendor environment. IT management has become more challenging with the advent of distributed, multi-vendor environments. IT/O offers a flexible and extensible management solution from a single point. IT/O offers support for many vendors, has the ability to Correlate Events, and may be configured to manage the Enterprise with multiple management stations. We will discuss some of the configuration aspects of the Operators and show the GUI windows used in the configuration and monitoring of IT/O. We will demonstrate the ability to monitor using the JAVA based interface. We will also discuss the feature of configuring automatic actions in response to some event.

ManageX is also a Windows NT centric tool This product parallels the functionality of IT/O and PerfView/MeasureWare in an NT based enterprise. The underlying framework for ManageX is Microsoft's Management Console (MMC). We will discuss the various components of ManageX including the Device Selector (based on NT's network neighborhood) and the Command Queue (the ability to view manual actions performed on remote machines). ManageX allows you to customize groups of systems to increase management productivity; you have the ability to reboot many systems at once with a single command. ManageX policies allow you to monitor specific aspects of a system; you may want to be notified of multiple consecutive failed login for a system. ManageX ships with 200+ defined policies that can be pushed out to the managed systems. We will demo the web capability of ManageX.



Abstract

Abstract (continued)

Network Node Manager provides discovery, mapping, and event handling for IP based networks. Some of the features we will be discussing in this presentation include pan and zoom, submap backgrounds, and the graphing capability of SNMP MIB variables. Our presentation will include a demo of the JAVA based web interface for remote network management. The ability to correlate events into one single message is feature of the latest version of Network Node Manager.

Presenters

Tammy Sealey has been in the computer industry for over 13 years, and is presently a Consultant for HP Education. She teaches a wide variety of Openview Courses, including Network Node Manager, ManageX, DTA, PerfView/MeasureWare, and IT Operations. She holds a variety of industry certifications including HP's HP-UX System and Network Administration, HP OpenView Network Node Manger, HP Openview ManageX, and HP Openview PerfView/MeasureWare.

Stan Zitello has been in the computer industry for over 20 years, and is presently a Senior Consultant for HP Education. He has been teaching Openview Seminars since he started working for Hewlett-Packard. For HP Education he teaches a variety of classes, specializing in Security, Network Systems Managment (The Openview Family), and Windows NT. He holds a variety of industry certifications including HP's HP-UX System and Network Administration and Microsofts MCP, MCSE and MCT certifications.

Notice

This document was prepared by Stan Zitello and Tammy Sealey for the purpose of a live Tutorial to be presented at Interex 2000 in Las Vegas during the month of April, 2000. As such, it does not contain enough information to



Abstract

Notice

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IT Operations



Works | Right | Now

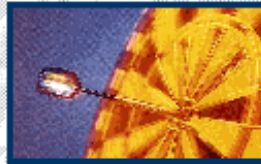


What is expected from IT?

Expectations



Availability



Performance



Cost Effectiveness



OpenView Building Block Architecture

ORACLE

management repository

HP OpenView IT Service Management Console IT Service Management

HP OpenView Enterprise Console Operations Management

Mainframe Management
Solve: Operations

~300 OpenView Partner Solutions

Application & System Man.
IT/Operations
ManageX
GlancePlus/MWA/PV
SMART Plug-Ins

Network Man.
Network Node Manager
NetMatrix

Desktop & Software Man.
IT/Administrations
Desktop Administrator
Software Distributor

Storage Man.
OmniBack II
OmniStorage

IT Service Man.
IT Service Manager

Security Man.
Access Manager
Node Sentry

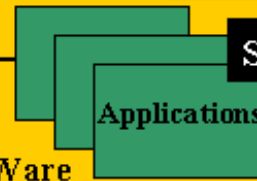


Desktop



Network

UNIX Mainframe NT NetWare



Applications

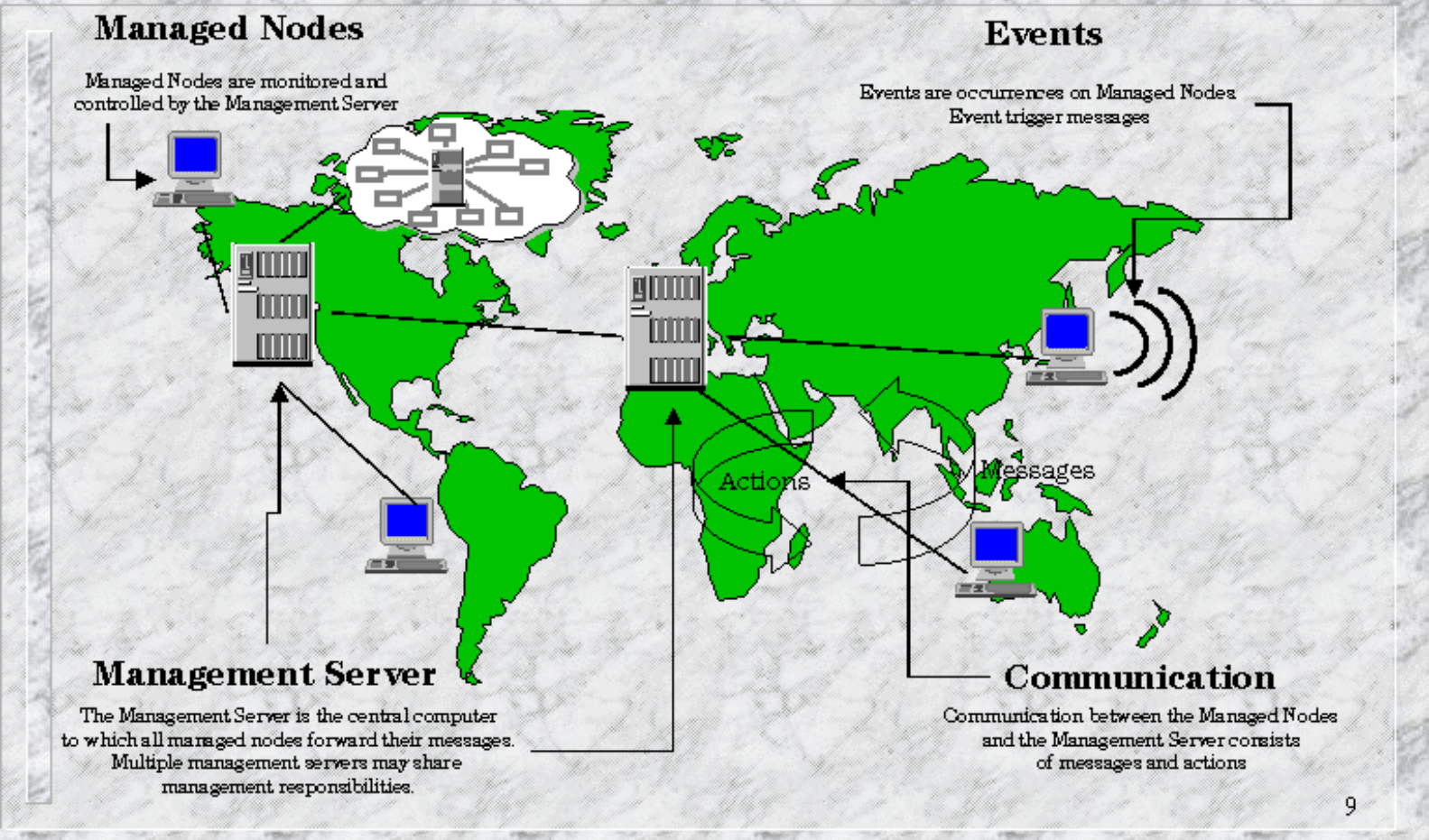
Systems



Databases

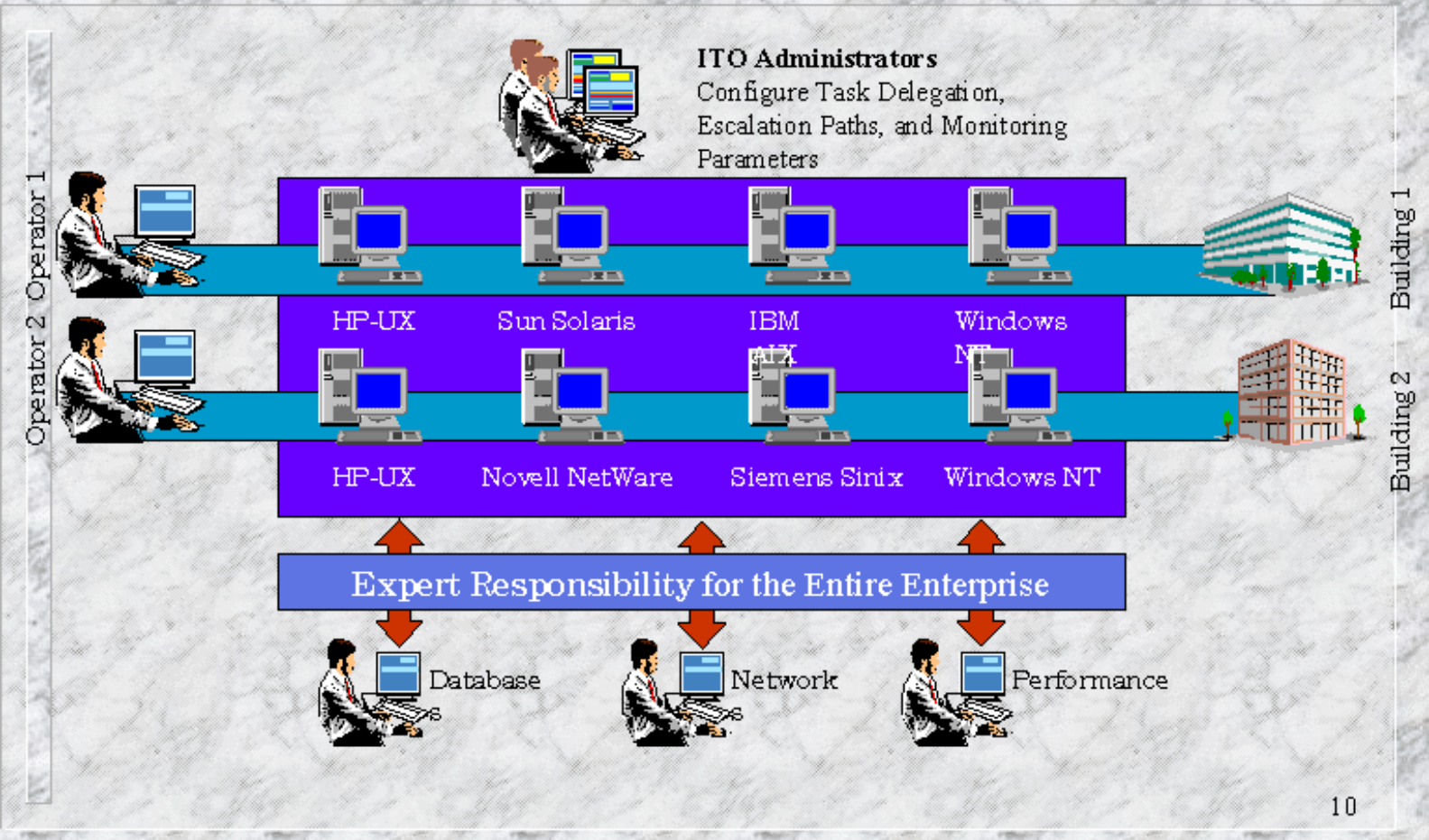


The ITO Client/Server Concept



Example: Task Orientation

Task Specific Views, Tools and Responsibilities



IT/Operations GUI Main Windows

The screenshot displays the IT/Operations GUI Main Windows interface, which is divided into several functional windows:

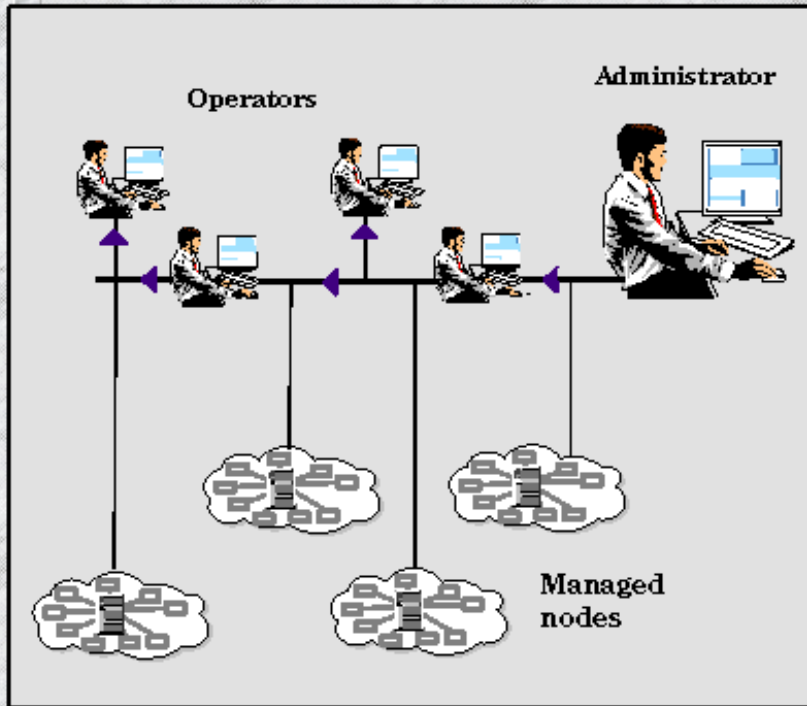
- Root:** Contains icons for 'Home' and 'Mayfield'.
- Managed Nodes [itop]:** Shows a tree view of nodes including Oracle, SAP, Clients, Europe, and External.
- Message Groups [itop]:** Lists various system categories such as Backup, Database, Hardware, Job, Misc, NewWare, Network, OS, Ops, Output, Performance, SNMP, and Security.
- Application Desktop [itop]:** Provides a desktop environment with icons for applications like Java, J2EE Tools, J2EE Tools, J2EE Tools, Net Config, Net Diag, Net Server, Reports, SNMP Tools, Tools, J2EE Tools, J2EE Tools, J2EE Tools, J2EE Tools, J2EE Tools, and J2EE Tools.
- Message Browser [itop on custedad.mayfield.hp.com]:** Displays a table of messages with columns for Severity, Date, Time, Node, Application, Message Group, Object, and Message Text. It includes a status bar with colored indicators and buttons for 'Own', 'Highlight', 'Details...', 'Perform Action', 'Annotations...', and 'Acknowledge'.

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HP OpenView IT/Operations

User Roles



Administrator

- Set up users with defined responsibilities and user rights
- Nodes can be added or deleted
- Configuration of monitoring parameters

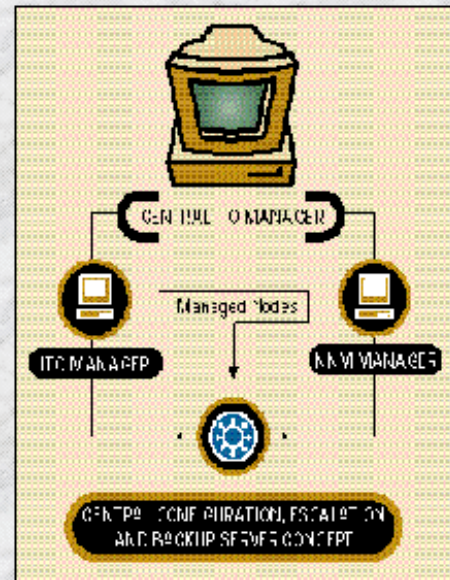
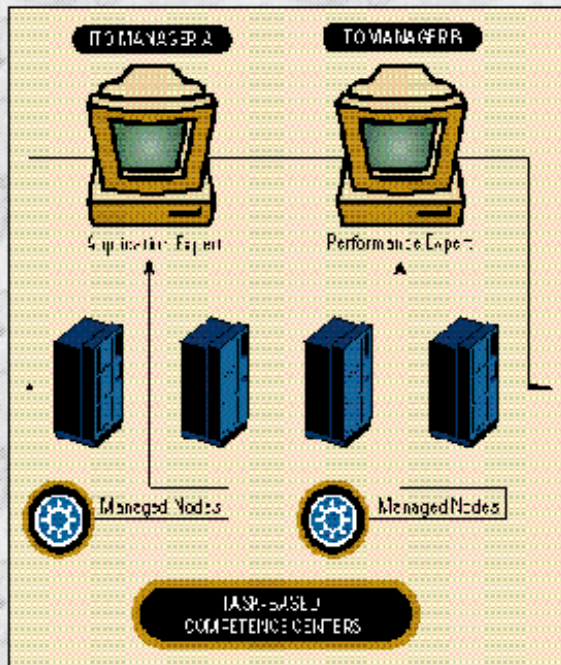
Operator

- View messages and set-up user specific browser filters
- Reusable user definitions via hierarchical virtual users (User Profiles)
- Run pre-configured actions on messages, e.g. acknowledge, own/disown, perform action,...
- Control assigned nodes with pre-defined applications



Flexible Management Concepts

Based on Location, Time, and Expertise



Follow-the-Sun Management



Time independence & continuous operation

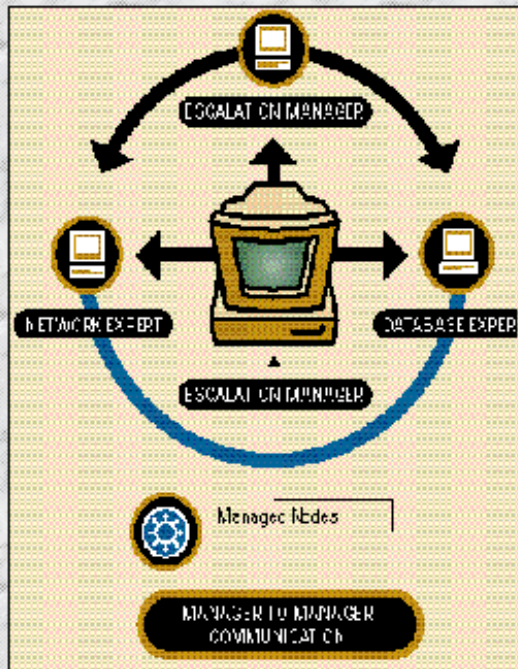
- Messages can be sent to different ITO managers depending on time of day
- Tasks can be delegated between managers during peak hours
- After-hours IT management

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Message Escalation

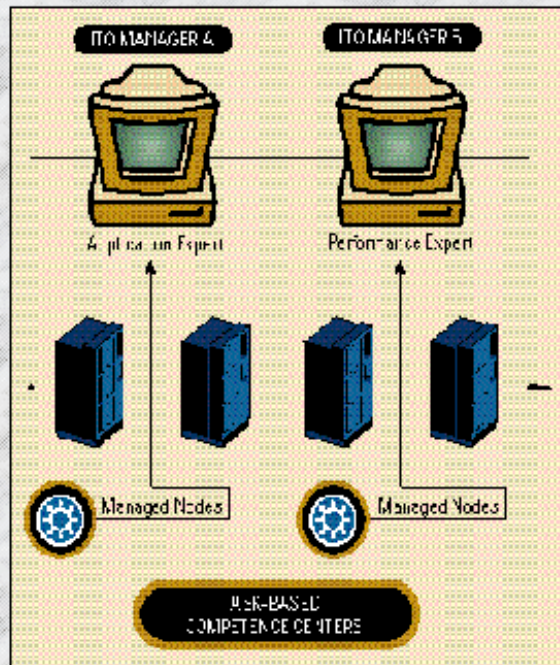


Transferring messages to other predefined management servers

- Being more capable to handle the problem
- Instead of forwarding messages to an external notification or trouble ticket service



Task-Based IT-Competence Centers

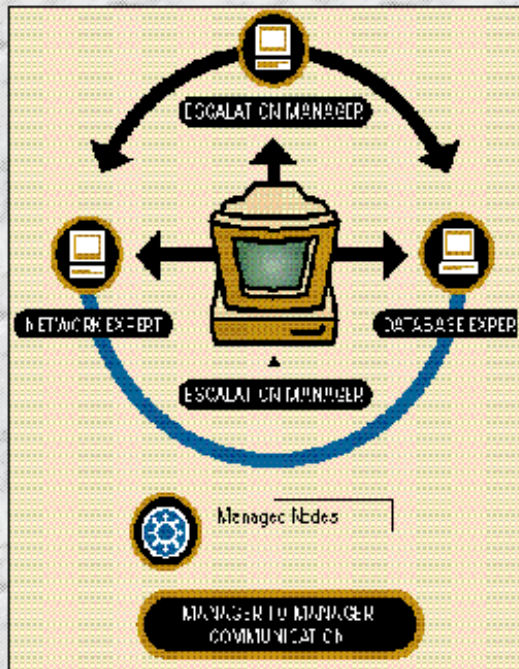


Faster and more accurate problem resolution

- Forwarding of messages to different management servers and operators, depending on the task or severity, through intelligent nodes



Manager-to-Manager Communication



- Provides ability to forward a message from one management server to multiple management servers.
- Message updates (action status, annotations,...) are also propagated.
- Problems automatically acknowledged on other management servers when the problem has been solved at the



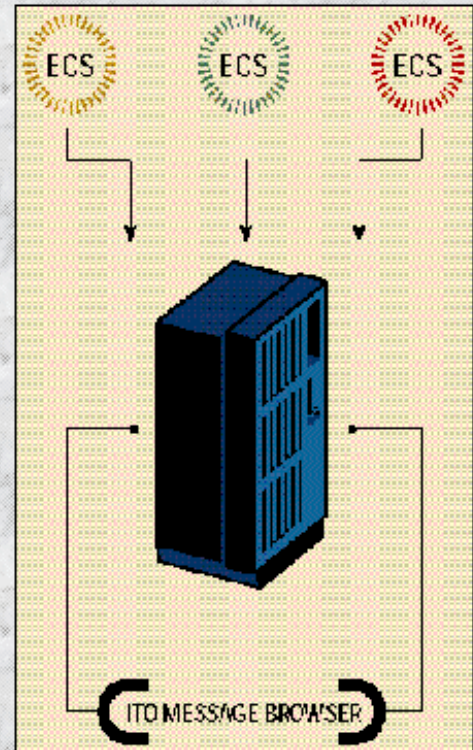
Event Correlation Services (ECS)

Concepts

Available on
Windows NT and
SUN Solaris
agents

■ Event Correlation Concept

- Correlate events from networks, systems, applications, databases and the Internet resulting in reduced and more meaningful messages for the operators
- Correlation at central management server and local intelligent agents on HP-UX, SUN Solaris and Windows NT agents
- Expedites problem resolution by identifying the true source of problems and events
- Integrate other correlation applications and use them as an additional information resource or to execute commands as part of the event



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The Message Groups Window



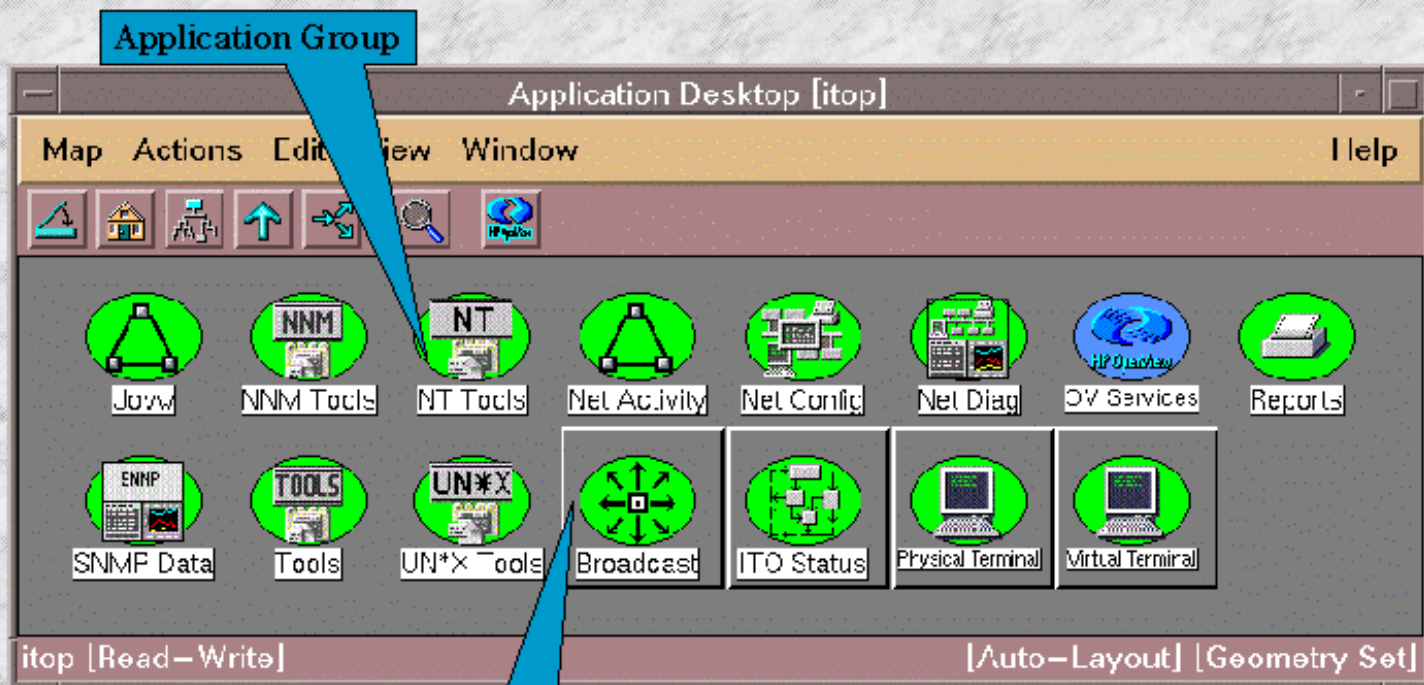
- Logical grouping of application and system messages
- Typically used to build application domains
- Symbols show message group status using color codes

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The Application Desktop Window



The Message Browser Window

Message Browser [itop on custedad.mayfield.hp.com]

Browser **Actions** **View** **Window** **Help**

Sev.	SUIAONE	Date	Time	Ncde	Application	MsgGroup	Object	Message Text
Ncrm	--x----	05/10/99	17 03 23	custedad.n	HP I7/Cpera	CpC	opedista	The following configur
Ncrm	--x----	05/10/99	17 04 05	custedad.n	HP I7/Cpera	CpC	ovoarecsd	Control agent on node
Warn	--x----	06/08/99	13 35 42	custedad.n	SNMP traps	SNMP	15.3 4C	Network status major (

0 0 0 1 2 0 0 0 Active Messages Autoscroll On

Own Highlight Details... Perform Action Annotations... Acknowledge

- Central information component of ITO
- Lists all events an operator is responsible for
- Point-of-control for actions

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Java GUI Main Window

The screenshot shows the HP OpenView IT Operations GUI. The title bar reads "HP OpenView IT Operations [turbogui.bbn.hp.com] [opc_op]". The menu bar includes "File", "Edit", "View", "Actions", "Window", and "Help". Below the menu is a toolbar with various icons. The main area is divided into two panes:

- Left Pane (Operation View):** A tree view showing a hierarchy of nodes and applications. The "Nodes" folder is expanded, showing sub-nodes like "all 15.<*>", "all <*>.bbn", "hp_ux", "bippus", and "turbogui". Other folders include "Message Groups", "Applications", and "local Application".
- Right Pane (Filtered Active Messages):** A table displaying active messages. The table has columns for Severity, SUIA0NE, Date, Time, Node, Applica..., and Msc. The messages are color-coded by severity: Warning (yellow), Critical (red), and Normal (green).

At the bottom of the messages table, there is a summary bar with colored segments and numbers: 7 (red), 0 (orange), 0 (yellow), 20 (cyan), 47 (green), 0 (blue), 5 (pink), and 10 (yellow). Below the table, it says "View only the latest messages on the server".



Action Types

Automatic Actions

- Predefined commands started automatically when a certain

Operator-initiated Actions

- Predefined commands that can be started by

Actions

On Server Log Only (put directly into History Log)

	Node	Command	Auto.	Ackn.
Automatic	:	cat \$(SOPITION(applog))	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Operator initiated	:	restart server.sh	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>

Taken from the Message Conditions Window

Variables can be ITO parameters or passed from the command line

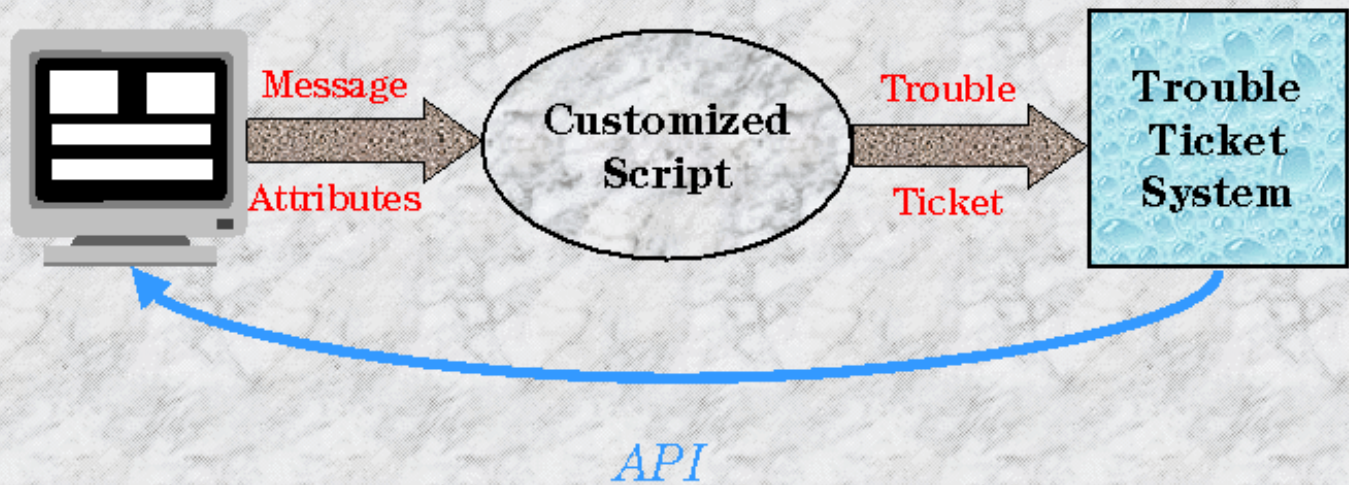


External Notification Service

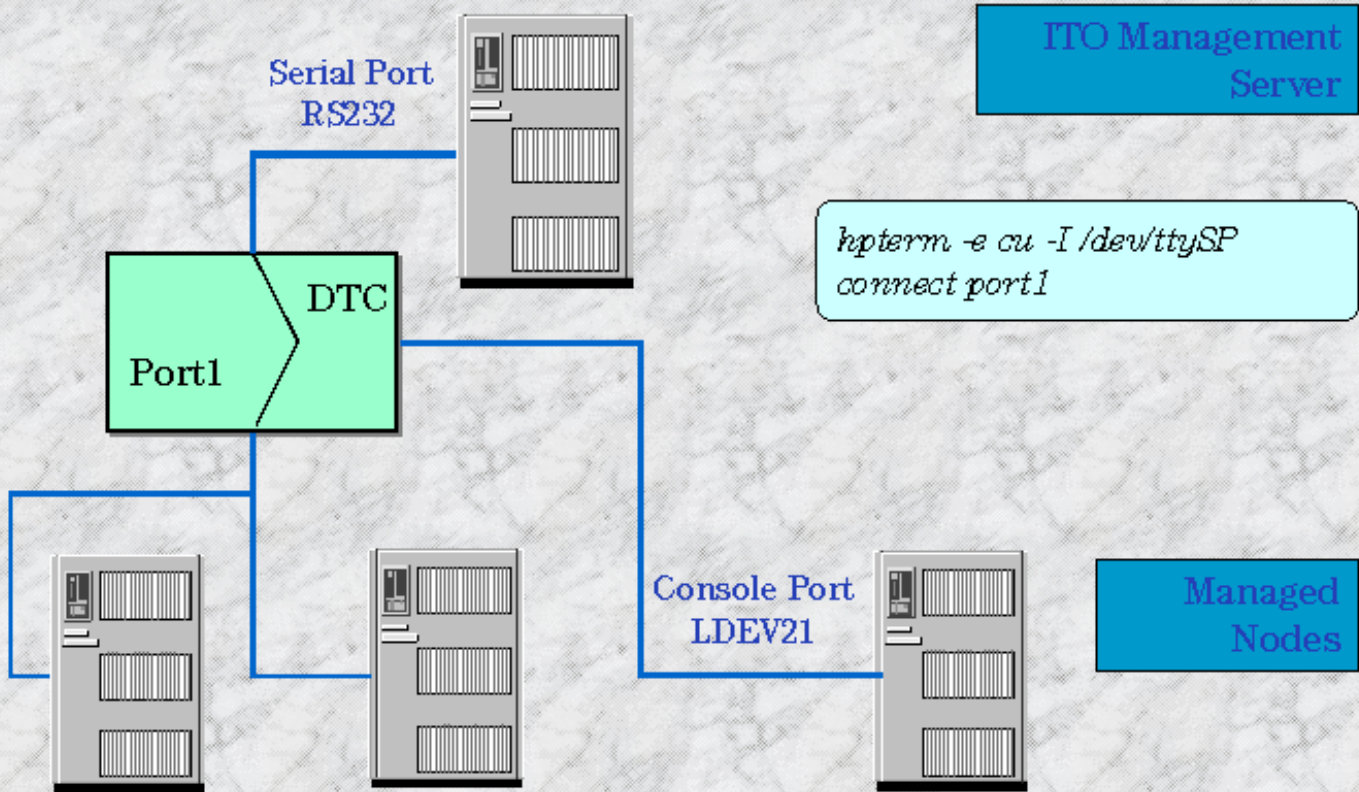
The image shows two overlapping dialog boxes from a software application. The background dialog is titled "Notification Schedule" and features a grid with days of the week (Mon... to Sun...) and a time column (00:00 to 12:00). A red vertical bar is visible in the time column. The foreground dialog is titled "Notification Methods" and contains a table with two columns: "Name" and "Program File". The table lists "beeper" with the file path "/opt/pager/beeper". To the right of the table are buttons for "Delete", "Add", and "Modify". Below the table are "OK", "Cancel", and "Help" buttons. A blue callout box points to the "Modify" button with the text: "Use the Modify button to add timetable for notification call". Another blue callout box points to the "Add" button with the text: "Create programs and add to Notification Methods". Below the "Notification Methods" dialog is a "Notification Method" section with a red square next to the text "beeper" and a "Modify..." button. At the bottom of this section are "OK", "Cancel", and "Help" buttons.



Link to Trouble Ticket System



Physical Console Link

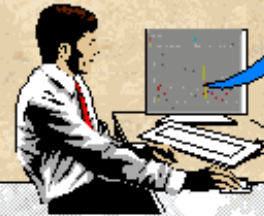
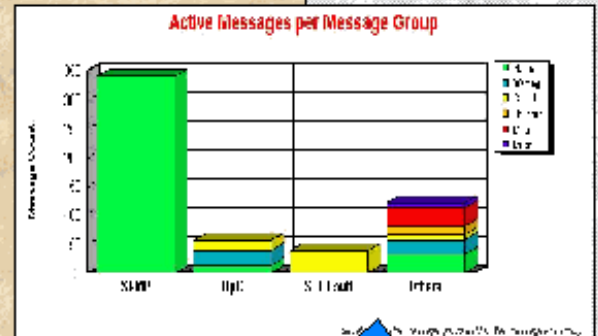


HP OpenView Service Reporter

Write reports by using the ITO Database

Manual:

- Service Reports record the provided services and crosscheck with the specified SLA criteria
- A data dictionary listing all fields, their meaning, their data format and possible values
- Examples (Service Reports) show how to write a report



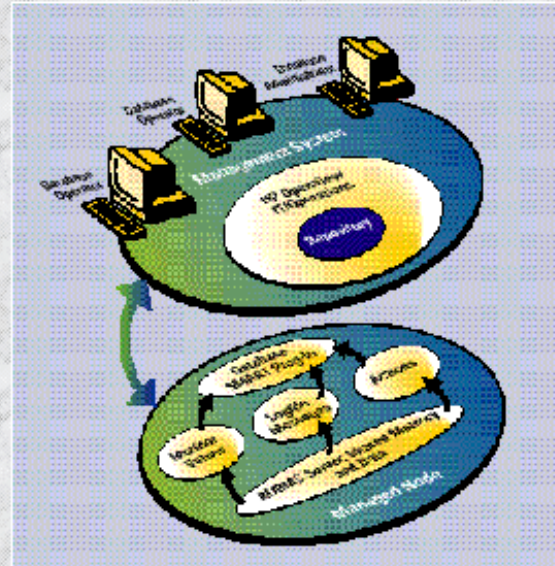
SMART Plug-Ins are Fully Integrated

SMART Plug-Ins are *not* discrete management tools

Use existing HP OpenView User Interface, management server, and agent infrastructure

Full process integration, e.g. pre-configured message grouping, application bank, node bank

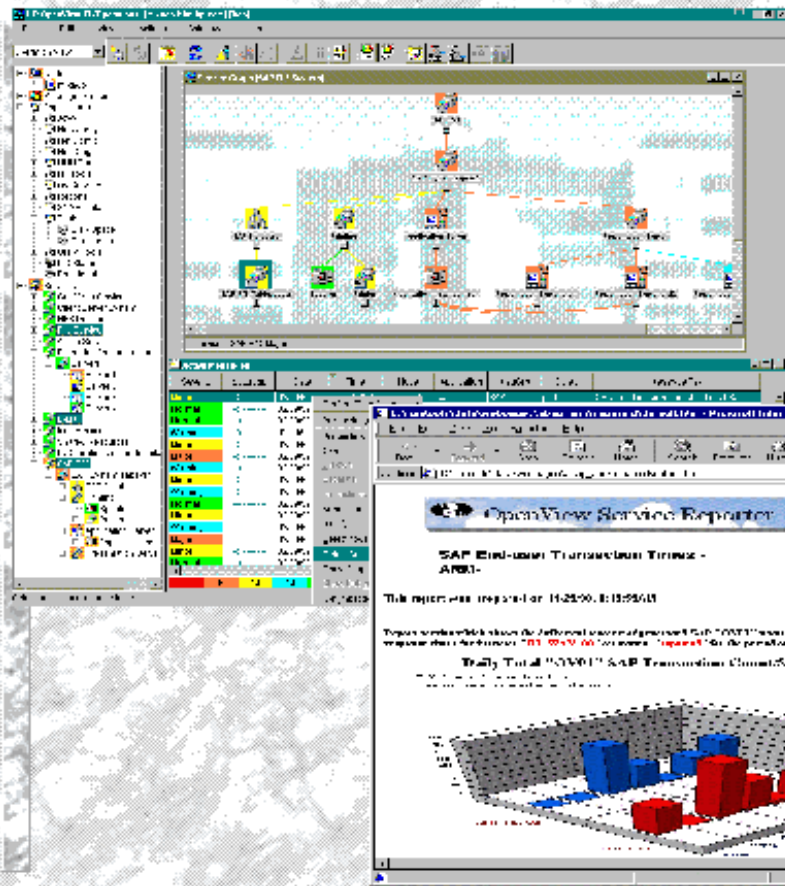
Leverage of HP OpenView



One platform to manage networks, systems, middleware, databases and applications!



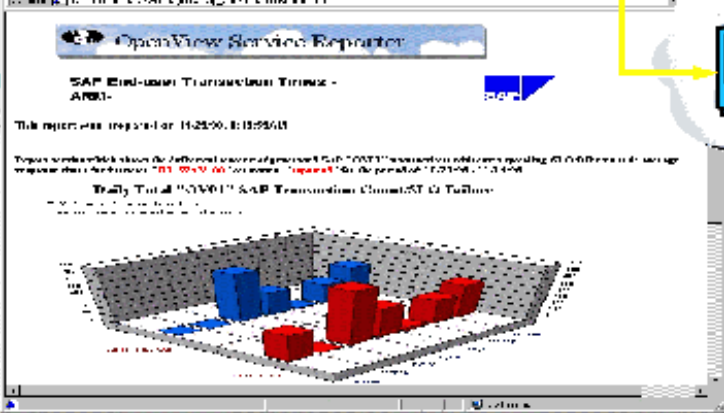
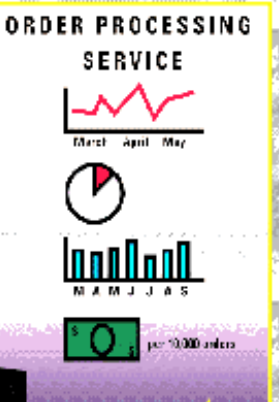
Application Quality of Service



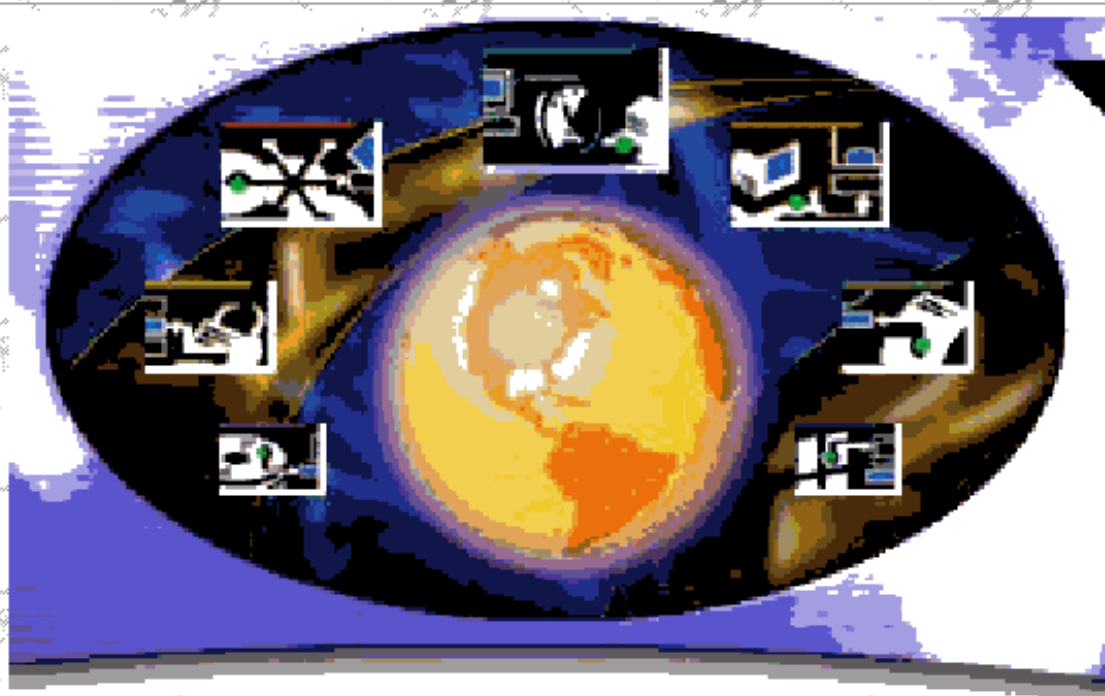
ORDER PROCESSING SERVICE



- Performance
- Availability
- Volume
- Reliability
- Cost



ManageX



Works | Right | Now



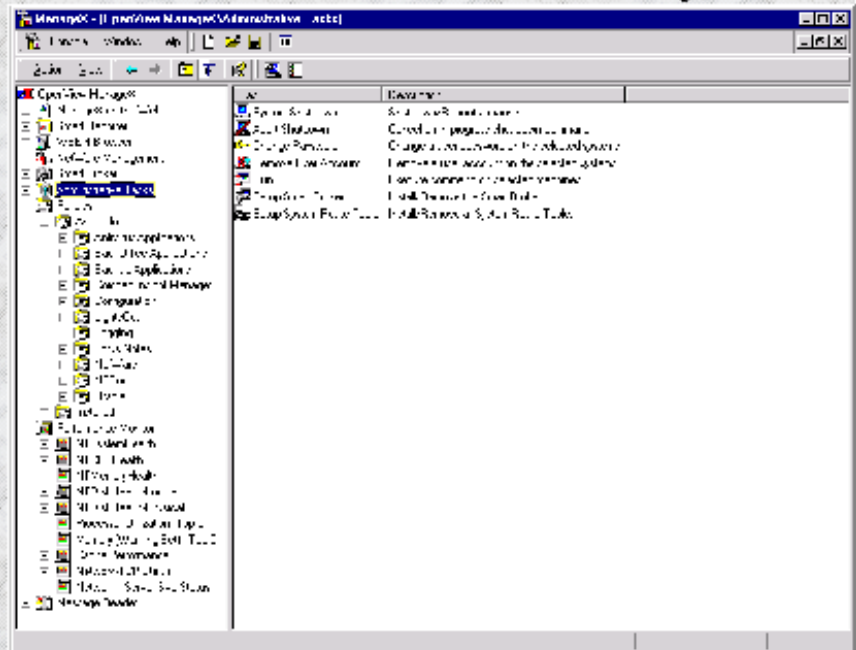
What Is ManageX?

New breed of snap-ins for MS Management Console

MMC supplies basic framework for one-to-one management

■ **ManageX is a standalone snap-in that extends MMC's functionality by adding:**

- one-to-many management
- custom machine groupings
- command monitoring
- event management
- performance monitoring
- fault evaluation
- automated corrective actions



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System Management: NT and ManageX

NT

■ Discover: view and connect

- My Computer
- Network Neighborhood
- Microsoft Computer Browser
- Security Models
- TCP/IP

■ Assess: monitor and evaluate

- Event Log
- PerfLib and PerfMon
- Registry
- Services

■ Correct

- ??

ManageX



- Device Selector and Aliases
- Message Reader
- Performance Monitor



- Performance Monitor
- Smart Reporter
- Policies, especially Conditions



- Administrative Tasks
- Policies, especially Actions



ManageX Architecture: One-to-Many Management

- ① Administrator at the Master Machine selects several machines and policies, then chooses the "Install policy" command. ManageX (installed on Master) queues "Install policy" command.

ManageX Master Machine



Master machine is the administrator's machine on which MMC, ManageX, and the ManageX extensions are installed.

- ④ ManageX Message Reader extension accepts and displays received messages

- ② SmartBroker (on Master) sends policies to selected managed machines and installs needed Functionality Modules (FMs)

③

FMs interpret policy conditions and send exceptions back to the Master Machine. Policy-specified actions are taken locally (on managed machines).

Managed Machines



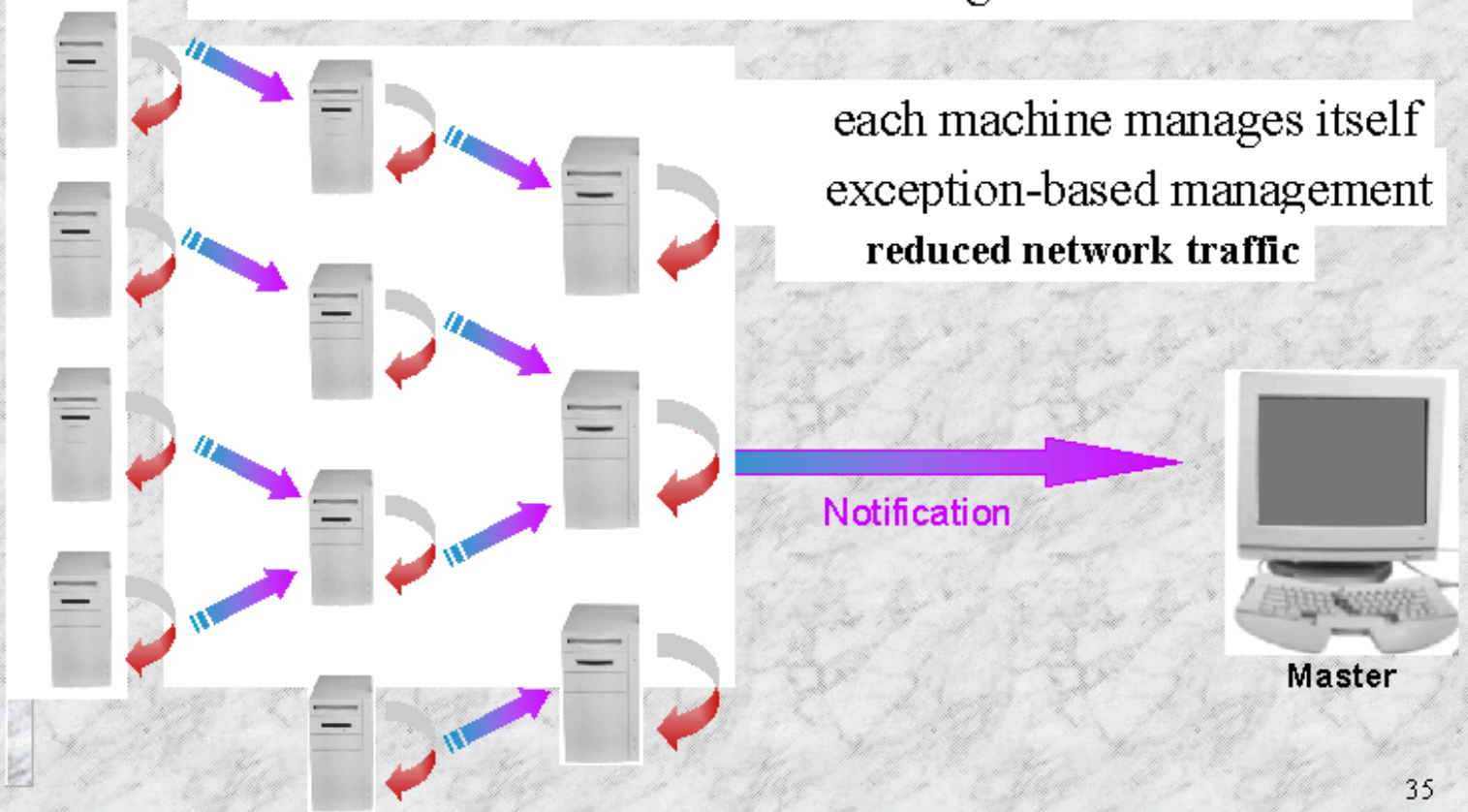
Managed machines are users' machines which have installed only certain pieces of ManageX (Smart Broker, FMs, policies, SRTs).



(Self)-Managed Machine

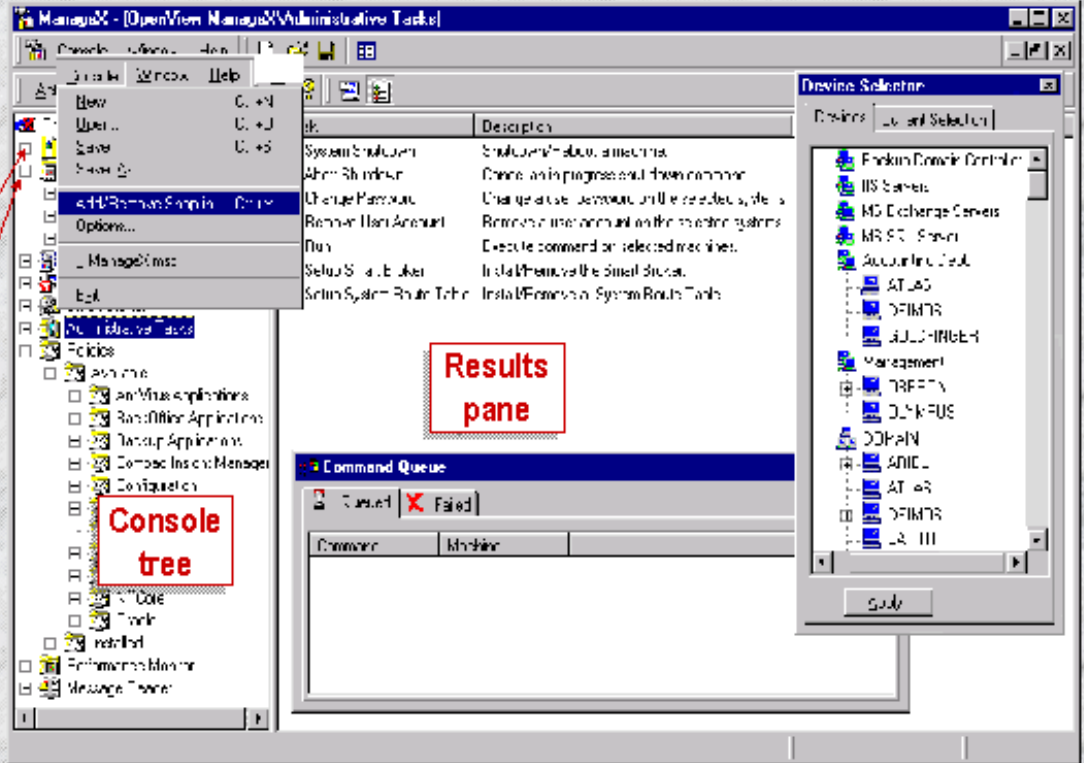
Smart Broker and FMs on each managed machine means:

each machine manages itself
exception-based management
reduced network traffic



Snapping ManageX into MMC

- Console tree
- Results pane
- Standalone snap-in
- Extensions



ManageX Discovery:

View and Connect



■ Message Reader

- Lets administrator see *all* messages of interest but *only* messages of interest
- Default view: all messages broadcast in domain, subnet
- Configuration files subscribe to specific sources, reject message types, trigger automated actions according to message content

2 Message Reader

Action View

Type	Time	Source	Category	Event ID	Computer	Acknowledged
Error	5/17/99 11:41:54 AM	NT - Overall System Health	NT - Disk Busy	50331	PFOFESSOR	No
Error	5/17/99 11:38:55 AM	NT - Overall System Health	NT - Disk Busy	50331	PFOFESSOR	No
Internal	5/17/99 11:34:50 AM	ManageX	Audit	1043589	SKIPP-H	No
Error	5/17/99 11:36:01 AM	NT - Overall System Health	NT - Disk Busy	50331	PFOFESSOR	No
Warning	5/17/99 11:24:01 AM	NT - Overall System Health	NT - Disk Busy	50330	PFOFESSOR	No
Internal	5/17/99 11:10:43 AM	ManageX	Audit	1043589	PFOFESSOR	No
Internal	5/17/99 11:10:42 AM	ManageX	Audit	1043589	ILMF	No

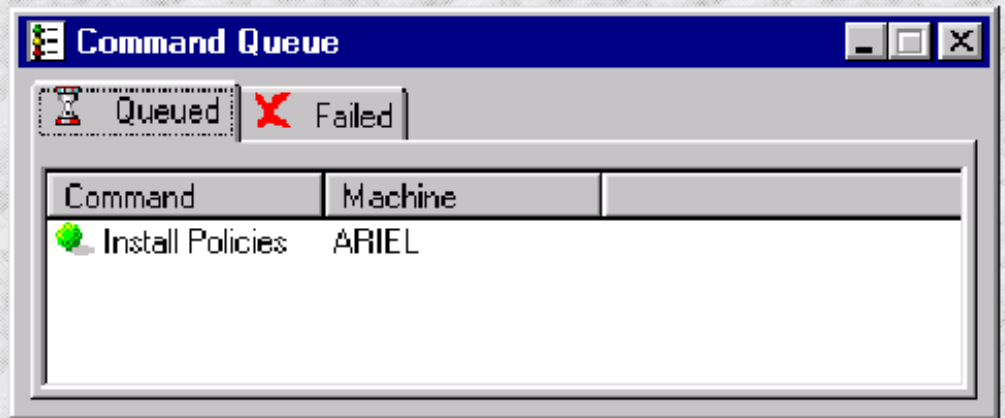
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Command Queue

- Shows status of requests
- Commands submitted to multiple machines create multiple commands
- Monitor command progress and success
- Use **Failed** tab to resubmit failed commands



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Supplied Policies

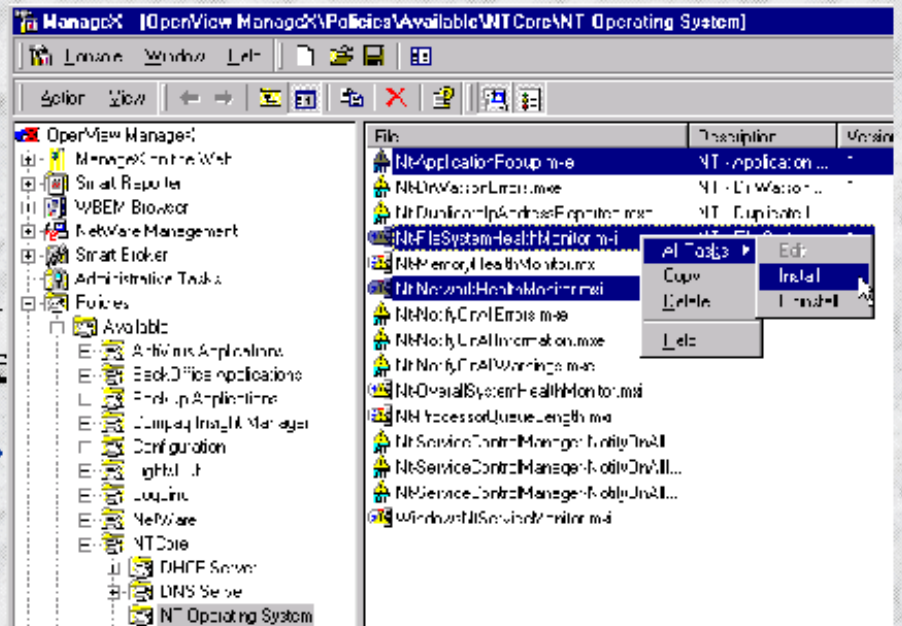
- Policies & editors appear in **Policies** extension
- Organized by type and application

Quick installation

Select machines

in **Device Selector**

Select policies, then
right-click & choose
All Tasks > Install.



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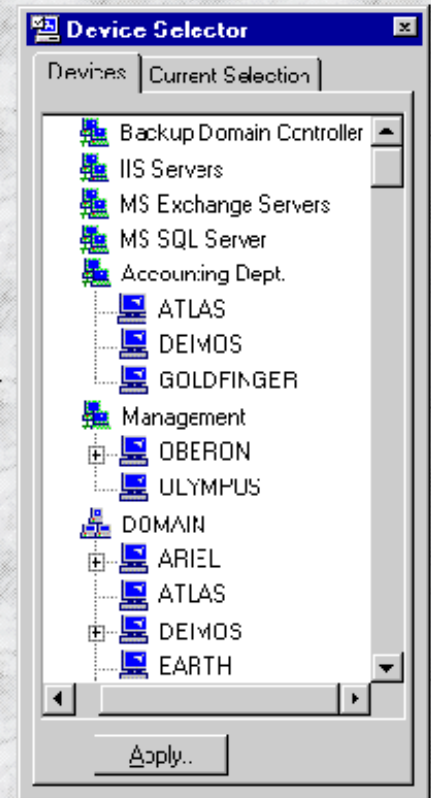
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ManageX Discovery: View and Connect



■ Device Selector and Aliases

- View available machines and domains
- Select the machines and domains to which commands will apply
- Aliases let you group machines statically (by machine name lists, e.g. “Management”) or dynamically (by O/S, application, etc.e.g. “IIS Servers”.)



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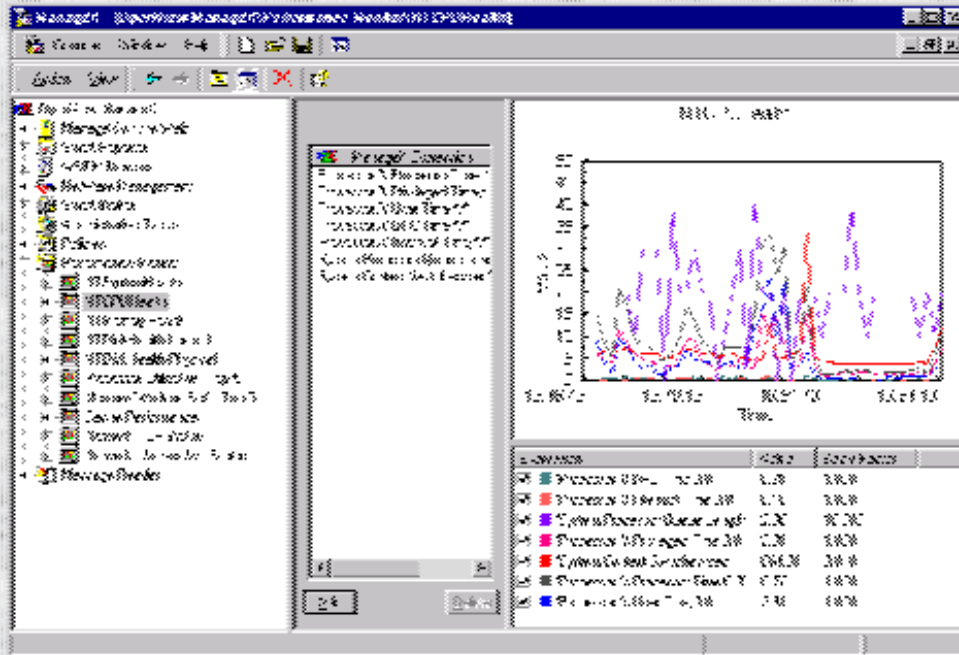
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ManageX Assessment: Monitor and Evaluate



■ Performance Monitor

- Lists and graphs PerfLib counters in real time
- Charts across multiple machines

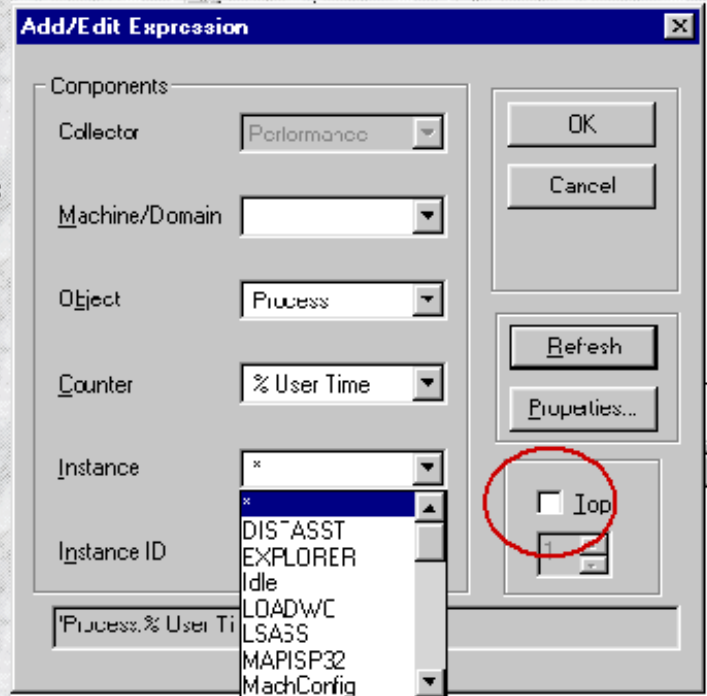


The "Top" Function



- Gathers occurrences of specified expression with highest values

- Example:
5 processes
taking up most user time
on a given machine



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ManageX Correction: Manual Facilities



■ Administrative Tasks

- Access to basic administrative commands

- **System shutdown/Abort shutdown**

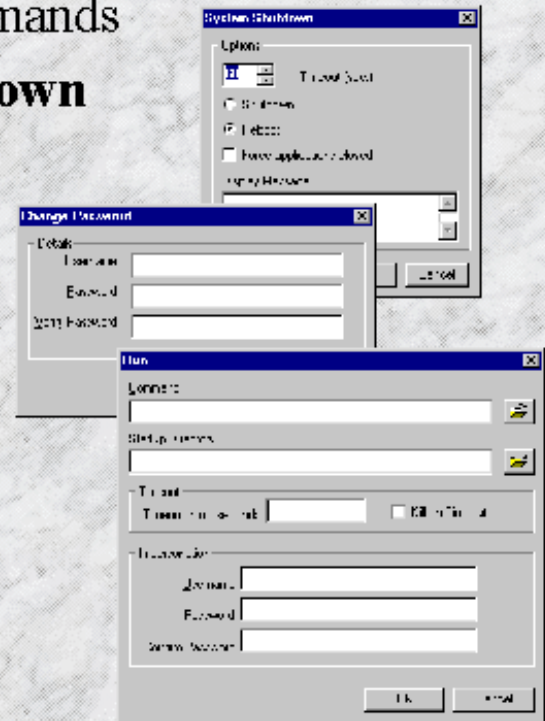
- **Change Password**

- **Remove user account**

- **Remote run**

- **Setup Smart Broker and SRTs**

- Ability to apply a single command to multiple machines



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Policy Actions



- Corrective moves made when an exception to the policy trigger's condition occurs.
- Multiple actions can be assigned to any exception.
- ActiveX action adds total scripting capability.
- Ten standard action types:
 - ◆ ActiveX Script
 - ◆ Command Exec
 - ◆ Generate WBEM Event
 - ◆ Send Console Message
 - ◆ Send Electronic Mail
 - ◆ Sent Event as Console Message
 - ◆ Send SNMP Trap
 - ◆ Write to File
 - ◆ Write to NT Event Log
 - ◆ Write to ODBC

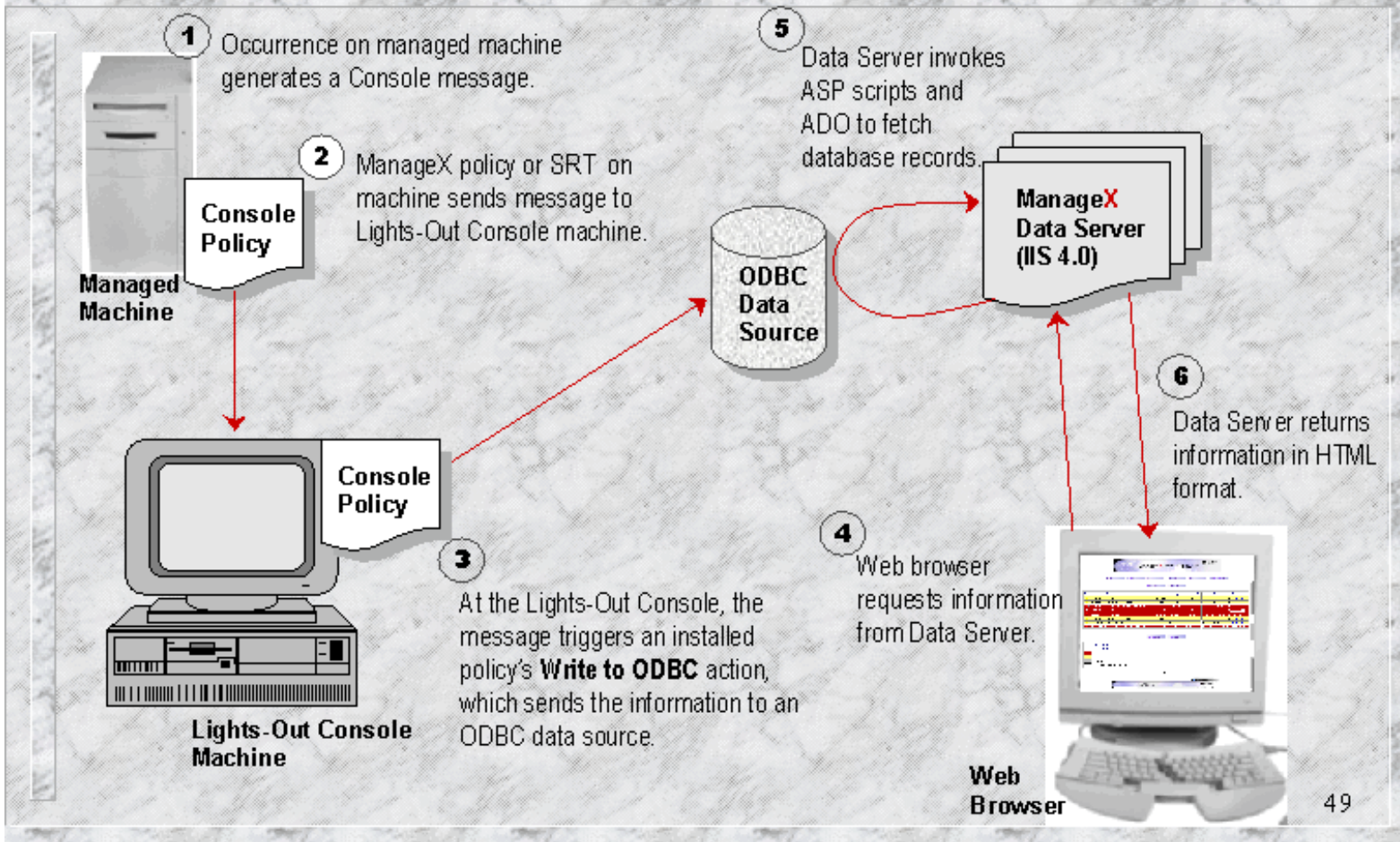


The Web Event Browser

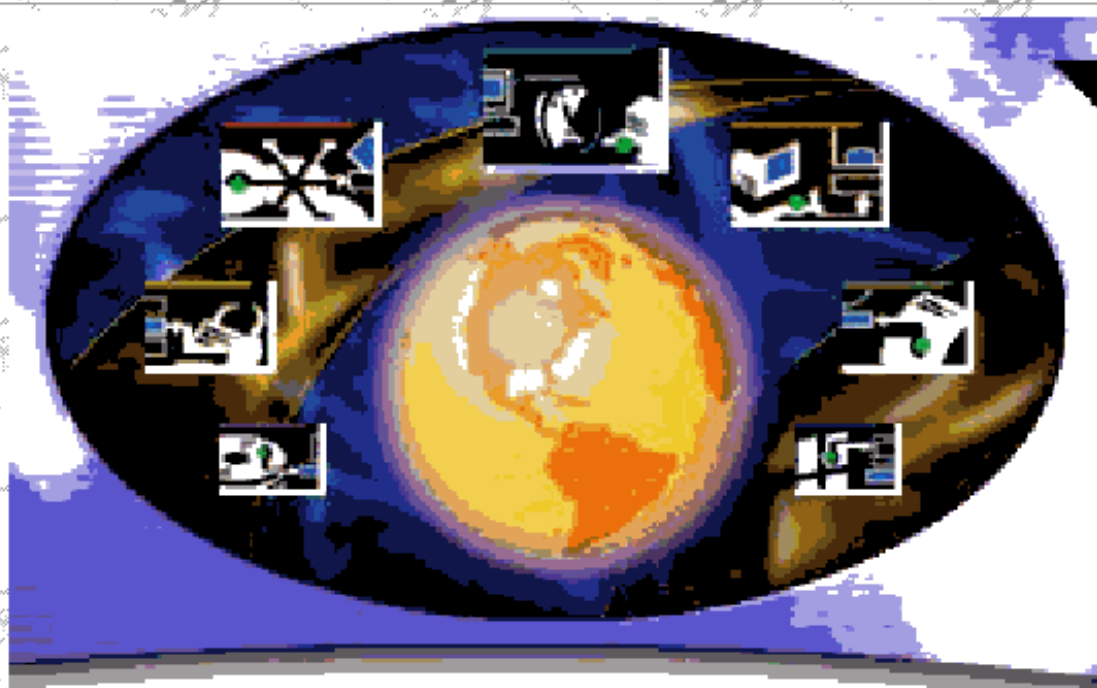
- **Views only ManageX-generated Console messages sent to an ODBC data source via “Write to ODBC”**
 - MS Access (default; run-time version installed with WEB)
 - MS SQL Server (requires additional software and installation)
- **Messages appear on Active Server Pages**
- **Available from any location with a standard Web browser and appropriate SQL permissions**
 - IE 3.02 or higher
 - Navigator 3.03 or higher; Communicator 4.05 or higher



The WEB process



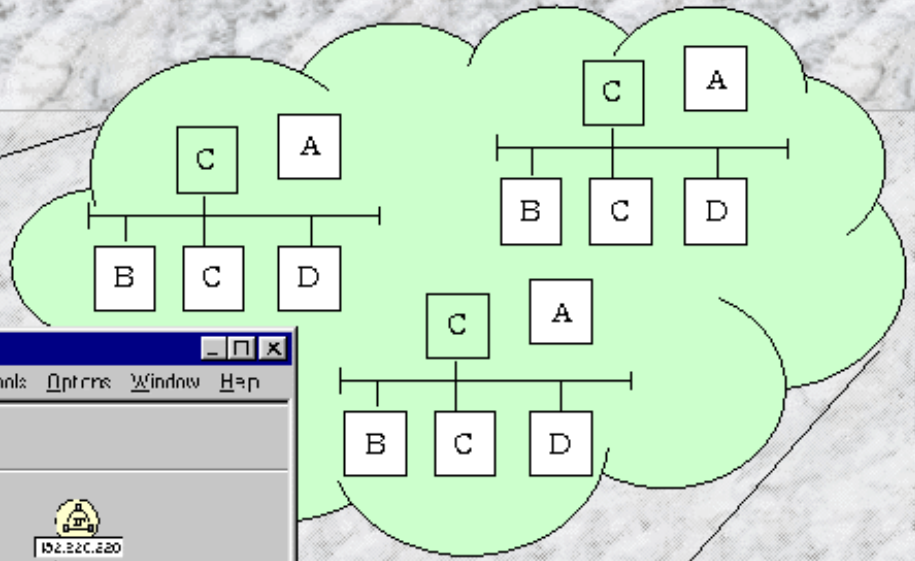
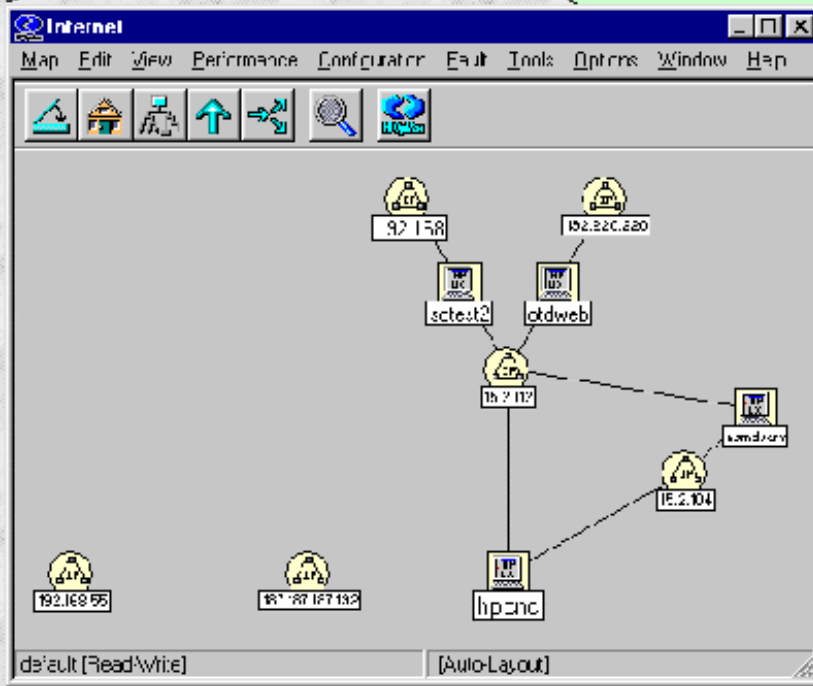
Network Node Manager



Works I Right I Now



What Does NNM Provide?



Basic NNM Windows

The screenshot displays the Basic NNM Windows interface, which includes a network diagram, an alarm browser, and an alarm categories list.

Alarm Categories:

- Error Alarms
- Threshold Alarms
- Status Alarms
- Configuration Alarms
- Application Alert Alarms
- All Alarms

Alarm Browser:

Alert	Category	Severity	Date/Time	Source	Message
<input type="checkbox"/>	Error	High	Nov 21, 2000 12:40:04	ReportLoadAppProc	Load Load Contact
<input type="checkbox"/>	Error	High	Nov 21, 2000 12:38:06	ReportLoadAppProc	Load Load Contact
<input checked="" type="checkbox"/>	Error	High	Nov 21, 2000 12:39:01	ReportLoadAppProc	Load Load Contact

Message: Unusual Report Load Working, Normal Acknowledged

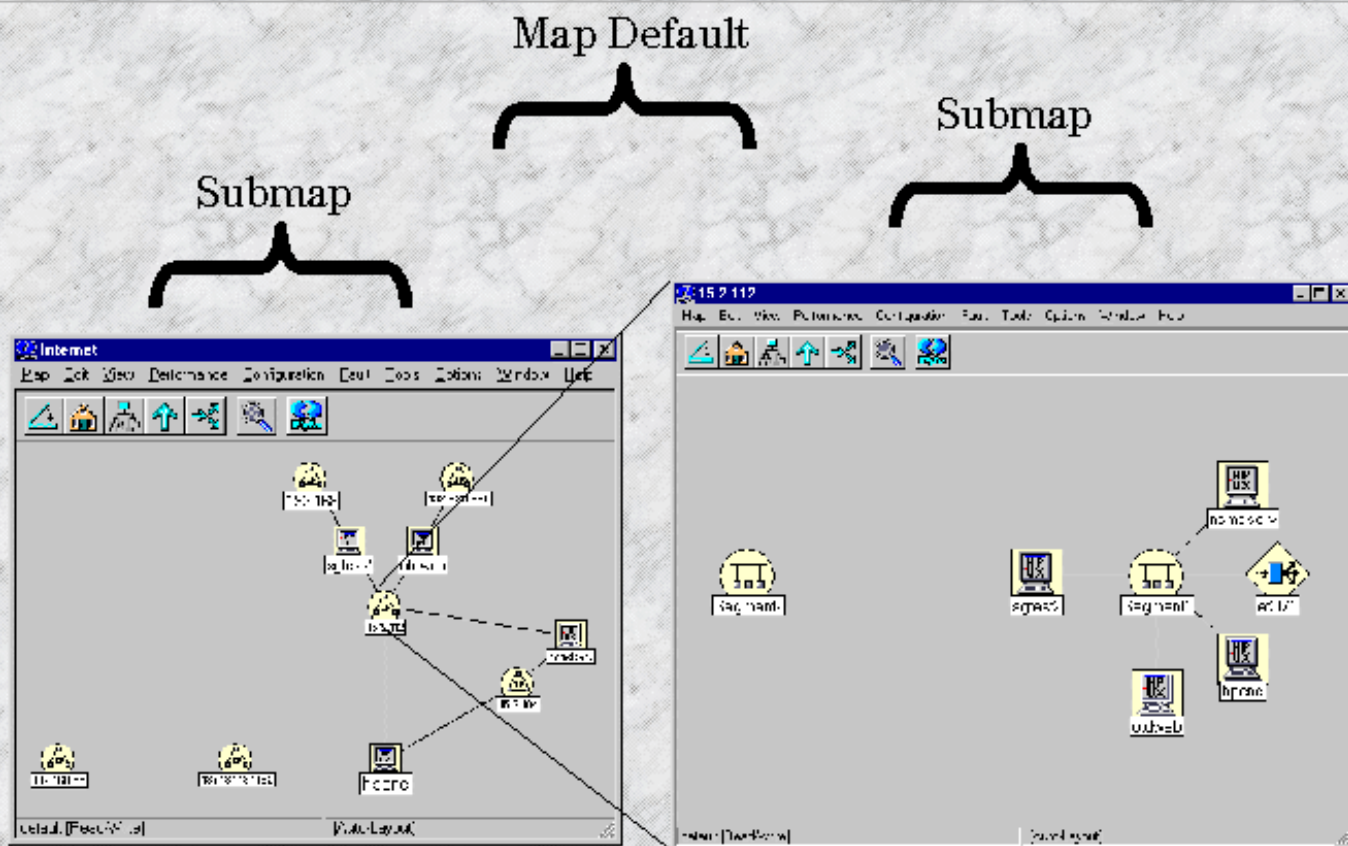
The network diagram shows a central node labeled 'R2413' connected to several other nodes, including '192.168.1.1', '192.168.1.2', '192.168.1.3', '192.168.1.4', '192.168.1.5', and '192.168.1.6'. The nodes are represented by icons of a globe and a computer monitor.

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Introduction to Maps and Submaps



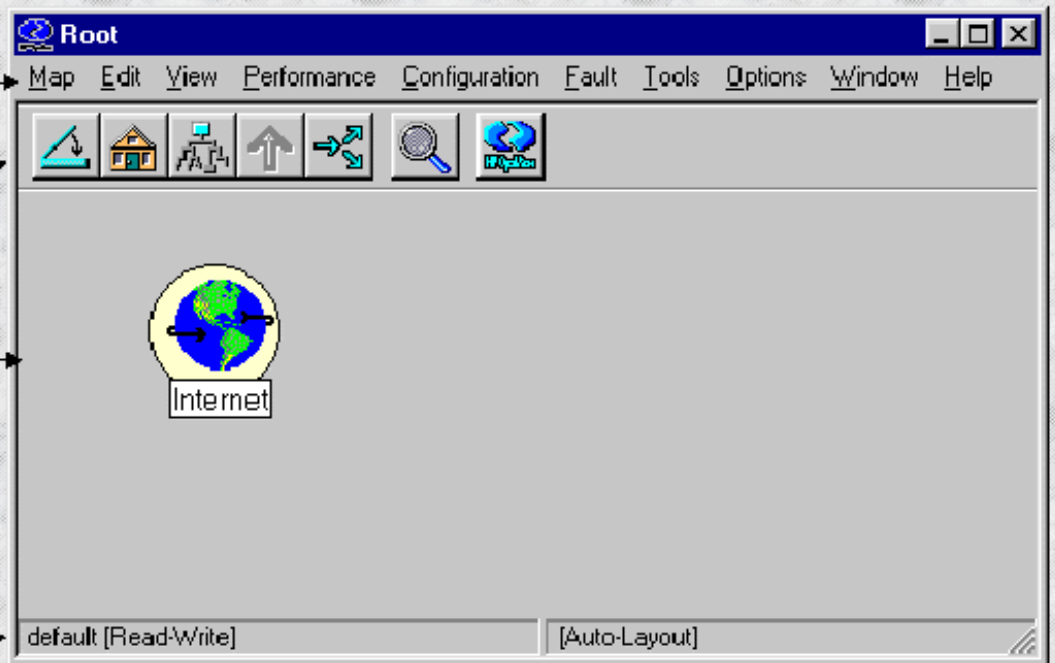
The Submap Window Components

Menu Bar

Tool Bar

Viewing Area

Status Bar

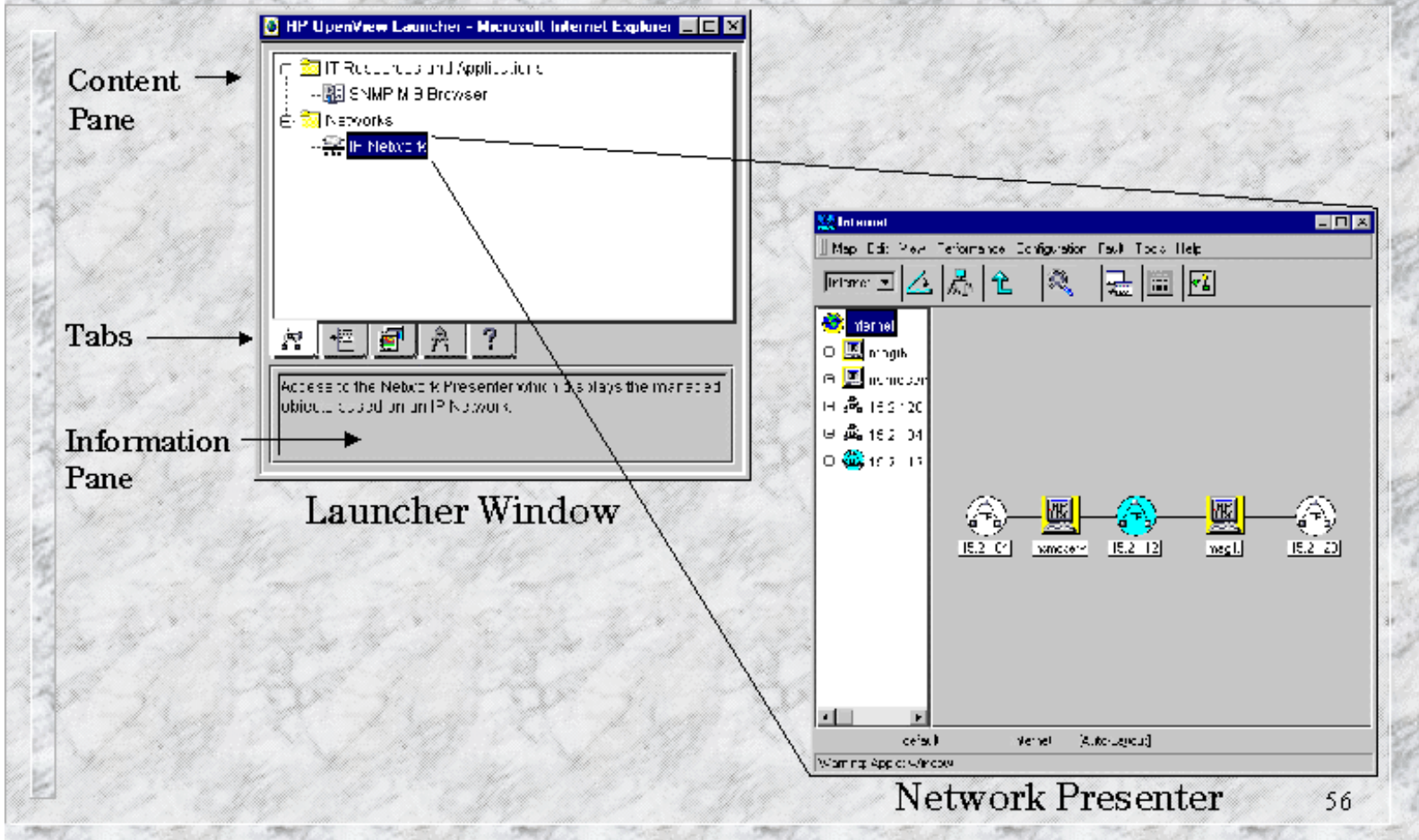


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The Launcher Window



The Network Presenter Window

The screenshot displays the Network Presenter Window with the following components labeled:

- Submap Title:** Points to the "Internet" title bar.
- Title:** Points to the "Internet" text in the title bar.
- Context Selection:** Points to the "Internet" dropdown menu.
- Menu Bar:** Points to the menu items: Map, Edit, view, Performance, Configuration, Fault, Tools, Help.
- Tool Bar:** Points to the icons for navigation and analysis.
- Scope Pane:** Points to the left-hand tree view showing a hierarchy of nodes like "theforce", "HF", "15.2.66", etc.
- Content Pane:** Points to the main map area showing a network topology over a map of the United States.

At the bottom of the window, there is a status bar with the text: "Warning: Applet Window".



Network Presenter Tabular View

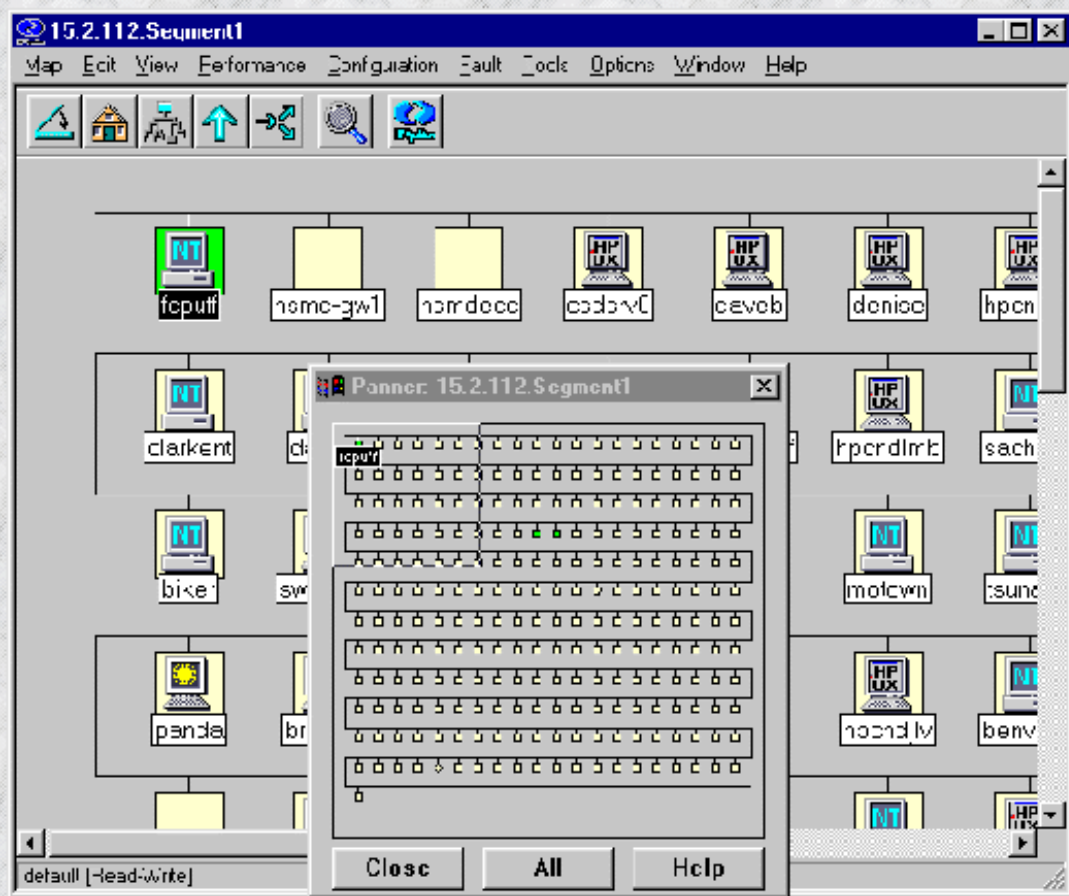
Label	Status	Class	Subclass
ovtlp2	Minor	Connector	Gateway
192.168.55	Unmanaged	Network	IP Network
15.6.184	Unmanaged	Network	IP Network
fctceagw1	Minor	Connector	Gateway
15.15.96	Unmanaged	Network	IP Network
tomcat	Warning	Computer	HP-UX
warp1	Normal	Connector	Gateway
smithers	Normal	Computer	HP-UX
sunsrv0	Normal	Connector	Gateway
latok	Warning	Connector	Gateway
nsmddja	Minor	Computer	HP-UX
ovtlp2	Critical	Connector	Gateway
sgtest2	Minor	Computer	HP-UX
ovtlp2	Critical	Connector	Gateway

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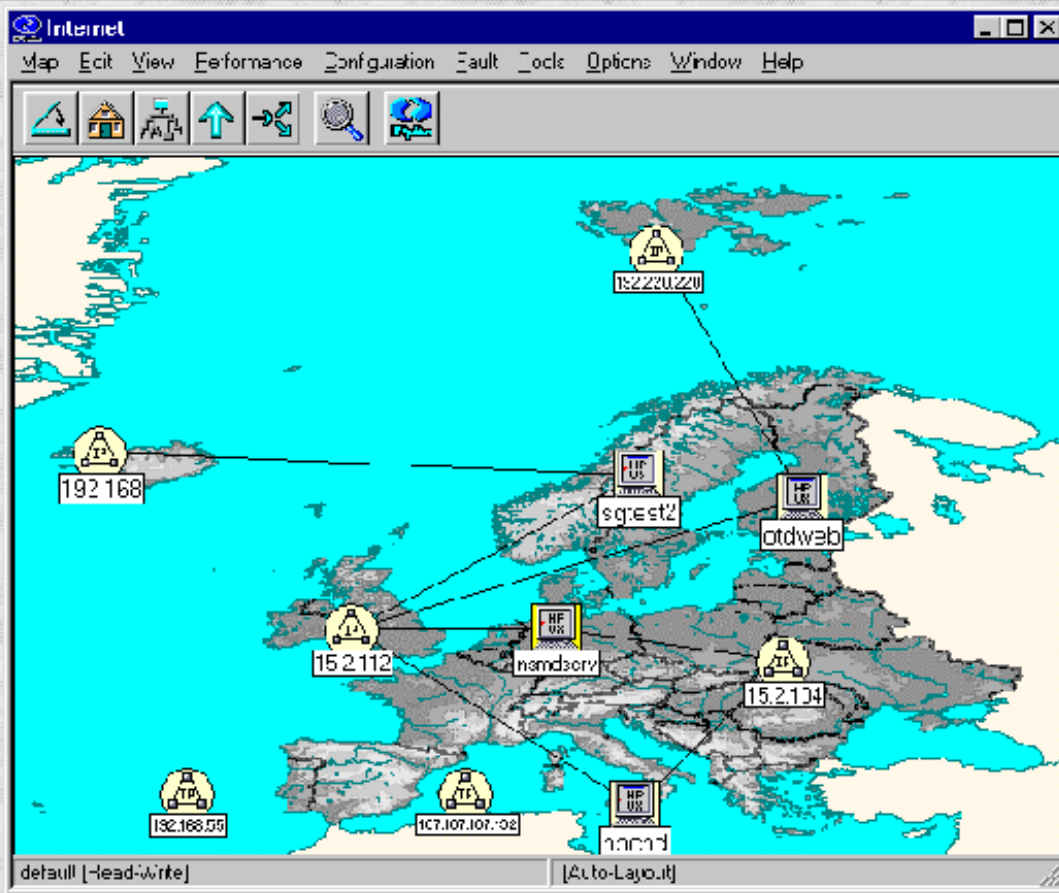


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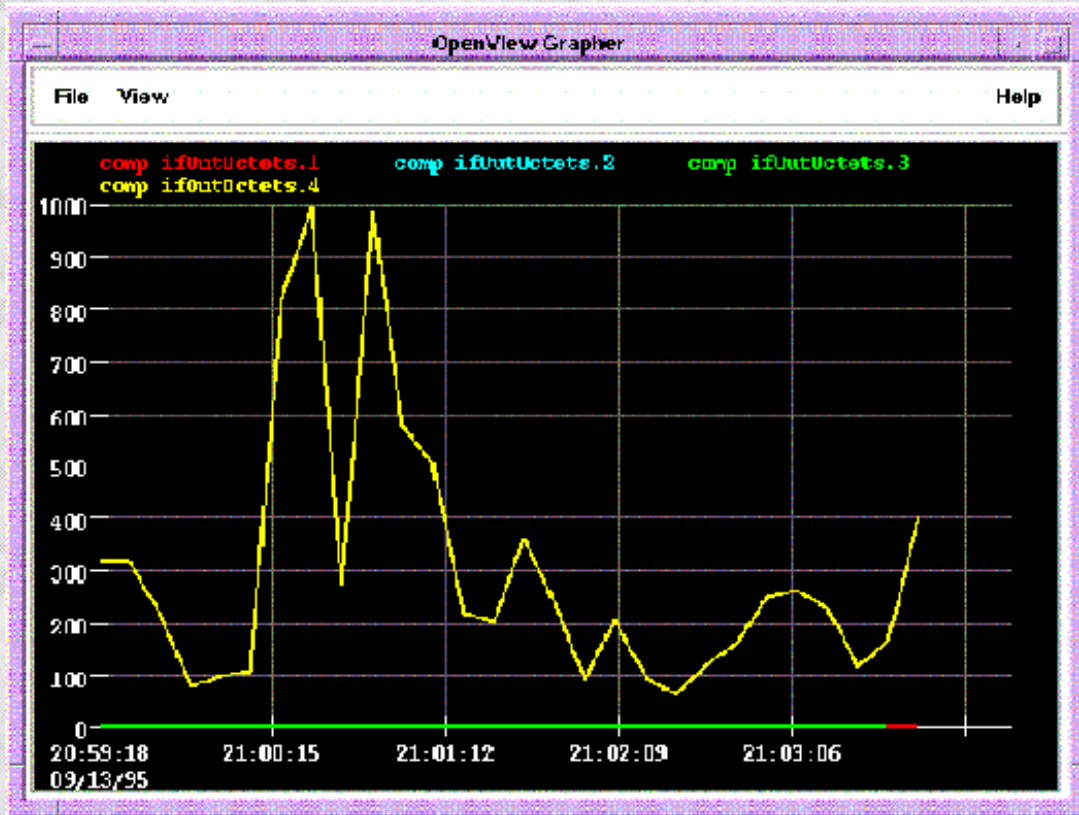
Using Pan and Zoom



Adding Submap Backgrounds



Graphing Selected MIB Values

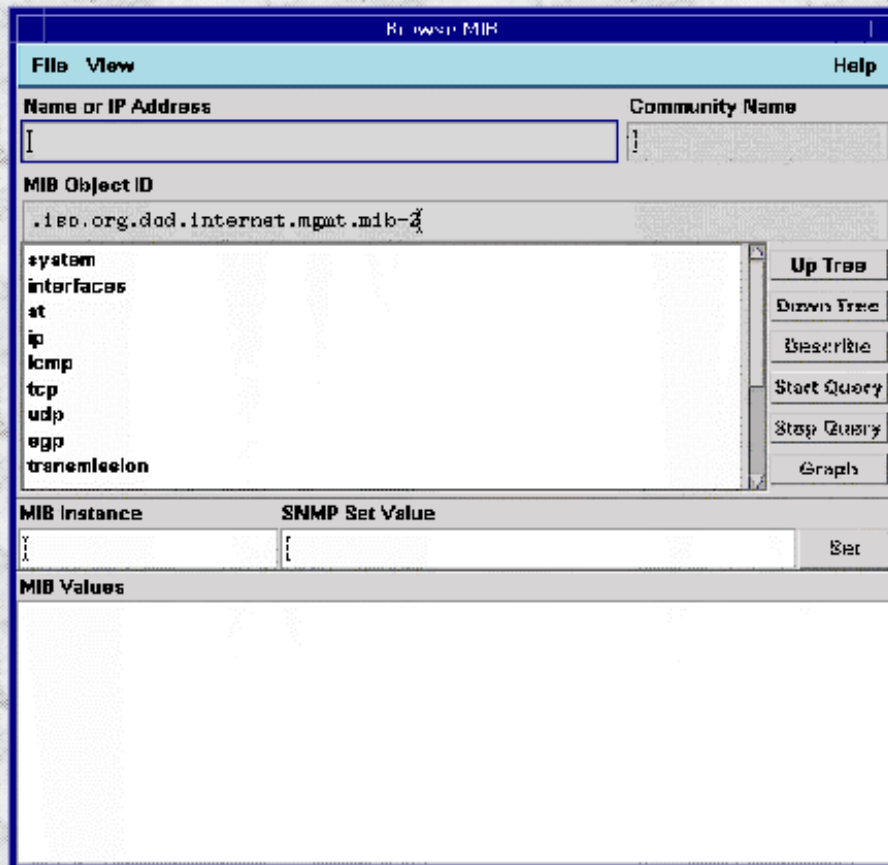


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Using the MIB Browser

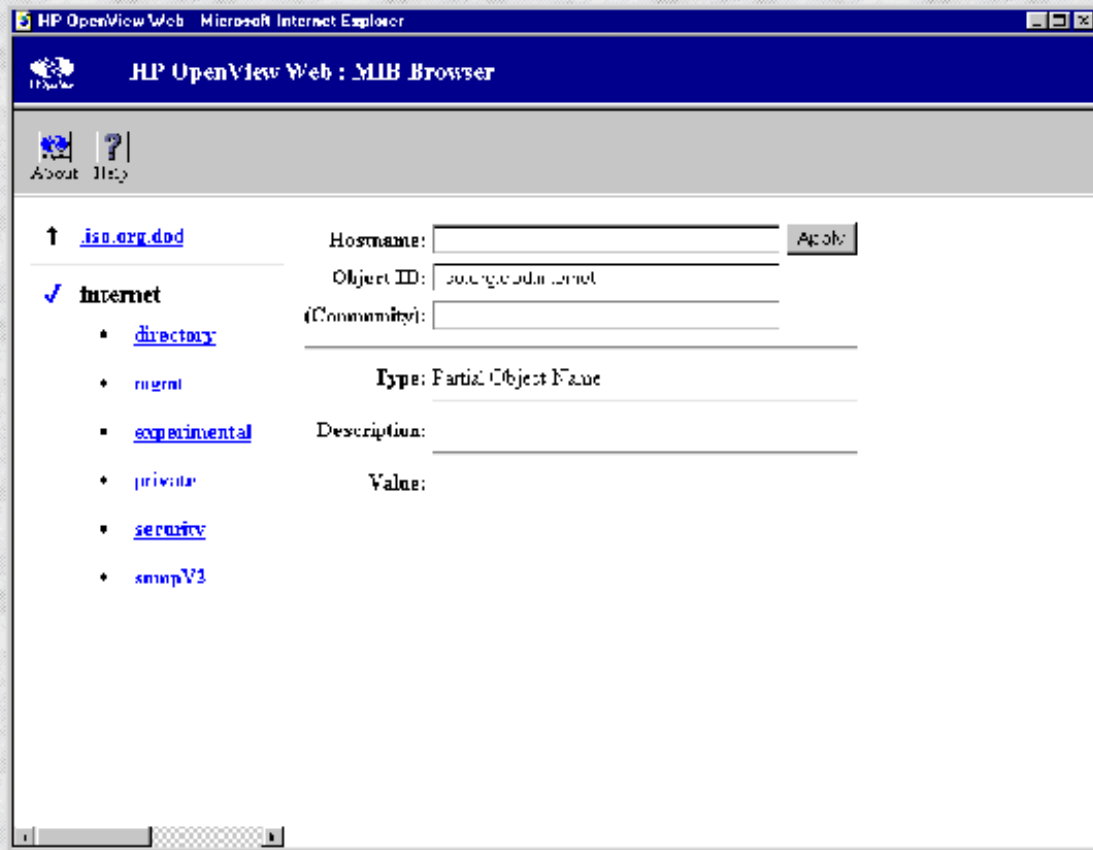


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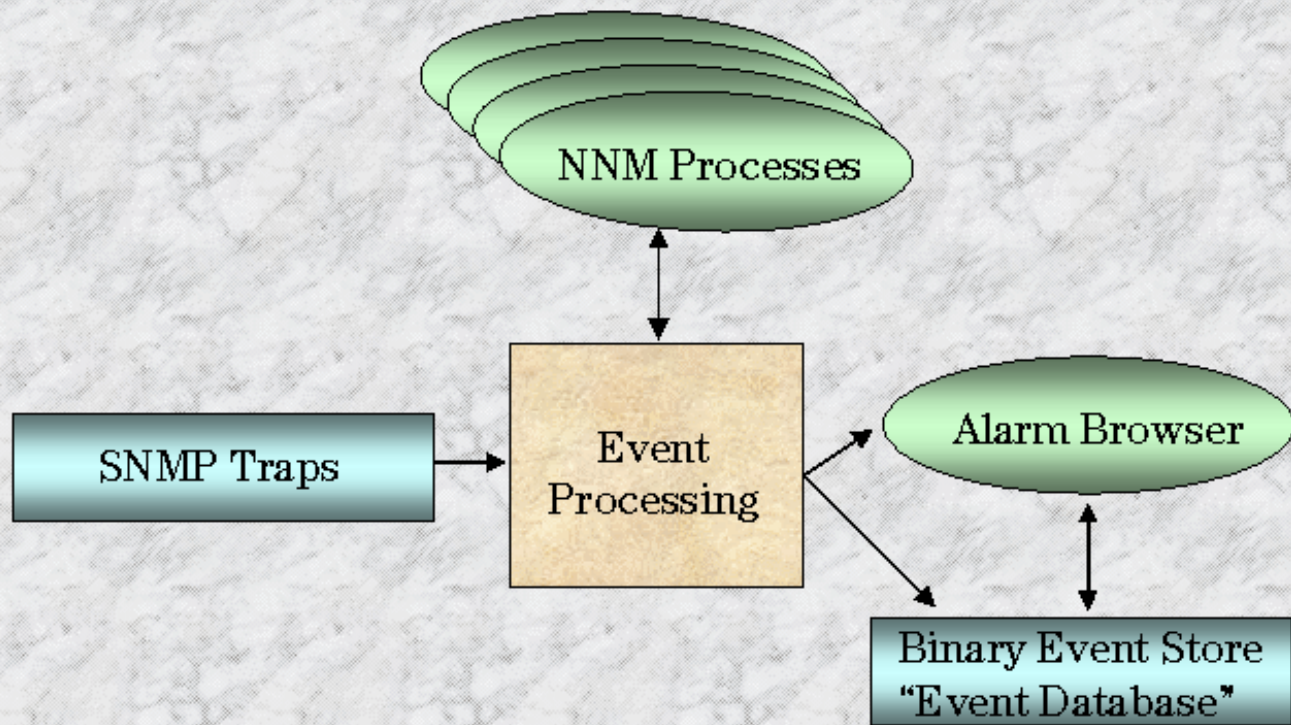


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Web Based SNMP MIB Browser



Introduction to Events and Alarms



Browsing NNM Alarms

All Alarms Browser

File Actions View Help

Ack	Cor	Severity	Date/Time	Source	Message
<input type="checkbox"/>		Major	Tue Aug 25 19:50:53	fcpuuff.cnd.hp.com	Network Node Manager license expires on 11/17/
<input type="checkbox"/>		Major	Wed Aug 26 09:59:29	fcpuuff.cnd.hp.com	ovspmd managed process (ovdbcheck) has termina
<input type="checkbox"/>		Major	Thu Aug 27 13:47:55	fcpuuff.cnd.hp.com	Network Node Manager license expires on 11/17/
<input type="checkbox"/>	+	Normal	Fri Aug 28 10:46:56	fcpuuff.cnd.hp.com	Node up
<input type="checkbox"/>	+	Normal	Fri Aug 28 10:40:25	wendy.cnd.hp.com	Node up
<input checked="" type="checkbox"/>	+	Warning	Sat Aug 29 11:12:19	wendy.cnd.hp.com	Node status - warning
<input type="checkbox"/>	+	Warning	Sat Aug 29 11:12:21	wendy.cnd.hp.com	Node status - major
<input type="checkbox"/>		Major	Sat Aug 29 15:03:54	fcpuuff.cnd.hp.com	Network Node Manager license expires on 11/17/
<input type="checkbox"/>		Major	Sun Aug 30 16:43:39	fcpuuff.cnd.hp.com	Network Node Manager license expires on 11/17/
<input type="checkbox"/>		Major	Mon Aug 31 21:06:55	fcpuuff.cnd.hp.com	Network Node Manager license expires on 11/17/
<input type="checkbox"/>		Major	Tue Sep 01 21:22:31	fcpuuff.cnd.hp.com	Network Node Manager license expires on 11/17/
<input type="checkbox"/>		Major	Wed Sep 02 22:47:26	fcpuuff.cnd.hp.com	Network Node Manager license expires on 11/17/
<input type="checkbox"/>		Major	Fri Sep 04 00:22:48	fcpuuff.cnd.hp.com	Network Node Manager license expires on 11/17/
<input type="checkbox"/>		Major	Sat Sep 05 01:28:52	fcpuuff.cnd.hp.com	Network Node Manager license expires on 11/17/
<input type="checkbox"/>		Major	Sun Sep 06 02:38:16	fcpuuff.cnd.hp.com	Network Node Manager license expires on 11/17/

74 Alarms Critical:1 Major:62 Minor:0 Warning:3 Normal:8 (acknowledged)

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Web Based Alarms Browser

⚠ All Alarms Browser
_ □ ×

File Actions View Help

🔍 🗑️ 🔔 🌐 ?

Ack	Corr	Severity	Date And Time	Source	Message
		📄 Normal	Wed Sep 16 15:44:23 1998	Sin-930250	Node added
		🔺 Warning	Wed Sep 16 15:44:29 1998	hpcndlee.cnd.hp.com	Node down
		🔺 Warning	Wed Sep 16 15:46:17 1998	certprob.cnd.hp.com	Node status - major
		🔺 Warning	Wed Sep 16 15:47:16 1998	HP-328256	Node down

Total	✖	Critical	⚠	Major	⚠	Minor	🔺	Warning	📄	Normal
3461		0		2230		0		1153		81

Summary of All Alarms in Event Database September 16, 1998

Warning: Applet Window



Correlated Events

Lock	Doc	Severity	Date/Time	Source	Message
		Normal	Fri Aug 28 10:46:55	fspulf.cnd.hp.com	Node up
		Normal	Fri Aug 28 10:46:55	fspulf.cnd.hp.com	Node up

Correlated Events: for Alarm UUID b55aa9c1-3e96-71d2-043e-0f0272e00000

- Fri Aug 28 10:46:56 fspulf.cnd.hp.com Node up
- └─ Fri Aug 28 10:46:55 fspulf.cnd.hp.com I7AMD up

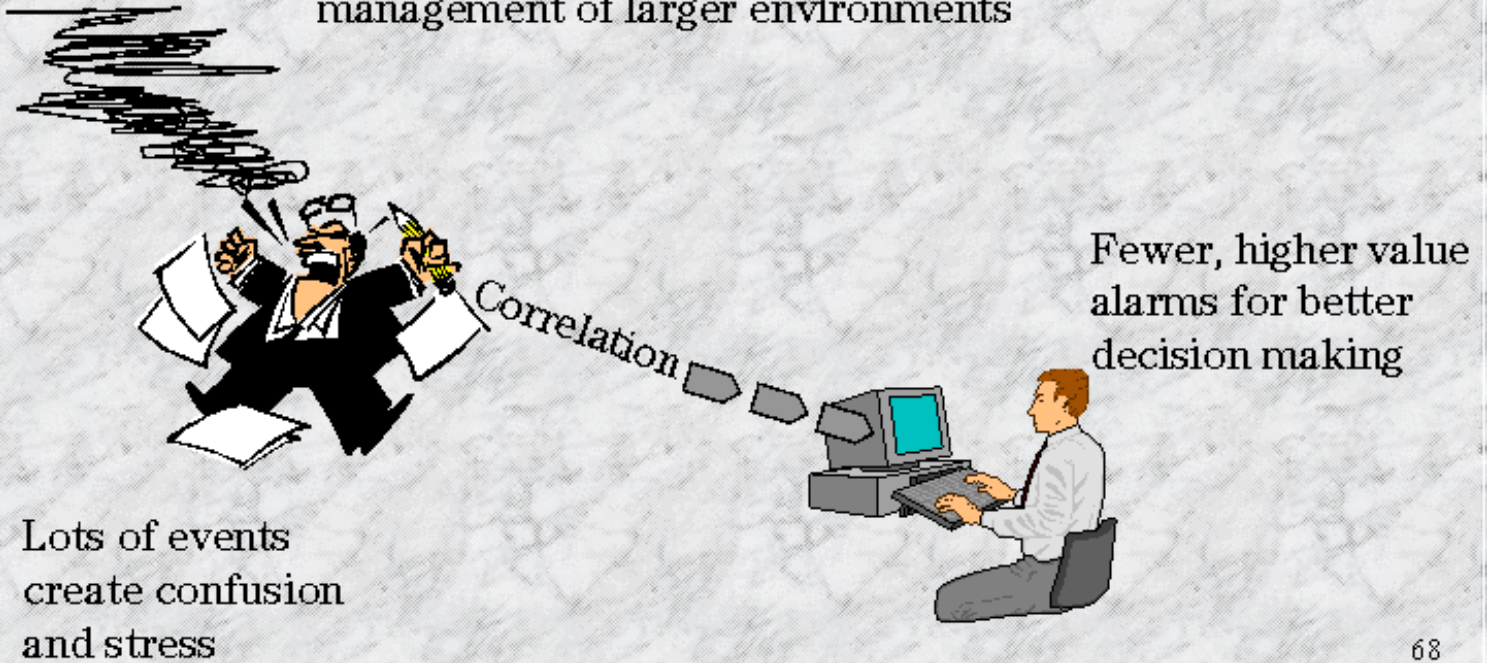
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The Need for Event Correlation

- ECS' high-speed event correlation can eliminate event storms producing just a few highly useful events
- ... enhancing network management quality, and allowing the management of larger environments



The ECS Event Configuration GUI

Event Correlation in Selected Stream:

Status	Name	Description
Disabled	agg	Aggregate repeated events circuit
Disabled	connDown	Router down circuit
<input checked="" type="checkbox"/> Enabled	nmtest	
Disabled	single3	
Disabled	single4	

Enable
Disable
Describe...
Modify...

Update View Help

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Accessing Object Descriptions

