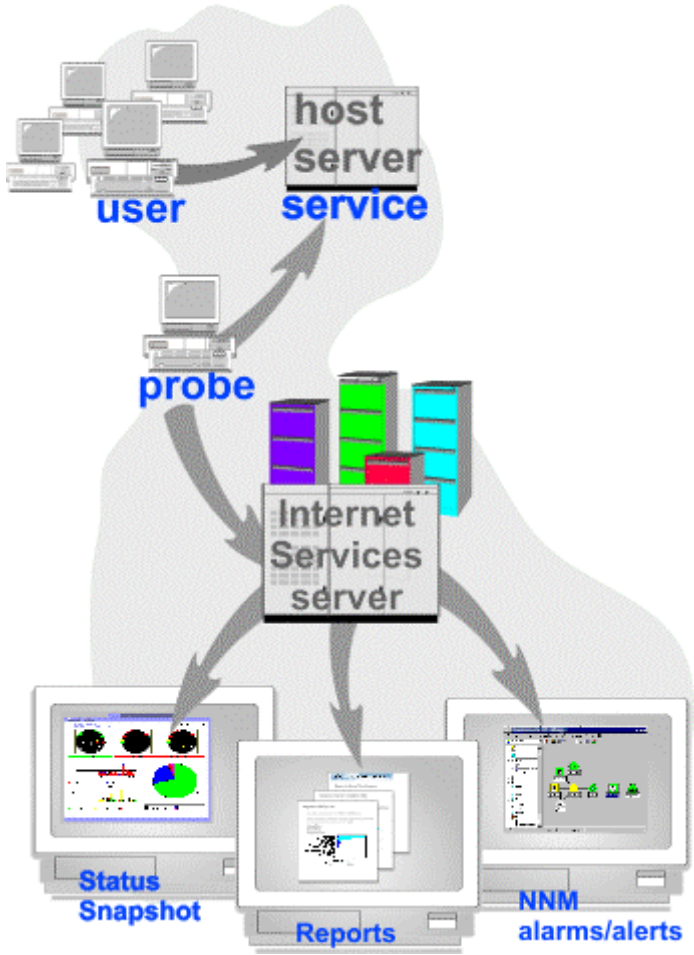
HP OpenView

Introducing HP OpenView VantagePoint Internet Services (VP-IS)



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Visit VP-IS Interactive website
http://ovweb1.external.hp.com/nnminteract/ovis-main.htm

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What is VP Internet Services 2.0?

- For companies that provide business-critical internet services
- Measure, monitor and report against service level agreements
- Provides end-to-end service assurance by proactively managing availability and performance
- Reduce Mean-time-to-Repair the service through tight linkage between internet services monitoring and troubleshooting

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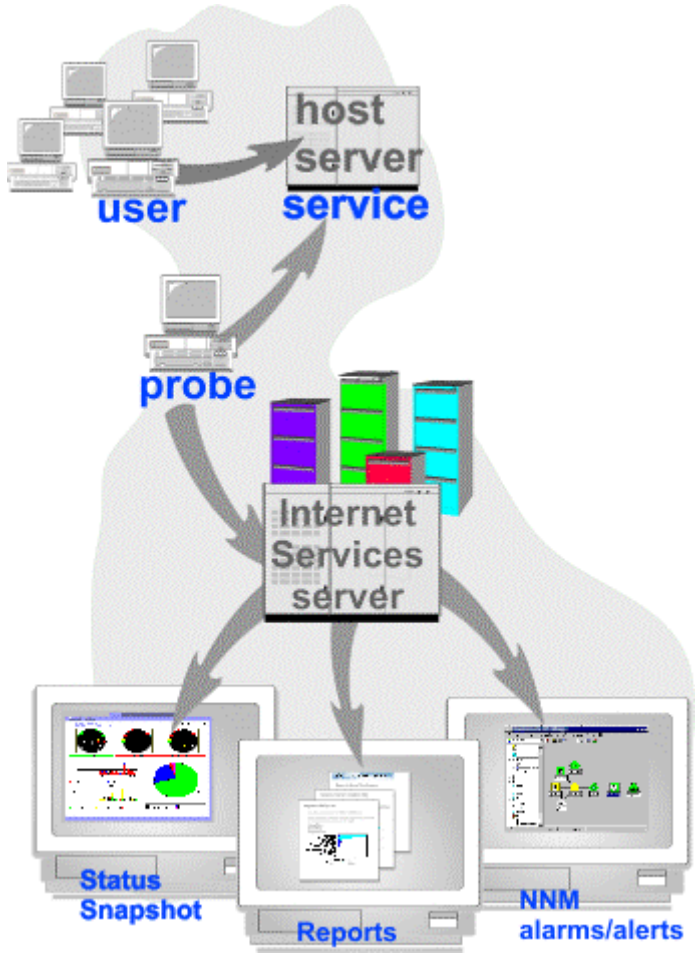
Overview

- Users engage many internet services (HTTP, DNS, etc.) in everyday use, generally without any knowledge of the service
- But poor service performance gives user a poor experience
- High service availability and performance is key to making the user experience satisfying



HP OpenView VantagePoint Internet Services

The industry's most complete "Active" monitoring probe technology solution lets you pinpoint the source of the service problem

- **The active software probes detect and automatically alarm whenever end-to-end response time SLOs are violated**
- **Builtin reports help you quickly determine system application related problems**
- **Integration with VP Operation's templates point to problems on mission critical servers**
- **Integration with NNM Event Correlation Services allow quick determination of network or application problems and "root cause analysis" for network failures.**

Why HP OpenView VantagePoint Internet Services 2.0 is the right choice

- Tight integration with HP OV troubleshooting tools increases service availability
- Tight integration with HP OV reporting tools for consistent look-and-feel
- At-a-glance health summary information
- Automatic baselining gives your more intelligent alarms
- Support of leading-edge technologies such as WAP
- Support is all from HP (no 3rd party support needed)

HP OpenView VantagePoint Internet Services

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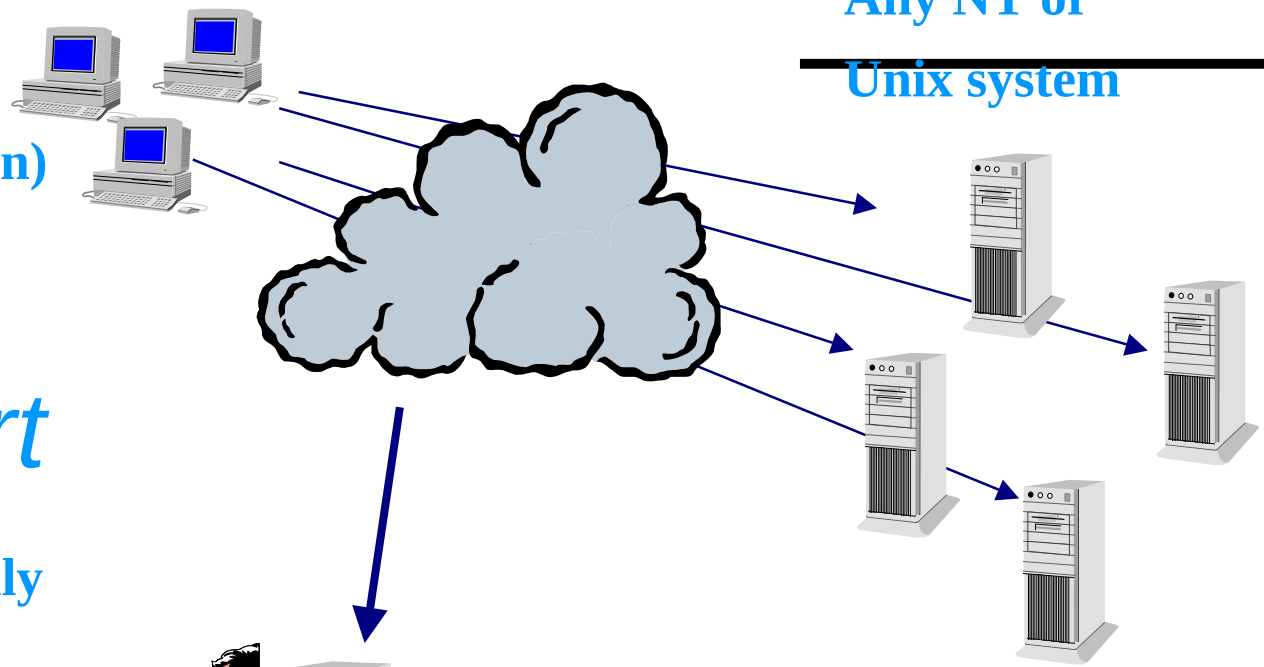
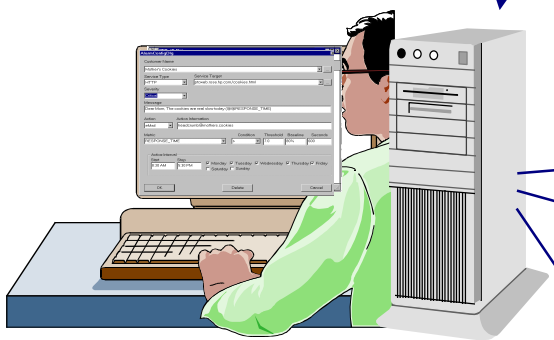
NT only
(Solaris, HP-UX,
Linux available soon)

Any NT or
Unix system

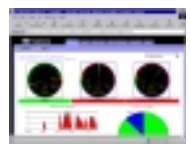


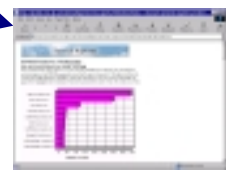
OS Support

NT only



Works NNM
6.01 and
above





Any system
with a
Netscape or
Microsoft
web browser

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Easy licensing model

- One license needed per managed server (independent as to how many services run on them)
- Software probes are not licensed
- No separate license for the measurement server

You only pay for what you want to manage!

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Product Structure and Pricing

J5100AA	**HP OV VantagePoint Internet Services 2.x Enterprise Server LTU**	$ 11,995.00
J5101AA	**HP OV VantagePoint Internet Services 2.x Datacenter Server LTU**	$ 4,995.00
J5102AA	**HP OV VantagePoint Internet Services 2.x Advanced Server LTU**	$ 1,995.00
J5103AA	**HP OV VantagePoint Internet Services 2.x Server LTU**	$ 995.00
J5104AA	**HP OV VantagePoint Internet Services 2.x Media/Manual**	*$ 195.00*

Tier classification of the server (see ESP, keyword "ovtierm")

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Ordering Example

Customer wants to test from 35 NT-based probe locations

- **12 HTTP servers (2 Sun Enterprise 5500, 10 NT w/ 4 CPUs)**
- **4 DNS (Sun Enterprise 450)**
- **5 servers running FTP and NNTP (NT w/ 8 CPUs)**

The following needs to be ordered:

- **1 J5104AA (media and manuals)**
- **2 J5101AA (VPIS Datacenter License) for Sun 5500**
- **10 J5103AA (VPIS Server License) for NT w/ 4 CPUs**
- **4 J5102AA (VPIS Advanced License) for Sun 450**
- **5 J5102AA (VPIS Advanced License) for NT w/ 8 CPUs**

NOTE: - no charge for software probes
- no charge for VPIS measurement server
- charge per managed server (independent of the number of services running)

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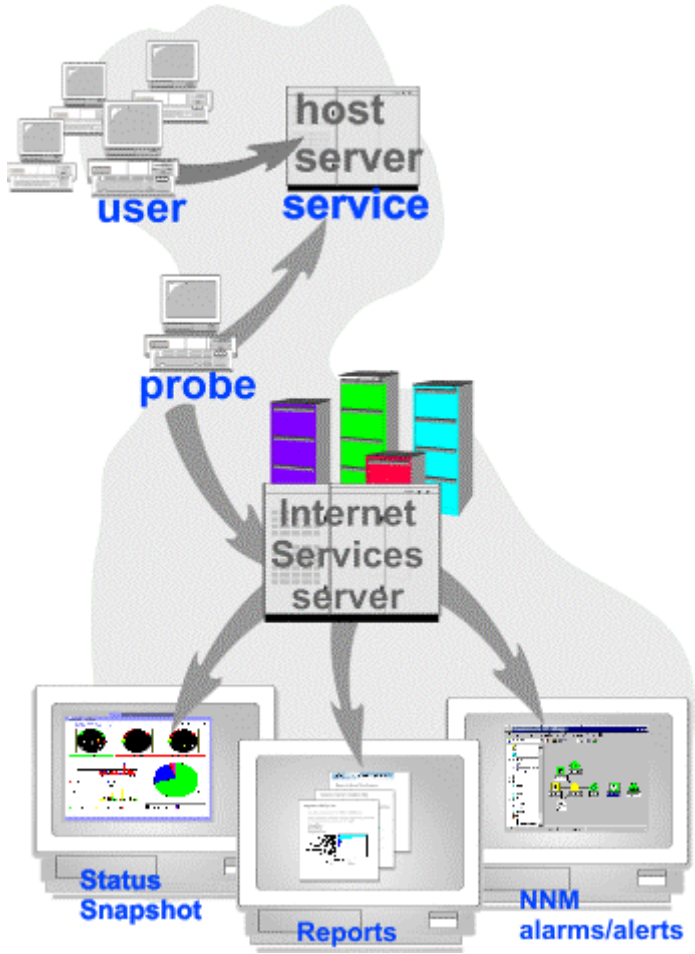
How you should deploy VP Internet Services 2.0

- Only one measurement server needed (only runs on NT)
- Deploy the software probes to the points in the network from where the response time should be measured
- Measure the response time of several servers (e.g. HTTP, DNS, FTP ...) from one probe system
- VP Internet Services 2.0 can run standalone, but it can also be integrated into NNM and VP Operations

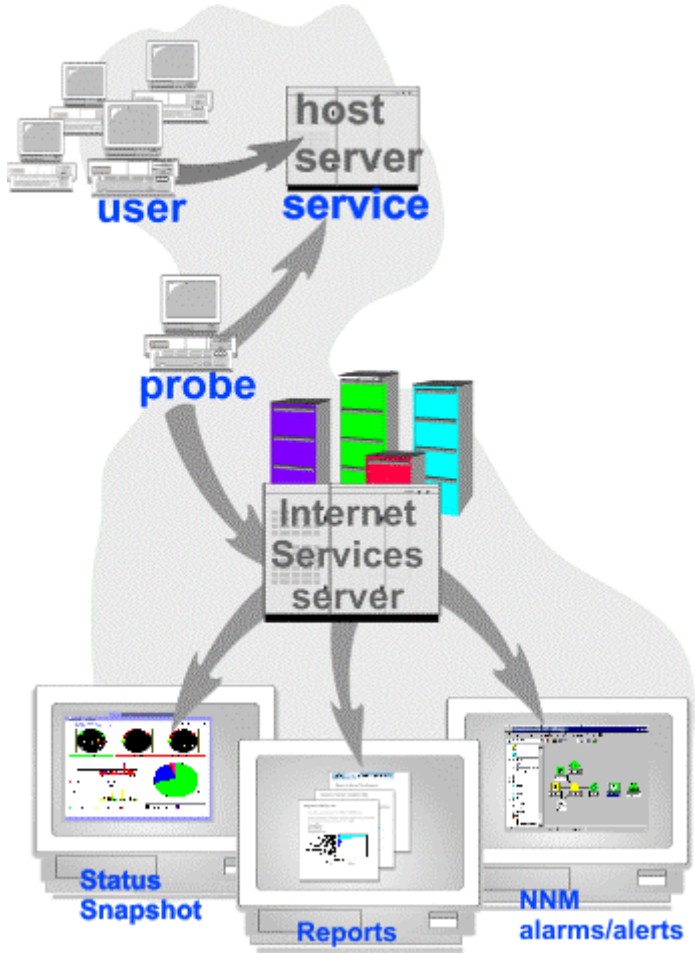
Overview

- **VP-IS** actively probes services to measure their performance and availability. Examples:
  - % of time service is available
  - Time to set up a transaction
  - Time to complete a transaction
  - % of successful completion of transaction
- Data from the probe(s) go to the database on the **VP-IS** server



Overview
(cont'd)

- The **VP-IS** server offers a web interface for viewing the data, with tabs for:
  - Snapshot view
  - Availability view
  - Response Time view
  - Service Level Violations view
  - Reports view
- Details on these views in a moment



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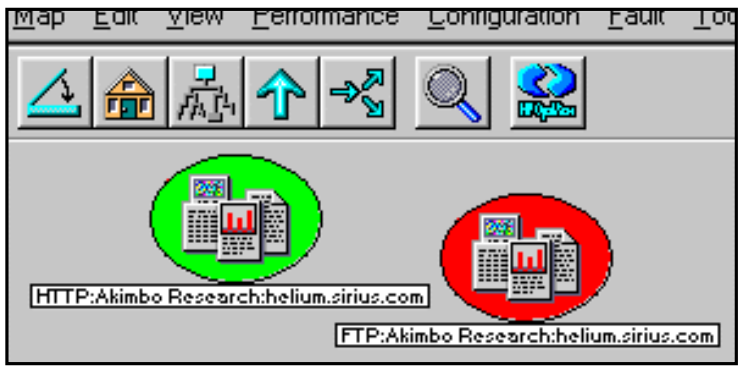
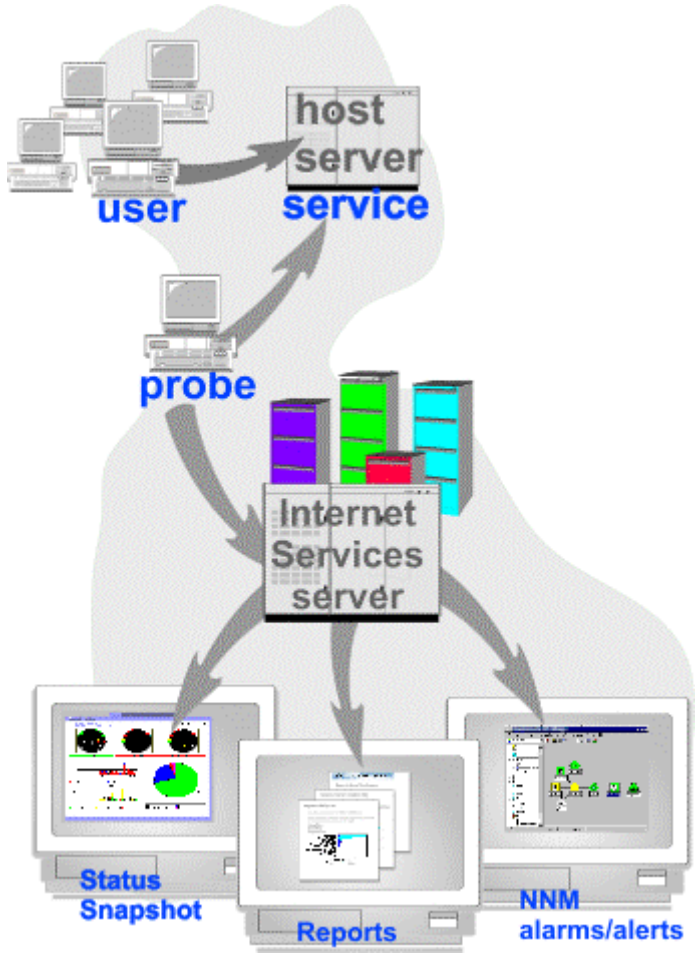
Overview
(cont'd)

- Alarms can also be sent to **NNM** or **ITO** for fault diagnosis
- Integration with **NNM** creates new map symbols for customers and the services they receive
  - Symbol status colors reflect alarm status of monitored services





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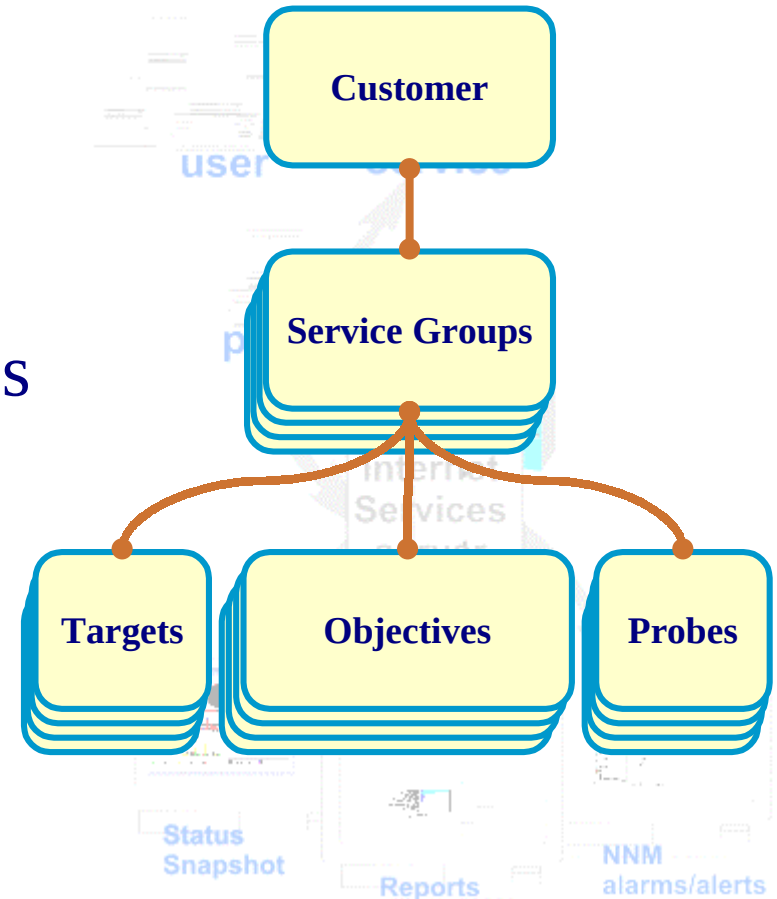
Overview

- **VP-IS** lets you structure the services by customer and service groups.
  - E.g. ISP has multiple customers
  - Each customer has service groups with specific service targets (e.g. URLs, DNS servers, etc).
  - VP-IS summarizes data by customer and service group

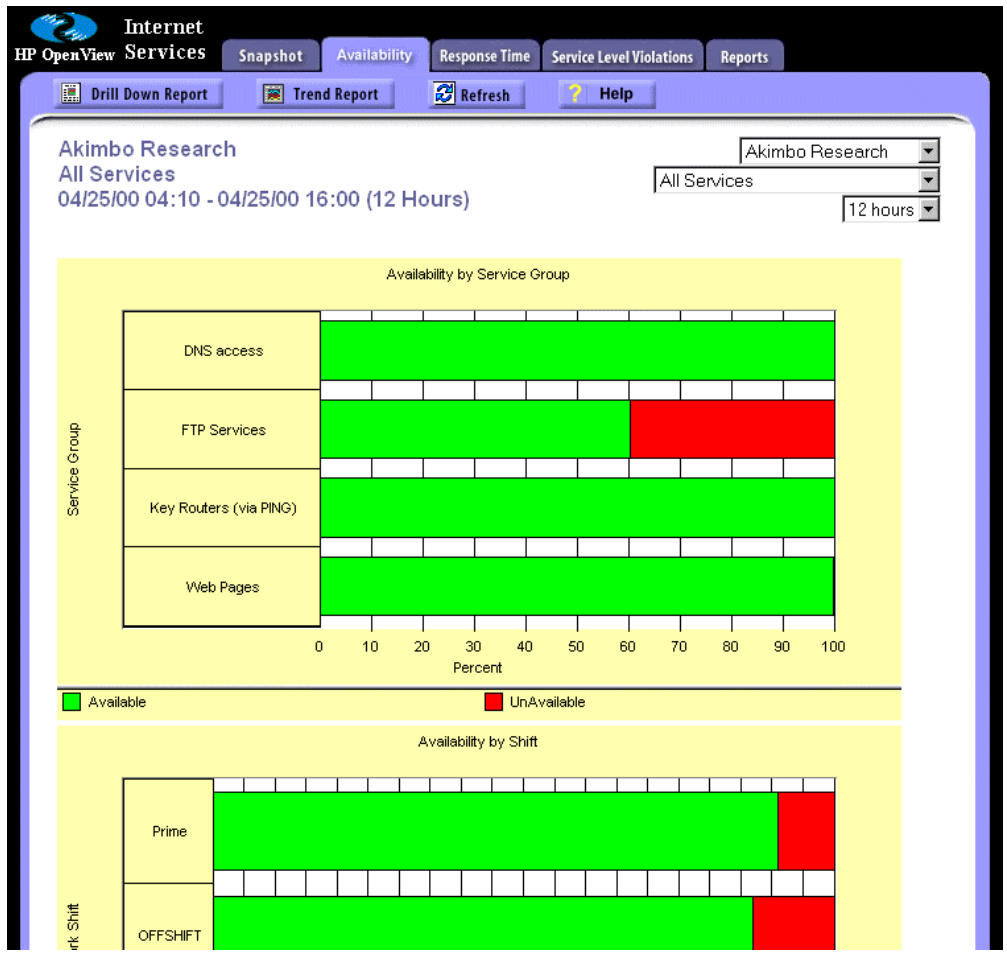


Snapshot View
(Overview (cont'd))

- Top-level Summary info, intuitively presented
- Three meters:
  - Availability (avg. % of time service has been available)
  - Response Time (avg. service completion time)
  - Service Level Violations (% of SLOs tested that were in violation)
- Graphs:
  - Response Time (request setup, and total)
  - Service availability per time-slot
  - Service Level Violations per service

Availability View
(Overview (cont'd))

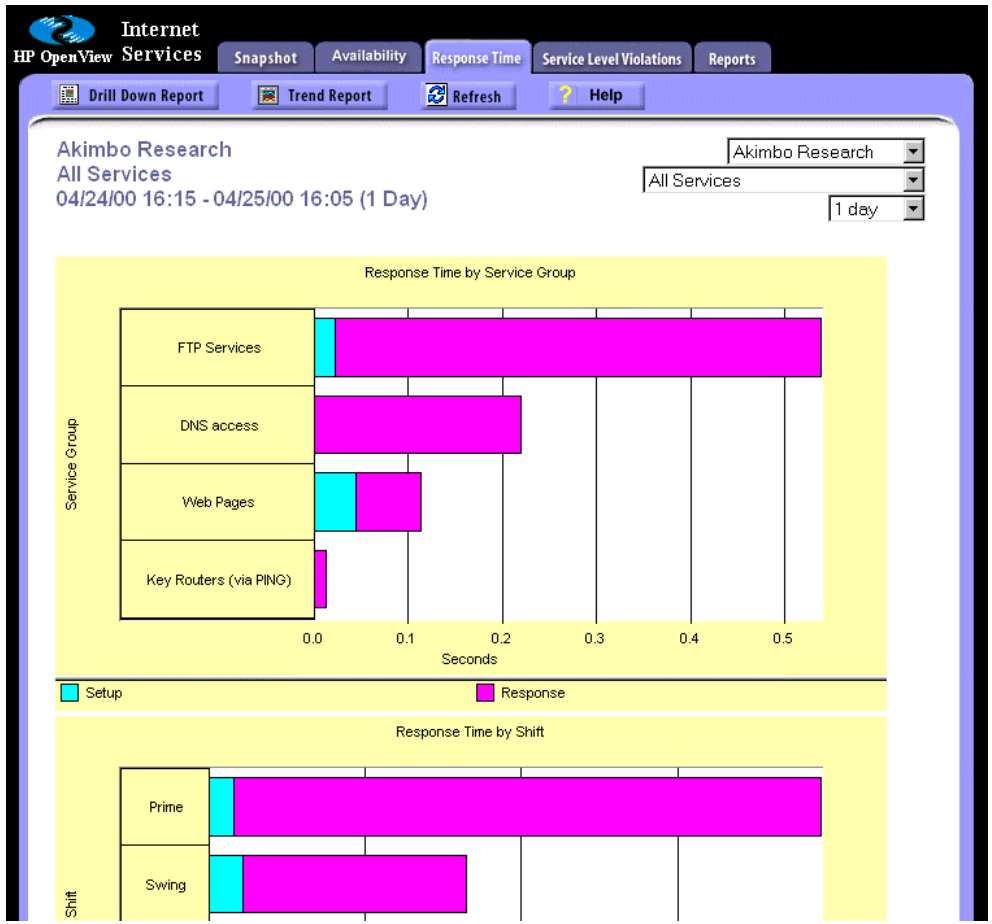
- Shows service availability bar charts, grouped by:
  - Customer
  - Service Group
  - Shift (8-hr period)
- Each bar shows % of time the service was responding



Response Time View

(Overview (cont'd))

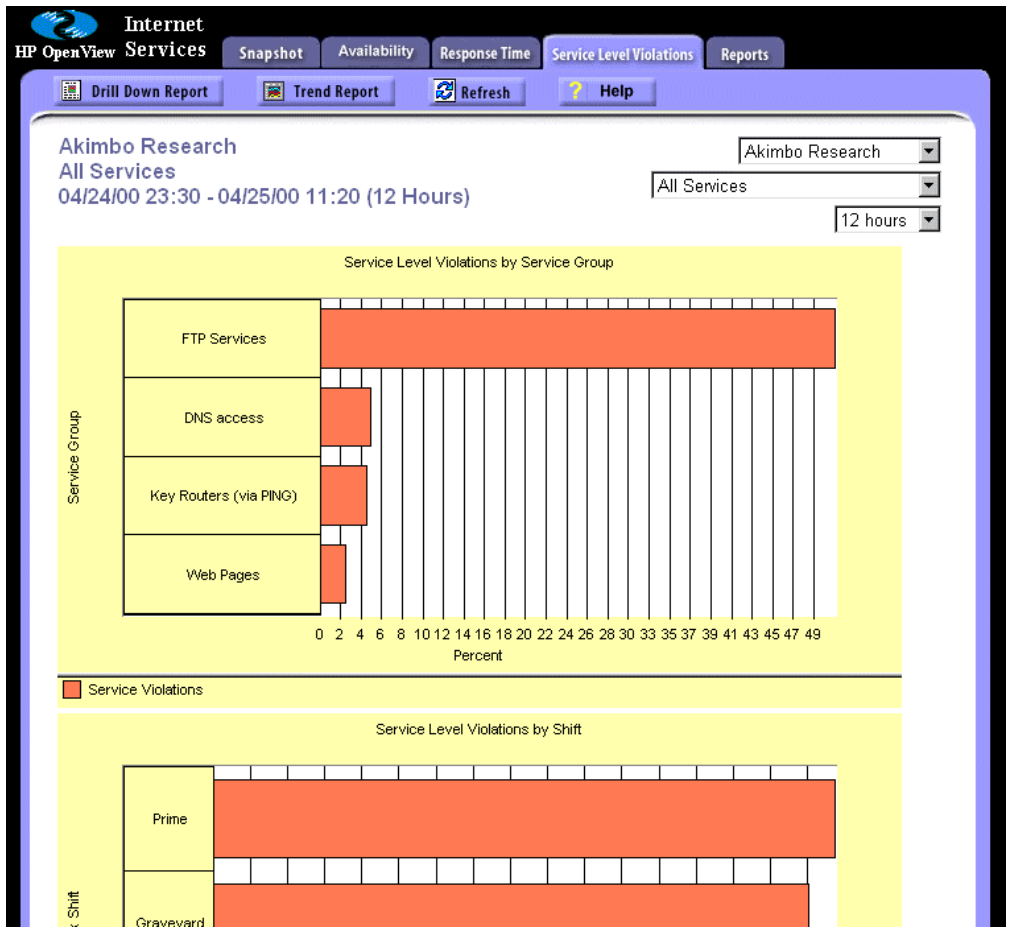
- Shows service response-time bar charts, grouped by:
  - Customer
  - Service Group
  - Shift (8-hr period)
- Each bar shows average time the service took to complete a transaction
- Bar segments show response time components



Service Level Violation View

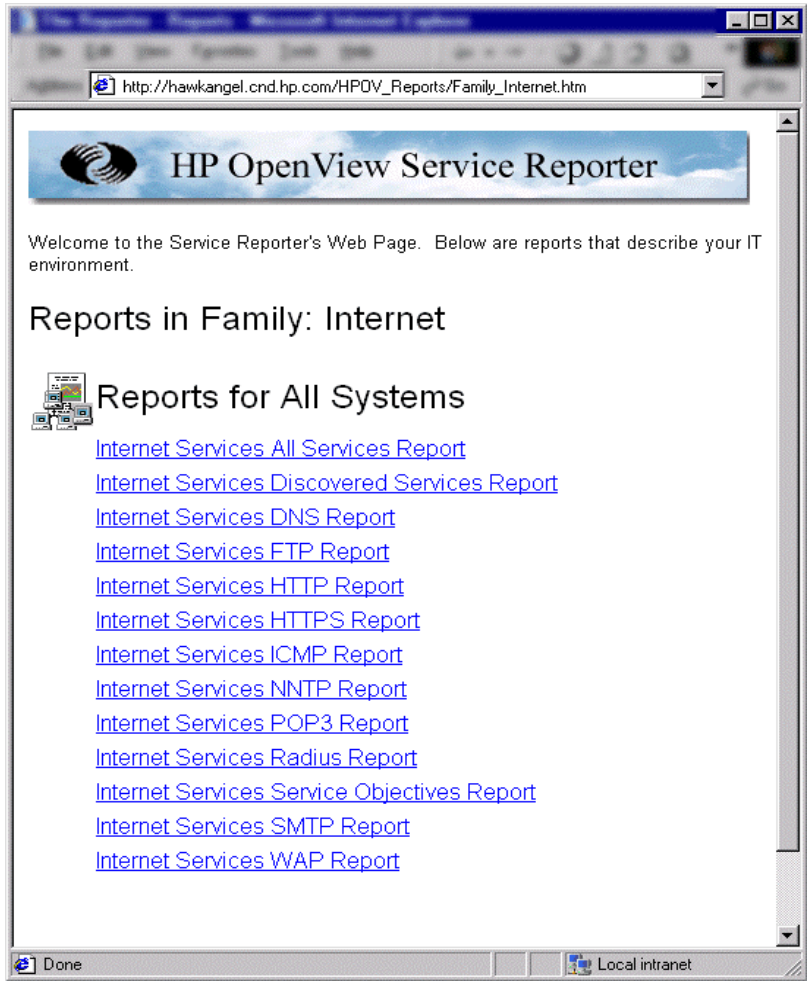
(Overview (cont'd))

- Shows service violations bar charts, grouped by:
  - Customer
  - Service Group
  - Shift (8-hr period)
- Each bar shows percentage of samples whose value violated an SLO threshold (details on SLOs later)



Reports View
(Overview (cont'd))

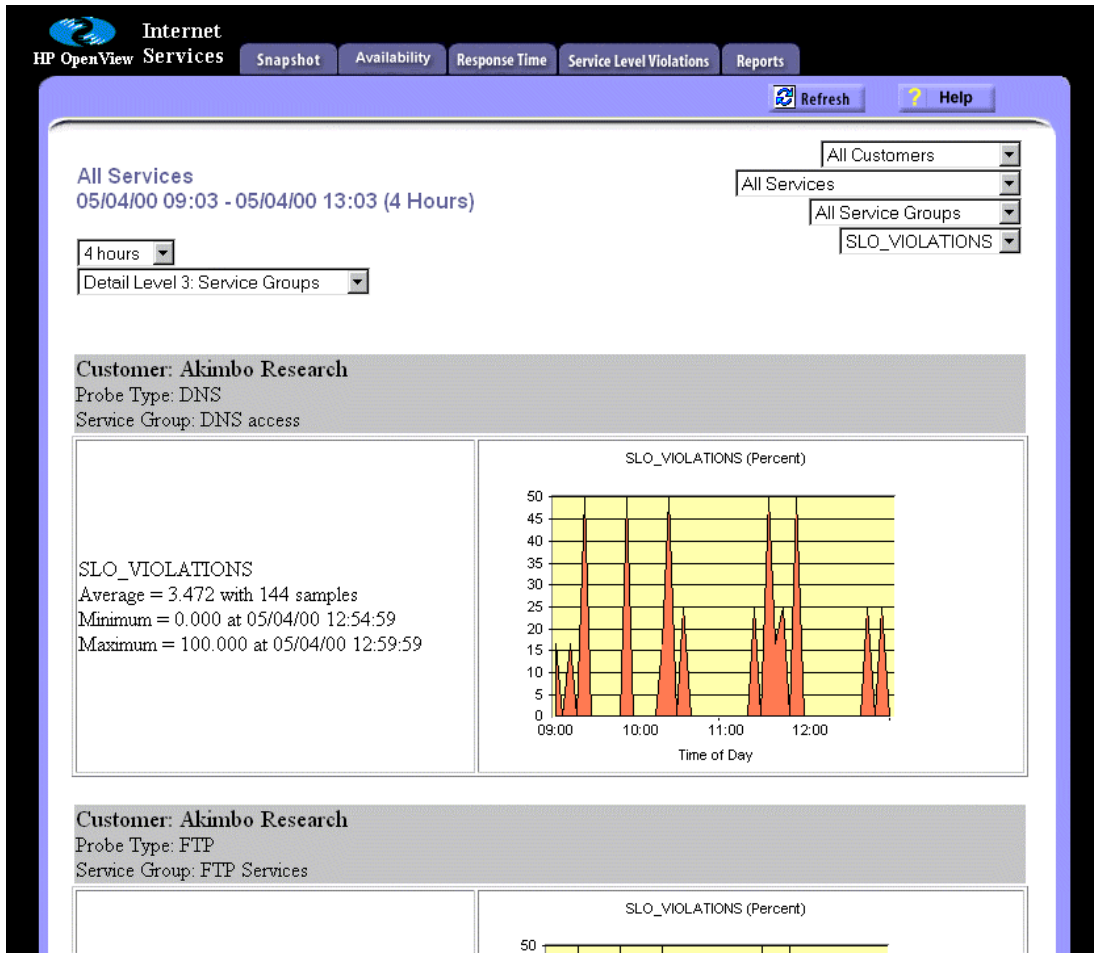
- Based on a light version of Service Reporter
- Top-level provides links to detailed reports on:
  - All service types
  - Service Level Objectives
- Reports generated nightly using data from longer time periods than the other online displays



Drill Down Reports

(Overview (cont'd))

- Top-level views (Snapshot, Availability, Response Time, Service Level Violation) offer "Drill-down" and "Trend" reports that provide additional levels of detail
  - e.g., a drill-down report on SLO violations viewed by Service Group (DNS, FTP, etc.)



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Nuts and Bolts

Hardware and Software Requirements

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System Requirements

- Hardware
  - Intel Pentium class, 300MHz or faster processor with 128MB of memory or more recommended
  - 60MB of disk space is required initially, with possible increases as more data is added
  - Report generation may temporarily require an additional 50MB to 400MB

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System Requirements

- Software
  - Microsoft NT 4.0 (Server or Workstation) with Service Pack 3, 4 or 5
  - Microsoft IIS 4.0 Web Server (from Option Pack 4)
  - 200MB or more virtual memory on the VP-IS station
    - Systems running other applications may require larger virtual memory settings to accommodate VP-IS in addition to the other applications
  - NNM 6.0 or above (if integrating with NNM)

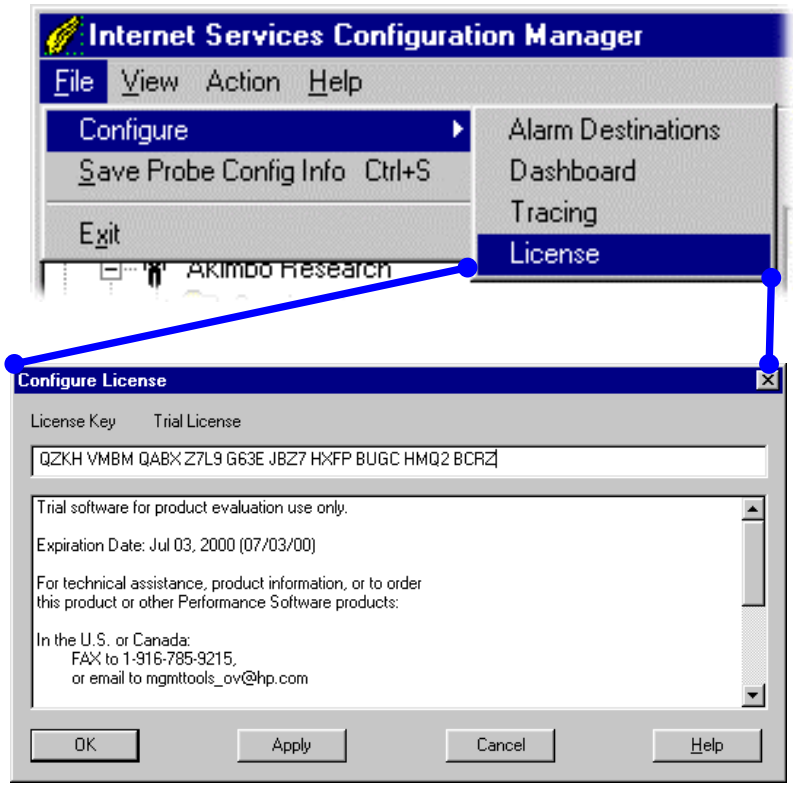
Implementation Summary

(or, “How to Make VP-IS Work”)

- Install **VP-IS** on a Windows NT system
  - Optionally, integrate with **NNM** and/or **ITO**
- Configure **VP-IS** probe(s) to measure services
  - Probe can be local (on VP-IS station), or remote
- The probe(s) poll for service availability and performance, and send data to **VP-IS** station
- User views **VP-IS** generated reports, responds to **VP-IS** performance/availability alarms in **NNM** or **ITO**

Licensing VP-IS

- Runs 60-day evaluation if not licensed
  - `15.*.*.*` exempt from licensing
- Instructions in package tell where to obtain license key
  - Open the License dialog
  - Enter license string; press OK
- Temporary key available (after evaluation period expires) from HP support



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Monitored Services

- **VP-IS** has probes to monitor availability and performance of several key Internet services:

•HTTP
(Web pages)

•HTTPS
(Secure web pages)

•WAP
(Wireless access protocol)

•FTP
(Remote file transfer)

•DNS
(Domain name service)

•ICMP
(**`ping`**-based connectivity test)

•RADIUS
(Remote authentication)

•SMTP
(Sending mail to a server)

•POP3
(Getting mail from a server)

•NNTP
(Pulling news headers, articles)

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How the Probes Work

- A probe emulates a user request for a service
- The probe finds out if the service is available, and takes service-specific performance measurements
  - E.G., the HTTP probe requests a web page, and measures request setup time, transfer time, and total response time (plus several finer-grained protocol steps)
- Default polling interval is 5 minutes

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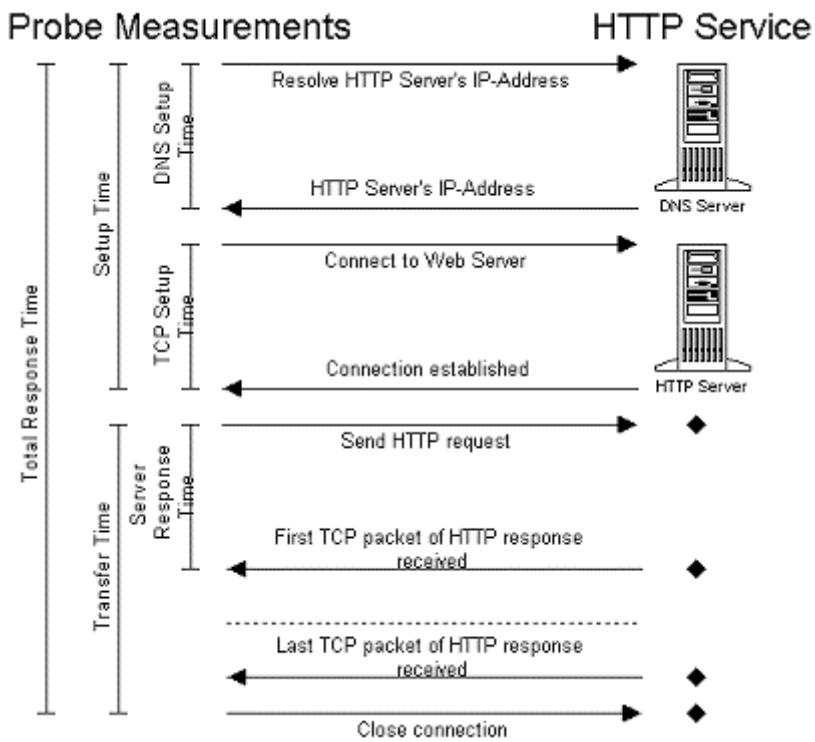
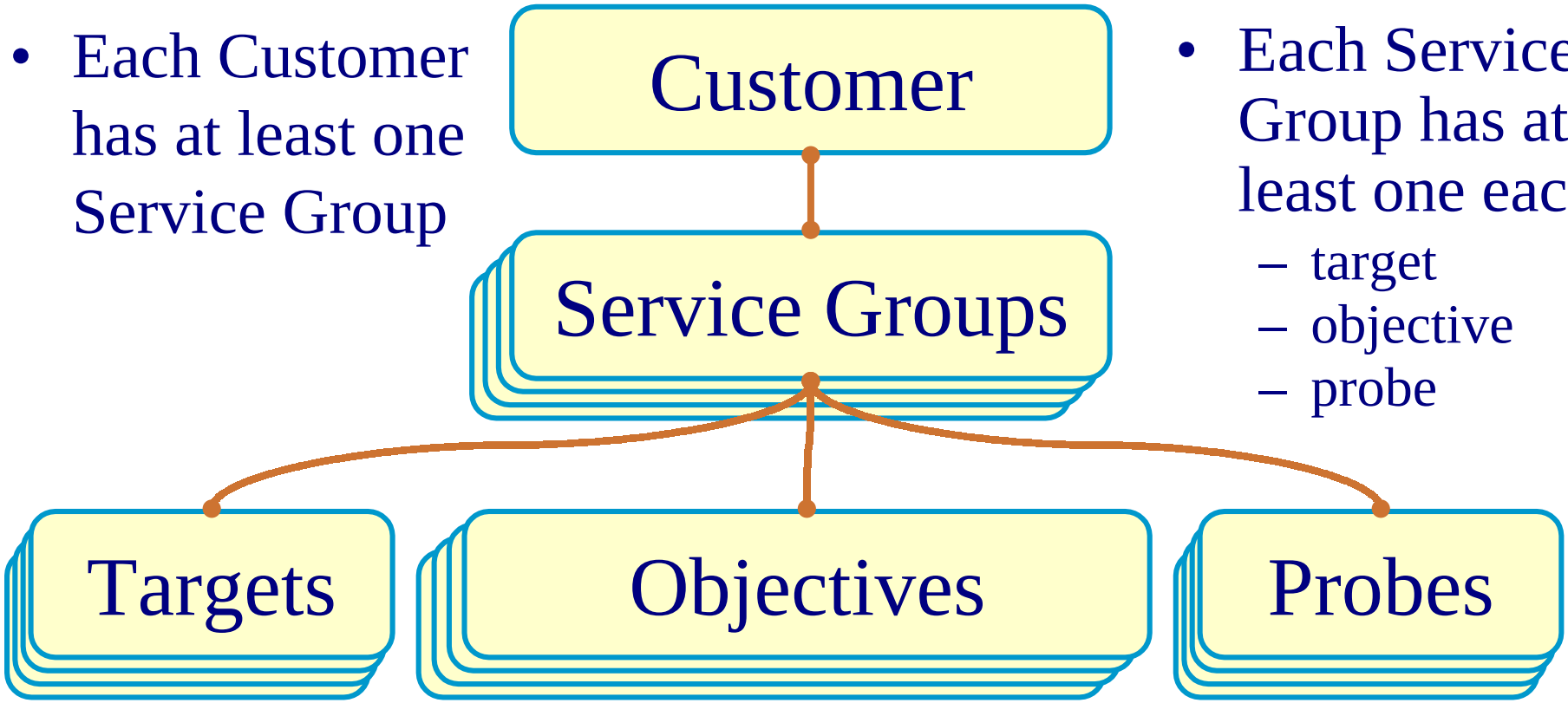
HTTP and HTTPS probes

- Can use a proxy if desired
- Supports standard HTTP authentication
- By default, do not download embedded images and frames
- Can match returned HTML with a pattern to find out if desired page was returned, or an error (page not found, etc)



Structure of Services in VP-IS

- Each Customer has at least one Service Group



- Each Service Group has at least one each:
  - target
  - objective
  - probe

Structure of Services in VP-IS
(cont'd)

- "Customer" is a client whose services will be tracked
- Service Group
  - A named container used to group one or more service elements that make up a service provided to the customer
  - One service *only* (HTTP, DNS, etc.) per service group
  - "University of Malacca" has two service groups:
    - one named "DNS" has service target, objectives, and probe to test the DNS server that provides UM's internet DNS service
    - one named "Web Presence" has service targets, objectives, and probes to test all the HTTP servers that host UM's web presence

Structure of Services in VP-IS
(cont'd)

- Service Target
  - The origin for all or part of the service named by a Service Group
  - Polled by a **VP-IS** probe for service measurements
- Service Level Objective (SLO)
  - Defines the criteria to determine if the service provided by a target is available and is performing acceptably
- Probe Location
  - the location of the measurement process that measures the performance of one or more service targets

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Configuring VP-IS

- Three approaches:
  - Wizard
    - for step-by-step set up of Internet service monitoring
    - simple to use, but not fast in large environments
  - Configuration manager
    - straightforward manipulation of **VP-IS** configurations
  - Configuration command line
    - for bulk configuration
    - requires understanding of XML
    - fast (once set up), but not simple

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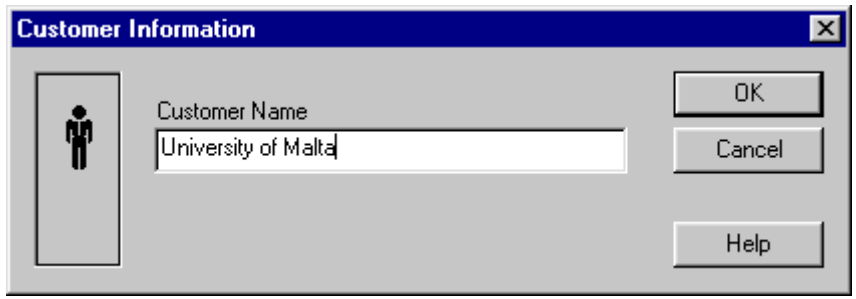
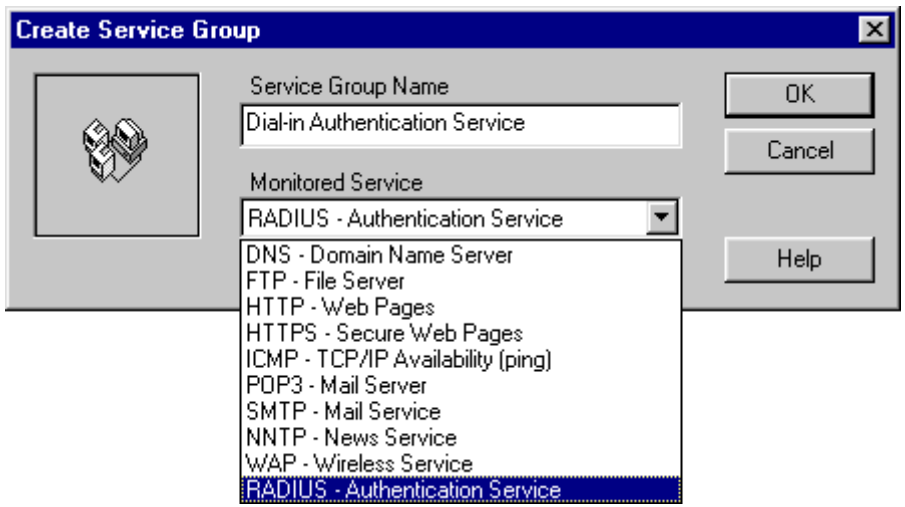
Configuration Steps

(Configuring VP-IS cont'd)

1. Creating a Customer
   - Requires only a name ("University of Malta")



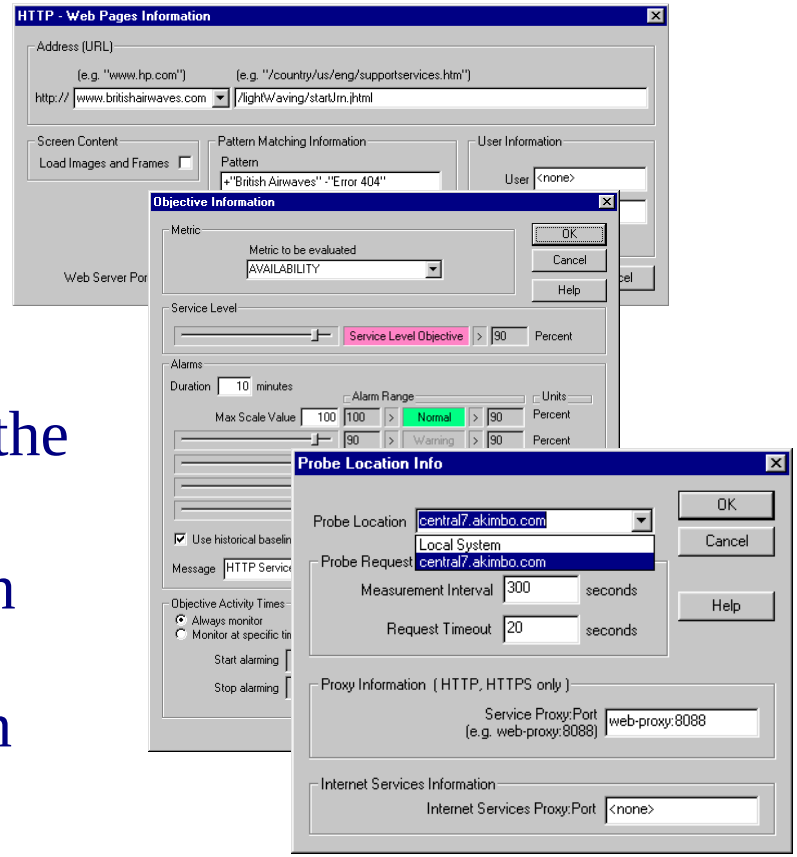
2. Creating one (or more) Service Groups
   - Each requires a name ("Dial-in Authentication Service") and a service type ("RADIUS")



Configuration Steps

(Configuring VP-IS cont'd)

3. Defining Service Target(s), Service Objective(s), and Probe Location(s) for each Service Group
   - the specific information needed to configure the target(s) depends on the service type of the Service Group
   - information for probe configuration includes location, polling interval, timeout, and any proxy information
   - configuring a service objective is covered in detail shortly



Defining Service Targets

(Configuring VP-IS cont'd)

- Example: HTTP

Loading images, advertisements, etc. mimics the user experience, and is the default. But this material often comes from diverse servers, not the target server. By not loading this screen content, you get a more focussed measure of the target server's performance.

Pattern matching permits content validation to determine if desired page was fetched, or an error

Specify non-standard port numbers and user logon information as necessary

Defining Probe Locations

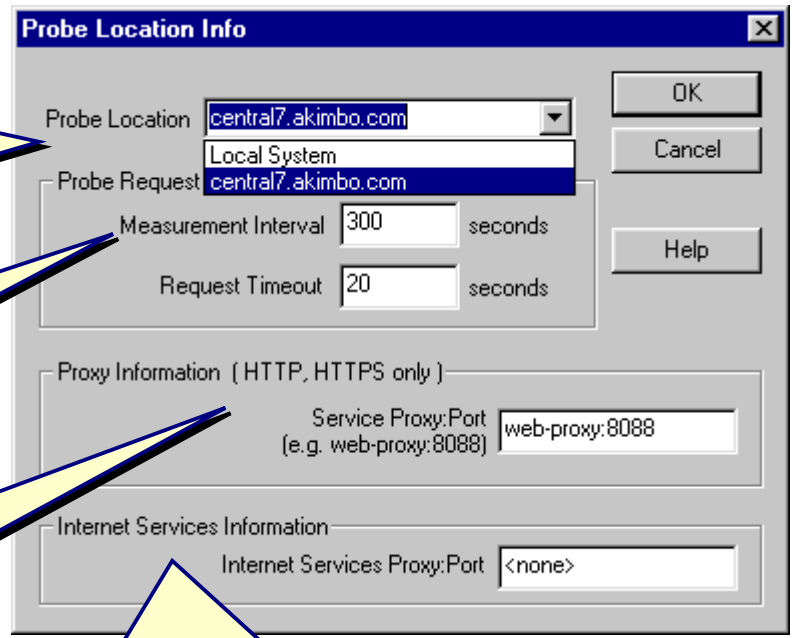
(Configuring VP-IS cont'd)

- Example: an HTTP probe

Location is "Local System", or the full name of a host running a VP-IS probe (remote probes discussed later)

Polling interval, timeout should keep probe busy, not overtaxed

Proxy Information lets you probe through a proxy

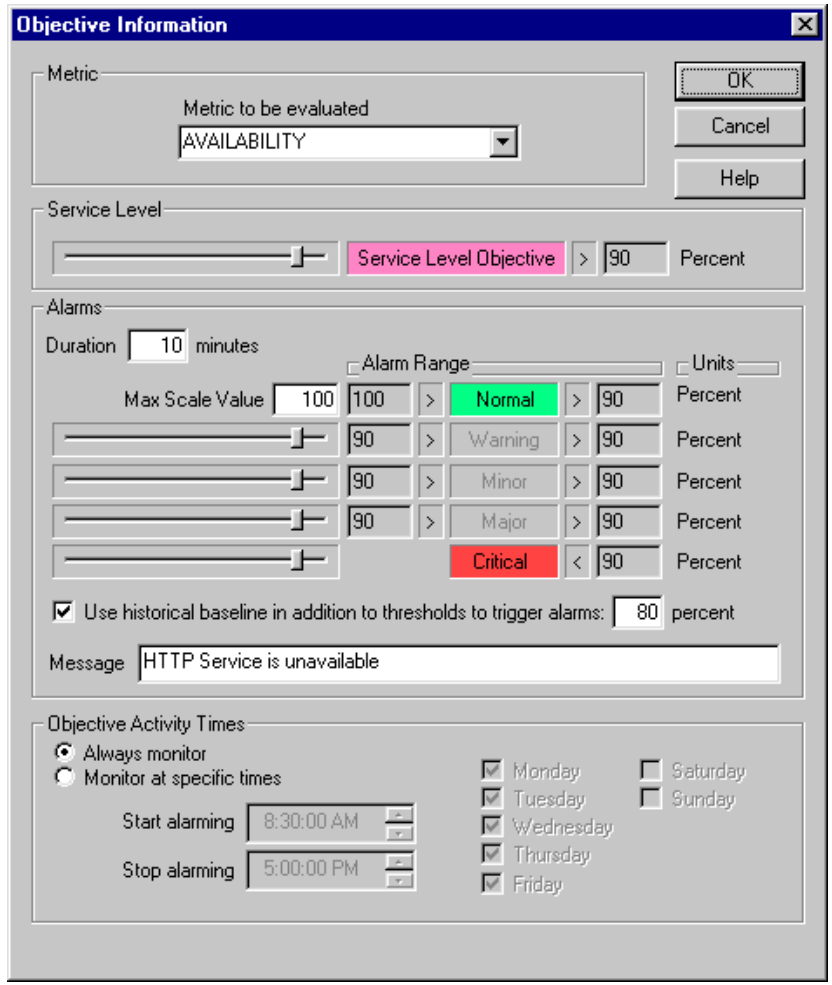


Internet Services Proxy lets remote probe use a proxy to return data

Defining Service Objectives

(Configuring VP-IS cont'd)

- Sets up the measurement tests to be performed against the data from targets defined in this service group
  - Only tests data collected by the probes defined in this service group



Defining Service Objectives

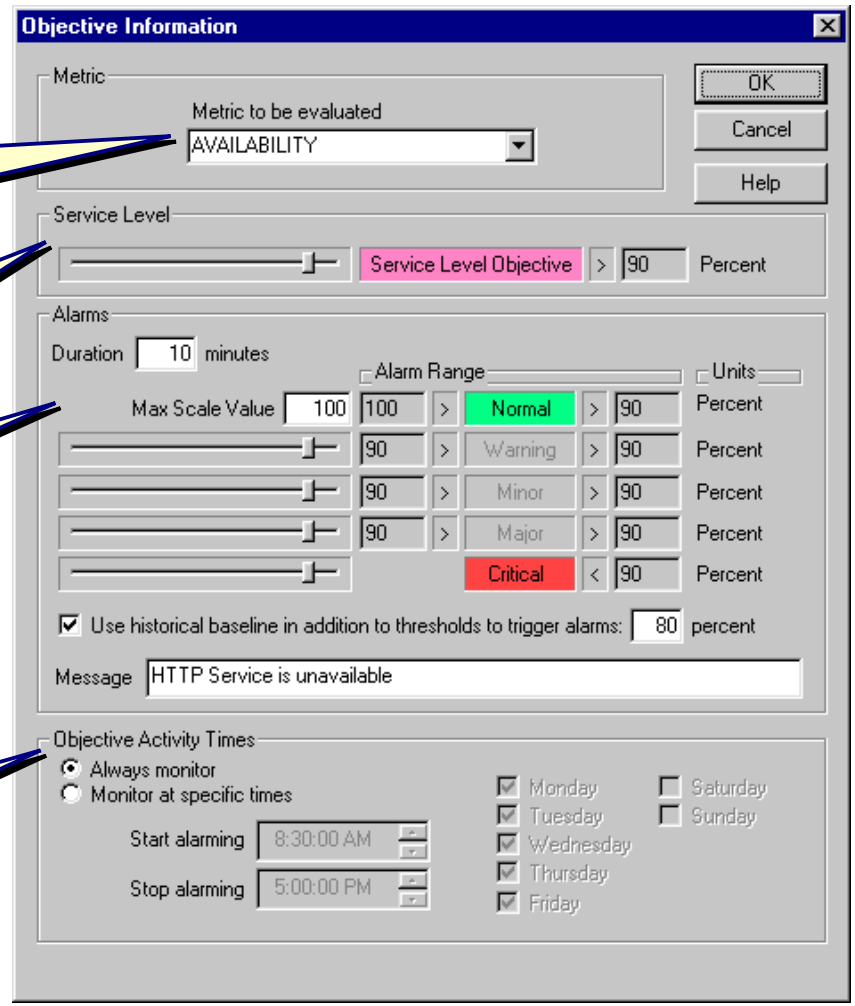
(Configuring VP-IS cont'd)

Select the metric you want to measure. Metrics offered vary by service type.

Define the acceptable level of performance for the metric: the "Service Level Objective"

Set alarm values, typically below the SLO violation level

Define when (the hours and days) to take measurements

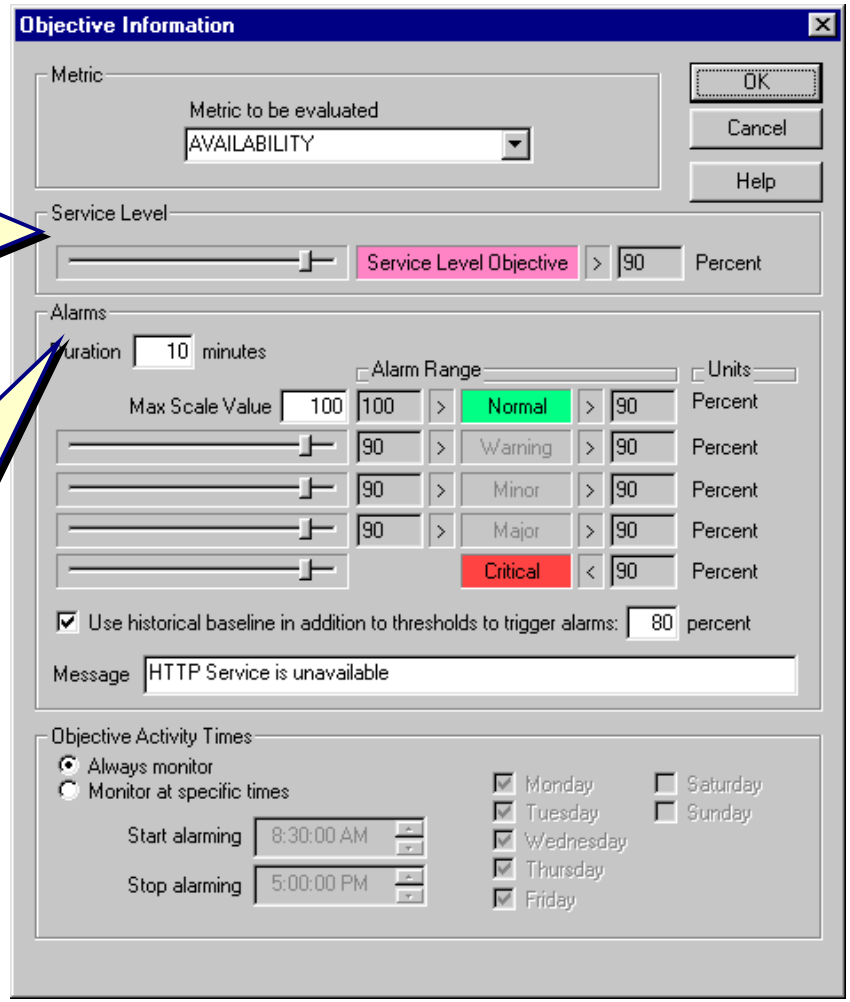


Defining Service Objectives

(Configuring VP-IS cont'd)

- The Service Level Objective (SLO) is independent of Alarms
  - An SLO violation is stored in the VP-IS database, but does not *itself* send an alarm

- Alarms are independent of the SLO
  - Not stored in the VP-IS database
  - Sent to a destination that can receive and process alarms, like NNM or ITO
- **`Duration`** is the time this metric must exceed an alarm threshold before the alarm is sent

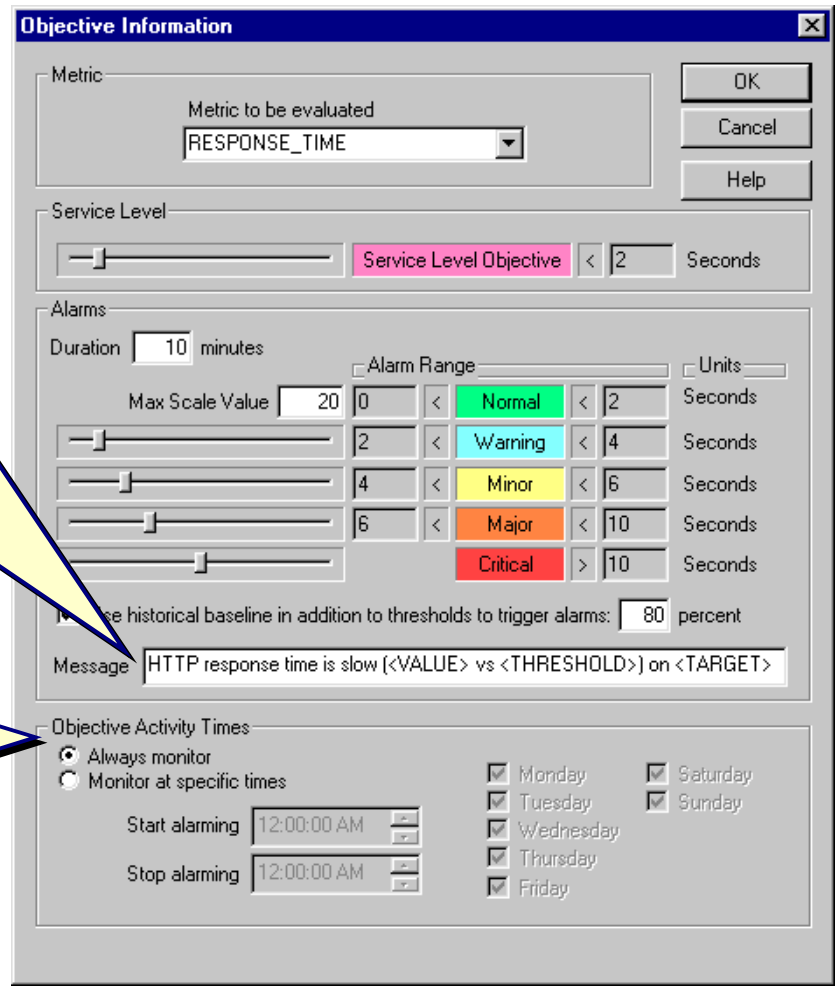


Defining Service Objectives

(Configuring VP-IS cont'd)

- Create custom messages for alarms as desired
- Variables convey specifics about each alarm
  - For example, **<VALUE>** inserts the current value of the metric into the alarm message
  - Several other variables are available; see the online help for details

- Activate monitoring of this metric based on known usage patterns to reduce unnecessary data collection



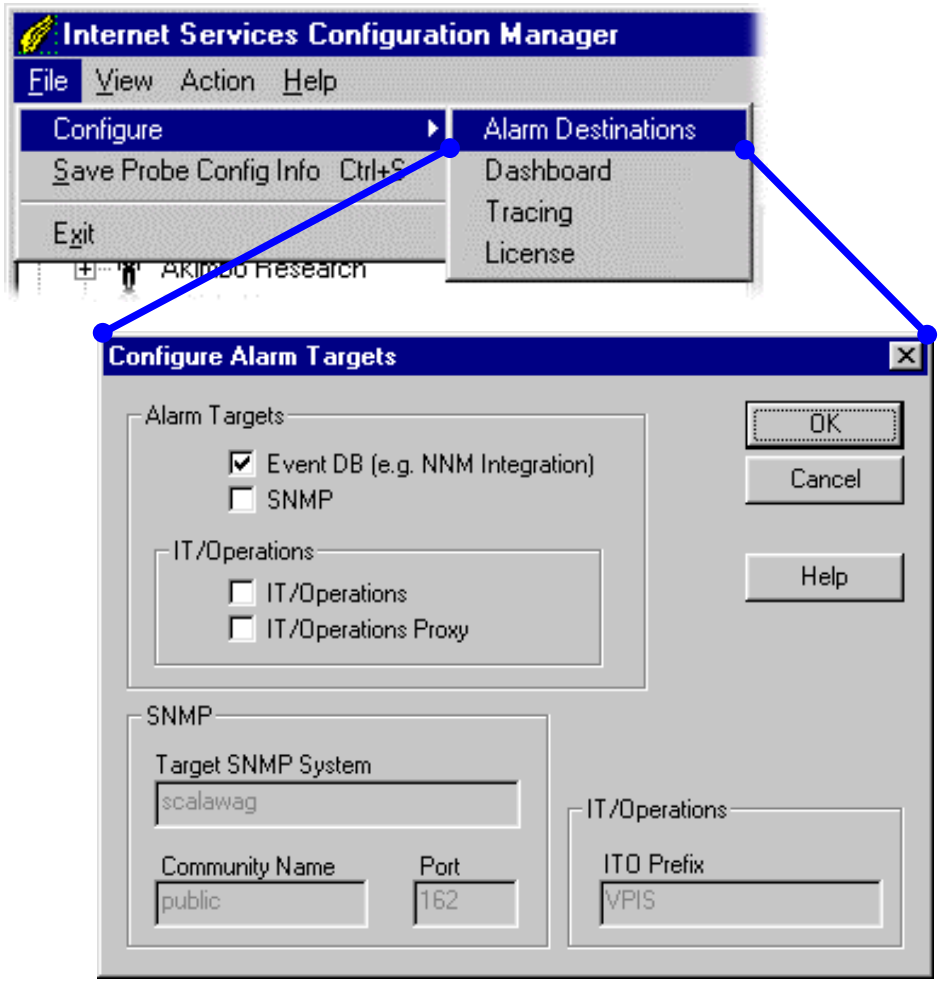
Service Alarms

(Configuring VP-IS cont'd)

- Be sure to configure the alarm destinations ("targets")

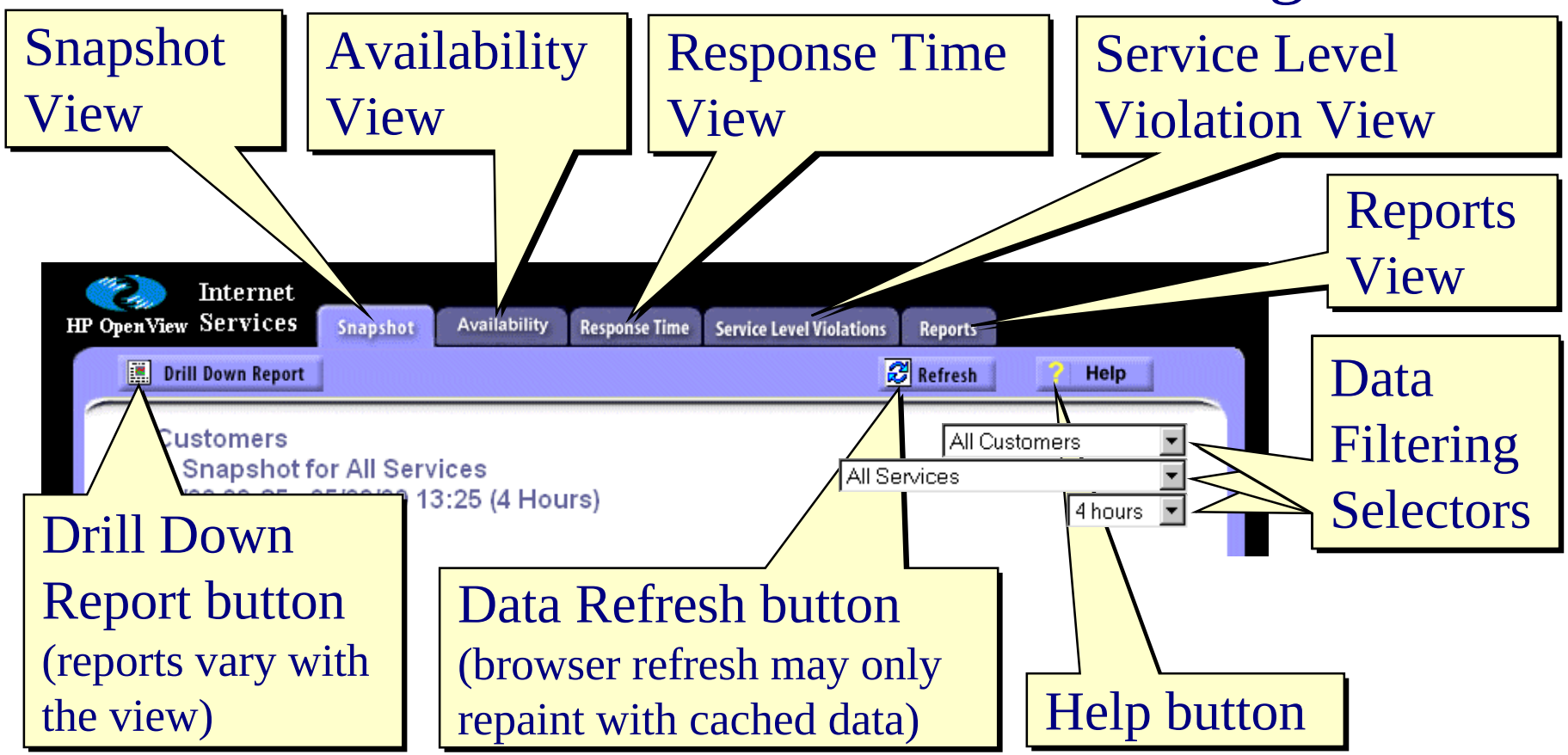
  File⇒ Configure⇒ Alarm Destinations

- **VP-IS** can send its alarms to:
  - HP OpenView NNM
  - HP OpenView IT/Operations
  - generic SNMP management servers
- NNM and ITO integration covered later



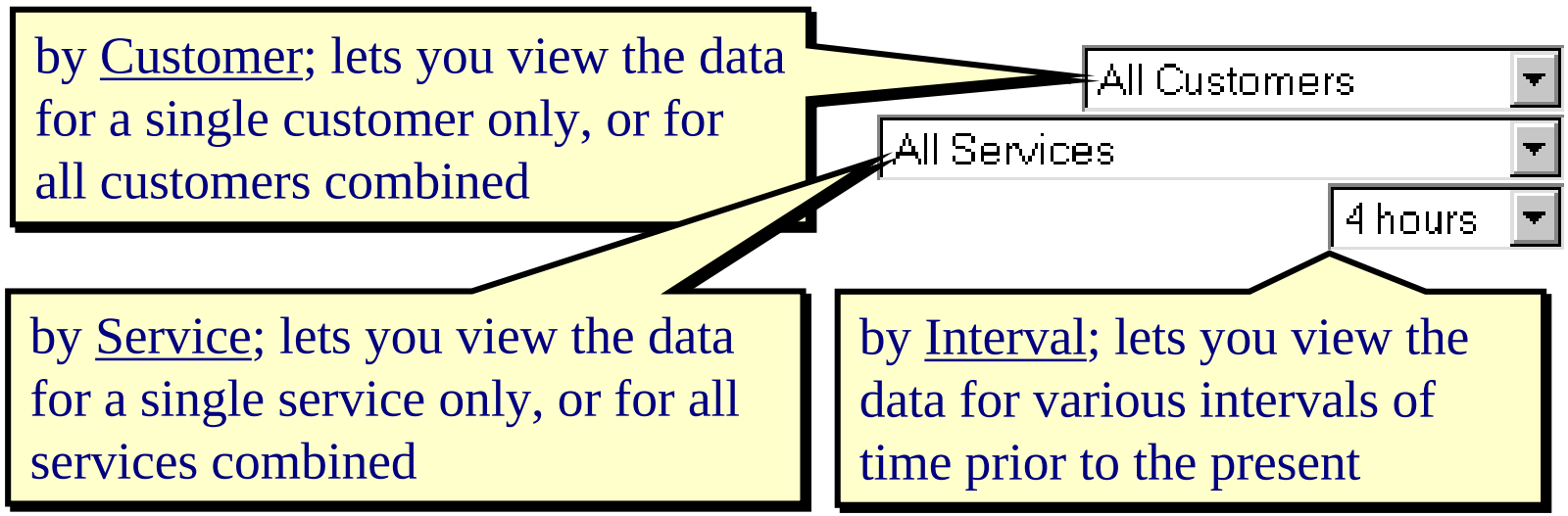
User's Overview of VP-IS

- Common Features of the Web Interface Pages



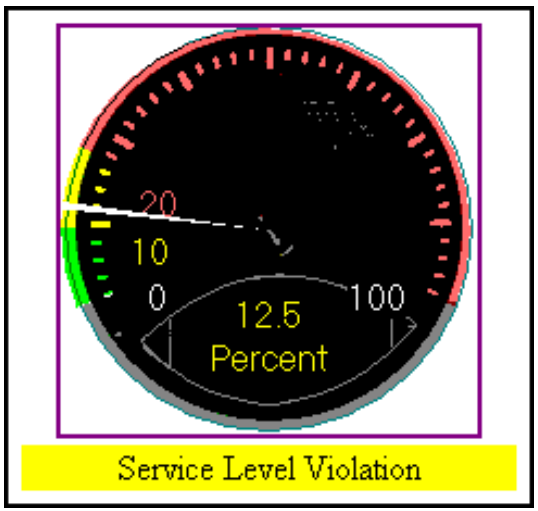
Data Filtering Selectors

- Used to filter the data into smaller subsets
  - Used in combination to zero-in on detailed information
  - Filter selections carry over between views
  - The less filtering is done (e.g., all customers, all services, 30-day interval), the more processing time required



Service Level Violation Meter

(The Snapshot View, cont'd)



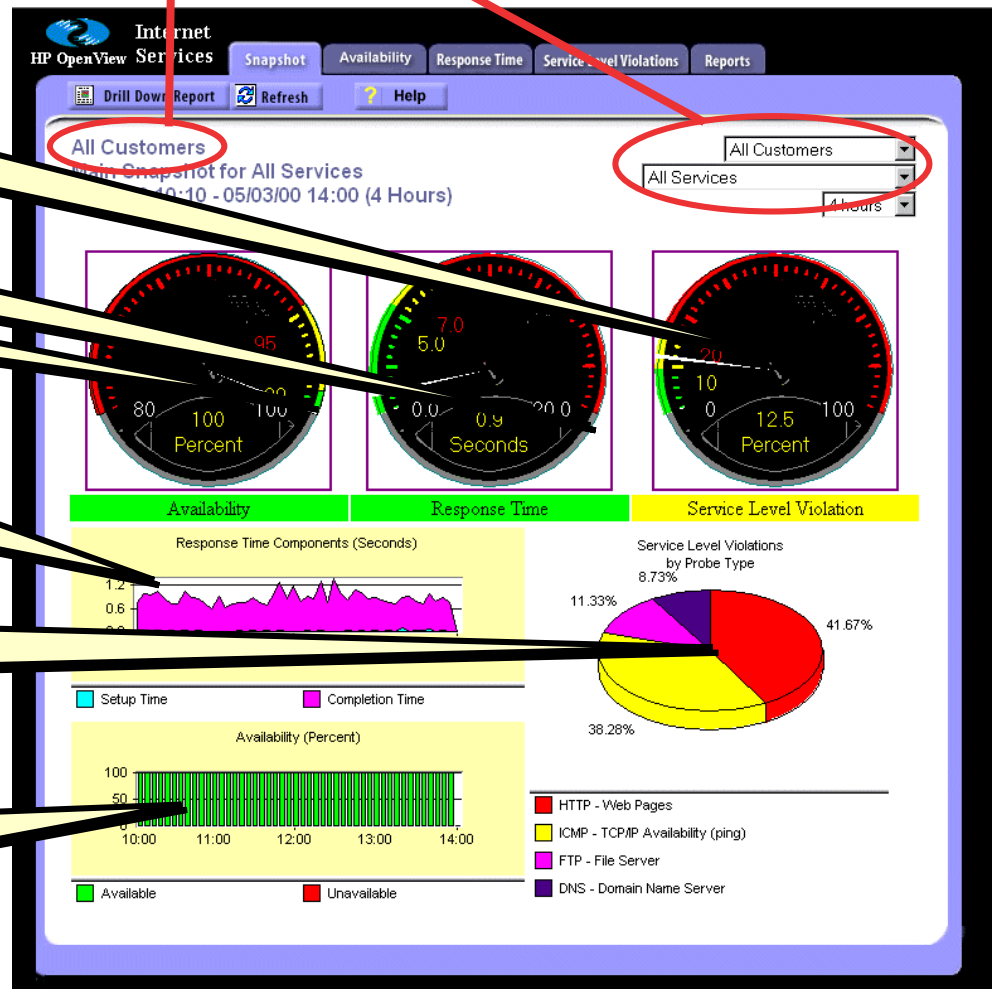
- Shows the percentage of all metrics (in current interval) that violate an SLO

Response Time SLO:	< 0.5 sec
Critical Alarm Threshold:	> 1.0 sec

Target	Time 0		Time 1		Time 2		Time 3	
pat.com	0.7		0.3		1.8		0.3	
kim.com	0.3	1/3 33%	0.3	0/3 0%	0.7	2/3 67%	0.4	0/3 0%
lou.com	0.3		0.2		0.3		0.2	
Service Level Violation Meter Reading		1/3 33%		1/6 17%		3/9 33%		3/12 25%

What is the Overall Status of my Service Offerings?

- Percentage of service violations
- Average service response time
- Overall availability of services
- Response time variations during the snapshot interval
- Which service types experience the most (or fewest) service violations?
- Distribution of service availability over snapshot interval



What is the Status of Services for "Akimbo Research"?

- Percentage of service violations
- Average response time for Akimbo
- Overall service availability for Akimbo
- Response time variations for Akimbo during the snapshot interval
- Distribution of service violations among Akimbo's services
- Distribution of service availability for Akimbo over snapshot interval

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What is the Status of HTTP for "Akimbo Research"?

- Of Akimbo's service violations, what percentage are related to HTTP?
- Average HTTP response for Akimbo
- Overall HTTP availability for Akimbo
- HTTP response time variations for Akimbo during the snapshot interval
- Which of Akimbo's HTTP service groups have the most violations?
- Distribution of HTTP availability for Akimbo over snapshot interval

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Integrating ITO and VP-IS

- Two modes let you send **VP-IS** alarms to **ITO** :
  - IT/Operations
    - The default, sends alarms to ITO with the **VP-IS** server name set in the **`opcmsg`** node attribute
    - **VP-IS** server must be configured in the ITO node bank
  - IT/Operations (proxy)
    - Sets the **`opcmsg`** node attribute to the IP-address of the target
    - All target nodes must be configured in the ITO node bank

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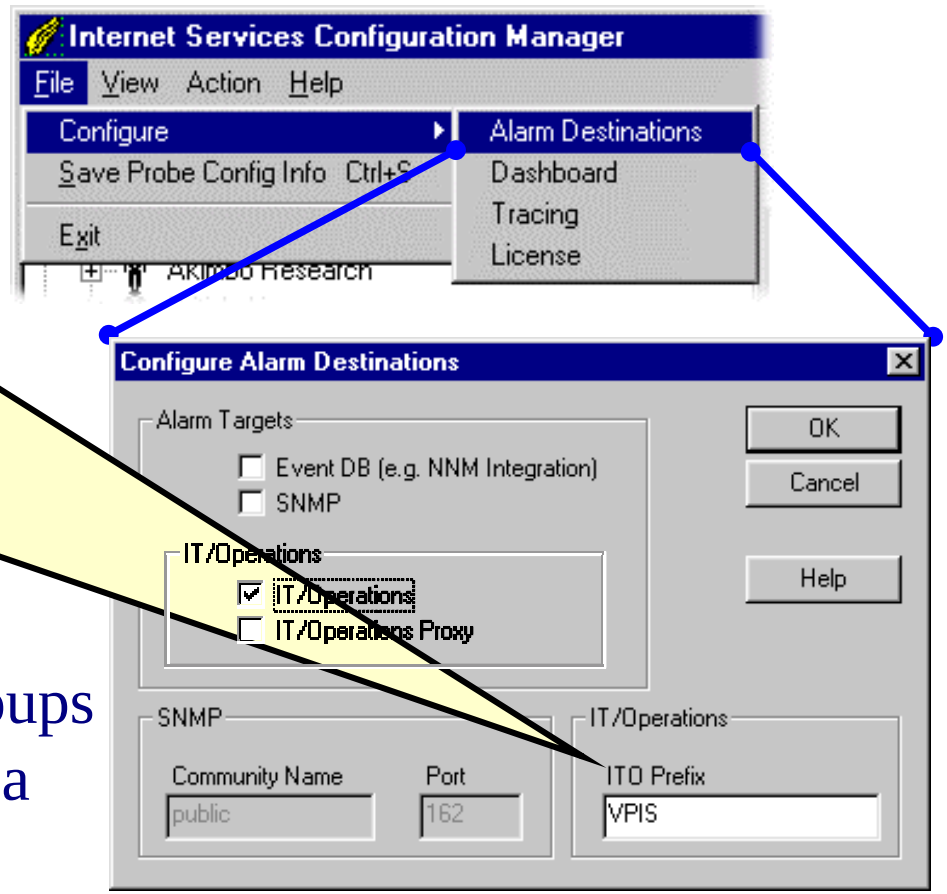
Integrating ITO and VP-IS

- ITO integration sets the **`opcmsg`** application attribute with this prefix
- ITO integration also sets the **`opcmsg`** message group attribute to:
  `<ITO Prefix>_<Probe Name>`
  For example:
  `VPIS_HTTP`
  `VPIS_ICMP`



- So you can, e.g., create message groups for all monitored services, or set up a message template with specific conditions

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Integrating ITO and VP-IS

1. Add the **VP-IS** server to the **ITO** node bank
2. Install an **ITO** agent on the **VP-IS** server
3. If proxy mode, add target nodes to **ITO** node bank
   - Ensure node(s) belong to a node group and are added to the ITO administrator/operator Responsibility matrix
4. Add the **`opcmsg(1|3)`** message template to the **VP-IS** server node and distribute this template
5. Test: **`opcmsg a=VPIS o=VPIS_Test msg_text="Test"`**
6. Set the **VP-IS** alarm destination as shown earlier

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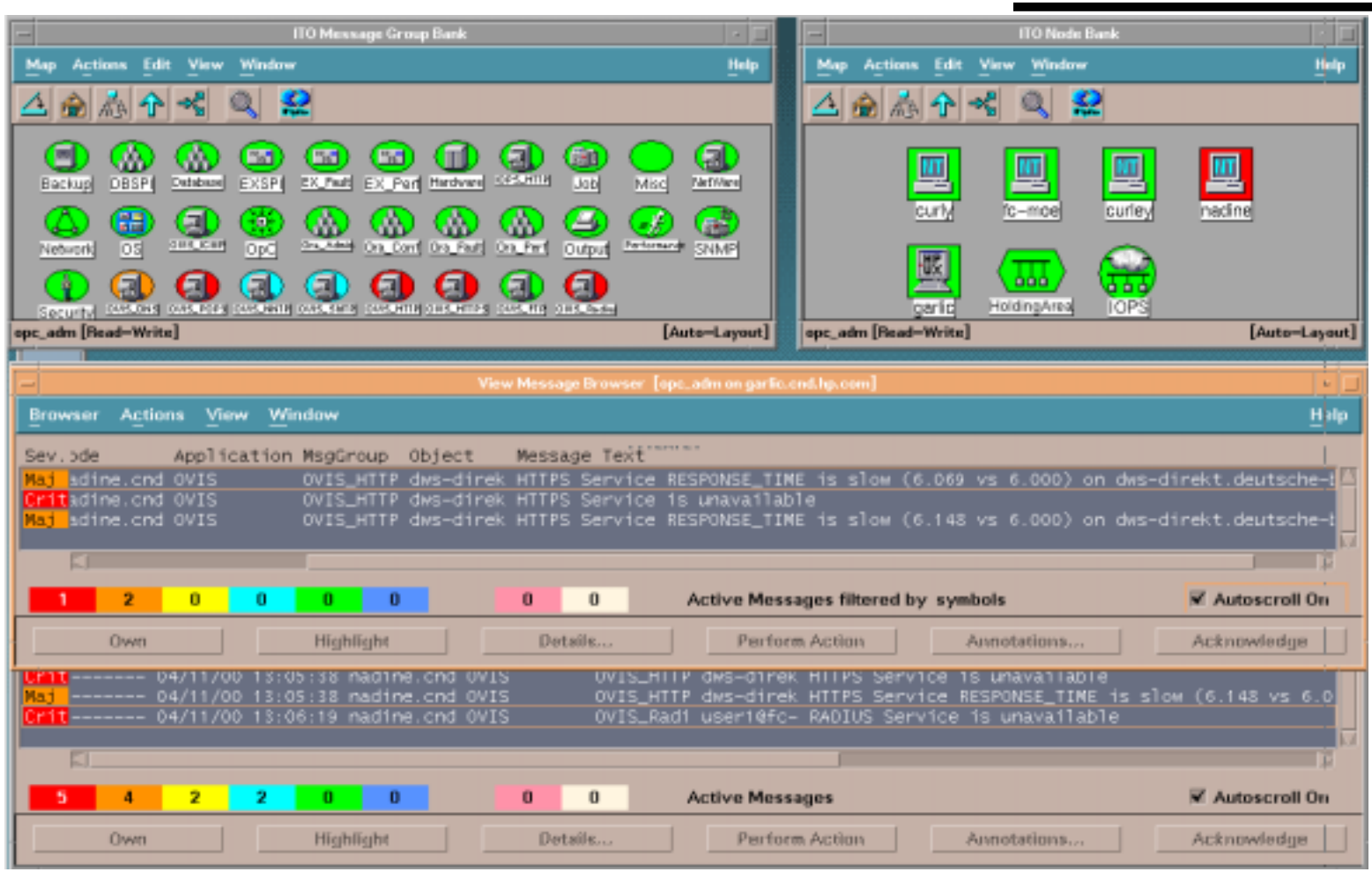
Integrating ITO and VP-IS



Integrating NNM and VP-IS

- **NNM** integration lets you send **VP-IS** alarms to **NNM**
- **NNM** integration adds **VP-IS** information to service-providing nodes in **NNM** submaps
  - New symbols under such nodes represent
    - **Customers** to which the node provides services
    - **Services** provided those customers
    - **Service Level Objectives** of each service
- Integration also populates views in *Customer Views*, if present

Integrating NNM and VP-IS

- Requirements
  - **NNM** version 6.0 or higher
    - *Customer Views for NNM* is optional
  - IP submaps must be persistent to all levels
    - On Windows NT, the persistence default is not suitable
    - See **NNM**'s *A Guide to Scalability and Distribution*
      - Chapter 2: background about on-demand submaps and persistence
      - Chapter 4: instructions for changing the level of persistence
    - Potentially requires additional memory to maintain **NNM** performance

Integrating NNM and VP-IS

1. Ensure that **VP-IS** is fully installed and operational, to create a **VP-IS** server with which to integrate

Remaining steps occur at the **NNM** station(s) you want to integrate with

2. Set submap persistence to “All Levels” (if necessary)
3. Install integration package using instructions on **CD-ROM** cover
4. Start **NNM** as usual

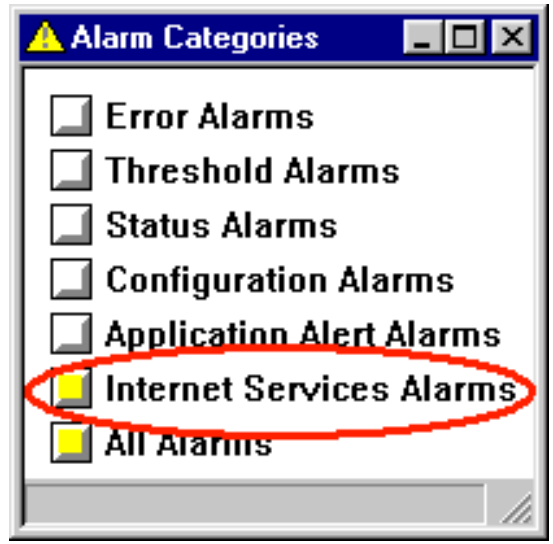
Integrating NNM and VP-IS

- What's new:
  - New Alarm category
    - Default destination for VP-IS alarms
  - New menu
    - Items for obtaining details on VP-IS tagged nodes, and for launching VP-IS interface
  - New symbols in submaps to represent **VP-IS** customers, services, and service-level objectives

Alarms

(Integrating NNM and VP-IS, cont'd)

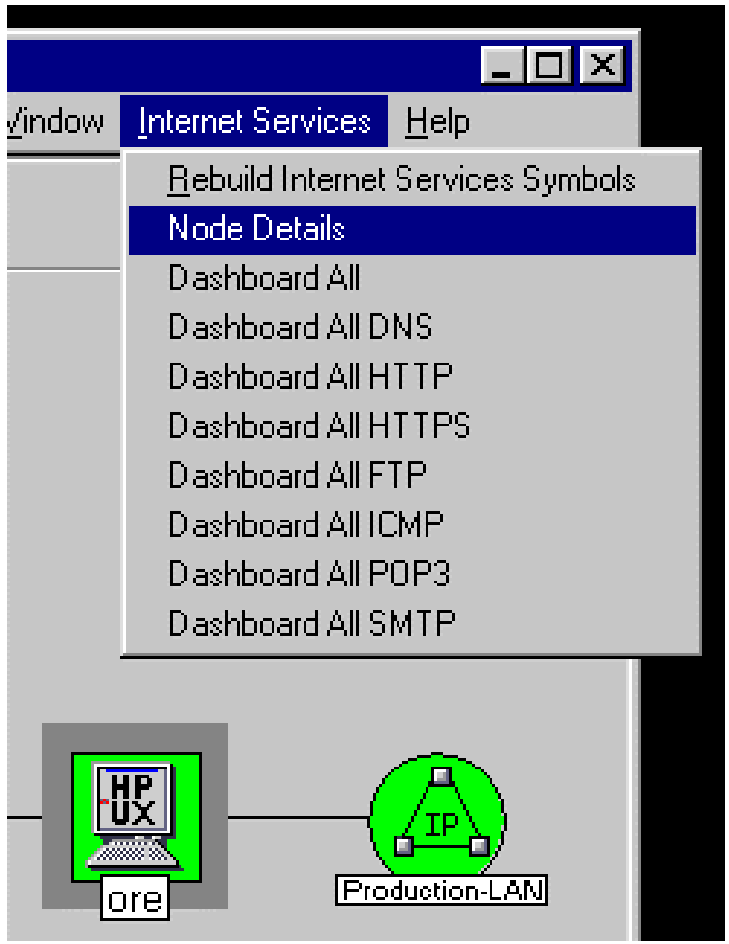
- Alarms in this category originate from the **VP-IS** system
- **VP-IS** alarms work the same as other **NNM** alarms
  - Use standard NNM methods to configure and manage them as necessary
  - Acknowledge or delete them as usual
  - Acknowledging/deleting an alarm does not change the status of the associated service objective symbol in the map (described later)



Internet Services Menu

(Integrating NNM and VP-IS, cont'd)

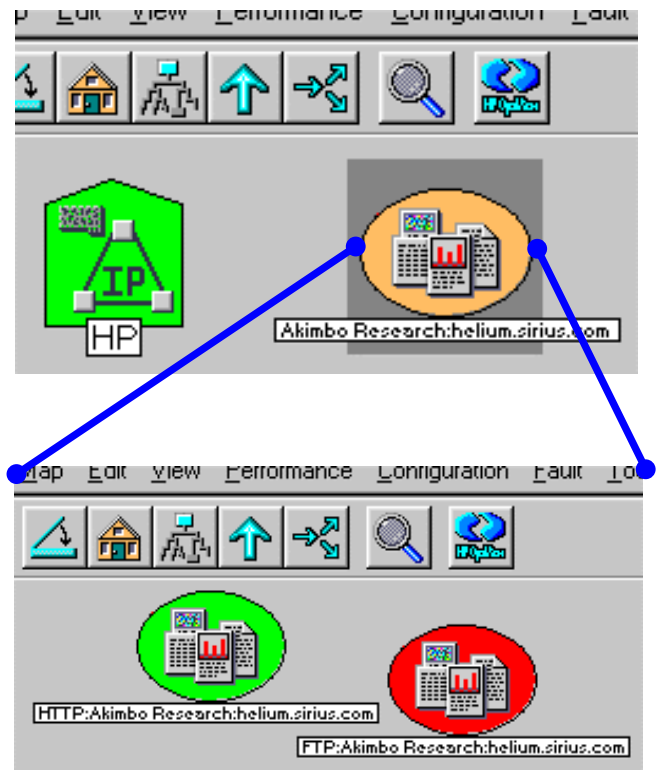
- **`Rebuild Internet Services Symbols`**
  - Rebuilds the **VP-IS**-added symbols in the map according to the current data
- **`Node Details`**
  - Show all details **VP-IS** has about a selected node
- Remaining items launch **VP-IS** dashboard as indicated
  - If using Netscape Navigator on Windows NT, dashboard items (excepting "**`All`**") are broken



Internet Services Symbols

(Integrating NNM and VP-IS, cont'd)

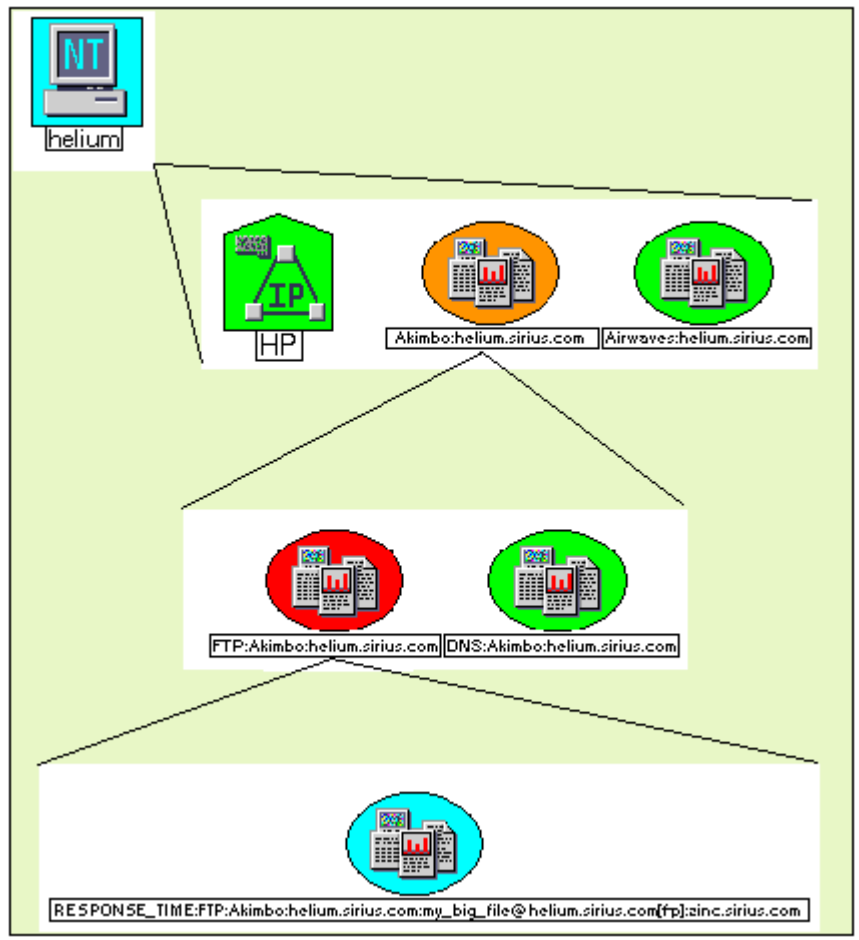
- The node-level submap of a **VP-IS** target node, if in the **NNM** management domain, gets new symbols that represent customers receiving services from the node
- Service symbols in the customer's child submap represent the services provided to that customer by this node



Internet Services Symbols

(Integrating NNM and VP-IS, cont'd)

- In response to an alarm from **VP-IS**, **NNM** creates a symbol to represent the SLO sending the alarm
- SLO-symbol color reflects alarm severity
- SLO-symbol names can be long
  - Use Panner (or, on NT, right-click on symbol) for more readable view



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Batch Configuration

(Scalability and Distribution, cont'd)

- Consider batch configuration when:
  - Large numbers of services to target
  - Targets available in some machine-readable form
- Create a tool to reformat the targets and feed them into the **VP-IS** batch configuration interface
- Use batch interface to save **VP-IS** configurations(and potentially distribute to other **VP-IS** installations)

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Batch Configuration

(Scalability and Distribution, cont'd)

- The **`IOPSload`** program is the batch configuration interface
  - **`IOPSload`** uses **XML** to define configurations
  - Command options:
    - **`-save <file>`** :stores current configuration into **`<file>`** of **XML**
    - **`-load <file>`** :adds configuration data in **`<file>`** of **XML** to current configuration (does not replace current configuration)
    - **`-check`** :verifies syntax of **`<file>`** of **XML**
    - **`-remove <file>`** :removes configuration data defined in **`<file>`** of **XML** from current configuration

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Remote Probes

(Scalability and Distribution, cont'd)

- Manual process in the first release
  - Transfer certain binaries from the local **VP-IS** management station to the remote computer where the probe is wanted
  - Transfer configuration information created on the local **VP-IS** management station to the remote computer where the probe is wanted
  - Start up the remote probe

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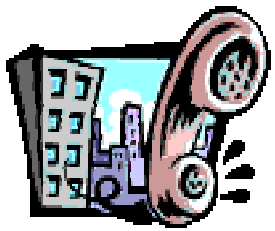
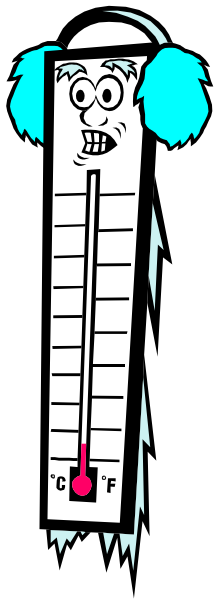
Case Study - VantagePoint Internet Services



Internal E-Services

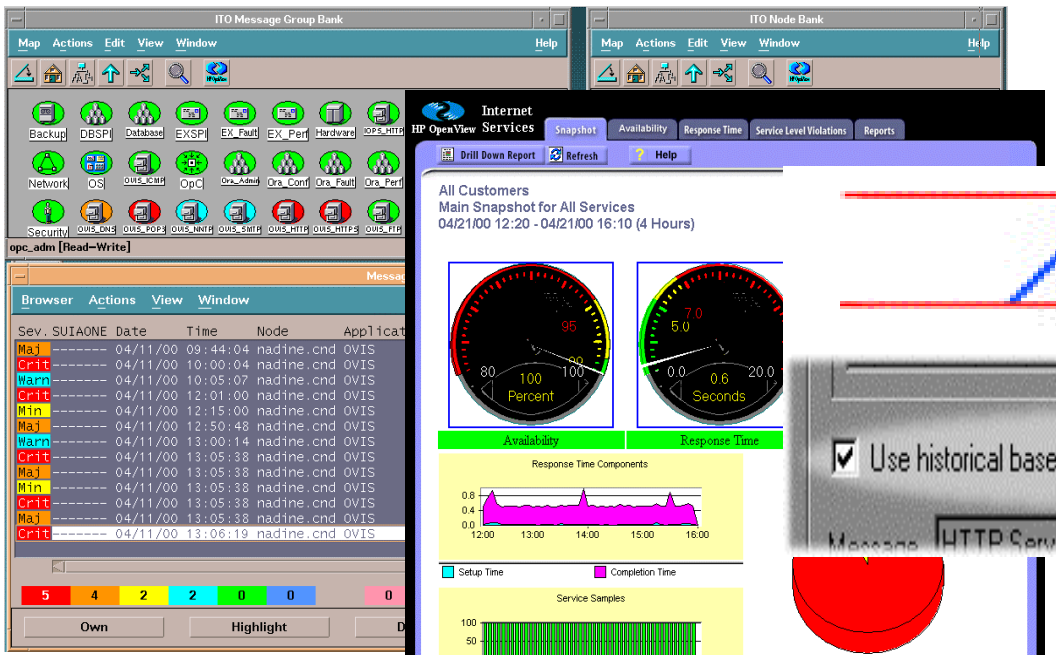
- Service Level Management
- Configuration/Change
- Help Desk
- Service Reporting

Jim's Challenge: End-to-end service response time analysis per ~~customer~~



- Empower his operators, help desk staff and account managers with the tools for managing internet service levels
- How can he leverage existing troubleshooting tools while providing staff with at-a-glance information by customer and by service?

Example – first the problem



1. Alarms appear
2. Launch VP-IS dashboard
3. Compare baseline
4. Obtain breakdown
5. Pinpoint problem

Operator tasks

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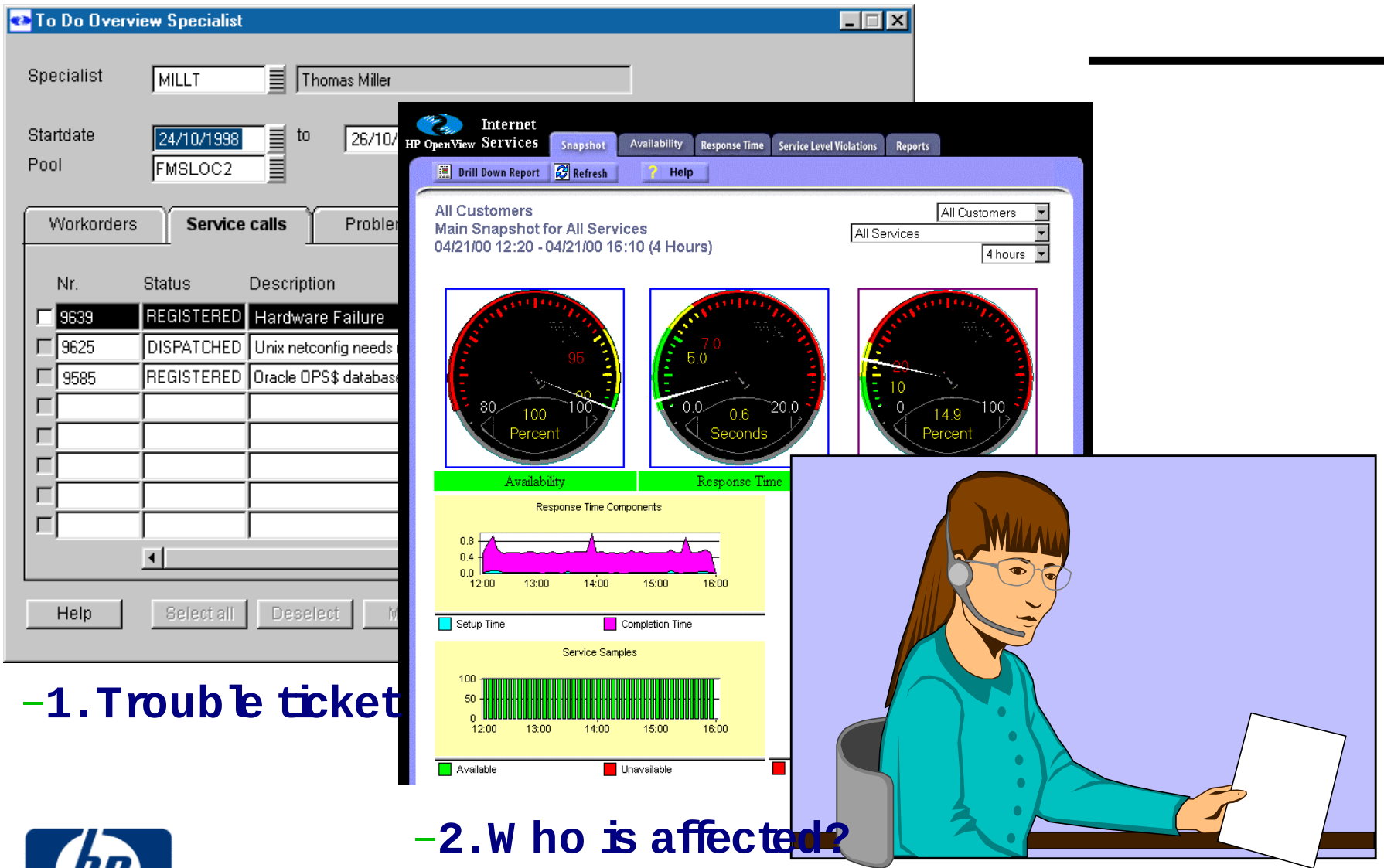
Example – customer care

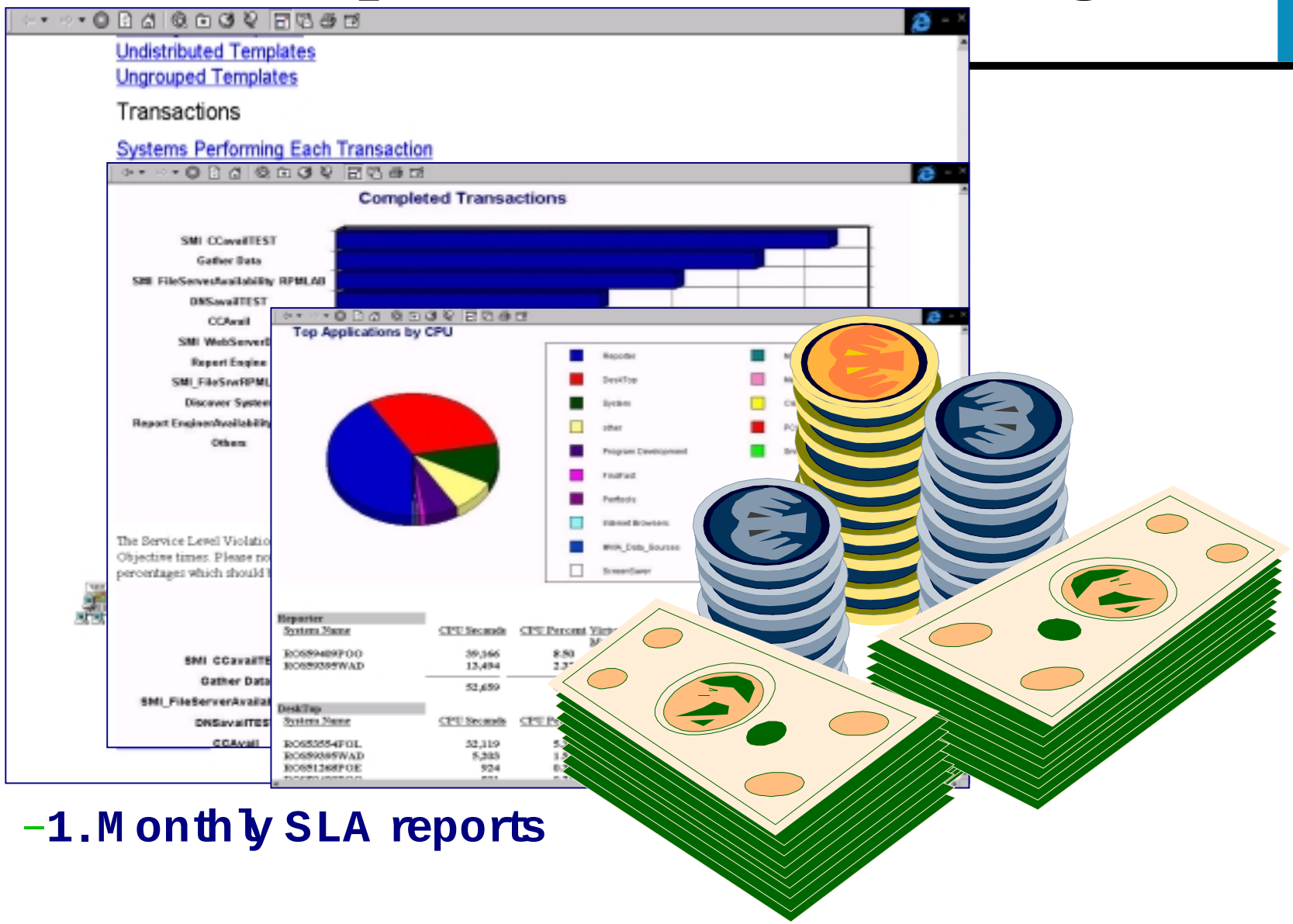


–1. Trouble ticket

–2. Who is affected?

–3. Warn customers

Example – account manager



- 1. Monthly SLA reports
- 2. SLA Credit Management

How VPIS compares to Micromuse ISM

- VPIS shows monthly, weekly and daily trend reports based on historical measurement data; this allows the users to get out of the firefighting mode to become proactive

  Micromuse only does neartime alarming but no historical trend reporting

- VPIS offers a UI for defining SLAs and alarms whenever these SLA is violated

  Micromuse doesn't allow for the definition of SLAs

- VPIS is tightly integrated with NNM and VP Operations

  Micromuse doesn't have such a strong integration with market-leading troubleshooting tools

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How VPIS compares to Agilent Firehunter

- VPIS allows customers to get all support from HP
  With Firehunter the customers get yet another vendor that they have to establish support agreements with

- VPIS integrates tightly into the suite of OV troubleshooting tools
  Firehunter is a point product only with less strong of an integration with OV troubleshooting tools

- VPIS support leading edge technologies such as WAP
  Firehunter doesn't offer a solution for WAP management

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