



# Tivoli 洞悉全局：SOA 效能管理工具

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**Tivoli** software

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# Agenda

- Introduction
- ITCAM for Web Resources
- ITCAM for SOA
- ITCAM for WebSphere/J2EE
- IBM Tivoli Monitoring



# Application Management Main Concerns

## 1. End to End Monitoring

- Consolidation of health monitoring

## 2. End User Service Assurance

- Are my customers experiencing acceptable app performance?

Monitor

End User  
Response Time  
Monitoring

Application  
Resource  
Monitoring

## 3. Transaction Analysis

- If a business process fails, what component is causing the failure or slowdown?

Monitor  
Transactions

Application Tracking  
&  
Topology Analysis

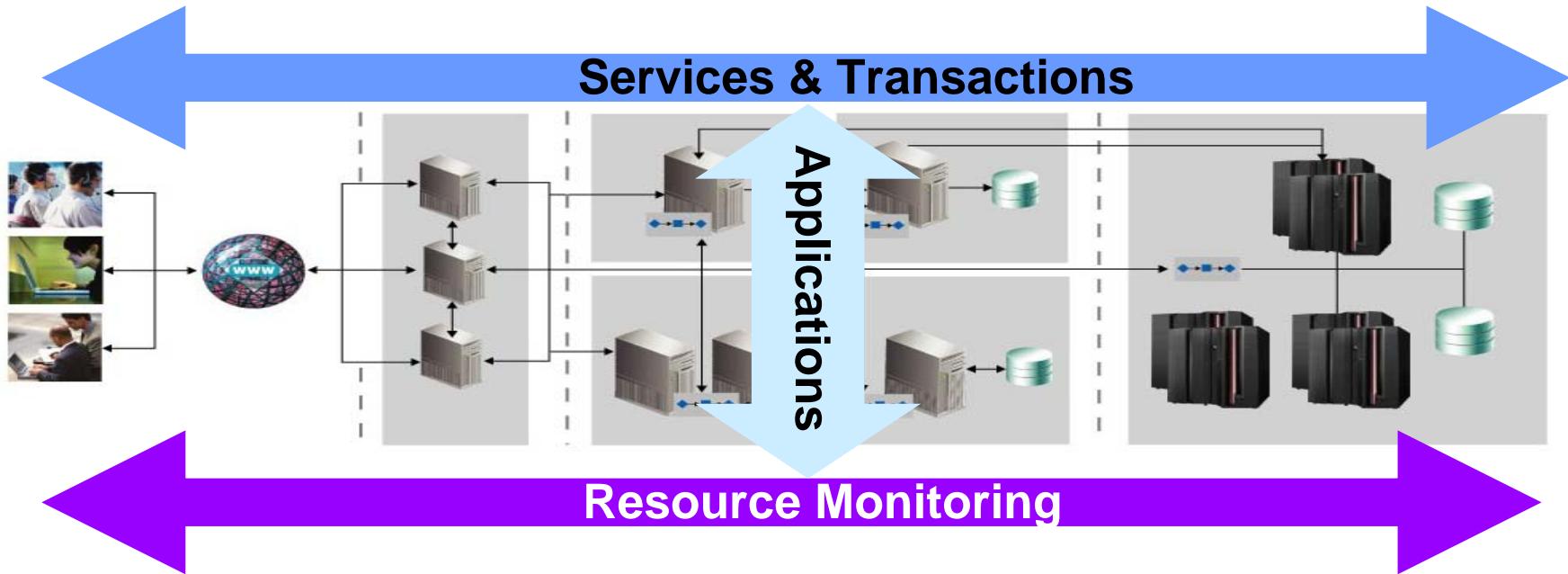
## 4. J2EE Application Problem Resolution Tools

- J2EE server is down, very slow performance, must find and fix problem

Root-Cause Problem  
Analysis & Resolution

Trace and  
Diagnostics

# The ITCAM Solution Portfolio

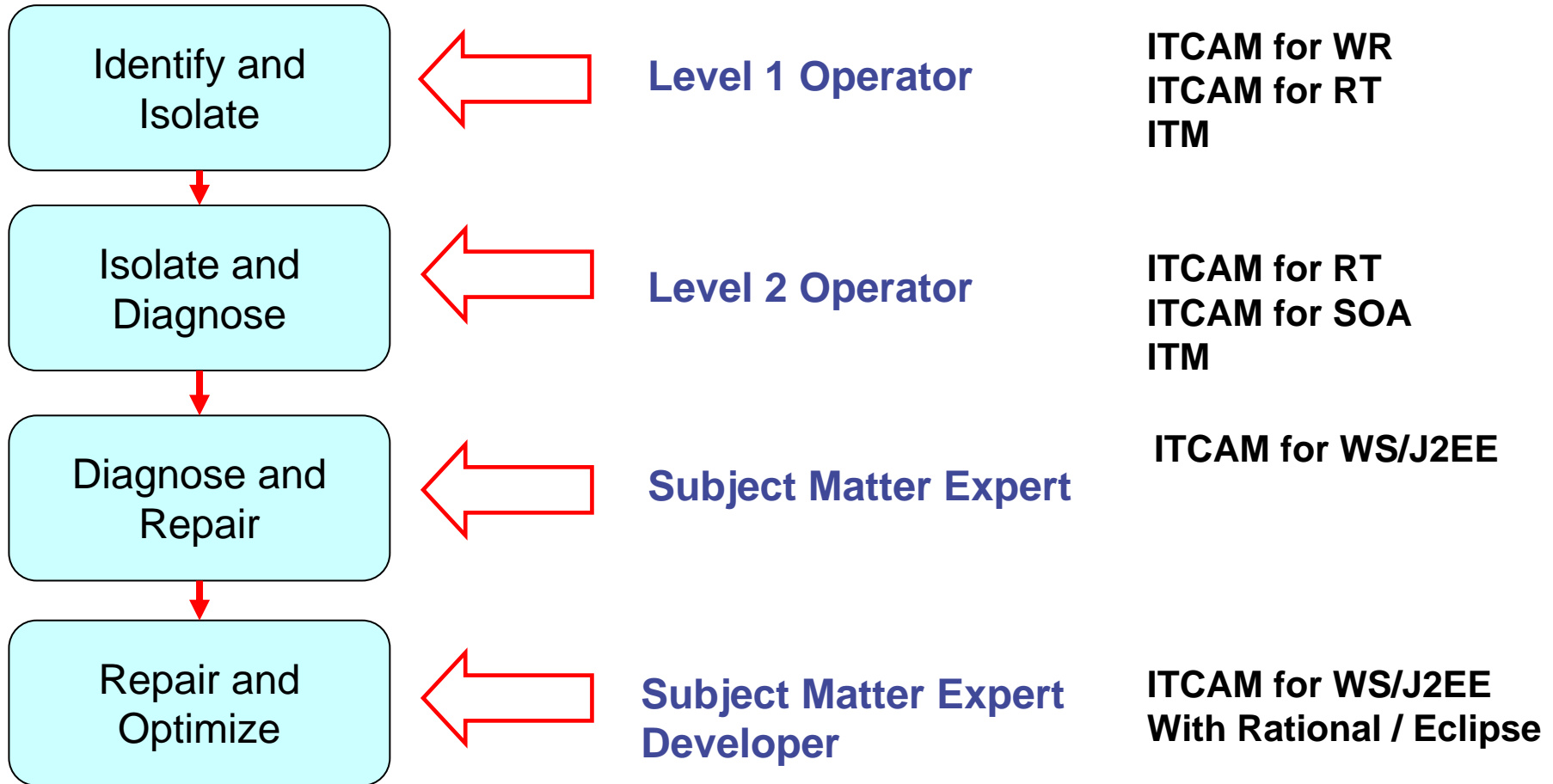


- ITCAM for SOA
- ITCAM for RT
- ITCAM for WebSphere/J2EE
- ITCAM for Web Resources and IBM Tivoli Monitoring Family

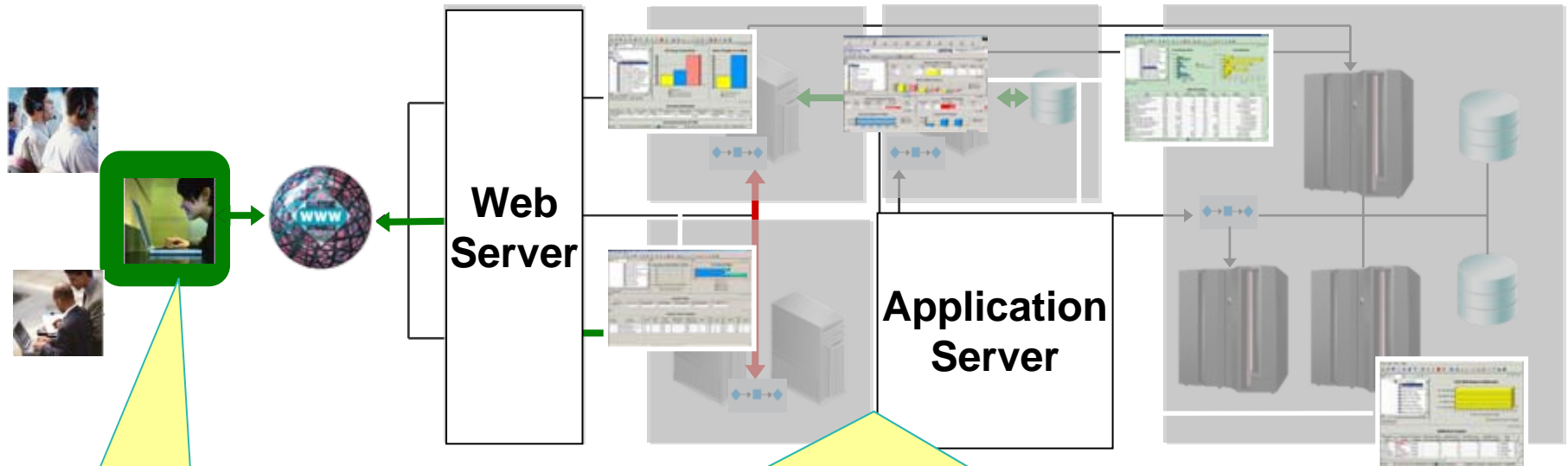
- Web Services automated mediation and problem identification
- End-to-end transaction tracking isolates problems
- Drill down diagnostics for WebSphere application performance problems, including links to CICS, MQ, IMS
- Resource monitoring for OS, Web Servers, App Servers, WebSphere MQ, Message Broker etc

# ITCAM Offerings – When to use and who to target

## Problem Resolution Process



# Monitor What is Most Important to Your Business Service – Application Resources



The customer in the Ordering application is experiencing slow response times

Is it the web server?  
Is it the application server?  
Is it the portal server?  
Is it the process server?  
Is it the CPU, OS, the database?  
Or some combination?



## Application Health Monitoring



# ITCAM for Web Resources 6.2

## Overview



# ITCAM for Web Resources

- **What is ITCAM for Web Resources?**
  - Provides IT Operations with resource and application monitoring to quickly identify, isolate, and route issues to the appropriate SME using the TEP user interface.
- **New Feature Highlights:**
  - **Application dashboard to view metrics per application**
  - **Simplified installation** (estimated time 1 hour)
  - **Workspaces for stand alone java applications**
  - **Best practices documentation for correlation of situations and logical views in TEP.**





# Supported Platforms & Workspaces

## Application Servers

- WebSphere
- Tomcat
- JBOSS
- Weblogic
- Oracle
- SAP Netweaver
  
- Websphere ESB
- WebSphere Portal Server
- WebSphere Process Server
- Lotus Workplace Server

## Web Servers

- Apache
- Internet Information Services (IIS)
- iPlanet

## Application Server TEP Workspaces

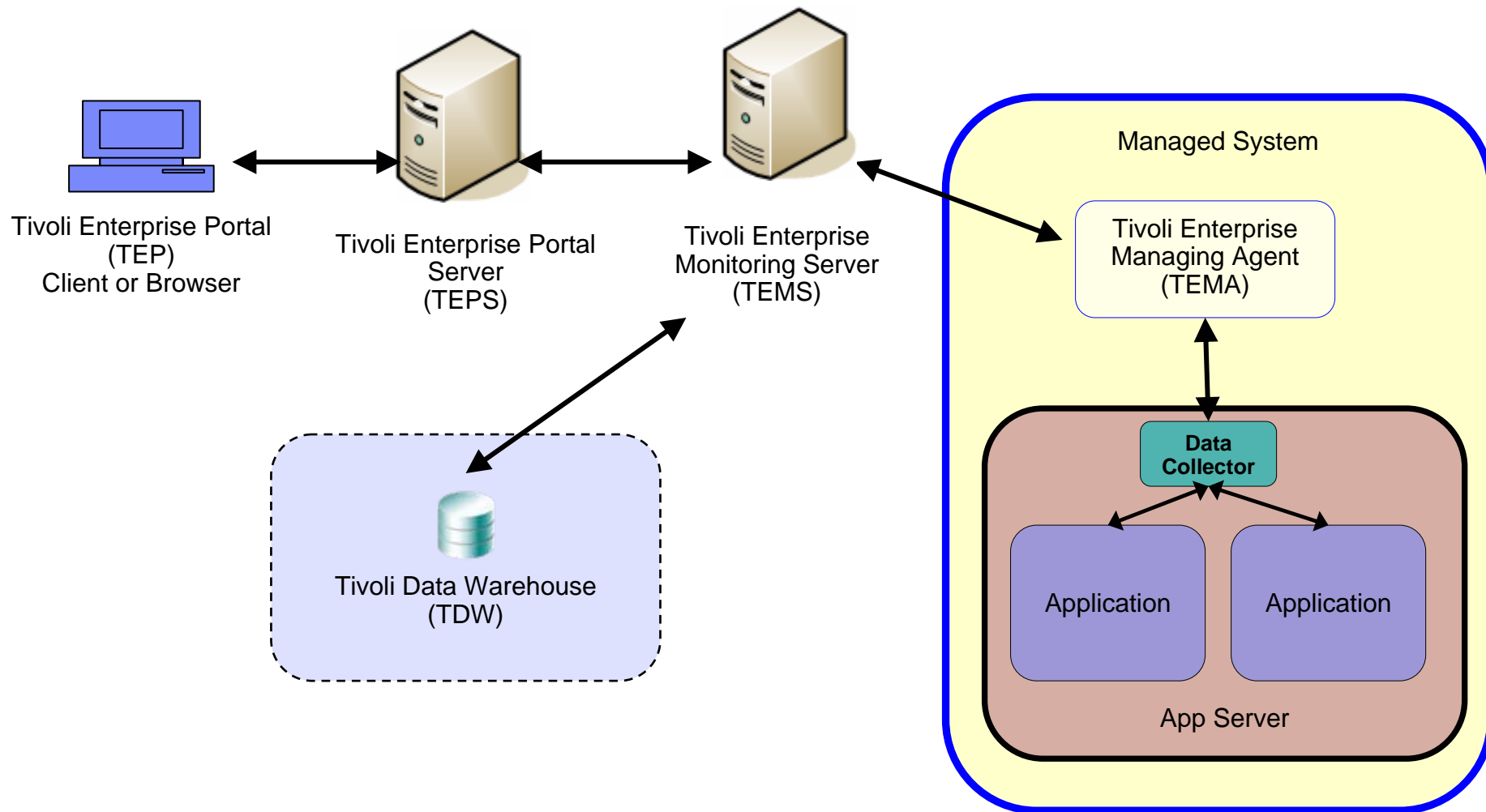
- Application Health Summary
- Client Tier Analysis
- Application Tier Analysis
- Backend Tier Analysis
- Application Health History
- Application Configuration
- Server Health Summary
- Request Analysis
  - Datasources
  - JMS Summary
  - Web Applications
  - EJB Containers
- Pool Analysis
  - DB2 Connection Pools
  - J2C Connection Pools
  - Thread Pools
- Garbage Collection and Allocation Failure Analysis

- Cache Analysis
- Workload Management
- Web Services (WebSphere only)
- J2SE

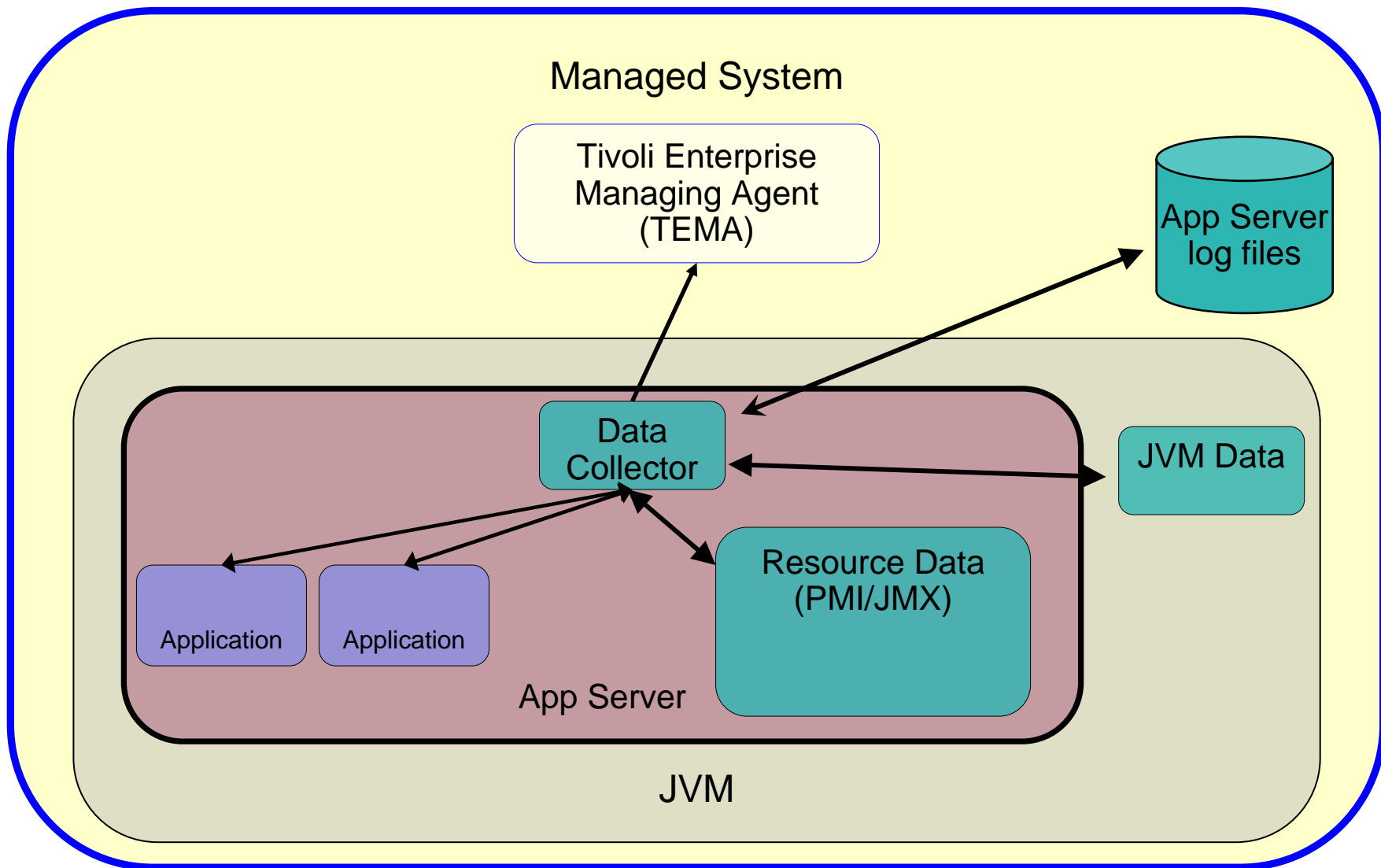
## Web Server TEP Workspaces

- Web Server Summary
- Active Server Pages (ASP)
- Web Sites

# ITCAM for Web Resources Architecture



# ITCAM for Web Resources Data Collection Architecture



# ITCAM for Web Resources: Application Dashboard

The screenshot displays the ITCAM for Web Resources Application Dashboard. The browser window shows the URL `http://dev-lnx-w01.usca.ibm.com/ui/CAM4WAS_2007_TTUC/start.html`. The dashboard is titled 'Tivoli Enterprise Portal' and shows a navigation tree on the left with 'Physical' view selected. The main content area is divided into two sections:

### Application Health Summary

Application Name	Application Status	Application Health	Client Tier Health	Application Tier Health	Backend Tier Health	Start Date/Time
PlantsByWebsphere	Running	Bad	Good	Bad	Good	02/14/07 08:1
PetStore	Running	Good	Good	Good	Good	02/14/07 08:1
HR App	Running	Bad	Good	Bad	Good	02/14/07 08:1
Trading App	Running	Good	Good	Good	Good	02/14/07 08:1
Dev App	Running	Fair	Good	Good	Fair	02/14/07 08:1

### Situation Event Console

Severity	Status	Owner	Situation Name	Display	Impact
Critical	Open	csmith	WASOutOfHeapSpace		
Critical	Open	csmith	WASSlowResponseTime		
Warning	Open	csmith	DBConnectionPoolsMaxed		

Callouts in the image highlight the 'Application Health Summary' table and the 'Event Console' table. A large callout at the bottom right states: 'Fast indication of problem area with drill down capability'.

# Dashboard Application Drilldowns

The screenshot displays the Tivoli Enterprise Portal interface. On the left is a tree view of the system hierarchy. The main area shows the 'Application Health Summary' table. A right-click context menu is open over the 'PlantsByWebSphere' application row, listing various analysis options. A yellow callout box points to the context menu with the text: 'Right-Click to Choose Selected View' and 'Immediate drill down to problematic tier'.

Application Name	Application Health	Client Tier Health	Application Tier Health	Backend Tier Health	Start Date/Time
PlantsByWebSphere	Bad	Good	Bad	Good	02/14/07 08:13:54
Selected Application - Health History		Good	Good	Good	02/14/07 08:13:54
Selected Application - Client Tier Analysis		Good	Bad	Good	02/14/07 08:13:54
Selected Application - Application Tier Analysis		Good	Good	Good	02/14/07 08:13:54
Selected Application - Backend Tier Analysis		Good	Good	Fair	02/14/07 08:13:54
Selected Application - Request Analysis					
Selected Application - Configuration					

Severity	Status	Owner	Situation Name	Display Name	Source	Impact
Critical	Open	csmith	WASOutOfHeapSpace	System	Primary:WASD05:NT	System
Critical	Open	csmith	WASSlowResponseTime		Primary:prod-01	Response Time Ag
Warning	Open	csmith	DBConnectionPoolsMaxed	System	Primary:WASD05:NT	System

# Drill Down to the Client Tier

**NEW workspace for views by Client Tier per application**

**Worst Response Times in the Client Tier per application**

**Worst completion rates in the Client Tier per application**

**HTTP Session and Web Container per app. server**

The screenshot displays the 'Client Tier Analysis' application window. At the top, a table shows summary data for a sample taken on 04/05/07 at 02:39:43. Below this, several charts are visible:

- Worst Client Tier Delays - Top 5:** A horizontal bar chart showing average response times in milliseconds for various applications. The top performer is a JMS application with a response time of approximately 4000ms.
- Worst Client Tier Completion Rates - Top 5:** A horizontal bar chart showing the percentage of completed requests. The top performer is a JMS application with a completion rate of approximately 95%.
- JVM Health - CPU Used %:** A gauge showing 76.0% CPU usage.
- JVM Health - Heap Used %:** A gauge showing 20.3% heap usage.
- HTTP Session - Average Live Sessions:** A gauge showing 7.9 sessions.
- Web Container:** A gauge showing a 'Good' status.

A legend on the right side of the charts identifies the colors used for Client status (Bad, Fair, Good) and Application/Backend components.

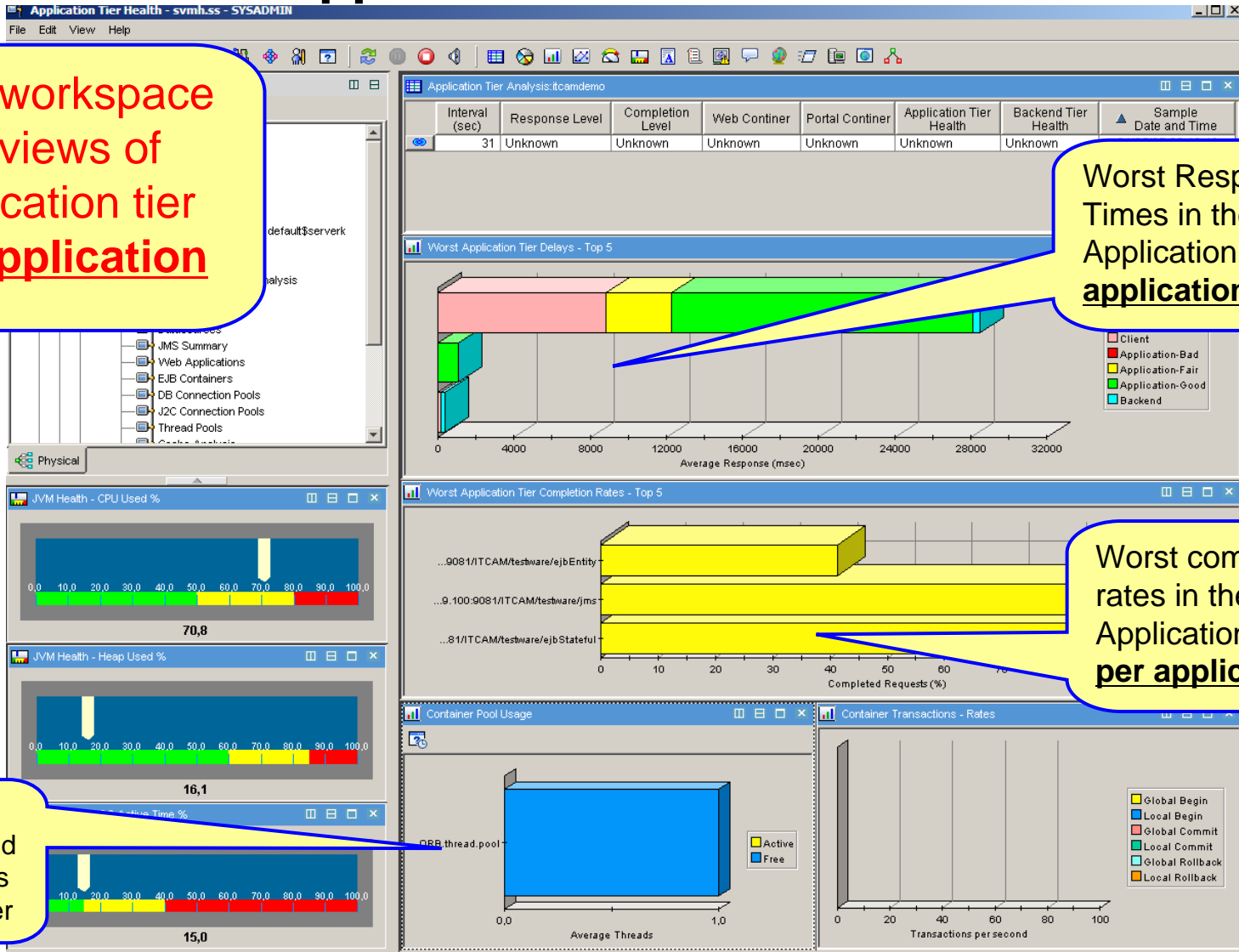
# Drill Down to the Application Tier

**NEW workspace**  
for views of  
Application tier  
per application

Worst Response  
Times in the  
Application Tier per  
application

Worst completion  
rates in the  
Application Tier  
per application

ORB  
Container and  
Transactions  
by app. sever



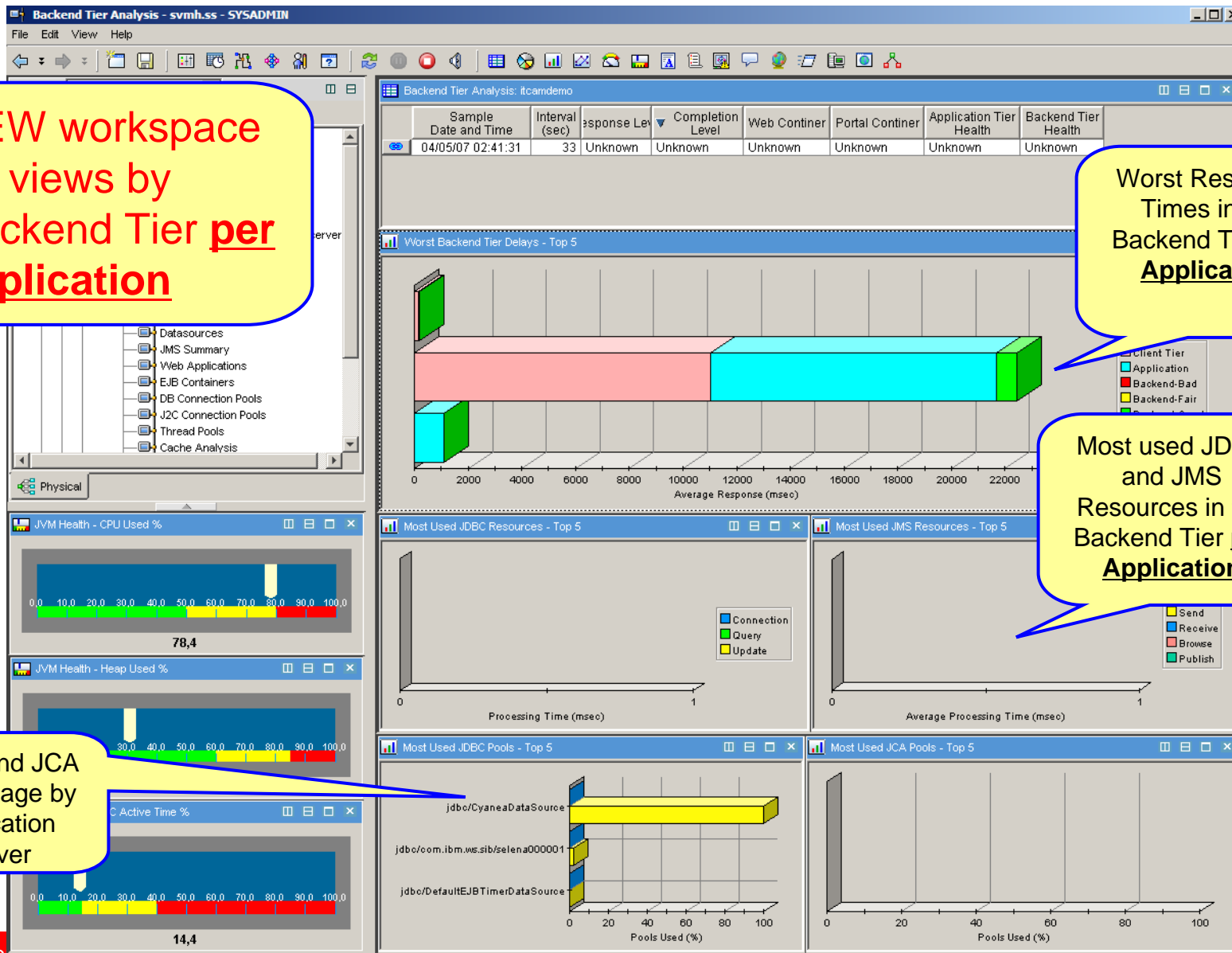
# Drill Down to the Backend Tier

**NEW workspace**  
for views by  
Backend Tier per  
application

Worst Response  
Times in the  
Backend Tier per  
Application

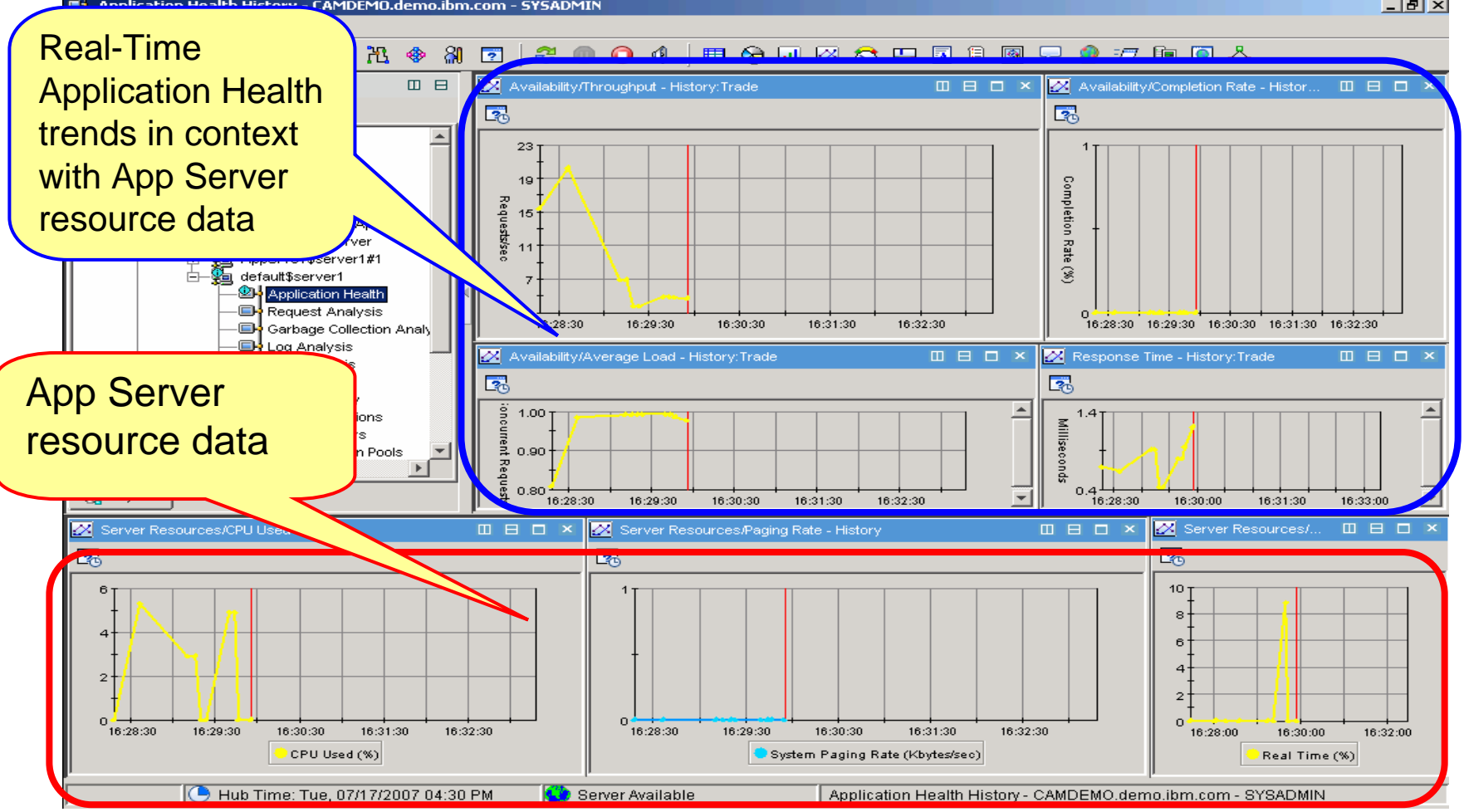
Most used JDBC  
and JMS  
Resources in the  
Backend Tier per  
Application

JDBC and JCA  
Pool Usage by  
Application  
Server





# Consolidated View of Application & App Server Resources



Real-Time Application Health trends in context with App Server resource data

App Server resource data

# View Your Slow Applications

The screenshot displays the Tivoli Enterprise Portal interface. On the left is a navigation tree with categories like Linux Systems, WebSphere Agent, and Application Health. The main area contains two charts:

- Least Available Apps - Top 5:** A horizontal bar chart showing Error Rate (%) for various applications. The top application is ...phere/servlet/ShoppingServlet with an error rate of approximately 75%.
- Slowest Apps - Top 5:** A stacked horizontal bar chart showing Response Time (ms) for various applications. The top application is ...phere/servlet/ShoppingServlet with a total response time of approximately 27ms. The legend includes Application Time (ms), JCA Time (ms), JMS Time (ms), JNDI Time (ms), SQL Connect Time (ms), SQL Query Time (ms), and SQL Update Time (ms).

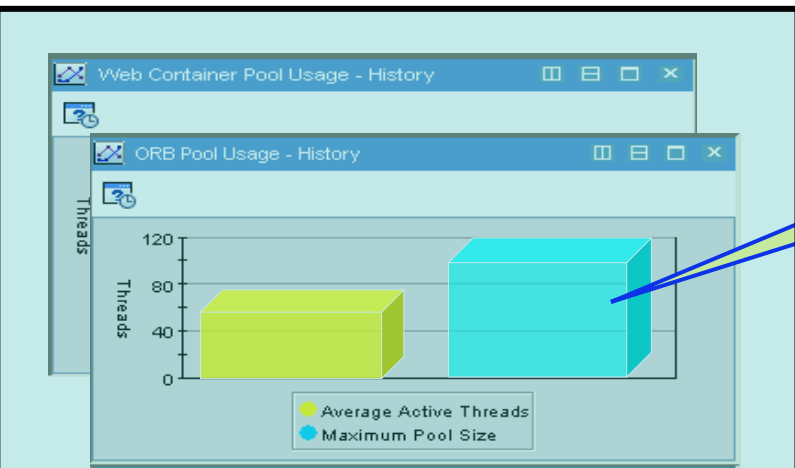
At the bottom, a table titled 'Requests - Current Interval' shows the following data:

Request Label	Request Name	Request Detail	Request Type	Sample Date and Time	Interval (sec)	Request Count	Request Rate (per sec)
...re/images/tab_background.jpg	http://ddaghd419y7	/PlantsByWebSphere	Servlet	01/21/06 21:07:08	59	14	0.237
...re/images/tab_background.jpg	http://ddaghd419y7	/PlantsByWebSphere	Servlet	01/21/06 21:07:08	59	14	0.237
...re/images/tab_background.jpg	http://ddaghd419y7	/PlantsByWebSphere	Servlet	01/21/06 21:07:08	59	14	0.237

Additional interface elements include a status bar at the bottom showing 'Hub Time: Mon, 09/18/2006 04:46 PM', 'Server Available', and 'Enterprise Status - itcamd03.demopkg.ibm.com - SYSADMIN'.

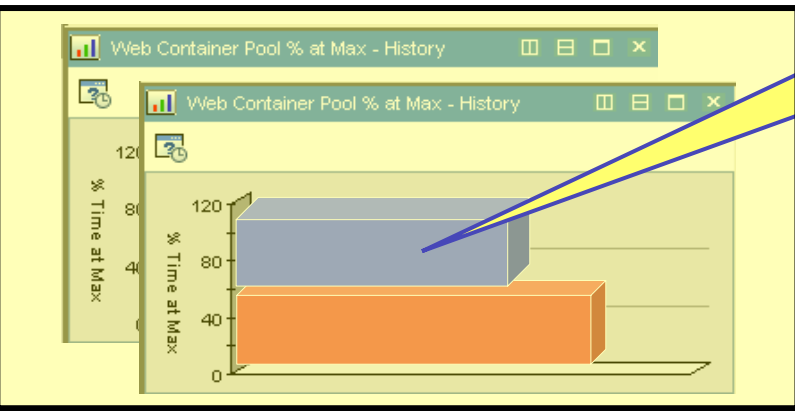
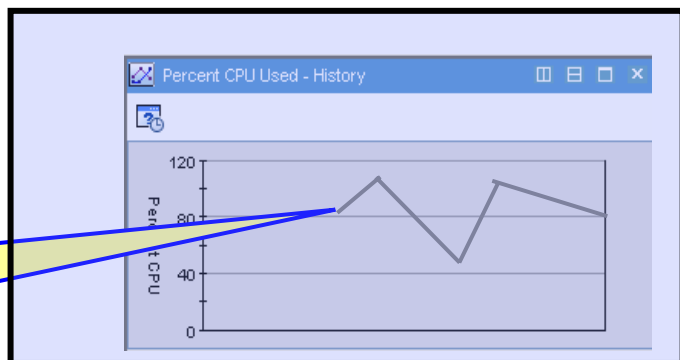
# Pool Analysis Workspace

- J2EE resource pools are critical in terms of providing availability to commonly accessed services such as database access and other container pool types. This workspace tracks historical usage of the most important resource pools.



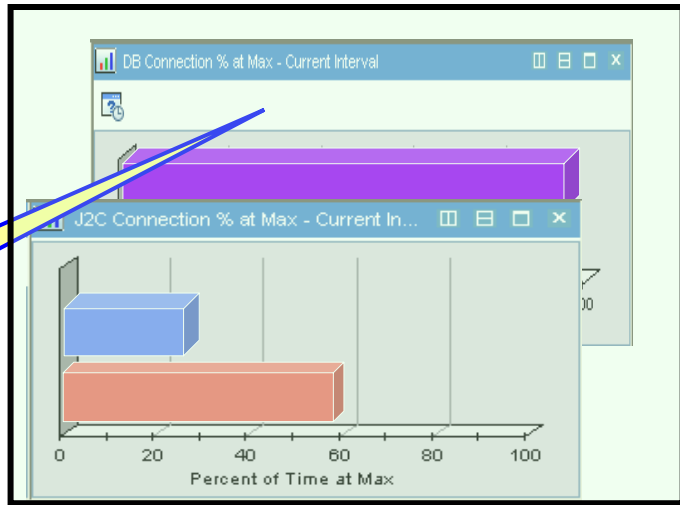
Comparison of recent active threads in ORB pool

Visual correlation of CPU utilization vs. pool consumption



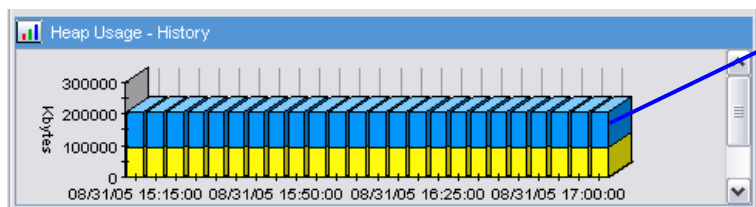
Web container pool statistics showing # times at maximum capacity

DB2 and J2C connection pools at full saturation



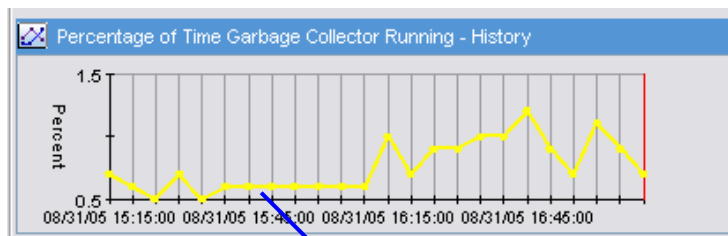
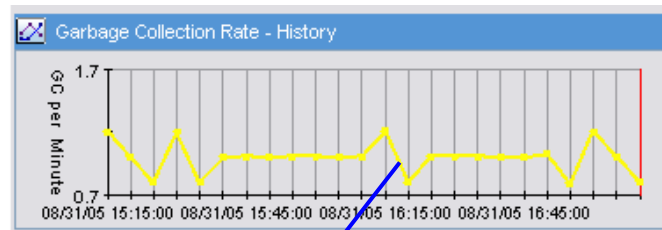
# Garbage Collection Analysis Workspace

Garbage Collection (GC) metrics such as frequency and time to complete can have a large effect on application server performance (during this time no other application processing can take place). This workspace shows a detailed breakdown of GC behavior and provides an complete analysis of GC performance metrics.



Detailed Analysis of Recent GC Performance

Sample Date and Time	Interval (sec)	Process ID	Times Run	Objects Freed	Objects Moved	Kbytes Total Freed by GC	Kbytes Used	Kbytes Used Delta	Kbytes Free	Real Time (ms)	Real Time (%)	GC Rate (per min)
08/31/05 17:14:00	59	78764	0	0	0	0	107339	15923	102440	0	0.0	0.000



# Cache Analysis Workspaces

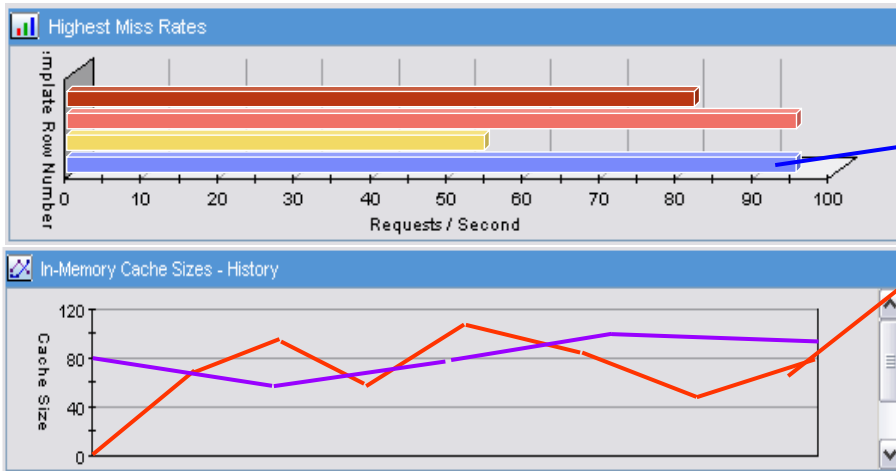
- Highlights in-memory cache sizes, and shows cache templates with highest miss rates

Sample Date and Time	Interval (sec)	Maximum In-Memory Cache Size	Current In-Memory Cache Size	In-Memory and Disk Timeouts	In-Memory and Disk Timeout Rate (per sec)
09/01/05 16:56:00	20662	2000	1		

Template Row Number	Sample Date and Time	Interval (sec)	Cache Object Type	Current Cache Size	Disk Hits	Disk Hit Rate (per sec)	Mem Hits	Rate (pe
1	09/01/05 16:56:00	20662	cacheModule...					

Detailed tabular views of cache metrics for analysis and tuning



Miss rates correlated with recent cache size trends



# ITCAM for Web Resources 6.2

## Integration with ITCAM for WebSphere/J2EE

**Tivoli** software

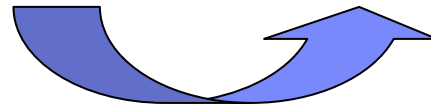


# Integration with ITCAM for WebSphere

## Monitor Health



## Diagnose Problem

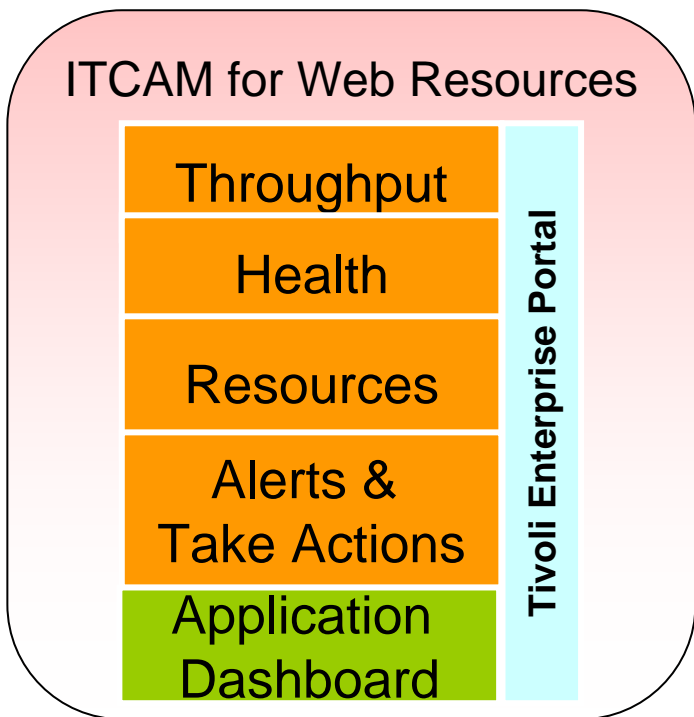


- **ITCAM for Web Resources** monitors application and application resource health
  - Provides operator level data and actions
- **ITCAM for WebSphere / J2EE** diagnoses individual application components for root-cause analysis
  - Perfect for Subject Matter Experts / Developers / Architects
- **ITCAM for Web Resources and ITCAM for WebSphere** share a number of components and integrate very well
  - Easily add Deep Dive Diagnostics to ITCAM from Web Resources with a seamless upgrade to ITCAM for WebSphere / J2EE.
  - Easily add improved ITM functionality of ITCAM for Web Resources to ITCAM for WebSphere/J2EE with a seamless upgrade of the 6.1 ITM agent.

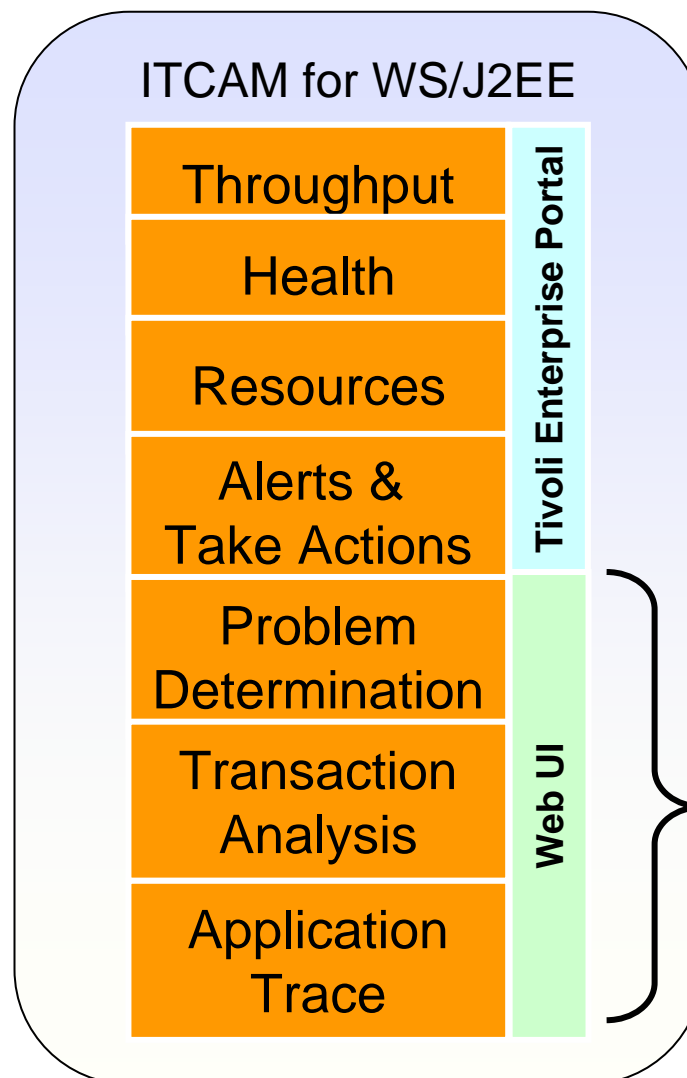
# ITCAM for Web Resources & ITCAM for WS/J2EE



Operator

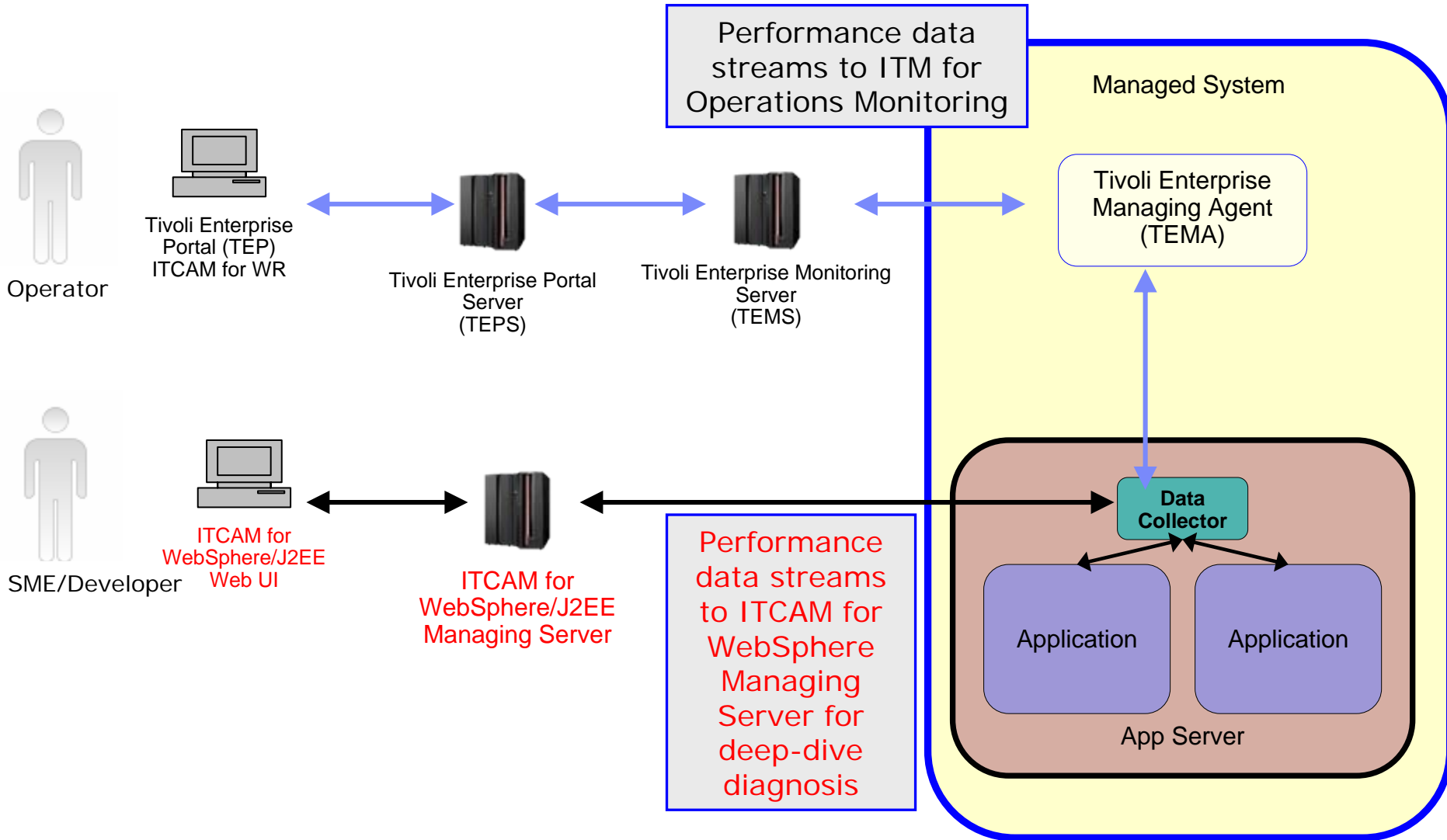


SME/Developer





# ITCAM for Web Resources & ITCAM for WebSphere/J2EE





# ITCAM for SOA

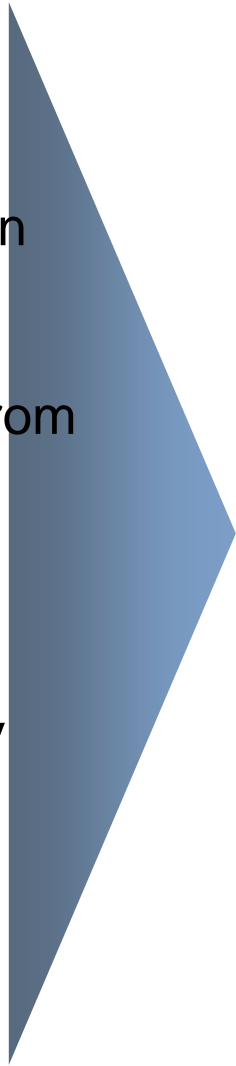
**Tivoli** software



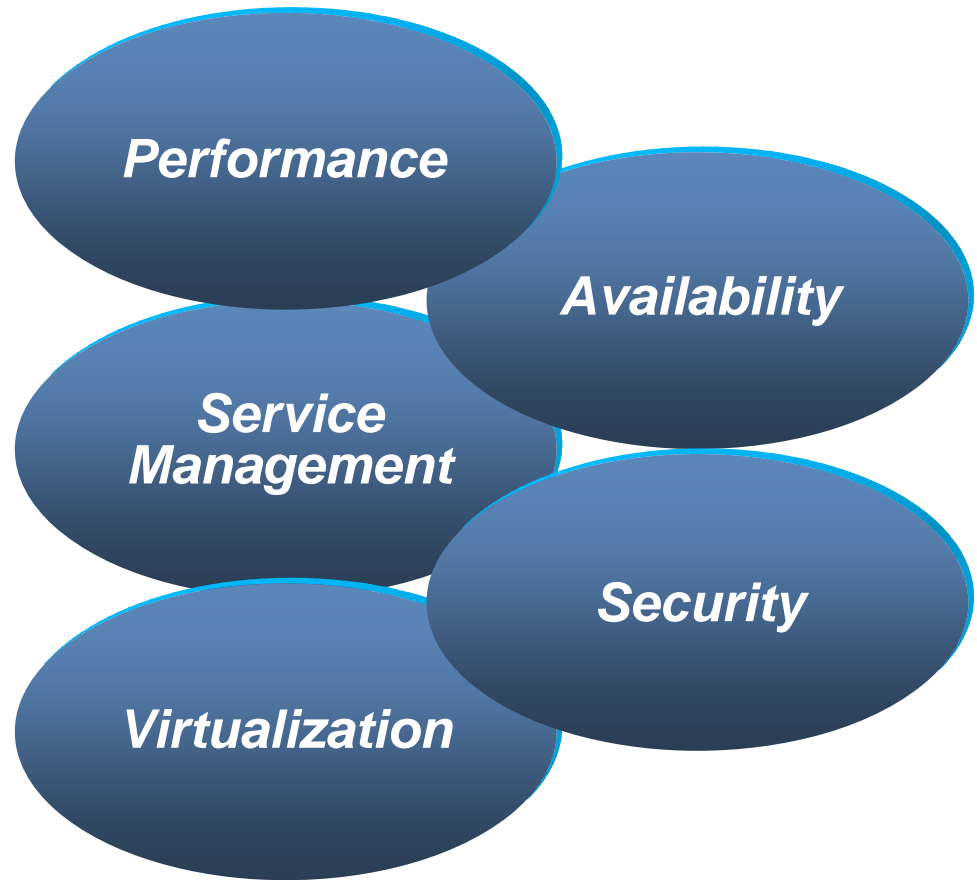
# How Does SOA Impact Infrastructure and Management?

## SOA Characteristics

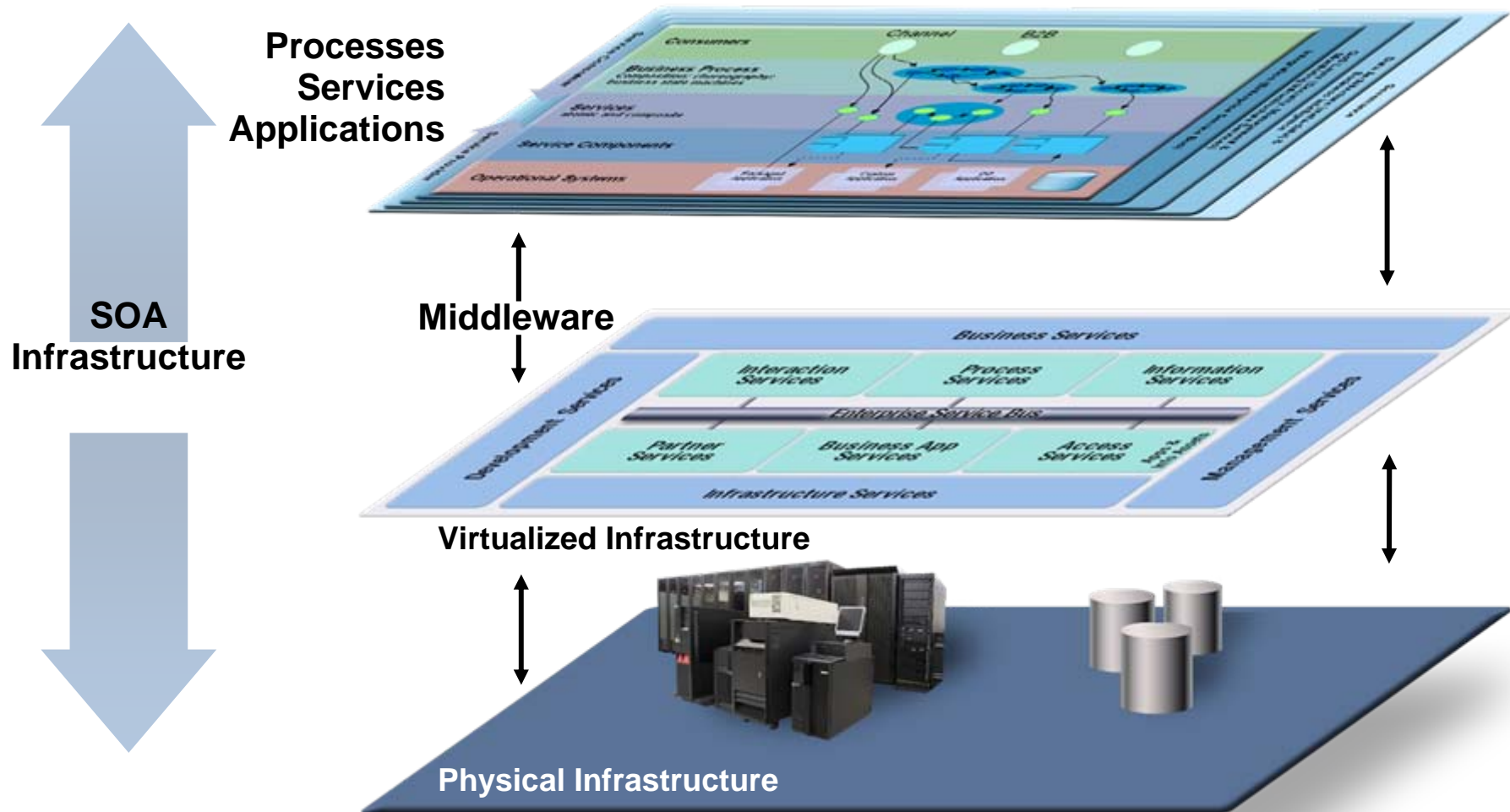
- Applications reused in new dynamic ways
- Services combined from multiple sources
- Rapid deployment
- Services route to any available resource
- Distributed access



## Key Infrastructure and Management Considerations



# SOA and Layers of Abstraction



# SOA Management – Visibility, Control and Automation

Increasing capability and maturity of SOA Infrastructure

## Visibility: Service Monitoring

- Monitor services end to end to isolate and fix problems
- Performance management across all services
- Availability management for supporting applications



IT Operations

## Control: Identity & Access Control

- End-to-end identity propagation from silos to services
- Control access levels to services with trusted identities
- Consistently enforce security policies for services



IT Security

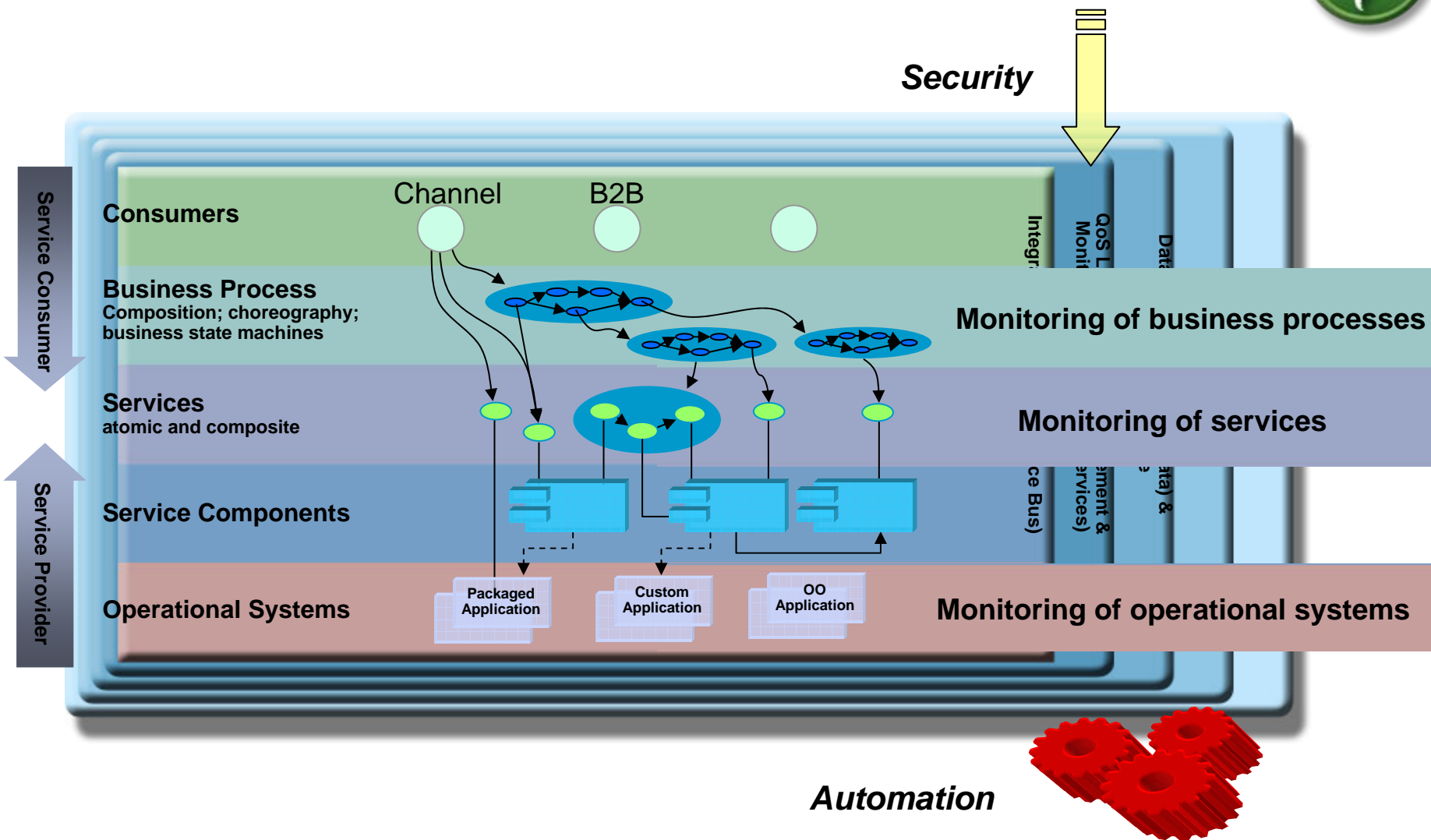
## Automation: Autonomic and Virtualized

- Integrated infrastructure for runtime automation
- Leverage SOA flexibility for adapting to changes automatically
- Leverage virtualized environment for maximum efficiency



Smart IT via  
Dynamic SOA

# Key Requirements from SOA Reference Architecture Perspective



## What capabilities are required for a SOA Management Solution?

*Remember to effectively manage the following are in addition to the normal IT process and Infrastructure management capabilities*

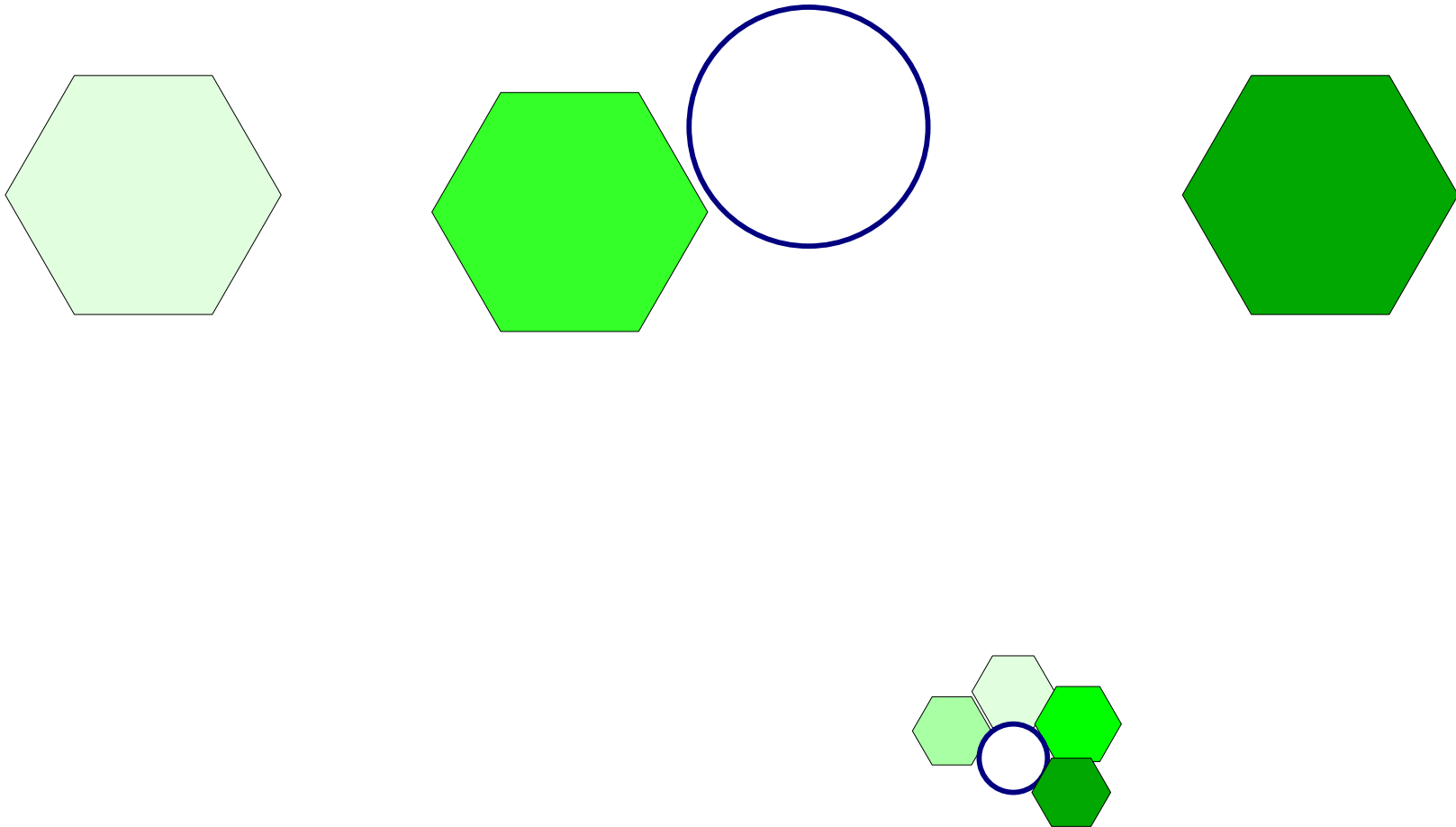
- **Service as a resource** – Ability to manage service as a resource
- **Discovery** - Discover runtime service invocations, service flows, service dependencies and cross reference with registered services for compliance. Discovery should also include application, application environment, application resources and their dependencies
- **Performance Monitoring** – Monitor service performance, faults, resource usage
- **Service Level Monitoring** – Ability to measure service levels and be able to correlate with business service and present in business dashboards
- **Track service requests / transactions** as it traverses the different application tiers or service components
- **Service Security** – Services must be secured and should have the ability to handle federated identities
- **Automation & Virtualization** – Ability to handle virtualized environment with on demand reconfiguration (e.g. routing) and provisioning
- **Seamless IT Operations and Development bridge** - for reduced Mean Time to Resolution (MTTR) of service problems

# ITCAM for SOA

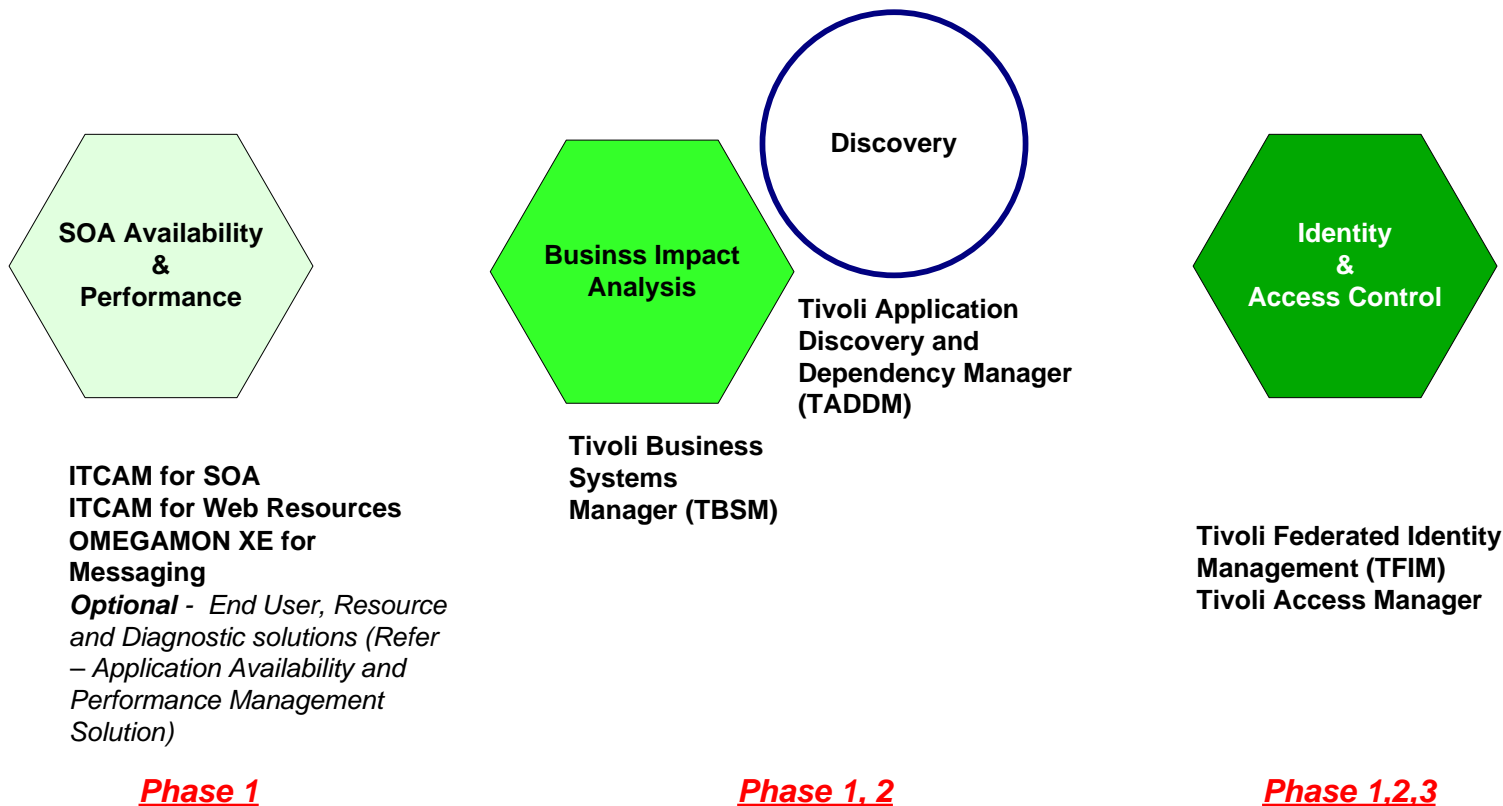
- What is ITCAM for SOA?
  - A Tivoli monitoring solution that supports a broad range of heterogeneous SOA platforms, including WebSphere. ITCAM for SOA provides tooling for all aspects of SOA life-cycle management including architecture, development, testing, monitoring, management, and governance of services.
  
- New Feature Highlights:
  - Support for WebSphere Message Broker
  - Support for Apache AXIS
  - TEP integrated service-to-service topology view
  - Service monitoring views by requestor



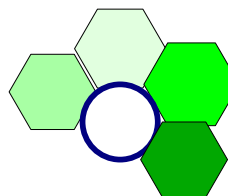
# SOA Management – Key Capability Requirements



# An Example – IBM Tivoli Solution Proposals



**SOA Management Solution Suggested Solution Proposals**



# IBM Tivoli Composite Application Manager for SOA

## Service problem identification & resolution

- Content-rich views, topology and cross-workspace linkages enable drill-down from services to application components and IT resources to identify the source of bottleneck or failure

## Service Management Automation

- Built-in and extensible alerts, situations, workflows enable powerful automation scenarios
- Managed mediation primitives for WebSphere ESB enable control of services

## Heterogeneous SOA Platform Support

- SOA Platform support covers IBM WebSphere Application Server, WebSphere ESB, WebSphere Process Server, WebSphere DataPower, WebSphere Message Broker, Microsoft .NET, JBOSS, CICS, SAP and BEA WebLogic

## Integrated Console

- Service views, alerts and automation included within Tivoli Enterprise Portal, the integration point for ITCAM, OMEGAMON, ITM and TBSM

## Life-cycle Management

- Web Services Navigator provides deep understanding of service flows and relationships
- WebSphere Service Registry and Repository integration supports SOA Governance

## Support for ISM strategy

- Discovery Library Adapters add discovered Service information to CCMDB
- Additional DLAs provided for BPEL and WSRR

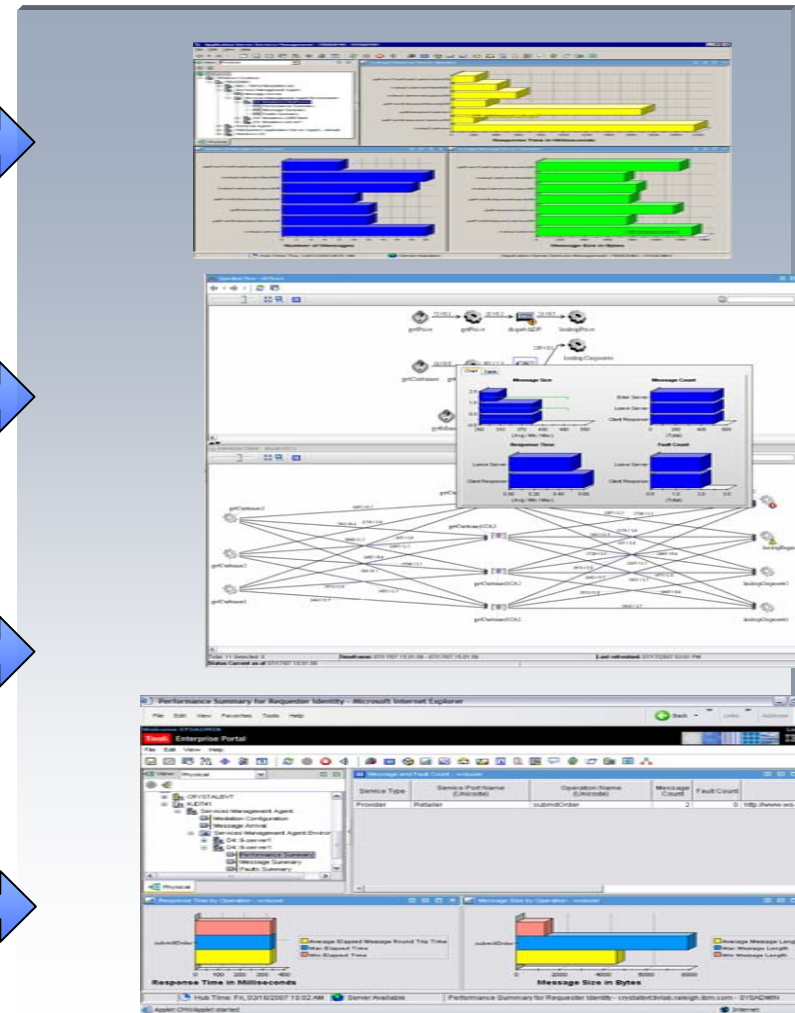


IT Operations

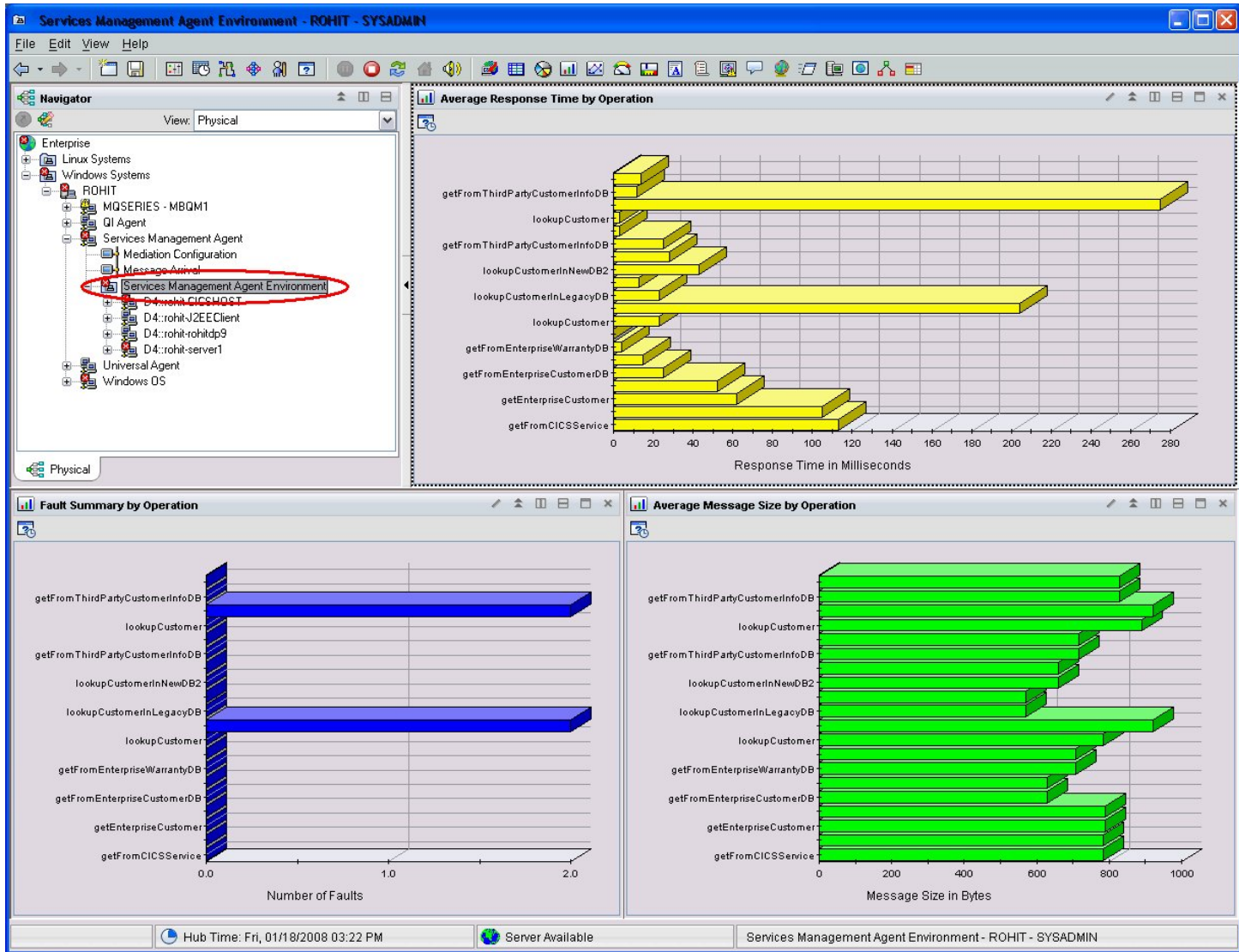
Web Services Expert

# ITCAM for SOA 7.1 : “Simple, Straight-forward, Clear understanding of your SOA”

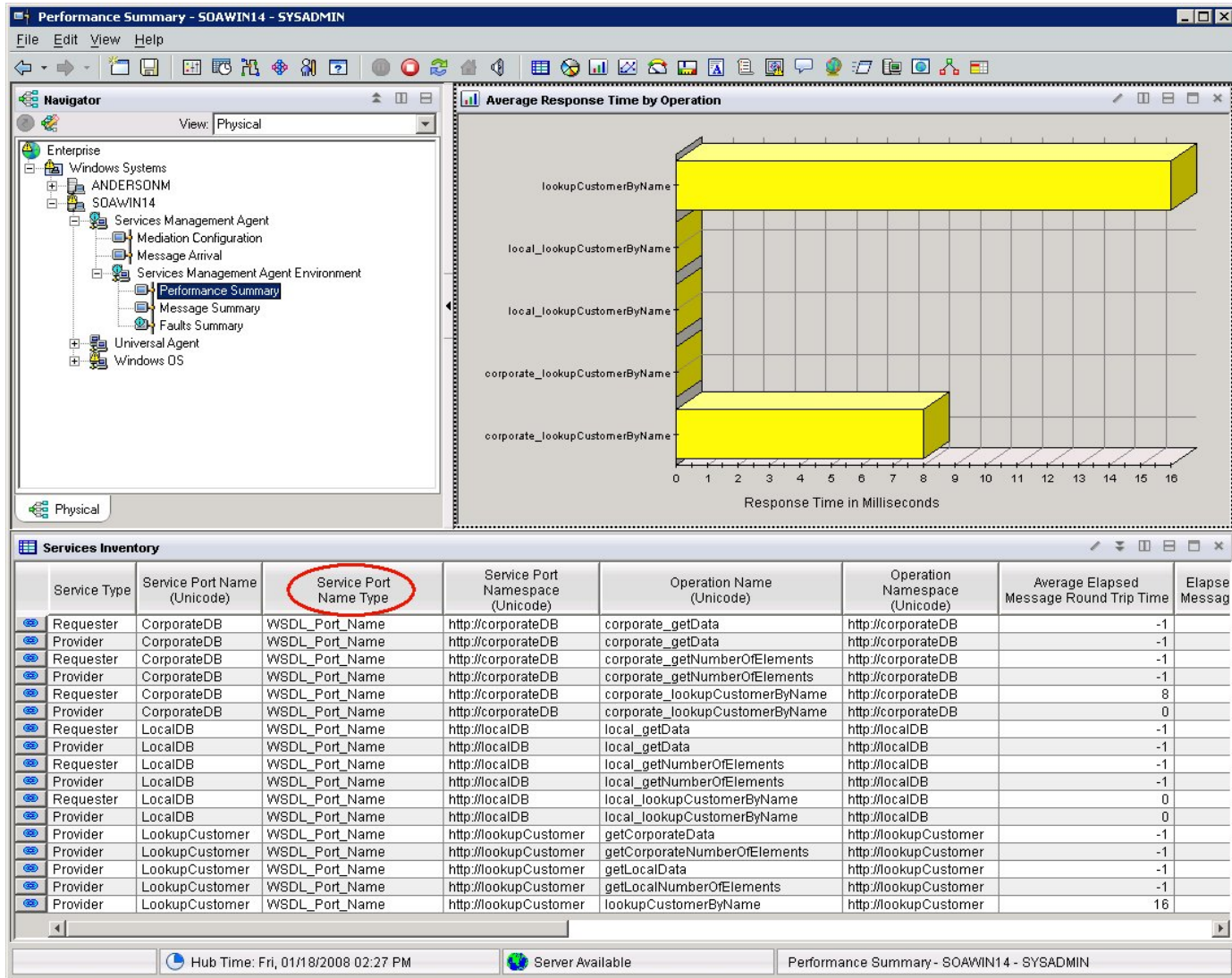
- Enhanced Platform support
  - CICS TS 3.2, WebSphere Message Broker
  
- Services To Services Topology support
  - Provides new visuals and aesthetics for the services to services relationship
  - Aggregate metrics on the relationship
  - Operation status
  - Operational flow
  - Support for all monitored containers
  - Link from the topology views to other Tivoli solutions
  
- Provide views based on Service Requesters
  - Track performance based on requesting client, A client could be a user id or the remote IP address of the invoking client
  
- Dynamic TEP workspace linkages for faster, more accurate problem determination
  - In context relationships and linkage to:
    - Omegamon XE for Messaging
    - ITCAM for Web Resources
    - ITM for Operating Systems
    - Other ITCAM for SOA workspaces



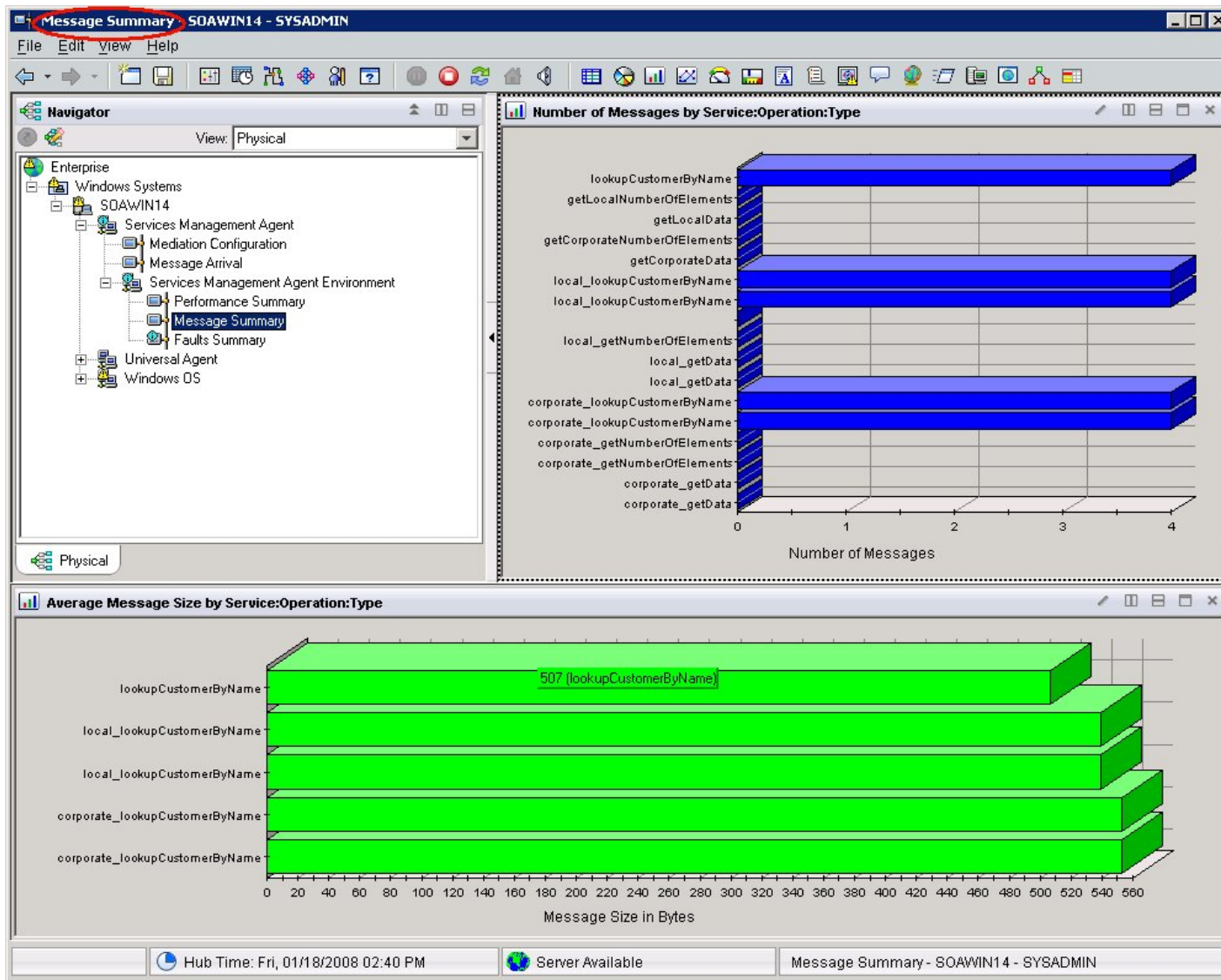
# Services Management Agent Environment



# Performance Summary



# Message Summary



# Faults Summary

**Number of Faults by Operation**

Operation Name	Number of Faults
lookupCustomerByName	2.0
getLocalNumberOfElements	0.0
getLocalData	0.0
getCorporateNumberOfElements	0.0
getCorporateData	0.0
local_lookupCustomerByName	0.0
local_lookupCustomerByName	0.0
local_getNumberOfElements	0.0
local_getData	0.0
local_getData	0.0
corporate_lookupCustomerByName	0.0
corporate_lookupCustomerByName	0.0
corporate_getNumberOfElements	0.0
corporate_getNumberOfElements	0.0
corporate_getData	0.0
corporate_getData	0.0

**Fault Details**

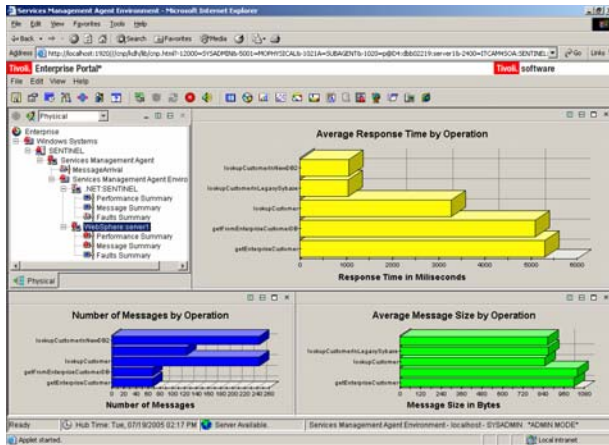
Service Port Name (Unicode)	Service Port Name Type	Service Port Namespace (Unicode)	Operation Name (Unicode)	Operation Namespace (Unicode)	Message Interception Time	Fault Code (Unicode)	
LookupCustomer	WSDL_Port_Name	http://lookupCust...	lookupCustomerByName	http://lookupCu...	01/18/08 19:40:14	p354:CustomerNotFoundException	look
LookupCustomer	WSDL_Port_Name	http://lookupCust...	lookupCustomerByName	http://lookupCu...	01/18/08 19:37:44	p354:CustomerNotFoundException	look
LookupCustomer	WSDL_Port_Name	http://lookupCust...	lookupCustomerByName	http://lookupCu...	01/18/08 19:35:14	p354:CustomerNotFoundException	look
LookupCustomer	WSDL_Port_Name	http://lookupCust...	lookupCustomerByName	http://lookupCu...	01/18/08 19:32:44	p354:CustomerNotFoundException	look

Hub Time: Fri, 01/18/2008 02:41 PM | Server Available | Faults Summary - SOAWIN14 - SYSADMIN



# Assist the Service Developer by Integration with Rational and WebSphere tools

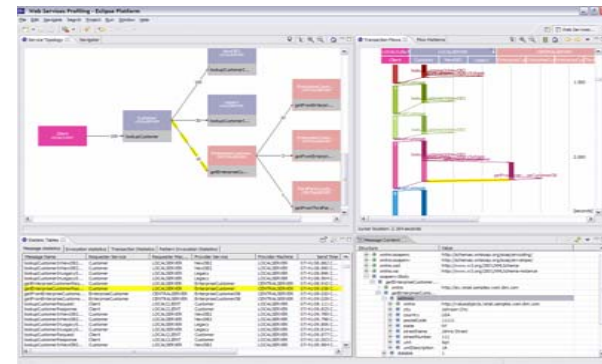
## Tivoli operations view



**Tying Operations to Development**

**Production data dynamically, remotely pulled from Tivoli Data Warehouse by the Web Services Navigator**

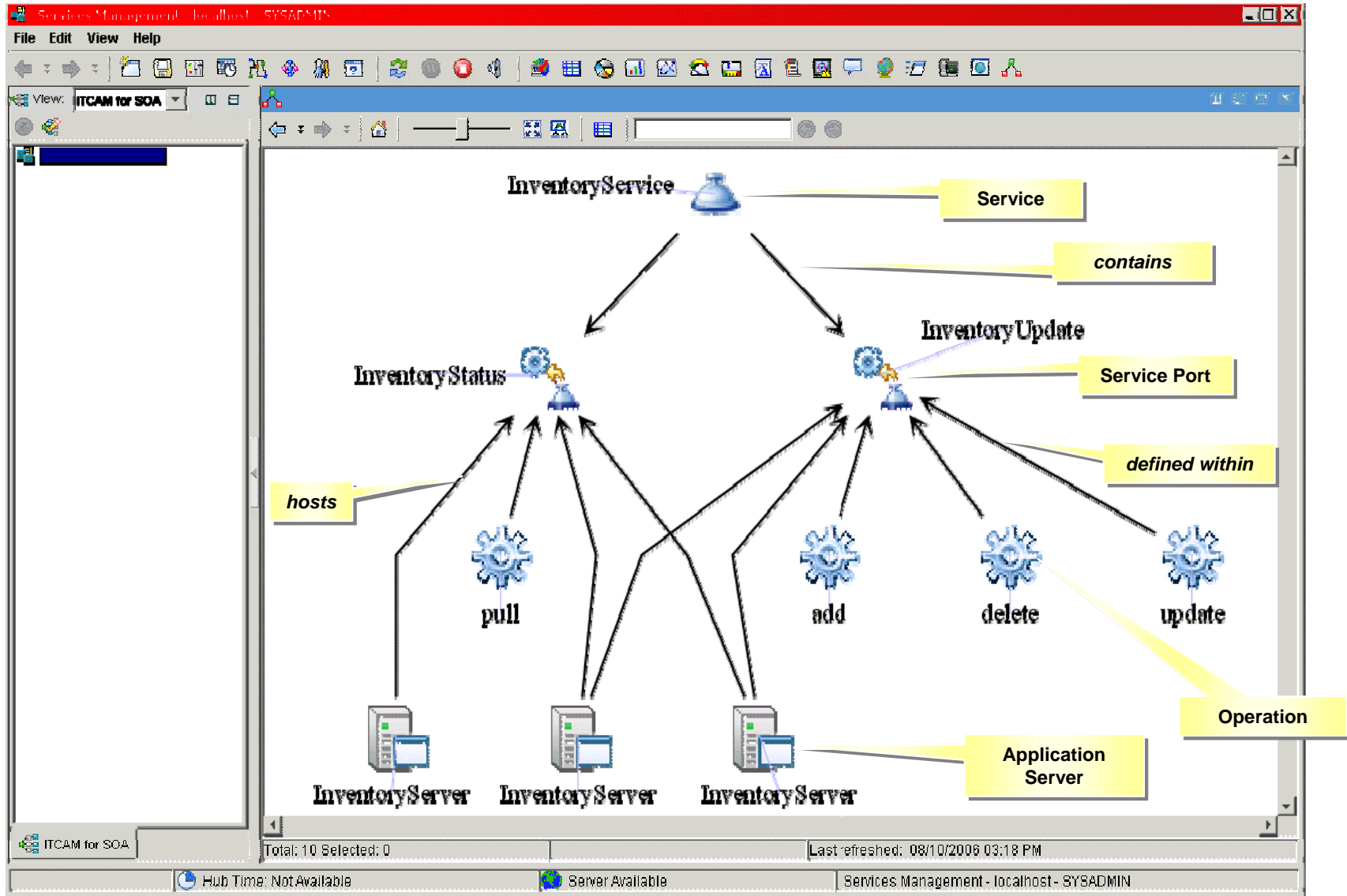
## Service architect view (Tivoli Web Services Navigator)



- Avoids need for debug tools on production boxes (Operations hates this)
- Provides the same collected data to each role in a format they understand and can work with
- No need for the architect/developer to recreate the problem to get into problem-solving



# Service Details topology view



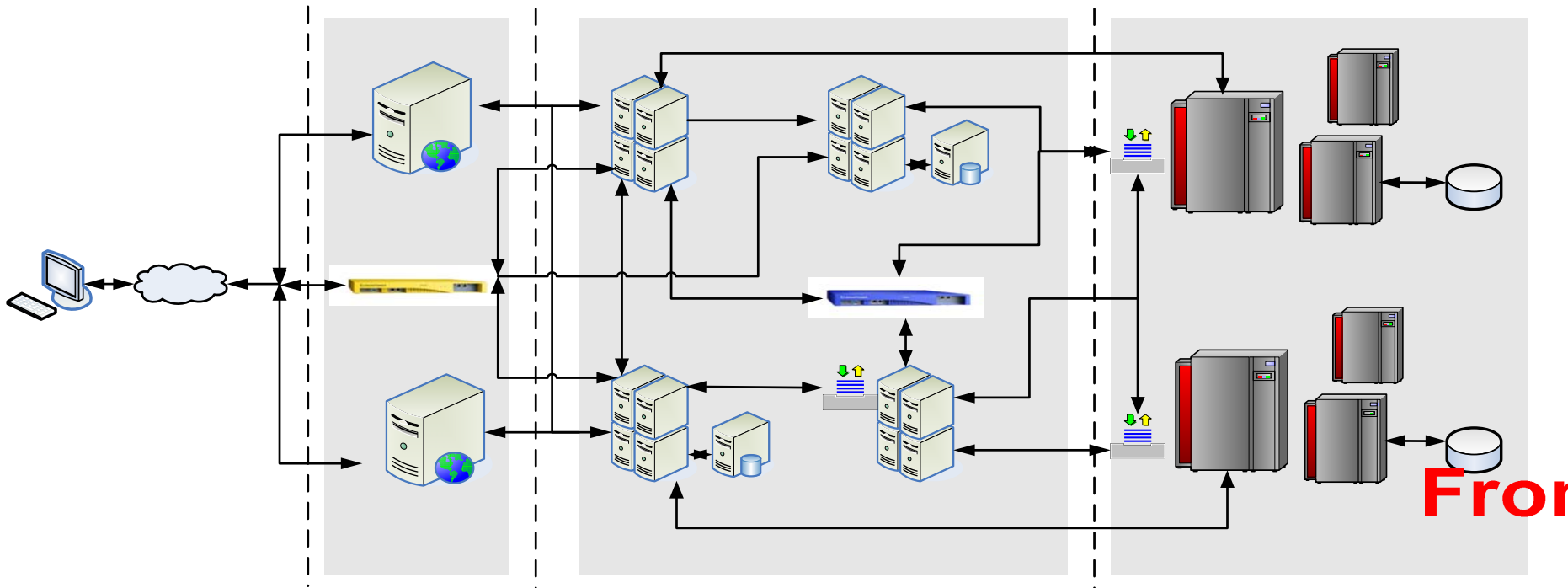


# ITCAM for WebSphere/J2EE

**Tivoli** software



## Typical WebSphere Application Landscape - Composite Applications



- Business processes increasingly depend on **multi-tier** composite applications
- It is challenging to design, build, test, and manage for high **performance** and **availability**
- SOA, while introducing architectural flexibility exposes more **inter-dependencies**
- Traditional development and management processes need to be expanded to account for challenges



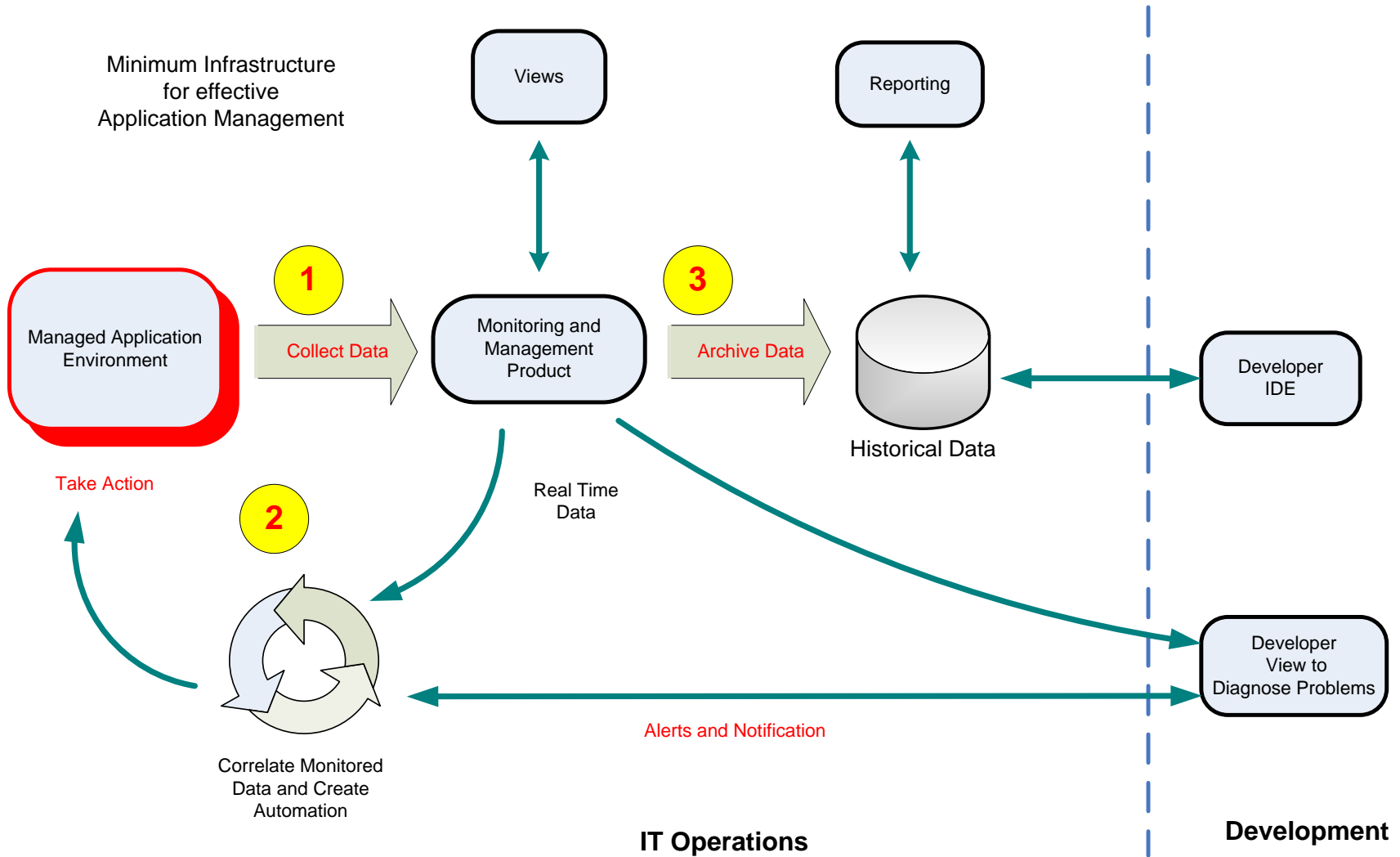
# Common WebSphere Application Problems



- **Availability**
  - How can I take actions automatically if my server goes down?
  - How can I keep a history on availability for problem trend analysis?
  - How can I spot problem trends in real time and create alerts before they become critical situations?
- **Performance**
  - Application performance degrades over time and the crashes. How can I monitor the performance degradation and take pre-emptive actions?
  - Which component is the bottleneck?
- **Capacity and Resource Usage**
  - I want a centralized view of not just the application server resources but also of my system, network, storage etc.
- **Hung Application**
  - Is the problem in my application or due external systems or services that I depend on?
  - Lock contention – How do I know where exactly the problem without actually debugging the application problem in production environment?
- **Memory Leaks** - Do we leak memory in Java ?!!
- **Untested code** - How can I monitor uncaught exceptions and get alerts for problem conditions before it brings the application server down?
- **IT Operations and Development** - How can they get along together?
- **Fails in Production** - It worked in test/staging then why does it fail in production?



# How can we solve these problems?



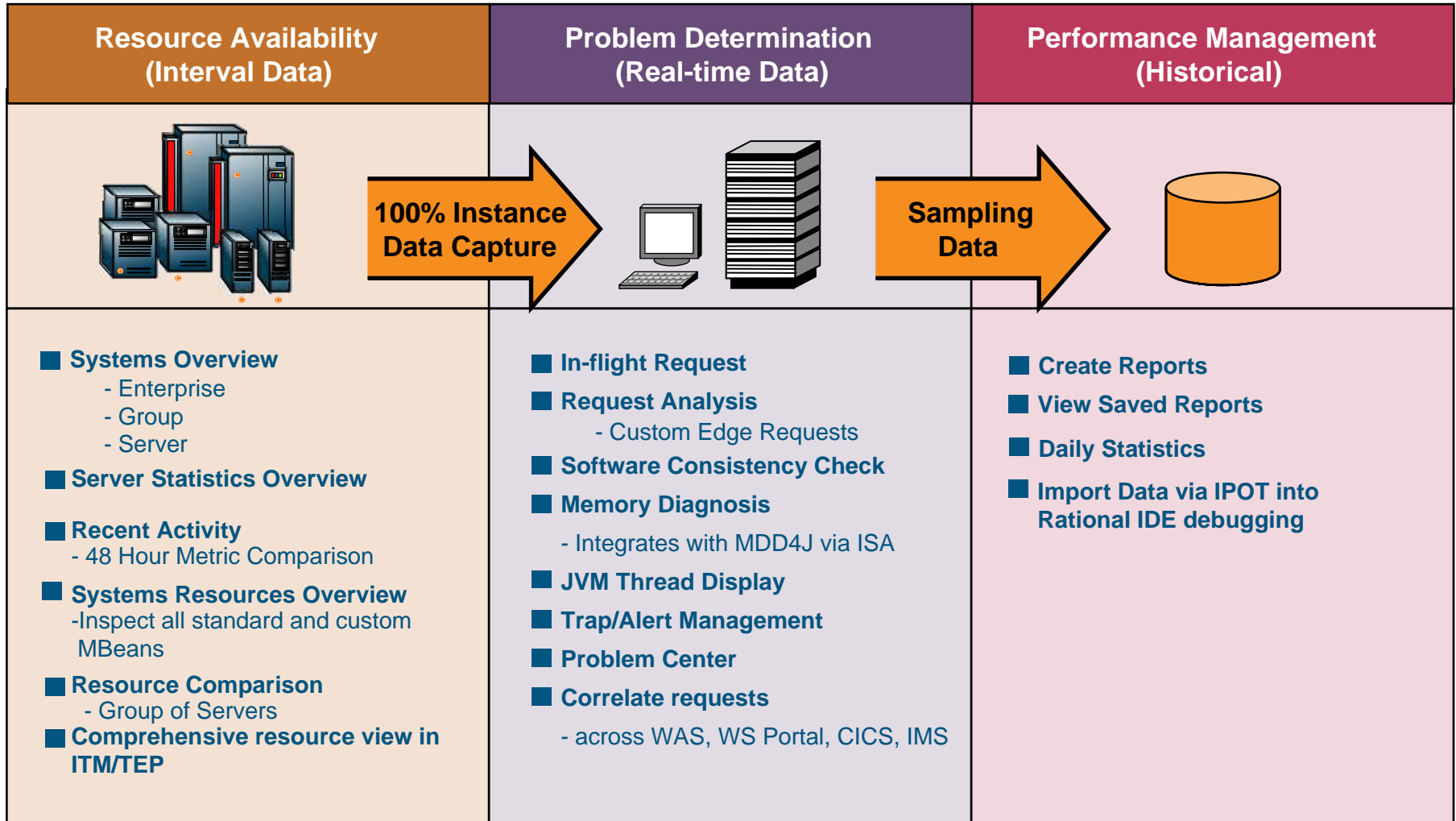
# What is ITCAM for WebSphere / J2EE?

- ITCAM for WebSphere/J2EE part of the ITCAM family of products for **application management infrastructure**
- Monitors applications running on WebSphere Application Server, WebSphere Process Server, WebSphere ESB, WebSphere Portal and other J2EE Servers **without requiring the applications to do any instrumentation**
- **Correlates** transactions from WAS/J2EE to CICS/IMS backend and other J2EE-J2EE containers
- Helps identify **performance bottlenecks** in development/test and production
- Helps isolate **production problems** through real time problem determination and also using collected production data via IPOT/Rational integration
- Provides **in depth** application analysis and management capability





# ITCAM for WebSphere/J2EE - Functionality Overview



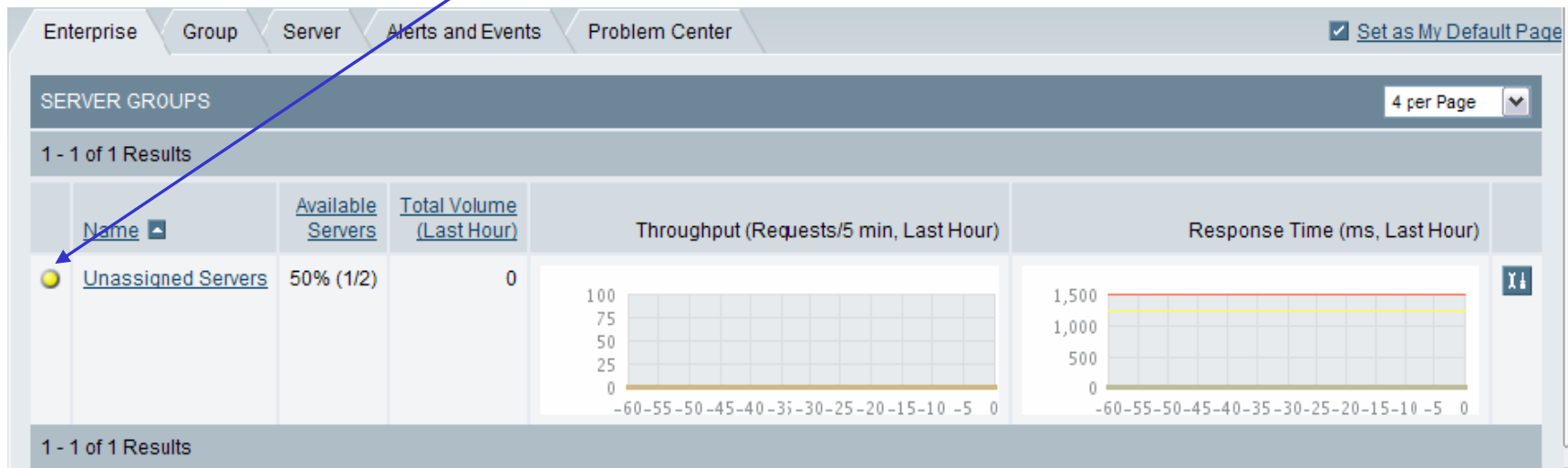
# Availability



# Availability Dashboards in ITCAM for WS/J2EE Web UI

- Provides Enterprise, Server Group, Server and Alerts/Events and Problem center overview
  - Helps monitor **enterprise's availability**, response time and throughput information by server group or individual servers
  - Server metrics like JVM, CPU, J2EE **resource** usage such as sessions, users etc.
  - Alerts and Events shows occurrence of predefined **situations**
  - **Isolate** problem servers and drill down more detailed information and diagnosis

View availability information about managed application servers



# Availability Reports – ITCAM f WS/J2EE Web UI

**Tivoli Composite Application Manager for WebSphere and J2EE**

HOME ADMINISTRATION AVAILABILITY PROBLEM DETERMINATION PERFORMANCE ANALYSIS LOGOUT HELP

DATE RANGE  
Select the date range for displaying data.

DATE RANGE  
Select a preset date range or enter a custom start date and end date.

Preset  or

Start Date  End Date

ADVANCED FILTERING (Optional)  
Define your data set with accuracy using these filters.

Filters  HOUR  DAY OF THE WEEK  DAY OF THE MONTH  MONTH

GRAPHING OPTION  
Select an option to represent your data set on your graph's x-axis scale.

X-axis

< Back Cancel View Report Next >

**System Resource, Server Availability and Capacity Analysis Reports.**  
Reports can be e-mailed using PDF or exported to Excel spreadsheet

# Performance



# Performance Reports – ITCAM f WS/J2EE Web UI

**Tivoli Composite Application Manager for WebSphere and J2EE**

HOME ADMINISTRATION AVAILABILITY PROBLEM DETERMINATION **PERFORMANCE ANALYSIS** LOGOUT HELP

ENTERPRISE OVERVIEW  
The Enterprise Overview displays the availability for all the applications... or exceeds the first alert level and red indicates the threshold meets...

Enterprise Group Server Alerts and Events Problem Center

- Create Application Reports
  - Request/Transaction
  - Method/Program
  - SQL
  - MQI
  - Lock Analysis
  - Portal
  - Top Reports
- Create Server Reports
- View Saved Reports
- Method Profiling
- Daily Statistics

**Number of Performance reports available - Request/Transaction, Method/Program, SQL Queries, MQI, Lock Analysis, Portal, Top Reports**

# TOP Reports Reveals Bottleneck in Application Code

Rich Transaction monitoring and views

Isolate slow transaction for further diagnosis

Transaction snapshots to compare performance at different times

HOME ADMINISTRATION AVAILABILITY PROBLEM DETERMINATION PERFORMANCE ANALYSIS LOGOUT HELP

**Tivoli Composite Application Manager for WebSphere**

Problem Memory **Transactions** Resources Traps Log Configuration

**EVENT**

Name	Slow Response Time	Description	Response time is above acceptable level.
Status	Open	Timestamp	Jan 24, 2006 6:46:18 PM

**SERVER IDENTITY**

Server Name	dev-Inx-w15.DC.16534 (L2)
IP Address	9.32.118.67

**FILTER**

Display previous 12 hours

**USAGE SNAPSHOT**

Platform CPU %	27	JVM CPU %	12
# Requests	5879	Avg. Response Time (ms)	48,932
# Sessions	34	Heap Size (KB)	354,675

**SLOWEST TRANSACTIONS**

Rank	Transaction	Average Response Time (ms)	
1	/payr/web/servlet/login	68,546	<a href="#">Create Resident Time Trap...</a>
2	/payr/web/servlet/lookup	64,433	<a href="#">Create Resident Time Trap...</a>
3	/payr/web/address.jsp	56,207	<a href="#">Create Resident Time Trap...</a>
4	/payr/web/servlet/auth	51,409	<a href="#">Create Resident Time Trap...</a>
5	/payr/web/redirect.jsp	45,240	<a href="#">Create Resident Time Trap...</a>

**TRANSACTION SNAPSHOT (+/- 10 Minutes from Event)** 5 per Page

1 - 5 of 11 Transactions < Previous 1 2 3 Next >

Client Requests	Client Requests Start	Response Time (ms)	Accumulated CPU (ms)	Idle Time (ms)	Thread Type	User ID
/payr/web/servlet/login	Jan 24, 2006 6:46:18 PM	84,684	125.616	0	Servlet	N/A
/payr/web/servlet/login	Jan 24, 2006 6:46:26 PM	81,682	122.482	0	Servlet	N/A

**TRENDS (Previous 12 Hours)**

**Response Time (ms)**

**CPU Usage (%)**

**# of Sessions**

**# of Requests**

**Heap Usage (%)**

## Example Reports - SQL - (ITCAM f WS/J2EE Web UI)

- Check the response time for various queries.
- Use the data in conjunction with Top used queries report. Tune queries.

SQL REPORT DETAIL  
The SQL Report Detail displays a breakdown of the data for the portion of the pie chart selected on the Decomposition Report.

Detail Summary Worst Performers Locks

REPORT PROPERTIES

DETAIL REPORTS DATA TABLE 20 per Page

1 - 20 of 20 Results

SQL CALL	TABLE/CUSSOR NAME	SQL	RESPONSE TIME(ms)	SERVER NAME	TIMESTAMP	REQUEST/TRANSACTION NAME	...
SELECT	(SIEBELS_PARTY	SELECT T1.LAST_NAME C0, T1.JOB_TITLE C1, T1.FST_NAME C2, T1.WORK_PH_NUM C3, T1.EMAIL_ADDR C4, T1.CELL_PH_NUM C5, T0.ROW_ID C6, T0.MODIFICATION_NUM C7, T1.PR_DEPT_OU_ID C8, T1.PR_OU_ADDR_ID C9, T3.NAME C10, T2.ROW_ID C11, T2.MODIFICATION_NUM C12, T4.ROW_ID	32	AL9Node01.server1 (default)	Mar 4, 2005 2:59:26 PM	inexus/BusObjService	C
SELECT	(SIEBELS_PARTY	SELECT T1.LAST_NAME C0, T1.JOB_TITLE C1, T1.FST_NAME C2, T1.WORK_PH_NUM C3, T1.EMAIL_ADDR C4, T1.CELL_PH_NUM C5, T0.ROW_ID C6, T0.MODIFICATION_NUM C7, T1.PR_DEPT_OU_ID C8, T1.PR_OU_ADDR_ID C9, T3.NAME C10, T2.ROW_ID C11, T2.MODIFICATION_NUM C12, T4.ROW_ID	31	AL9Node01.server1 (default)	Mar 4, 2005 2:59:31 PM	inexus/BusObjService	C
SELECT	(SIEBELS_PARTY	SELECT T1.LAST_NAME C0, T1.JOB_TITLE C1, T1.FST_NAME C2, T1.WORK_PH_NUM C3, T1.EMAIL_ADDR C4, T1.CELL_PH_NUM C5, T0.ROW_ID C6, T0.MODIFICATION_NUM C7, T1.PR_DEPT_OU_ID C8, T1.PR_OU_ADDR_ID C9, T3.NAME C10, T2.ROW_ID C11, T2.MODIFICATION_NUM C12, T4.ROW_ID	31	AL9Node01.server1 (default)	Mar 4, 2005 2:59:28 PM	inexus/BusObjService	C
		SELECT T0.NAME C0, T0.UOM_CD C1, T0.PART_NUM C2, T0.DESC_TEXT C3, T0.PROD_CD C4, T0.ROW_ID C5, T0.MODIFICATION_NUM		AL9Node01.server1	Mar 4, 2005		C





# User Session Viewer - New in 6.1 (ITCAM f WS/J2EE Web UI)

Search session objects based on a certain criteria e.g. size and view detailed session attributes. **A very useful tool for debugging memory and performance problems**

SESSION VIEWER

After selecting the server(s) you wish to search, use the filters provided to narrow down your results so that you

SEARCH

Group:  Server:

RESULTS (Jun 28, 2005 5:25:58 PM)

1 - 4 of 4 Results

Server Name	User Name	Name
tiv0107Node01Cell.tiv0107Node01.server1(default) 3676 (L3)		Category:0
tiv0107Node01Cell.tiv0107Node01.server1(default) 3676 (L3)		Category:1
tiv0107Node01Cell.tiv0107Node01.server1(default) 3676 (L3)		CheckingOuttrue^Category:2^C
tiv0107Node01Cell.tiv0107Node01.server1(default) 3676 (L3)		Category:0

1 - 4 of 4 Results

http://dev-tnx-w01.usca.ibm.com - Session Attributes - Microso...

SESSION ATTRIBUTES

Name	Value
sessionId	56395768-49683750-4732828476543458
fruitType	orange
fruitCount	5087
fruitWeight	68
vendor	Billy's Citrus Ctation
fruitPrice	480
fruitType	orange
fruitCount	5087
fruitWeight	68
vendor	Billy's Citrus Ctation
fruitPrice	480
fruitType	orange
fruitCount	5087
fruitWeight	68
vendor	Billy's Citrus Ctation
fruitPrice	480
fruitType	orange
fruitCount	5087
fruitWeight	68
vendor	Billy's Citrus Ctation
fruitPrice	480

Show Advanced Filters

20 per Page

< Previous 1 Next >

Created	Last Accessed	Attributes
2:18:37 PM	Jun 27, 2006 2:36:05 PM	<a href="#">View</a>
2:51:41 PM	Jun 27, 2006 2:51:44 PM	<a href="#">View</a>
2:09:24 PM	Jun 27, 2006 3:00:17 PM	<a href="#">View</a>
2:09:47 PM	Jun 27, 2006 2:38:37 PM	<a href="#">View</a>

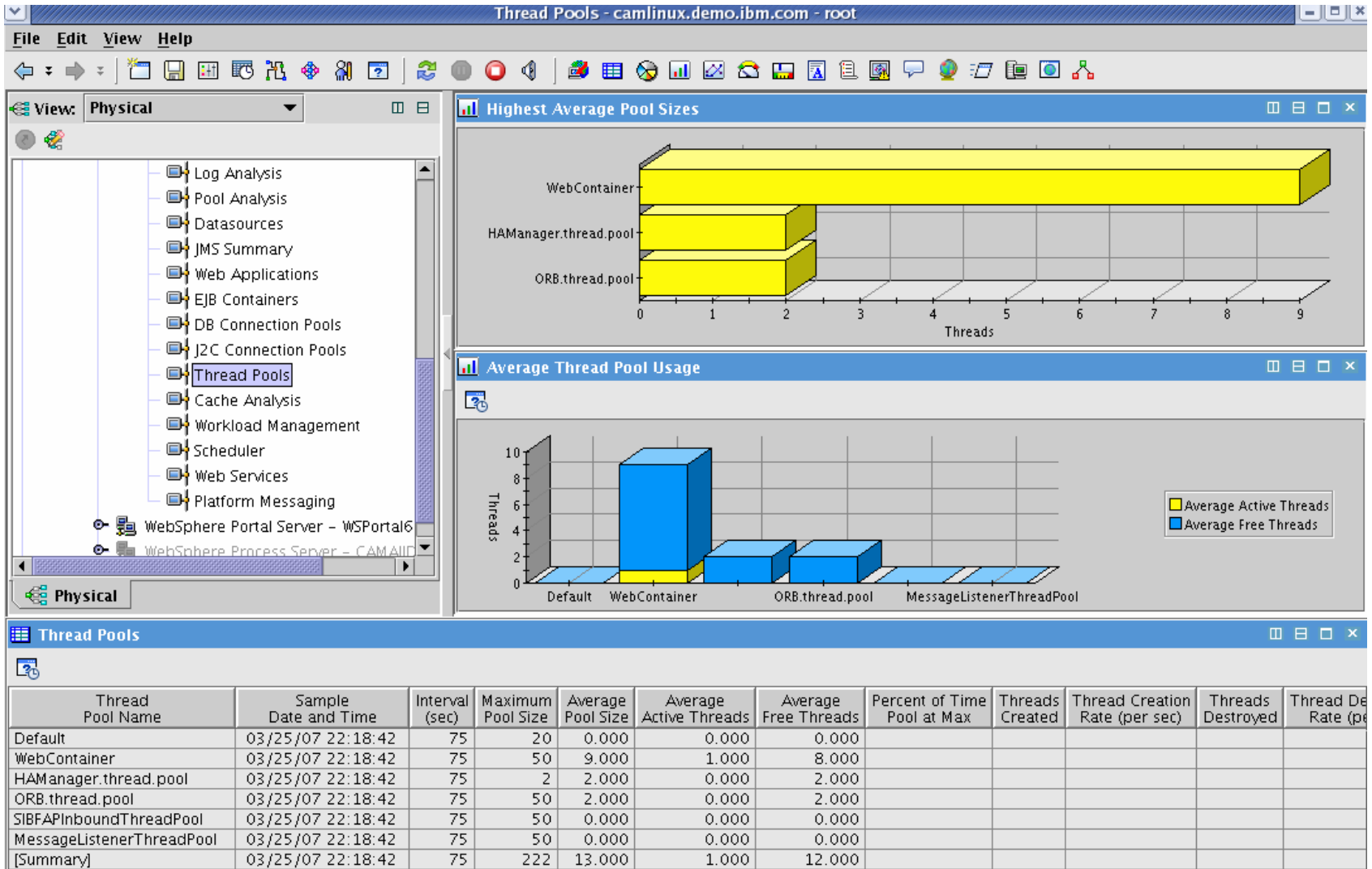
< Previous 1 Next >



# Capacity and Resource Usage



# Sample Screen Shot – Thread Pools



# New Workspaces – JMS Summary, Platform Messaging - New in 6.1 (WS Only)

The screenshot displays the Tivoli Enterprise Portal interface. On the left, a tree view shows the system hierarchy under 'Physical' view, with 'JMS Summary' highlighted and circled in red. A blue arrow points from a yellow text box to this item. The main area contains four 'History' graphs for various metrics: Average Local Wait Time (ms), Expired Messages, Incomplete Topic Publications, and Total Published. The 'Average Local Wait Time' graph shows a spike to 16 milliseconds. Below the graphs is a table with monitoring data.

Sample Date and Time	Interval (sec)	Messaging Engine Name	Status	Average Local Wait Time (ms)	Expired Messages	Incomplete Topic Publications	Total Published
07/11/06 01:18:42	219	IBM-IfarmerNode01.server1-IBM-IfarmerNode01.SamplesBus		16	0	0	0

New workspace Platform Messaging provides Destination – Queues/Topics, Messaging Engine, WMQ Client Link metrics

# Sample Screen Shot – WPS / WESB Service Components (WS only)

The screenshot displays the 'Service Component Elements - BASIN - SYSADMIN' interface. On the left is a tree view of components, with 'Service Components' selected. The main area contains three charts and a table.

**Worst Service Times Chart:** A horizontal bar chart showing service times in milliseconds for rows 1, 2, 3, and 6. Row 6 has the highest service time, exceeding 4000 milliseconds.

**Most Invocations Chart:** A horizontal bar chart showing the number of invocations per second for rows 1, 2, 3, and 6. Row 6 has the highest number of invocations, around 100.

**Most Failures Chart:** A horizontal bar chart showing the number of failures for rows 1, 2, 3, and 6. Row 6 has the highest number of failures, around 28.

**Service Component Elements Table:**

Row Number	Component	Component Name	Element	Element Name	Sample Date and Time	Interval (sec)	Failed Count	Success Count	Avg Response
1	SCA	com.ibm.xmlns.prod.websphere.scdl_6_0_0.DelayedService	MethodInvocati...	DelayedServicePortType_getQuote	07/12/06 20:50:45	95	7	0	1,136.0C
3	SCA	com.ibm.xmlns.prod.websphere.scdl_6_0_0.RealtimeServi...	MethodInvocati...	_RealtimeServicePortType_getQuote	07/12/06 20:50:45	95	7	0	1,069.0C
2	SCA	com.ibm.xmlns.prod.websphere.scdl_6_0_0.StockQuote_...	MethodInvocati...	StockQuoteService_getQuote	07/12/06 20:50:45	95	14	0	1,608.0C
6	N/A	N/A	N/A	N/A		95	28	0	3,813.0C

At the bottom of the interface, the status bar shows: Hub Time: Wed, 07/12/2006 08:56 PM, Server Available, and Service Component Elements - BASIN - SYSADMIN.

# Hung Application



# In Flight Request Search – Real Time Diagnosis

“In-flight Request Search” reveals the transactions that are still “hanging” and have not finished execution)

**Tivoli Composite Application Manager Basic for WebSphere**

HOME ADMINISTRATION AVAILABILITY **PROBLEM DETERMINATION** PERFORMANCE ANALYSIS LOGOUT HELP

- In-Flight Request Search
- Server Activity Display
- Memory Diagnosis
- JVM Thread Display
- Trap & Alert Management
- Software Consistency Check

IN-FLIGHT REQUEST SEARCH  
In the Search Request box, type the request ID or transaction ID you are searching. If you leave this box empty, all active requests will display.

SEARCH CRITERIA

Group: WMN  
Server: DEVAPP-WMN-S02.server1.1052 (L2)  
Search Request/Transaction:  OK

SEARCH RESULTS

Timestamp: Jan 22, 2006 2:19:53 PM

Server Name	Request/Transaction	Start Date/Time	Thread/Task ID	Total Resident Time (ms)	User ID
DEVAPP-WMN-S02.server1.1052 (L2)	/cyanea_one/testware/method?ttl=60&depth=1&repeat=1&reqname=M	Jan 22, 2006 2:19:47 PM	620525680	6704	N/A

Click on the transaction link to view the details

This transaction shows an abnormally long resident time

# Automation - Application Traps

Create an application trap based on occurrence, cpu time, wait time, uncaught exceptions etc. and get notified or monitor trap history.

STEP 1 - TRAP TYPE SELECTION  
On this page, select your trap type, and the target type. Click Next to define the target type.

**TRAP TYPE**

Trap Type  Server Resource Trap  Application Trap

Target Type

- Occurrence
- CPU Time
- Resident Time -- Completed
- Wait Time
- Resident Time -- In-Flight
- Uncaught Exceptions**
- Lock Acquisition Time -- In-Flight
- Lock Acquisition Time -- Completed



# Trap Actions

TRAP ALERT SETTINGS

Condition Number of time(s) the Trap Definition occurs 1

Severity High

Alert Action(s)

Send Email (comma separated)

Send SNMP Message

Data Action(s)

Collect Component/Method Trace

Add

- Send an SNMP Message or e-mail alert
- Collect Component / Method trace
- If the trap is in-flight you can also take a stack trace



# Java Memory Problems



# Memory Analysis – Fix Memory leaks

Limit classes to your application using exclude filter

Compare JVM heap data for finding objects instances that has grown over a time period

**MENU**

- [Management Overview](#)
- [Comparison Data](#)
- [Heap 1 Data](#)
- [Heap 2 Data](#)

**HEAP PROPERTIES**

App Server	tiv0107Node02Cell.tiv0107Node02 server1(ITCAM) (L3)	Time of Snapshot	Jul 3, 2006 10:47:15 AM
Size of Live Objects on Heap(MB)	38 (39981548 bytes)	# of Objects in Heap	844156
GC	Yes		

**CLASSNAME FILTER OPTION**

Exclude

- com.cyanea.\*, javax.\*,
- oracle.\*, sun.\*, java.\*,
- com.sun.\*, com.ibm.\*,
- weblogic.\*, COM.rsa.\*,
- org.w3c.\*, org.omg.\*, o
- rg.xml.\*, com.beasys.\*
- ,utils.version.\*, org.
- apache.\*, flexlm.\*, ant
- lr.\*, com.tivoli.\*, \$P\*
- .\*, COM.ibm.\*, com.ipla

Exclude Override

- com.ibm.\_jsp.\*, org.ap
- ache.jsp.\*, com.ibm.\*

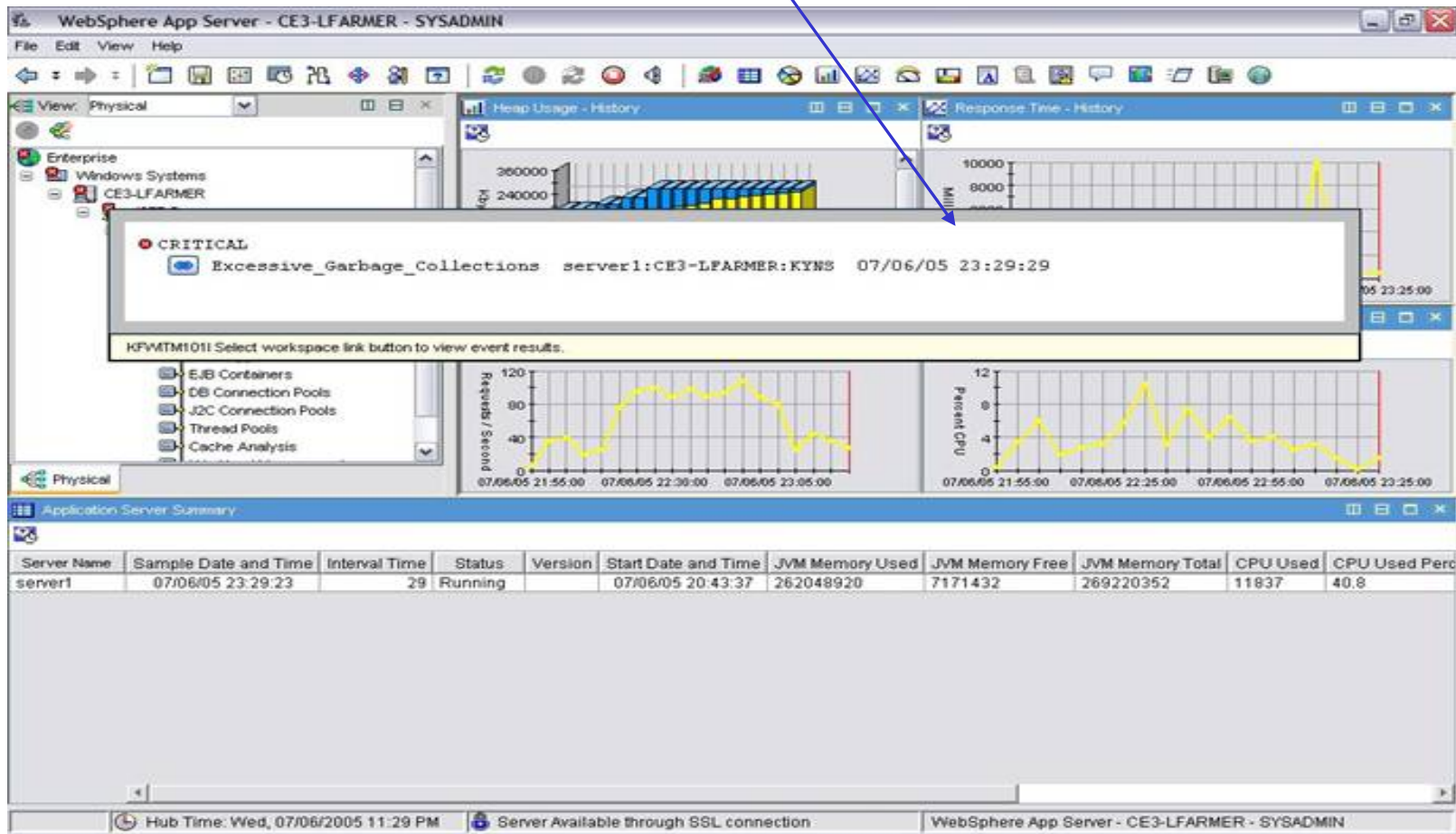
**HEAP ANALYSIS RESULTS TABLE**

1 - 20 of 3730 Results

Class name	Total size (kb)	Percent of total size	# of instances	Percent of total #
primitive[]	14948	38%	162866	19%
object[]	6710	17%	109474	12%
org/eclipse/emf/core/impl/EAttributeImpl	237	0%	2098	0%
com/ibm/ejs/util/Bucket	225	0%	19230	2%
org/eclipse/emf/core/impl/BasicEObjectImpl\$EPropertiesHolder	157	0%	5744	0%
org/eclipse/emf/core/impl/EReferenceImpl	139	0%	1234	0%
org/aspectj/apache/bcel/classfile/ConstantUtf8	136	0%	11637	1%
com/ibm/tivoli/itcam/toolkit/ai/bcm/LoadedClassMap\$LoadedCla	119	0%	4368	0%

# TEP Situations – Excessive\_Garbage\_Collection

Use predefined ITCAM for WS/J2EE TEP **situations** or create **custom situation** using predefined attributes e.g. a custom situation to indicate excessive garbage collection can trigger a visual indication and automated actions can be taken as a result.



**It works in Test/Staging!**  
**Why does it fail in Production?**



# Software Consistency Check (WS/J2EE)

- Find all the binaries (EARs) deployed to a specified server
- Compare** the binaries with an authoritative server
- You can also **compare various runtime environment** settings for two servers

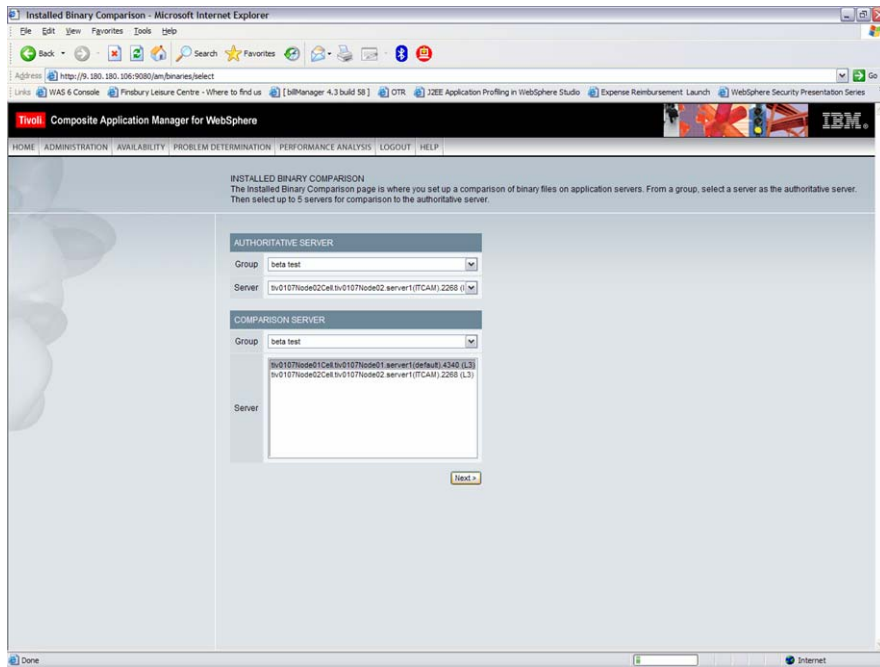
SERVER SELECTION

Group:  Server:

CURRENT PATH: Installed Applications

At Top Level

Name	Type	Path	Last Modified	Size (bytes)
trade.ear	EAR	C:\IBM\WebSphere\AppServer\profiles\ITCAM\installedApps\tiv0107Node02Cell\trade.ear	Jun 29, 2006 12:16:35 PM	N/A
DefaultApplication.ear	EAR	C:\IBM\WebSphere\AppServer\profiles\ITCAM\installedApps\tiv0107Node02Cell\DefaultApplication.ear	May 5, 2006 12:03:21 PM	N/A
lVApp.ear	EAR	C:\IBM\WebSphere\AppServer\profiles\ITCAM\installedApps\tiv0107Node02Cell\lVApp.ear	May 5, 2006 12:03:55 PM	N/A
query.ear	EAR	C:\IBM\WebSphere\AppServer\profiles\ITCAM\installedApps\tiv0107Node02Cell\query.ear	May 5, 2006 12:04:25 PM	N/A
properties	DIR	C:\IBM\WebSphere\AppServer\profiles\ITCAM\properties	May 5, 2006 12:16:26 PM	N/A
properties	DIR	C:\IBM\WebSphere\AppServer\properties	Jun 29, 2006 2:01:02 PM	N/A
bootstrap.jar	JAR	C:\IBM\WebSphere\AppServer\lib\bootstrap.jar	Jun 29, 2006 10:01:02 AM	48957
j2ee.jar	JAR	C:\IBM\WebSphere\AppServer\lib\j2ee.jar	May 10, 2006 4:02:41 PM	547139
lmprox.jar	JAR	C:\IBM\WebSphere\AppServer\lib\lmprox.jar	Jun 29, 2006 10:03:05 AM	3699
urlprotocols.jar	JAR	C:\IBM\WebSphere\AppServer\lib\urlprotocols.jar	Jun 29, 2006 10:03:32 AM	3648



RUNTIME ENVIRONMENTS

- System Runtime Environment
- Environment Data
- Java Runtime Environment
- App Server Runtime Environment

SYSTEM RUNTIME ENVIRONMENT

Change Comparison

Server	CPU Speed	# Online/Total	Memory	Operating System Info
tiv0107Node02Cell.tiv0107Node02.server1(ITCAM).2268 (L3)	3192 MHz	1/1	1027 MB	Windows 2000 5.0
tiv0107Node01Cell.tiv0107Node01.server1(default).4340 (L3)	✓	✓	✓	✓

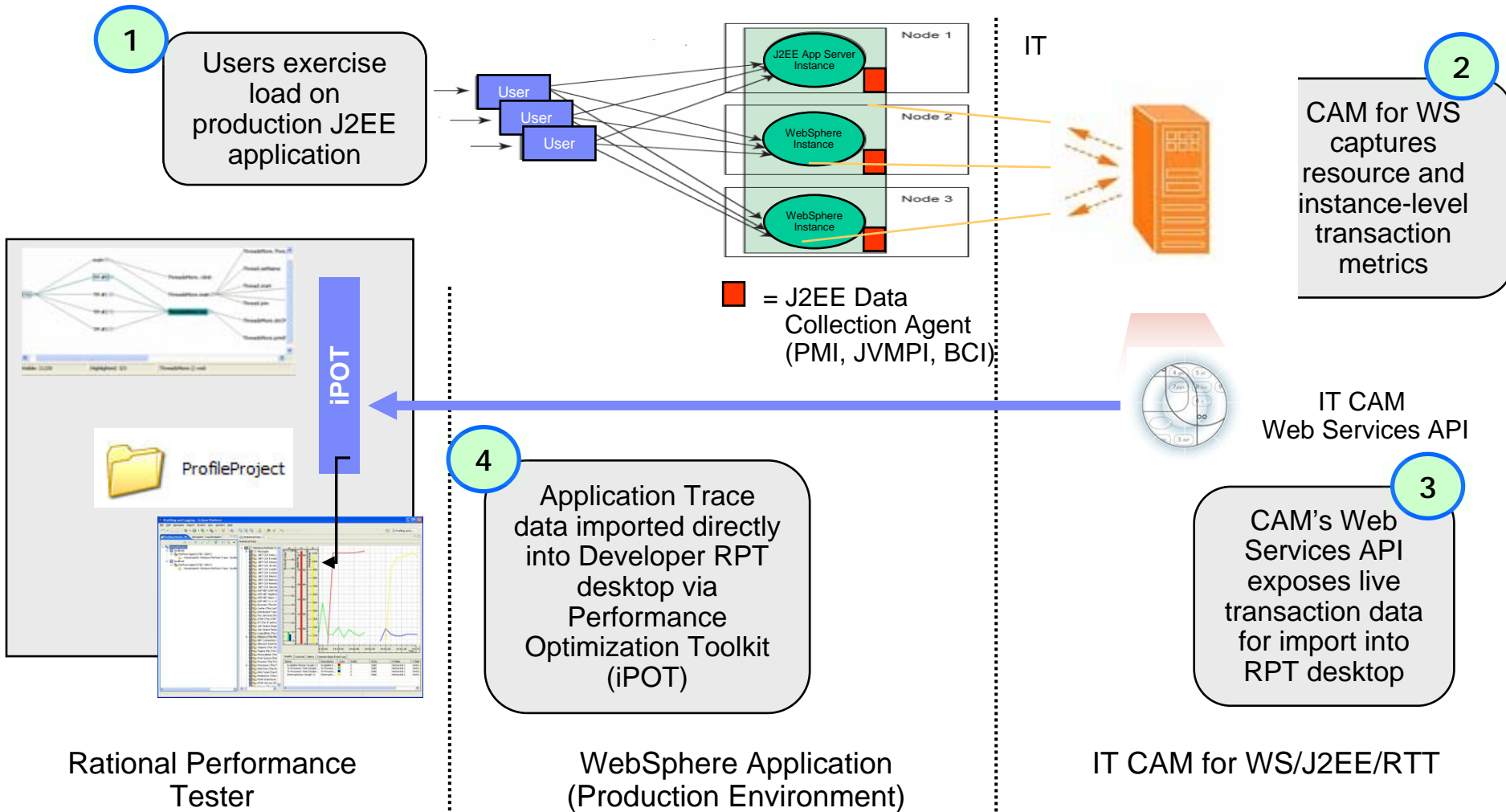
Authoritative Server: Discrepant Data

# Bridging IT Operations and Development



# Use production data to debug hard to recreate problems using IPOT

*Bridging IT operations and development.*





# Automation – Collect problem context with application Trans

Setup up software trap when certain condition is satisfied e.g. **when JVM heap size grows beyond a certain size** send an event notification via e-mail/SNMP and/or get diagnostic data such as thread dump or stack trace or heap dump (new).

Receive **TEP events** and Escalate the alert and events to Problem center complete with full problem context for further diagnosis

Enterprise Group Server **Alerts and Events** Problem Center  Set as My Default Page

Show Advanced Filters

Group: Select a Group Server: Select a Server Status: All

OK

ALERTS AND EVENTS Refresh 5 per Page

1 - 1 of 1 Results 1

Date/Time	Group	Server	Name	Origin	Escalate
Jun 23, 2006 8:51:57 PM	was602	tivn13Node02Cell.tivn13Node05.server1(AppSrv02).17123 (L2)	HeapSize	TRAP	Escalate

# Receive ITM/TEP events in ITCAM f WS Problem Center

The screenshot shows the Tivoli Composite Application Manager for WebSphere and J2EE interface. The top navigation bar includes links for HOME, ADMINISTRATION, AVAILABILITY, PROBLEM DETERMINATION, PERFORMANCE ANALYSIS, LOGOUT, and HELP. The main content area is titled 'ALERTS AND EVENTS' and provides instructions on how to view alerts and events reported by Trap and Alert Management and Tivoli Enterprise Portal (TEP). Below this, there are tabs for Enterprise, Group, Server, Alerts and Events, and Problem Center. A search filter section allows users to select a Group (MyDemoGroup), a Server (camlinuxNode07Cell.camlinuxNode01.server1(DemoServer).14187 (L3)), and a Status (All). A table of alerts and events is displayed, with the first row highlighted in red. The table has columns for Date/Time, Group, Server, Name, Origin, and Escalate. The first row shows an event on Jan 30, 2007 at 10:58:57 PM, with the name 'MyLowMemorySituation' and origin 'TEP'. A red dashed arrow points from a callout box to the 'Escalate' button in this row.

Date/Time	Group	Server	Name	Origin	Escalate
Jan 30, 2007 10:58:57 PM	MyDemoGroup	camlinuxNode07Cell.camlinuxNode01.server1 (DemoServer).14187 (L3)	MyLowMemorySituation	TEP	Escalate
Jan 30, 2007 9:18:22 PM	MyDemoGroup	camlinuxNode07Cell.camlinuxNode01.server1 (DemoServer).14187 (L3)	MyFirstWebServiceSituation	TEP	Escalate
Jan 30, 2007 9:15:37 PM	MyDemoGroup	camlinuxNode07Cell.camlinuxNode01.server1 (DemoServer).14187 (L3)	LowMemorySituation	TEP	Escalate
Jan 30, 2007	MyDemoGroup	camlinuxNode07Cell.camlinuxNode01.server1	LowMemorySituation	TEP	Escalate

Receive situation events from TEP or ITCAM f WS/J2EE Trap

Escalate to Problem Center for SME Evaluation

# Problem Center – Problem Context captured from Traps and TEP Events

The screenshot displays the IBM Problem Center interface. At the top, a navigation bar includes tabs for Problem, Memory, Transactions, Resources, Traps, Log, and Configuration. A red box highlights these tabs, with a callout bubble stating: "Problem Context Information Very useful to find root cause of the problem".

The main content area is divided into several sections:

- EVENT**: A table showing event details.
 

Name	MyApplicationTrapScenario	Timestamp	Mar 23, 2007 9:12:18 AM
Status	Open	Category	Application Performance
Description		Closing Comment	
- SERVER IDENTITY**:
 

Server Name	camlinuxNode07Cell.camlinuxNode01.server1(DemoServer).8469 (L3)
IP Address	192.168.253.64
- SERVER STATUS**:
 

Availability	Available	Server Uptime	
Total # of request(s) processed	7		
- CONTRIBUTING FACTORS**:
  - Application Performance - **2 Problem(s) Detected**
    - Slow JDBC Call
    - Slow Completed Transaction** (highlighted with a red box)
 

**Why:** Transaction Response Time: 101662 ms. **What to Do Next:** Go to the [Request/Transaction Report](#) to view detail information.
    - Hanging or waiting incomplete Transactions
    - Slow JMS Call
    - Slow Method Call
 

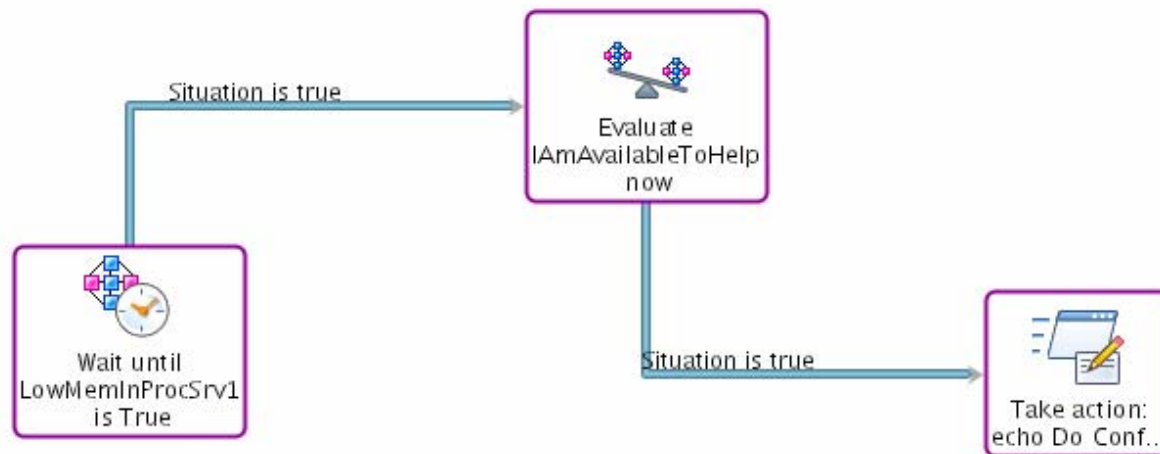
**Why:** Method Response Time: 101658 ms. **What to Do Next:** Take a [Method/Program Report](#) to identify the slow methods.
    - CPU Hogging
  - Application Outage - **Not Evaluated**

# Automation



# What is Automation?

- Automatic monitoring of a **situation** or **problem condition** (think rules !) using monitored resources or attributes
- When that **situation** or **problem condition** becomes true a **Take an Action** command is executed
  - Pre-defined and Custom Situations
  - Pre-defined and Custom Take Actions
- Custom automation combining existing pre-defined or custom situations and Take Actions



# Automation In ITM / TEP – Access to all managed agents

- **Situation Editor** - You can use the rich easy to use situation editor to create custom or pre-defined situations at various levels – enterprise, system/node, monitored agent node etc.
  - Some Examples of predefined situations
    - ITCAM for WS/J2EE – **WASHighResponseTime** - monitors the average request response time and issues a Critical condition whenever that time exceeds two seconds.
    - ITCAM for SOA – **MaxMessageSize\_610** – Triggered when the max message size exceeds a certain value. Default value 1600 bytes
- When that **situation** or **problem condition** becomes true then execute **Take an Action**
  - Again you can use pre-defined Take Actions or create your custom take action commands
  - Some Examples of pre-defined Take Action
    - ITCAM for WS/J2EE - **Recycle\_WAS\_Server** - recycles a WAS server
    - ITCAM for SOA – **ConfigureMediation\_610** - configures a managed mediation primitive



# Example - Creating Situations on resource data

**Situations for - Thread Pools**

Situation Editor Assistance

**Creating situations on Thread Pool Resource**

**Select condition**

Condition Type

- Attribute Comparison
- Situation Comparison

Attribute Group

- Local Time
- Thread Pools**
- Universal Messages
- Universal Time

Attribute Item

- Instrumentation Level
- Interval (sec)
- Maximum Pool Size
- Node Name
- Origin Node
- Percent of Time Pool at Max**
- Sample Date and Time
- Server Name
- Summary of Thread Pools
- Thread Creation Rate (per sec)
- Thread Destruction Rate (per sec)
- Thread Pool Name

Select All    Deselect All

Description

Percent of Time Pool at Max  
The average percentage of time that all threads were in use during the sampling interval.

OK    Cancel    Help

OK    Cancel    Apply    Help

# Automation in ITCAM for WS/J2EE – More Fine grained

Problem monitoring Automation capability from ITCAM f WS console – Create an application trap based on occurrence, cpu time, wait time, uncaught exceptions etc. and get notified or monitor trap history.

STEP 1 - TRAP TYPE SELECTION  
On this page, select your trap type, and the target type. Click Next to define the tar

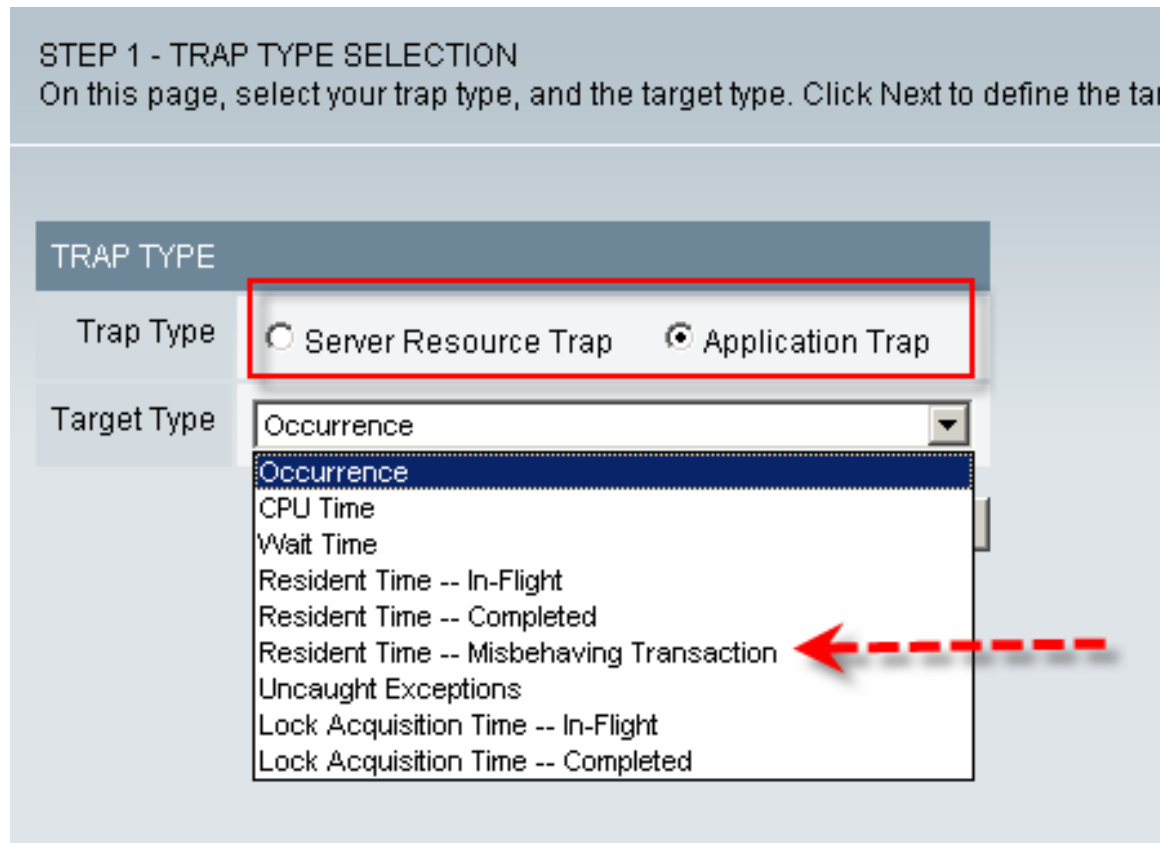
TRAP TYPE

Trap Type  Server Resource Trap  Application Trap

Target Type

Occurrence

- Occurrence
- CPU Time
- Wait Time
- Resident Time -- In-Flight
- Resident Time -- Completed
- Resident Time -- Misbehaving Transaction
- Uncaught Exceptions
- Lock Acquisition Time -- In-Flight
- Lock Acquisition Time -- Completed







# IBM Tivoli Monitoring Overview

**Tivoli.** software

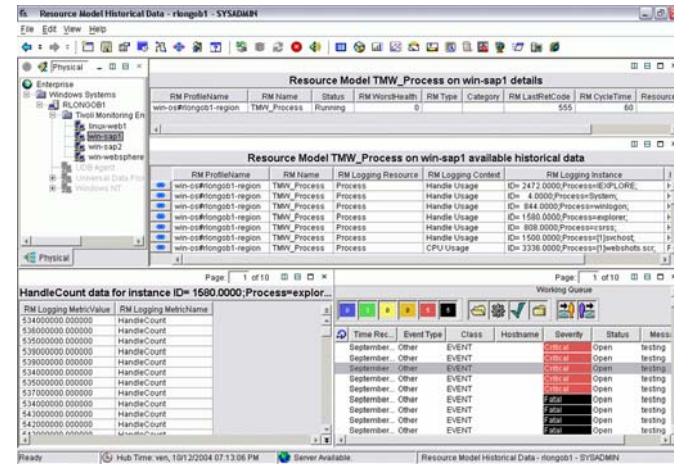
Rick Huang  
Senior I/T Specialist  
IBM Software Group



 e-business software

# Tivoli Monitoring Capabilities with ITM 6.1

- Single portal presenting combined end-to-end resource monitoring DM, ITM5, OMEGAMON (zSeries and Distributed) and ITM 6.
- Significant monitoring enhancements delivered throughout 2005
- Delivered through the Tivoli Enterprise Portal
- A mix of ITM 5 and ITM 6 interoperating monitors



Platforms	Databases	Web Infrastructure	Business Integration	Applications	Messaging & Collaboration	Virtual Servers & Clustering
UNIX	DB2	WebSphere Application Server	IMS	SAP	Exchange	Citrix
Windows						VMware
Linux	Oracle	WebLogic	CICS	.NET	Lotus Domino	MS Virtual Servers
z/OS	MS SQL	Tomcat	WebSphere MQ	Siebel		MS Clustering
OS/400					Sybase	JBoss
Netware	Informix	Oracle AP Server				
Active Directory						



# IBM Tivoli Monitoring 基本概念

**Tivoli.** software

Rick Huang  
Advisory I/T Specialist  
IBM Software Group

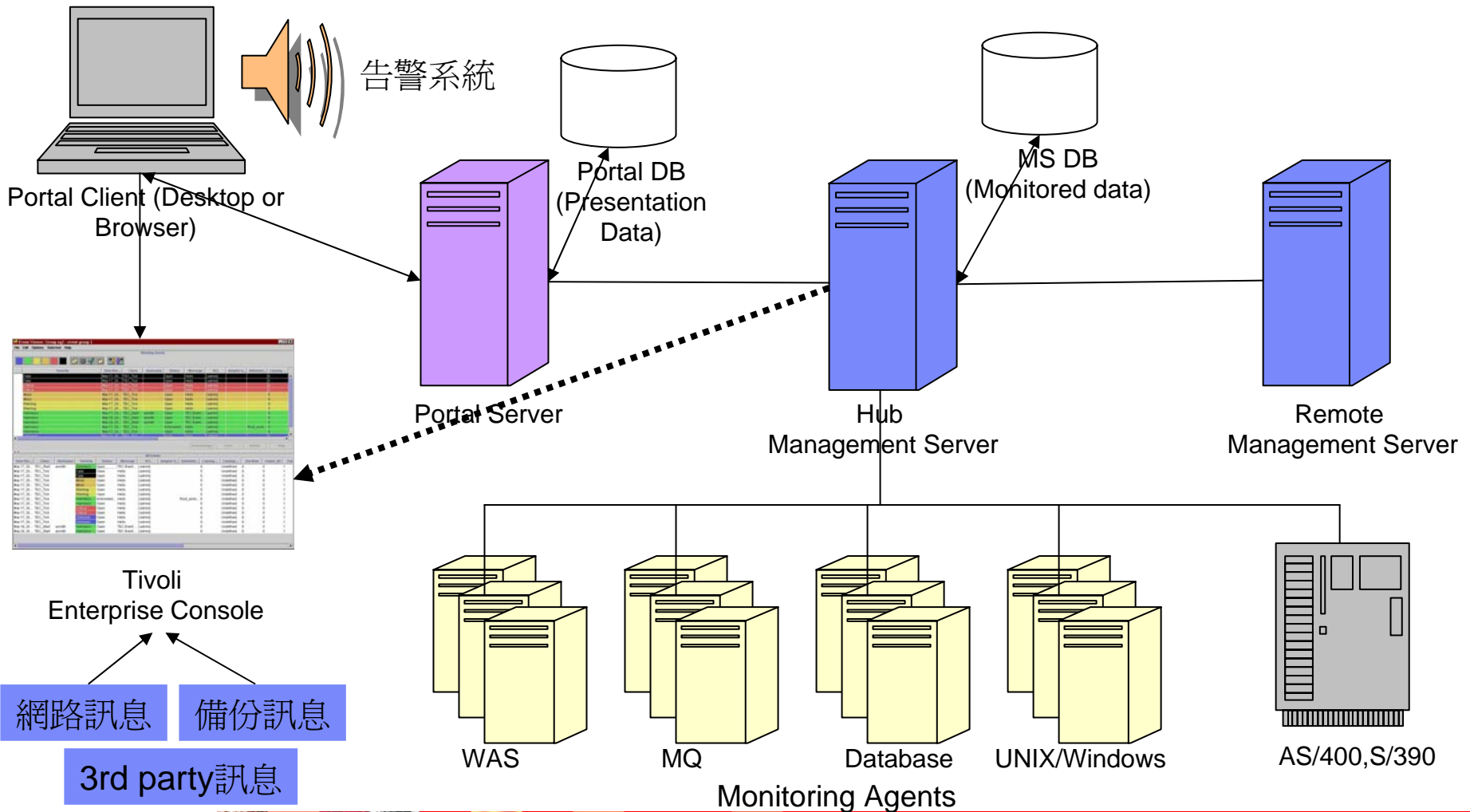


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V1.0  
2/25/2005

© 2003 IBM Corporation

# IBM Tivoli Monitoring architecture





# IBM Tivoli Monitoring 產品簡介

**Tivoli.** software



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# 功能特性

## ■ 資料收集來源

- Monitoring Agents
- Universal Agents
  - ◆ ODBC
  - ◆ Log files
  - ◆ API
  - ◆ Socket
  - ◆ Script
  - ◆ SNMP

■ 透過臨界值(**threshold**)的判斷來產生事件

■ 依據事件的產生來執行自動回應工作

■ 即時效能資料的展現

■ 操作介面：**browser or desktop application**

■ 完整的歷史資料收集與詳盡的各式報表





# 管理特色

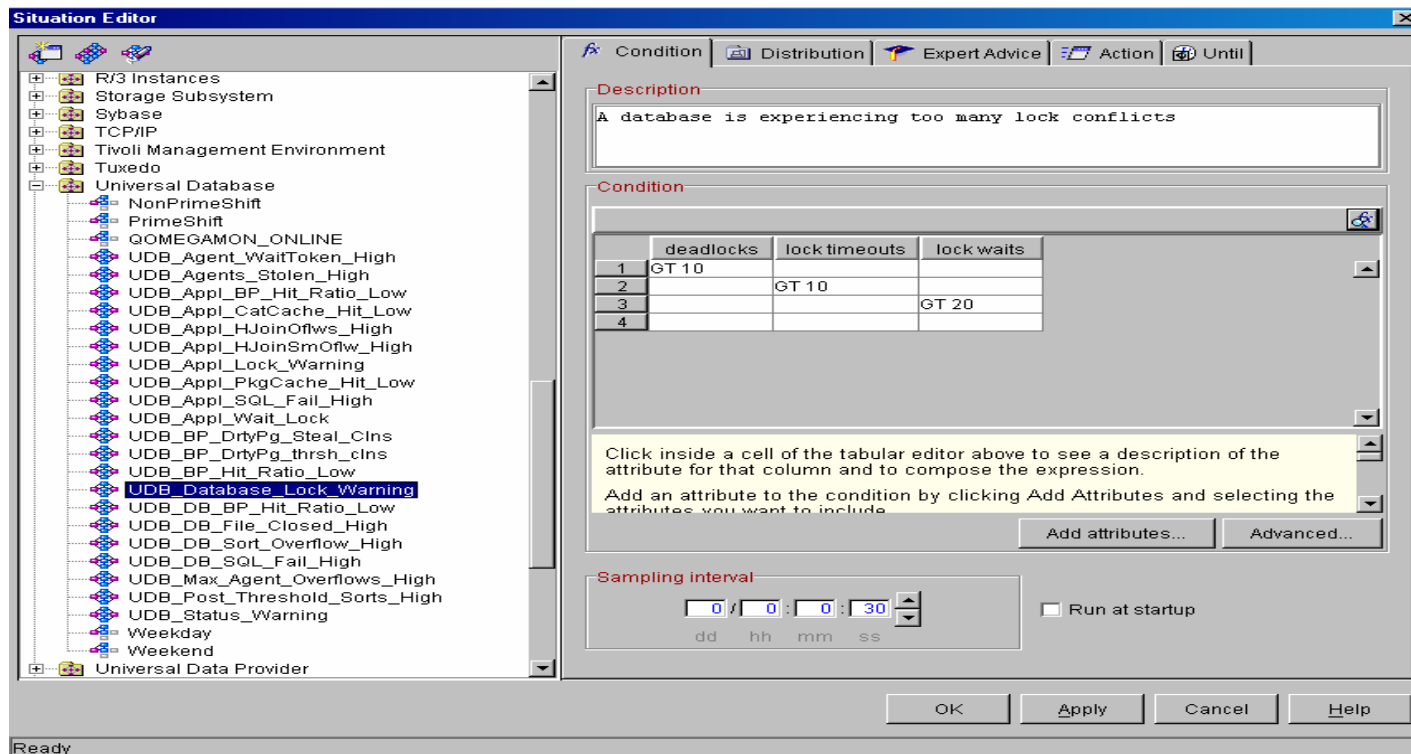
**Tivoli.** software



 e-business software

# 透過臨界值(threshold)的判斷來產生事件

- Multiple thresholds linked by Boolean logic for determining complex problems
- Allows for an automated/reflex action in response to violation





# 發現問題時提出警告訊息

Enterprise Monitoring Status - padlz8fyt:14000 - PTHOM

File Edit View Help

Enterprise Event Console

Status	Situation Name	Display Item	Origin Node	Global Timestamp
<b>Raised</b>	CPU_High		Primary:PADLZ8FYT:NT	09/10/01 22:26:00
<b>Raised</b>	MQSeries_Queue_Manager_Problem		QM1::MQ	09/10/01 22:25:31

CRITICAL  
 MQSeries\_Queue\_Manager\_Problem QM1::MQ 10/09/01 22:25:31

Select workspace link button to view event results.

Status	Name	Product	Ver
ONLINE	HUB_PADLZ8FYT	EM	03.
ONLINE	PADLZ8FYT::CONFIG	CF	03.
ONLINE	padlz8fyt::RCACFG	MQ	03.
ONLINE	QM1::MQ	MQ	03.
ONLINE	padlz8fyt:UA	UM	03.
ONLINE	padlz8fyt:ASFSdp:UAGENT00	UA	03.
ONLINE	Primary:PADLZ8FYT:NT	NT	03.

Last 24 hours  Count

NT\_Process\_CPU\_Critical

MQSeries\_Queue\_Manager\_Problem

CPU\_High

0.0 1.0 2.0

Ready Server connected. Enterprise Monitoring Status - padlz8fyt:14000 - PTHOM

# 有事件產生, 執行自動回應工作

The screenshot displays the IBM Tivoli Event Results interface for a host named 'padlz8fyt:14000 - PTHOM'. The interface is divided into several sections:

- Initial Situation Values:** A table showing the state of the Queue Manager before the event.
 

QMgr Status	Origin Node	QMgr Name	Host Name	Host Jobname	Start Date & Time	QMgr Type	DLQ Depth
QueueManager_Not_Available	QM1::MQ	QM1	PADLZ8FYT		Not Available	NT	0
- Current Situation Values:** A table showing the state of the Queue Manager after the event.
 

QMgr Status	Origin Node	QMgr Name	Host Name	Host Jobname	Start Date & Time	QMgr Type	DLQ Depth
QueueManager_Not_Available	QM1::MQ	QM1	PADLZ8FYT		Not Available	NT	0
- Take Action:** A dialog box for executing a command to resolve the issue.
 

**Action:** Name: Start Queue MGR  
 Command: STRMQM QM1

**Destination System(s):** QM1::MQ

Buttons: Arguments..., Run
- Expert Advice:** A text box providing instructions on how to handle the event.
 

Queue Manager 的狀態為停止, 如果這是不正常狀態, 您可以執行啟動工作將 Queue Manager 重新啟動 或是連絡管理人員 Rick Huang 8723-9322 行動電話 0936-945508

The status bar at the bottom indicates 'Ready', 'Server connected.', and 'Event Results - padlz8fyt:14000 - PTHOM'.

# 即時效能資料的展現

Servlets/JSPs - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address 1021A=REPORT&-1020=c0ce5c47@0080kwe.Servlets/JSPs.1&-2400=683987e6@Trade\_2\_Server:wasdemo:KWEB&-10105=0080kwe.Servlets/JSPs&-1022=Servlets/JSPs

CandleNet Portal™/SME !Candle eBusiness at the speed of light

File Edit View Help

ENTERPRISE

- Windows Systems
  - wasdemo
    - Universal Data Provider
    - WebSphere Application Server Agent
      - Product Events
      - WebSphere Application Server
        - Default\_Server
        - Trade\_2\_Server
          - Application Server
          - DB Connection Pools
          - Web Applications
          - Servlets/JSPs**
          - Bad\_Servlet\_Res
          - EJB Containers
          - Container Transactions
          - Container Object Pools
          - Enterprise Java Beans
          - Enterprise Java Bean Method
          - JVM Threads

### Ten Worst Average Response Times

Milliseconds

- /PingServlet2.jsp
- PingJDBCReadPrepStmnt
- PingJDBCWritePrepStmnt
- TradeScenarioServlet

### Ten Highest Request Rates

Events per Second

- PingServlet2ServletRcv (1.491)
- PingServlet2.jsp
- PingJDBCReadPrepStmnt
- PingJDBCWrite
- jsp11

Legend: ■ Servlet exception rate, ■ Servlet request rate

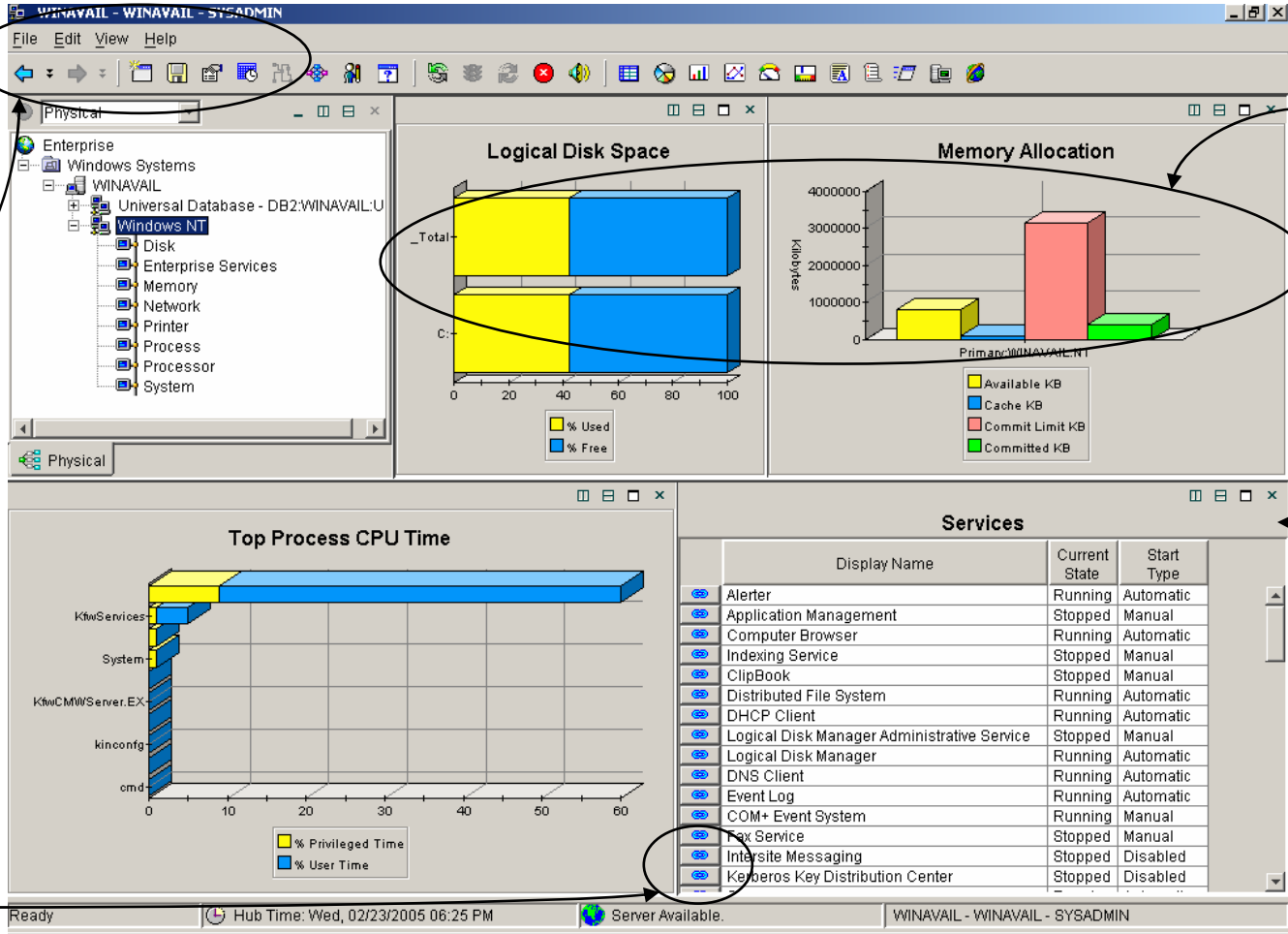
### Servlets/JSPs

Application name	Servlet/JSP name	Servlet engine instrumentation level	Type	Total requests	Errors	JSP path name	Average number of concurrent requests	Average servlet response time	Date an the servlet w
trade2_app	TradeScenarioServlet	High	Servlet	90	0		0.119	79.833	10/15/01 14:...
trade2_app	PingServlet2EntityEnum	High	Servlet	91	0		0.085	56.604	10/15/01 14:...
trade2_app	PingJDBCWrite	High	Servlet	93	0		0.019	12.430	10/15/01 14:...
trade2_app	PingJDBCWritePrepStmnt	High	Servlet	93	0		0.016	10.698	10/15/01 14:...

Ready Server connected. Servlets/JSPs - wasdemo:14000 - SYSADMIN

Local intranet

# 操作介面介紹



Easy to use Browser controls

Personalized Views

Persistent customized workspaces for future use

Intelligent Linking

# Resource View

Thread Activity - Microsoft Internet Explorer

Address: http://hgnd12:1920///crp/tdh/ty/crp.html?\_12000=CDMA38-500 L=MOPHYSICAL

CandleNet Portal

Physical

- DB2PLEX
  - MVS DB2
    - D71 GRP.DB2plexDS6GROUP
      - Monitored Systems Summary
      - Thread Activity
      - DB2\_Thread\_Waiting\_Cnt
      - Global Lock Conflicts
      - Coupling Facility Structures
      - Group Buffer Pool Structures
      - Group Buffer Pool Statistics
      - Object Analysis Database
      - QCA Thread Database
      - Group Object Activity Database
      - QCA Volume Thread

Physical

**Threads Using CPU**

Correlation Identifier

**Threads that have Wait Times**

Correlation Identifier

**Thread Activity Table View**

DB2ID	Plan Name	Correlation Identifier	Package Name	Collection Identifier	Thread Status	Thread Type	Authorization Identifier	Connection Identifier	Connection Type	Elapsed Time	CPU Time
D71C	MORT2	CXEGA39	MORTGAGE	MortApp	Not_in_DB2	Allied	CXEGA39	DB2CALL	DB2_CAF	00:00:36.64	00:00:04.062
D71A	MORT5	CXEGA18	MORTGAGE	MortApp	WAIT_ASYNCORD	Allied	CXEGA18	DB2CALL	DB2_CAF	00:00:43.80	00:00:05.817
D71G	MORT1	CXEGA29	MORTGAGE	MortApp	Not_in_DB2	Allied	CXEGA29	DB2CALL	DB2_CAF	00:00:43.88	00:00:09.565
D71E	MORT3	CXEGA37	MORTGAGE	MortApp	Not_in_DB2	Allied	CXEGA37	DB2CALL	DB2_CAF	00:00:41.67	00:00:07.672

**Data Sharing Group: D71GRP**

Ready Hub Time: Thurs, 09/08/2004 4:40 PM Server Available. Thread Activity - hgnd12 - DDMA3 ADMIN MODE

Applet started. Local intranet

# Event View

**Initial Situation Values**

Wait Time	Originating System Identifier	Elapsed Time	CPU Time	Wait Time	Plan Name	MVS System	DB2ID	Auth Id
00:00:12.529	D71GRP:DB2plex.DSGROUP	14753	2	12	MORT2	SP22	D71C	CXEI
00:00:18.152	D71GRP:DB2plex.DSGROUP	21815	3	18	MORT5	SP12	D71A	CXEI
00:00:14.218	D71GRP:DB2plex.DSGROUP	22432	8	14	MORT1	SP12	D71G	CXEI

**Current Situation Values**

Wait Time	Originating System Identifier	Elapsed Time	CPU Time	Wait Time	Plan Name	MVS System	DB2ID	Auth Id
00:00:22.683	D71GRP:DB2plex.DSGROUP	26842	4	22	MORT2	SP22	D71C	CXEI
00:00:28.186	D71GRP:DB2plex.DSGROUP	33797	5	28	MORT5	SP12	D71A	CXEI
00:00:24.297	D71GRP:DB2plex.DSGROUP	33855	9	24	MORT1	SP12	D71G	CXEI

**Take Action**

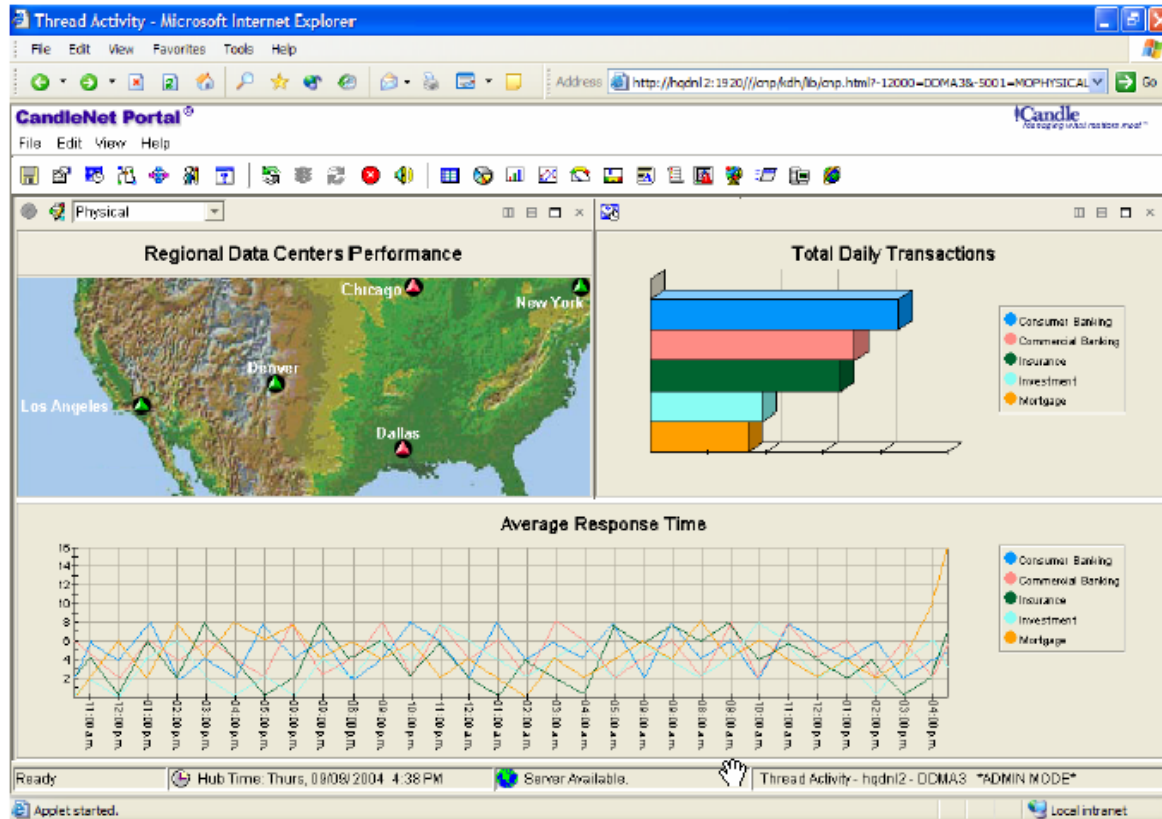
Name: <Select Action>  
 Command:   
 Arguments...  
 Run

**Expert Advice**

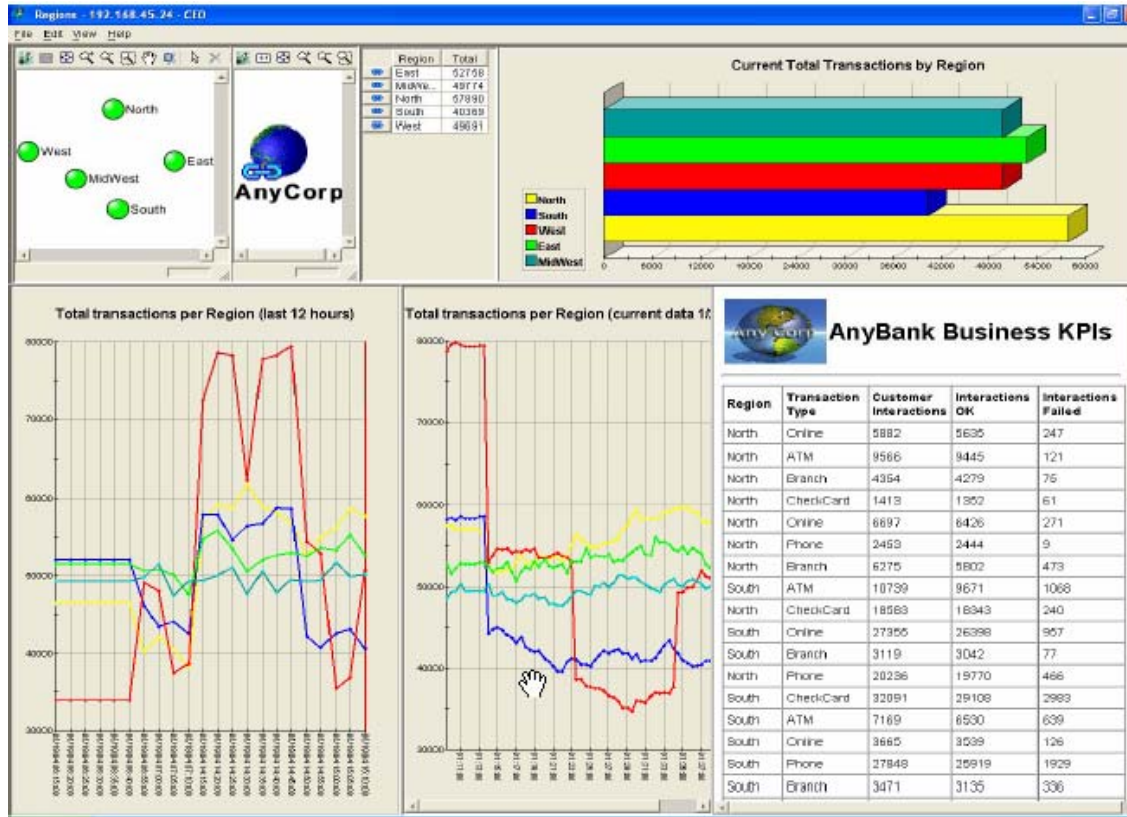
This situation is raised when the system detects that a thread has been waiting for more then the critical threshold of 10 seconds. The data in the exception row should be examined to determine what resource is being waited on.

Ready | Hub Time: Sun, 09/12/2004 4:38 PM | Server Available | Thread Activity - hqnl2 - DDMA3 \*ADMIN MODE\*

# Graphic and Historical View



# 與自行開發的應用程式整合





# Workflow Automation

The screenshot shows the 'Workflows' application window. At the top, there's a 'Policy Details' section with a table listing policies. Below that is the 'Workflow Editor' for the 'Restart\_Channel' policy. The main area displays a 'Grapher View' of the workflow:

- Start:** 'Wait until ABR\_Queue\_Full is True' (Event)
- Condition:** 'Situation is true' (Decision)
- True Path:** 'Take action: start channel...' (Action) → 'Evaluate MQSeries\_MQ\_Channel Stopped role' (Event)
- False Path:** 'Take action: start channel...' (Action)
- Flow:** 'Action succeeded' (Event) → 'Suspend execution for 10 seconds' (Action) → 'Resume' (Event) → 'Evaluate ABR\_Queue\_Full role' (Event)
- False Path (from Resume):** 'Situation is false' (Decision) → 'Take action: start channel...' (Action)

The left sidebar shows 'Workflow components' with various activity icons like 'Wait until situation is true', 'Evaluate a situation role', 'Take action', etc.

The screenshot shows the 'Workflows' application window for the 'DB2 thread lock policy'. The 'Grapher view' shows a complex workflow:

- Start:** 'Wait for DB2 thread lock conflict' (Event)
- Condition:** 'Situation is true' (Decision)
- True Path:** 'Take action: DB2 Thread...' (Action) → 'Evaluate DB2 thread lock conflict flow' (Event)
- False Path:** 'Take action: auditing & CI...' (Action)
- Flow:** 'Make a choice: use choice' (Decision) → 'Issue SOAP request' (Action) → 'Wait for reset of DB2 thread lock conflict' (Event)
- Flow:** 'OK' (Event) → 'Suspend execution for 2.0 minutes' (Action) → 'Resume' (Event) → 'Evaluate DB2 thread lock conflict flow' (Event)
- Flow:** 'TEC\_Event' (Event) → 'Wait for reset of DB2 thread lock conflict' (Event)
- Flow:** 'TEC\_Event' (Event) → 'Take action: auditlog SOB' (Action) → 'Wait for reset of DB2 thread lock conflict' (Event)

The bottom of the window shows 'SYSADMIN' controls and buttons for 'OK', 'Cancel', 'Apply', and 'Help'.



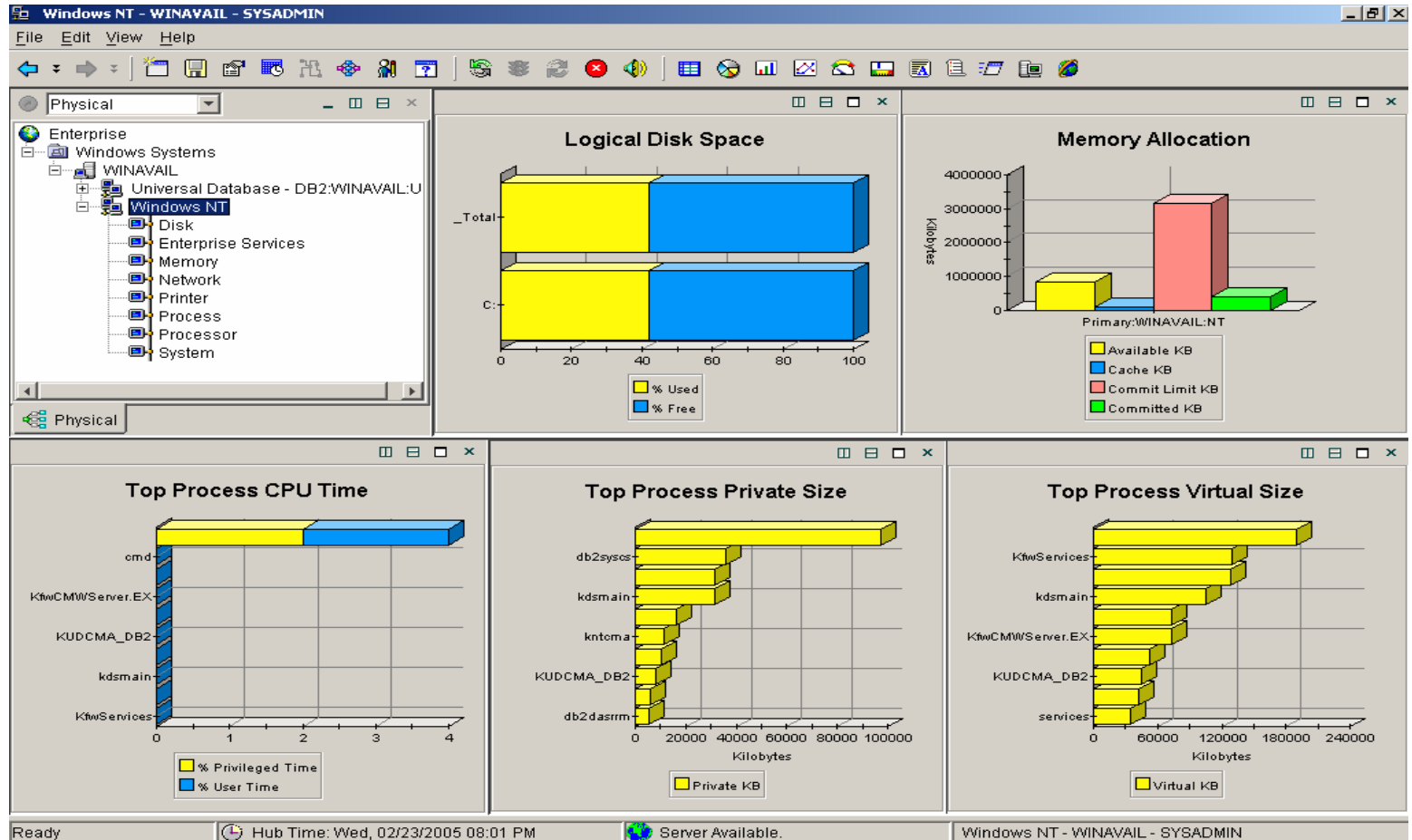
# 完整的歷史資料收集與詳盡的各式報表

**Tivoli.** software

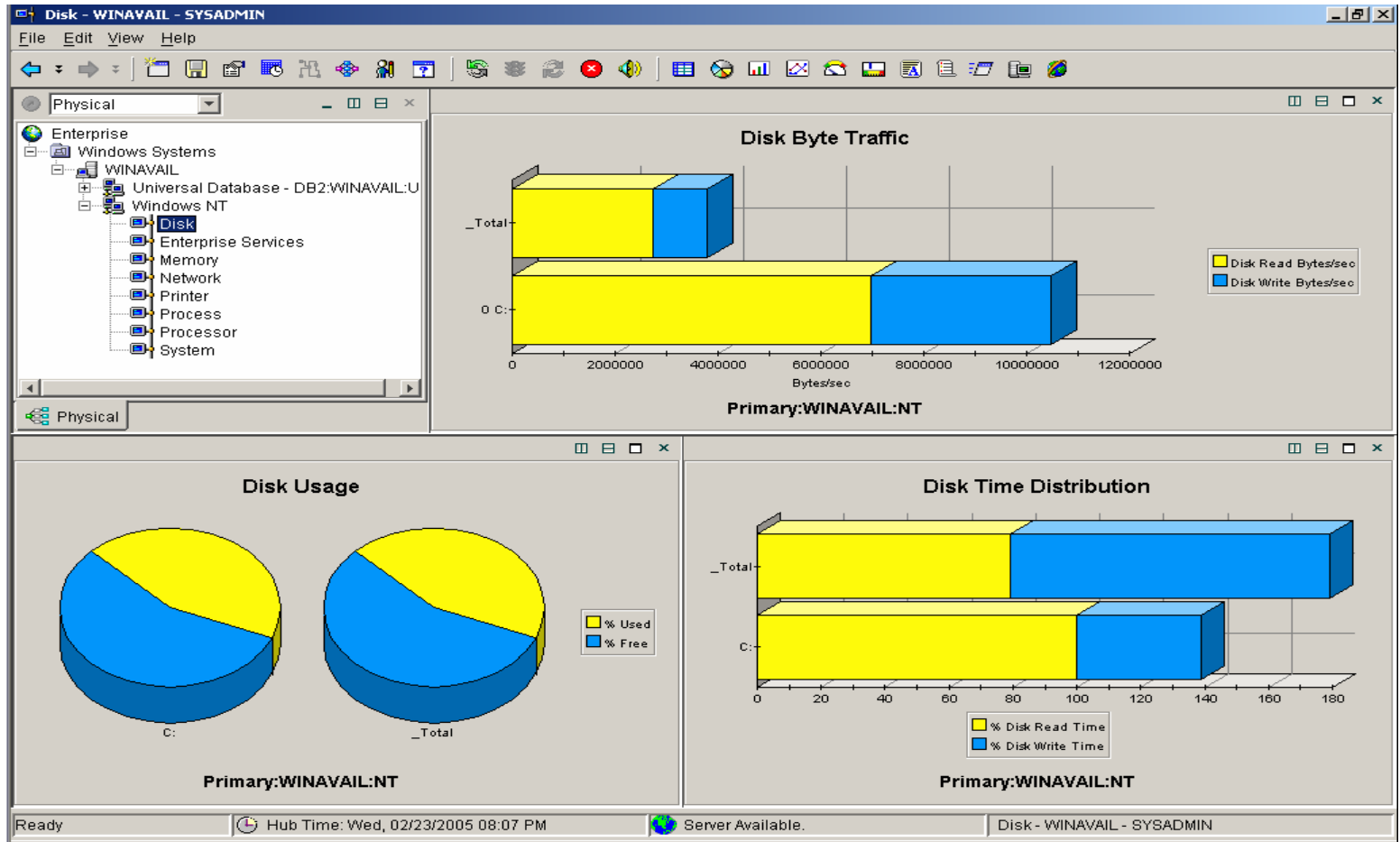


 e-business software

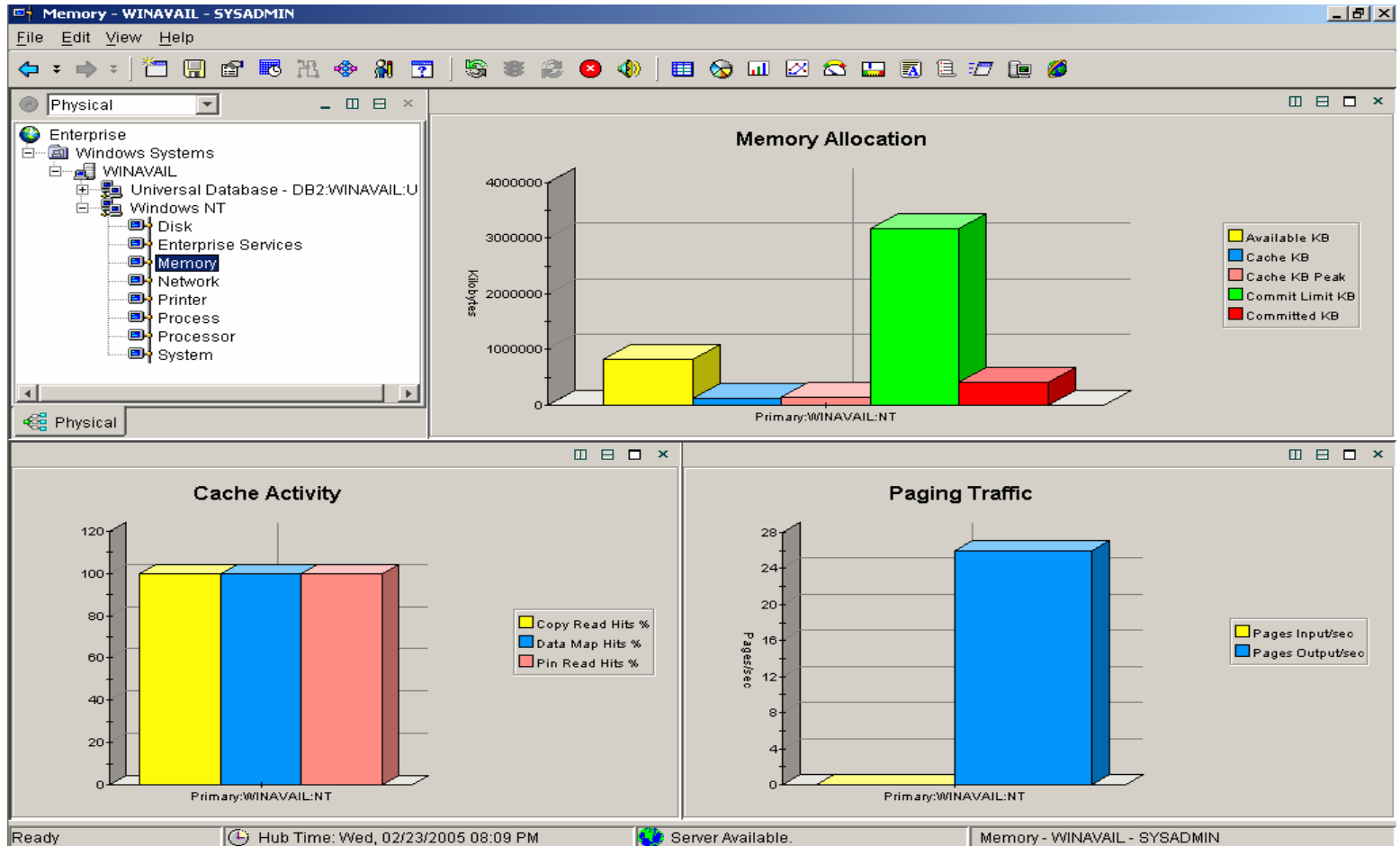
# Windows Summary



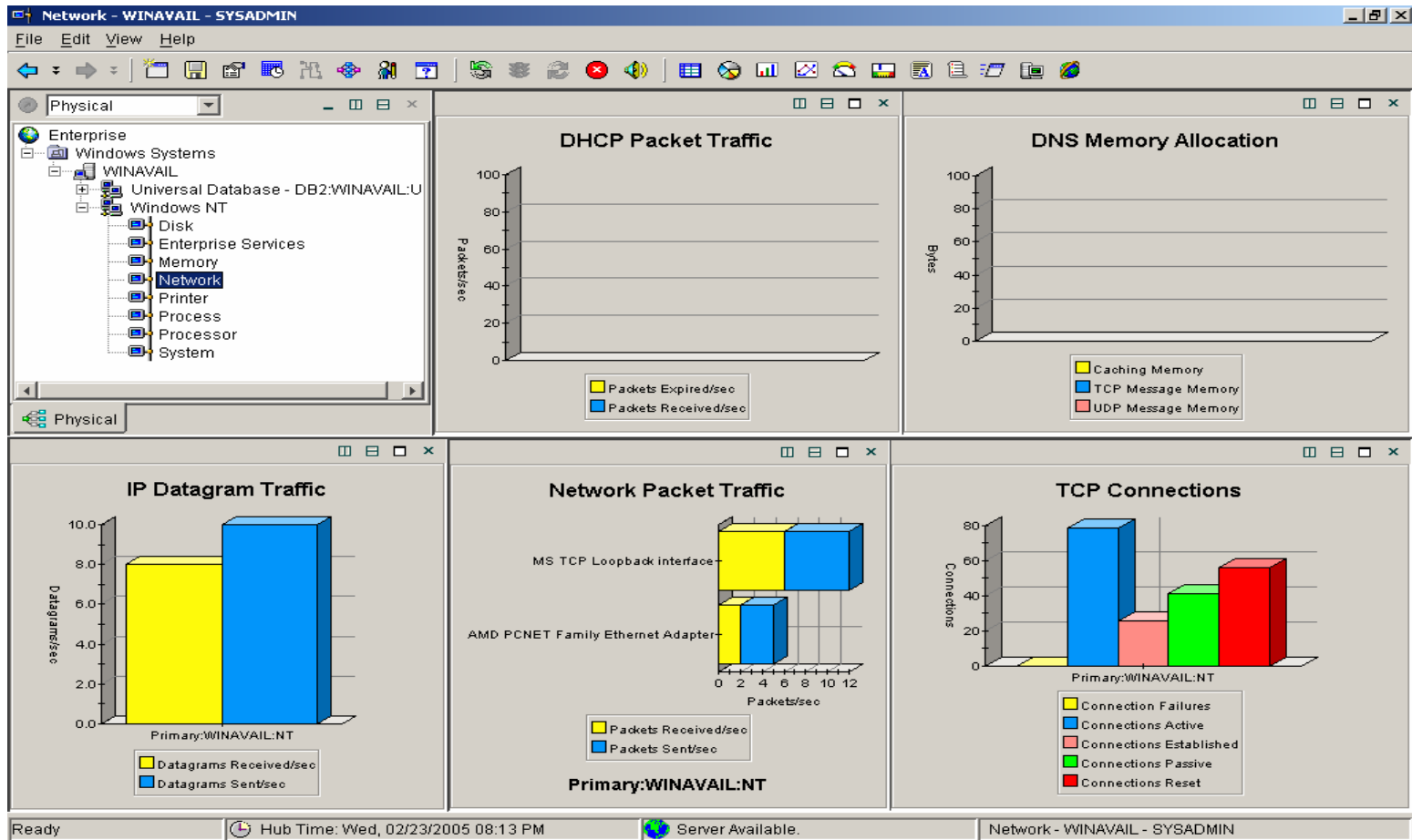
# Windows Disk



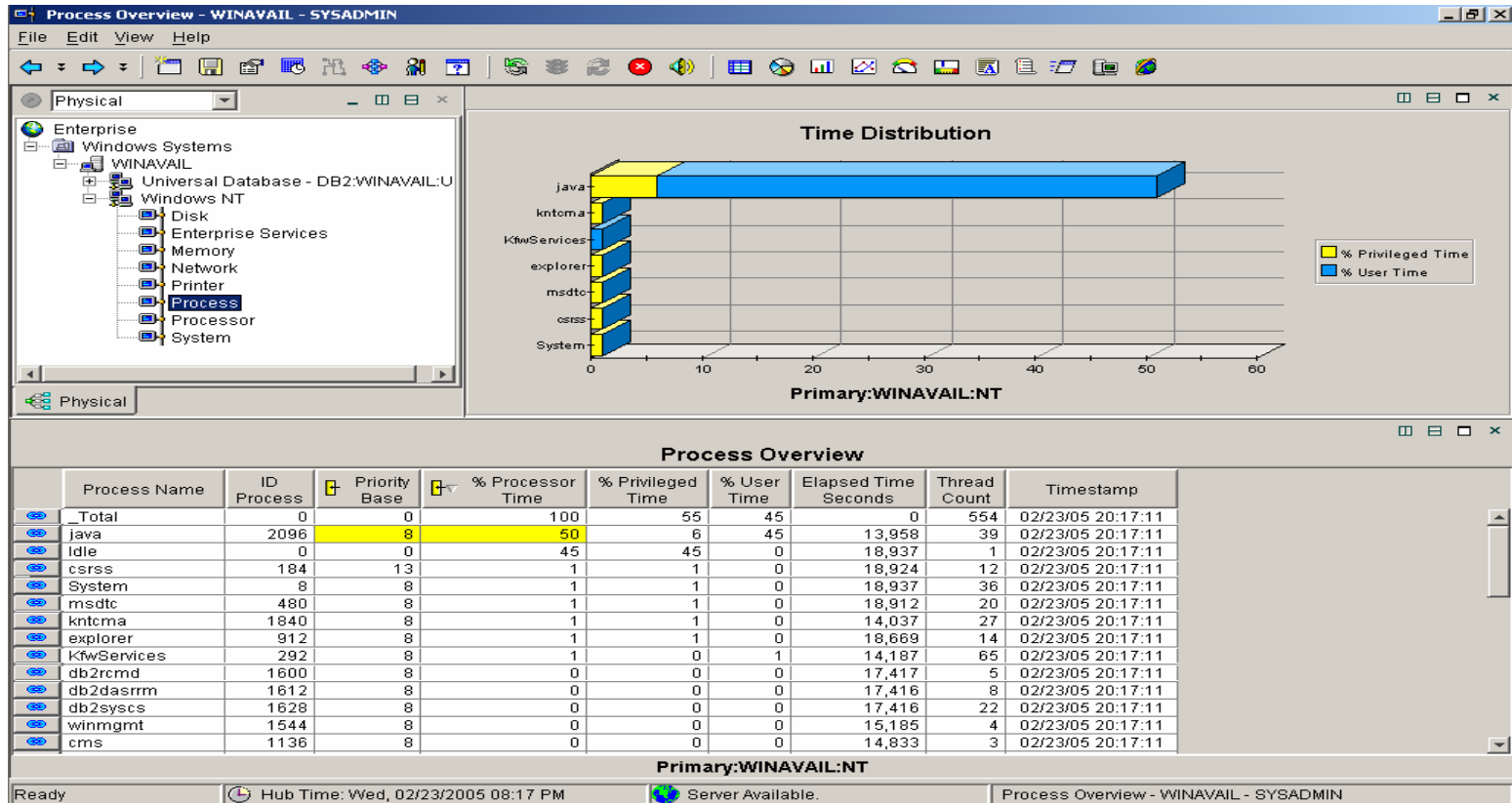
# Windows Memory



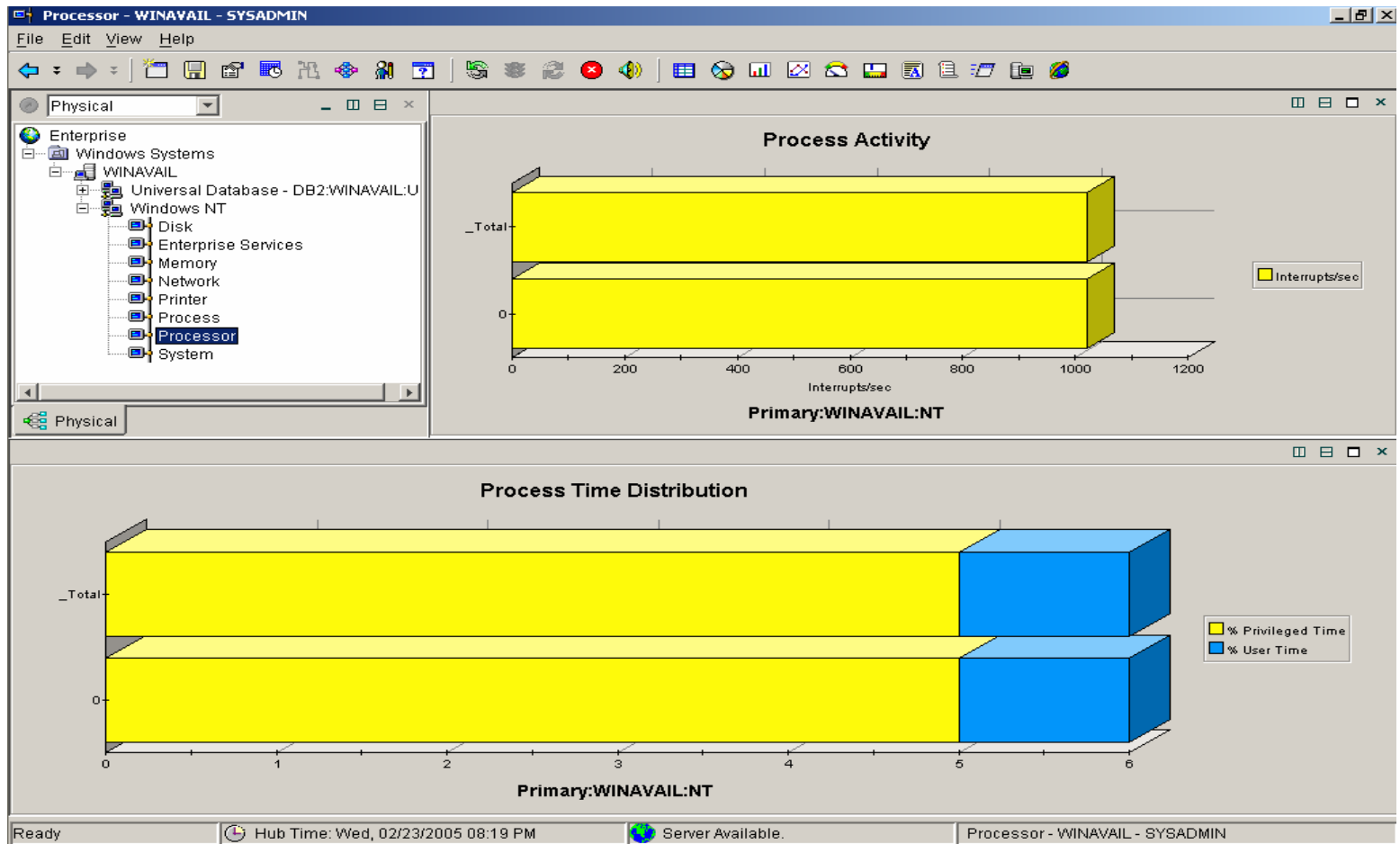
# Windows Network



# Windows Process Overview



# Windows Processor





# Windows System

**System - WINAVAIL - SYSADMIN**

File Edit View Help

Physical

Enterprise

- Windows Systems
  - WINAVAIL
    - Universal Database - DB2:WINAVAIL:U
    - Windows NT
      - Disk
      - Enterprise Services
      - Memory
      - Network
      - Printer
      - Process
      - Processor
      - System

**Monitored Logs**

Log Name	Date Time Last Modified	Max Size	Current Size	% Usage	Path
System	02/23/05 15:01:03	524,288	65,536	13	C:\WINNT\system32\config\SysEvent.Evt
Security	02/02/05 15:37:51	524,288	65,536	13	C:\WINNT\System32\config\SecEvent.Evt
Application	02/23/05 15:01:03	524,288	65,536	13	C:\WINNT\system32\config\AppEvent.Evt

**Primary:WINAVAIL:NT**

Page: 1 of 2

**Devices**

Display Name	Current State	Start Type
Abiodsk	Stopped	Disabled
abp480n5	Stopped	Disabled
Microsoft ACPI Driver	Running	Boot
ACPIEC	Stopped	Disabled
adpu160m	Stopped	Disabled
AFD Networking Support Environment	Running	Automatic
Intel AGP Bus Filter	Running	Boot
Aha154x	Stopped	Disabled
aic116x	Stopped	Disabled
aic78u2	Stopped	Disabled
aic78xx	Stopped	Disabled
ami0nt	Stopped	Disabled
amsint	Stopped	Disabled

**Primary:WINAVAIL:NT**

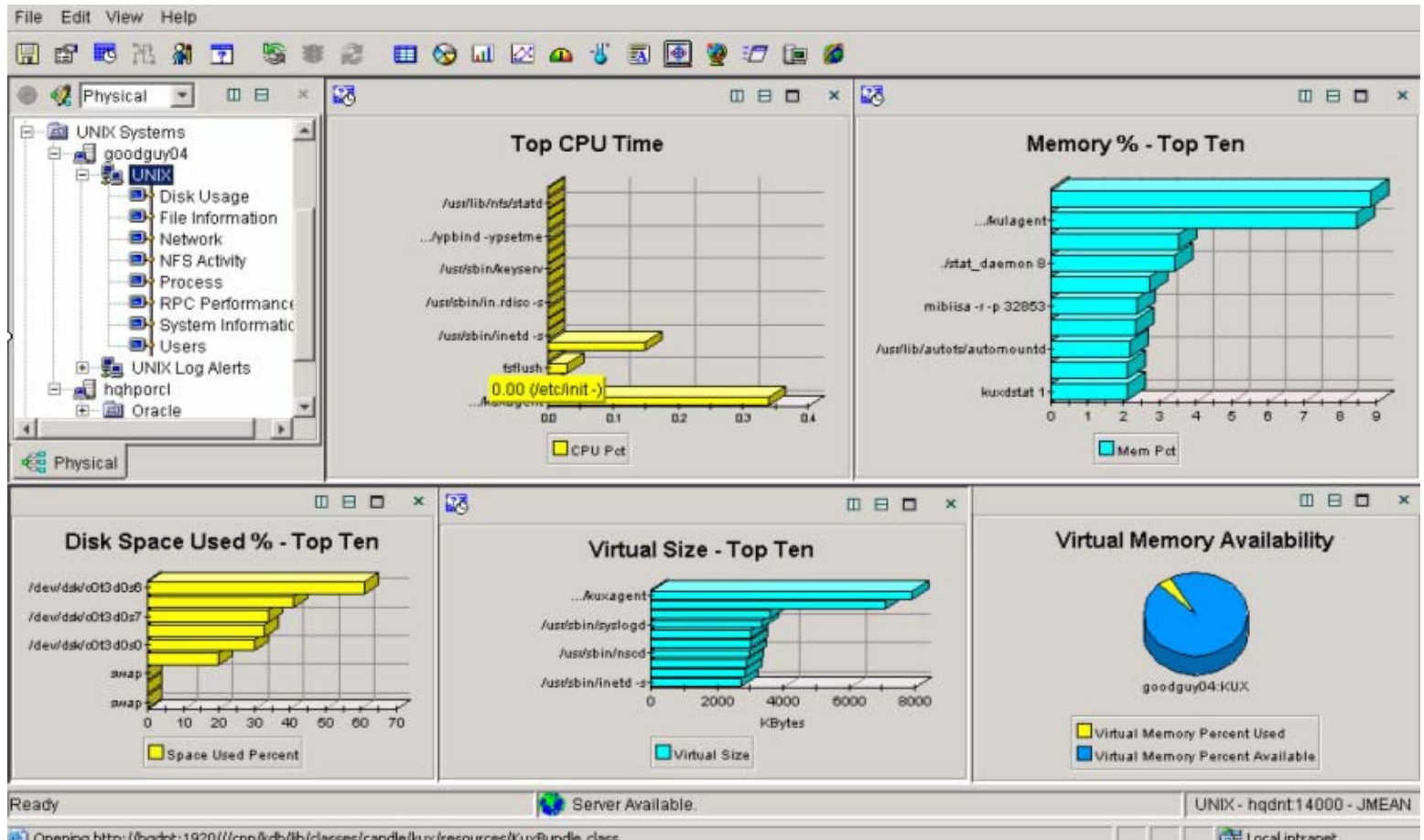
**Services**

Display Name	Current State	Start Type
Alerter	Running	Automatic
Application Management	Stopped	Manual
Computer Browser	Running	Automatic
Indexing Service	Stopped	Manual
ClipBook	Stopped	Manual
Distributed File System	Running	Automatic
DHCP Client	Running	Automatic
Logical Disk Manager Administrative Service	Stopped	Manual
Logical Disk Manager	Running	Automatic
DNS Client	Running	Automatic
Event Log	Running	Automatic
COM+ Event System	Running	Manual
Fax Service	Stopped	Manual
Intersite Messaging	Stopped	Disabled

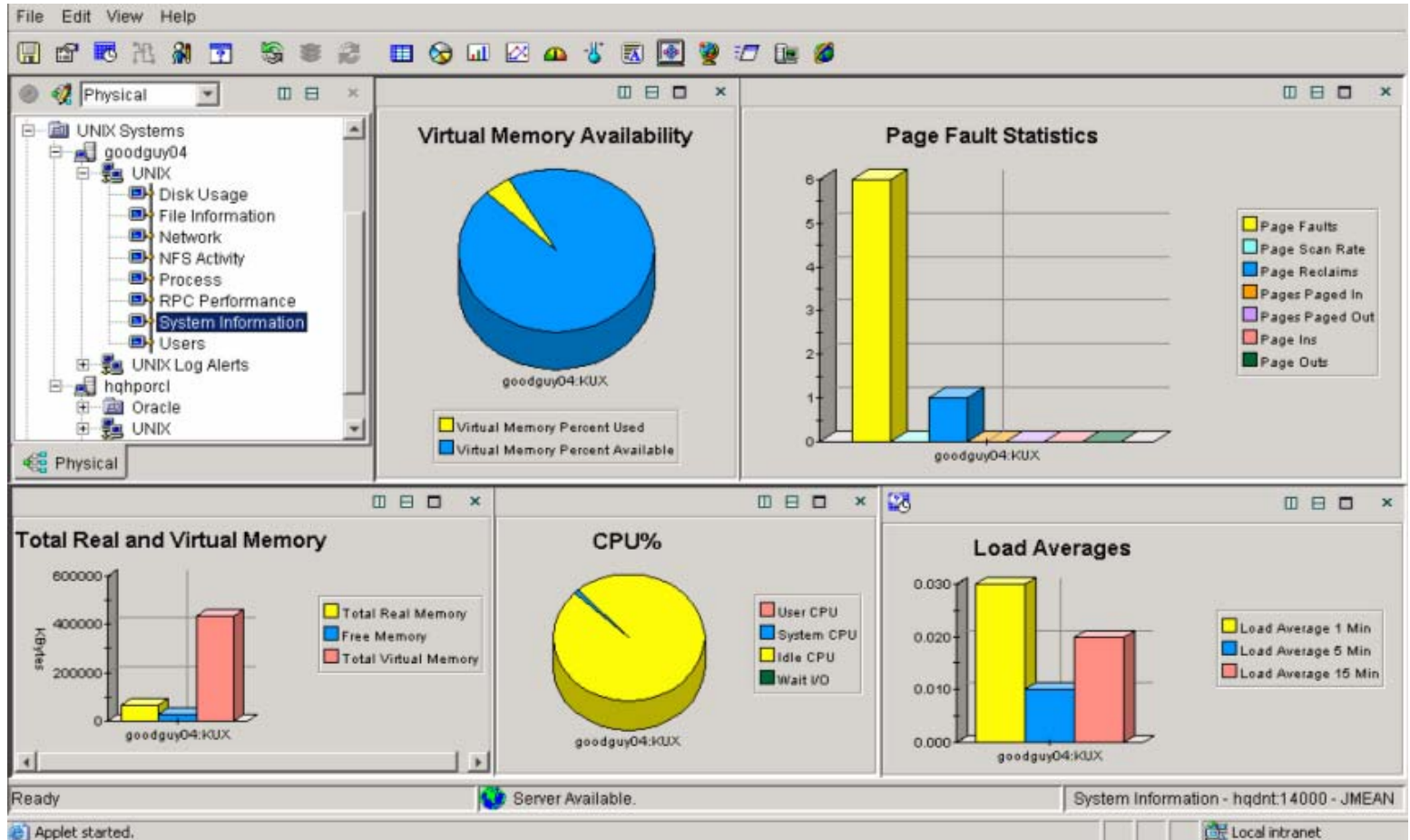
**Primary:WINAVAIL:NT**

Ready | Hub Time: Wed, 02/23/2005 08:20 PM | Server Available. | System - WINAVAIL - SYSADMIN

# UNIX Summary



# UNIX System Information



# UNIX Disk Usage

The screenshot displays the Tivoli software interface for monitoring UNIX disk usage. The interface is divided into several sections:

- Tree View (Left):** Shows a hierarchy of monitored systems. Under 'UNIX Systems', 'goodguy04' is expanded to show 'UNIX', which includes 'Disk Usage' (selected), File Information, Network, NFS Activity, Process, RPC Performance, System Information, Users, UNIX Log Alerts, and Monitored Logs. Other systems like 'hqhporcl' and 'Oracle' are also visible.
- Space Used % - Top Ten (Top Center):** A horizontal bar chart showing the top ten disk partitions by space usage. The x-axis represents the percentage of space used, ranging from 0 to 70. The y-axis lists the partitions: /dev/dsk/c0t3d0s6, /dev/dsk/c0t1d0s3, /dev/dsk/c0t3d0s7, /dev/dsk/c0t3d0s3, /dev/dsk/c0t3d0s0, /dev/dsk/c0t3d0s5, swap, and /dev/dsk/c0t1d0s7.
- Inodes Used % - Top Ten (Top Right):** A horizontal bar chart showing the top ten partitions by inodes used. The x-axis represents the percentage of inodes used, ranging from 0 to 12. The y-axis lists the partitions: /var, /usr, /usr/openwin, /opt, /export/home, /var/run, /users, and /tmp. A callout indicates that /usr is at 7%.
- Disk Utilization (Bottom Left):** A table providing detailed information about disk partitions.
- Disk Busy % (Bottom Right):** A vertical bar chart showing the busy percentage for various disk partitions. The x-axis represents the busy percentage, ranging from 0 to 1. The y-axis lists the partitions: sd1,h, sd1, sd3,f, sd3,b, and sd0.

Mount Point	Name	Size (KBytes)	Space Available (KBytes)	Space Used (KBytes)	Space Used Percent	lr
/	/dev/dsk/c0t3d0s0	81559	51030	22374	30	
/usr	/dev/dsk/c0t3d0s6	697335	252988	388561	61	3
/var	/dev/dsk/c0t3d0s3	41151	24837	12199	33	
/var/run	swap	404724	404724	0	0	
/opt	/dev/dsk/c0t3d0s5	397063	285350	72007	20	1
/tmp	swap	404736	404724	12	0	
/usr	/dev/dsk/c0t1d0s7	514546	462170	12	0	

Ready Server Available. Disk Usage - hqndt14000 - JMEAN

Opening [http://hqndt:1920//cnp/kdh/lib/classes/candle/kux/resources/help/attr\\_UNIXDISK.properties](http://hqndt:1920//cnp/kdh/lib/classes/candle/kux/resources/help/attr_UNIXDISK.properties) Local intranet

# Unix Process

**Process**

- Child Processes
- Processes for Group Leader
- Application for Process
- Command for Process
- Resource for Process
- Link Wizard...
- Link Anchor...

**Top CPU Time % Processes**

Process	CPU %
.../usr/lib/intelstatd	~0.35
.../usr/bin/ypsetme	~0.15
.../usr/bin/in.rdisc-s	~0.10
.../usr/bin/inetd-s	~0.05
fsflush	~0.02
.../usr/sbin/autagent	~0.01

**Memory % - Top Ten**

Process	Mem %
.../usr/sbin/autagent	~8.5
.../usr/sbin/autagent	~4.5
.../usr/sbin/autagent	~3.5
.../usr/sbin/autagent	~3.0
.../usr/sbin/autagent	~2.5
.../usr/sbin/autagent	~2.0
.../usr/sbin/autagent	~1.5
.../usr/sbin/autagent	~1.0
.../usr/sbin/autagent	~0.5
.../usr/sbin/autagent	~0.5

**Time% Processes**

Process	CPU %	Process ID	Parent Process ID	User ID	CPU Utilization
.../usr/sbin/autagent	0.74	603	1	0	1
.../usr/sbin/autagent	0.00	1	0	0	0
.../usr/sbin/autagent	0.00	2	0	0	0
.../usr/sbin/autagent	0.09	3	0	0	0
.../usr/sbin/autagent	0.00	490	1	0	0
.../usr/sbin/autagent	0.05	494	471	0	0
.../usr/sbin/autagent	0.00	194	1	0	0

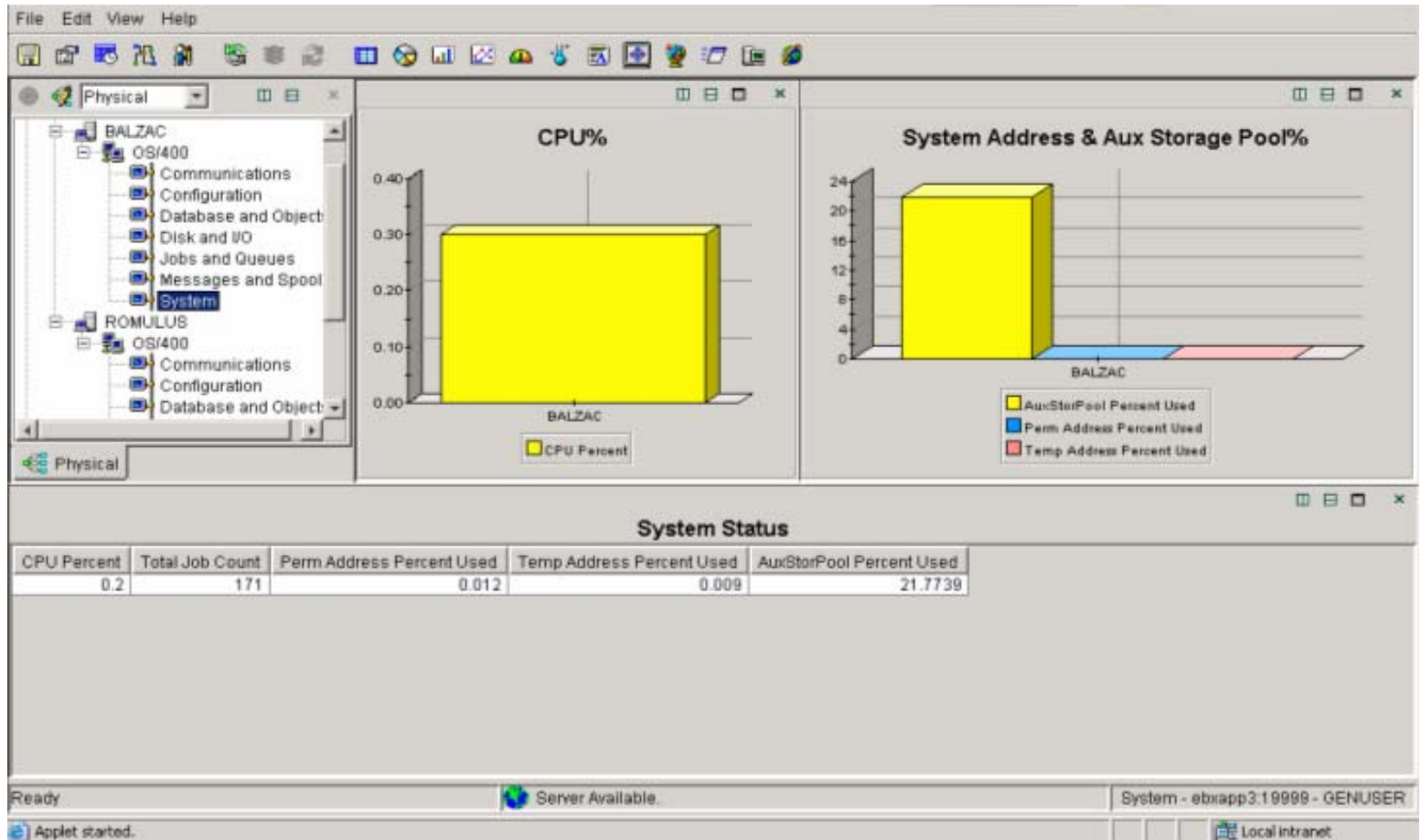
**Virtual Size - Top Ten**

Process	Virtual Size (KBytes)
.../usr/sbin/autagent	~8000
.../usr/sbin/autagent	~7000
.../usr/sbin/autagent	~4000
.../usr/sbin/autagent	~3500
.../usr/sbin/autagent	~3000
.../usr/sbin/autagent	~2500
.../usr/sbin/autagent	~2000
.../usr/sbin/autagent	~1500
.../usr/sbin/autagent	~1000
.../usr/sbin/autagent	~500

Ready | Server Available | Process - hqndt:14000 - JMEAN

Opening [http://hqndt:1920//cnp/kdh/lib/classes/candle/lux/resources/help/atbr\\_UNIXPS.properties](http://hqndt:1920//cnp/kdh/lib/classes/candle/lux/resources/help/atbr_UNIXPS.properties) | Local intranet

# AS/400 System Info



# AS/400 Database & Objects

Physical

Page: 1 of 2

**Database/Objects Library**

Name	Library	Type
BKEEN	QSYS	*LIB
BKTEST	QSYS	*LIB
BUILD	QSYS	*LIB
CCCINST	QSYS	*LIB
CCCINST0	QSYS	*LIB
CCCSAVE	QSYS	*LIB
CCCWORK	QSYS	*LIB
CCCWORK2	QSYS	*LIB
CFOST	QSYS	*LIB

Note links to additional database & object information

**Take Action**

Action

Name: <Select Action>

Command:

Arguments...

Destination System(s)

Run

Ready Server Available. Database and Objects - eibxapp3:19999 - GENUSER

Applet started. Local intranet

# AS/400 Jobs & Queues

The screenshot displays the IBM AS/400 Jobs and Queues console interface. The left pane shows a tree view of the system structure, with 'Jobs and Queues' selected under the 'OS/400' directory. The main area is divided into several panels:

- Job Queue:** A table listing active jobs.
- Subsystem Information:** A table providing details for each subsystem.
- Take Action:** A panel for performing actions on selected jobs, including fields for Name, Command, and Arguments.
- Job Resource Information:** A table listing resources for the selected job.

A blue callout box points to a link in the Job Resource Information table, with the text: "Note link to Resource Details".

Library	Name	Subsystem	Number Jobs	Status
ATEST	HANJOBQ		0	RELEASED
INTELLWCH	INTELLWCH		0	RELEASED
KMCLIB	KMCJOBQ		0	RELEASED
KMQLIB	KMQJOBQ		0	RELEASED
KXCCLIB	KXC		0	RELEASED

Name	Status	Current Jobs Active	Description Library	Max Jobs Active	Number Pools	Pool Activity Le
INTELLWCH	*INACTIVE	0	INTELLWCH	*NOMAX	1	
KMCLIB	*INACTIVE	0	KMCLIB	*NOMAX	1	
KMQLIB	*INACTIVE	0	KMQLIB	*NOMAX	1	
KXC	*INACTIVE	0	KXCCLIB	*NOMAX	1	

Subsystem	Name	Number	Type	User
QHTTSPVR	ADMIN	002215	*BATCH	QTMHHTTP
QHTTSPVR	ADMIN	002217	*BATCH	QTMHHTTP
QHTTSPVR	ADMIN	002219	*BATCH	QTMHHTTP
QHTTSPVR	ADMIN	002221	*BATCH	QTMHHTTP
<a href="#">Link to Job Resource Details</a>		002222	*BATCH	QTMHHTTP
QMGM	AMQALMPX	002508	*BATCH	QMGM
QMGM	AMQPCSEA	002513	*BATCH	QMGM
QMGM	AMQRRMFA	002509	*BATCH	QMGM



# DB2 Server System Overview

System Overview - WEBDEMO - SYSADMIN

File Edit View Help

Physical

Enterprise

- Windows Systems
  - WEBDEMO
    - Universal Database - DB2:WEBDEMO:1
      - Application
      - Database
      - System Overview**
      - Locking Conflict
      - Buffer Pool
      - Table Space
    - Windows NT

Physical

Server Key Events

Legend:

- post threshold sorts
- agents waiting on token
- max agent overflows
- agents stolen
- post threshold hash joins

Server Connection

Legend:

- rem cons in
- rem cons in exec
- local cons
- local cons in exec
- con local dbases
- coord agents top
- agents waiting top
- idle agents

Databases - Bottom Ten BufferPool Hit Ratio

Applications - Top Ten Failed Sql Stateme

Server Status

db2 status	db2start time	last reset
Active	1050216170858236	0691231190000000

Locking Conflict

agent id	appl id	appl name
79	*LOCAL.DB2.019DC6222943	db2bp.exe
65	*LOCAL.DB2.017EC6222516	java.exe
47	*LOCAL.DB2.00C606221922	java.exe
46	*LOCAL.DB2.01CDC6221911	RIM_DB2_Agent.exe
45	*LOCAL.DB2.01BC46221910	RIM_DB2_Agent.exe
3	*LOCAL.DB2.00F686221249	kfwservices.exe
2	*LOCAL.DB2.00D7C6221206	kfwservices.exe

Ready | Hub Time: Wed, 02/16/2005 05:31 PM | Server Available. | System Overview - WEBDEMO - SYSADMIN

# Oracle Summary

Cache Totals Summary - Microsoft Internet Explorer

Address: [http://scole-dljlb5j11:1920//cnp/kdh/lib/CNP.html?12000=SYSADMIN&5001=MOPHYSICAL&1021A=REPORT&-1020=CANDLE:scole-dljlb5j11:ORA@kor.00090\\_0\\_00&-2400=p@CANDLE:scole-dljlb5j11:ORA&-1011](http://scole-dljlb5j11:1920//cnp/kdh/lib/CNP.html?12000=SYSADMIN&5001=MOPHYSICAL&1021A=REPORT&-1020=CANDLE:scole-dljlb5j11:ORA@kor.00090_0_00&-2400=p@CANDLE:scole-dljlb5j11:ORA&-1011)

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Physical

- Enterprise
  - Windows Systems
    - SCOLE-DLJLB5J11
      - End User Response Time
      - Oracle - CANDLE
        - Alert Log
        - Cache Totals**
        - Contention
        - Databases
        - Logging
        - Processes
        - Servers
        - Sessions
        - System Global Area
        - Universal Data Provider
        - Windows NT

**Cache Totals Summary**

**Cache Totals Summary**

Origin Node	Server	Database Name	Host Name	Library Total Get Requests	Library Get Hits	Library Total Get Hit Percent	Library Total Executions or Pins	Library Total Executions Hits	Library Total Execution Hit Pct	Library Total Reloads	Library Total Invalidations	Dictionary Total Cache Entries
CANDLE:scole-dljlb5j11:ORA	CANDLE	CANDLE	SCOLE-DLJLB5J11	4485	3968	88.47	10251	9337	91.08	12	0	725

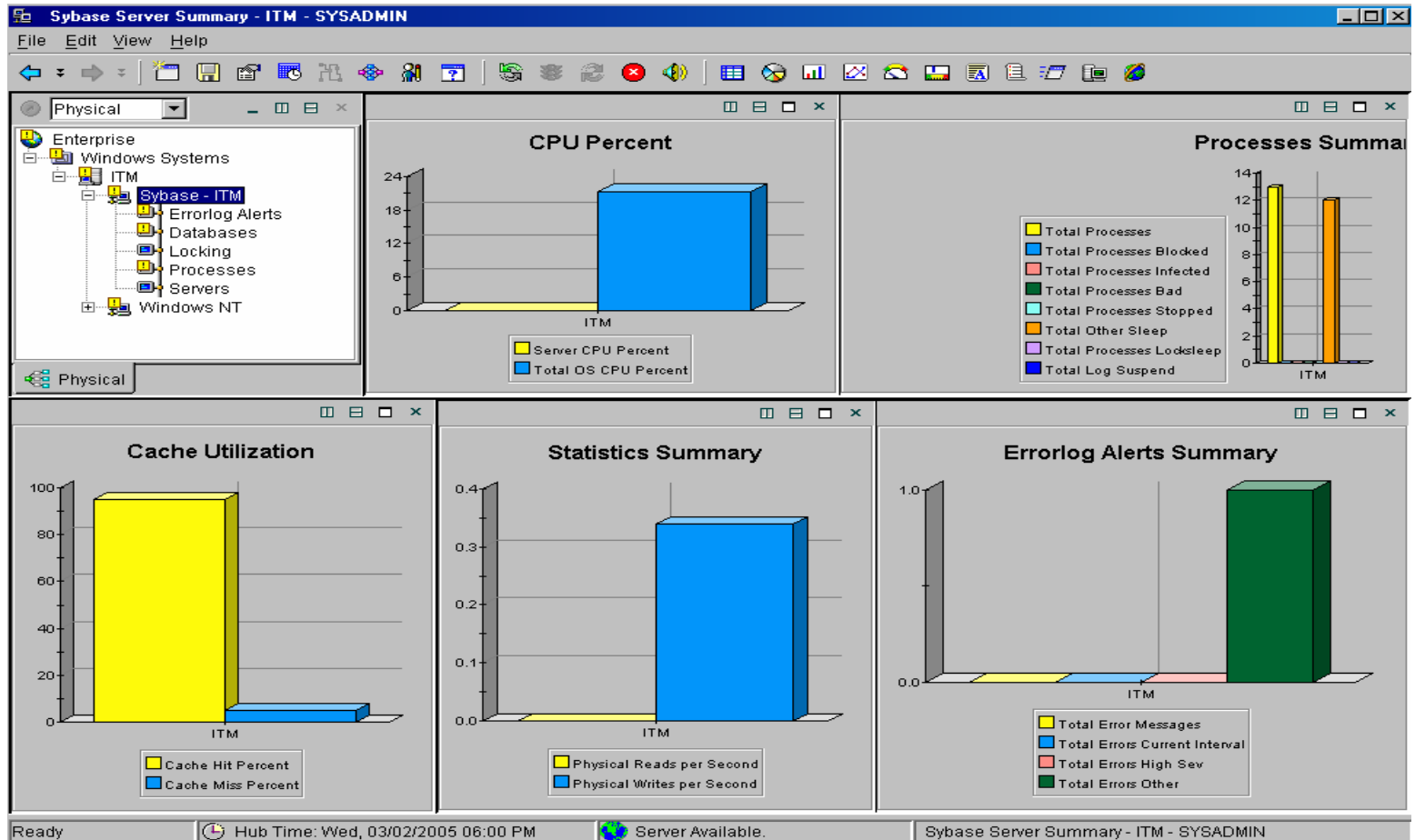
**Library Cache Usage**

Server	Host Name	Database Name	Namespace	Get Requests	Get Hits	Get Hit Percent	Executions or Pins	Execution Hits	Execution Hit Pct	Reloads	Invalidations
CANDLE	SCOLE-DLJLB5J11	CANDLE	SQL AREA	2769	2543	91.83	7262	6794	93.55	12	0
CANDLE	SCOLE-DLJLB5J11	CANDLE	TABLE/PROCEDURE	1480	1213	81.95	3130	2697	86.16	0	0
CANDLE	SCOLE-DLJLB5J11	CANDLE	BODY	10	9	90.00	3	2	66.66	0	0
CANDLE	SCOLE-DLJLB5J11	CANDLE	TRIGGER	0	0	100.00	0	0	100.00	0	0
CANDLE	SCOLE-DLJLB5J11	CANDLE	INDEX	29	0	0.00	29	0	0.00	0	0
CANDLE	SCOLE-DLJLB5J11	CANDLE	CLUSTER	362	357	98.61	291	286	98.28	0	0

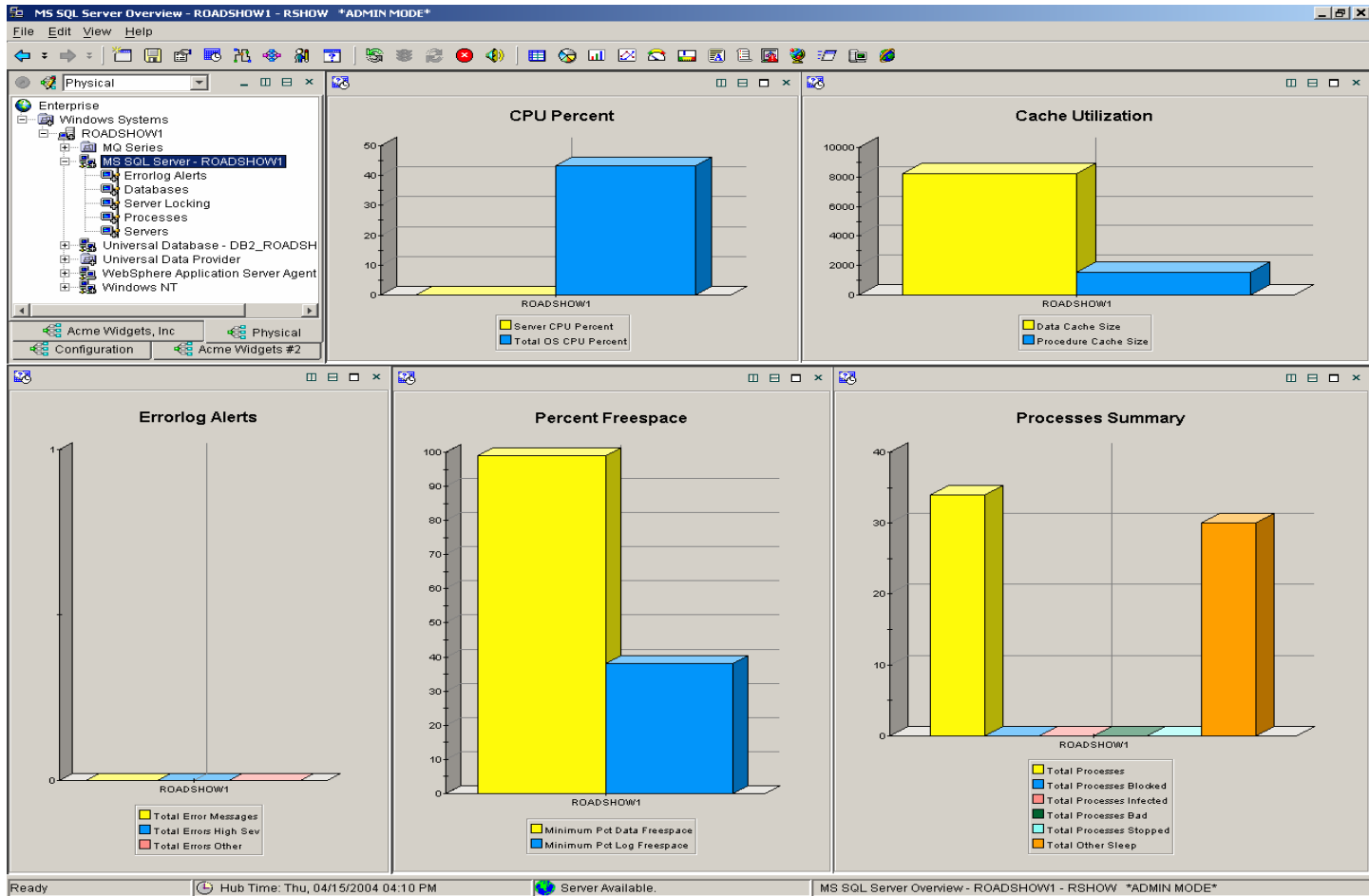
Ready Server Available. Cache Totals Summary - scole-dljlb5j11:14000 - SYSADMIN

Opening [http://scole-dljlb5j11:1920//cnp/kdh/lib/classes/candle/kor/resources/help/attr\\_KORCACHE.properties](http://scole-dljlb5j11:1920//cnp/kdh/lib/classes/candle/kor/resources/help/attr_KORCACHE.properties) Local intranet

# Sybase Overview



# MS SQL Overview



Thank  
YOU

