



The Modern Mainframe – At the Heart of Your Business

The New Face of Mainframe Operations



On Demand Insurance CIO Needs to Satisfy Service Levels

I must make sure to meet my service level commitments. With these new applications, it's more important than ever, but the CEO won't increase my budget for operations



**On Demand Insurance
CIO**

IBM Tivoli can help,
without adding staff

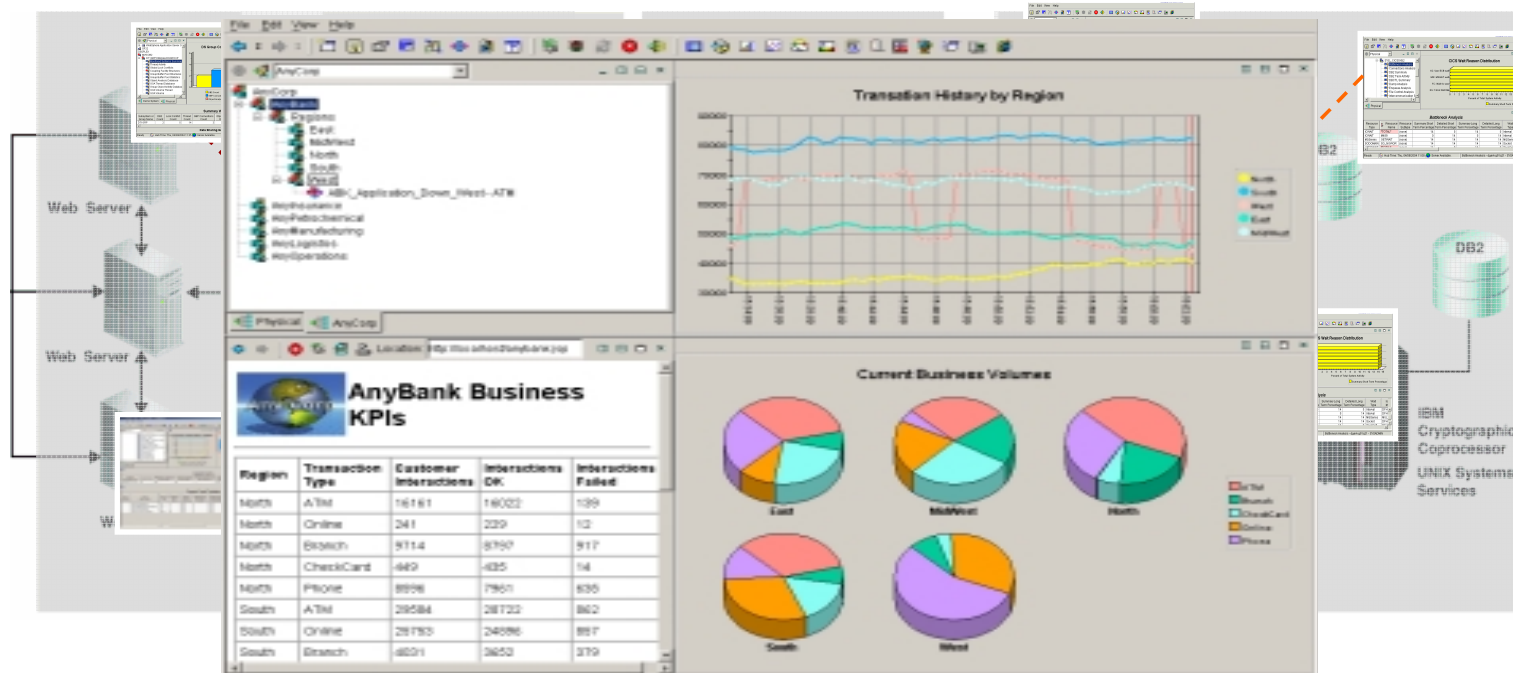


IBM

A Complete View of IT Infrastructure Operation

One view through one portal to monitor the overall health of the infrastructure

IBM Tivoli Monitoring (Distributed) ITCAM IBM Tivoli OMEGAMON XE (System z)



Tivoli Enterprise Portal (TEP)

Everything at your Fingertips

DEMO: Tivoli Enterprise Portal (TEP)

The screenshot displays the Tivoli Enterprise Portal (TEP) interface. At the top, the title bar reads "Tivoli Enterprise Portal" and "Tivoli software". Below the title bar is a menu bar (File, Edit, View, Help) and a toolbar with various icons. The main window is divided into several panes:

- Left Pane:** A tree view showing the system hierarchy. The "Enterprise" folder is expanded, showing sub-folders for "UNIX Systems", "Linux Systems", "Windows Systems", and "OS/390 Systems". Under "OS/390 Systems", the "DEMOPLX:MVS:SYSPLEX" folder is expanded, listing various data sources like "Coupling Facility Policy Data for Sysplex", "Global Enqueue Data for Sysplex", etc.
- Top Right Pane:** "Enterprise Event Console" showing a table of events. The table has columns for Status, Situation Name, Display Item, and Source.

Status	Situation Name	Display Item	Source
Open	DEMO_HIGH_CPU_USER_CRIT	DB2PEB	DEMOPLX:MVSA:MVSSYS
Open	DEMO_HIGH_CPU_USER_CRIT	BBOS013S	DEMOPLX:MVSA:MVSSYS
Open	DEMO_HIGH_CPU_USER_CRIT	WLM	DEMOPLX:MVSA:MVSSYS
Open	N3T_Conn_Rnd_Trip_Time		TCPIP:MVSA
Open	NT_Log_Space_Low	Application	Primary:HQDNT2:NT
Open	NT_Log_Space_Low	Security	Primary:HQDNT2:NT
- Bottom Left Pane:** "Open Situation Counts - Last 24 Hours" showing a 3D bar chart. The x-axis represents the count (0 to 300), and the y-axis lists situation names. The "DEMO_HIGH_CPU_USER_CRIT" situation has the highest count, exceeding 300.

Situation Name	Count
DEMO_HIGH_CPU_USER_CRIT	~300
N3T_Conn_Rnd_Trip_Time	~20
NT_Log_Space_Low	~10
NT_Process_CPU_Critical	~5
- Bottom Right Pane:** "Message Log" showing a table of messages.

Status	Name	Display Item
Closed	DEMO_HIGH_CPU_USER_CRIT	CXEGA16
Open	DEMO_HIGH_CPU_USER_CRIT	DB2PEB
Open	DEMO_HIGH_CPU_USER_CRIT	CXEGA16
Open	DEMO_HIGH_CPU_USER_CRIT	BBOS013S
Stopped	Unibanco_Tran_Online	
Open	N3T_Conn_Rnd_Trip_Time	
Open	NT_Log_Space_Low	Application
Open	NT_Log_Space_Low	Security

At the bottom of the window, the status bar shows "Ready", "Hub Time: Tue, 12/13/2005 10:42 AM", "Server Available", and "Enterprise Status - hqcnt2.demopkg.ibm.com - TMEADM *ADMIN MODE*"

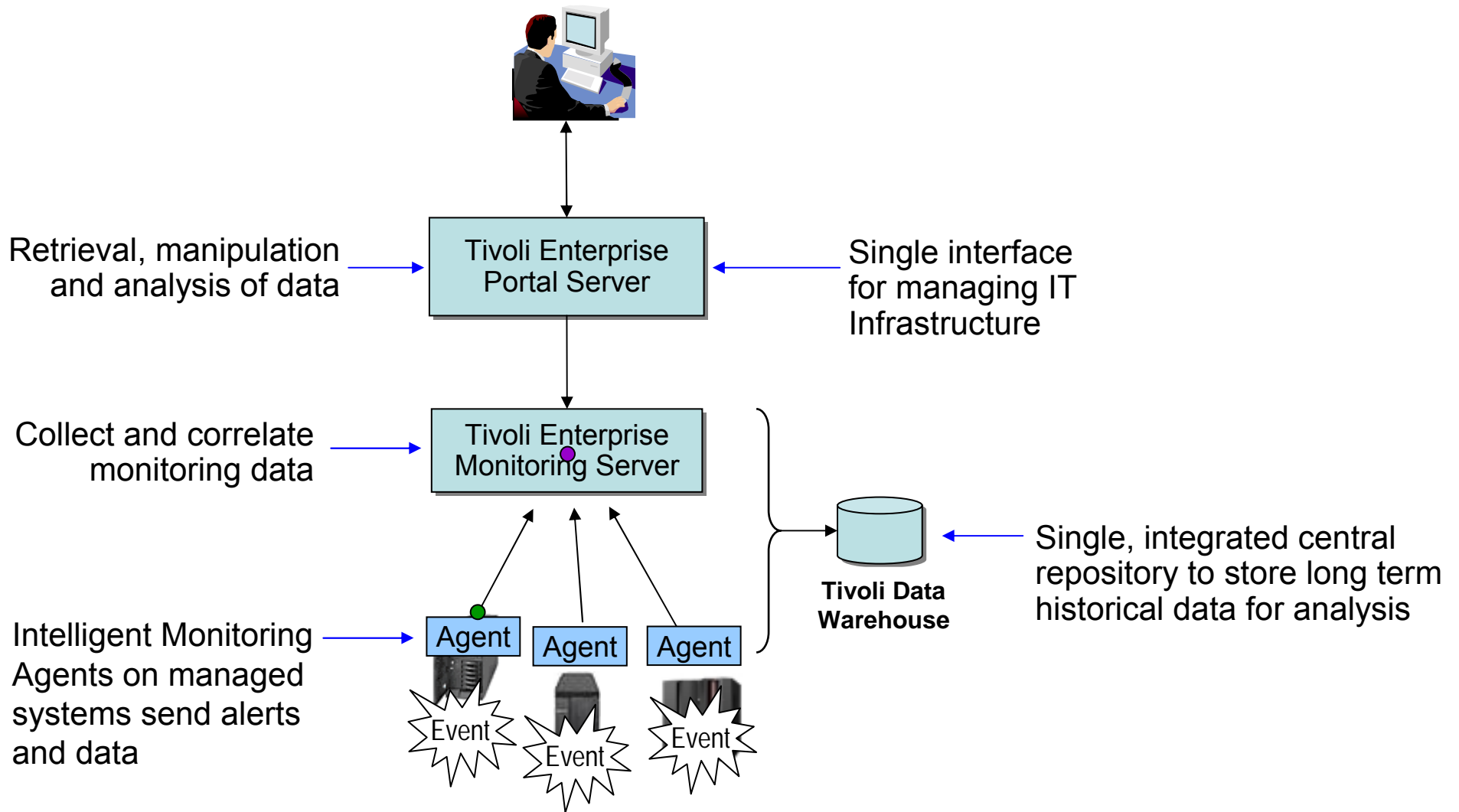
A Dynamic Role-based Portal for Integrating IT Operations

Tivoli Enterprise Portal (TEP)

A Dynamic Role-based Portal for Integrating IT Operations

- A common user interface makes operations management across all platforms easier
- TEP is used to display information from IBM Tivoli solutions, including:
 - ▶ IBM Tivoli OMEGAMON family; IBM Tivoli Monitoring (ITM) family; IBM Tivoli Composite Application Manager (ITCAM) family; IBM Tivoli Workload Scheduler family
- Integrated end-to-end monitoring allows for fast resolution of complex problems quickly and easily
- Using TEP, it is easy to create customized role-based views of the enterprise
 - ▶ Workspaces for operators, Systems Programmers, Application Programmers, Network Administrators, and IT Management

Comprehensive Monitoring Services



Integrated End-to-End Monitoring with IBM Tivoli

Platforms

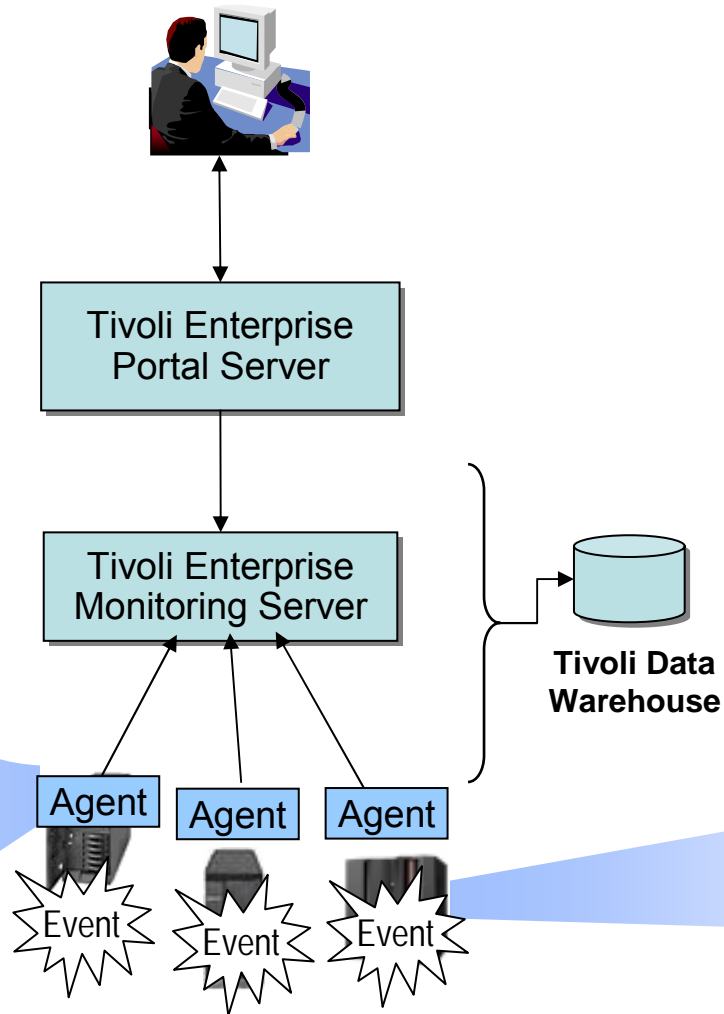
z/OS
 Linux (z and distributed)
 UNIX
 Windows
 OS/400
 z/VM
 VMware

Web Infrastructure

WebSphere (z and distributed)
 IIS
 iPlanet
 Apache
 WebLogic

Business Integration

CICS
 IMS
 WebSphere MQ
 Web Services/SOA



Collaboration

Lotus Domino
 Exchange

Database

DB2 (z and distributed)
 Oracle
 MS SQL
 Sybase
 Informix

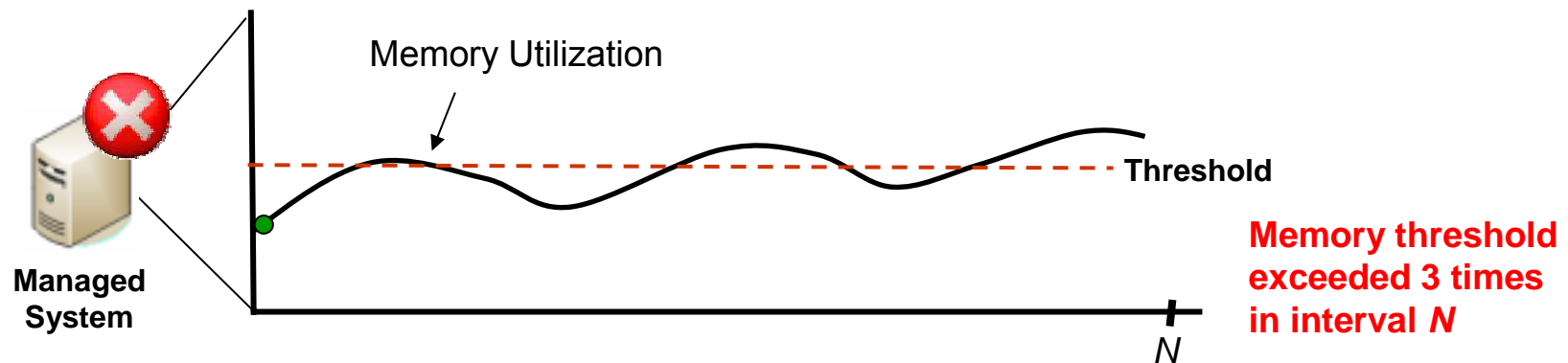
Applications

J2EE (z and distributed)
 .NET (full suite of MS applications)
 SAP
 Citrix
 Siebel
 Tuxedo

Available with IBM Tivoli OMEGAMON XE family, IBM Tivoli Monitoring family and IBM Tivoli Composite Application Manager family

Define Situations that Indicate Abnormal Operations

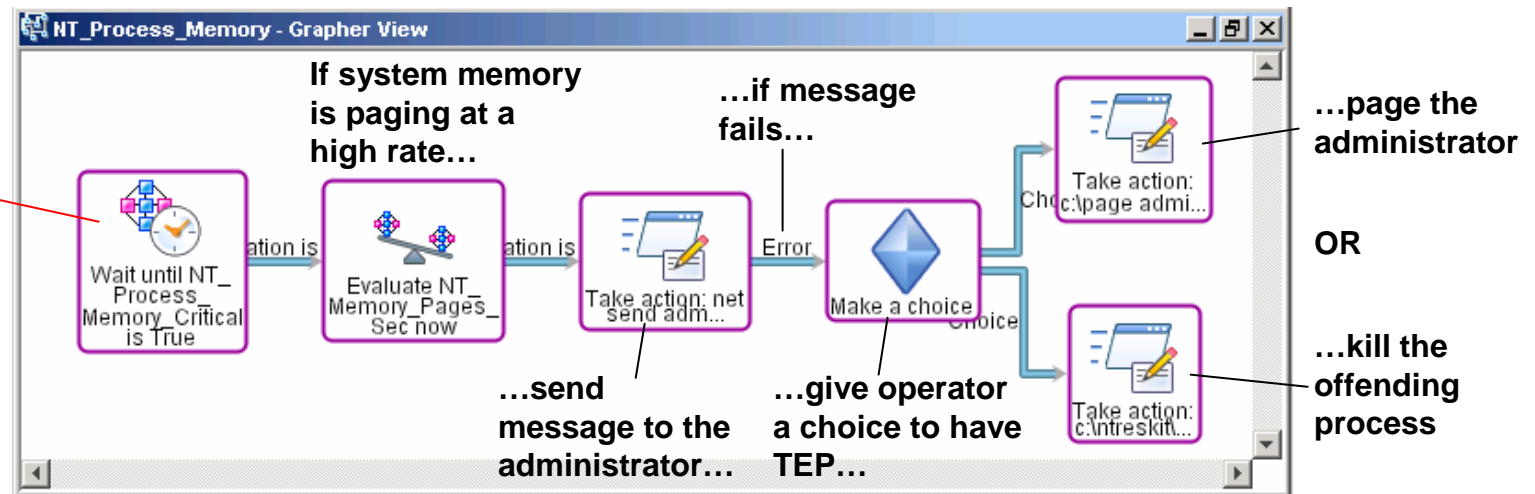
- Agents send **metrics** to the Monitoring Server
 - ▶ Examples: CPU usage, Disk usage, memory usage
- Operators define threshold values for metrics by specifying **conditions**
- Operators define **situations** that contain one or more conditions to test
 - ▶ When all conditions are met, the situation causes an alert
 - ▶ Management agents come with pre-defined situations that can be modified or extended



Automate Responses Using Policies

- A **policy** comprises a series of automated steps called *activities* that are connected to create a workflow
 - ▶ Policies perform actions, schedule work, and automate manual tasks
 - ▶ Policies can be fully-automated or require user intervention
 - Allows operator intervention and decision-making
- Use the **Workflow Editor** to create and manage automated response policies

A process is using too much memory!



Monitor z/OS with IBM Tivoli OMEGAMON XE on z/OS

- Monitor key resources – CPU, LPARs, I/O, enqueue, paging, and others
- Manage and tune Workload Manager service classes
- Monitor Parallel Sysplex environments, such as Coupling Facility status and related resource metrics
- Real-time performance metrics for IBM Cryptographic Coprocessors
- zAAP processor usage and reporting for Java workloads
- Processor usage and reporting for zIIP (introduced on System z9)
- Predefined, customizable out-of-the-box automation situations
- Expert advice explains alerts and offers potential fixes
- Dynamic workspace linking to other OMEGAMON XE products

DEMO: Monitor z/OS with IBM Tivoli OMEGAMON XE

Tivoli Enterprise Portal® Tivoli software

File Edit View Help

Physical

Partition MVSA Production

- DEMOPLX:MVSA:MVSSYS
 - Address Space CPU Utilization
 - Address Space Storage
 - Address Space Bottlenecks
 - Channel Path Activity
 - Common Storage
 - DASD MVS
 - DASD MVS Devices
 - Enclave Information
 - Enqueue and Reserve Summ
 - LPAR Clusters
 - Operator Alerts
 - Page Dataset Activity

Page: 1 of 3

CPU Usage

Where CPU Percent is greater than 0

Legend: CPU Percent (Yellow), TCB Percent (Red), SRB Percent (Blue)

Address Space CPU Utilization

Job Name	Step Name	Proc Step	SvcClass	SvcClass Period	ASID	JESJOBID	CPU Percent	TCB Percent	SRB Percent	Independent Enclave CPU%	Dependent Enclave CPU%	Total Enclave Count	Active Enclave Count
MASTER			SYSTEM	1	0X0001	STC02575	0.0	0.0	0.0	0.0	0.0	0	0
PCAUTH	PCAUTH		SYSSTC	1	0X0002		0.0	0.0	0.0	0.0	0.0	0	0
RASP	RASP		SYSTEM	1	0X0003		0.0	0.0	0.0	0.0	0.0	0	0
TRACE	TRACE		SYSTEM	1	0X0004		0.0	0.0	0.0	0.0	0.0	0	0
DUMPSRV	DUMPSRV	DUMPSRV	SYSTEM	1	0X0005		0.0	0.0	0.0	0.0	0.0	0	0
XCFAS	XCFAS	IEFPROC	SYSTEM	1	0X0006		0.4	0.0	0.4	0.0	0.0	0	0
GRS	GRS		SYSTEM	1	0X0007		0.4	0.4	0.0	0.0	0.0	0	0
SMSPDSE	SMSPDSE		SYSTEM	1	0X0008		0.0	0.0	0.0	0.0	0.0	0	0
CONSOLE	CONSOLE		SYSTEM	1	0X0009		0.0	0.0	0.0	0.0	0.0	0	0
WLM	WLM	IEFPROC	SYSTEM	1	0X000A		1.7	1.7	0.0	0.0	0.0	0	0
VTAM	VTAM	IEFPROC	SYSTEM	1	0X000B		0.0	0.0	0.0	0.0	0.0	0	0

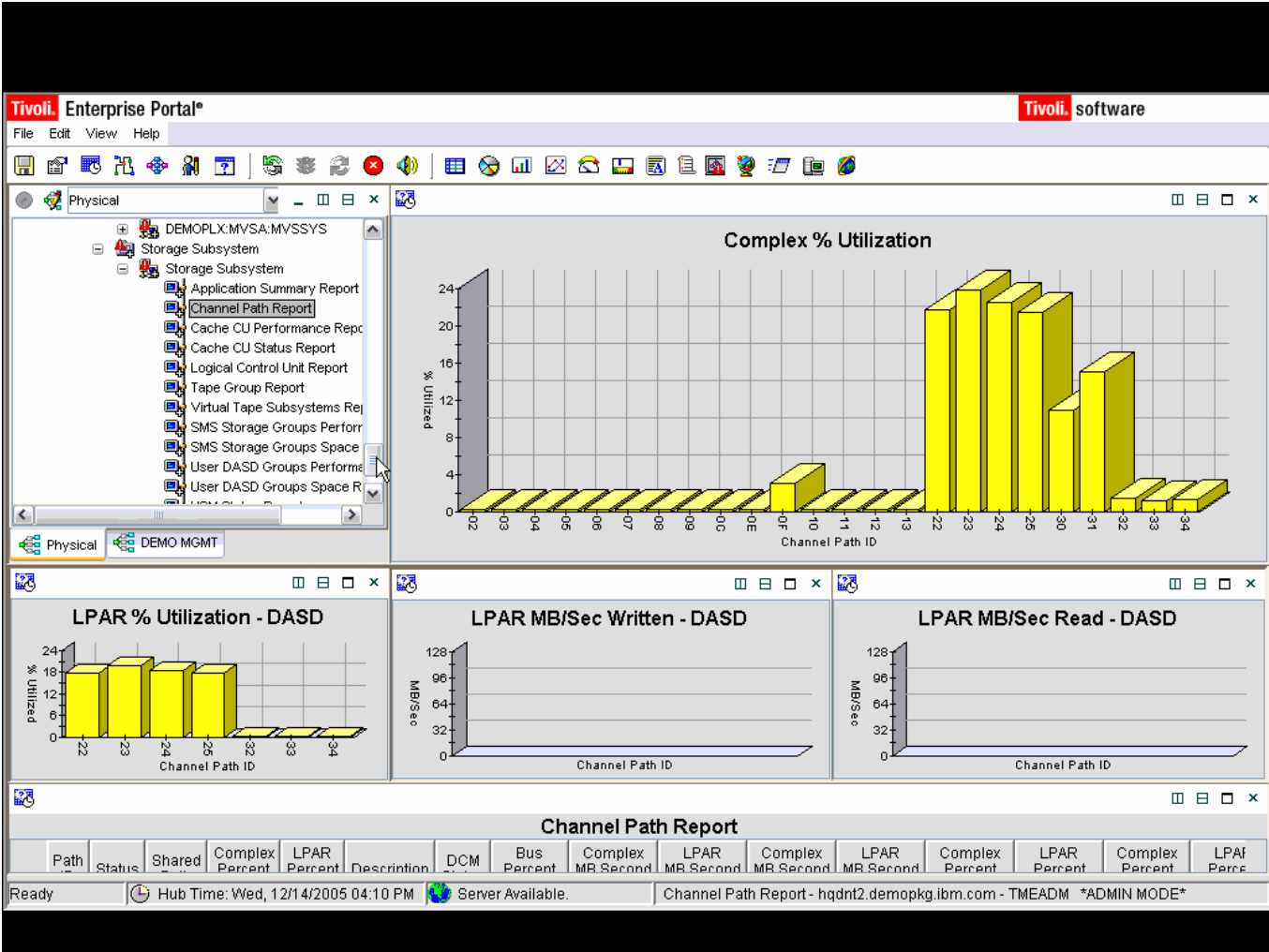
For System MVSA

Ready Hub Time: Thu, 12/15/2005 01:10 PM Server Available. Address Space CPU Utilization - hqndt2.demopkg.ibm.com - TMEADM *ADMIN MODE*

Manage Networks with IBM Tivoli OMEGAMON XE for Mainframe Networks and IBM Tivoli NetView for z/OS

- Manage VTAM sessions and TCP/IP connections from a single integrated interface
- Provides detailed analysis of TCP/IP connections that are slow, unstable, or down
- Measures application throughput rate and generates alerts if it increases over the baseline
- Measures transaction round-trip time, round-trip variance time, and other key metrics which provide a picture of end-user performance
- Automatic trouble ticket creation using IBM Tivoli Information Management for z/OS and Peregrine ServiceCenter

DEMO: Network Monitoring with IBM Tivoli OMEGAMON XE and IBM Tivoli NetView for z/OS



Monitor CICS systems with IBM Tivoli OMEGAMON XE for CICS on z/OS

- Monitor transaction resource usage and performance
- Identify tasks waiting for specific resources and pinpoint excessive wait times
- Monitor Java applications using the Java Virtual Machine (JVM) in CICS in addition to CICS dispatcher and TCP/IP connection
- Monitor Virtual Storage Access Method (VSAM) files and identifies record level sharing lock contention
- Correlate CICS log streams with associated facility structure to fine-tune CICS systems
- Correlate DB2 threads with CICS transactions to enable quicker problem identification and resolution

Monitor DB2 Performance with IBM Tivoli OMEGAMON XE for DB2 PM/PE on z/OS

- Monitor, analyze and tune the performance of IBM DB2 Universal Database and IBM DB2 applications
- Monitor threads, I/O, buffer pools, and SQL cache
- Monitor interaction of DB2 with CICS, IMS, and batch processes
- Monitor DB2 Connect – track communication between DB2 Connect and host thread
- Provides in-depth analysis with a wide range of detailed, customizable reports

DEMO: Monitor DB2 Performance with IBM Tivoli OMEGAMON XE



The Value to A Real Customer

A Case Study – Large European Financial Services Company

- Migrated from BMC system management tools to IBM Tivoli OMEGAMON XE family
- Benefits
 - ▶ The Tivoli applications offer a richer set of features that have led to several benefits, including the following:
 - ✓ **10 percent increase in availability**
 - ✓ **20 percent improvement in I/T staff productivity**
 - ✓ **30 percent reduction in I/T costs**
 - ▶ I/T staff detect problems before they occur and take steps to prevent them, resulting in increased system availability for the entire company and improved customer service.

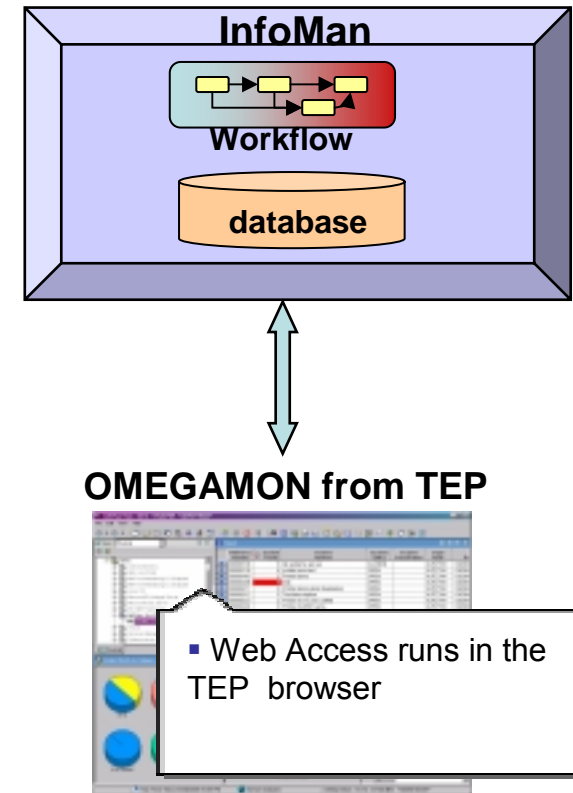
Incident Management

Did you know that you can link
OMEGAMON to **IBM Tivoli
Information Management for z/OS
(InfoMan)** for trouble ticketing?



Incident Management with IBM Tivoli Information Management for z/OS (InfoMan)

- **Automatic** incident creation from IBM Tivoli OMEGAMON and IBM Tivoli NetView
- Problem entry, assignment, notification, tracking and escalation
- Change-request tracking and approval
- Utilities to integrate with customer-built applications
- InfoMan and IBM Tivoli Web Access for InfoMan offer Blackberry support for viewing information and approvals



Monitoring Web Services

How about monitoring newer applications based on Web services/SOA?



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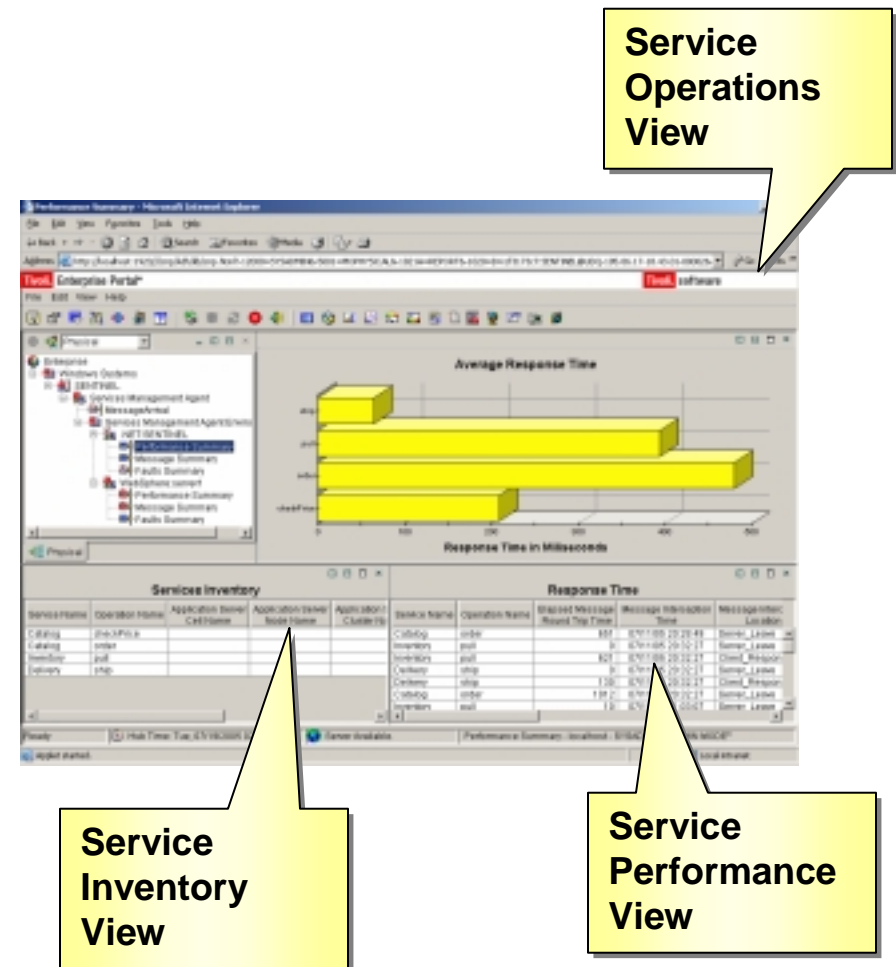
**IBM Tivoli Composite
Application Manager (ITCAM)
can help you!**



IBM

Monitor Web Services with IBM Tivoli Composite Application Manager (ITCAM) for SOA

- Provides service monitoring views in TEP
 - ▶ Maintains service performance with built-in and extensible alerts, mediations, situations and workflows
- Supports IBM WebSphere family including WebSphere Application Server, WebSphere Process Server, WebSphere ESB
- Cross-workspace linkages enable launch in context from services to application components and IT resources



Managing Batch Workloads

What about managing batch workloads across my SOA-enabled System z?



**On Demand Insurance
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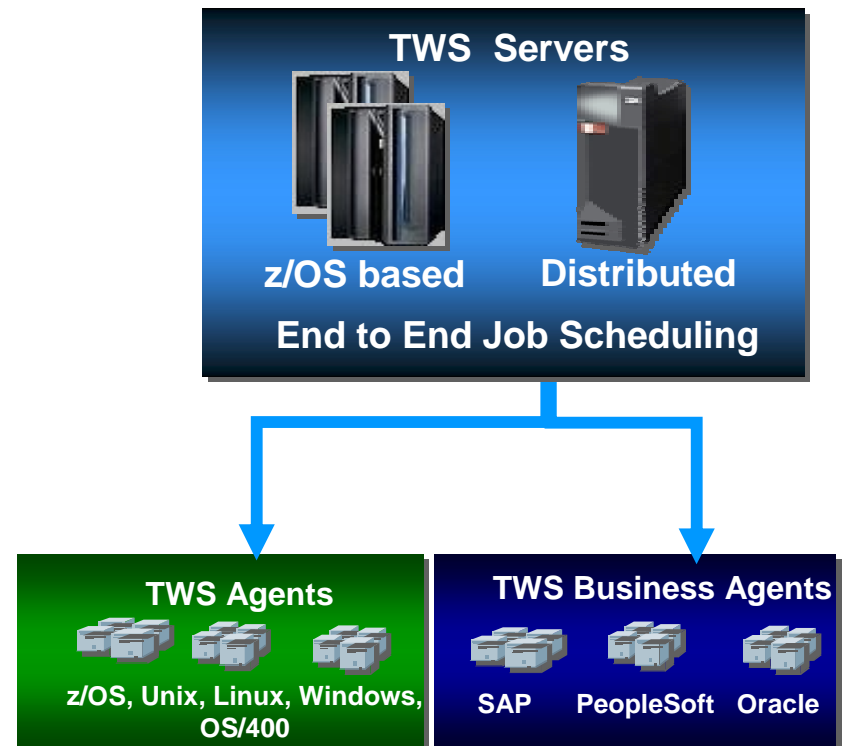
Let me tell you about **IBM Tivoli Workload Scheduler for z/OS!**



IBM

Workload Management with IBM Tivoli Workload Scheduler (TWS) for z/OS

- Automates, plans and controls the processing of production workload from TEP
- Drives workload performance according to business objectives
- Dynamic real-time workload automation in addition to calendar and event-based scheduling
- Critical path monitoring and integration with WLM to reduce delay in a critical batch workload
- Integrates with IBM Tivoli Workload Scheduler (for distributed platforms) to provide a true end-to-end Job Scheduler solution



Details for a Job Description Example – IBM Tivoli Workload Scheduler for z/OS

The screenshot displays the 'TWS_Job_Detail (Prototype) - PFWLER - SYSADMIN *ADMIN MODE*' window. On the left, a tree view shows the hierarchy: Enterprise > New Tables for IMS Systems > PFWLER > Windows OS > Prototype: TWS > TWS_Job_Detail (Prototype). The main area features a 3D bar chart titled 'Job Duration' showing execution times in seconds for jobs HOR50005, HOR50007, and HOR50001. A callout bubble points to the chart with the text: 'Graph showing duration times for each job that has executed'. Below the chart is a table titled 'Tivoli Workload Scheduler Detailed Job Status' with columns for Timestamp, Job Description, Application Identifier, Job Name, Operation Number, WS Identifier, Descriptive Text, Actual Start Time, Actual End Time, Duration, Error Code, and Job Status. A callout bubble points to the 'Job Status' column with the text: 'Thresholds on Status states'. The table shows various job statuses including Complete, Error, Started, Waiting, Ready, and Active.

Timestamp	Job Description	Application Identifier	Job Name	Operation Number	WS Identifier	Descriptive Text	Actual Start Time	Actual End Time	Duration	Error Code	Job Status
02/10/06 16:33:39	HOR50DAY	HOR50DAY	HOR50005	005	CPU	Operation 005	08:39:30	08:45:15	00:05:45	-	Complete
02/10/06 16:33:39	HOR50DAY	HOR50DAY	HOR50007	007	CPU	Operation 007	08:45:15	08:45:20	00:00:05	MCP	Error
02/10/06 16:33:39	HOR50DAY	HOR50DAY	HOR50006	006	CPU	Operation 006	08:45:20	00:00:00	00:00:00	-	Started
02/10/06 16:33:39	HOR50DAY	HOR50DAY	HOR50030	030	CPU	Operation 030	00:00:00	00:00:00	00:00:00	-	Waiting
02/10/06 16:33:39	HOR50DAY	HOR50DAY	HOR50010	010	CPU	Operation 010	00:00:00	00:00:00	00:00:00	-	Ready
02/10/06 16:33:39	HOR50DAY	HOR50DAY	HOR50035	035	CPU	Operation 035	00:00:00	00:00:00	00:00:00	-	Waiting
02/10/06 16:33:39	HOR50DAY	HOR50DAY	HOR50020	020	CPU	Operation 020	00:00:00	00:00:00	00:00:00	-	Waiting
02/10/06 16:33:39	HOR50DAY	HOR50DAY	HOR50025	025	CPU	Operation 025	00:00:00	00:00:00	00:00:00	-	Waiting
02/10/06 16:33:39	HOR50DAY	HOR50DAY	HOR50015	015	CPU	Operation 015	00:00:00	00:00:00	00:00:00	-	Ready
02/10/06 16:33:39	HOR50DAY	HOR50DAY	HOR50011	011	CPU	Operation 011	00:00:00	00:00:00	00:00:00	-	Waiting
02/10/06 16:33:39	HOR50DAY	HOR50DAY	HOR50001	001	CPU	Operation 001	00:00:00	00:00:00	00:00:00	40	Complete
02/10/06 16:33:39	HOR50DAY	HOR50DAY	HOR50004	004	CPU	Operation 004	00:00:00	00:00:00	00:00:00	00	Active
02/10/06 16:33:39	HOR50DAY	HOR50DAY	HOR50021	021	CPU	Operation 021	00:00:00	00:00:00	00:00:00	-	Waiting
02/10/06 16:33:39	HOR50DAY	HOR50DAY	HOR50012	012	CPU	Operation 012	00:00:00	00:00:00	00:00:00	-	Waiting
02/10/06 16:33:39	HOR50DAY	HOR50DAY	HOR50031	031	CPU	Operation 031	00:00:00	00:00:00	00:00:00	-	Waiting
02/10/06 16:33:39	HOR50DAY	HOR50DAY	HOR50032	032	CPU	Operation 032	00:00:00	00:00:00	00:00:00	-	Waiting

Summary

Using the **IBM Tivoli** management products we were able to **simplify operations without adding staff**



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