

1



IBM Software Group | Tivoli Software

Top 10 Problem Solving Scenarios Using IBM OMEGAMON and the Tivoli Enterprise Portal

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Questions

- Are you getting the most from your investment in System z hardware and z/OS software?
- Are you able to recognize and resolve issues efficiently?
- Are you able to maximize the performance and availability of your critical business applications?
- What are the most common issues and how can OMEGAMON address them?

Common Resources To Consider

- **Operating System**
 - LPARs, CPU, Memory, Address Spaces, DASD, Enqueues
- **Transactions**
 - Subsystems, Regions, Tasks, Transactions, Programs, Messages, Queues, Files, Pools, Buffers, Logging
- **Databases**
 - Subsystems, Files, Database Objects, Calls, Threads, Connections, Virtual Pools, Logging, Locking
- **Applications and Middleware**
 - Application tasks, application servers
 - Middleware tasks, message queues and channels
 - Threads, memory, garbage collection
- **Network**
 - Network Address Space, Applications, Connections, Interfaces

Scenario #1 - z/OS Operating System Analyzing z/OS High CPU Usage Issues – Real Time

The screenshot displays the Tivoli Enterprise Portal interface for z/OS monitoring. It is divided into several panels:

- System CPU Utilization (Top Left):** A bar chart showing various CPU metrics. A red callout box states: "System CPU utilization".
- Workload CPU Usage (Top Middle):** A bar chart showing CPU usage across different workloads.
- Partition CPU (Top Right):** A bar chart showing CPU usage for individual partitions.
- System CPU Utilization Table (Middle Left):**

Average CPU Percent	RMF MVS CPU Percent	RMF LPAR CPU Percent	Total TCB%	Total SRB%	Average IFA Percent	Average zIIP Percent
19	4.9	4.9	20	1	0	0
- Address Space Overview (Middle Right):** A bar chart showing CPU usage by address space. A red callout box states: "Product provided OMEGAMON z/OS workspaces show overall system CPU utilization, and CPU utilization by address space." Below the chart is a table:

Address Space	TCB Percent	SRB Percent	IFA Percent	IFA on CP Percent	zIIP Percent	zIIP on CP Percent
CXEGRH	~10	~2	~1	~1	~1	~1
NETVIEW	~4	~1	~1	~1	~1	~1
WILM	~2	~1	~1	~1	~1	~1
CXEGRA	~2	~1	~1	~1	~1	~1
CXEG02	~2	~1	~1	~1	~1	~1
ADHAB015	~2	~1	~1	~1	~1	~1
RMF001	~2	~1	~1	~1	~1	~1
- Central Storage Frame Count (Middle Far Right):** A bar chart showing frame counts for various address spaces. A red callout box states: "Address space utilization".
- Address Space Counts Table (Bottom Left):**

Address Space Count	Started Task Count	Batch Job Count	TSO User Count	APPC Count	Total Enclave Count	Active Enclave Count	Inactive Enclave Count
338	302	9	17	10	9	3	6
- Address Space CPU Utilization Summary Table (Bottom Middle):**

Job Name	Step Name	Proc Step	Type	SvcClass	SvcClass Period	ASID	JESJOBID	CPU Percent	TCB Percent	SRB Percent	IFA Percent	IFA on C Percent
CXEGRH	CXEGRH	AGENT	STC	0PSDEF	1	0X0154	STC15630	9.1	9.1	0.0	0.0	0
- Address Space CPU Utilization Summary Chart (Bottom Right):** A bar chart showing CPU usage by address space, categorized by fixed memory usage (Low, Extended, Large Fixed).

Scenario #1 - Analyzing z/OS High CPU A Custom Workspace For CPU Analysis

Tivoli Enterprise Portal Welcome Ed Woods
Log out IBM

File Edit View Help
Plot System CPU over time

Navigator

View: Physical

- MQSERIES
- MVS Operating System
 - DEMOPLX:MVSA:MVSSYS
 - Address Space Overview
 - Channel Path Activity
 - Common Storage
 - Cryptographic Coprocess
 - DASD MVS
 - DASD MVS Devices
 - Enclave Information

Physical

System CPU Utilization

Average CPU Percent	RMF MVS CPU Percent	RMF LPAR CPU Percent	Total TCB%	Total SRB%
7	5.1	5.1	34	2

System CPU Plot Chart

Create a custom workspace that shows both overall system and address space utilization

Address Spaces Using CPU

Job Name	CPU Percent	Type	SvcClass	SvcClass Period	ASID	JESJOBID	TCB Percent	SRB Percent	IFA Percent	IFA on CP Percent	zIIP Percent	zIIP on CP Percent	Indepe Enclave
WLM	1.3	STC	SYSTEM	1	0X000C		1.3	0.0	0.0	0.0	0.0	0.0	0.0
GRS	0.4	STC	SYSTEM	1	0X0007		0.4	0.0	0.0	0.0	0.0	0.0	0.0
ADHADB1S	0.4	STC	OPSDEF	1	0X00D1	STC15485	0.4	0.0	0.0	0.0	0.0	0.0	0.0
NETVIEW	0.4	STC	OPSDEF	1	0X0135	STC16169	0.4	0.0	0.0	0.0	0.0	0.0	0.0
CXEG02	0.4	STC	OPSDEF	1	0X0138	STC16688	0.4	0.0	0.0	0.0	0.0	0.0	0.0
RMFGAT	0.0	STC	SYSTEM	1	0X0000		0.0	0.0	0.0	0.0	0.0	0.0	0.0

CPU Usage

Where usage greater than 0%

Show address spaces using CPU (versus all tasks)

Consider a custom query

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5

Take Advantage Of Custom Queries To Optimize The Display Of Information

Exploit queries to optimize workspace performance
Use "Create Another" to make copies of product provided queries

The screenshot shows the Tivoli Enterprise Portal interface. On the left, a tree view shows the 'Address Space' folder. A red arrow points from the 'Address Space' folder to the 'Properties' dialog box. The 'Properties' dialog shows a table of 'Address Spaces Using CPU' with columns for Job Name, CPU Percent, Type, and SvcClass. A red box highlights the 'Query' button in the 'Address Spaces Using CPU' window. A red arrow points from the 'Query' button to the 'Query Editor' window. The 'Query Editor' window shows a list of queries on the left, with 'EW_AS_Overview' selected. A red box highlights the 'Query' button in the 'Query Editor' window. A red arrow points from the 'Query' button to the 'Query Editor' window. The 'Query Editor' window shows a 'Specification' tab with a table of query results. A red box highlights the 'CPU Percent' column in the 'Specification' table. A red arrow points from the 'CPU Percent' column to the 'Query Editor' window. A red box highlights the 'Query Editor' window. A red arrow points from the 'Query Editor' window to the 'Query Editor' window.

Right click "Properties"

Click "Query" then "create another"

Custom query requests address spaces using CPU

Select query from list

Job Name	CPU Percent	Type	SvcClass
WLM	1.3	STC	SYSTEM
GRS	0.4	STC	SYSTEM
ADHADB1\$	0.4	STC	OPSDEF

Managed System	CPU Percent	Job Name	Step Name	Proc Step	Tyt
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	== \$NODE\$ 0.0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Identify Looping Tasks - Address Space CPU Loop Index

Address Space Bottlenecks Summary - IBM-E9503533F87 - SYSADMIN *ADMIN MODE*
Page: 1 of 2

Navigator

View: Physical

- MVS Operating System
 - LPAR400:SP22:MVSSYS
 - Address Space Overview**
 - Channel Path Activity
 - Common Storage
 - Cryptographic Coprocessors
 - DASD MVS
 - DASD MVS Devices
 - Enclave Information
 - Enqueue, Reserve, and Lock Summary
 - LPAR Clusters
 - Operator Alerts
 - Page Dataset Activity
 - Real Storage
 - System CPU Utilization
 - System Paging Activity
 - Tape Drives
 - User Response Time
 - WLM Service Class Resources
 - z/OS UNIX System Services Overview

Selected Execution States

OMEGAMON XE For z/OS 4.20 added a "looping task" indicator. This attribute can be used to aid in identifying tasks that may be looping, and wasting CPU resources.

Address Space Bottlenecks Summary - Contention (%) by Resource

ASID	Job Name	Step Name	Proc Step	Type	Service Class	Period	Using CPU	Using IFA	Using zIIP	CPU Wait	IFA Wait	zIIP Wait	CPU Loop Index	Active I/O	Queued I/O	Enqueue Wait	Tape Mount	Resource Group Capping	Paging Wait	Serv Wai	
0X001D	SSANTCP1	RUMMIGS		Batch	BATCH	2	86.1	0.0	0.0	13.8	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0X0028	VTAM36	VTAM	VTAM36	STC	SYSSTC	1	4.0	0.0	0.0	0.4	0.0	0.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0X00E6	FX4SDSST	FX4SDSST	TEMS	STC	STCPROD	1	3.6	0.0	0.0	0.8	0.0	0.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0X0006	XCFAS	XCFAS	IEFPROC	STC	SYSTEM	1	3.2	0.0	0.0	0.4	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0X0007	GRS	GRS		STC	SYSTEM	1	2.4	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0X00D4	M5GBHUB1	M5GBHUB1	TEMS	STC	STC	2	1.6	0.0	0.0	0.4	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0X00E3	BWBBSRVR	BWBBSRVR	SCLMDTM	STC	STCPROD	1	1.2	0.0	0.0	0.4	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
0X000B	WLM	WLM	I																	0.0	0.0
0X00D2	MQRGMSTR	MQRGMSTR	P																	0.0	0.0
0X00DE	L3IAMQW9	L3IAMQW9	AGENT	STC	STC	2	0.8	0.0	0.0	0.4	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Situation alerts with "Take Action" may be created using this function.

Leverage OMEGAMON As Part Of An Integrated Dashboard Monitoring Strategy

The screenshot displays the Tivoli Enterprise Portal interface with several monitoring panels:

- Graphic View:** Shows system status indicators for CICS, DB, z/OS, and Network. A yellow triangle icon is labeled "Alerts".
- TWS Problem Jobs:** A table listing jobstreams and their statuses. A red callout box says "TWS to track problem jobs".

Jobstream	Sched Time	Status	Time Stamp	Jobstre
PAYROLLE2EA	201109120800	Error	20110919060205	C85906095
PAYROLLE2EA	201109130800	Error		
PAYROLLE2EA	201109140800	Error		
- Potential Looping Task:** A table showing CPU usage metrics. A red callout box says "Highlight potential issues" with an arrow pointing to the "CPU Loop Index" value of 93.3.

Job Name	Using CPU	CPU Loop Index	Using IFA	Using zIIP	CPU Wait	IF
	5.4	93.3	0.0	0.0	0.6	0
- Unavailable Task Status:** A table showing task status for various resources. A red callout box says "System Automation task status".

Resource Name	System	Observed Status	Desired Status	Automat Status
DEMO_CICS01	DEMOMVS3	SoftDown	Available	Idle
MSM	DEM			
NETV_PLEX	DEM			
- Critical Messages:** A table showing system messages. A red callout box says "System Automation critical messages".

System Message ID	Severity	Timestamp	DF
DEMOMVS	Unusual	08/17/11 20:11:21	DF
DEMOMVS	Unusual	08/17/11 20:11:50	EE
DEMOMVS	Unusual	08/17/11 20:11:50	EE
DEMOMVS	Unusual	08/17/11 20:11:51	EE
- System CPU Usage:** A table showing CPU usage for managed systems. A red callout box says "OMEGAMON z/OS tracks CPU usage".

Managed System	Average CPU Percent	RMF MVS CPU Percent	RMF LPAR CPU Percent	Total TCB%	To SR
DEMOPLX:MVSB:MVSSYS	1	1.8	1.8	3	
DEMOPLX:MVSC:MVSSYS	1	2.3	2.3	3	
DEMOPLX:MVSA:MVSSYS	6	4.9	4.9	20	
- Important WTORs:** A table showing system messages. A red callout box says "System Automation WTORs".

Resource System	Severity	Reply ID	Message ID	Message Text
DEMOMVS	UNUSUAL	125	HWSC00001	*IMS CONNECT RE
DEMOMVS				ADY** IMST
DEMOMVS				NNECT RE
DEMOMVS				REPLY W

Scenario #2 – Isolating DB2 Performance Bottlenecks

DB2 Threads Analysis

DB2 threads are a common starting place for DB2 performance analysis. Common things to look for include:
Threads with high “In-DB2” time
Threads with high Getpage counts
Threads with high wait times (lock/latch, I/O, other)

Navigation push-buttons

Product provided DB2 Thread workspace provides an easy to sort and view overview of threads. Move columns, click on column header to sort.

	Elapsed Time	Plan	Package DBRM (Unicode)	CP CPU Rate	Thread Status	In DB2 CP CPU Time	In DB2 Time	Wait Time	Get Page	Updates	Commits	Authorization ID (Unicode)	Job Name
	23 Days	ADHPLAN3	ADHASSCS	0.0	NOT-IN-DB2	00:00:20.258	00:00:51.908	00:00:30.701	646776	2289	11266	AEAGENT	ADHADB1S
	23 Days	ADHPLAN3	ADHAAAIS	0.0	NOT-IN-DB2	00:00:19.813	00:01:26.904	00:01:06.813	53748	21848	12222	AEAGENT	ADHADB1S
	23 Days	ADHPLAN3	ADHMSUMT	0.0	NOT-IN-DB2	00:00:13.792	04:04:47.208	01:34:53.823	74581	11651	2245	KLTAYLO	ADHSRV2
	23 Days	ADHPLAN3	ADHAAFLR	0.0	NOT-IN-DB2								ADHADB1S
	23 Days	ADHPLAN1		0.0	NOT-IN-DB2								ADHADB1S
	00:37:47.1	DB2PM	DGO@PC1	0.0	NOT-IN-DB2								CXEGO2

DB2 Thread Analysis

Creating A Custom Thread Analysis Workspace

Create a custom DB2 thread workspace to speed thread analysis. View threads by various categories on the same screen.

The screenshot displays a Tivoli Enterprise Portal interface with a custom workspace for DB2 thread analysis. The workspace is divided into several panels:

- Navigator:** Shows a tree view with 'Thread Activity' selected under 'DB2'.
- Distributed Threads:** A table showing threads with columns: MVS ID, DB2 Subsystem, Plan, Correlation ID, and Package DBRM. A red callout 'Distributed' points to this panel.
- CICS Threads:** A table showing threads with columns: MVS ID, DB2 Subsystem, Plan, Correlation ID, Package DBRM, and Aut. A red callout 'CICS/IMS online' points to this panel.
- Batch Threads:** A table showing threads with columns: MVS ID, DB2 Subsystem, Plan, and Correlation ID. A red callout 'Batch' points to this panel.
- Highest Getpage Threads:** A table showing threads with columns: DB2 Subsystem, Plan, Package DBRM, and Get Page. A red callout 'High Getpage' points to this panel.
- All DB2 Threads:** A summary table with columns: MVS ID, DB2 Subsystem, Plan, Correlation ID, and Package DBRM. A red callout 'All Threads' points to this panel.
- Top Ten In-DB2 Time Threads:** A horizontal bar chart showing 'In-DB2 Time' for various plans. A red callout 'High "In-DB2"' points to this panel.
- Top Ten Getpage Threads:** A horizontal bar chart showing 'Get Page' for various plans. A red callout 'High Getpage' points to this panel.

A red callout 'Use a custom query or workspace options to filter and sort' points to the 'Get Page' column in the 'Highest Getpage Threads' table.

Creating A Custom Thread Analysis Workspace - Continued

Start with the product provided workspace, and customize to the needs of the environment workload. Do "Save As" to save the workspace to the portal server.

Right click "Properties"

Click column headers to control content

MVS ID	DB2 Subsystem	Plan	Correlation ID	Package DBRM	Authorization ID	Connection Type	CP Rate
MVSA	DB1S	DISTSERV	db2jcc_appli		DDS1621	DBAccess	0
MVSA	DB1S	DISTSERV	db2jcc_appli		DDS1621	DBAccess	0

	MVS ID	DB2 Subsystem	Plan	Correlation ID	Package DBRM	Authorizat
1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2			= DISTSERV			
3						

OMEGAMON XE For DB2 PE V5.1

Analyze Distributed DB2 Thread Performance Within The Portal

The screenshot displays the OMEGAMON XE For DB2 PE V5.1 interface. On the left is a Navigator pane showing a tree view of DB2 resources, including DB2plex, PMO1, and various DB2 instances (D811, D813, D911, DA11, SZ11). A red arrow points from a red text box to the 'Thread Activity' folder in the Navigator.

The main area is titled 'Thread Summary Navigation' and contains several tabs: 'All Threads Connected to DB2', 'CICS Threads', 'Detailed Thread Exceptions', 'Distributed Allied Threads', 'DBAT End-to-End SQL Monitoring' (selected), 'Enclave Threads', 'IMS Threads', 'Lock Conflicts', 'Packages', 'Plans', and 'Utility Jobs'. A red text box highlights the 'DBAT End-to-End SQL Monitoring' tab with the text: 'Response time, network time, client time'.

Below the navigation tabs is the 'Extended Insight Analysis Dashboard: DEMO@local'. It features a table of workload clusters with columns for Graph, Workload Cluster Group/Workload Cluster, Average End-to-End Response Time (sec), Maximum Inflight Elapsed Time (sec), Maximum End-to-End Response Time (sec), Average Data..., Average Network Time..., Average Client Time (sec), Warning (%), Critical (%), and Transactions (/min). The 'resultspergeo' workload cluster is highlighted in yellow.

Below the table are three charts for selected workload cluster groups: 'Cognos users', 'resultspergeo', and 'earningspershare'. Each chart shows 'Average End-' (blue line), 'Maximum tim' (orange line), and 'Maximum enc' (green line) over time. The 'resultspergeo' chart also includes 'Warning' (yellow) and 'Problem' (red) indicators.

A red text box on the left side of the interface states: 'OMEGAMON XE For DB2 PE V5.1 provides end-to-end distributed SQL monitoring information'.

Scenario #3 – Isolating CICS Performance Issues

CICS Task Analysis

Tasks running within a given CICS region are a common starting point for CICS performance analysis

Drill downs for additional detail. Dynamic links to navigate to other tools within the TEP.

System ID	CICS Region Name	CICS SYSIDNT	Transaction ID	Task State	Task Number	CPU Time	Elapsed Time	Resource Type	Resource Name	Wait Type	User ID	Terminal ID	Program ID	E
SP22	CIC8SPG1	SPG1	CSOL	Suspend	00003	00:00:00.01	00:02:48.52	SODOMAIN	SO_NOWOR	Socket	n/a	n/a	DFHSOL	Ni
SP22	CIC8SPG1	SPG1	CSSY	Suspend	00005	00:00:00	00:02:48.5	ICMIDNTE	DFHAPTIM	Interval	n/a	n/a	DFHAPATT	Ni
SP22	CIC8SPG1	SPG1	CSSY	Suspend	00006	00:00:00.01	00:02:48.5	ICEXPIRY	DFHAPTIX	Interval	n/a	n/a	DFHAPATT	Ni
SP22	CIC8SPG1	SPG1	CSTP	Suspend	00008	00:00:00.3	00:02:48.5	TCP_NORM	DFHZDSP	Terminal	n/a	n/a	DFHZCSTP	Ni
SP22	CIC8SPG1	SPG1	CSNC	Suspend	00019	00:00:00	00:02:48.45	CSNC	MROQUEUE	MRO	n/a	n/a	DFHCRNP	Ni

“Transaction Analysis” workspace will show task info, task state, elapsed time, CPU time, resource being accessed, and current wait reason for the task. Use to determine if the task is processing or waiting, and if waiting what is the reason.

Isolating CICS Performance Issues

CICS Task Analysis And Region Analysis With A Custom Workspace

CICS region overview (use a custom query) to be able to see CICS activity cross region.

System ID	CICS Region Name	CICS SYSIDNT	CPU Utilization	Transaction Rate	I/O Rate	Page Rate	Maximum Tasks Percent	VTAM ACB Open	SOS	Region Status	Storage Vi in Last
MVSA	CICSAOR1	C22A	0.0	0	0.0	0.0	3	Yes	No	N/S	
MVSA	CICSAOR2	C22B	0.0	0	0.0	0.0	2	Yes	No	N/S	
MVSA	CICSAOR3	C22C	0.0	0	0.0	0.0	1	Yes	No	N/S	
MVSA	CICSAOR4	C22D	0.0	0	0.0	0.0	2	Yes	No	N/S	

Add a link to navigate cross-region.

Transaction Processor Utilization

Create a custom CICS workspace to view CICS region and CICS task activity from a consolidated view.

Transaction Analysis

System ID	CICS Region Name	CICS SYSIDNT	Transaction ID	User ID	Terminal ID	Task Number	Resource Type	Resource Name	Task State	Elapsed Time	CPU Time	Program ID	Exceeds MAXR Threshold	DB2 Correlation Identifier
MVSA	CICSAOR1	C22A	OSEC	SYSSTC	n/a	00070	USERWAIT	SR2WORK	Suspend	17:51:29.69	00:00:00	KOCSR2ZZ	No	n/a
MVSA	CICSAOR1	C22A	OSRV	SYSSTC	n/a	00069	USERWAIT	SRWORK	Suspend	17:51:29.88	00:00:00.18	KOCSR2ZZ	No	n/a
MVSA	CICSAOR1	C22A								1.19	00:00:39.32	EYU9XLOP	No	
MVSA	CICSAOR1	C22A								3.68	00:00:00.01	EYU9XLOP	No	n/a

Transaction overview for a given CICS region.

Scenario #4 – Isolate IMS Bottlenecks Analyze IMS Queues And Processing

Product Provided IMS Health workspace focuses on many key rate metrics

The screenshot displays the Tivoli Enterprise Portal interface for IMS Health. The left sidebar shows a tree view with 'IMS Health' selected. The main workspace contains several performance gauges:

- Total Message ENQ/DEQ Rates:** Two gauges for Total ENQ Rate and Total DEQ Rate, both showing 0.0.
- CPU Percent for Control and Dependent Regions:** Two gauges for Control CPU Percent and Dependent CPU Percent, both showing 0.0.
- Paging and I/O Rates for all IMS address spaces:** Two gauges for Total I/O Rate and Total Paging Rate, both showing 0.0.
- Total Transaction queue depth and rate:** Two gauges for Total Transaction Queue and Total Transaction Rate, both showing 0.0.

Red callout boxes highlight these metrics:

- Enqueue/dequeue rates** (pointing to the first two gauges)
- CPU rates** (pointing to the second two gauges)
- Tran queue & tran rate** (pointing to the last two gauges)

A red text box on the left states: "Understanding and analyzing IMS processing rates and queue activity is key to managing IMS performance."

At the bottom, a table titled 'IMS Health' provides a summary of these metrics:

IMS ID	FF ENQ Rate	BALG ENQ Rate	Total ENQ Rate	FF DEQ Rate	BALG DEQ Rate	Total DEQ Rate	Control CPU Percent	Dependent CPU Percent	Total CPU Percent	Control I/O Rate	Dependent I/O Rate	Total I/O Rate	Control Paging Rate	Dependent Paging Rate	Total Paging Rate	FF Transaction Queue	BALG Message Queue	Total Transaction Queue	FF Transaction Rate	BALG Message Rate

The TEP Provides Powerful Chart Functions And Statistical Analysis Features

The screenshot displays the Tivoli Enterprise Portal interface with several windows open:

- Navigator:** Shows a tree view of the Enterprise structure, including 'EW_Demo_Integrated_View', 'EW_IMS_Demo_View', and 'EW_Test_Screen'.
- Competing & Stopped Trans:** A 3D bar chart showing transaction counts for various categories.
- Bottleneck Analysis - System:** A line graph showing system performance metrics over time.
- Area Chart:** A 2D area chart showing 'RO Time' and 'AVG' over a period from 03/09/10 08:20:00 to 03/09/10 08:40:00. A red callout box points to the 'AVG' line with the text 'Baseline analysis and arithmetic functions'.
- Add Statistical Baseline Dialog:** A modal dialog box with a table for selecting statistical functions and a dropdown for the attribute.

Name	Argument	Result
<input type="checkbox"/> RANGE - MIN/MAX		
<input checked="" type="checkbox"/> AVG	+/- 0 standard deviation	
<input type="checkbox"/> MIN	+/- 0 percent	
<input type="checkbox"/> MAX	+/- 0 percent	
<input type="checkbox"/> PERCENTILE	50	
<input type="checkbox"/> MODE		

The dialog also includes an 'Attribute' dropdown set to 'Input Message Rate' and a 'Time Span' dropdown set to 'Last 24 Hours'. Buttons for 'OK', 'Cancel', 'Apply', and 'Help' are at the bottom.

Area plot charts provide a different perspective of history

Scenario #5 – Network Performance And Availability Understanding The Impact Of The Network On z/OS

Tivoli Enterprise Portal Welcome Ed Woods Log out IBM

File Edit View Help

By integrating information from OMEGAMON Mainframe Networks with information from the other OMEGAMONs, you can get a better understanding of the network impact on the workload

Alert graphic view

Originating System ID	Correlation ID	MVSA ID	D
DB1S:MVSA:DB2	db2jcc_appli	MVSA	D

DB2 Distributed threads

System ID	CICS Region Name	Group Number	Group Type	G
CICS Response time				

Application Name	Origin Node	Response Time	Resp Tin Vari
DSNADIST	TCPIP:MVSA	0.00	
DSNADIST	TCPIP:MVSA	0.00	

DB2 network

Origin Node	Application Name	Response Time
TCPIP:MVSA	CICSAOR3	0.00
TCPIP:MVSA	CICSWUI	0.00

CICS network

IMSID	RTA Group Name	RTA Group Number	Input Queue Time	Proce Tir
IMSB	SYSTEM	0	0.000171	0.00
IMSB	SYSTEM	0	0.000171	0.00
IMSB	SYSTEM	0	0.000171	0.00
IMSB	CLASS 1	1	0.000171	0.00
IMSP	CLASS 1	1	0.000171	0.00
IMS			1171	0.00

IMS Response time

Origin Node	Foreign IP Address	Foreign Port	Byte Rate
TCPIP:MVSA		0	0
TCPIP:MVSA		0	0
TCPIP:MVSA		0	0
TCPIP:MVSA		0	0
TCPIP:MVSA		0	0
TCPIP:MVSA		0	0

IMS network

Situation Event Console

Alerts

Take Action

Actions

Exploit Queries To Optimize The Display

The screenshot shows the Tivoli Enterprise Portal interface. The main window displays a 'Graphic View' with a network diagram containing nodes for z/OS, CICS, IMS, Network, and DB2. Below this, the 'Properties - EW_Network_View' window is open, showing a table of 'DB2 Dist Network' data. A red arrow points from the 'Query' button in the 'DB2 Dist Network' table to the 'Query Editor' window. In the 'Query Editor', a new query is being configured with the name 'All Connections no Filter' and a description 'This query returns all attributes for all connect...'. The 'Specification' section shows a table with columns for Application Name, Byte Rate, and Connection Time. A red box highlights the 'Application Name' column, which is filtered to 'DSNADIST'. A red callout box with white text says: "Created another" query and filtered for DB2 distributed (DSNADIST)".

Application Name	Origin Node	Response Time	Response Time Variance	Byte Rate	IP	Port	Status	Origin
DSNADIST	TCPIP:MVSA	0.00	0.00	0				
DSNADIST	TCPIP:MVSA	0.00	0.00	0				

Application Name	Byte Rate	Connection Time
Application Name	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Byte Rate	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Connection Time	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Formula	<input type="checkbox"/>	<input type="checkbox"/>

NetView Integrates With The Tivoli Enterprise Portal Don't Overlook The Value Of NetView

TCPIP Connections

Percent Segments Retransmitted >= 3

Collection Time	Total Active Connections
09/16/11 13:15:02	607

Active TCP/IP Connection Count

NetView interface to the TEP provides information on VIPA, Hipersockets, OSA, Sessions, Connections, Commands and more....

TCPIP Connection Data Summary

Collection Time	TCPIP Job Name	Local IP Address	Local Port	Remote IP Address	Remote Port	Connection Start Time	Last Activity	Resource	Conn
09/16/11 13:15:02	TCPIP	9.39.68.147	21	9.39.66.103	48235	09/16/11 13:15			
09/16/11 13:15:02	TCPIP	9.39.68.147	9558	9.65.223.103	1088	09/16/11 13:14			
09/16/11 13:15:02	TCPIP	9.39.68.147	9558	9.39.68.147	34172	09/16/11 13:14			
09/16/11 13:15:02	TCPIP	9.39.68.147	34172	9.39.68.147	9558	09/16/11 13:14			
09/16/11 13:15:02	TCPIP	9.39.68.147	2001	9.39.68.192	41485	09/16/11 13:13			

SNA Session data

Take Action

Active Session Count

Collection Time	Total Active Sessions
08/21/11 01:00:00	512

Session Data Summary

Collection Time	Primary Name	Primary Type	Primary Domain	Primary Takeover Giveback	Secondary Name	Secondary Type	Secondary Domain	Secondary Takeover Giveback	Start Time	PCID	XRF Type	DL
08/21/11 01:00:00	USIBMNR.NDCMVSA	SSCP	CNM16		USIBMNR.DDCTSO03	LU	CNM16		08/21/11 00:38:21	USIBMNR.NDCMVSA.CD637F8C83CD2E55		
08/21/11 01:00:00	USIBMNR.NDCMVSA	SSCP	CNM16		USIBMNR.TCP00007	LU	CNM16		08/21/11 00:38:21	USIBMNR.NDCMVSA.CD637F8C83CD2E53		
08/21/11 01:00:00	USIBMNR.NDCMVSA	SSCP	CNM16		USIBMNR.XES1MV50	LU	CNM16		08/20/11 20:06:20	USIBMNR.NDCMVSA.CD637F8C83CD2D2A		
08/21/11 01:00:00	USIBMNR.NDCMVSA	SSCP	CNM16		USIBMNR.XES1MV51	LU	CNM16		08/20/11 20:06:06	USIBMNR.NDCMVSA.CD637F8C83CD2D28		
08/21/11 01:00:00	USIBMNR.NDCMVSA	SSCP	CNM16		USIBMNR.XES1MV52	LU	CNM16		08/20/11 20:06:04	USIBMNR.NDCMVSA.CD637F8C83CD2D26		

Scenario #6 - Storage

Storage – Understanding I/O bottlenecks

- I/O potentially impacts many types of workload on z/OS
 - DB2, IMS, CICS, MQ, WebSphere and much more.....
 - CPUs are **FAST**, I/O is **SSLLOOWW**.....
- OMEGAMON provides I/O information in several areas
 - OMEGAMON XE For z/OS – I/O by Volser, I/O for tasks, Paging I/O
 - OMEGAMON XE For DB2 – I/O by DB2 object and volser, Logging I/O
 - OMEGAMON XE For CICS – VSAM I/O (LSR stats), task and region delays
 - OMEGAMON XE For IMS – IMS DB I/O, IMS MSG Q data set I/O, IMS log I/O
 - OMEGAMON XE For Mainframe Networks – FTP activity
 - OMEGAMON XE For Messaging – Queues, buffers, logging
- OMEGAMON XE For Storage provides the most robust analysis of storage and I/O on z/OS
 - LCU, Control Unit, Volser, dataset level
 - Virtual tape, Cache control unit (including control unit internal info)
 - SMS and HSM monitoring analysis
 - User defined I/O and space groups, Application I/O and space groups

Storage – Understanding I/O Bottlenecks

OMEGAMON Storage provides detailed I/O bottleneck analysis via drill down capability

The screenshot shows the 'Average Delay Queue' window with a graph of Queue vs LCU Number. The x-axis labels are 00A, 00B, 00C, 00D, 016, 017, 018. The y-axis is labeled 'Queue' and ranges from 0 to 1. A red callout box highlights the graph area.

Use the capabilities of the TEP to sort and filter the display

The screenshot shows the 'Logical Control Unit Report' table and the 'Volume Performance Report' table. A red callout box highlights the 'Volume Performance Report' table.

LCU Number	Average Delay Queue	Contention Rate	Director Port Busy Percent	Control Unit Busy Percent	Chan I/O
00A	0.000	0.000	n/a	0.00	
016	0.000	0.000	n/a	0.00	
00D	0.000	0.000	n/a	0.00	
018	0.000	0.000	n/a	0.00	
017	0.000	0.000	n/a	0.00	

Volume	Device Address	Busy Percent	I/O Per Second	IOSQ Delay	Pend Time	Connect Time	Disconnect Time	Response Time	MSR Connect Time Percent	I/O Count	Device MPL	DCBs Open	Reserved Percent	Average HyperPAV Alias Count	Average Command Response Delay
DMPU35	103E	0.0	1.5	0.0	0.1	0.3	0.0	0.4	75.0	2007	1	0	0.0	n/a	0.0
DMP48	1032	0.0	0.6	0.0	0.1	0.6	0.0	0.8	75.0	913	0	34	0.0	n/a	0.0
DMPU51	103A	0.0	0.4	0.0	0.1	0.2	0.0	0.3	66.7	539	0	0	0.0	n/a	0.0
DMP129	1038	0.0	0.4	0.0	0.1	0.1	0.0	0.2	50.0	541	0	0	0.0	n/a	0.0

Storage – Understanding I/O Bottlenecks From The Application Perspective

It's important to understand the impact of I/O on the application. OMEGAMON Storage provides powerful application level I/O and space monitoring capabilities.

“Application Summary” allows the user to target specific workloads for I/O and space monitoring

Application	ASID	I/O Second	Dataset Count	High Dataset MSR	Dataset with High MSR	Volume with High MSR Dataset
DB1SMSTR	131	19	19	0.0		
DB1SIRLM	135	0	1	0.0		
DB1SDBM1	144	2927	4	0.0		
DB1SDIST	146	0	3	0.0		
CICSAOR6	154	2	85	0.0		
DB1SWLM	18	2	7	0.0		
CICSAOR1	293	2	97	0.0		
CICSAOR2	401					

Monitor the application, then drill down for additional detail. Go from Volser down to dataset level detail.

Volume	Device Address	Busy Percent	I/O Per Second	IOSQ Delay	Pend Time	Connect Time	Disconnect Time	Response Time	MSR Connect Time Percent	I/O Count	Device MPL	DCBs Open	Reserved Percent	Average HyperPAV Alias Count	Average Command Response Delay
DMPP30	10A1	0.0	0.4	0.0	0.1	0.1	0.0	0.2	50.0	1119	0	60	0.0	n/a	0.0
DMPP31	1074	0.0	0.0	0.0	0.1	0.1	0.0	0.2	50.0	146	0	47	0.0	n/a	0.0
DMPP08	1071	0.7	11.4	0.0	0.1	0.6	0.0	0.7	85.7	194...	8	85	0.0	n/a	0.0
DMPD02	1300	0.0	0.5	0.0	0.1	0.1	0.0	0.3	33.4	645	0	0	0.0	n/a	0.0
DMPD04	1302	0.0	0.2	0.0	0.1	0.1	0.0	0.2	50.0	697	0	0	0.0	n/a	0.0

OMEGAMON for z/OS Management Suite V4.2.0

Add Network And Storage Monitoring Capabilities To Your Existing Monitoring Suite

- OMEGAMON z/OS Management Suite V4.2 provides a convenient way to add integrated z/OS, Network, and Storage in a single solution
- Expands the reach of core z/OS monitoring
 - Include robust detailed network analysis
 - Add more detailed storage information
 - All integrated via the Tivoli Enterprise Portal
- For more information:
 - <http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=an&subtype=ca&htmlfid=897/ENUS211-325&appname=isource&language=enus#h2-abstrx>

Scenario #7 – WebSphere MQ Isolate MQ Performance Issues

WebSphere MQ issues typical starting points
Queue Statistics (Queue status and queue depth)

Channel Performance (Channel status and ...)

Queue Statistics Summary

Number of Queues

Legend:

- Monitored Queues
- Open Queues
- # Qs With High Depth
- # of Qs Get-Inhib
- # of Qs Put-Inhib

Queue Utilization for Monitored Queues with Messages

Page: 1 of 2

Queue Statistics for Monitored Queues with Messages

Page: 1 of 2

Queue Name	Queue Usage	Definition Type	Total Opens	Input Opens	Output Opens	Current Depth	Msgs Put per Sec	Msgs Read per Sec	High Depth Threshold	Highest Depth	% Full	Ret Intvl Exceeded	Get Status	Put Status	Cur Opened Exclusive	C	D
WSQM	XmitQ	Predefined	0	0	0	448650	0.0	0.0	80	0	0.0	No	Disa...	Ena...	n/a	Yi	
DEMO00.QREP.DATAQ	Normal	Predefined	0	0	0	154343	0.0	0.0	80	0	0.0	No	Ena...	Ena...	n/a	Yi	
TGT_QM_ZL	XmitQ	Predefined	0	0	0	75578	0.0	0.0	80	0	0.0	No	Ena...	Ena...	n/a	Yi	

Use Situations To Alert On MQ Queue Depth

The screenshot displays the Tivoli Enterprise Portal interface. The 'Queue Statistics Summary' window shows a 3D bar chart with the following legend:

- Monitored Queues (Yellow)
- Open Queues (Blue)
- # Qs With High Depth (Red)
- # of Qs Get-Inhib (Green)
- # of Qs Put-Inhib (Cyan)

A red callout box points to a situation alert in the 'Physical' view:

Critical
 EW_Q_Depth_High WMQA:MVSA:MQESA 07/07/10 18:29:07

Another red callout box points to the situation alert with the text: **Click to get details on the situation alert**

At the bottom, a table displays queue statistics:

Queue Name	Queue Usage	Definition Type	Total Opens	Input Opens	Output Opens	Cur Opened Exclusive	Curren Depth	Highest Depth	High Depth Threshold	% Full	Ret Intvl Exceeded	Get Status	Put Status	Cur Defn	Trigger Control	Trigger Type
WSQM	XmitQ	Predefined	0	0	0	n/a	448650	0	80	0.0	No	Disa...	Ena...	Yes	No	First
DEM000.OPER.DATAC	Normal	Predefined	0	0	0	n/a	154343	0	80	0.0	No	Ena...	Ena...	Yes	No	First

A Situation To Monitor MQ Queue Depth

The various tabs control where the situation logic runs, and if the situation takes an action, or sends an alert via the EIF interface

Use "Action" to have the situation issue a corrective action. Use "EIF" to have the situation send the event to OMNIBus.

Boolean logic can be used to monitor for multiple scenarios within a single situation

	Current Depth	Queue Name	Msgs Put per Sec
1	> 100	== WSQM	
2	> 500	== WSQA	
3	== 1000		> 10.0

Right click and select "Situations"

Sampling interval: 0 / 0 : 1 : 0 (ddd hh mm ss)

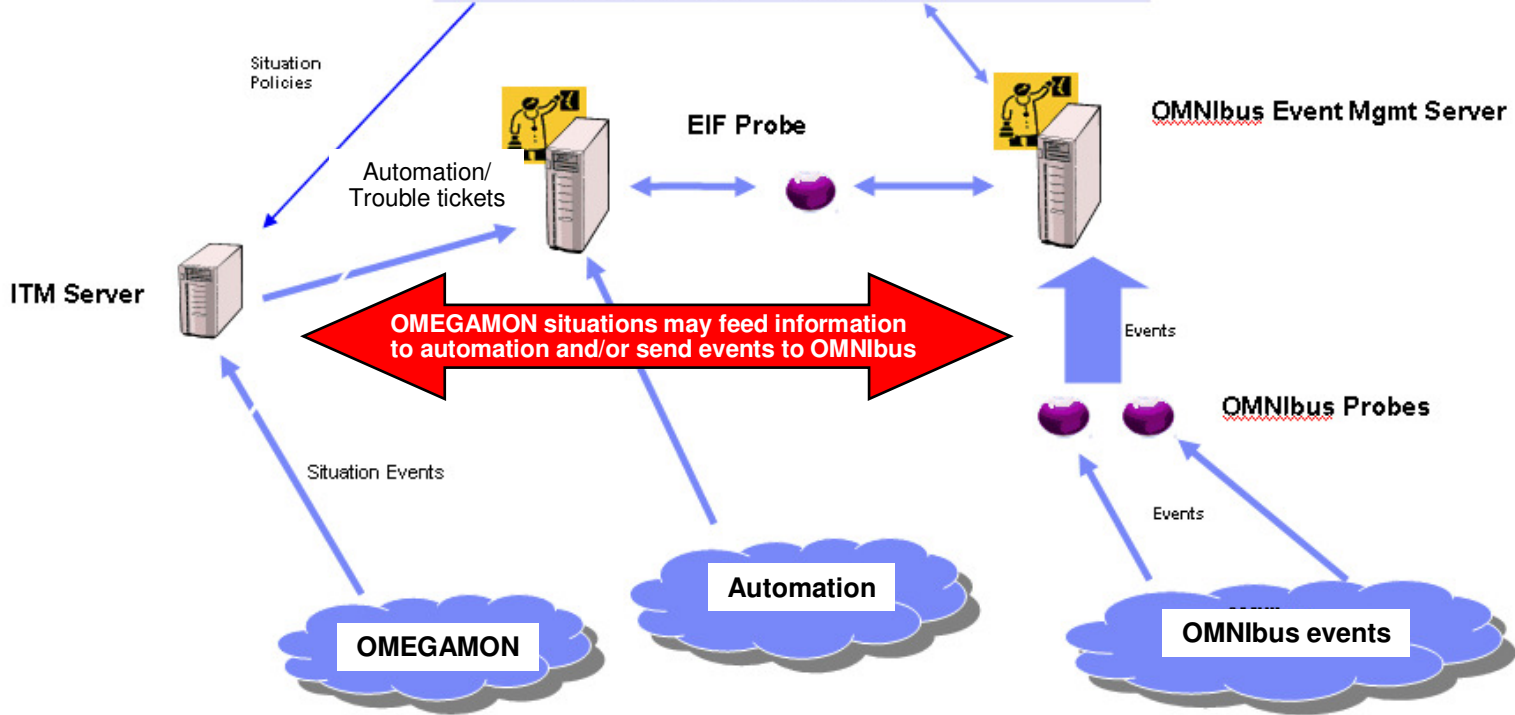
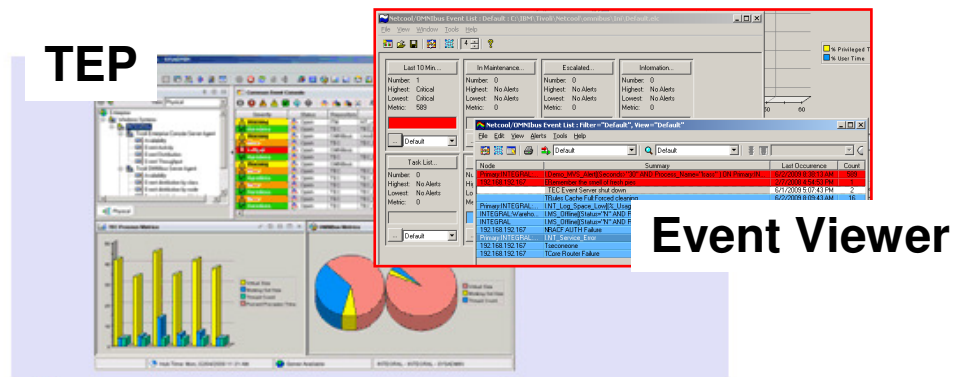
Sound: Enable critical.wav

State: Critical

Run at startup

Use The EIF Interface To Send Events To OMNIBus

OMNIBus Integration enables customer to forward events reported by OMEGAMON XE monitoring agents . The interface is bi-directional.



Scenario #8 – ITCAM For Application Diagnostics Understand WebSphere Performance Bottlenecks

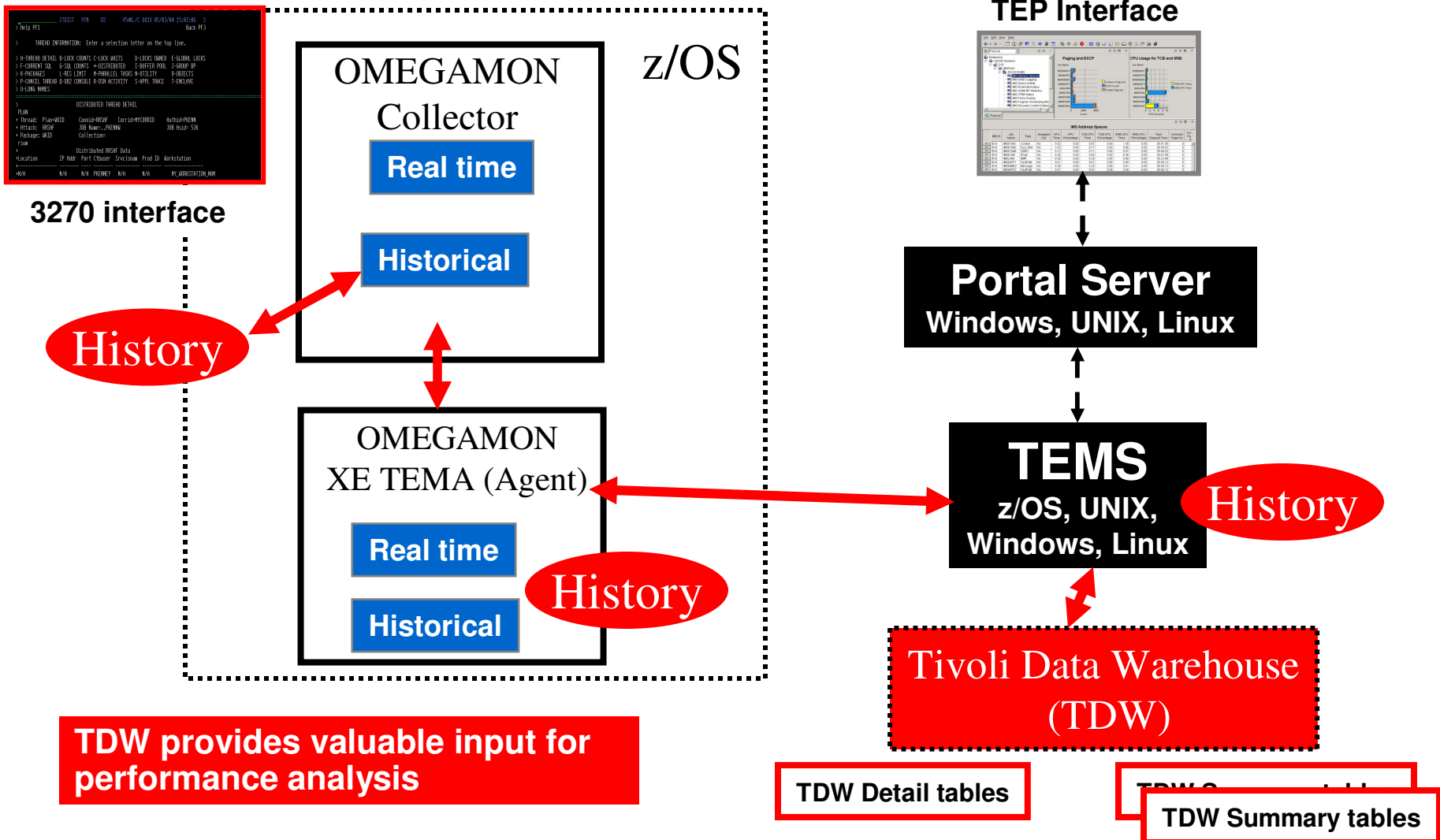
Use the Portal to track response time

Launch in context for detailed analysis

Request Type	Request Count	Request Rate (per sec)	Average Response (ms)	Longest Response (ms)	Application Time (% of Average Response)	JCA Time (%)	JMS Time (%)	JNDI Time (%)	Portal Processing Time (%)
Servlet	10	0.600	50	60	0.0	0.0			

Use ITCAM for Application Diagnostics to monitor for typical WebSphere issues, such as long running transactions, memory leaks, and resource bottlenecks

Scenario #9 – Enable And Use The Tivoli Data Warehouse (TDW) To Trend, Analyze, and Isolate



Enabling TDW History Collection

Group	Prune Detailed	Summarize Hourly	Prune Hourly	Summariz Daily
System CPU Utilization	30 Days			On
System Paging Activity	30 Days			On

Configuration Controls

Summarization

- Yearly
- Quarterly
- Monthly
- Weekly
- Daily
- Hourly

Pruning

- Yearly keep [] Years
- Quarterly keep [] Years
- Monthly keep [] Months
- Weekly keep [] Months
- Daily keep [1] Years
- Hourly keep [] Days
- Detailed data keep [30] Days

Example – specify System CPU Utilization history collection

Summarization and retention options

Cost of collection/retention is usually a function of frequency of collection and number of rows per snapshot

Consider warehouse interval to avoid surges of data to TDW

Basic | Distribution

Attribute Group: System CPU Utilization

Name: System CPU

Description:

Configuration

- Collection Interval: 15 minutes
- Collection Location: TEMS
- Warehouse Interval: 1 hour

Specify snapshot interval and frequency of sending data to TDW

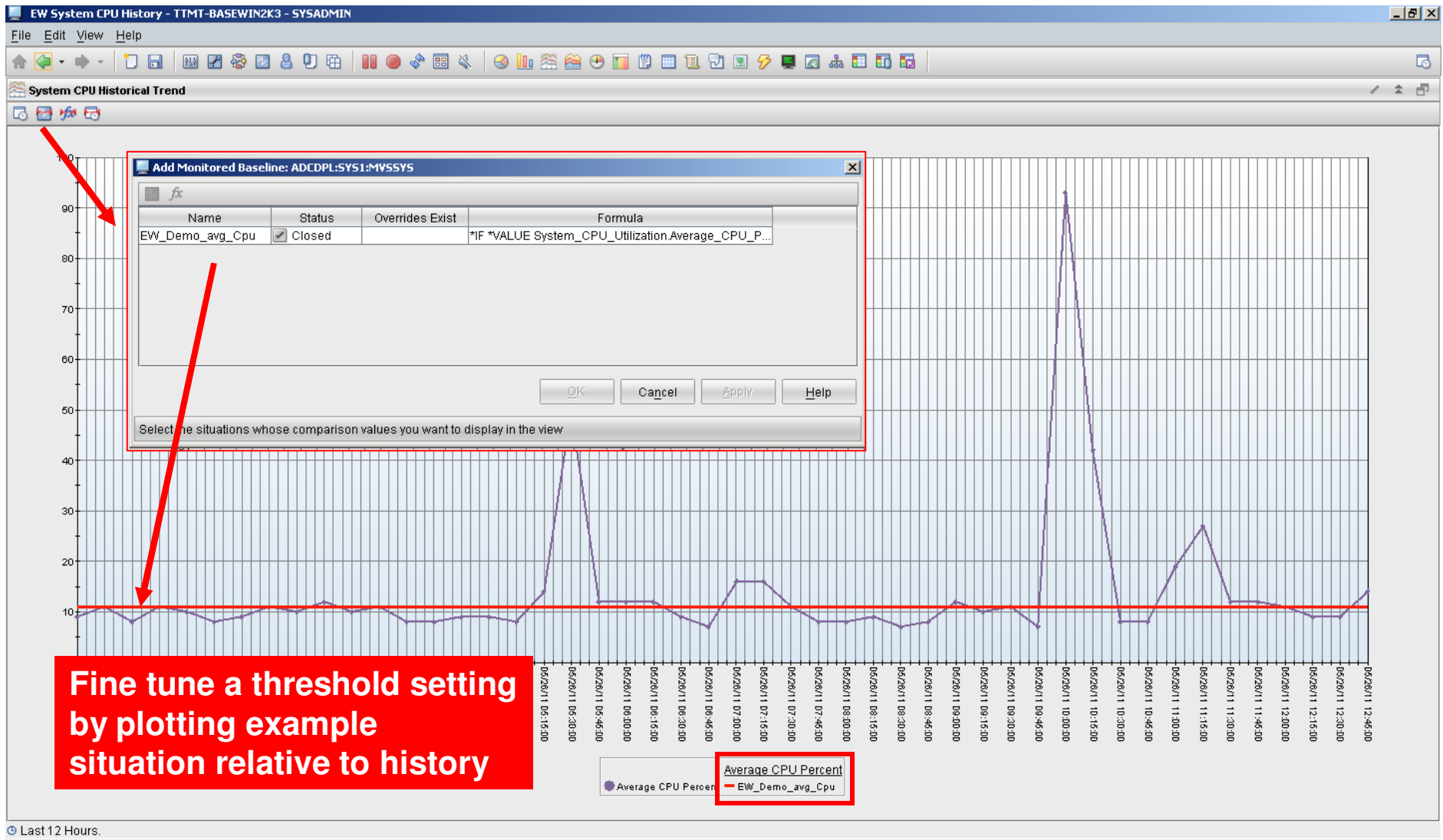
Use The TEP To Create A Custom Workspace As A Starting Point For Historical Data Analysis

The screenshot displays the 'EW System CPU History - TTMT-BASEWIN2K3 - SYSADMIN' application window. It is divided into several panes:

- Navigator:** A tree view on the left showing system components like 'DASD MVS', 'LPAR Clusters', and 'System CPU Utilization' (which is selected).
- System CPU Utilization:** A table showing real-time metrics. A red box highlights the word 'Real time' above the table.
- System CPU Utilization Interval History:** A table showing historical snapshots of CPU utilization at specific times. A red box highlights the text 'History snapshot data' above the table.
- System CPU Historical Trend:** A line chart showing the average CPU percentage over the last 12 hours. A red box highlights the text 'History plot chart Average CPU over the past 12 hours' above the chart. A legend on the right shows a red box around the 'Average CPU Percent' entry.

At the bottom left of the chart area, a red box highlights the text 'Last 12 Hours'.

Use A Situation To Track A Monitored Baseline Help Determine Where To Set A Threshold Level



Fine tune a threshold setting by plotting example situation relative to history

Use Arithmetic Functions To Trend History

Show arithmetic data such as Average or Min/Max relative to trend over time

Average CPU Percent	RMF MVS CPU Percent	RMF LPAR CPU Percent	Total TCB%	Total SRB%	Average IFA Percent
8	11.5	32,767.0	18	3	0

Add Statistical Baseline

Name	Argument	Result
<input type="checkbox"/> RANGE - MIN/MAX		
<input checked="" type="checkbox"/> AVG	+/- 0 standard deviation	
<input type="checkbox"/> MIN	+/- 0 percent	
<input type="checkbox"/> MAX	+/- 0 percent	
<input type="checkbox"/> PERCENTILE	50	
<input type="checkbox"/> MODE		

Attribute: Average CPU Percent

Time Span: Last 24 Hours

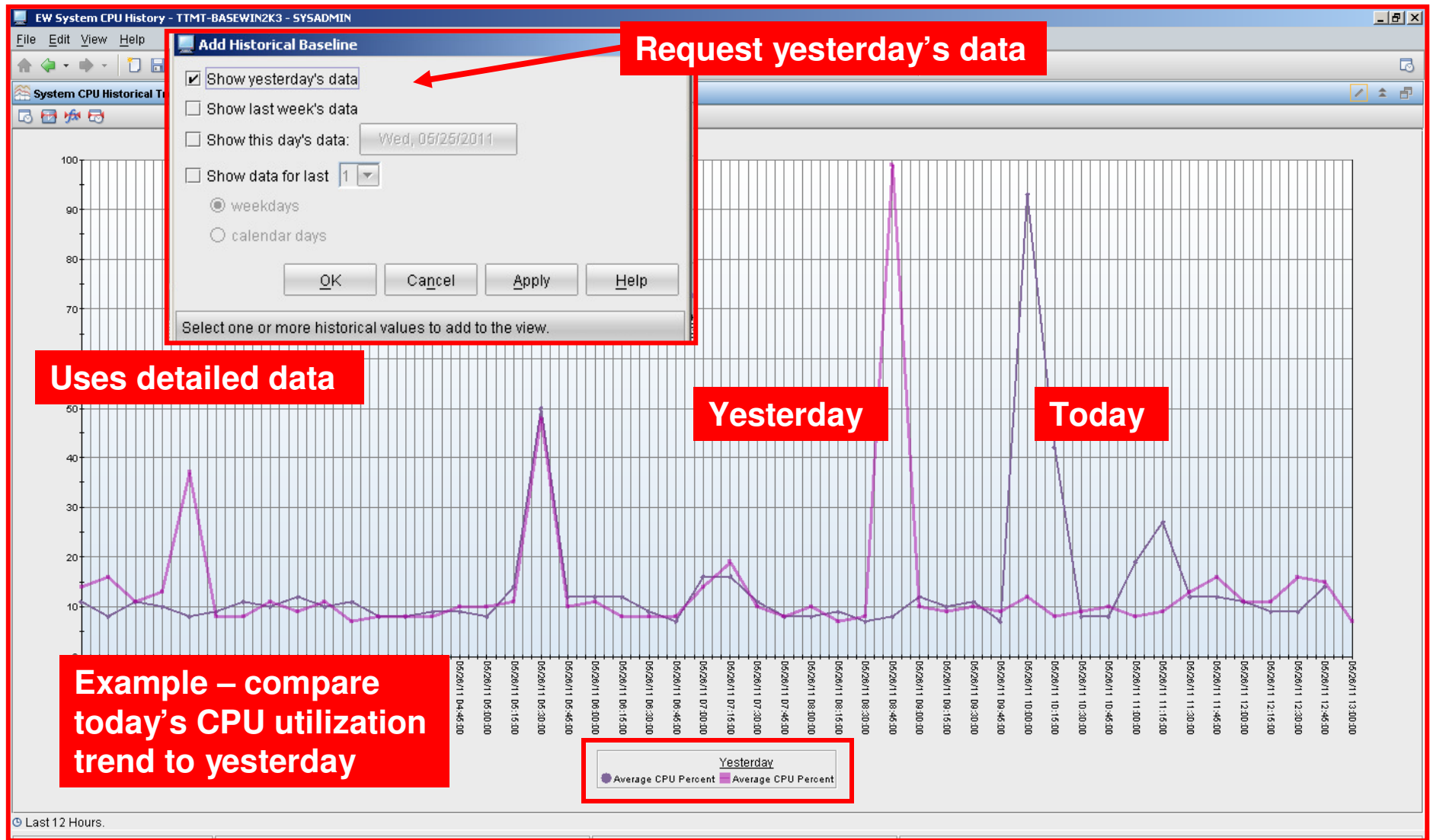
Specify time span for calculation

Select one or more statistical values to add to the view.

Example – how often is CPU utilization above average?

Legend: Average CPU Percent (blue line), AVG (purple line)

Use Historical Baseline To Compare Past Trends To Current Trends



Uses detailed data

Request yesterday's data

Yesterday

Today

Example - compare today's CPU utilization trend to yesterday

IBM Tivoli Monitoring (ITM) 6.2.3 Is Now Available

What's In ITM 6.2.3

- Application Support Mismatch tool shows version discrepancies
 - Show new or updated application support event (Note – not yet supported on z/OS yet)
- Tivoli Performance Analyzer now a base component of IBM Tivoli Monitoring
 - Tivoli Performance Analyzer adds predictive capability to Tivoli Monitoring
 - Monitor resource consumption trends, anticipate future performance issues
- Situation event console and Common event console enhancements
- Manually started situation enhancements
 - Automatically add to managed systems lists for distribution
- Historical data compression before upload to Tivoli Data Warehouse
 - Reduce network traffic, data collected from distributed monitoring agents is now compressed in memory at the collection location
- New and enhanced CLI tacmd commands
- Tivoli Application Dependency Discovery Manager policies
 - Create policies that interact with your Tivoli Application Dependency Discovery Manager (TADDM) environment
 - Policies can forward events such as, new, changed, or destroyed resources to your Tivoli Application Dependency Discovery Manager server

Tivoli Performance Analyzer

The screenshot shows the 'Performance Analyzer Configuration' window for a task named 'CPU Trend'. The window is divided into several sections:

- General:** Task Name: CPU Trend, Identifier: -140146b7-132784701e-7m, Domain: Default, Description: Trend CPU utilization and track peak.
- Analytical Modules:** A table listing modules:

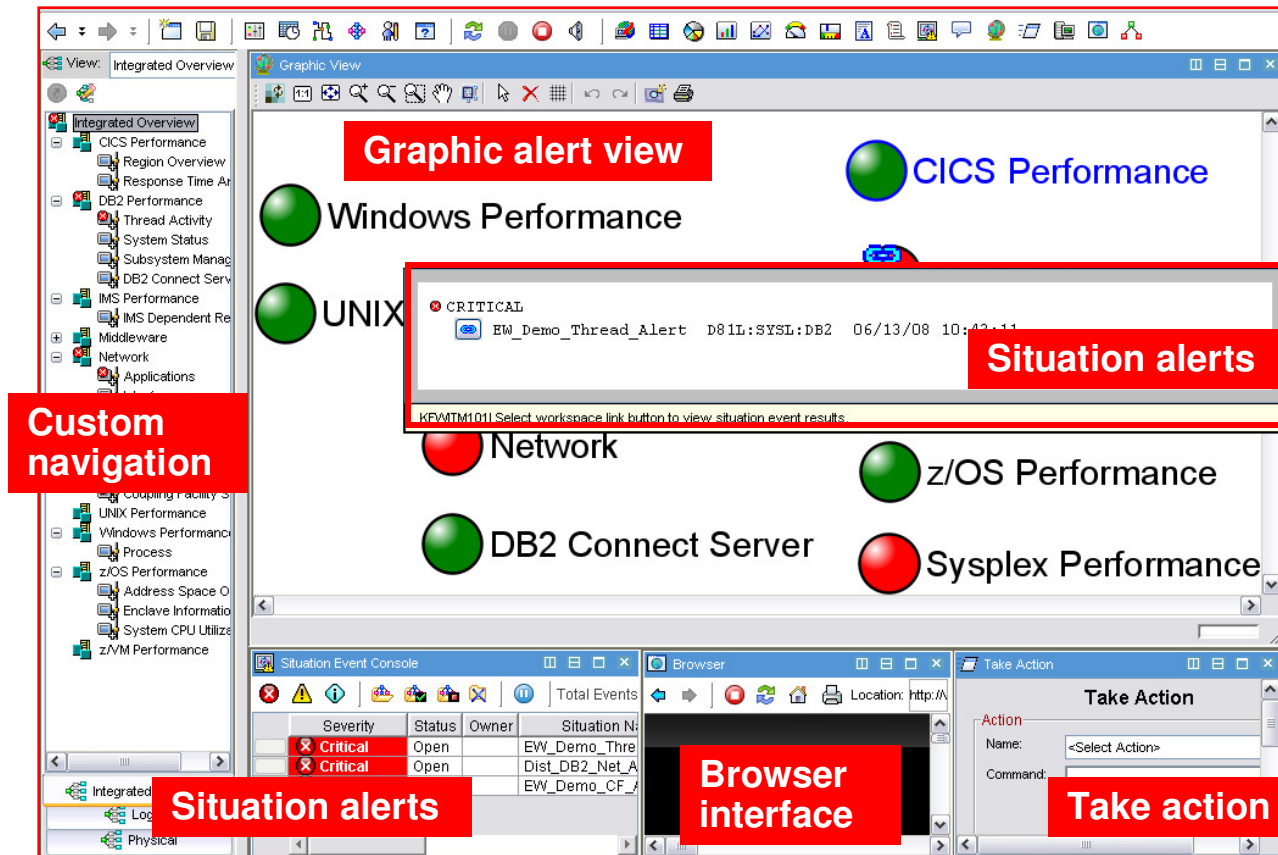
Name	Version
PA_FRM	06.23.00
PA_FIR	06.23.00
PA_FAR	06.23.00
- DB Configuration:** A table listing database connections:

ID	Connection Type
TDW	ODBC
- Linear Trending:** A section explaining the Linear Trending method, which uses Least Squares Regression for forecasting.
- Task definition:** Task interval: 1 / 0 : 0 (ddd hh mm), Schedule Time: 19:00, Run after task: (dropdown), and checkboxes for Run at startup, Enable scheduling, and Active.

Red callout boxes provide additional context:

- Use Tivoli Performance Analyzer to trend and project potential issues:** Points to the Description field.
- Linear or arithmetic trending:** Points to the Linear Trending section.
- Schedule scans of TDW and analyze metrics for potential issues:** Points to the Task definition section.

Scenario #10 – A Dashboard To Provide An Integrated Problem Management Paradigm



- Use the graphics and integration capabilities of the Tivoli Enterprise Portal to provide custom dashboard views targeted for specific audiences
 - Technical views, Operational views, Alert management views, SME views, End to end business application views, Management by exception views

Integrated Technical View Using The TEP

An integrated view of some of the most commonly referenced performance information

Custom navigation allows you to target the most important information

z/OS system and address space CPU

Managed System	Average CPU Percent	RMF MVS CPU Percent	RMF CP CPU Percent
DEMOPLX:MVSA:MVSSYS	4	6.2	6.3

DB2 Threads

MVS ID	DB2 Subsystem	In DB2 CP CPU Time	In DB2 Time	Plan	A
MVSA	DSNC	00:00:00.009	00:00:00.014	PSADPLAN	D
MVSA	DSNC	00:00:00.302	00:00:04.662	KO2PLAN	D
MVSA	DSNC		2.592	KO2PLAN	D
MVSA	DSNC		2.611	KO2PLAN	D

CICS Tasks

System ID	CICS Region Name	CICS SYSIDNT	Transaction ID	User ID	Terminal ID	Ta Nur
MVSA	CICSAOR1	C22A	OSEC	SYSSTC	n/a	000
MVSA	CICSAOR1			3STC	n/a	000
MVSA	CICSAOR1			3STC	n/a	000

Network

Origin Node	Application Name	Connections in Backlog	Total Segments Retransmitted
TCPIP:MVSA	ADHSRVS		

DASD I/O bottlenecks

Managed System	Address	Volume	Response	Storage Group	I/O Rate	Cache Status	Percent Reserve
----------------	---------	--------	----------	---------------	----------	--------------	-----------------

Alerts

Severity Status Owner Display Item Source Impact Opened

Hub Time: Thu, 07/01/2010 11:33 PM Server Available EW_Demo_Integrated_View - dem17Inx.democentral.ibm.com - Ed Woods

Summary

- The Tivoli Enterprise Portal provides a powerful and flexible integrated capability to identify and manage common performance and availability challenges
- The Tivoli Enterprise Portal enables you able to recognize and resolve issues efficiently
- The Tivoli Enterprise Portal allows you to target the most common issues and ensure that you are getting the most from your investment in System z hardware and z/OS software
- New analytic features and functions continue to be added to the Tivoli Enterprise Portal and Tivoli Data Warehouse
- By building dashboards you can use the Tivoli Enterprise Portal as a way to begin the process end to end business application management

Check Out My Blog

http://tivoliwithaz.blogspot.com

Tivoli With A z

This is a blog to discuss what is happening in the area of IBM z/Series, Tivoli, OMEGAMON monitoring, System Automation, and other relevant IBM Tivoli technology for z/OS performance and availability management.

Ed Woods
IBM Corporation

Friday, February 5, 2010
OMEGAMON DB2 Near Term History

OMEGAMON DB2 has a very useful Near Term History (NTH) function. NTH provides an easy way to be able to retrieve and review DB2 Accounting and Statistics records from the past few hours of DB2 processing. The data is stored in a set of VSAM files allocated to the OMEGAMON collection task. How far back the history goes depends upon the size of the files and the amount of data being written to these files. Now some of the data volume is driven by the DB2 workload activity. Accounting records are typically written when a DB2 thread terminates processing, and it is the Accounting data that is often looked at by the analyst when studying what DB2 applications have been doing. Statistics records are created on a time interval basis. Usually, you will have much more accounting data than statistics data. Also, OMEGAMON has the ability to pull in additional trace IFCIDs to get information on things such as dynamic SQL activity.

To understand the amount of data being gathered by NTH, there are displays that show the number of records written to the NTH files, by type. In the example I show, you see an example of common NTH settings/options, and then you see the record count in the NTH record information display. If you look carefully you see that 'Perf-Dyn SQL' has a lot of records written relative to the other record types. This is a good way to understand the impact of enabling certain collection options, such as dynamic SQL collection, and see how many trace records are being gathered, as a result.

Posted by Ed Woods at 3:13 PM 0 comments

ED WOODS

I'm an IT Specialist with IBM Corporation supporting Tivoli Performance solutions on z/OS. Please note that comments made on this blog are my own, and do not necessarily reflect the position of IBM Corporation.

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- [Link to IBM Tivoli product information](#)
- [Link To Tivoli User Group](#)
- [Link to OPAL](#)
- [Tivoli System z Blog](#)

Thank You!