Tivoli Enterprise Portal Customization Tips and Techniques

Ed Woods

Consulting IT Specialist

Tivoli software

Agenda

- **Introduction**
  - ▶ Why Tivoli Enterprise Portal - 'The Power Of The Portal'

- **Important Portal Terminology**

- **Portal Customization And Design**
  - ▶ General Tips And Suggestions

- **Linking Various Views**

- **Common Portal Customization Scenarios**

IBM And The Tivoli Enterprise Portal
End to End Performance And Availability Management
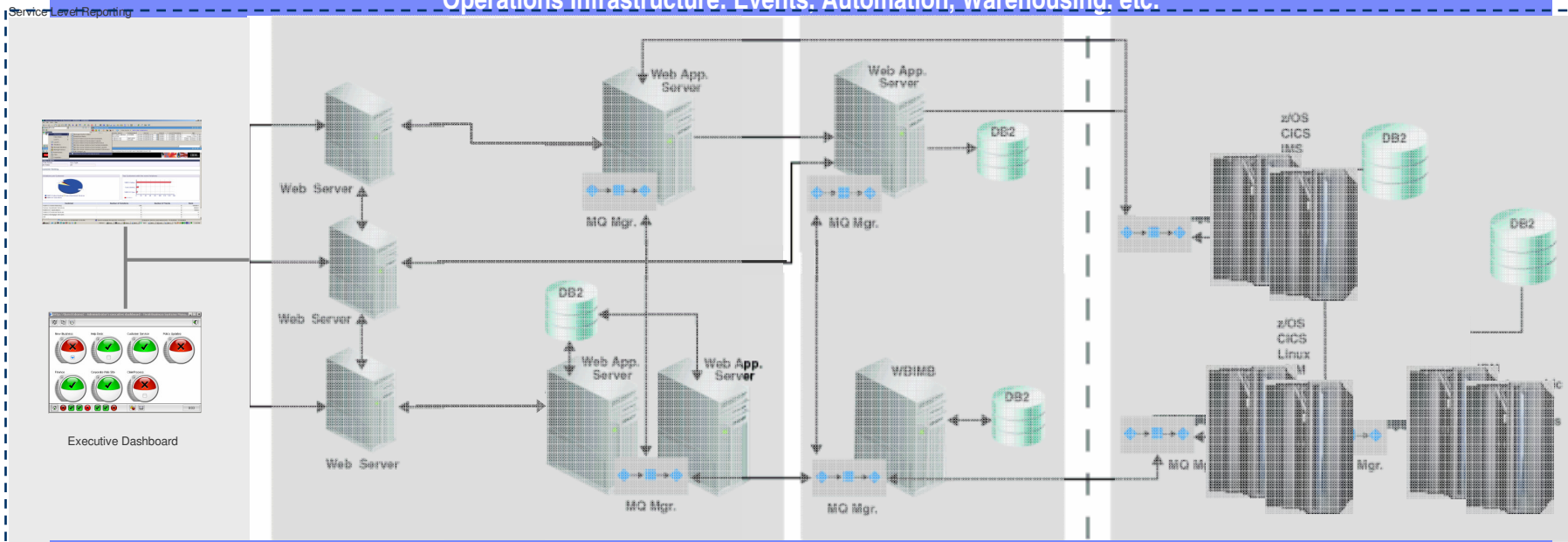
Business Service Management	SOA Management	Composite Application Management	Network Management	Systems Management

Operations Infrastructure: Events. Automation, Warehousing, etc.

Service Level Reporting

Executive Dashboard

Operations Infrastructure: Events, Automation, Warehousing, etc.

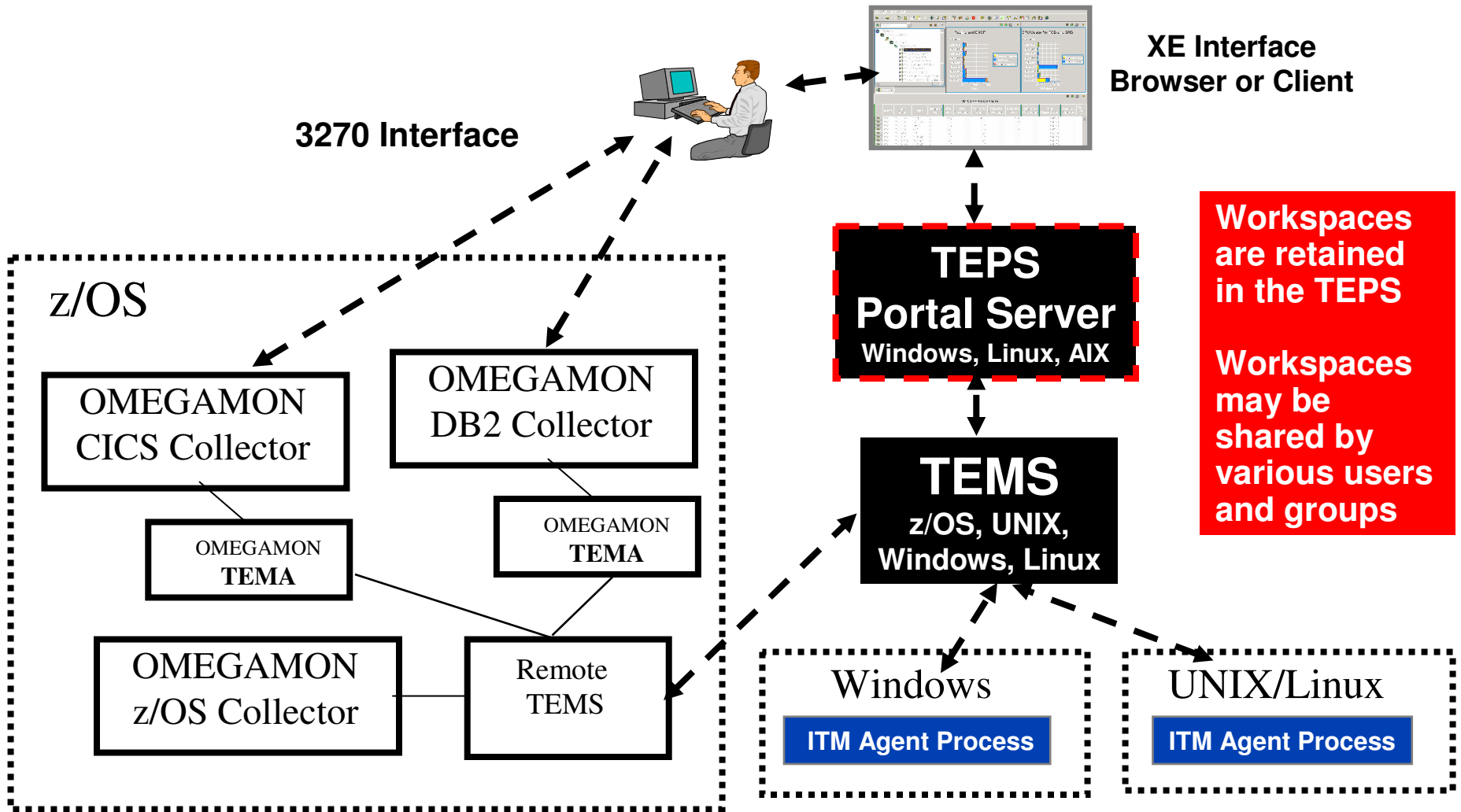| Asset Management	Storage Management	Workload Management	Security Management	Usage & Accounting Management

3

Important Concepts And Terminology

- Workspaces
  - ▶ Creating and saving workspaces
    - Author mode and Administration mode
  - ▶ Tabular data, graphs and charts
  - ▶ Graphic views, icons and icon views
  - ▶ Navigation tree
  - ▶ Take actions, terminal, browser
  - ▶ Links and dynamic workspace linking
    - Links from tabular data and/or from graphics
- Queries
  - ▶ Product provided and user defined
- Situations and alerts
 - ▶ Product provided situations and user defined situations

Where Are Customized Workspaces Kept?
# The Tivoli Enterprise Portal Server (TEPS)

XE Interface Browser or Client

3270 Interface

z/OS

OMEGAMON CICS Collector

OMEGAMON DB2 Collector

OMEGAMON **TEMA**

OMEGAMON **TEMA**

OMEGAMON z/OS Collector

Remote TEMS

TEPS Portal Server
Windows, Linux, AIX

TEMS
z/OS, UNIX, Windows, Linux

Workspaces are retained in the TEPS

Workspaces may be shared by various users and groups

Windows
ITM Agent Process

UNIX/Linux
ITM Agent Process

Portal Workspace Customization
General Suggestions And Considerations

- When customizing workspaces be aware of the target audience
  - ▸ Technical requirements
  - ▸ Physical display capabilities
- Design screens with speed and utility in mind
  - ▸ Responsiveness of the display impacts its potential benefit
- Considerations that may impact performance
  - ▸ Amount of graphics
  - ▸ Graphical overviews
  - ▸ Tabular versus chart/graph data
  - ▸ Quantity of data requested
  - ▸ Number of managed systems referenced in the workspace
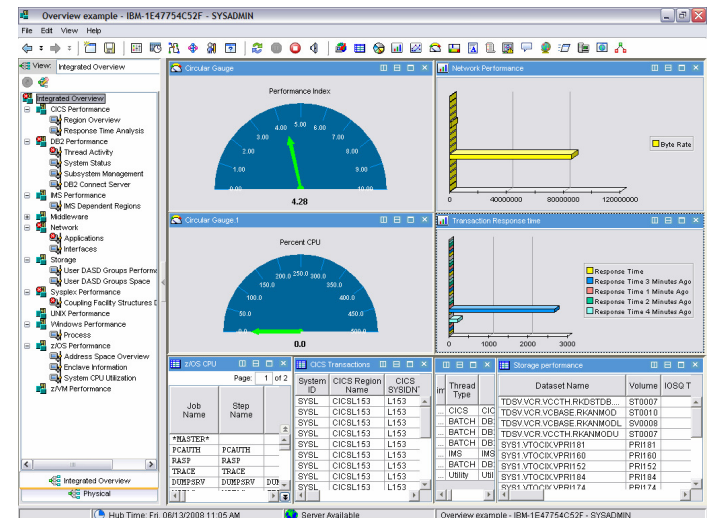
Customize For The Target Audience

Higher resolution
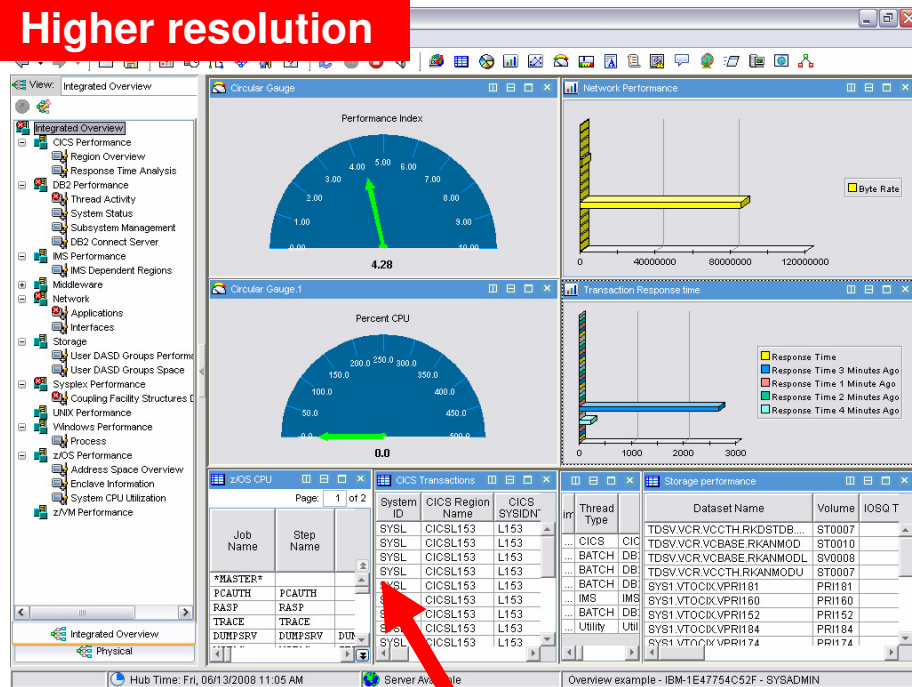
Same workspace at lower resolution
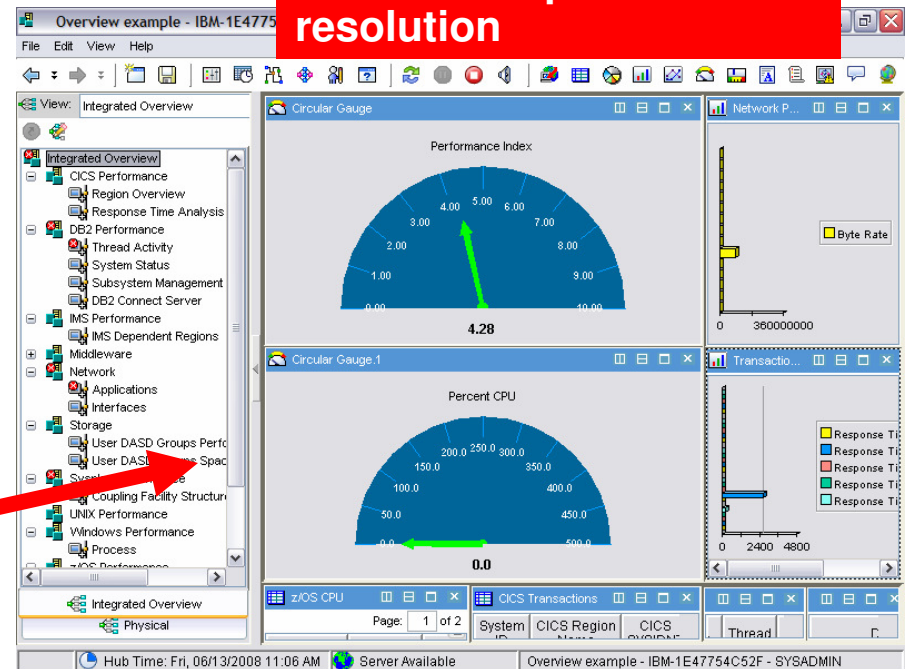
A workspace designed at a higher screen resolution may not work as effectively at a lower screen resolution

When possible consider the display limitations of the target audience

Screen detail is truncated

Workspace Performance – 'Rules Of Thumb'

General rules of thumb

Avoid the over use of graphs and charts
Use tabular data where appropriate
Avoid queries that pull back unneeded data
Consider carefully multi system queries
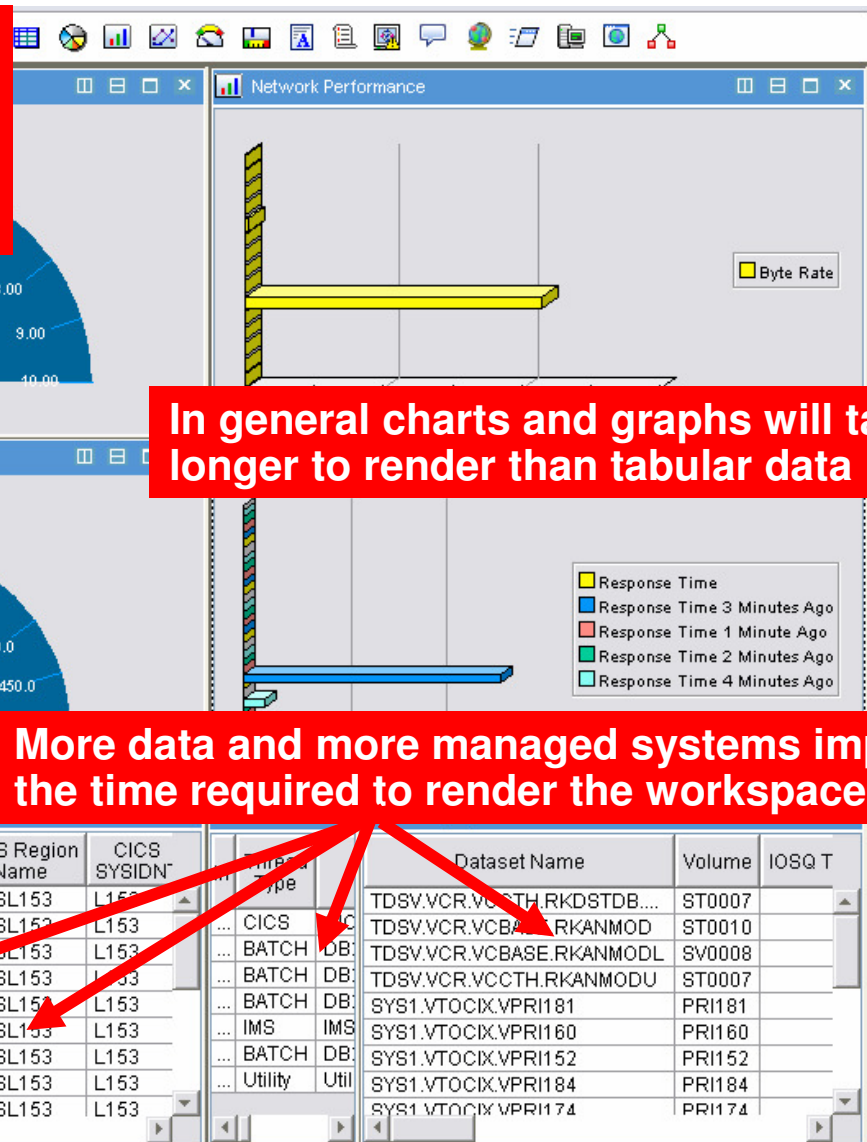
In general charts and graphs will take longer to render than tabular data

The more data requested by the query, the longer it may take to return

More data and more managed systems impact the time required to render the workspace

Considerations About Graphic Views

Graphics views provide a powerful end to end monitoring capability.

Graphics are user definable and may be integrated into workspaces.

Considerations for graphics views include the time to scale and render the graphic. In general graphic views may take longer to render than other portions of the workspace.

Considerations About Graphic Views - continued

In possible, design the graphic to fit within the workspace, as opposed to using 'fit to view'

Browse the user graphics directory

Choose from various icons, shapes, or styles

Choose icons

Network

DB2 Connect Server

DB2 Performance

Choose shapes

z/OS Performance

Creating A Graphic For Use In The TEP
The 'Ed' Method

Use Powerpoint to create the graphic

'Select all' and paste into Paint

Use Paint to 'Save as' a JPEG
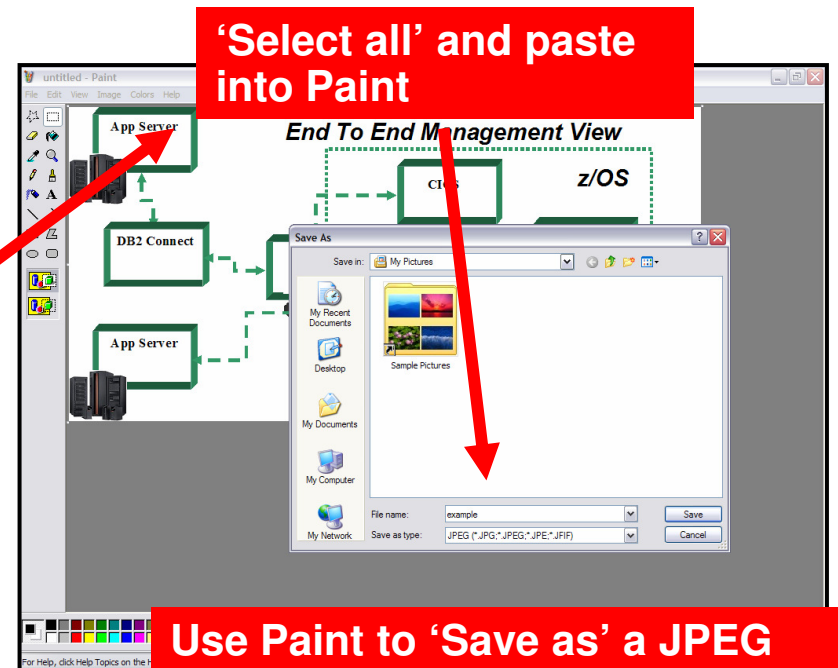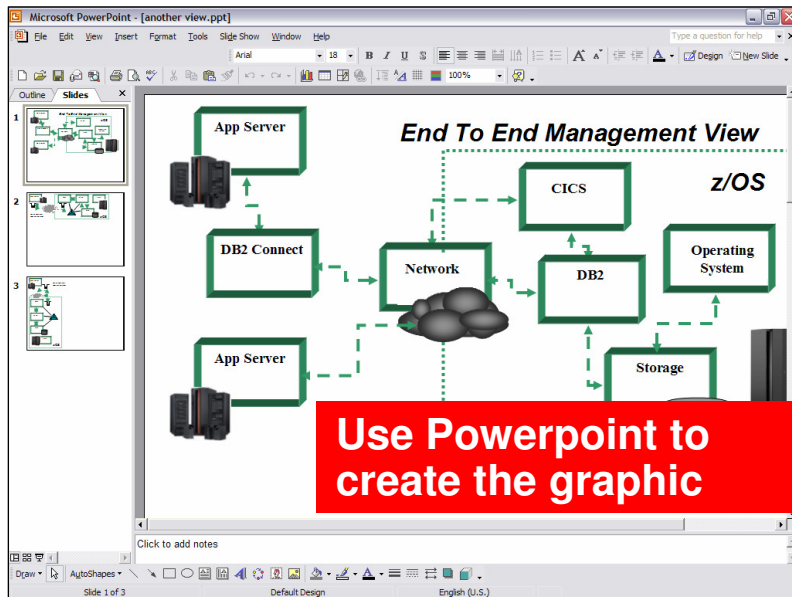
Copy the JPEG to the TEPS server user directory

\dir\ITM\CNB\classes\candle\fw\resources\backgrounds\user

Graphics View Alternatives
Blank Background With Shapes

Choose blank background

Choose shapes in the style options

Graphic View With A Blank Background

Shapes will auto size and render quickly

Shapes will be easily seen

CICS Performance

Network

DB2 Performance

DB2 Connect Server

Storage

z/OS Performance

Windows Performance

Sysplex Performance

UNIX Performance

CRITICAL
EW_Demo_CF_Alert   LPAR400J:MVS:MVSPLEX   06/13/08 10:43:11

Shapes may be used as alert indicators

This type of display will provide a graphic style overview and render very quickly

View: Integrated Overview
Graphic View

Integrated Overview
  CICS Performance
    Region Overview
    Response Time A
  DB2 Performance
    Thread Activity
    System Status
    Subsystem Manag
    DB2 Connect Serv
  IMS Performance
    IMS Dependent Re
  Middleware
  Network
    Applications
    Interfaces
  Storage
    User DASD Group
    User DASD Group
  Sysplex Performance
    Coupling Facility S
  UNIX Performance
  Windows Performance
    Process
  z/OS Performance
    Address Space O
    Enclave Informatio
    System CPU Utiliza
  z/VM Performance

Integrated Overview
Physical

link button to view situation event results.

		esponse Time	IMSID	Item Name	Item Type	Input Queue Time (Secs)	Program Queue (Sec	Originnode	SQL Calls Sent	SQL Calls Received	Data Rows Sent
CICSL153	TRAN GRP C*	00:00:00	I91F								
CICSL153	TRAN GRP D*	00:00:00									
CICSL153	TRAN GRP E*	00:00:00									
CICSL153	TRAN GRP J*	00:00:00									

Understanding Queries

Click to 'create another' query

Query Editor

Queries
- Active Directory
- AIX Premium
- Apache Web Server
- BEA WebLogic App Server
- CEC Base
- CICSPlex
- CICSTG
- CICSTG IRA Manager
- Citrix
- DB2
- HMC Base
- IBM Information Management
- IBM Tivoli Monitoring 5.x Endpoint
- IBM Tivoli Monitoring 5.x Endpoint
- IMS
- J2EE Agent
- J2SE Application
- JBoss App Server
- Linux OS
- Lotus Domino
- Lotus Workplace Server
- Mainframe Networks
- Mainframe Networks Sysplex
- Microsoft Exchange Server
- Microsoft IIS Web Server
- Microsoft SQL Server
- MQSERIES
- MS Cluster Server
- MS NET Framework
- MS Virtual Server
- MVS DB2
- MVS Sysplex
- MVS System
  - Address Space Bottlenecks
  - Address Space Bottlenecks
  - Address Space ComStor Ov

...utilization measures for active address spaces (V410)

Data Source: TEMS HUB_IBM-1E47754C52F ip:#172.31.2.3[1918]

Last Modified
Last Modified on: Fri, 06/13/2008 01:58 PM
Last Modified by: SYSADMIN

Specification | Query Results Source

Specification

Managed System	fx CPU Percent	Job Name	Step Name	Proc Step	SvcClass	fx SvcC Per
1 ☐	☑	☑	☑	☑	☑	☑
2 == $NODE$						
3						
4						

Recommendation – if modifying queries, customize user copies of queries ('Create Another'). Refrain from modifying product provided queries.

Add attributes...   Advanced...

OK   Cancel   Help

- Queries control the content of the workspaces
- OMEGAMON and other Tivoli solutions provides queries for the TEP
- Users may make user defined queries
- User defined queries may be used to pre-process data (filter, sort, etc.)
- Queries may consist of custom SQL

Queries Control Workspace Content – An Example

Default query returns info on all address spaces

User defined query returns address spaces over 2% CPU usage

User defined query returns top 10 address spaces using CPU sorted descending

Queries And Custom SQL

Custom queries with custom SQL expands the ability of the TEP to gather information from a wide variety of sources

Description

Description

Data Source: ODBC OPAS_TEST Driver do Microsoft Access (*.mdb)

Last Modified

Last Modified on: 12/17/03 09:46:04

Last Modified by: SYSADMIN

Specification

Custom SQL

select * from DB2ThreadExcept;

User definable SQL for the query

CICS MQ
CICS Regi
CICS Res
z/OS
Address S
Enclave A
WLM Serv
MQ/Series
AIX MQ Sta
CICS MQ S
DB2
DB2A
DB2B

Physical   N

Thread Type Conne
Allied   Unkow

DB2ThreadExcept;
DB2 Thread Exceptions
employees;
ManagedSystem
os390;
Situation_Status_Current
Situation_Status_Log
CICSPlex
IMSPlex
Log Alerts
MQ Series
MVS DB2
MVS Sysplex
MVS System
OMEGAVIEW
TCP/IP
Tivoli Management Environmen
Universal Database
Unix
Windows NT

GBP Reads GBP Re
With Data No Da

Understanding Links
Link From A Variety Of Places In Workspaces

Link from the navigation tree

Link from graphic icons

Link from chart displays

Link from tabular data

Exploiting Dynamic Workspace Linking
Example – Drill Down From OMEGAMON XE For DB2 PM/PE To OMEGAMON XE For CICS

OMEGAMON XE For DB2 PM/PE CICS Connection display

Drill down from DB2 to CICS detail within the TEP

OMEGAMON XE For CICS Region Overview detail display

To Define A New Link
Follow The Link Wizard

Right click and select 'Link Wizard'

Select 'Define a new link' Click Next

Give The Link A Name And Select The Type Of Link

Enter the name of the link and click 'Next'

Select the type of link (in this example dynamic) and click 'Next'

Select The Destination Workspace

Specifying The Filter Information For The Link

Workspace Link Wizard - Target Filters

In order to dynamically determine a target path at link-time, sufficient target filters must be configured. Target filters are configured by assigning them source context expressions. Assigned expressions will be evalua... filter.

Filter
Managed system name
Hostname
IP address
SMFID

Pass managed system name (example – MVSID.CICSREGION) or SMFID to drive drill down

Symbols

- Values
  - Link
  - Selected Row
    - Attributes
      - CICS ID
      - CICS Release
      - Originnode
      - Pool Thread Maximum
      - Pool Thread Utilization
      - Pool Thread Waits
      - Pool Threads Inuse
      - Time
      - Total Thread Utilization
      - Total Threads Inuse
      - Total Threads Maximum
    - Id
    - Name
    - Type
  - Table - CICS Connections Sum
  - Query - CICS Connections

OK   Cancel

Click 'Symbol' to specify what information to pass

Expression Editor - Managed system name

`$NODE:-1022$+'.'+$kfw.TableRow:ATTRIBUTE.DP_CI_EXCS.CI_CICSID$`

In this example this will create a managed system name for the CICS region drill down

Example - MVSA.CICSAOR1

Symbol...   Operator...   Function...   Clear   Evaluate

OK   Cancel   Help

Modify E...

Click 'Evaluate' to see what gets generated

Click 'Next' when done

workspace

< Back   Next >   Cancel   Finish   Help

Pool Threads Inuse	Pool Thread Utilization	Pool Thread Waits	Total Threads Maximum	Pool Thread Maximum
	0.0	0	30	3

Finish The Link Definition

Workspace Link Wizard - Parameters

Assign expressions to any of the following target workspace parameters to provide link-time values for them.

Parameter	Expression
Properties	
Symbols	
contextIsAvailable	$kfw.TableRow:-1021A$ == $kfw.LinkSymbolsGroup:PBASED.SOURC...
linkIsEnabled	true
Target Workspace	
Query - Region Overview	
Symbols	
Table - CICS Region Overview	
Footer	
Header	
Plot Chart - Transaction Rate	
Footer	
Header	
Circular Gauge - Maximum Tasks Percent	
Header	
Circular Gauge - CICS CPU Utilization	
Header	

Add Symbol...   Remove Symbol   Modify Expression

< Back   Next >   Can...

For more detailed drill down capabilities the destination workspace may need additional information passed to it

Optionally enter additional filter information, if needed

Click 'Next' to proceed

Workspace Link Wizard - Summary

Review the task and then press Finish to complete the wizard.

The following link will be modified:

CICS Region Overview Info - C5

< Back   Next >   Cancel   Finish   Help

Click 'Finish' when done

The link is ready to use

Follow The Link To Drill Down To The CICS Region Overview From A DB2 Overview Workspace

Author Mode And Administration Mode

- **Author Mode**
  - ▸ Allows the user to create and edit Tivoli Enterprise Portal workspaces, links, and terminal emulator scripts.

- **Administration mode**
  - ▸ By default workspaces you create are saved with your user ID, and no other users can see them.
  - ▸ Turn on administration mode so that all workspaces you edit and save while in this mode are shared with all users who log on to the same Tivoli Enterprise Portal Server.

- **Note**
  - ▸ When saving a workspace select 'Do not allow modifications' to prevent other users from assuming ownership when using administration mode

ITM 6.2 Overview

ITM 5.x to ITM 6.2 migration

ITM v5 -> ITM v6 automated upgrade of Resource Models to Situations Enhancements to v6 agents for parity

Security

•User Authentication via LDAP
•Manage TEP Permissions using User Groups

Advanced Event Integration

Enhance TEP/TEC Integration and Context Based Launching
Per-Situation Control of:
• Enable or Disable send event
• Destination TEC server(s)
• Event severity
• Set TEC Event Severity
Common Event Viewer integrates ITM, TEC and OMNIBUS events in a single console

Broadening Integration and Improved Visualization

Enhance embedded HTML Browser
 • Better HTML support
 • Better Active Page support
Improve Topology View Integration
Chart View improvements
 • Multi-source support
 • Multi-line support

Infrastructure Enhancements

Serviceability:
• Problem Determination data gathering tool
• Operations Log Enhanced

Platform Updates:
• Support for Management Clusters
• Support VMware Management Servers
• Reduce Infrastructure (2500 agents/RTEMS)
• Use Java 1.5 for ITM Java-based components
• Support for DB2 V9.1 / Include DB2 V9.1 in ITM BOM
• Support Tivoli License Manager

Agent Enhancements

•Monitor for the IBM AIX / System P environment
•Unix Agent Zone Support
•OS Agent ping response times and md5 checksums
•Support >64 characters in service names

Agent Builder

•Eclipse based toolkit for rapid development
•Use GUI wizards to create IRA-based agents
•Remote connection to browse data sources
•Enhanced Log file monitoring

ITM 6.2 Provides Considerable TEP Customization Enhancements

- Quite a few chart and graph improvements
  - ▶ Bar Charts
    - New overlay feature, the bar chart can be "primed" with historical data, styling options added for modifying each bar's fill pattern
  - ▶ Plot Charts
    - Now supports multi-row, multi-attribute result sets, both real-time and historical, new overlay feature, can be "primed" with historical data, maximum duration from 1 hour to 24 hours, styling options were added
    - Auto-refresh interval independent of workspace refresh
- Editing improvements - View swap capability
- Home workspace option
- Introduces the concept of User Groups
- In general performance and flexibility of the TEP in ITM 6.2 is superior
  - ▶ Overall speed is better
  - ▶ Speed of rendering graphics is superior

Example ITM 6.2 TEP Usability Enhancements View Swap

Click and drag tiles in the workspace to rearrange the display

Common Portal Customization Scenarios

- The customized Subject Mater Expert (SME) view

- The integrated performance view

- The SME technical graphic overview

- The SME application specific view

- The end to end business application view

- The integrated alert management overview

- Management by exception view

Example Customization Scenarios
Integrated Subject Matter Expert (SME) View

In the integrated SME view pull together detailed information specific to a given component (such as z/OS, CICS, IMS, or DB2)

CF Performance

Shared DASD Performance

Storage paging and UIC stats

CPU info

Example – The Integrated Performance View

In the integrated performance view pull together detailed performance information for multiple components

Integrated graphic overview

Network performance

CICS performance

IMS performance

DB2 performance

Queries And Customization To Create The Integrated Performance View

CICS Performance query

Network Performance query

In the integrated performance queries and graphic overview from multiple agent types and sources may be integrated into a single composite view

The SME Technical Graphic Overview

The SME Application Specific View
A DB2 Monitoring Example

Start with a product provided DB2 thread overview workspace

Select 'properties' to begin the customization process

Filter The Contents Of The Workspace

In this case filter for either DSNJDBC or DISTSERV threads.

Take advantage of the ability of the TEP to use and/or logic to highlight critical information

Select key columns to display

Specify Column To Graph And Add Filters To The Graphic

Specify the column to graph and the filter criteria.

The Final SME Application Specific View

The result is a filtered workspace that will target specific applications (DSNJDBC and DISTSERV) and highlight key performance indicators.

The End To End Business Application View

Graphic overview of application.
Monitoring status of key points along the flow of a transaction.
An 'end to end' view of a business application.

Business Application View Navigation Tree Customization

Icons to customize the navigation tree

Customize the navigation tree to focus on key performance and availability information.

Customizing The End To End Business Application View

Click and drag

Use the navigation tree to create and populate icons on the graphic view.

Click and drag icons to the graphic.

The Integrated Alert Management Overview

Blank background with shapes option provides an easily visible alert view

Situation alert console

Browser interface

Take action to issue commands

Management By Exception View

Integrated view focused on key exception indicators.

WLM issues

High CPU tasks

High system CPU

Mount pending

Misc alerts

DASD high MSR time

Creating A Management By Exception Workspace

Specify a filter option of CPU greater than 'n' percent

Filters this portion of the display

Tivoli Enterprise Portal Customization General Recommendations

- Understand the target audience
  - ▶ Understand their technical or management requirements
  - ▶ Understand their capabilities (display types, etc.)
- Understand the capabilities of the TEP
  - ▶ Be aware of the ability to combine information from a variety of sources
- Understand that custom TEP workspace design is an iterative process
  - ▶ Create prototypes and test
  - ▶ You probably will not get it perfect the first time
  - ▶ Improve and optimize
- Test thoroughly to ensure that displays are responsive and meet requirements

Other OMEGAMON Webcasts By Ed Woods

- OMEGAMON recent enhancements and exploiting new capabilities
  - http://www-306.ibm.com/software/os/systemz/telecon/22may/
- Monitoring and managing distributed DB2 workloads using OMEGAMON XE for DB2 Performance Expert and Performance Monitor
  - http://www-306.ibm.com/software/os/systemz/telecon/20mar/
- Performance Automation Best Practices Using Policies and the Tivoli Enterprise Portal
  - http://www-306.ibm.com/software/os/systemz/telecon/24jan/
- OMEGAMON XE for DB2 PM/PE situation usage and best practices
  - http://www-306.ibm.com/software/os/systemz/telecon/jul19/
- OMEGAMON XE for IMS Situation Usage and Best Practices
  - http://www-306.ibm.com/software/os/systemz/telecon/aug23/

Thank You for Joining Us today!

Go to **www.ibm.com/software/systemz** to:

▶ Replay this teleconference

▶ Replay previously broadcast teleconferences

▶ Register for upcoming events