



IBM Software Group

# Integrated Performance and Availability Management Using OMEGAMON XE for Mainframe Networks

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 Tivoli software



@business on demand.

# Agenda

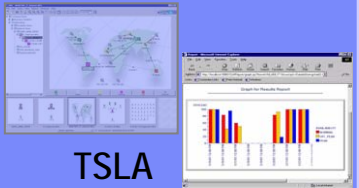
- Introduction to OMEGAMON XE and OMEGAMON DE
- OMEGAMON and the Tivoli Enterprise Portal (TEP)
- How the TEP may be used to provide an integrated view of network performance
- Creating an integrated view
- How an integrated view improves performance and availability management
- Integration with NetView




# Tivoli Enterprise Portal (TEP) Tool, Data, and Process Integration

## Tivoli Enterprise Portal (TEP)

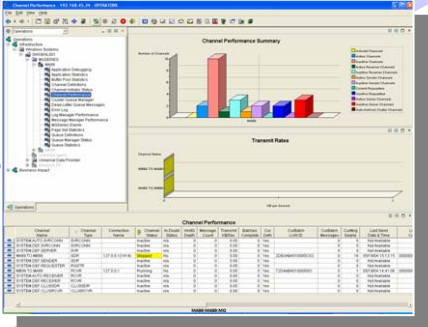
**TBSM**



**TEC**



**TSLA**



Channel	Channel ID	Channel Name	Channel Type	Channel Status	Channel Priority	Channel Owner	Channel Description
Channel 1	1000000001	Channel 1	Channel 1	Channel 1	Channel 1	Channel 1	Channel 1
Channel 2	1000000002	Channel 2	Channel 2	Channel 2	Channel 2	Channel 2	Channel 2
Channel 3	1000000003	Channel 3	Channel 3	Channel 3	Channel 3	Channel 3	Channel 3
Channel 4	1000000004	Channel 4	Channel 4	Channel 4	Channel 4	Channel 4	Channel 4
Channel 5	1000000005	Channel 5	Channel 5	Channel 5	Channel 5	Channel 5	Channel 5

*Process Integration*

- Business Systems Mgmt
- Service Support
- Service Delivery

**Composite Application Management**  
*Transaction Tracking and J2EE*

**Distributed Systems**      **Host Systems**  
*IBM Tivoli Monitoring*      *IBM Tivoli OMEGAMON*



# Summary Of IBM Performance And Availability Monitoring Solutions

## ■ z/OS & z/VM Monitoring

- ▶ OMEGAMON XE on z/OS 3.1.0
- ▶ OMEGAMON XE for CICS on z/OS 3.1.0
- ▶ OMEGAMON XE for IMS on z/OS 3.1.0
- ▶ OMEGAMON XE for DB2 PE/PM on z/OS 3.1.0
- ▶ OMEGAMON XE for Mainframe Networks 3.1.0
- ▶ OMEGAMON XE for Storage on z/OS 3.1.0
- ▶ OMEGAMON XE for WBI 3.1.0
- ▶ OMEGAMON for VM

**Integrated  
performance  
and  
availability  
management  
through the  
TEP**

## ■ IBM Tivoli Monitoring 6.1 – Consolidated Candle & Tivoli Monitoring

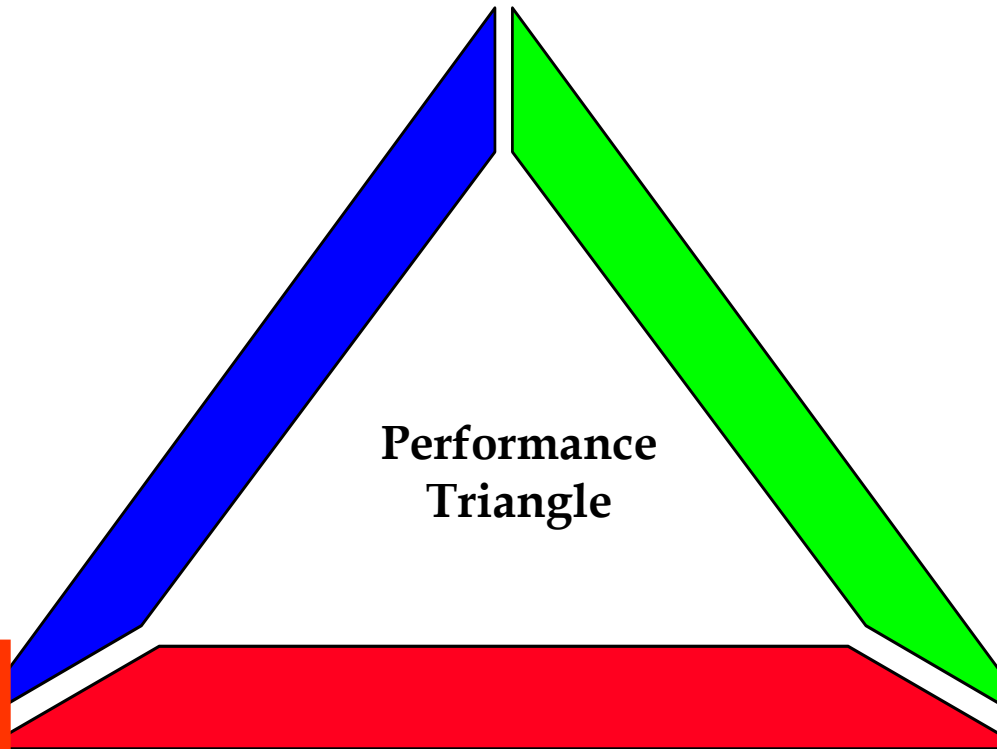
- ▶ Open systems monitoring (Linux, Unix, Windows, USS and more...)
- ▶ Distributed Database Monitoring (DB2, Oracle, Sybase, SQL Server)
- ▶ Middleware, MQ, WBI, WebSphere, DE and more....



# OMEGAMON And Tivoli Enterprise Portal

***Tivoli Enterprise Portal & OMEGAMON DE – Dashboard Edition***

High level monitoring  
Multi-system view  
Cross Platform View



Performance Triangle

**3270 Interface**

Subsystem details  
3270 Interface  
Historical details

**OMEGAMON XE**

Subsystem level monitoring  
Browser And GUI interface  
Proactive Alerting & Automation



# Considerations Of Integrated Network Management

- The network is an essential component of performance and availability analysis
- Network performance impacts application performance
- Network availability impacts application availability
- Where is the problem?
  - ▶ Network?
  - ▶ Database?
  - ▶ Operating system?
  - ▶ Transaction management or middleware?
  - ▶ Hardware?
- Problem isolation may be complex



# Most Applications Are Composite In Design

**Example – OMEGAMON DE (Dashboard Edition)**

**Multiple subsystems**

**Multiple platforms and components**

**Multiple network hops**

*Application Overview*

Application Server (App Server)

AIX MQSeries (MQ/Series)

CICS MQSeries (CICS)

IMS (IMS)

DB2A (DB2)

DB2B (DB2)

DB2 UDB (DB2 UDB)

UNIX OS

z/OS Performance

Network Performance

**The network is part of a bigger picture**



## Benefits Of An Integrated Dashboard Approach

- **Reduce time to problem resolution**
  - ▶ Identify and isolate issues more rapidly
- **Improved event management and problem isolation**
  - ▶ More meaningful and useful problem alerts
- **Improved ability to manage composite applications**
  - ▶ An integrated view of subsystems, platforms, and application components
- **Superior performance analysis capabilities**





# OMEGAMON XE for Mainframe Networks V3.1

## Value Proposition

### Out of the box automation

- ▶ 67 Situations, 17 auto-started
- ▶ Expert advice and reflex automation

### Common user interface

- ▶ Tivoli Enterprise Portal (TEP)
- ▶ Manage all z/OS resources from a single user interface.
- ▶ Display data in graphs, charts and table format

### Easy to configure

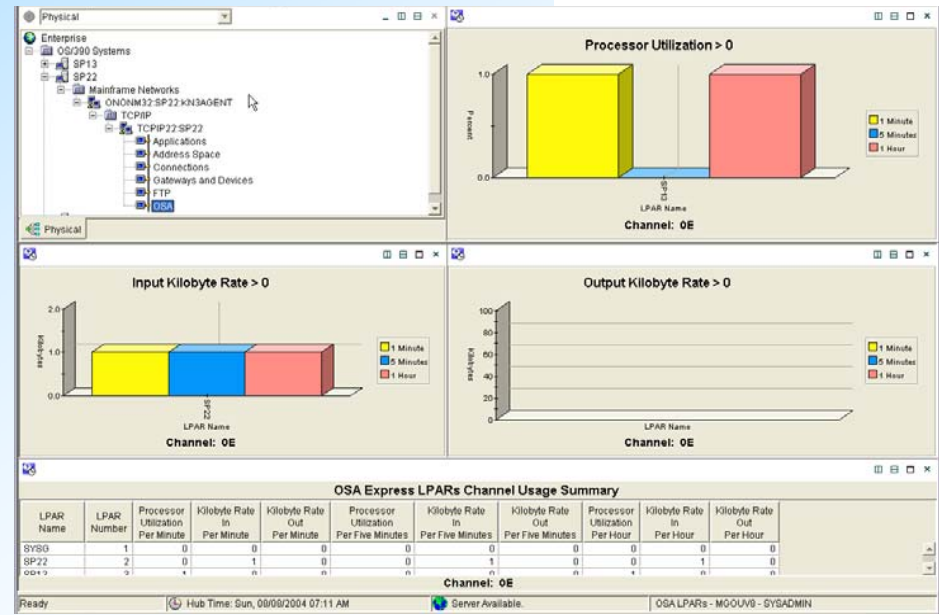
- ▶ Customize workspaces, reports, situations
- ▶ Define thresholds, Filters, Sort
- ▶ Generate Events

### Integrated

- ▶ OMEGAMON products
- ▶ NetView for z/OS V5.2
- ▶ TEC
- ▶ ITM 6.1

### Effective

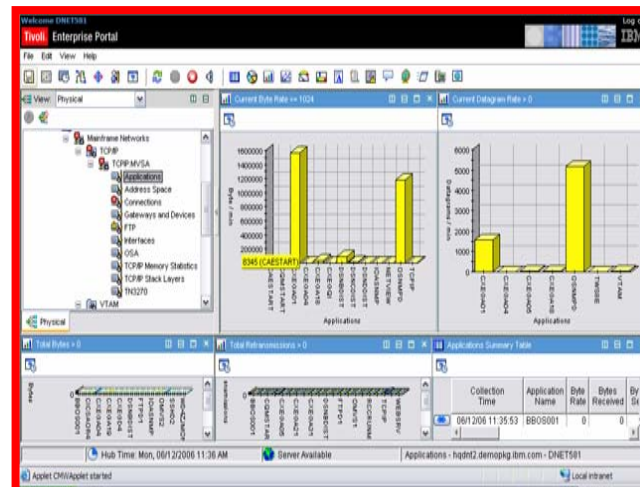
- ▶ Determine the actual service level
- ▶ Easily automate responses to recurring performance problems



# OMEGAMON XE For Mainframe Networks Options & Interfaces

## ■ OMEGAMON XE GUI Interface

- ▶ Real time and historical
- ▶ Automation & alerts – Situations & Policies
- ▶ OSA, EE, HPR Information and more...



## ■ OMEGAMON CUA Interface

- ▶ Monitor VTAM & TCP/IP
- ▶ 3270 interface
- ▶ Real Time & Historical
- ▶ Warning & Critical exception alerts

```

Actions Goto Options Help
KONDI00D TCP/IP Status Summary System: SYS1
More:
Select with a "/" or an action code. Lines 1 to 1 of 1
X=Exceptions S=Show details T=Trends A=Add C=Change D=Delete R=Start P=Stop
CO=Connections AP=Appls DE=Devices GA=Gateways BP=Buffer Pools CF=Config
    
```

Address Space	Type	Value	Pct	Condition	Type	Value	Condition
TCP/IP	CPU	--	6.80%	Critical	Connections	121	Normal
	Paging	0	0%	Normal	Applications	21	Normal
	CSA	5820K	1.44%	Normal	Devices	2	Normal
	C24	136	0%	Normal	Gateways	4	Normal
	IP	--	--	Normal	Buffer Pools	N/A	Idle
	SNMP	--	--	Normal	TELNET Pool	.01%	Idle
					Bytes/min	124K	Normal

```

Command ==>
F1=Help F2=Keys F3=Exit F5=Refresh F6=Console **=Bkwd ***=Fwd F9=Retrieve
F10=Action Bar F11=Print F12=Cancel F15=Status Display
    
```



# OMEGAMON XE – Portal Interface

Welcome DNET581 Log out

**Tivoli Enterprise Portal**

File Edit View Help

View: Physical

- Mainframe Networks
  - TCP/IP
    - TCP/IP: MVS/A
      - Applications
      - Address Space
      - Connections
      - Gateways and Devices
      - FTP
      - Interfaces
      - OSA
      - TCP/IP Memory Statistics
      - TCP/IP Stack Layers
      - TN3270
    - VTAM

**Current Byte Rate >= 1024**

Application	Byte / min
CAESTART	8345
OSNMPD	~1200000
VTAM	~100000
OSNMPD	~100000
NETVIEW	~100000
IOASNMP	~100000
DSNDDIST	~100000
DSNODIST	~100000
DSNBDIST	~100000
CXEGGQI	~100000
CXEGA18	~100000
CXEGA04	~100000
CXEGA01	~100000
CAESTART	~100000

**Current Datagram Rate > 0**

Application	Datagrams / min
OSNMPD	~5500
VTAM	~1800
OSNMPD	~1500
NETVIEW	~1000
IOASNMP	~1000
DSNDDIST	~1000
DSNODIST	~1000
DSNBDIST	~1000
CXEGGQI	~1000
CXEGA18	~1000
CXEGA05	~1000
CXEGA04	~1000
CXEGA01	~1000
CAESTART	~1000

**Total Bytes > 0**

Application	Bytes
WND4ZLM01	~1800000
SSH02	~1000000
OMV52	~1000000
IOASNMP	~1000000
FTPD1	~1000000
DSNBDIST	~1000000
CXEGD4	~1000000
CXEGA19	~1000000
CXEGA04	~1000000
CICSADR4	~1000000
BBOS001	~1000000

**Total Retransmissions > 0**

Application	Retransmissions
WBEESRV	~1800000
TOPIP	~1000000
ROCRUNM	~1000000
OMV51	~1000000
FTPD1	~1000000
DSNBDIST	~1000000
CXEGA31	~1000000
CXEGA21	~1000000
CXEGA06	~1000000
CAESTAR	~1000000
BBOS001	~1000000

**Applications Summary Table**

Collection Time	Application Name	Byte Rate	Bytes Received	By Se
06/12/06 11:35:53	BBOS001	0	0	

Hub Time: Mon, 06/12/2006 11:36 AM    Server Available    Applications - hqdn12.demopkg.ibm.com - DNET581

Applet CMWApplet started    Local intranet

# 3270 TCP/IP Monitoring Interface

```

Actions  Goto  Options  Help
-----15:16:38 02/27/06
KONDI00D          TCP/IP Status Summary          System: SYS1
                                          More:
Select with a "/" or an action code.          Lines 1 to 1 of 1
X=Exceptions S>Show details T=Trends A=Add C=Change D>Delete R=Start P=Stop
CO=Connections AP=Appls DE=Devices GA=Gateways BP=Buffer Pools CF=Config

```

Address Space	Type	Value	Pct	Condition	Type	Value	Condition
TCP/IP	CPU	--	6.80%	Critical	Connections	121	Normal
	Paging	0	0%	Normal	Applications	21	Normal
	CSA	5820K	1.44%	Normal	Devices	2	Normal
	C24	136	0%	Normal	Gateways	4	Normal
	IP	--	--	Normal	Buffer Pools	N/A	Idle
	SNMP	--	--	Normal	TELNET Pool	.01%	Idle
					Bytes/min	124K	Normal

```

Command ==>
F1=Help  F2=Keys  F3=Exit  F5=Refresh  F6=Console  **=Bkwd  **=Fwd  F9=Retrieve
F10=Action Bar  F11=Print  F12=Cancel  F15=Status_Display

```



# Tivoli Enterprise Portal And OMEGAMON DE

*The TEP With OMEGAMON Dashboard Edition enables integrated multi-component views*

- Customizable graphic overview**
- User-definable drill downs for detail**
- Combine information from multiple sources**
- More flexible and granular than 3270**

**Systems Management Dashboard Overview**

The network is central to the dashboard view

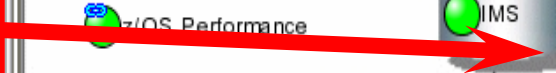
z/OS Performance				CICS Region Overview				IMS Address Spaces			DB2 Threads		MQ Series	
Service Class	Period	Goal Type	G Perc	System ID	CICS Region Name	CICS Version	R S	Originating System Identifier	MVS System	IM	Originnode		Origin Node	P
BATCH	1	Velocio		SP12	CCCD18	6.2.0	N/						MQ12:SP12:MQESA	04
BATCH	2	Velocio		SP12	CCCD19	6.2.0	N/	XEIMS:SP12:MVS	SP12	I71			MQ12:SP12:MQESA	03
BATHI		ocio		SP12	CCCD20	6.2.0	N/	XEIMS:SP12:MVS	SP12	I71	D71G:SP12:DB2	02/08	MQ12:SP12:MQESA	02

z/OS CICS IMS DB2 MQ

# Event Management & Problem Isolation

**Red Icons highlight a problem.**

**'Situations' specify alerts and highlight performance and availability issues.**



File Edit View Help

Demo System

### Systems Management Dashboard Overview

CICS Region Overview				IMS Address Spaces			DB2 Threads		MQ Series	
System ID	CICS Region Name	CICS Version	R/S	Originating System Identifier	MVS System	IM	Originnode		Origin Node	P
BATCH	1	Velocio		SP12	CCCD818	6.2.0	N/		MQ12:SP12:MQESA	04
BATCH	2	Velocio		SP12	CCCD819	6.2.0	N/		MQ12:SP12:MQESA	03
BATHI	1	Velocio		SP12	CCCD820	6.2.0	N/	D71G:SP12:DB2	02/08	
									MQ12:SP12:MQFSA	04

Ready | Hub Time: Tue, 02/08/2005 07:02 PM | Server Available. | Shelter Overview - hqdn1.usca.ibm.com - EWOOD \*ADMIN MODE\*

# Event Management & Problem Isolation

**Flyover  
pop-up  
shows  
the name  
of the  
'situation'  
alert**

**Systems Management Dashboard Overview**

MQ Series    WebSphere Status

z/OS Performance    IMS    Network Performance    z/OS Performance    IMS

**CRITICAL**  
 N3T\_Conn\_Rnd\_Trip\_Time    TCPIP:MVSA    06/09/06 15:22:29

KFVMTM1011 Select workspace link button to view situation event results.

**Click to see alert detail**

z/OS Performance				CICS Region Overview				IMS Address Spaces			DB2 Threads		MQ Series	
Service Class	Period	Velocity		SP12	CCCD818	6.2.0	N/	Originating System Identifier	MVS System	IM	Originnode		Origin Node	P
BATCH	1	Velocio		SP12	CCCD818	6.2.0	N/	XEIMS:SP12:MVS	SP12	I71			MQ12:SP12:MQESA	04
BATCH	2	Velocio		SP12	CCCD819	6.2.0	N/	XEIMS:SP12:MVS	SP12	I71			MQ12:SP12:MQESA	03
BATHI	1	Velocio		SP12	CCCD820	6.2.0	N/	XEIMS:SP12:MVS	SP12	I71	D71G:SP12:DB2	02/08	MQ12:SP12:MQFSA	04

# Isolate The Problem

## A Detail Display

Welcome DNET581 Log out

**Tivoli Enterprise Portal**

File Edit View Help

View: Physical

Mainframe Networks

- TCP/IP
  - TCP/IP: MVSA
    - Applications
    - Address Space
    - Connections
      - N3T\_Conn\_Rnd\_Trip
- Interfaces
- OSA
- TCP/IP Memory Statistics
- TCP/IP Stack Layers

Response Time	Origin Node	System ID	Host Name	TCP/IP STC Name	Collection Time	Application Name	Connection Type	Local Port
13.31	TCP/IP: MVSA	MVSA	DEMOMVS	TCP/IP	06/09/06 15:21:46	IBMSM	T	9993 9.76.1

**What are the details?**

Response Time	Origin Node	System ID	Host Name	TCP/IP STC Name	Collection Time	Application Name	Connection Type	Local Port
8.27	TCP/IP: MVSA	MVSA	DEMOMVS	TCP/IP	06/12/06 13:50:53	TCP/IP	T	23 9.65.1
13.31	TCP/IP: MVSA	MVSA	DEMOMVS	TCP/IP	06/12/06 13:50:53	IBMSM	T	9993 9.76.1
15.06	TCP/IP: MVSA	MVSA	DEMOMVS	TCP/IP	06/12/06 13:50:53	IBMSM	T	9993 9.76.1

**Take Action**

Action Name:

Command:

**Any Predefined Actions?**

Expert Advice

The response time for the last TCP segment transmitted on the connection. It is the elapsed time, in tenths of a second, starting when the segment was

**Any expert advice?**



# Use Situations To Build Alerts

**Description**  
Connection round trip time statistical variance.

	Response Time	Variance
1		>= 5.00
2		
3		

**Sampling interval**  
0 / 0 : 15 : 0  
ddd hh mm ss

**State**  
Warning

Run at startup

Alert names are more meaningful and easy to understand

Specify Situation alert criteria

Specify multiple attributes & sampling interval

Specify alert level and whether to run at startup

# A Complete Suite Of OMEGAMON Monitoring Components

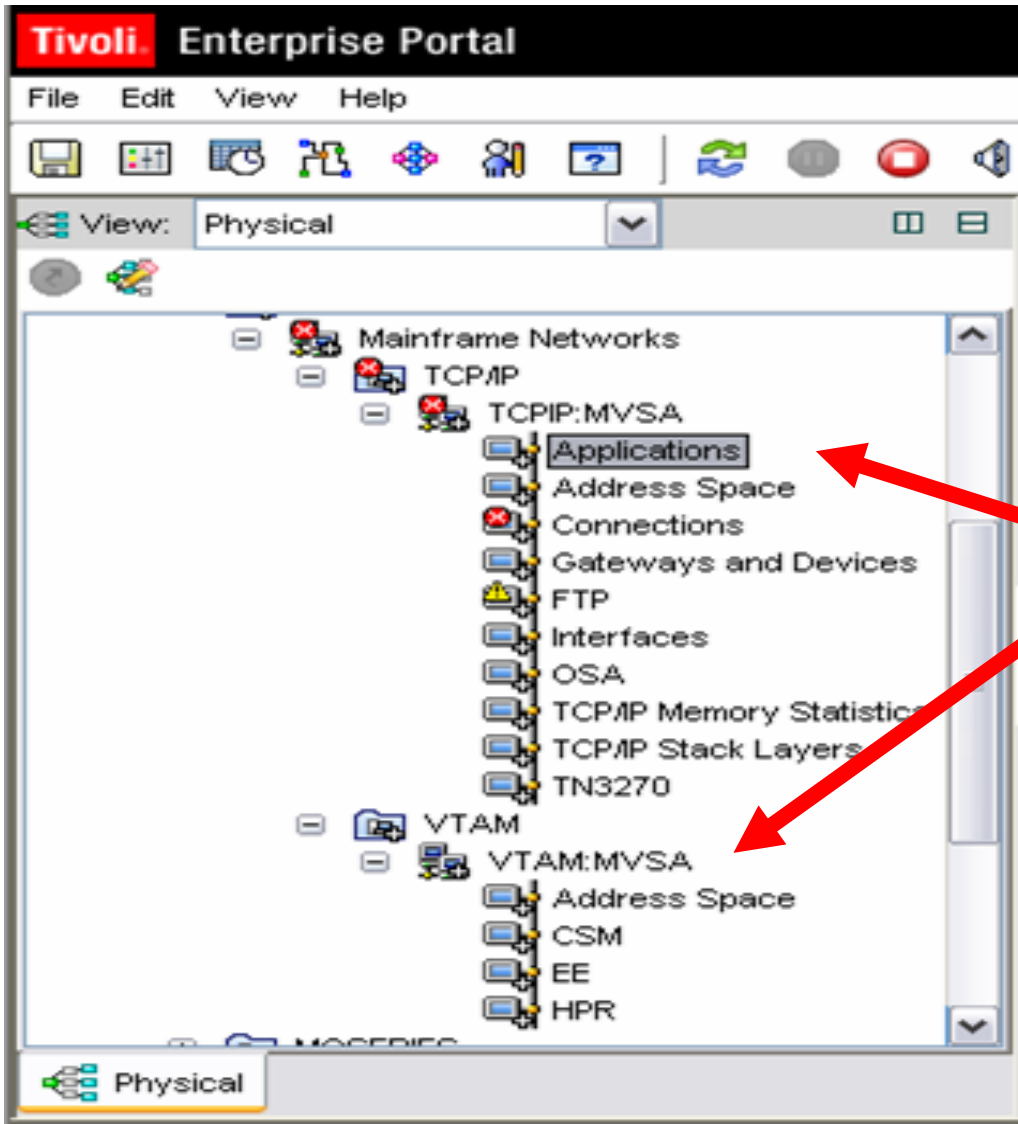
The screenshot displays the Tivoli Enterprise Portal (TEP) interface. On the left, a tree view shows various monitoring components under the 'Physical' view, including MVSA, CICS, DB2, IMS, Mainframe Networks (TCP/IP, VTAM), MQSERIES, OS/390 Unix (USS), Partition MVSA Production, QI Agent, Services Management Agent, Storage Subsystem, WebSphere Application Server OS/390, and z/OS Management Console. On the right, a bar chart titled 'Current Byte Rate >= 1024' shows network performance data for applications: CEXEGA05, CEXEGA18, OSNMMPD, TW/S8E, and VTAM. The OSNMMPD application shows the highest byte rate. Below the chart is a 'Summary Table'.

**IBM provides a suite of OMEGAMON monitoring tools that integrate into the TEP**

**Each monitoring tool includes product provided 'workspaces'**

**Network performance data may be included in monitoring views**

# IBM Provided Workspaces In The 'Physical' View



Click to navigate to various workspaces

OMEGAMON XE for Mainframe Networks monitors both VTAM and TCP/IP



# Integration Of Network Performance Information

Welcome DNET581 Log out

**Tivoli Enterprise Portal**

File Edit View Help

Applications Summary Table

Collection Time	Application Name	Byte Rate	Bytes Received	Bytes Sent	Bytes Sent or Received	Total Bytes Received	Total Bytes Sent	Total Bytes	Datagram Rate	Datagrams Received	Datagrams Sent	Datagram: Sent or Received
06/12/06 11:35:53	BBOS001	0	0	0	0	6092745	19363479	25456224	0	0	0	
06/12/06 11:35:53	BBOS013	0	0	0	0							
06/12/06 11:35:53	CAESTART	8345	3937	4408	8345							
06/12/06 11:35:53	CICSAOR1	0	0	0	0							
06/12/06 11:35:53	CICSAOR3	0	0	0	0							
06/12/06 11:35:53	CICSAOR4	0	0	0	0							
06/12/06 11:35:53	CPSMWUI	0	0	0	0	1085657	1337915	2423572	0	0	0	
06/12/06 11:35:53	CQMSTART	23419	10758	12661	23419	188046350	285839826	473886176	0	0	0	
06/12/06 11:35:53	CXEGA01	1569262	626554	940908	1569262	423823869	943088844	293170889	1557	779	778	155
06/12/06 11:35:53	CXEGA03	0	0	0	0							
06/12/06 11:35:53	CXEGA04	1530	200	1330	1530							
06/12/06 11:35:53	CXEGA05	456	228	228	456							
06/12/06 11:35:53	CXEGA06	0	0	0	0							
06/12/06 11:35:53	CXEGA16	0	0	0	0							
06/12/06 11:35:53	CXEGA18	34032	30198	3834	34032							
06/12/06 11:35:53	CXEGA19	0	0	0	0							
06/12/06 11:35:53	CXEGA21	0	0	0	0							
06/12/06 11:35:53	CXEGA30	0	0	0	0							
06/12/06 11:35:53	CXEGA31	0	0	0	0	1075468	2317091	3392559	0	0	0	
06/12/06 11:35:53	CXEGA34	0	0	0	0	12	12	24	0	0	0	
06/12/06 11:35:53	CXEGA4	0	0	0	0	1085657	1337915	2423572	0	0	0	

Example – Integrating CICS and network performance information

Application and connection level network performance may be integrated into custom workspaces

# Use The Properties Options To Filter To The View And To Control Content

Select the Filters Tab.

Select which columns are to appear in the workspace.

The screenshot shows the 'Filters' tab in the software interface. The 'Filters' section contains a table with columns for 'Collection Time', 'Application Name', 'Byte Rate', 'Datagram Rate', 'Total Bytes Sent', and 'Total Bytes Received'. A filter rule is defined as 'abc == CIC'. The 'Data Snapshot' section shows a table of application data with columns for 'Collection Time', 'Application Name', 'Byte Rate', 'Datagram Rate', 'Total Bytes Sent', and 'Total Bytes Received'. The 'Application Name' column in the filter table is highlighted with a red box, and a red arrow points from the text box 'Specify which applications will be included' to this box. Another red arrow points from the text box 'Select which columns are to appear in the workspace.' to the 'Application Name' column header. A third red arrow points from the text box 'Select the Filters Tab.' to the 'Filters' tab.

Collection Time	Application Name	Byte Rate	Datagram Rate	Total Bytes Sent	Total Bytes Received
06/27/06 11:35:53	CICSAOR1	0	0	10492	
06/27/06 11:35:53	CICSAOR3	0	0	488	

Collection Time	Application Name	Byte Rate	Datagram Rate	Total Bytes Sent	Total Bytes Received
11:35:53	BBODMNB	0	0	0	0
11:35:53	BBODMND	0	0	0	0
11:35:53	BBODMNT	0	0	0	0
11:35:53	BBOS001	0	0	19363479	6092745
11:35:53	BBOS003	0	0	0	0
11:35:53	BBOS004	0	0	0	0
11:35:53	BBOS004A	0	0	0	0

Specify which applications will be included

# Graphics May Also Be Controlled Using Properties

Properties - Applications

Applications

- Views
  - Table Views
  - Bar Chart Views
    - Total Bytes > 0
    - Total Retransmissions > 0
    - Application Connection Count

Preview

Application Connection Count

agrams / min

Count

Query Filters Style

Filters

	Connection Count	Origin Node	Collection Time	Application Name	Active connections	Accepted Connection
1	<input checked="" type="checkbox"/>				<input type="checkbox"/>	<input type="checkbox"/>
2				ab == CIC		
3						
4						

Data Snapshot

	Connection Count	Origin Node	Collection Time	Application Name	Active Connections	Accepted Connection
06	11:45:53	BBODMNB	0			
06	11:45:53	BBODMND	0			
06	11:45:53	BBODMNT	0			
06	11:45:53	BBOS001	0			
06	11:45:53	BBOS003	0			
06	11:45:53	BBOS004	0			
06	11:45:53	BBOS004A	0			

OK Cancel Apply Test Help

Specify which applications will be included

# Add CICS Transaction Information To The Workspace

**Properties - Applications**

Applications  
Views  
Table Views  
Applications Summary Table  
Table  
Bar Chart Views

**Preview**

CICS Task Activity

System ID	CICS Region Name	CICS SYSIDNT	Transaction ID	User ID	Terminal ID	Task Number	Resource Type	Resource Name
MVSA	CICSAOR1	C22A	CEMT	DNET100	0053	28083	ZCLOWA...	DFHZARQ
MVSA	CICSAOR1	C22A	CKTI	SYSSTC	n/a	00057	MQSeries	GETWAIT
MVSA	CICSAOR1	C22A	CKAM	SYSSTC	n/a	00043		

Query Filters Thresholds Style

Click here to assign a query.

**Description**

Name: Transaction Analysis

Description: Default Transaction Analysis Query

**Formula**

( Origin Node == \$NODE\$)

100 rows will be returned as a page

Return all rows

Number of rows to return:

OK Cancel Apply Test Help

**Assign a query to control the information content**

# The Customized Workspace

## Integrated CICS Transaction And Network Performance

**Tivoli Enterprise Portal**

File Edit View Help

View: Physical

- Mainframe Networks
  - TCP/IP
    - TCPIP: MVSA
      - Applications
      - Address Space
      - Connections
      - Gateways and Devices
      - FTP
      - Interfaces
      - OSA
      - TCPIP Memory Statistics

Application Connection Count

**Network**

CICS Task Activity

System ID	CICS Region Name	CICS SYSIDNT	Transaction ID	User ID	Terminal ID	Task Number	
MVSA	CICSAOR1	C22A	CEMT	DNET100	0053	28083	Z
MVSA	CICSAOR1	C22A	CKTI	SYSSTC	n/a	00057	M
MVSA	CICSAOR1	C22A	CKAM	SYSSTC	n/a	00043	
MVSA	CICSAOR1	C22A	CSNE	n/a	n/a	00036	Z
MVSA	CICSAOR1	C22A	CSHQ	n/a	n/a	00030	S
MVSA	CICSAOR1	C22A	CEX2	n/a	n/a	00028	U
MVSA	CICSAOR1	C22A	COIF	SYSSTC	n/a	00026	U

**CICS**

CICS Connection Overview

Collection Time	Application Name	Byte Rate	Datagram Rate	Total Bytes	Segments Retransmitted	Total Segments Retransmitted
06/12/06 11:35:53	CICSAOR1	0	0	87039	0	
06/12/06 11:35:53	CICSAOR3	0	0	1073	0	
06/12/06 11:35:53	CICSAOR4				0	

**Network**

Hub Time: Mon, 06/12/2006 11:58 AM | Server Available | Applications - hqndt2.demopkg.ibm.com - DNET581



# Customized Workspaces Are Saved In The TEP

The screenshot shows the Tivoli Enterprise Portal interface. A 'Save Workspace As' dialog box is open, allowing users to save a customized workspace. The dialog has two sections: 'Workspace Identity' and 'Workspace Options'.

**Workspace Identity:**

- Name: Example Application View
- Description: (empty)

**Workspace Options:**

- Assign as default for this Navigator Item
- Do not allow modifications
- Only selectable as the target of a Workspace Link

Buttons: OK, Cancel, Help

**CICS Task Activity Table:**

System ID	CICS Region Name	CICS SYSIDNT	Transaction ID	Us ID	Collection Time	Application Name	Byte Rate	Datagram Rate	Total Bytes	Segments Retransmitted	Total Segments Retransmitted
MVSA	CICSAOR1	C22A	CEMT	DNET581	06/12/2006 11:35:53	CICSAOR1	0	0	87039	0	
MVSA	CICSAOR1	C22A	CKTI	SYSSTC	n/a	00057	M				
MVSA	CICSAOR1	C22A	CKAM	SYSSTC	n/a	00043			1073	0	
MVSA	CICSAOR1	C22A	CSNE	n/a	n/a	00036	Z				
MVSA	CICSAOR1	C22A	CSHQ	n/a	n/a	00030	S				
MVSA	CICSAOR1	C22A	CEX2	n/a	n/a	00028	U		32083	0	
MVSA	CICSAOR1	C22A	CGIF	SYSSTC	n/a	00038					

Hub Time: Mon, 06/12/2006 12:00 PM | Server Available | Applications - hqdn2.demopkg.ibm.com - DNET581

# Link Drill Down For Additional Detail

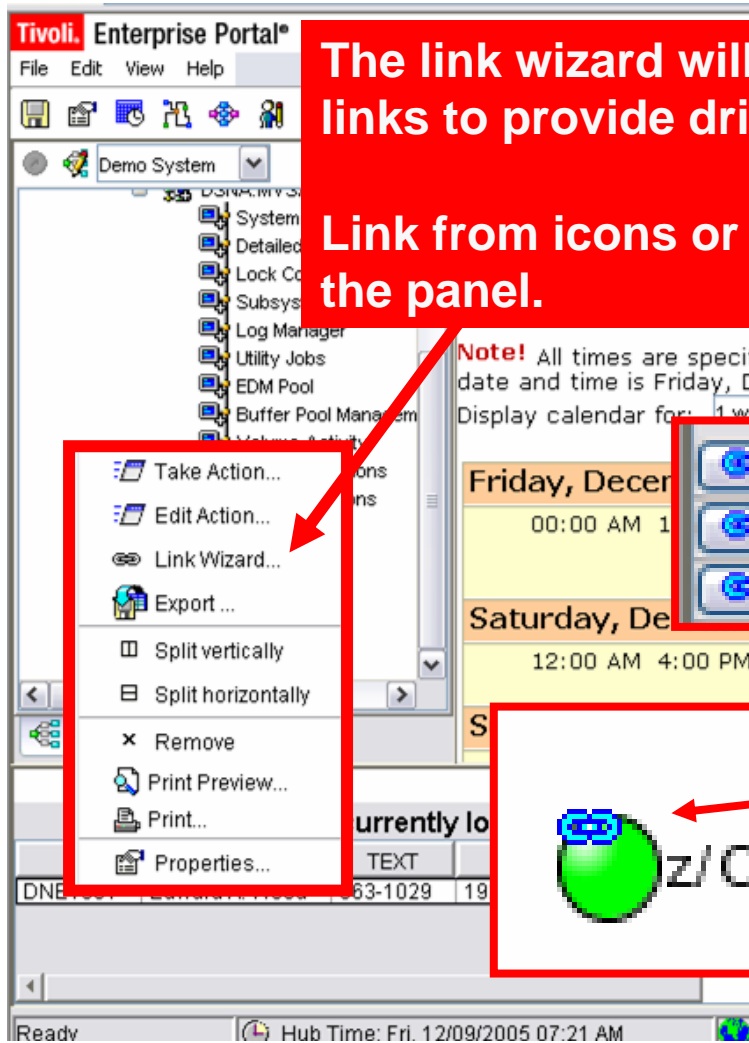
The screenshot displays the Tivoli Enterprise Portal interface. On the left, a tree view shows the navigation structure under 'Physical' > 'Mainframe Networks' > 'TCP/IP' > 'TCP/IP: MVSA' > 'Applications'. The main area features a 3D bar chart titled 'Application Connection Count' showing datagrams per minute for various CICS regions. Below the chart is a table of CICS Task Activity. A red callout box with the text 'Click on the link symbol for more detail' points to a link symbol in the 'CICS Connection Overview' table. The context menu for this link includes 'Application Connections', 'Link Wizard...', and 'Link Anchor...'.

Region	Count
CICSAOR1	~5.5
CICSAOR2	~2.5
CICSAOR3	~2.5
CICSAOR4	~7.5
CICSTV2	~1.5
CICSTV3	~1.5
CICSTOR1	~2.5

System ID	CICS Region	CICS	Transaction	User	Terminal	Task Number
MVS						3 Z
MVS						7 M
MVS						6 Z
MVS						0 S
MVSA	CICSAOR1	C22A	CEX2	n/a	n/a	00028 U
MVSA	CICSAOR4	C22A	COIF	CYBCTC	n/a	00028 U

Collection Time	Application Name	Byte Rate	Datagram Rate	Total Bytes	Segments Retransmitted	Total Segments Retransmitted
06/12/06 11:35:53	CICSAOR1	0	0	87039	0	
		0	0	1073	0	
		0	0	32083	0	

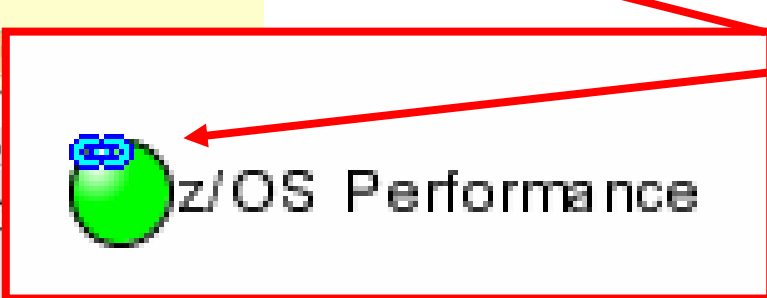
# Use Link Wizard To Build Custom Links And Drill Downs



The link wizard will allow for building links to provide drill down navigation.  
 Link from icons or from other areas in the panel.

Note! All times are specific to the date and time is Friday, Dec 9, 2005. Display calendar for: 1 week

	12/09/05 07:28:46	0	BP0	4000
	12/09/05 07:28:46	0	BP1	4000
	12/09/05 07:28:46	0	BP2	4000



Link from the panel or link from an icon

# Another Example – Monitoring DB2 Connections

**Specify which applications will be included (in this example DB2)**

Collection Time	Application Name	Connection Type	Local Port	Foreign Socket	Hex Connection Number	Connect State
06/12/06 12:01:53	DSNBDIST	T	446	9.39.64.153:4658	0X01BD4640	5
06/12/06 12:01:53	DSNDDIST	T	4466	9.19.55.136:15160	0X00000052	5
06/12/06 12:01:53	DSNBDIST	T	4466	9.19.55.136:15160	0X00000052	5

Collection Time	Application Name	Connection Type	Local Port	Foreign Socket	Hex Connection Number
06/12/06 12:01:53	DSNBDIST	T	446	9.39.64.153:4658	0X01BD4640
06/12/06 12:01:53	IOASNMP	T	721	127.0.0.1:2217	0X01B73ED
06/12/06 12:01:53	CQMSTART	T	63026	127.0.0.1:3447	0X01BD463
06/12/06 12:01:53	CAESTART	T	63027	127.0.0.1:3447	0X01BD463
06/12/06 12:01:53	DSNDDIST	T	4466	9.19.55.136:15160	0X0000005
06/12/06 12:01:53	DSNDDIST	T	4466	9.19.55.136:18826	0X01BD464
06/12/06 12:01:53	CAESTART	T	63034	9.39.64.151:3444	0X01BC2C7

# Detail Available For Connection Level Monitoring

Welcome DNET581 Log out

**Tivoli Enterprise Portal**

File Edit View Help

Connections Summary Table

Collection Time	Application Name	Connection Type	Local Port	Foreign Socket	Hex Connection Number	Connection State	Total Bytes Received (in GB)	Total Bytes Received	Total Bytes Sent (in GB)	Total Bytes Sent	Total Bytes (in GB)	Total Bytes
06/12/06 12:01:53	DSNBDIST		4	The local port for this TCP connection.		01BD4640	5	0	18411	0	3647	0
06/12/06 12:01:53	DSNDDIST		4466	9.19.55.136:15160	0X00000052	5	0	10824743	0	23292594	0	34
06/12/06 12:01:53	DSNDDIST		4466	9.19.55.136:18826	0X01BD4648	5	0	1204	0	888	0	

Welcome DNET581 Log out

**Tivoli Enterprise Portal**

File Edit View Help

Byte Rate	Response Time	Response Time Variance	Telnet Appl Name	Telnet LU Name	Segments Retransmitted	Total Segments Retransmitted	Percent Segments Retransmitted	Datagrams Received	Datagrams Sent	Datagrams Sent or Received	Total Datagrams Received	Total Datagrams Sent	Total Datagrams	Datagram Rate
8232	0.27	0.45	The statistical variation of response times since the connection was established.					0	0	0	0	0	0	0
3135	0.94	0.93						0	0	0	0	0	0	0
0320	0.20	0.22			0	0	0	0	0	0	0	0	0	0

# Monitor FTP Activity

**Tivoli Enterprise Portal**

File Edit View Help

View: Physical

- Connections
- Gateways and D...
- FTP
- Interfaces
- OSA
- TCP/IP Memory St...
- TCP/IP Stack Laye...
- TN3270
- VTAM
- VTAM/OSA

Physical

Transmission Time > 1 sec

Transfer Start Time	Transmission Time (1/1000th Seconds)
06/12/06 10:31:43	~240,000
06/12/06 10:43:29	~240,000
06/12/06 10:49:50	~240,000
06/12/06 11:16:59	~30,000

Total Bytes > 1M

Transfer Start Time	Total Bytes
06/12/06 10:31:43	~3,600,000
06/12/06 10:43:29	~3,600,000
06/12/06 10:49:50	~3,600,000
06/12/06 11:16:59	~1,200,000

FTP Transfer Count

FTP Transfers

FTP Transfer Summary Table

Collection Time	Remote IP Address	Remote IP Port	Local IP Address	Local IP Port	User ID on Server	Client User ID	Role	Transmission Start
06/12/06 10:35:59	9.49.197.37	3285	9.39.64.151	20	DBA105		Server	06/12/06 10:31:43
06/12/06 10:47:55	9.49.197.37	3291	9.39.64.151	20	DBA105		Server	06/12/06 10:43:29
06/12/06 10:54:12	9.49.197.37	3303	9.39.64.151	20	DBA105		Server	06/12/06 10:49:50
06/12/06 11:17:34	9.112.37.190	3304	9.39.64.151	20	DNET9...		Server	06/12/06 11:16:59

Hub Time: Mon, 06/12/2006 12:07 PM    Server Available    FTP Transfers - hadnt2.demopka.ibm.com - DNET581

# Monitor TN3270

Welcome DNET581 Log out IBM.

**Tivoli Enterprise Portal**

File Edit View Help

---

View: Physical

- Connections
- Gateways and D...
- FTP
- Interfaces
- OSA
- TCP/IP Memory St...
- TCP/IP Stack Lay...
- TN3270**
- VTAM

**Active Telnet Session Count**

Number of telnet sessions: 27

**Active Telnet Session Count Summary**

Collection Time	Telnet Session Count
06/12/06 12:07:56	27

---

**Bytes by Telnet Session**

Telnet LU Name: TCP00078, TCP00014

- Total Bytes Received (in GB)
- Total Bytes Received
- Total Bytes Sent (in GB)
- Total Bytes Sent

**TN3270 Server Session Summary**

Telnet LU Name	SNA Application Name	Remote IP Address	Remote Port	Local IP Address	Local Port	Session Start	
TCP00078	DDCTSO19	9.73.23.123	4290	9.39.64.151	23	06/12/06 10:37:07	06/1
TCP00014	DDCTSO05	9.65.39.48	4270	9.39.64.151	23	06/12/06 05:31:34	06/1

---

Hub Time: Mon, 06/12/2006 12:08 PM Server Available TN3270 Server Session Availability - hqndt2.demopkg.ibm.com - DNET581

# Availability Monitoring

- Monitor the status as well as the performance of key network resources
  - ▶ OSA adapters
  - ▶ EE
  - ▶ HPR
  - ▶ Gateways
- Use situations to generate alerts and corrective actions





# Monitor OSA Adapter Status And Performance

Welcome DNET581 Log out

**Tivoli Enterprise Portal**

File Edit View Help

View: Physical

- Address Space
- Connections
- Gateways and De
- FTP
- Interfaces

Physical

### 1 Minute Resource Utilization

Channel Number	PCI Utilization (%)	Processor Utilization (%)
80	~9.5	~1.5

### 5 Minute Resource Utilization

Channel Number	PCI Utilization (%)	Processor Utilization (%)
80	~10.5	~1.5

### 1 Hour Resource Utilization

Channel Number	PCI Utilization (%)	Processor Utilization (%)
80	~10.5	~1.5

### OSA Express Channels Summary

Collection Time	Device Name	Channel Number	Channel Type	Subtype	Mode	State	Share Indicator	Port Count	Control Unit Number	Micro Code Level	Current LPAR Name	Current LPAR Numk
06/12/06 12:08:55	OSAF8C0	08	16	FastEthernet	PassThruAndSna	Online	Shared	1	0XFC08	0X035D	DEMOMVS	8

Hub Time: Mon. 06/12/2006 12:09 PM Server Available OSA Channels - hadnt2.demopka.ibm.com - DNET581

# Monitor OSA Status Across LPARs

Welcome DNET581 Log out

**Tivoli Enterprise Portal**

File Edit View Help

View: Physical

Processor Utilization > 0

Input Kilobyte Rate > 0

Output Kilobyte Rate > 0

OSA Express LPARs Channel Usage Summary

Channel Number	Collection Time	LPAR Name	LPAR Logical Channel Subsystem	LPAR Number	Processor Utilization Per Minute	Kilobyte Rate In Per Minute	Kilobyte Rate Out Per Minute	Processor Utilization Per Five Minutes	Kilobyte Rate In Per Five Minutes	Kilobyte Rate Out Per Five Minutes	Processor Utilization Per Hour
08	06/12/06 12:08:55	ESYSMVS	0	2	0	0	0	0	0	0	0
08	06/12/06 12:08:55	DEMOZVM	0	3	0	0	0	0	0	0	0
08	06/12/06 12:08:55	ESYSMVS2	0	4	0	0	0	0	0	0	0

Channel: 08

Hub Time: Mon. 06/12/2006 12:09 PM | Server Available | OSA LPARs - hadnt2.demopka.ibm.com - DNET581

# Alert Correlation And Integration

The screenshot displays the Tivoli Enterprise Portal interface. On the left is a navigation tree with categories like Mainframe Networks, TCP/IP, Applications, and Address Space. The main area contains several performance dashboards: 'Current Byte Rate >= 2048' (bar chart), 'Current Datagram Rate > 0' (3D bar chart), and 'Current Retransmits > 0' (bar chart). A context menu is open over a connection entry '0X01BD04FAE' in the navigation tree, with 'Situations...' highlighted. A red arrow points from the 'Situations...' menu item to a red text box.

Select Situations to manage situation alerts for this entry in the navigation tree



# Situations May Be Relatively Simple

**Situations for - Connections**

**Formula** | Distribution | Expert Advice | Action | Until

**Description**  
Connection round trip time statistical variance.

**Formula**

	Response Time Variance
1	>= 5.00
2	
3	

Click inside a cell of the formula editor to see... and to compose the expression.  
Add a condition by clicking **Add condition**... attributes you want to include.

Situation Formula Capacity  5%

**Sampling interval**  
0 / 0 : 15 : 0  
ddd hh mm ss

**Sound**  
 Enable warning.wav  
Play Edit...

**State**  
Warning  
 Run at startup

OK Cancel Apply Help

**Check for a single key metric such as response time**

# Situations May Incorporate Boolean Logic

**Description**

**Formula**

Datagrams Discarded

	Application Name	Connections in Backlog	Percent Segments Retransmitted	Datagrams Discarded
1	abc == CIC	> 0		
2	abc == CIC		> 2	
3	abc == CIC			<input type="text" value="3"/>

**Datagrams Discarded** The number of received datagrams that were discarded because a receive queue limit was exceeded during the most recent interval. The format is an integer.

**Datagrams Queued** The number of datagrams that were queued during the most recent interval. The format is an integer.

**Datagrams Received** The number of datagrams received during the most recent interval. The format is an integer.

Situation Formula Capacity  29%

**Sampling interval**  /  :  :

ddd hh mm ss

**Sound**  Enable

Use Boolean logic for and/or analysis

Make alerts application specific



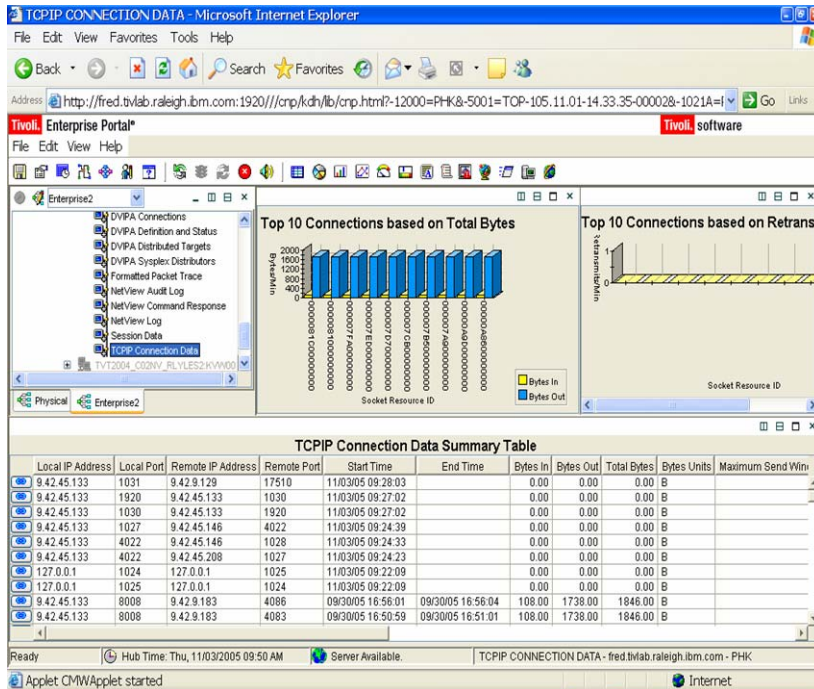
# Use Policies To Correlate Issues

The screenshot displays the Workflow Editor interface. On the left, the 'Workflow components' pane shows various activity icons: 'Wait until a situation is True', 'Evaluate a situation now', 'Take action or Write message', and 'Suspend execution'. The main workspace, titled 'New\_Policy - Grapher View', contains a flowchart with the following steps:

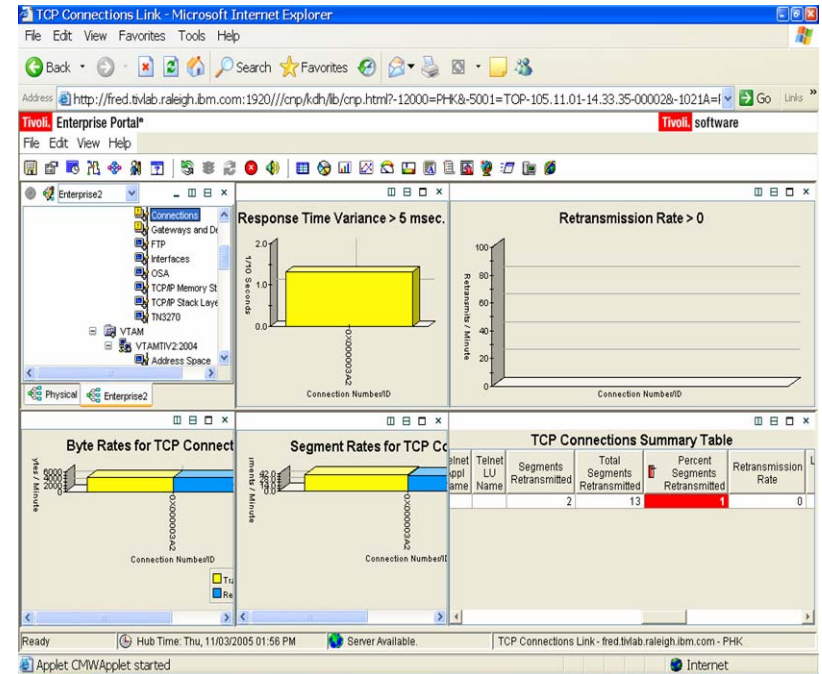
- Start:** A 'Wait until N3T\_Conn\_Rnd\_Trip\_Time is True' activity, annotated with a red box labeled 'Check Network alert'.
- Flow:** An arrow labeled 'Situation is true' leads to a 'Wait until CICSplex\_RTAGroup Warning is True' activity, annotated with a red box labeled 'Check CICS alert'.
- Flow:** An arrow labeled 'Situation is true' leads to a 'Take action: Console Comm...' activity, annotated with a red box labeled 'Issue Commands'.

At the bottom of the editor, there are buttons for 'OK', 'Cancel', 'Apply', and 'Help'. The user's name 'Edward A. Wood' and some checked options are visible in the bottom left corner.

# OMEGAMON And NetView Integration



NetView for z/OS Workspace



OMEGAMON XE for Mainframe Networks Workspace



- Cross link from the NetView TCP/IP connection availability data to the OMEGAMON XE for Mainframe Networks TCP/IP connection performance data
- Requires V5.2 of NetView



## Summary

- Tivoli Enterprise Portal provides a means and mechanism to integrate many aspects of systems, performance, and availability management
  - ▶ A consistent tool set, ease of use and deployment
- Most applications are composite in nature and require a more integrated management approach
  - ▶ Multiple platforms and component technologies
- Alerts and automation speed problem identification and isolation
- Integrated automation allows for correction of issues at machine speed





# Thank You!

