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IBM Software Group | Tivoli Software

Optimal Alert Management Strategies for System z and Beyond

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Agenda

- Alerts
 - Why Alerts? What are the benefits?
 - What are the challenges?
- Types of alerts
 - Typical sources of alert information
- How alerts may be presented
 - Visualization and notification
- How alerts may be managed and correlated
- Forging an integrated alert management methodology
 - Integration and event correlation
 - Examples using IBM OMEGAMON, TBSM and OMNIbus
- Recommendations And Road Map
 - Putting it all together

Why Alerts? What Are The Benefits?

- If you don't measure it, you can't manage it
 - Ongoing measurement of system/application activity, availability and performance is important to consistent results
- Many issues are anecdotal
 - What happened? Where? When?
 - How much? How often? How severe?
 - What's the technical and business impact?
- Meaningful alert management enables fast and efficient problem isolation and root cause analysis
 - Become more proactive
- Gather measurement data and use to craft meaningful alerts
 - Select and publish ongoing performance metrics

Islands Of Automation Complicate Management

Potentially many consoles, screens, and technologies to monitor and manage

CICSC

DB2B

MVSA

z/OS
Linux
UNIX
Windows
Database
WebSphere
WebSphere MQ
Network

```

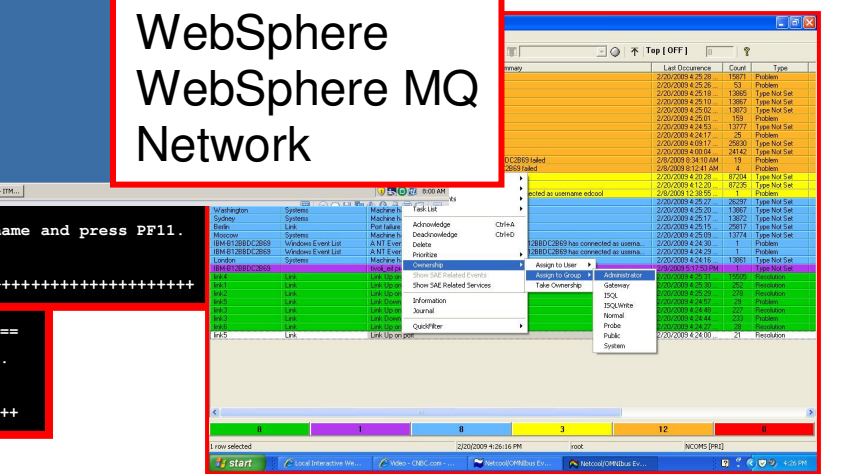
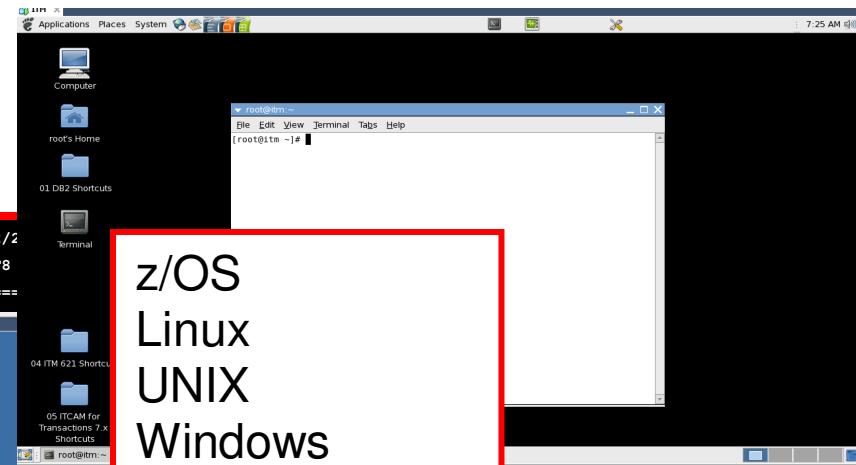
> Help PF1
=====
>
SCPUI0 __CPU Utili
+   Enclaves
+   Total
=====
BATX  IMSAMSG1  IMS
step  DFSMPR  R
elap  16:20  DY  16:20  DY  16:2
=====
> Enqueues
SXQCB  TWC8
+
TWS8E  Wait  Exc  SYS
+
TWS8E
+
TWC8  Wait  Exc  SYS
=====
> For more information, place the cursor on the exception name and press PF11.
LXGRPHE  OMEGAMON/MVS Group Exception Analysis
+ XCHN ++++++
=====
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=====
LXGRPHE  OMEGAMON/MVS Group Exception Analysis
+ XCHN ++++++
=====

```

```

ZOPS  VTM  OM/DEX  V550.M2  SP12  12/2
> Help PF1  Back PF3  Up PF7  Down PF8
=====
>
SCPUI0 __CPU Utilization_ 0
+   Enclaves   .03
+   Total     15.92
=====
BATX  IMSAMSG1  IMSBMSG1  IMSB
step  DFSMPR  REGION  DFS
elap  16:20  DY  16:20  DY  16:2
=====
> Enqueues
SXQCB  TWC8      Exc  SYS
+
TWS8E  Wait  Exc  SYS
+
TWS8E      Exc  SYS
+
TWC8      Wait  Exc  SYS
=====
> For more information, place the cursor on the exception name and press PF11.
LXGRPHE  OMEGAMON/MVS Group Exception Analysis
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LXGRPHE  OMEGAMON/MVS Group Exception Analysis
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=====
LXGRPHE  OMEGAMON/MVS Group Exception Analysis
+ XCHN ++++++
=====

```



Common Alert Challenges Islands Of Automation

- Many technical platforms, components and core technologies to manage
 - Often times each with it's own group of Subject Matter Experts (SMEs)
 - Each with it's own set of management tools
- The problems
 - Complex SME tools with different User Interfaces
 - SME tools that do not integrate or share information
 - More difficult to navigate
 - More difficult to do problem identification, isolation, and resolution
 - More challenging to automate corrective actions without clearly defined integration
 - More reliance on manual intervention

Common Alert Challenges

Islands Of Automation And Tools Ownership

- Islands of automation pose challenges when trying to become more proactive
 - Sophisticated ‘composite’ applications drive the need for a more integrated methodology
 - Often necessary to more effectively integrate tools and technologies to become more proactive
- Tools ownership
 - Installation and management of the tools
 - Centralized management
 - Management dispersed among multiple groups
 - Recommendation – where feasible try for a centralized approach

Categories Of Typical Alerts

When planning an alert infrastructure, consider each category of alerts

Availability

Application availability
Essential infrastructure availability
Subsystem availability

Examples of typical alerts

Performance

Subsystem performance
Application performance
Identification of performance issues

Resource

Subsystem resource utilization
Application resource utilization

Alert Notification Types And Options

- **Visual View – Custom Views – Enterprise View**
 - Red/Yellow indicators and icons in a GUI interface, such as Tivoli Enterprise Portal or TBSM displays
- **Console messages**
 - Example - Issuing messages and commands to the z/OS console
 - Use this as a mechanism to feed other automation
- **Paging and emails**
 - Issue commands to feed paging systems
 - Use 3rd party tools such as Postie to issue emails from the command prompt
 - Console messages may be used to feed email systems
- **SNMP traps and alerts**
 - Issue SNMP traps from the command prompt using situations or policies
- **Event correlation engine – example Netcool/OMNIbus events**
 - OMNIbus may act as an event correlation engine
 - May receive events via traps or the EIF interface
- **Alerts to 3rd party tools**

Sources Of Alert Information Various Examples

- Operating System Performance monitoring technology
 - z/OS monitoring – example OMEGAMON XE For z/OS
 - Distributed OS monitoring – example IBM Tivoli Monitoring
- Database monitoring technology
 - z/OS Examples – OMEGAMON XE For DB2, OMEGAMON XE For IMS
 - IBM Tivoli Monitoring for Distributed databases, IBM Optim
- Network monitoring technology
 - Examples – OMEGAMON XE For Mainframe Networks, NetView
 - IBM Netcool OMNIbus, SNMP alert managers
- Application level monitoring
 - Examples – ITCAM for Application Diagnostics, OMEGAMON XE For Messaging
 - Application error messages
- Console Automation and workload scheduling
 - Console messages and resource status
 - Job and workload status

Setting Alerts At The 3270 Level

Example - OMEGAMON Classic Exceptions

```

----- ZOPS      VTM      OM/DEX  V520.M2  MVSA  11/28/05  9:26:53  46
+      +      since 11/24/05 10:42:53 - 423415 records lost
+      +-----+
+ XREP Number of Outstanding Replies = 5
+ FXFR STC *MASTER*      Fixed Frames in use = 1940
+ FXFR STC PCAUTH        Fixed Frames in use = 148
+ WAIT      PCAUTH        Wait:      8:06 DY
+ FXFR STC TRACE        Fixed Frames in use = 427
+ WAIT      TRACE
+ FXFR STC DUMPSRV
+ FXFR STC GRS
+ FXFR STC CONSOLE
+ FXFR STC JESXCF
+ FXFR STC ALLOCAS
    
```

Profile member

**XACB
command**

```

XACB LIST=XREP
: XREP
+   DISPLAY Parameters:  THRESHOLD Parameters:  XLF Parameters:
:   State=ON             Threshold=1           Auto=OFF
:   Group=OP             Display=CLR3         Log=OFF
:   Bell=OFF             Attribute=NONE       Limit=0 (0)
:   BOX Parameters:     CYCLE Parameters:   Repeat=NO
:   Boxchar=NO BOX      ExNcyc=0             Persist=0
:   Boxclr=NONE         Stop=0 (1)           SS=
:   Boxattr=NONE        Cumulative=1         >11/28/05 09:26:53<
    
```

- Each Classic OMEGAMON (MVS, IMS, DB2, CICS) has a set of pre-defined exceptions
 - Note – OMEGAMON for Mainframe Networks and Storage do not have Classic interface
- Settings are stored in a profile member – may have multiple profiles
- XACB command sets threshold ON or OFF or sets threshold level, enables XLF logging facility, and automated screen facility

Monitoring Interfaces With Automation For Alert Processing – example OMEGAMON and IBM SA

```

> Help PF1          ZTDIST  VTH  02      V540./C DB1X 05/03/04 15:02:06  2
Back PF3

>
> THREAD INFORMATION: Enter a selection letter on the top line.
>
> A-THREAD DETAIL  B-LOCK COUNTS  C-LOCK WAITS  D-LOCKS OWNED  E-GLOBAL LOCKS
> F-CURRENT SQL   G-SQL COUNTS   H-DISTRIBUTED  I-BUFFER POOL  J-GROUP BP
> K-PACKAGES     L-RES LIMIT   M-PARALLEL TASKS  N-UTILITY     O-OBJECTS
> P-CANCEL THREAD Q-DB2 CONSOLE R-DSN ACTIVITY S-APPL TRACE T-ENCLAVE
> U-LONG NAMES
-----
>
> DISTRIBUTED THR
PLAN
+ Thread: Plan=WID      Comid=ARSAF
+ Attach: ARSAF        Job Name=..PKE
+ Package: WKID        Collection=
rsum
+
+ Distributed RRS
+Location  IP Addr  Port Ctuser  Srvclsnam  Prod ID  Workstation
-----
  
```

OMEGAMON Classic

OMEGAMON can view the console and issue commands

Automation may check for classic exceptions
Automation may issue OMEGAMON commands

IBM System Automation

z/OS Console

Automation provides a bidirectional interface with the z/OS console

- IBM System Automation and AF/Operator provides a bi-directional interface with OMEGAMON
- Automation may detect OMEGAMON classic exceptions
- Automation may run execs to send traps to Netcool/OMNibus

Visualization Options

3270 Interface Versus GUI Interface Options

- 3270 Interface
 - 3270 green screen is high speed and detailed
 - 3270 interfaces well with console automation tools
 - Works well for SME deep dive analysis and problem resolution
 - z/OS centric views
- GUI interfaces
 - Flexible and useful for ‘big picture’ views
 - Most customizable for different audiences
 - Works well for ‘end to end’ integrated views and methodologies
 - Incorporate Linux/UNIX/Windows platforms
 - Incorporate network, application, database and middleware
 - Works well for business application views
 - Correlate the impact of events on the business

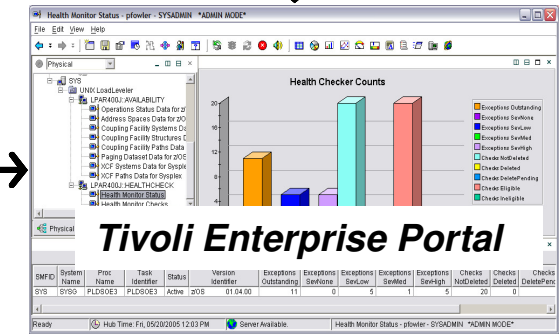
GUI Interface Example - Tivoli Enterprise Portal Provides An Integrated Alert Management Interface

The screenshot displays the Tivoli Enterprise Portal interface. At the top, it shows the user 'Ed Woods' and a 'Log out' button. The main interface is divided into several sections:

- Navigation:** A tree view on the left shows the system hierarchy, including 'Enterprise', 'Linux Systems', 'Windows Systems', 'z/OS Systems', and 'DEMOPLX:MVS:SYSPLEX'. A red box labeled 'Navigation' is overlaid on this section.
- Situation Event Console:** A central table displaying a list of alerts. The table has columns for Severity, Status, Owner, Situation Name, Display Item, and Source. Alerts are color-coded by severity: yellow for Warning and red for Critical. A red box labeled 'Alerts' is overlaid on this table.
- Open Situation Counts - La...:** A bar chart on the bottom left showing the count of various alerts. A red box labeled 'Number of events' is overlaid on this chart.
- My Acknowledged Events:** A table on the bottom right showing a list of acknowledged events with columns for Severity, Status, Owner, Name, Display Item, Source, Impact, Opened, Local Timestamp, Type, UUID, Node, and Reference. A red box labeled 'Messages' is overlaid on this table.
- Message Log:** A table at the bottom right showing a log of messages with columns for Status, Name, Display Item, Origin Node, and Global Timestamp.

IBM solutions that integrate via the Tivoli Enterprise Portal

z/OS Health check	z/OS Management Console
z/OS & USS	OMEGAMON XE on z/OS
NetView for z/OS	IBM Tivoli NetView for z/OS V5.3
Network	OMEGAMON XE for Mainframe Networks
DB2	OMEGAMON XE for DB2 PE/PM
CICS	OMEGAMON XE for CICS
IMS	OMEGAMON XE for IMS
Storage	OMEGAMON XE for Storage
WebSphere MQ	OMEGAMON XE for Messaging
WebSphere Appl Server	ITCAM for WAS
z/VM & Linux on z	OMEGAMON XE on z/VM and Linux
Distributed Monitoring	IBM Tivoli Monitoring (ITM) & ITCAM
Automation	SA for z/OS
DFSMS Audit	Advanced Audit for DFSMSshm
Catalog Management	Advanced Catalog Management for z/OS
SMF trend analysis Reports	Tivoli Decision Support for z/OS



Benefits Of An Integrated Alert Management Methodology

- **Improved ability to manage increasingly complex composite applications**
 - Enables an integrated approach to the management of subsystems, platforms, and application components
- **Reduce time to problem resolution**
 - Identify potential issues more rapidly
- **Improved event management and problem isolation**
 - More meaningful and useful problem alerts
- **Improved event correlation and management**
 - Eliminate the “noise” and focus on key issues

Important Characteristics Of An Integrated Alert Management Methodology

- **Integration**
 - Pull critical information together to the “single pane of glass”
 - Gather essential information from a variety of sources
 - End to end views for complex composite business applications
- **Flexibility**
 - Different views for different audiences
 - Management and Line of business/end users
 - Operations
 - Help desk
 - Technical Subject Matter Expert (SME) views
 - Optimize the views as the environment or requirements change
- **Ease of Use**
 - Eliminate the clutter and tune out the “noise”
 - Focus on critical metrics

Integrate Information To Consolidate Alerts And Analysis

Take advantage of the Tivoli Portal GUI to integrate information and alerts

Multiple z/OS LPARs

Key alerts

Swapped	Type	ASID	Wait Time	Major Name	Minor Name
Swapped	Exclusive	0	0	KLVGLOCK	SYSG
Swapped	Exclusive	0	0	SYSZJES2	PPSMP1SYS1

Managed System	Average CPU Percent	MVS Overhead	Undispatched Tasks	Partition LCPD%	Partition PCPD%	Partition Overhead%	Total Enclave%
LPAR400J:SP12:MVSSYS	6	5	0	7	7	0.30	0
LPAR400J:SP22:MVSSYS	11	11	0	7	7	0.30	0

Managed System	Job Name	CPU Percent	TCB Percent	SRB Percent
LPAR400J:SP12:MVSSYS	RMFGAT	3.9	3.9	0.0
LPAR400J:SP12:MVSSYS	CCCDEM01	2.7	2.6	0.1
LPAR400J:SP22:MVSSYS	XCFAS	2.7	1.4	1.3

Managed System	Page Fault Rate	System Page Rate	Unreferenced Interval Count	ASM Queue Length
LPAR400J:SP12:MVSSYS	0	0.3	254	0
LPAR400J:SP22:MVSSYS	108	11.2	1800	0

Status	Situation Name	Display Item	Origin Noc
Raised	Sysplex_DASD_Dev_Contindx_Warn		LPAR400J:MVS:S*
Raised	Sysplex_Workloads_Perfidx_Crit		LPAR400J:MVS:S*
Raised	Sysplex_Workloads_Perfidx_Crit		LPAR400J:MVS:S*
Raised	Sysplex_Workloads_Perfidx_Crit		LPAR400J:MVS:S*
Raised	Sysplex_Workloads_Perfidx_Crit		LPAR400J:MVS:S*
Raised	Sysplex_DASD_Dev_Contindx_Warn		LPAR400J:MVS:S*
Raised	Sysplex_DASD_Dev_Contindx_Warn		LPAR400J:MVS:S*
Raised	Sysplex_Workloads_Perfidx_Crit		LPAR400J:MVS:S*

Forming An Alert Management Strategy

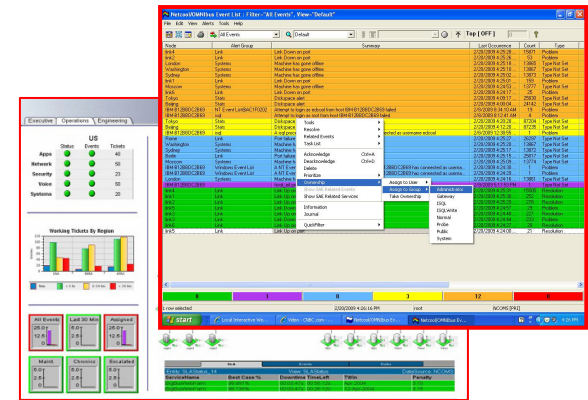
- High level analysis
 - Integrated event management and event correlation
 - Integrated business application topology analysis

- Integrated technical view
 - End to end technical analysis
 - Alerts for problem isolation and automation

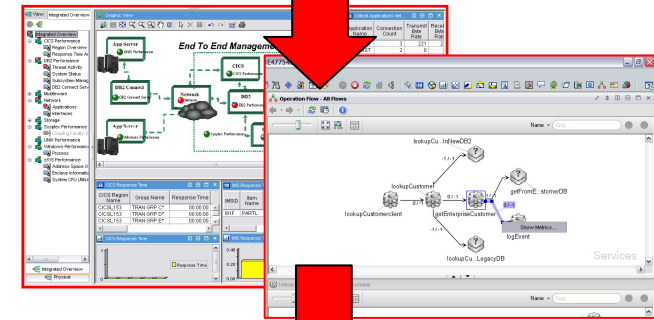
- Technical detail view
 - Technical deep dive analysis
 - Alerts for problem isolation and automation

Netcool/OMNIBus

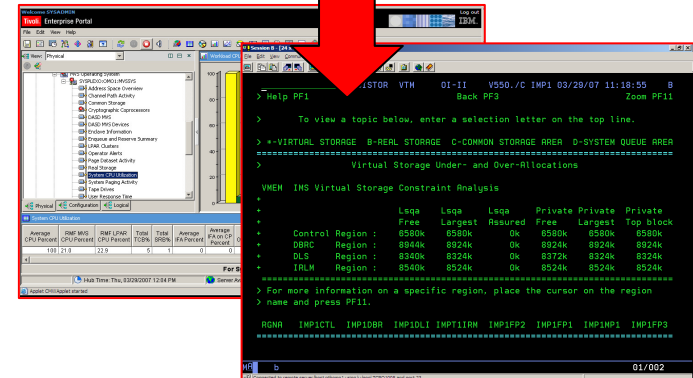
Tivoli Business Service Manager (TBSM)



OMEGAMON DE, OMEGAMON XE, & ITCAM



OMEGAMON XE (TEP, 3270) & ITCAM



Drill down

Drill down

Different Views May Be Required For Different Audiences - A Few Examples

- The integrated alert management overview
- The integrated Subject Mater Expert (SME) view
- The SME technical graphic overview
- The SME application specific view
- Management by exception view
- The Integrated technical view
- The end to end business application view
- The Integrated Operational view
- The Help Desk view
- The End User or Line of Business view

Example An Integrated Operational View

The screenshot displays the Tivoli Enterprise Portal interface. At the top, it shows the user 'Ed Woods' and a 'Log out' button. The main area is divided into several sections:

- Navigator:** A tree view on the left showing a hierarchy of views including 'EW_OPS_View', 'CICS Status', 'DB Status', 'Network Status', 'Applications', 'Connections', and 'Operational Alerts'. The 'Logical' view is selected.
- Graphic View:** A central dashboard with five status indicators: 'CICS Status' (green circle), 'z/OS Status' (yellow triangle), 'DB Status' (green circle), 'Network Status' (green circle), and 'Operational Alerts' (green circle). A red 'Alerts' box is overlaid on the top right of this section.
- Network Exception Applications:** A table with columns for Origin Node, Application Name, Connection Count, Active Connections, and Accepted Connections. A red 'OMEGAMON Networks' box is overlaid on this panel.
- Unavailable Task Status:** A table with columns for Managed System, Resource Name, System, Observed Status, and Desired Status. A red 'System Automation' box is overlaid on this panel.
- System CPU Usage:** A table with columns for Managed System, Average CPU Percent, and RMF MVS CPU Percent. A red 'OMEGAMON z/OS' box is overlaid on this panel.
- TWS Problem Jobs:** A table at the bottom showing problem details, including a 'Warning' status and 'Open' situation. A red 'Tivoli Workload Scheduler' box is overlaid on this panel.

Example - The SME Technical Graphic Overview

The screenshot shows the Tivoli Enterprise Portal interface. On the left is a tree view under 'Enterprise' with sub-items for 'Sealed Air Overview', 'Coupling Facility Structures', and three 'MVS System' entries (A, B, and C). Each system entry has sub-items for 'DB2', 'Thread Activity', 'Page Dataset Activity', and 'System CPU Utilization'. The main window displays a 'Graphic View' titled 'Sysplex Performance Overview'. This graphic shows three z/OS MVS systems (A, B, and C) arranged around a central Coupling Facility. Each system is represented by a box containing 'z/OS MVS System X' and 'System CPU Utilization', and a 'DB2' box containing 'Thread Activity'. Dashed green lines connect the systems to the central Coupling Facility and to each other, indicating data flow. A legend at the top of the graphic identifies the data types: 'Coupling Facility Structures Data for Sysplex' (red sphere) and 'Shared DASD Groups Data For Sysplex' (green sphere). A red text box is overlaid on the bottom left of the screenshot.

The focus of this view is technical and hardware/platform specific in nature. Target audience may be systems or operations.

Tivoli Enterprise Portal - *The Power Of The Portal*

The Tivoli Enterprise Portal enables integrated end to end views and dramatically expands alert management capabilities

End To End Management View

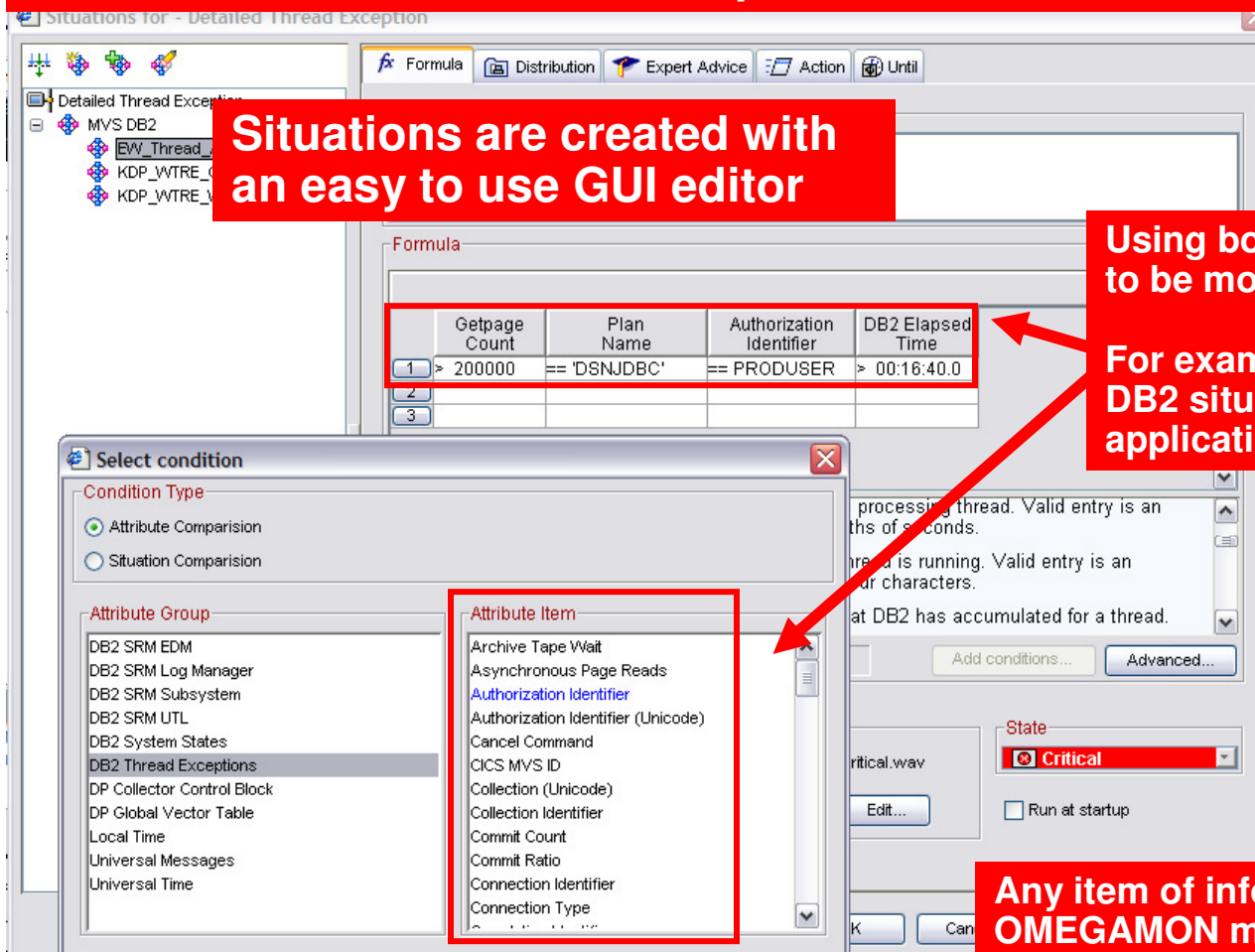
Icons highlight a problem

Add...
CICS
DB2, IMS
Middleware
Network
Storage
z/OS plex
Distributed
z/OS
z/VM
Linux on z

Customizable graphic overview
User-definable drill downs for detail
Combine information from multiple sources

Alerts Are Defined Using Situations Boolean Logic Capability Makes Event Management More Meaningful And Powerful

OMEGAMON alerts are based upon a mechanism called a situation



Situations are created with an easy to use GUI editor

Using boolean logic allows the alert to be more meaningful and useful

For example - A single OMEGAMON DB2 situation can handle multiple application or subsystem scenarios

Any item of information monitored by OMEGAMON may be used in a situation

Situations Highlight Alert Scenarios And Provide Drill Down Detail For Analysis

Icons highlight alerts

Click to see alert detail

Alert details

Initial Situation Values

Area	Allocation Percent	In Use Percent	Managed System	Allocation	In Use	Total Size	Unowned
CSA	62	58.8	DEMOPLX:MVSA:MVSSYS	2342912	2222080	3776512	13312
ECSA	33	33.0	DEMOPLX:MVSA:MVSSYS	133705728	441233760	263751168	471040
SQA	0	23.2	DEMOPLX:MVSA:MVSSYS	0	680960	2928640	25600
ESQA	0	42.8	DEMOPLX:MVSA:MVSSYS	0	28499968	61919232	2048

Current Situation Values

Area	Allocation Percent	In Use Percent	Managed System	Allocation	In Use	Total Size	Unowned
CSA	62	58.8	DEMOPLX:MVSA:MVSSYS	2342912	2222080	3776512	13312
ECSA	36	36.2	DEMOPLX:MVSA:MVSSYS	133775360	133065728	367751168	761856
SQA	0	23.2	DEMOPLX:MVSA:MVSSYS	0	680960	2928640	25600
ESQA	0	46.0	DEMOPLX:MVSA:MVSSYS	0	28499968	61919232	2048

Take Action

Command:

Expert Advice

ADVICE("Am5:+"OS390_Allocated_CSA_Crit"),Demo Situation is "TRUE" - deeper analysis necessary!

Alerts

General Recommendations And Rules Of Thumb

- **Make alerts Meaningful, Actionable, and Useful**
- **Meaningful alerts**
 - Alert should be flexible – make the names understandable
 - Adopt an alert naming convention
 - Makes it easier to identify customer created versus product provided situations
- **Actionable alerts**
 - Have appropriate notification
 - A workspace with an alert icon, command/message notification
 - As a standard have expert advice
 - Have pre-defined take actions where appropriate
- **Useful alerts**
 - Eliminate phony alert indicators – tune out the noise
 - If an alert fires it should indicate an actual issue
 - An alert, an owner, and a consequence

Considerations For Event Correlation

- Event correlation helps to improve the ability to manage increasingly sophisticated composite applications
 - Applications are more complex
 - Infrastructure is more complex
 - Alerts are more complex
- Event correlation helps to eliminate the “noise” and focus on key issues
 - Tune out false alerts and focus on root cause analysis
 - Identify potential issues more rapidly
 - Reduce time to problem resolution
- Event correlation helps to enable an integrated approach to the management of subsystems, platforms, and application components

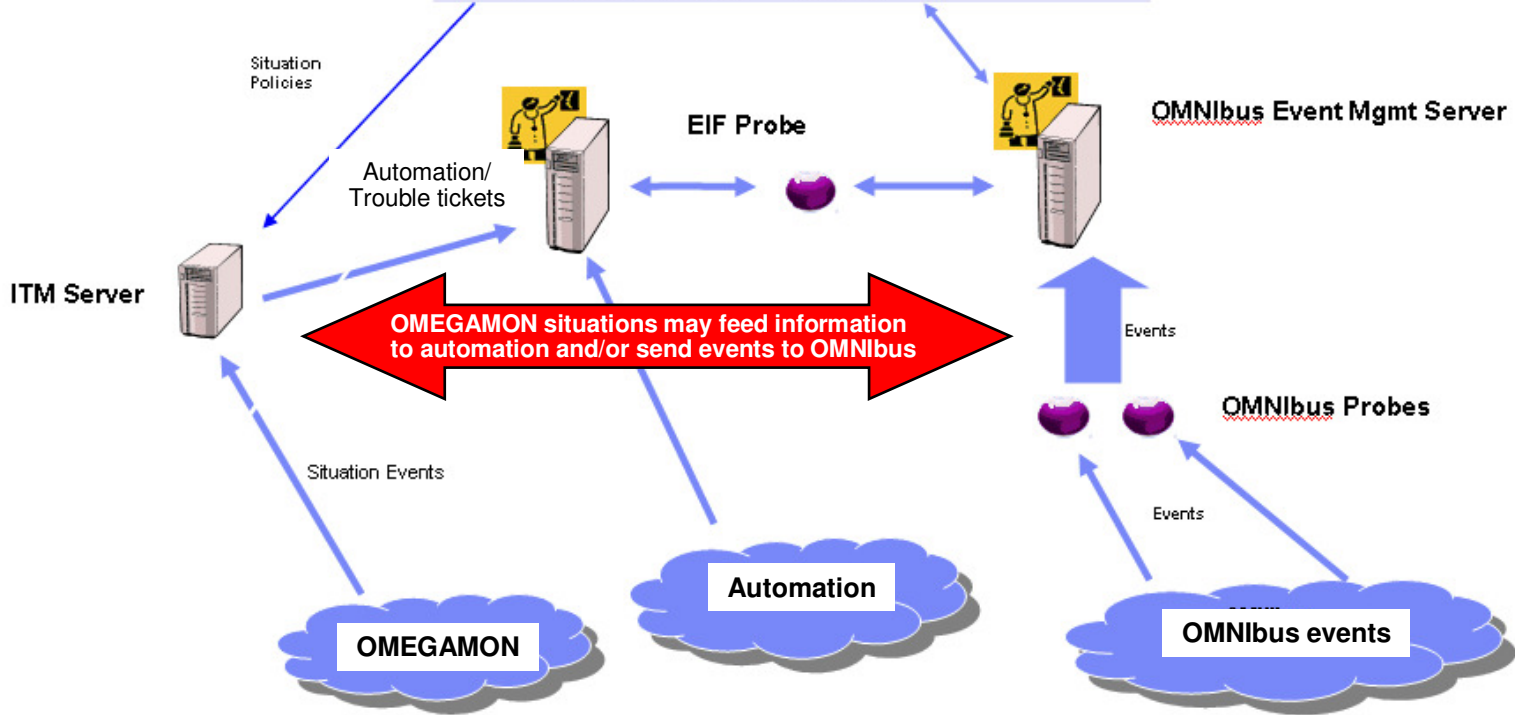
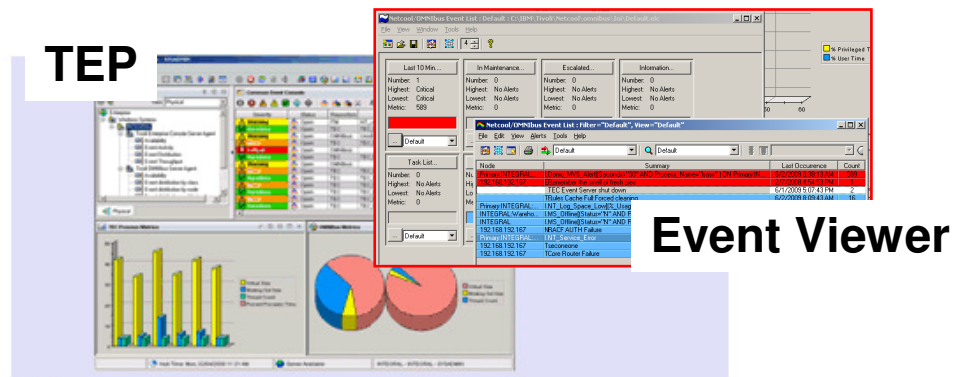
Components To Enable Event Correlation Example - Tivoli Netcool/OMNIbus

- IBM Tivoli Netcool/OMNIbus is the cornerstone of the IBM Tivoli Consolidated Operations Management solution
 - Delivers real-time, centralized monitoring of complex networks, IT domains
 - Event processing scalability that can exceed over 100 million events per day
- Netcool/OMNIbus includes over two hundred out-of-the-box probes (and more than 25 vendor alliances)
 - Enables the ability to include events from virtually any management system or device in the network or IT environment
- Provides manager-of-manager capabilities
 - Depth and breadth of event coverage and correlation
 - Software failover for highly available consolidated operations management
 - Event-processing efficiency resulting in cost savings and scalability

An Example Of Integration And Correlation

How Does Monitoring And Automation Integrate With OMNibus?

Integration enables customer to forward events reported by OMEGAMON XE monitoring agents and System Automation to Netcool/Omnibus



The Next Phase Of Event Correlation Business Application View – What's The Impact?

- Enabling the management of performance and availability from the perspective of key business applications
- Business Application Views
 - Manage performance and availability from an application perspective
 - Target the critical path performance and availability components of an application
 - Focus on specific components (platforms, databases, transactions)
 - Choose mission critical business applications
- How to get there
 - Start with event management and migrate to business application management

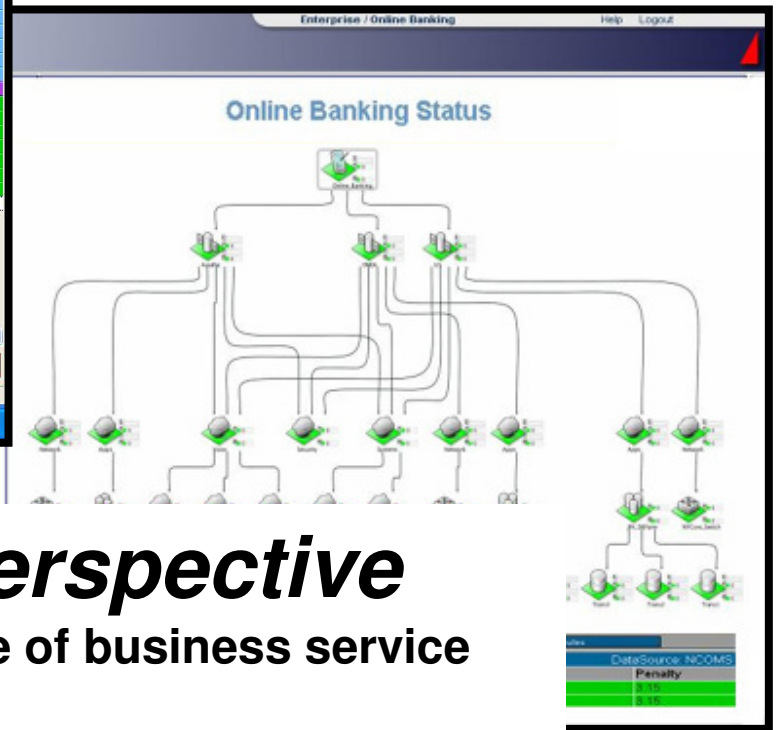
Alert Considerations Managing Events Versus Understanding The Business Impact

Netcool/OMNIBus Event List : Filter="All Events", View="Default"

Node	Alert Group	Summary	Last Occurrence	Count	Type
link4	Link	Link Down on port	2/20/2009 4:25:28...		
link2	Link	Link Down on port	2/20/2009 4:25:26...		
London	Systems	Machine has gone offline	2/20/2009 4:25:18...		
Washington	Systems	Machine has gone offline	2/20/2009 4:25:10...		
Sydney	Systems	Machine has gone offline	2/20/2009 4:25:02...		
link1	Link	Link Down on port	2/20/2009 4:25:01...		
Moscow	Systems	Machine has gone offline	2/20/2009 4:24:53...		
link5	Link	Link Down on port	2/20/2009 4:24:17...		
Tokyo	Stats	Diskspace alert	2/20/2009 4:09:17...		
Beijing	Stats	Diskspace alert	2/20/2009 4:00:04...		
IBM-B12BDDC2B69	NT Event List@AC1F0202	Attempt to login as edcool from host IBM-B12BDDC2B69 failed	2/8/2009 8:34:10 AM		
IBM-B12BDDC2B69	isql	Attempt to login as root from host IBM-B12BDDC2B69 failed	2/8/2009 8:12:41 AM		
Tokyo	Stats	Diskspace	2/20/2009 4:20:28...	87235	Type Not Set
Beijing	Stats	Diskspace	2/20/2009 4:12:20...	1	Problem
IBM-B12BDDC2B69	isql	A isql proc...	2/8/2009 12:38:55...	1	Problem
Rome	Link	Port failure	2/20/2009 4:25:27...	26297	Type Not Set
Washington	Systems	Machine h...	2/20/2009 4:25:20...	13867	Type Not Set
Sydney	Systems	Machine h...	2/20/2009 4:25:17...	13872	Type Not Set
Berlin	Link	Port failure	2/20/2009 4:25:15...	25817	Type Not Set
Moscow	Systems	Machine h...	2/20/2009 4:25:09...	13774	Type Not Set
IBM-B12BDDC2B69	Windows Event List	A NT Ever...	2/20/2009 4:24:30...	1	Problem
IBM-B12BDDC2B69	Windows Event List	A NT Ever...	2/20/2009 4:24:29...	1	Problem
London	Systems	Machine h...	2/20/2009 4:24:16...	13861	Type Not Set
IBM-B12BDDC2B69	ivoli_eif pa...		2/9/2009 5:17:53 PM	1	Type Not Set
link4	Link	Link Up on port	2/20/2009 4:25:31...	15905	Resolution
link1	Link	Link Up on port	2/20/2009 4:25:30...	252	Resolution
link2	Link	Link Up on port	2/20/2009 4:25:25...	278	Resolution
link5	Link	Link Down	2/20/2009 4:24:57...	29	Problem
link3	Link	Link Up on port	2/20/2009 4:24:45...	227	Resolution
link3	Link	Link Down	2/20/2009 4:24:44...	233	Problem
link6	Link	Link Up on port	2/20/2009 4:24:27...	28	Resolution
link5	Link	Link Up on port	2/20/2009 4:24:00...	21	Resolution

Events

Manage and correlate events from a variety of sources



Business Perspective

Determine the source of business service disruptions

Expanding The Perspective Business Application View

■ Components of a Business Application View

–Availability

- Is the application and it's infrastructure components available?
- Are users able to access the application?
- Are SLAs being met?

–Performance

- How well is the application performing?
- What is the end user experience?
- Are Key Performance Indicators (KPIs) being met?

–Alerts

- Notification when issues occur
- Real time and Historical information available
 - The ability to trend and analyze over time

Example Of A Business Application View Using IBM TBSM

The screenshot displays the Tivoli Business Service Manager (TBSM) interface. The top section, titled "Business application overview", shows a "Service Viewer" with four main categories: Billing, Credit Verification, Logistics Mgmt., and Order Mgmt. Each category has three sub-metrics: Overall, SLA, and Performance, each with a status indicator (yellow or green). A red callout box points to this section with the text "Business application overview".

The bottom section, titled "Business application resource component relationship and status", shows a hierarchical diagram of the "Billing" application. It includes components like "Oracle Instance", "Apache Web Server Windows Comput...system", and "WebSphere Server", each with associated performance metrics and status indicators. A red callout box points to this section with the text "Business application resource component relationship and status".

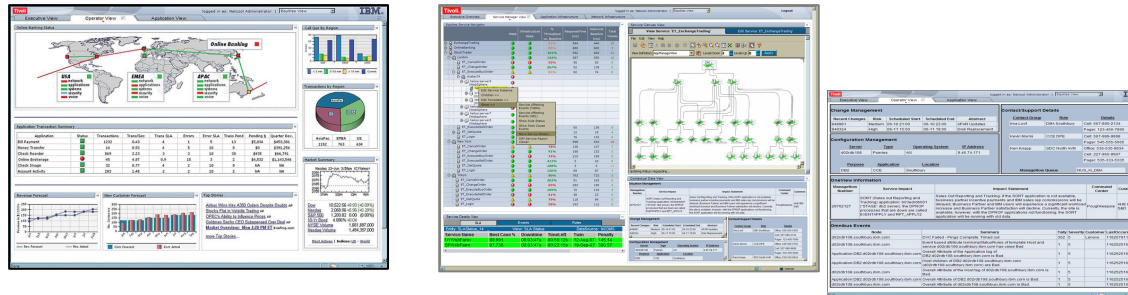
A red callout box on the left side of the interface points to the navigation menu with the text "Displays that show business metrics, KPIs, and SLA".

A large red callout box on the right side of the interface contains the text: "IBM Tivoli Business Service Manager (TBSM) provides a GUI interface designed for business views".

Visualize & Inform

- Business & Operational Dashboards
- Realtime Views & Metrics:
 - Balanced scorecards & KPIs
 - Charts, Graphs, Maps
 - Service Topology
 - Event Views
 - SLA Metrics
 - Custom Data Views

What Makes Up A TBSM Solution?



Visualize & Inform

Business & Operational Dashboards
 Service Topology – Balanced scorecards & KPIs – SLA reports
 & Charts -- Custom data views - Launch in context Graphs

Analyze & Automate

Service Correlation & Automations
 Business impact and root cause analysis -- KPI and SLA calculation & tracking
 enrichment & escalation -- Automated actions Event

Collect

Dependency IBM & 3rd Party **Event & Perf.** IBM & 3rd Party **Data** IBM & 3rd Party

Service Infrastructure

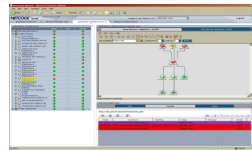


What's Required To Create A Business Application View?

- **Events**
 - Meaningful and useful alerts from a variety of sources – monitoring, automation, network management, database management and more...
- **Correlation**
 - Correlate alerts to eliminate noise and remove duplicate events
 - Correlate events to application infrastructure
 - Discovery and mapping of application components
- **Visualization**
 - KPIs and SLAs
 - Define Key Performance Indicators and Availability objectives (SLAs)
 - Map and display KPIs and SLAs
 - Drive notification

TBSM Events Correlation Visualization

TBSM Dashboard



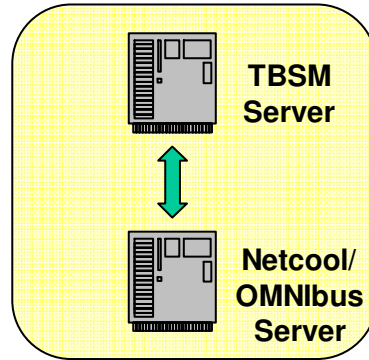
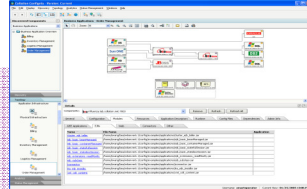
TBSM

- Model and visualize business services
- Custom business views & dashboards
- Real-time service status from events & external sources
- Dynamic key performance indicators (KPIs)
- Advanced numeric rules for calculations
- Service definition from TADDM
- Real-time Service Level Tracking

TADDM

- Create/Maintain application maps
- Maintain dependencies and configuration values
- Stitch relationships between z/OS and distributed resources
- Maintain change history

TADDM



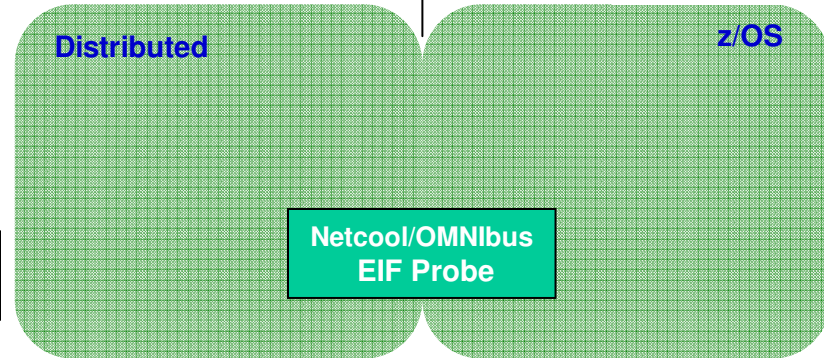
Discovery

z/OS

Distributed

Status Events

z/OS



- z/OS
- IMS
- CICS
- DB2
- SA

- OMEGAMON XE

- TEC
- ITM v5
- ITM v6
- ITCAM

- TEC
- ITM v5
- ITM v6
- ITCAM

- OMEGAMON XE
- Event Pump for z/OS

- z/OS
- IMS
- CICS
- DB2
- SA

Distributed and z/OS Monitoring

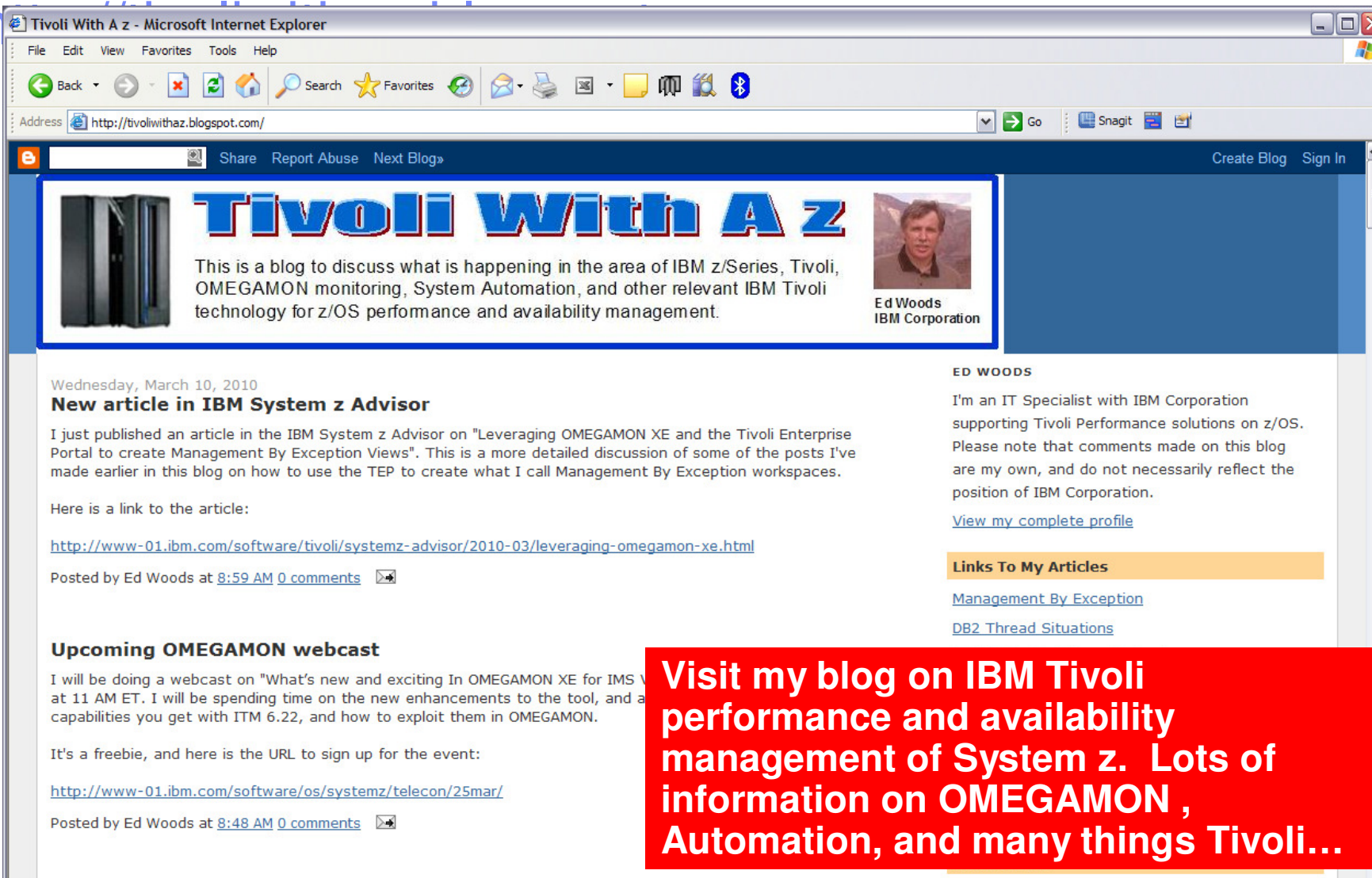
The Roadmap

Pulling It All Together

- **Begin with event management**
 - Define meaningful, actionable, useful alerts
 - Establish standards and conventions for alerts
 - Determine visualization/notification of events
 - Optimize views for target audiences
- **Grow the infrastructure**
 - Determine an integration approach for alert management
 - Implement event correlation
 - Expand event information sources and eliminate background noise
- **Expand to business application management**
 - Define KPIs and SLAs
 - Define the mapping of application infrastructure
 - Correlate events to application performance and availability

Thank You!

Check Out My Blog



Wednesday, March 10, 2010

New article in IBM System z Advisor

I just published an article in the IBM System z Advisor on "Leveraging OMEGAMON XE and the Tivoli Enterprise Portal to create Management By Exception Views". This is a more detailed discussion of some of the posts I've made earlier in this blog on how to use the TEP to create what I call Management By Exception workspaces.

Here is a link to the article:

<http://www-01.ibm.com/software/tivoli/systemz-advisor/2010-03/leveraging-omegamon-xe.html>

Posted by Ed Woods at 8:59 AM 0 comments

Upcoming OMEGAMON webcast

I will be doing a webcast on "What's new and exciting in OMEGAMON XE for IMS V" at 11 AM ET. I will be spending time on the new enhancements to the tool, and a capabilities you get with ITM 6.22, and how to exploit them in OMEGAMON.

It's a freebie, and here is the URL to sign up for the event:

<http://www-01.ibm.com/software/os/systemz/telecon/25mar/>

Posted by Ed Woods at 8:48 AM 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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Visit my blog on IBM Tivoli performance and availability management of System z. Lots of information on OMEGAMON, Automation, and many things Tivoli...