



## Increasing visibility with mainframe monitoring can improve availability across entire Enterprise

### Key Takeaways



1. IBM has provided leadership and best practices with System z Service Management **Visibility, Control and Automation** capability for years
2. IBM provides a integrated z/OS, network, and storage **Monitoring and Management** consolidated offering that expands to z/OS middleware, online sub-system and Enterprise level
3. **OMEGAMON z/OS Management Suite** addresses key requirements, including reducing risk and decreasing costs, with improved productivity

## z/OS Management – Searching for a Solution

The z/OS platform is key to delivering your businesses core offerings and **Operating System, Network and Storage** are common denominators. How can you manage this environment better? What can you do to:

- Increase Availability
- Improved Productivity
- Reduced Resources and Costs



### Visibility

Problem Determination,  
Management and Resolution



### Control

Commands, Management  
and Environmental Control



### Automation

Application, network and  
system command and  
message automation

## Optimize performance and availability of z/OS platform with OMEGAMON for z/OS Management Suite

### Suite Contains:

- OMEGAMON XE on z/OS
  - Proactively monitor and manage mainframe operating system environment
- OMEGAMON XE for Storage for z/OS
  - Quickly create commands or schedule actions that maintain and administer storage
- OMEGAMON XE for Mainframe Networks
  - Ensure high availability of services moving across networks
- OMEGAMON Dashboard Edition on z/OS
  - Create integrated view across OMEGAMON products



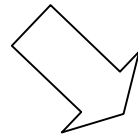
**Supplying visibility of z/OS resources to cloud and mobile environments**

# OMEGAMON products collaborate via Integration to quickly track down problems

## Problem Sensed



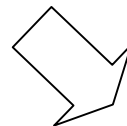
OMEGAMON DE for z/OS



Launch OMEGAMON on z/OS



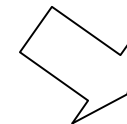
Problem Investigated



Launch OMEGAMON for Storage



Problem Isolated



Launch OMEGAMON for Mainframe Networks



Problem Diagnosed

Dynamic Workspace Linking And Integration shares information across OMEGAMON products

*Organizations which applied an integrated approach show superior results compared to organizations which did not*



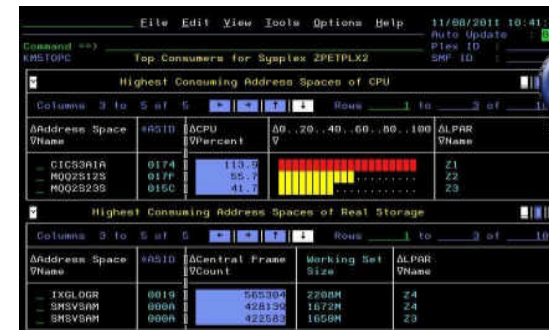
# OMEGAMON Family provides integrated performance monitoring for improved productivity and availability

**Business Challenge: Need to see across systems and be more proactive to avoid outages**

OMEGAMON family integrated performance monitoring strategy supports this challenge with standardized user Interfaces



**GUI**  
**(Operations - Monitoring)**

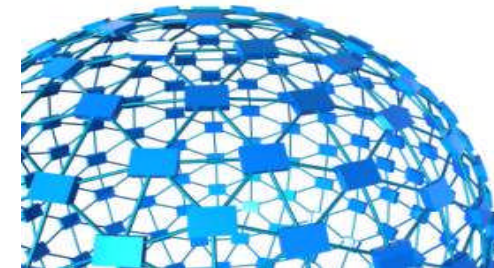


**e3270**  
**(System Programmers –  
Subject Matter Experts)**

***Delivering Operations and Subject Matter Expert views for faster problem determination and resolution yielding higher system availability***

## Management Suite provides a complete view of the z/OS Operating System, Network and Storage environment

- Real-Time and Historic reporting capabilities
- Deep dive monitoring and problem analysis for: CPU, looping tasks, Real Storage, Workload (address spaces), Bottlenecks, Impact Analysis, Coupling Facility, XCF, TCP/IP, VTAM, OSA, network connections/users, I/O sub-system, DASD, datasets, Tape drive and library, DFSMS, cross system support, etc.
- Problem solving orientation of information
- Provides actioning capability to prevent or correct problems
- Bringing forward an integrated z/OS System, Network & Storage view
  - Sophisticated Alerting
  - Ability to control and manage resources and workloads
  - Leverage automation



## OMEGAMON for z/OS Management Suite improves ability to manage performance and availability

- Better management of resources and costs
- Simplifies Problem Source Identification across system
  - Helps navigate from alerts to metrics
  - Increases effectiveness
- Provides capability to manage by exception
- Matches expert decision making combining thresholds from multiple metrics for greater automation or problem correction
- Evaluates combined cross system or subsystem events
- Increasing staff control of z/OS environment with single view of, Operating System, Network (SNA and IP) and z/OS Storage



**Improve cost reduction, increase effectiveness and better collaboration**



# New in IBM Tivoli OMEGAMON z/OS Management Suite v5.1.0

## Common Key Enhancements to OMzMS V5.1

**OMEGAMON v5.1 enhancements that provide more cost savings, efficiency and collaboration**

- Self Describing Agent (SDA) – Easier maintenance
- Parmgen technology – Faster install and configuration
- New **e3270** User Interface - Enhanced 3270 User Interface for SMEs
- Increased integration – e3270 helps leverage multiple domain information



## Enhanced Install, Configuration and Maintenance capability with Self-Describing Agents

Faster, easier, less error-prone for improved reliability and productivity

- Eliminate monitoring outages caused by ITM Server recycles
  - Product upgrades/maintenance requires agent or RTEMS recycles only
- Eliminate maintenance upgrade errors:
  - Applies to new installs, staged upgrades, and maintenance
  - Crosschecks and validates version with installed data and framework
  - Avoids inconsistent application data in ITM framework layers
- Self-describing framework extensible to new capabilities
- Eliminates application data DVDs and CDs:
  - No extra distributed installs or upgrades for mainframe-centric customers



- Moving from 40 hours a week to 4 hours a week maintenance
- 80% improvement in time for installation and maintenance
- 30% improvement in time to configure post installation

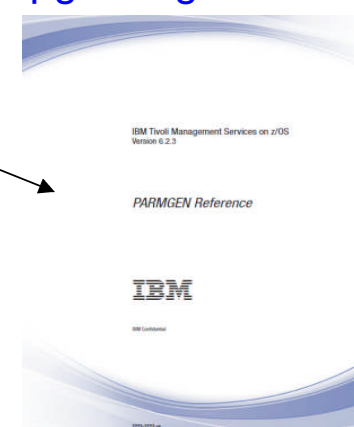
# Customer Driven improvements simplify Installation and Configuration using Parmgen

Removal of ICAT as primary way to install and configure

*Before -145 ICAT **product-centric** jobs to configure 38 components for 1 LPAR RTE  
Today – 8 Parmgen **function-centric** jobs to configure components for 1 LPAR RTE  
Customers experiencing over 35% improvement in install and configuration time*

- Install without requirement of distributed server
- Easy to walkthrough steps to complete configuration and customize profile
- Automatically updates hundreds of configuration artifacts according to profile, including auto-discovery of system values

single reference book for upgrade guidance



*“I like using the Parmgen approach better than CICAT/ICAT. I find it much easier to make things repeatable... I like the fact that Parmgen does not overwrite my running members”  
Typical quotes from early adopters program*

# Redesigned and simplified e3270 UI in v5.1.0

OM XE on z/OS

**Highest Consuming Address Spaces of CPU**

Address Space VName	ASID	ΔCPU VPercent	Δ0..20..40..60..80..100 V	ΔLPAR VName
CICS3A1A	0174	113.9	[Bar chart]	Z1
MQ02S12S	017F	55.7	[Bar chart]	Z2
MQ02S23S	015C	41.7	[Bar chart]	Z3

**Highest Consuming Address Spaces of Real Storage**

Address Space VName	ASID	ΔCentral Frame VCount	Working Set Size	ΔLPAR VName
IXGLOGR	0019	565304	2208M	Z4
SMSVSAM	000A	428139	1672M	Z4
SMSVSAM	000A	422588	1650M	Z3

Enhanced 3270 user interface for SMEs – Leverage valuable information

OM XE for Mfn

**Enterprise Applications Health**

**Applications Summary**

System ID	ΔJob VName	ΔIdle VTime	ΔConn VCount	Active Conns	ΔHighest VConns	Conn in Backlog
4083	V510DSST	17.08	27	14	15	0
4084	V510N3	182.74	16	3	3	0
4083	V510N3	0.00	16	3	3	0
5096	V510N3	182.99	16	3	3	0
1062	V510N3	1.53	14	2	2	0

**Percent Out of Order Segments OR Total Out of Order Segments**

ΔSystem VID	ΔJob VName	Δ% Segs VOutofOrder	ΔTot Segs VOutofOrder	ΔSegments VOutofOrder	Tot Segs Sent	+Tot S Recei
4083	V510DSST	0	599	0	365.7K	

**Connections in Backlog OR Total Backlog Connections Reject**

ΔSystem VID	ΔJob VName	Δ% Segs VRetrans	ΔTot Segs VRetrans	ΔSegs VRetrans	Retrans Rate	ΔConn VCount
1062	FTRD1	1	32	1	0	11
4083	TAC370	0	15	1	0	4
4083	V510DSST	0	525	1	0	27
4083	FTRD1	0	43	0	0	1

- Built-in Problem Solving Scenarios
- Increased availability via faster problem resolution
- Improved Productivity through integration
- Customizable / Flexibility

OM XE for Storage

**Storage group space details**

Storage group	Storage group status	Enabled
50292	Storage group status	enabled
FS0	Non-enabled volumes	no
FS0	VTOC Index status	enabled
FS0	High volume fragmentation index	enabled
FS0	Free space MIB	24
FS0	Free space MIB	24
FS0	Track managed low volume free space	0.0
FS0	Track managed high volume frag index	0.0
FS0	Track managed largest free extent MIB	2707
FS0	Track managed free space MIB	2707
FS0	Track managed total space MIB	100.0
FS0	Used space %	100.0

**Volume Space Report**

Volume	Device address	Device type	Total capacity megabytes	Free space megabytes	% Free Space	Fragmentation Index	Largest free extent MIB	VTOC Index Status	990 Conversion Status	990 Status	Extnd address
222222	67A0	3390	2707	0	0.0	846	1	enabled	converted	enabled	no

**Lowest Volume Free Space**

Volume	Device address	Device type	Total capacity megabytes	Free space megabytes	% Free Space	Fragmentation Index	Largest free extent MIB	VTOC Index Status	990 Conversion Status	990 Status
222222	67A0	2	3390	2707	0.0	846	1	Enabled	converted	enabled

**Lowest Volume Free Space Percent**

Volume	Device address	% Free Space	Total Capacity megabytes	Free Space megabytes	Fragmentation Index	Largest Free extent MIB	VTOC Index Status	Device type	990 Conversion Status	990 Status	
222222	67A0	0.0	2707	0	2	846	1	enabled	3390	converted	enabled

**Highest Volume Fragmentation Index**

Volume	Device address	% Free Space	Total Capacity megabytes	Free Space megabytes	Fragmentation Index	Largest Free extent MIB	VTOC Index Status	Device type	990 Conversion Status	990 Status	
222222	67A0	0.0	2707	0	2	846	1	enabled	3390	converted	enabled

# Example of quickly finding and fixing z/OS Problem

**Screen 1** Exceptions

Columns 3 to 5 of 6 Rows 1 to 8 of 8

♦Sysplex Name	♦LPAR Name	ΔException	Value	Waiting Tasks
- LPAR400J	CANSYSG	Performance_Index	7.50	-
- LPAR400J	CANSYSG	Enqueue	SYSDSN	1
- LPAR400J	CANSYSG	GTF_Active	TRUE	-
- LPAR400J	CANSYSG	CPU_Loop_Index	100.0	-
- LPAR400J	CANSP22	Performance_Index	1.76	-
- LPAR400J	CANSYSL	Performance_Index	4.28	-
- LPAR400J	CANSP12	Performance_Index	1.42	-
- LPAR400J				

New E3270UI highlights problems and simplifies resolving them quickly

Possible Looping Job

**Screen 2** Exceptions

Columns 3 to 5 of 6 Rows 1 to 7 of 7

♦Sysplex Name	♦LPAR Name	ΔException	Value	Waiting Tasks
- LPAR400J	CANSYSG	Performance_Index	6.66	-
- LPAR400J	CANSYSG	Active_Storage_Alert	WARNING	-
- LPAR400J	CANSYSL	Performance_Index	2.50	-
- LPAR400J	CANSP11	Performance_Index	1.42	-
- LPAR400J	CANSP22	Performance_Index	1.30	-
- LPAR400J	CANSP22	CPU_Loop_Index	99.6	-
- LPAR400J	CANSYSG	Performance_Index	4.28	-

Enter 'c' to cancel job

**Screen 3** Cancel Address Space

Command ==> KM5SPLX0 KM5ACTC2

Press ENTER to continue

Address Space Name : MGRABZ  
ASID : 0044  
Address Space Type : BATCH  
SMF ID : SP22

♦Sysplex Name: LPAR400

Exceptions

Columns 3 to 5 of 6 Rows 1 to 4 of 4

♦Sysplex Name	♦LPAR Name	ΔException	Value	Waiting Tasks
- LPAR400J	CANSP13	Performance_Index	2.85	-
- LPAR400J	CANSP13	Active_Storage_Alert	WARNING	-
- LPAR400J	CANSP22	CPU_Loop_Index	99.6	-
- LPAR400J	CANSYSG	Performance_Index	4.10	-

Job Cancelled

In prior releases this would have taken from 5 to 15 screen interactions

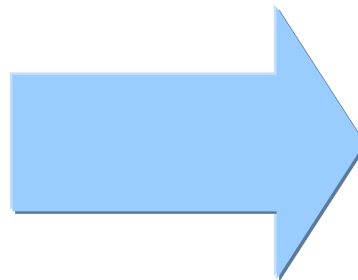


# OMEGAMON z/OS Management Suite supports enhanced collaboration across System z

Collaboration across z/OS, Storage and Networks

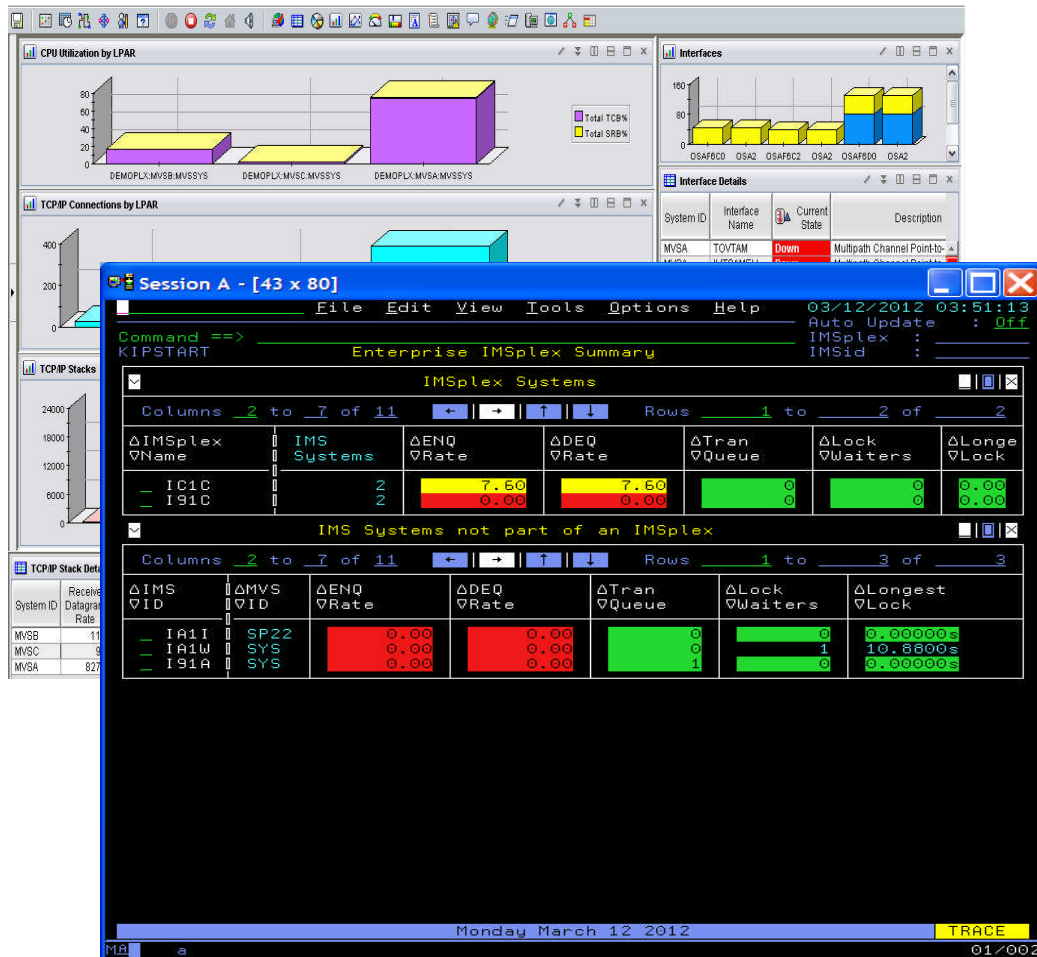


**Integrating Performance KPIs**



- Speed time to problem resolution
- Improved Performance
- Increase System Availability
- Enhance Operational Productivity
- Improve Return on Investment

# OMEGAMON V5.1 now has a complete family across System z sub-systems with e3270



- OMEGAMON for z/OS Management Suite V5.1

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- OMEGAMON DE z/OS v 5.1 – GUI
- OMEGAMON XE z/OS v 5.1
- OMEGAMON XE Mainframe Networks v 5.1
- OMEGAMON XE Storage v 5.1

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- OMEGAMON XE IMS v 5.1
- OMEGAMON XE CICS v 5.1
- OMEGAMON XE DB2 v 5.1.1
- OMEGAMON XE Messaging v 7.1

## New to OMEGAMON XE on z/OS v5.1.0

Providing what Customers required in the modernized OMEGAMON

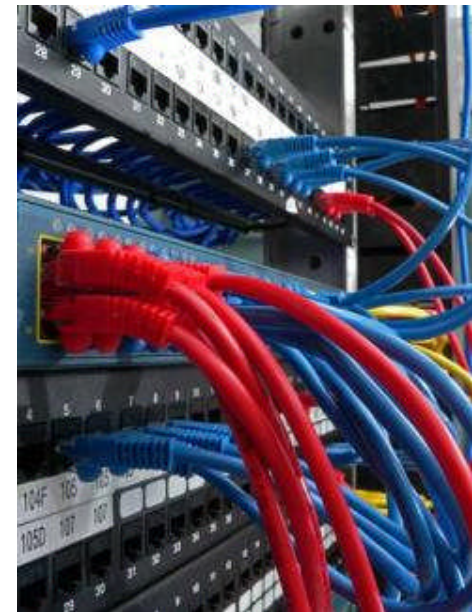
- **Simplify monitoring** with ability to view enterprise summary of multiple sysplexes and subsystems
  - Save 50 to 75% of time needed to find problems
- View **Enterprise Summary** of multiple sysplexes
- **Direct navigation** to other OMEGAMON v5.1 monitors
- New CEC and CPU **top consumers views**
- New Commands for memory and paging
- New situation updates for performance improvements
- **Reduced resource utilization** – zIIP enablement of appropriate functions



## New OMEGAMON XE for Mainframe Networks

In addition to the OMEGAMON V5.1 family capability:

- **Improved Diagnostics** with decreased CPU utilization
  - Exploiting new callable network management interfaces (NMIs) available with zOS v1.12
  - OSA data collection and display to improve diagnostics, visualization, and CPU usage
- New zEnterprise support with ability to monitor both data and management LANs
- **Improved CPU control** and resource usage with ability to turn data collection on and off:
- **Greater synergy** with IBM Tivoli NetView for z/OS and IBM Tivoli OMEGAMON XE for DB2 Performance Monitor created through in-context links between products.
- **Improved Management** with Take Action commands, NSLOOKUP and TRACERTE added to existing PING and DROP commands.



## New OMEGAMON XE for Storage

In addition to the OMEGAMON V5.1 family capability:

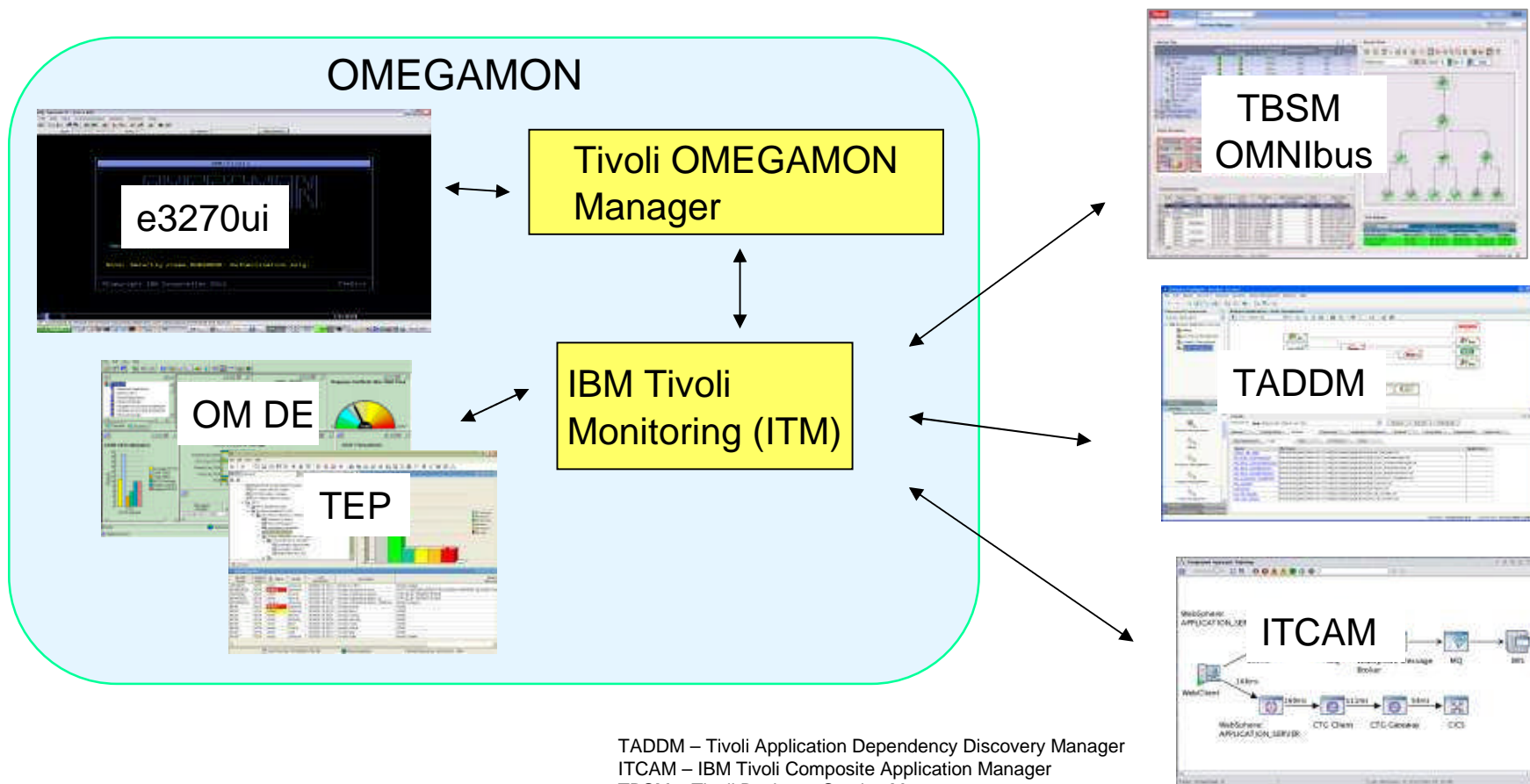
- **Increased automation** and reduce cost with Toolkit Take-Action
- **Greater hardware support** with expanded physical hardware monitoring (HDS and STK, IBM and EMC already available)
- **Increase problem management** from Monitor HSM Common Recall Queues
- Additional **analytic capability** from increased historical reporting options
- Ease of use and **increased flexibility** in additional reporting options (GB, MB, TRKS, CYL, etc.)
- **Speed problem resolution** and ease of use based on TEP Work space restructuring





# OMzMS integrates within a total System z Business Service Management solution

OMEGAMON z/OS Management Suite provides performance and availability visibility for events and data consumed by a complete set of Tivoli products for the z/OS platform



TADDM – Tivoli Application Dependency Discovery Manager  
ITCAM – IBM Tivoli Composite Application Manager  
TBSM – Tivoli Business Service Manager



## OM z/OS Management Suite provides visibility across entire z/OS Operating System, Networks and Storage

- Delivers a fully integrated real-time monitoring solution
  - Incorporates alerts and metrics in single user interface
  - Reducing cost of monitoring enterprise
  - Reduced learning curve and intelligent alerting
- Supplies User interfaces for both Operations and SMEs
  - Facilitating communication and reduces time to problem resolution
- Provides basis for powerful Integrated Service Management capabilities
  - Integrating with other service management domains
    - System automation, business service dashboards, service request management, and configuration management
- Most flexible system on the market with displays which can be customized to match the business needs



**Cost savings, Efficiency and Collaboration**

## Analysts already agree that OMEGAMON V5 provides value to customers

### Ptak / Noel

On OMEGAMON moving to simplified architecture and a common view across multiple domains, Rich Ptak of **PNA** commented, *"This is an important and much needed enhancement. We've heard consistently – there is a need for this kind of integration. Consistent interface – a couple of years ago, some people liked to be in a silo and just toss things over to someone else. But, they can't live that way anymore."* PNA also gave IBM high marks for doing so without losing functionality.

### Clabby Analytics

On OMEGAMON Enhanced 3270 User Interface, Joe Clabby with **Clabby Analytics** commented: *What you've done to your 3270 interface is kind of a "wow"! I'm not a 3270 fan and I love what you've done with it"*

[ftp://public.dhe.ibm.com/software/data/ECM/industry/TWDIBMTivoli\\_OMEGAMON.pdf](ftp://public.dhe.ibm.com/software/data/ECM/industry/TWDIBMTivoli_OMEGAMON.pdf)



## Find out more about OMEGAMON z/OS Management Suite value and visibility capability

- *Gain improved visibility across z/OS system, network and storage*
  - [OMEGAMON for z/OS Management Suite:](#)
- *Learn more about OMEGAMON at Pulse*
  - [Pulse 2013 Conference](#)
- *Leverage Integrated Service Management information:*
  - [Integrated Service Management for System z](#)



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## Thank You for Joining Us today!

Go to [www.ibm.com/software/systemz/events/calendar](http://www.ibm.com/software/systemz/events/calendar) to:

- ▶ Replay this teleconference
- ▶ Replay previously broadcast teleconferences
- ▶ Register for upcoming events

## OMEGAMON z/OS Management Suite provides real business value across z/OS mainframe

Capabilities	Business Value
<ul style="list-style-type: none"> <li>• Fully integrated with correlation</li> <li>• Reduced Problem Source Identification</li> <li>• Automation capabilities without extra components</li> </ul>	<p>Reduces cost of enterprise wide monitoring and management with a flexible, intuitive, customizable user interface that is useful for SMEs and Operations</p>
<ul style="list-style-type: none"> <li>• Bottleneck analysis shows what is causing response time issues</li> <li>• Impact analysis within same product</li> <li>• Looping task identification using more metrics</li> </ul>	<p>Fast Problem Source Identification (PSI) reducing time to find and repair issues proactively before they become outages</p>
<ul style="list-style-type: none"> <li>• Provides IPSEC support</li> <li>• Tightly integrated with NetVlew</li> <li>• Single solution for TCP/IP, VTAM and SNA</li> </ul>	<p>Integration between network monitoring and management allows immediate action to be taken from single user interface</p>
<ul style="list-style-type: none"> <li>• Provides cross-system storage utilization and contention statistics for true busy</li> <li>• Provides dataset level Access statistics by application</li> </ul>	<p>Show true utilization across system z and monitor critical datasets in real time providing information at the business application level.</p>