



# IBM System z Technology Summit

Increasing availability and productivity  
with redesigned OMEGAMON®  
monitoring and analytics

Author



# IBM System z Service Management continues providing customers improved business flexibility

## Key Takeaways

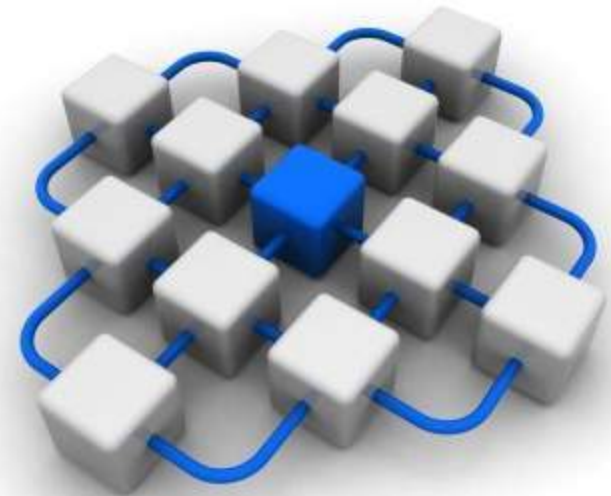
1. IBM recognized leader in **Application Performance Management** for monitoring, managing and optimizing IT infrastructure - *Gartner 2011 MQ*
2. IBM continues to provide new Service Management **visibility, control and automation** capability based on high priority customer requirements - *agile transparent development*
3. Redesigned **OMEGAMON** provides significant customer value to reduce costs and decrease risks - *R&D investment and strategy*



# Application Performance Management a key component of Business Service Management

Application performance management (APM) refers to discipline within service management focused on monitoring and managing of performance and service availability .

- End-user experience **monitoring**
- Application and Services **sub-system monitoring**
- Application runtime architecture **discovery, modeling and display**
- User-defined transaction **profiling**
- Application performance **analytics**



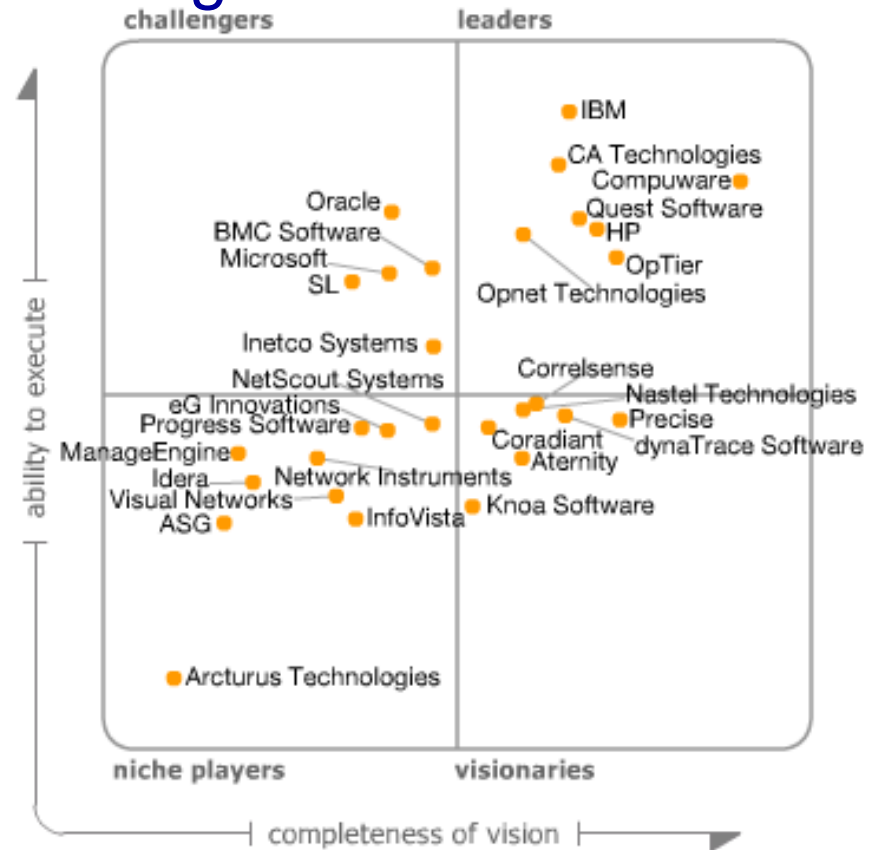
IBM Monitoring solution includes ITM, ITCAM and OMEGAMON

# Gartner has recognized IBM as a leader in Application Performance Monitoring

## Magic Quadrant for Application Performance Monitoring

Will Cappelli, Jonah Kowall

September 19, 2011



As of September 2011

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Business Leaders are looking at IT to drive business agility across their Enterprise with



**VISIBILITY**



**CONTROL**



**AUTOMATION**

**React with  
agility to  
diverse IT  
landscape**

**Execute with  
reduced  
risk & cost**

**Achieve  
desired  
business  
outcomes**

OMEGAMON working with IT to drive improved visibility

# IBM announcing customer-driven, redesigned, simplified OMEGAMON Version 5.1 product family

Visibility with modernized and strengthened OMEGAMON product line for reduced resource usage and faster problem resolution

## **Increased System Availability with faster problem resolution**

- Enhanced 3270 user interface for SMEs
- Built-in Problem Solving Scenarios

## **Improved Productivity with simplified data**

- Faster Install/Configuration/Maintenance
- zEnterprise monitoring across z196/114 and zBX

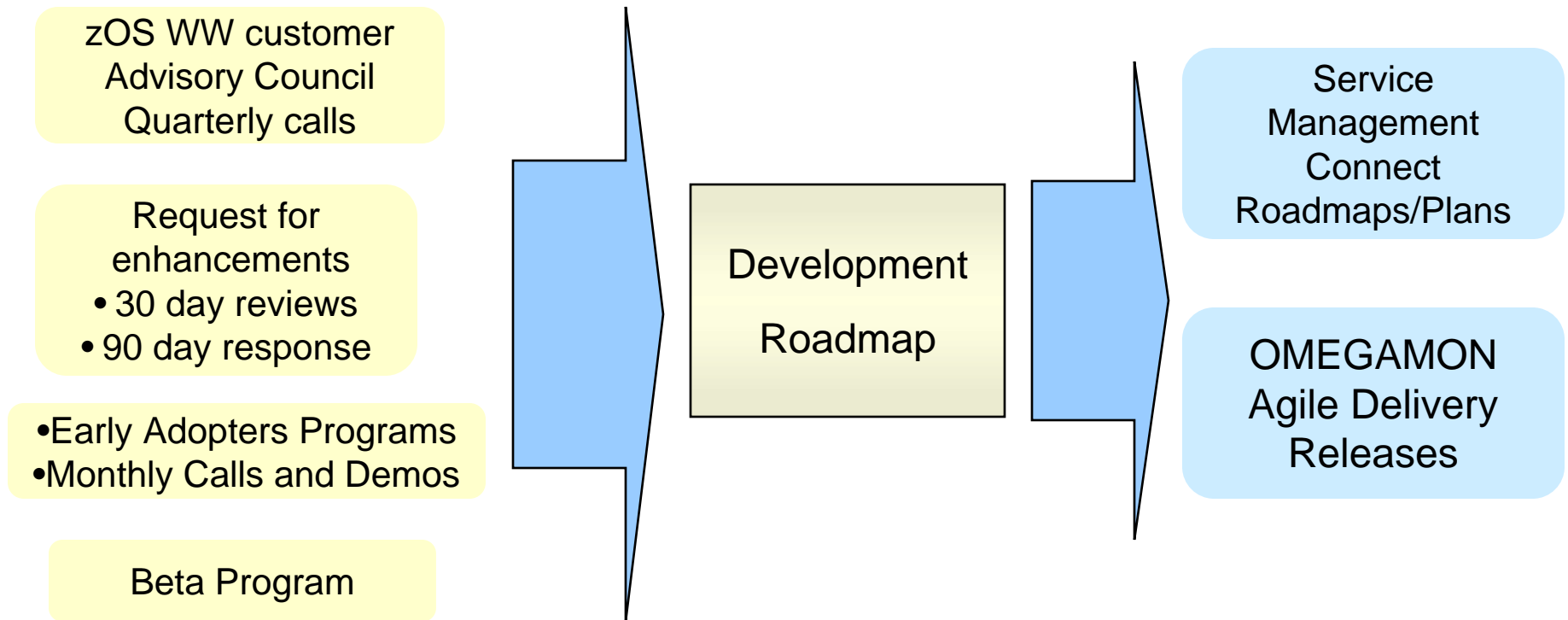
## **Reduced Costs with decreased resource usage**

- Usage of zIIP specialty servers
- Simplified OMEGAMON architecture



# Redesigned OMEGAMON capability driven by high-priority customer requirements

Customer driven capability with new transparent development methodology driven by Agile processes





# OMEGAMON for z/OS provides SMEs with faster problem determination and availability management

First two products being released are OMEGAMON for z/OS and CICS

- Simplify monitoring with ability to view enterprise summary of multiple sysplexes

– Can save 50 to 75% of time needed to find problems

- Faster problem identification and management by navigating directly to other OMEGAMON v5.1 monitors
- Cost Savings with new CEC and CPU top consumers views to manage resource utilization
- Higher availability by incorporating Health Checks from Tivoli z Management Console to identify problems
- Easy navigation from sysplex to lpar to address space for faster product resolution to meet SLAs



Reduce system outages and increase productivity



# Enhanced 3270 user interface creates Enterprise wide view of information for improved availability

- Understand transactions across multiple sysplexes
- Color coding to provide ability to find and resolve problems quickly
- Eliminates need to move between multiple screens and monitors

“GUI on a green screen”

Command ==> KOBSTART Enterprise Summary

z/OS-wide sysplex view

Customize Views

All Active Sysplexes

Sy Na	ent	Highest LPAR Name	ΔHighest LPAR CPU%	ΔPercent LPAR MVSU Capacity	+LPAR Group Name
_ ZPETPLX2	3	Z2	3	3.4	N/A

CICSplex details views

All Active CICSplexes

ΔCICSplex Name	ΔNumber of Regions	ΔTransaction Rate	ΔCPU Utilization	Any SOS Regions	SOS Region
_ OMEGPLEX	1	0/m	0.3%	No	n/a
_ TESTPLEX	8	10985/m	18.4%	No	n/a
_ WUIPLEX	1	0/m	0.0%	No	n/a

# OMEGAMON for CICS provides improved visibility and opportunity to reduce resource usage

In addition to the OMEGAMON family capability:

- Manage using service level analysis of transactions based on response times with new enhanced 3270 UI
- Take advantage of zIIP specialty processor to decrease resource usage

- Up to 73% of CICS SLA processing off-loaded

- New 'Find' command to easily locate hung users and programs connections over entire cicsplex

- Can reduce fix times from 90 minutes to 2 minutes

- Easy navigation from CICSplex to region to resource for faster problem identification and resolution

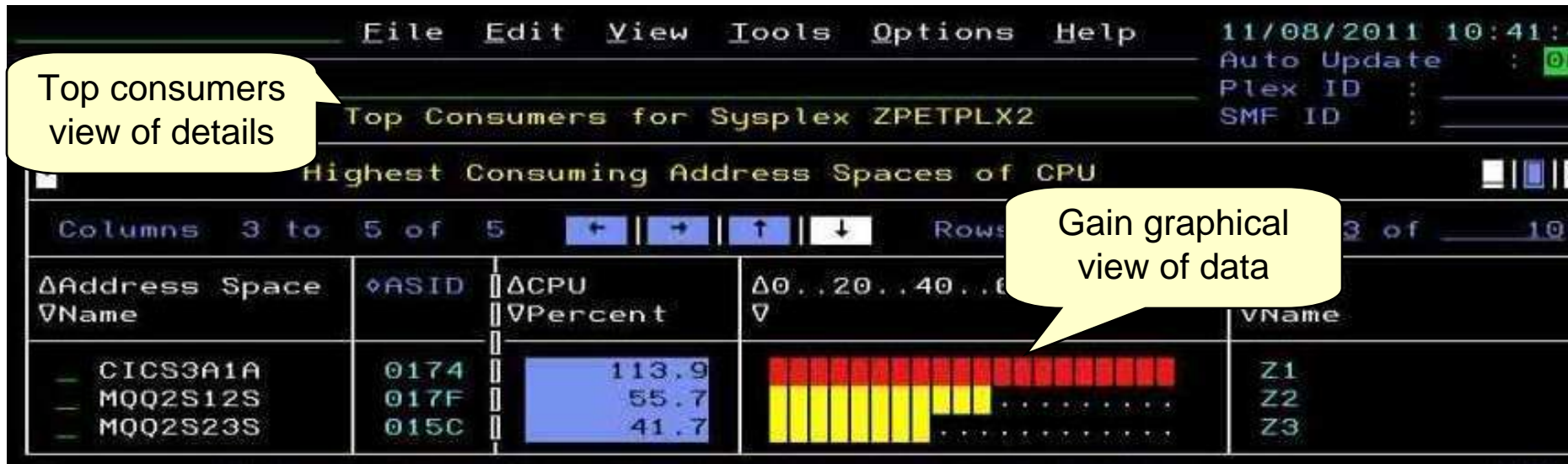


**Simplify SLA management with decreased resources**

# Customer prioritized Problem Solving scenarios built into enhanced 3270 user interface

Easy to see and find critical system and sub-system information for improved performance and availability across System z

- Customized screens focused on customer defined problems
- Screen content based on high priority problems
- Includes Healthcheck and Bottleneck analysis



# 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

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

**Screen 3** Cancel Address Space

Command ==> KMSPLX0

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

Press ENTER to continue

**Screen 4** 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

# New Problem Determination and Management allows Operations and SMEs to see what is happening sooner

Increase availability by monitoring over time to identify and fix potential problems before they become outages

- Set exceptions to quickly alert operators across entire sysplex
- Warned about a problem 98% faster than before

KM5MSU0      4-Hour Rolling Average MSU Statistics      SMF ID : SP22

LPAR

4 Hour MSUs.....	6	LPAR Defining	Yes
% LPAR MSU Capacity.....	6.0	Average %	0.0
LPAR Capacity Limit.....	100	Average % 1	100.0
LPAR Capacity Limit Basis.	Entitled		

LPAR Group

LPAR Group Name	Average Unused Group MSUs	LPAR Group Capacity Limit	Group LPAR MSU Limit
CANDLE	93	100	100

5 Minute Intervals

Columns 2 to 6 of 8      Page 48

Time Period	% Time Uncapped	Uncapped MSUs/Hour	% LPAR Uncapped	Uncapped MSUs/Hour
08:59-09:02	100.00	8.83	8.83	0.00
08:54-08:59	100.00	6.59	6.59	0.00
08:49-08:54	100.00	6.52	6.52	0.00
08:44-08:49	100.00	7.25	7.25	0.00

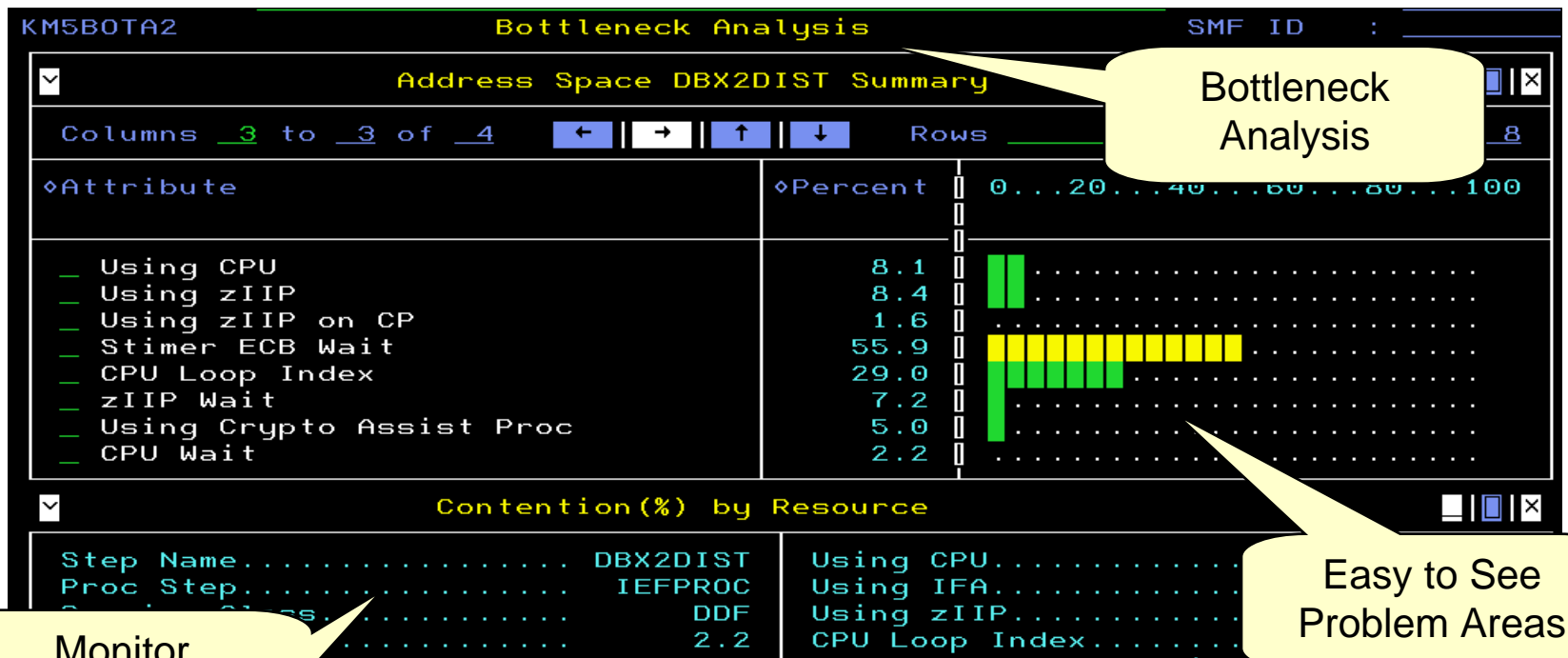
4 Hour Rolling Average

5 minute intervals

# Bottleneck Analysis provides visibility to potential problems before they become outages

*Quickly find out where resource contentions and shortage exist*

Integrated into e3270ui to allow for easier problem monitoring



Bottleneck Analysis

Easy to See Problem Areas

Monitor Contention

# Healthcheck analysis assists in finding and fixing problems quickly and efficiently incorporated in e3270ui

*Regularly monitor key IT resources and usage*

Select and see best practices recommendations on how to fix

The screenshot displays the 'Health Checker' interface. The top panel, 'Health Check Status', shows a summary for process HZSPROC, including 146 eligible checks and 177 not-deleted checks. The bottom panel, 'Health Checks', lists 177 checks sorted by status, with color-coded indicators: red for high exceptions, yellow for medium, and green for low.

Health Check Status		Task Identifier	
Proc Name	HZSPROC	Task Identifier	HZSPROC
Status	Active	Exceptions SevMed	6
Checks Deleted	0	Exceptions SevLow	6
Checks Eligible	146	Exceptions SevHigh	2
Checks NotDeleted	177	Exceptions SevNone	0
Checks Ineligible	31	Exceptions Outstanding	14
Checks DeletePending	0		

ΔCheck Name	Resource	ΔCheck Status
— XCF_CDS_SPOF	IBMXCF	EXCEPTION-HIGH
— USS_PARMLIB_MOUNTS	IBMUSS	EXCEPTION-HIGH
— VSM_SQA_THRESHOLD	IBMVSM	EXCEPTION-MEDIUM
— XCF_CDS_MAXSYSTEM	IBMXCF	EXCEPTION-MEDIUM
— XCF_CF_STR_POLICYSIZE	IBMXCF	EXCEPTION-MEDIUM
— XCF_CF_ALLOCATION_PERMITTED	IBMXCF	EXCEPTION-MEDIUM
— XCF_CF_STR_AVAILABILITY	IBMXCF	EXCEPTION-MEDIUM
— VSAMRLS_CFCACHE_MINIMUM_SIZE	IBMVSAMRLS	EXCEPTION-MEDIUM
— USS_PARMLIB	IBMUSS	EXCEPTION-LOW
— GRS_AUTHQVLV_SETTING	IBMGRS	EXCEPTION-LOW
— CSV_APF_EXISTS	IBMCSV	EXCEPTION-LOW



# Unix workloads growing on z/OS as applications are ported to mainframe

- USS comes included in OMEGAMON XE on z/OS
- Complete view of Unix overhead and activities available and customizable with enhanced 3270 user interface

Command ==> KM5USS z/OS UNIX System Services Overview Plex ID : ZPETPLX2 SMF ID : Z2

UNIX Kernel						
ΔSyscall ▽Rate	ΔCPU% ▽	ΔI/Os ▽Rate	ΔNumber of ▽Processes	ΔMa ▽Processes	VProcesses%	
0.000	0.00	0.000	495	1900	26.05	

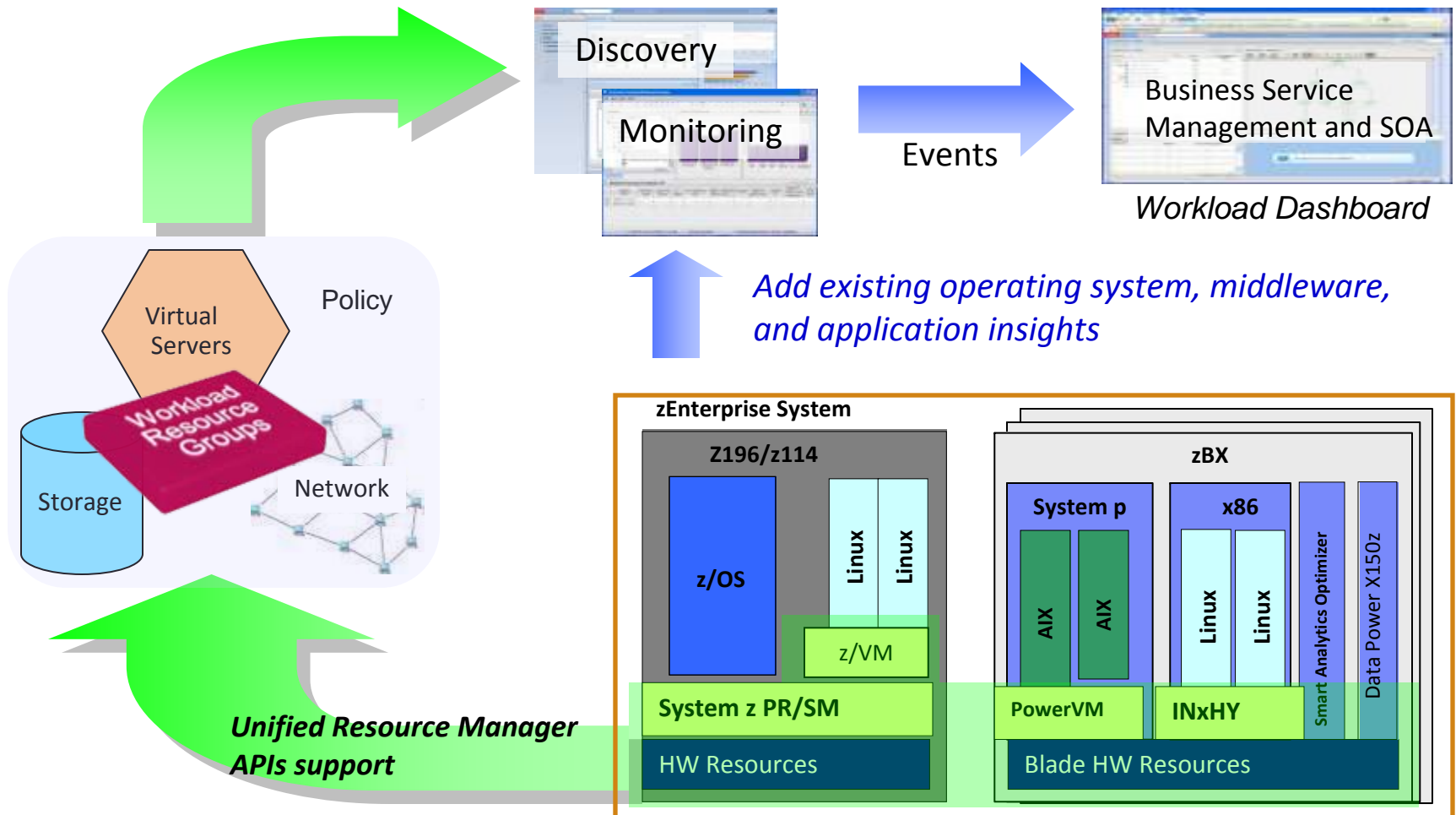
Unix System Services

Dubbed Address Spaces						
ΔAddress Space ▽Name	ΔASID ▽	ΔCPU ▽Time%	▽CPU _Seconds	ΔType ▽	ΔService ▽Class	ΔWorking ▽Set
CICS3A2A	0186	5.32	50707.952	STC	CI2V60	4098
CSQ2CHIN	0199	0.00	21565.296	STC	STCI2V40	16270
CICS2A2A	0184	5.48	9750.706	STC		
TCPIP	00EC	0.00	6970.156	STC		
CICS2T2A	0185			STC		
VTAM	00DC	0.00	5400.000	STC		

z/OS address spaces running Unix workload  
Running on CICS

# zEnterprise visibility support to allow for discovery and monitoring across all components

Workload Resource Groups include information across z196/z114 and zBX



**Unified Resource Manager APIs support**

# Enhanced 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/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

IBM Tivoli Management Services on z/OS  
Version 6.2.3

PARMGEN Reference

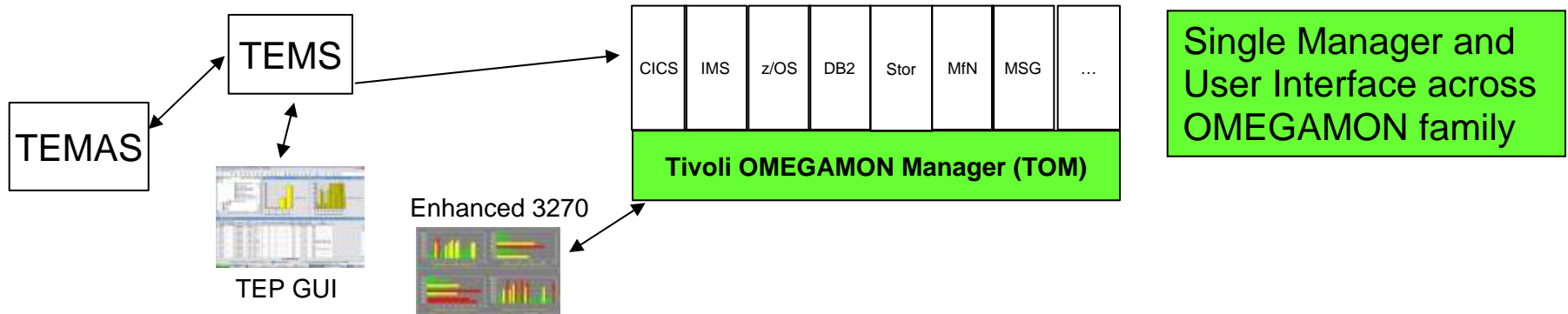
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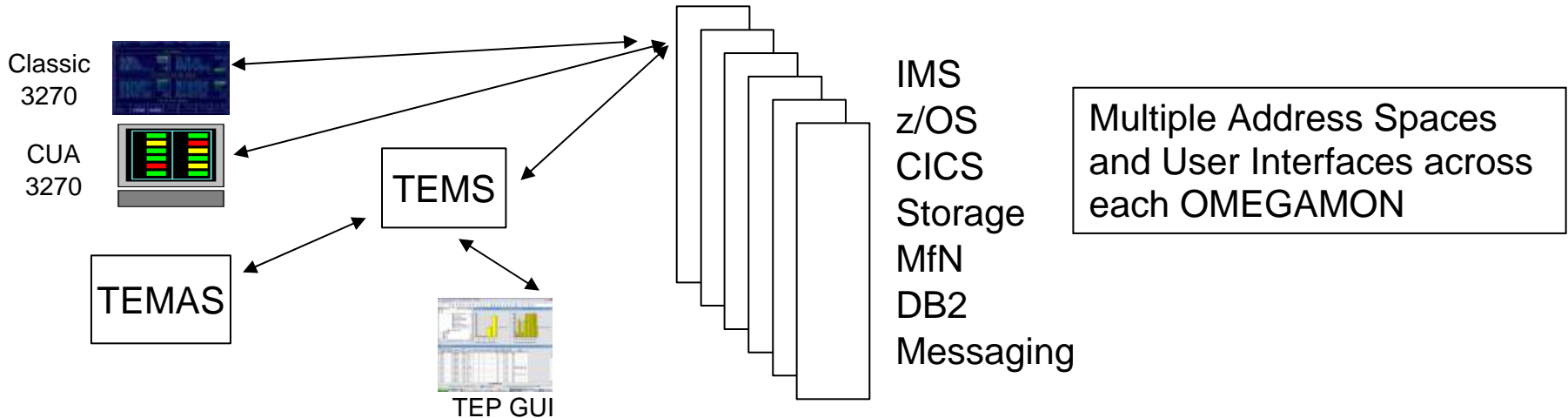
*“I like using the Parmgen approach better than CICAT/ICAT.  
I find it much easier to make things repeatable...  
I like the fact that Parmgen does not overwrite my running members”  
Typical quotes from early adopters program*

# Moving to simplified architecture driving decreased resource utilization without lose of current function

## Enhanced OMEGAMON Architecture



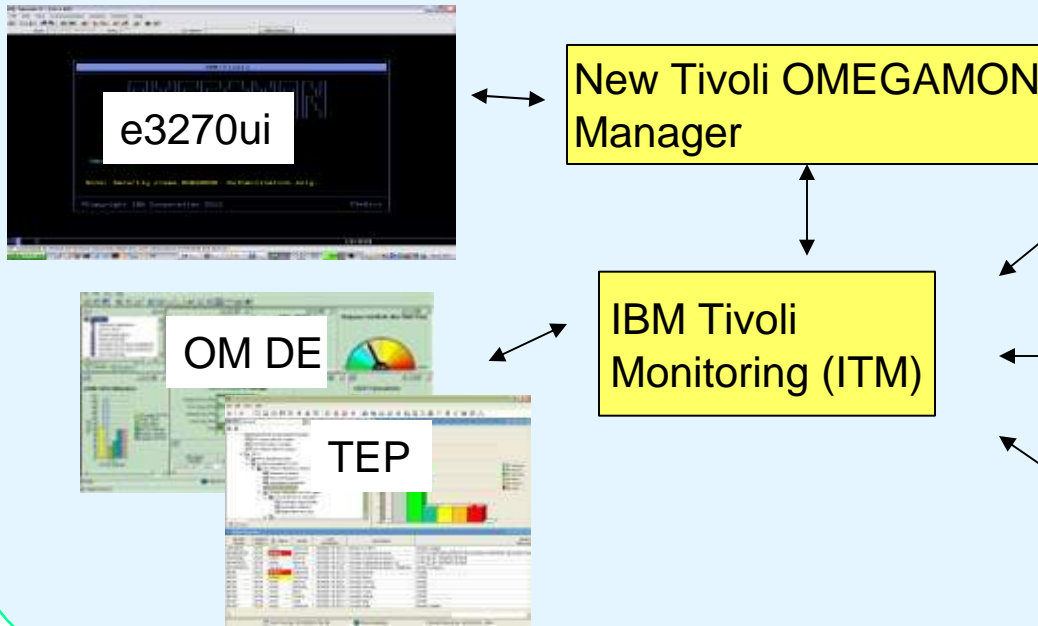
## Current OMEGAMON Architecture



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

OMEGAMON Portfolio provides performance and availability visibility for System z events and data consumed by a set of Tivoli BSM products

## OMEGAMON V5.1



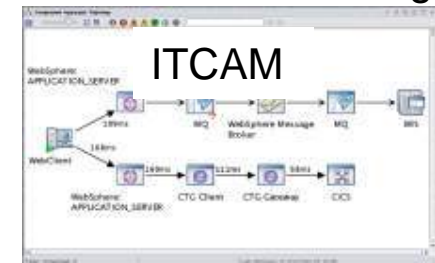
## Business Assessment



## Discovery



## Transaction Tracking



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

# 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, *"For too long, many IT staff liked working as siloed specialists. If a problem lay outside their silo, they could just toss it over to someone else. But, they can't live that way anymore"* PNA also gave IBM high marks for doing so without losing functionality. [www.ptaknoel.com](http://www.ptaknoel.com)

## 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"*





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

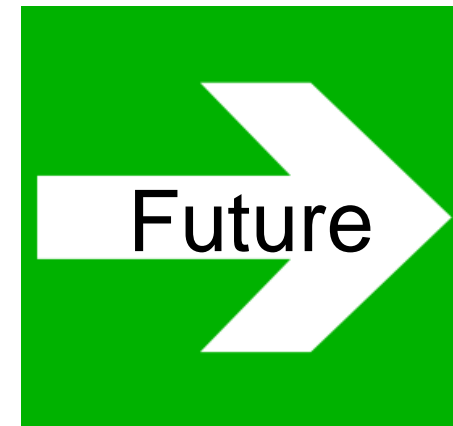
- Bringing forward an integrated System z view for virtualized, network infrastructure
  - Manage mainframe environment based on key performance indicators (KPIs)
- Increasing Operations control of total System z environment with single view of:
  - Network, both SNA and IP
  - System z Storage
  - Operating System



Includes OMEGAMON on z/OS V5.1 support

# OMEGAMON Family announcement includes significant new capability across number of products

- General Availability on 3/9/12
  - OMEGAMON XE on z/OS V5.1
  - OMEGAMON XE for CICS on z/OS V5.1
  - OMEGAMON for z/OS Management Suite V4.2.1
  
- Statement of Direction
  - Enhanced 3270 User Interface additionally included in:
    - OMEGAMON XE for DB2
    - OMEGAMON XE for IMS
    - OMEGAMON XE for Messaging
    - OMEGAMON XE for Storage
    - OMEGAMON XE for Mainframe Networks
  - Additional zIIP enablement



Easy to join and work with development to provide feedback on OMEGAMON portfolio  
Send an email to Mike Goodman [megoodma@us.ibm.com](mailto:megoodma@us.ibm.com) or Nate Gaffaney [ngaffane@us.ibm.com](mailto:ngaffane@us.ibm.com)

Follow along with Mike Goodman's blog [google](#) → Mike e ends with z.

# IBM System z Service Management continues providing customers improved business flexibility

## Key Takeaways

1. IBM recognized leader in **Application Performance Management** with **Visibility, Control and Automation** for high quality Service Management
2. Redesigned **OMEGAMON V5.1** providing improved visibility for Business Service Management
3. **Enhanced 3270 user interface** provides faster monitoring and problem management for reduced costs, higher availability and improved productivity

Learn more: [www.ibm.com/omegamon](http://www.ibm.com/omegamon)



Thank  
You