



Introducing Enhanced 3270 Problem Solving Capability - OMEGAMON XE on z/OS 5.1.0

Joe Winterton IBM Software Group Tivoli



Business Agility with improved IT visibility now available with OMEGAMON V5.1 family

Modernized and strengthened OMEGAMON product line for reduced resource usage and faster problem resolution

Overview OMEGAMON 5.1.0

e3270ui Introduction

Problem Solving with e3270ui

OMEGAMON XE on zOS 5.1.0 features



Business Agility with improved IT visibility now available with OMEGAMON V5.1 family

Modernized and strengthened OMEGAMON product line for reduced resource usage and faster problem resolution

Increased Availability

- Enhanced 3270 User Interface for SMEs
- Built-in Problem Solving Scenarios
 Improved Productivity
- Faster Install/Configuration/Maintenance
- zEnterprise monitoring across z196/114
 Reduced Resources and Costs
- Usage of zIIP specialty servers
- Simplified OMEGAMON architecture





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

- Ability to view Enterprise Summary of multiple sysplexes
- Navigate directly to other OMEGAMON v5.1 monitors
- New CEC and CPU top consumers views
- Incorporated Health Checks from Tivoli z Management Console.
- Easy navigation from sysplex to lpar to address space Command and Control from Enhanced 3270 User Interface





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



- Manage by using service level analysis of transactions based on response times – new to e3270ui
- Take advantage of using a zIIP specialty processor to decrease resource usage
- . 10385: Solving CICSPLEX Performance Problems Using Omegamon XE for CICS on z/OS
- Wednesday, March 14, 2012: 4:30 PM
- Walnut (Omni Hotel CNN Center)









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

zOS WW customer Advisory Council Quarterly calls

Request for enhancements 30 day reviews 90 day response

- Early Adopters Programs
- Monthly Calls and Demos

Beta Program

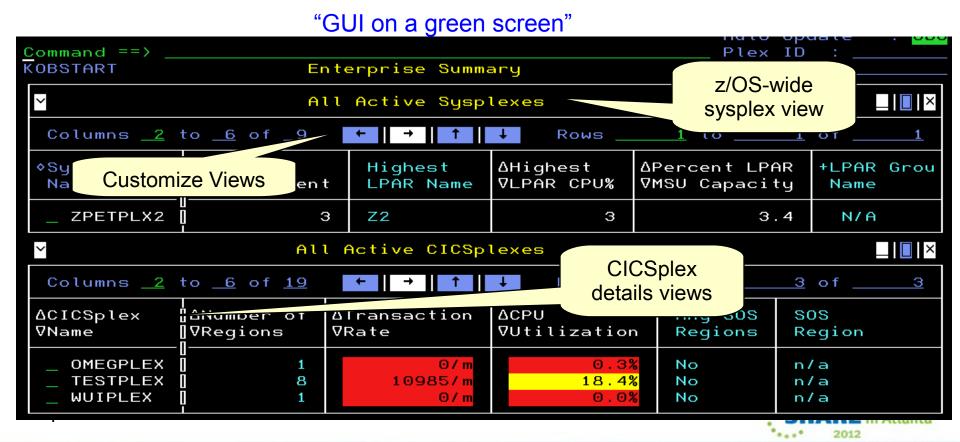
Development Roadmap Service
Management
Connect
Roadmaps/Plans

OMEGAMON Agile Delivery Releases



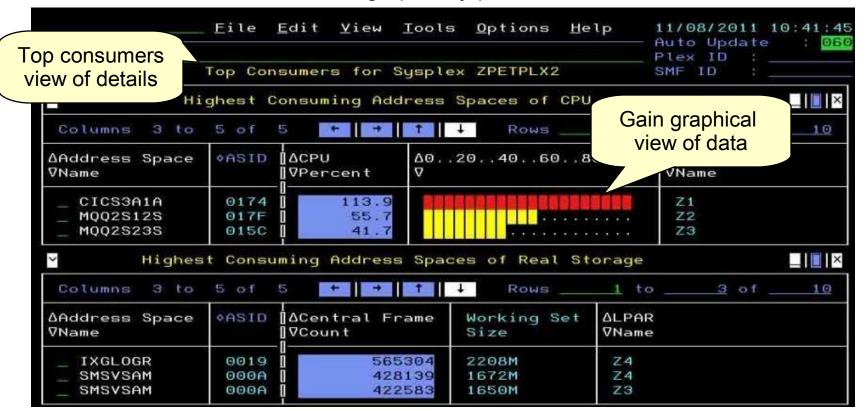
Enhanced 3270 User Interface creates Enterprise wide, view of information for improved availability

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



Customer prioritized Problem Solving scenarios built into Enhanced 3270 User Interface

- Easy to see and find critical system and sub-system information
- Single screen focused on customer defined problems
- Screen content based on high priority problems





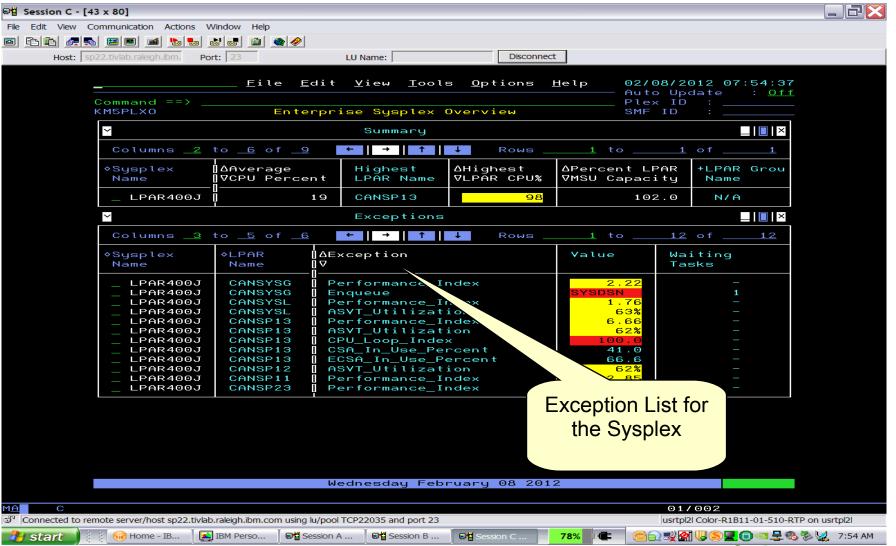
OMEGAMON - One <u>Enhanced 3270 User</u> <u>Interface</u> – all offerings-Enterprise Summary



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OMEGAMON zOS – Different Launch Points –Sysplex Overview





OMEGAMON zOS – CPC Overview Launch Point - Machine

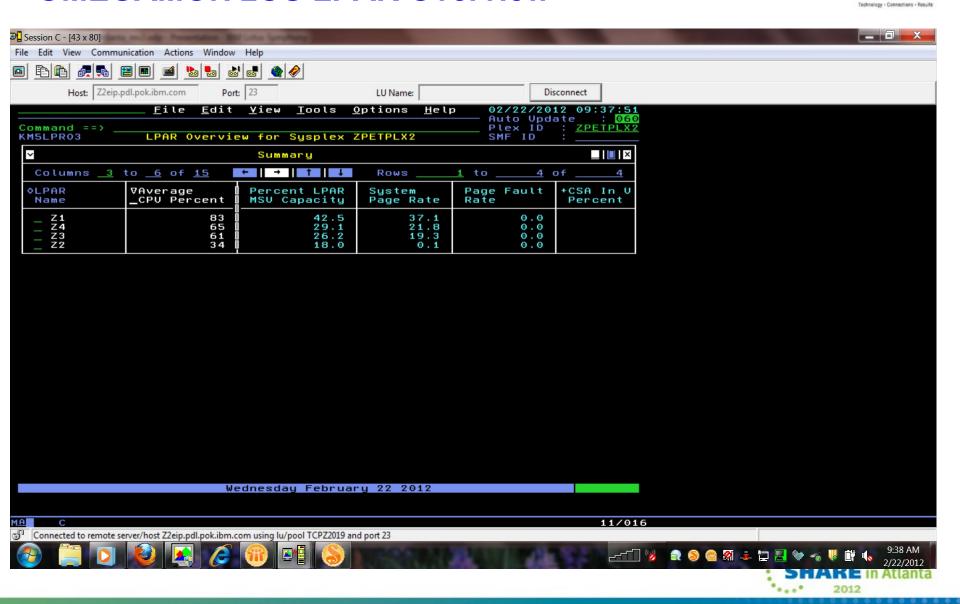








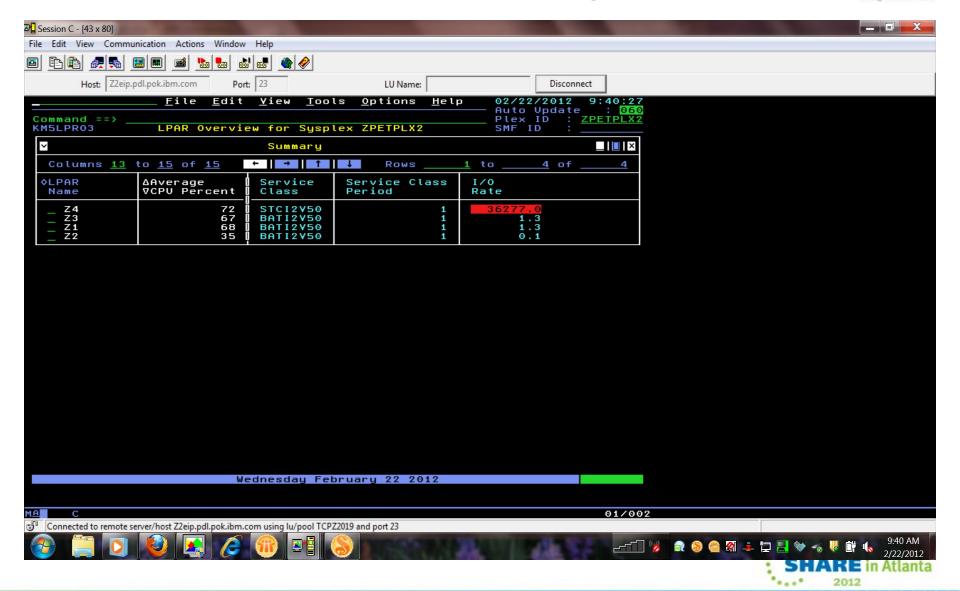
OMEGAMON ZOS LPAR Overview





Technology - Connections - Results

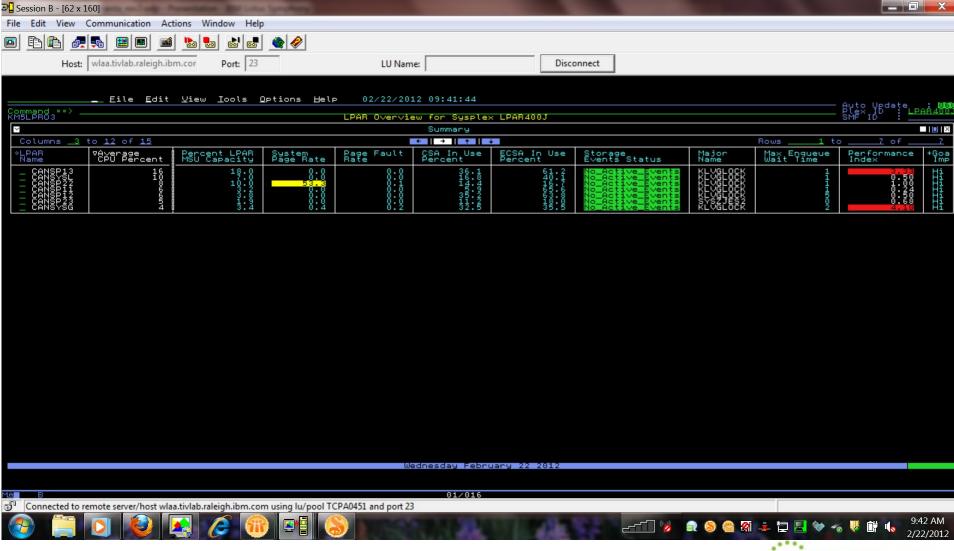
OMEGAMON zOS LPAR Overview – go RIGHT



OMEGAMON zOS LPAR Overview – Big Screen View

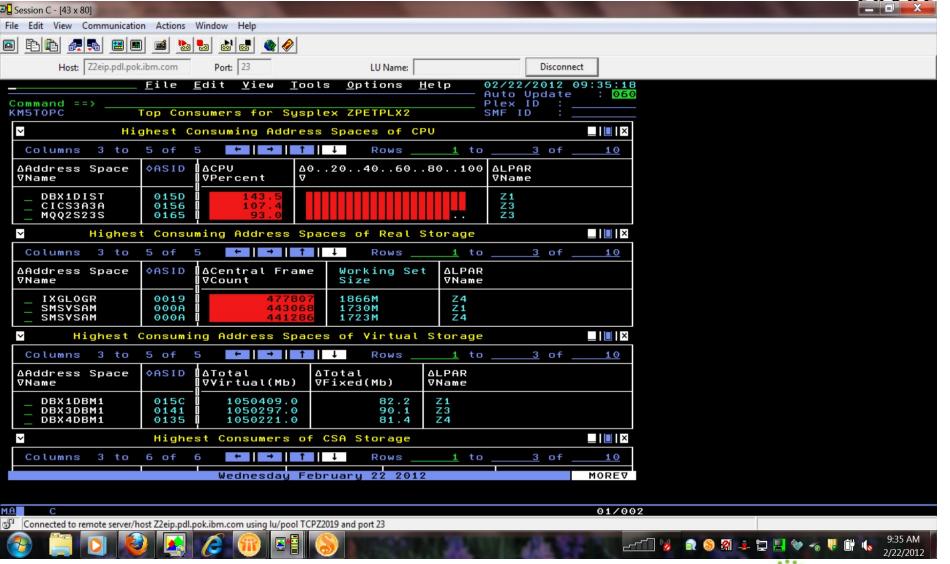


SHARE in Atlanta



Sysplex Top Consumers – top 10's







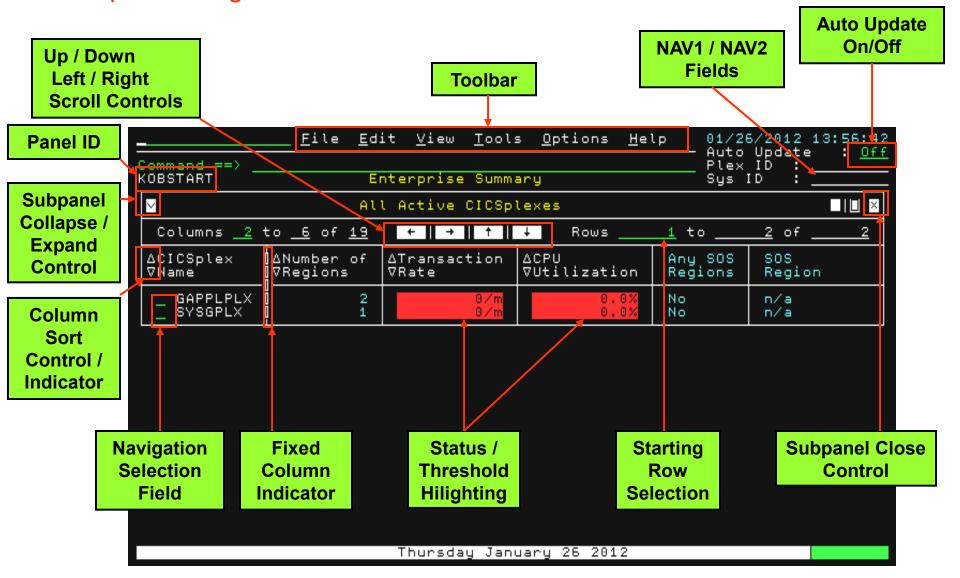
Sysplex Top Consumers – Down



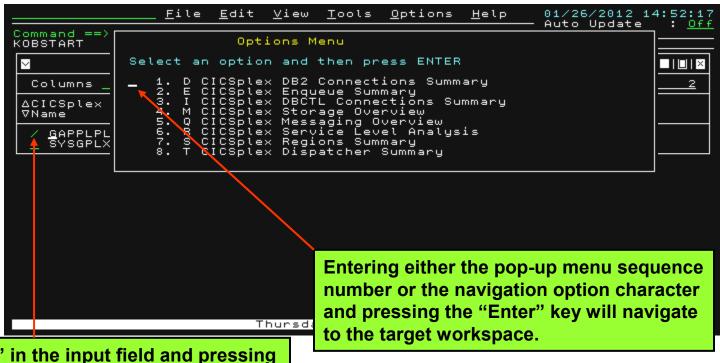




User Interface Workspaces Workspace Navigation and Panel Controls



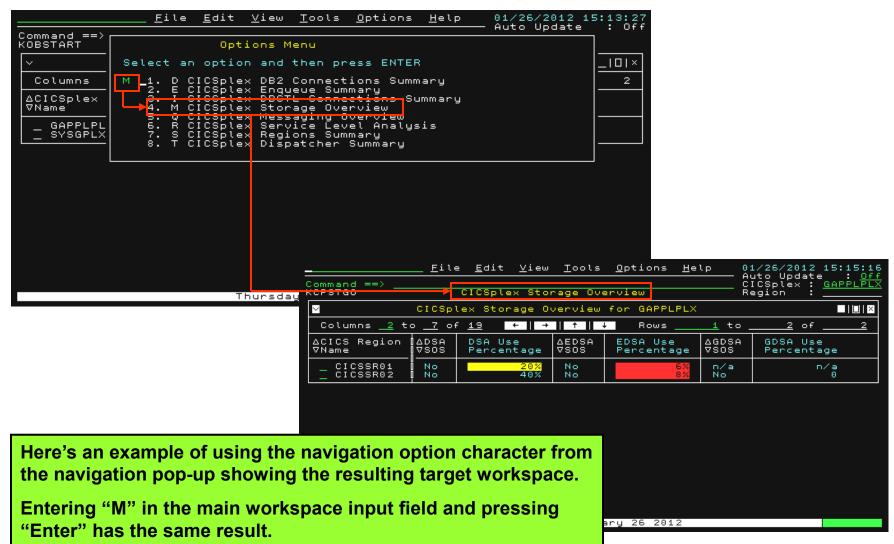
User Interface Workspaces Navigation Selection



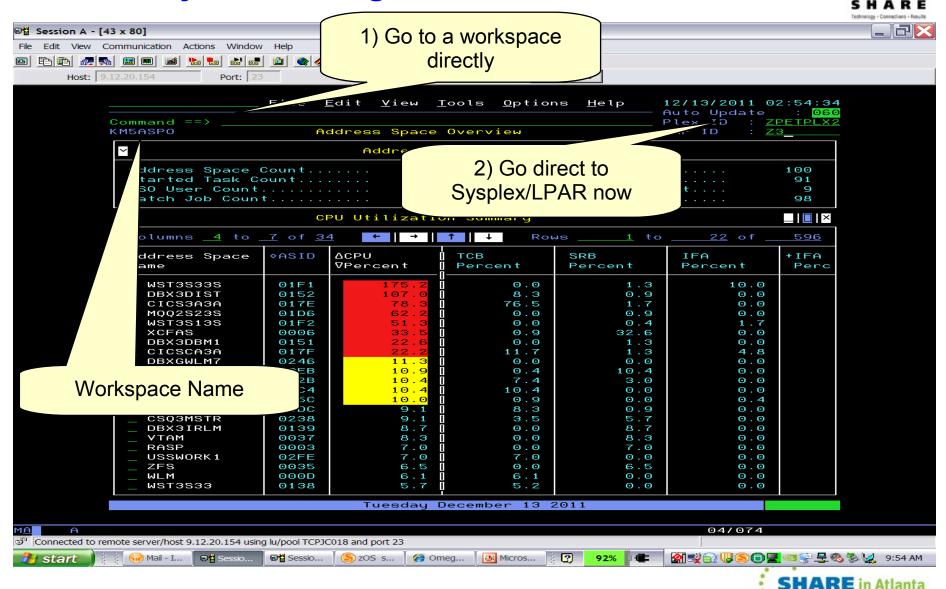
Entering "/" in the input field and pressing the "Enter" key will launch a pop-up with navigation options.

Alternatively, entering the navigation option character in the input field and pressing the "Enter" key will navigate to the target workspace directly.

User Interface Workspaces Navigation Selection

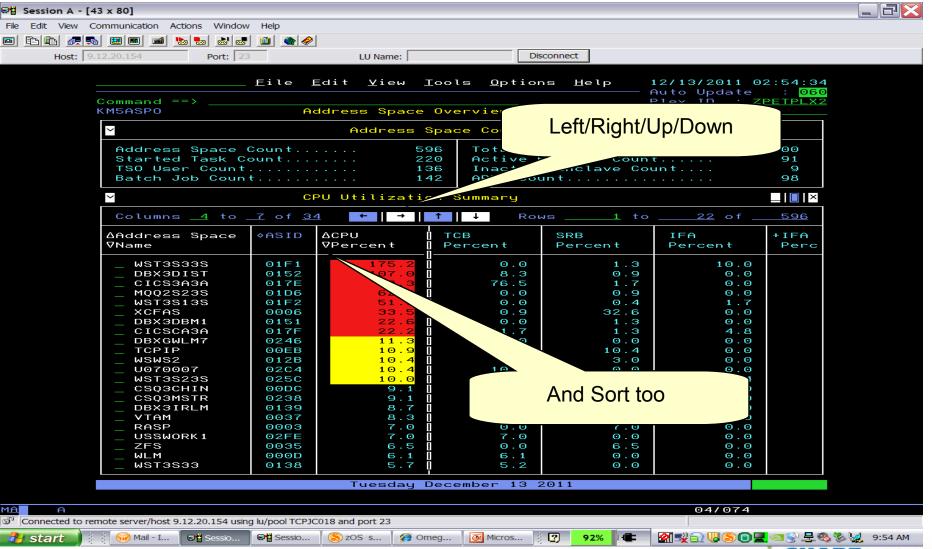


Go where you want to go – NOW!



Up/Down/Left/Right/Exit – pf7/pf8/pf10/pf11/pf3 !





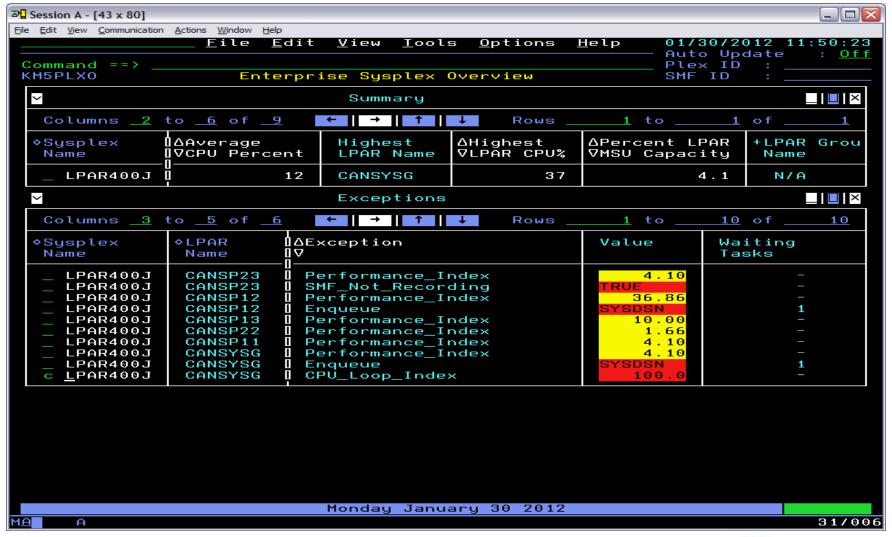
Help – pf1!



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CPU Looping Address Space Problem Scenario





Exceptions menu: C = Cancel Looping Address Space



Action Command Menu

Select an action and then press ENTER

- __ 1. A Address Space Overview
 - 2. C Cancel Looping Address Space
 - 3. D Enterprise Enqueue and Reserve Details
 - 4. E Enterprise Global Enqueues
 - 5. G Global Enqueue Data for Sysplex
 - N Enclave Information
 - 7. 0 Operator Alerts
 - 8. R Enqueue, Reserve, and Lock Summary
 - 9. S Service Classes for Sysplex
 - 10. T Storage Overview
 - 11. U Storage Shortage Alerts
 - 12. W WLM Service Class Resources
 - 13. Z zOS System Resources



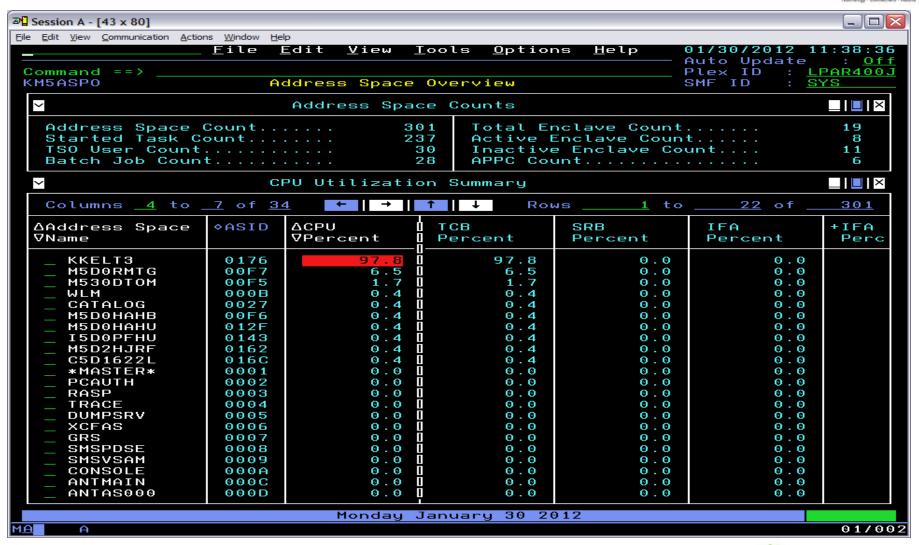








Investigate CPU Looping Job – B for Bottlenecks





Bottleneck for Job is CPU Wait, Using and Loop Index



Edit View Communication Actions Window Help File Edit View Iools Options Help Ommand ==> M5B0TA2 Bottleneck Analysis Address Space KKELT3 Summary Columns 3 to 3 of 4 Plex ID : LPAR400 SMF ID : SYS Address Space KKELT3 Summary Columns 3 to 3 of 4 Plex ID : LPAR400 SMF ID : SYS Address Space KKELT3 Summary Columns 3 to 3 of 4 Percent 0 20 40 60 80 100 Window Help Auto Update : Of Plex ID : LPAR400 SMF ID : SYS Address Space KKELT3 Summary Address Space KKELT3 Summary Columns 3 to 3 of 4 Percent 0				Technology - Conne
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IFA Wait				
VIO Wait			Resource Group Capping	
ZIIP Wait.				
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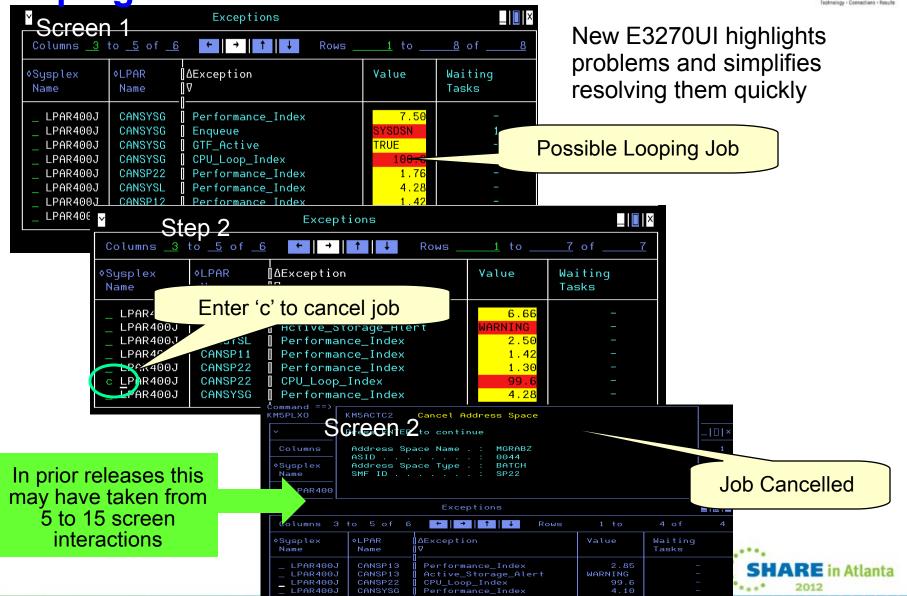
Inspect CPU Looper Indicates 100% for 1 Load Module





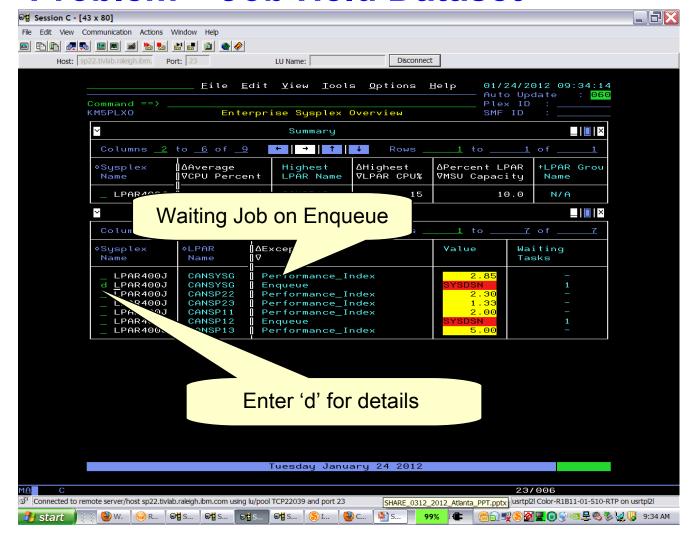
Next time - fixing z/OS Problem-Job CPU Looping





Example of quickly finding and fixing z/OS Problem – Job Held Dataset







Example of quickly finding and fixing z/OS Problem – Job Held Dataset

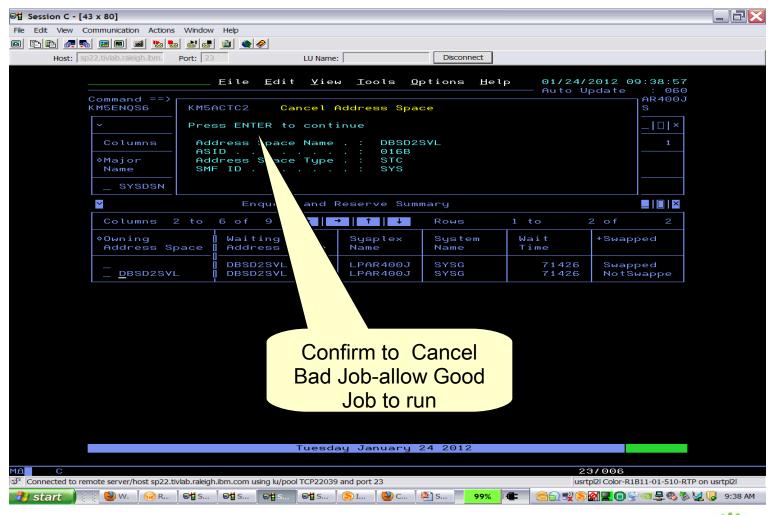


⊕ B session c - [43 X 60]							
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Example of quickly finding and fixing z/OS Problem – Job Held Dataset







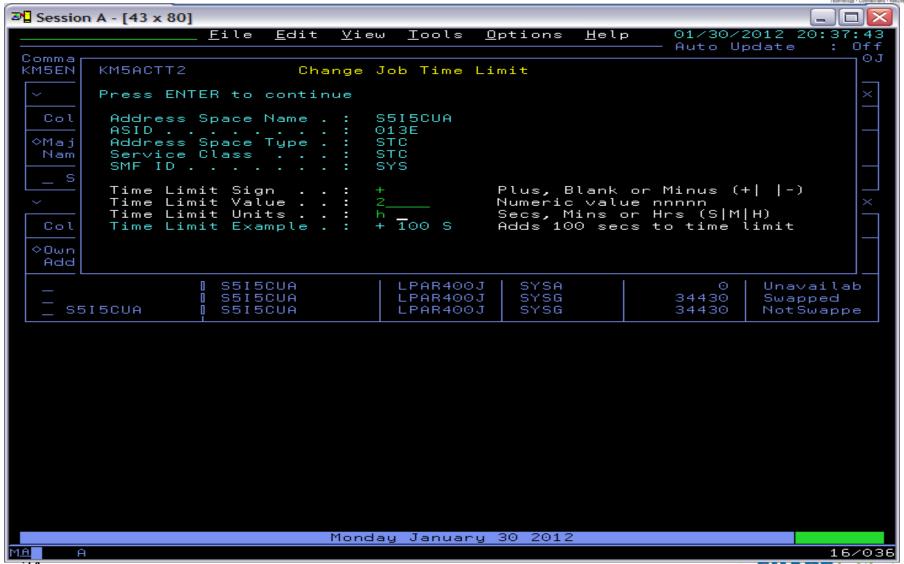
Full Take Action Menu



```
KM5ENQA1 Take Actions for Address Space S5I5CUA
Select an action and then press ENTER
 t_ 1. C Cancel Address Space
     2. D Cancel Address Space with Dump
     3. R Cancel Address Space with Restart,
     4. M Cancel Address Space with Restart Dump
     5. K Kill Address Space
     6. E Reset Address Space Service Class
     7. Q Quiesce Address Space Service Class
     8. U Resume Address Space Service Class
     9. T Change Time Limit
    10. S Swap In Address Space
    11. N Mark Address Space Nonswappable
    12. W Mark Address Space Swappable
```

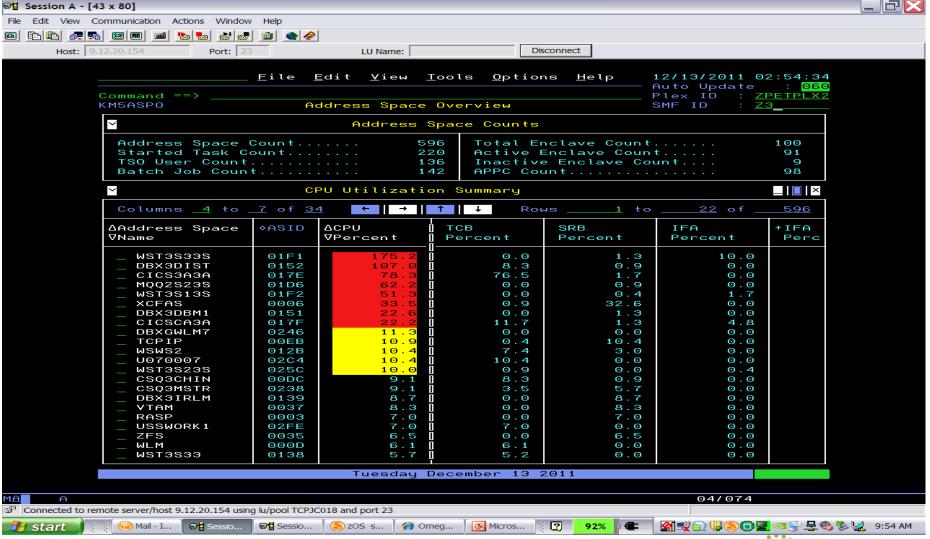


Extend Job Time Limit 2 hrs – Usually for Batch



CPU – CPU – CPU usage on an LPAR issues?







Bottleneck analysis provides visibility to potential problems

Server MPL Delay.....

Quickly find out where resource contentions and shortage exist Bottleneck Analysis KM5B0TA2 SMF ID Address Space DBX2DIST Summary Bottleneck Columns <u>3</u> to <u>3</u> of <u>4</u> Rows **Analysis** ♦Attribute ♦Percent 0...20.. Using CPU Using zIIP 8.4 Using zIIP on CP Stimer ECB Wait 55.9 CPU Loop Index 29.0 zIIP Wait 7.2 Using Crypto Assist Proc 5.0 CPU Wait Contention(%) by Resource Easy to See Using CPU....... Step Name........ DBX2DIST **Problem Areas IEFPROC** Using IFA...... Proc Step....... Service Class.. DDF Using zIIP........ CPU Loop Index...... CPU Wait... 2.2 29.0 0.0Resource Group Capping.... 0.00.0Active I/0.......... 0.0Monitor Queued I/O........... 0.00.07.2 Tape Mount.......... 0.0Contention 0.0Shared Pages........ 0.00.0Server Swap-In...... 0.0MVS Lock Wait...... Common Page-In...... 0.00.0Stimer ECB Wait...... 55.9 Private Page-In...... 0.0Server Paging...... 0.0Hiperspace Page-In..... 0.0

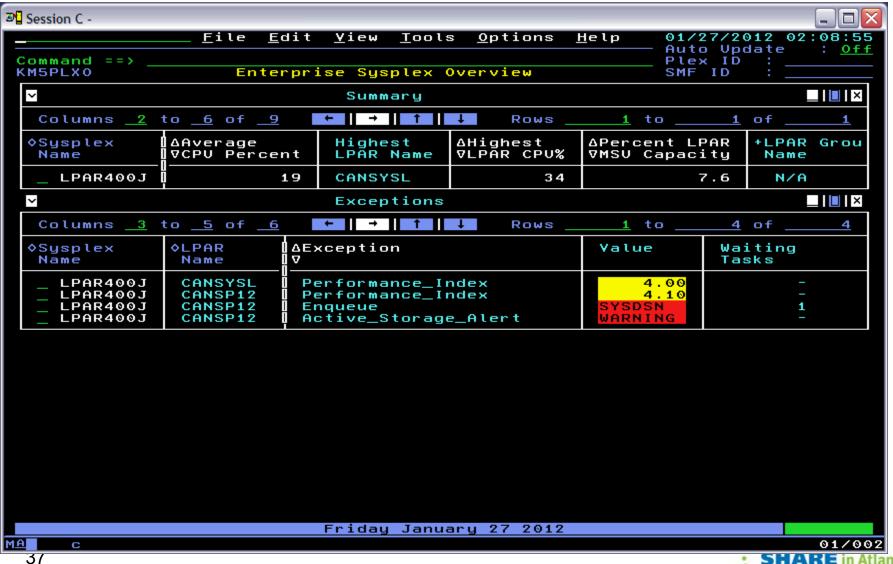
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Cross Memory Page-In.....

0.0

Storage Shortage Problem Solving





Exceptions menu: U = Storage Shortage Alerts



Action Command Menu

Select an action and then press ENTER

- __ 1. A Address Space Overview
 - 2. C Cancel Looping Address Space
 - 3. D Enterprise Enqueue and Reserve Details
 - 4. E Enterprise Global Enqueues
 - 5. G Global Enqueue Data for Sysplex
 - N Enclave Information
 - 7. 0 Operator Alerts
 - 8. R Enqueue, Reserve, and Lock Summary
 - S Service Classes for Sysplex
 - 10. T Storage Overview
 - 11. U Storage Shortage Alerts
 - 12. W WLM Service Class Resources
 - 13. Z zOS System Resources



Selected Storage Shortage Alerts

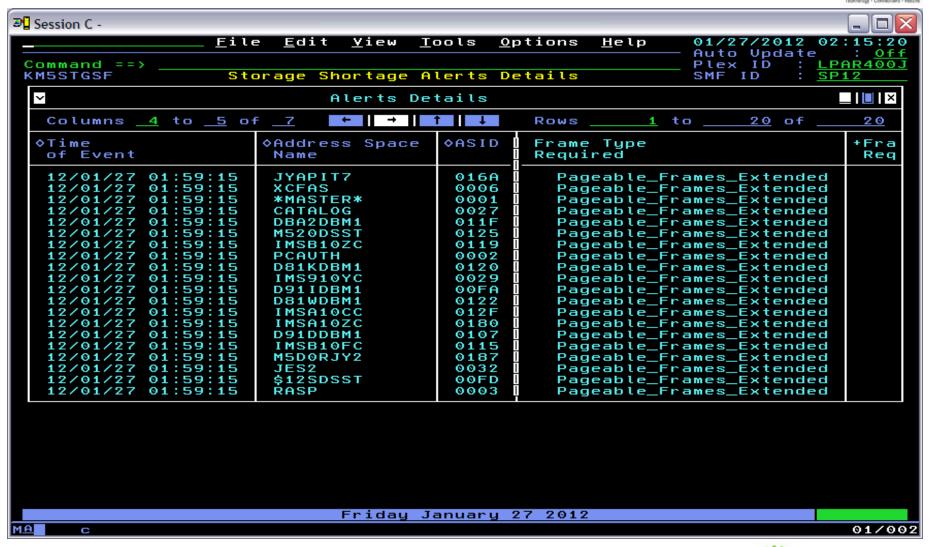


SHARE ■ Session C -File Edit View Tools Options Help 01/27/2012 02:14:21 Auto Update Plex ID : LPAR400J Command ==> SMF ID KM5STGSB Storage Shortage Alerts : SP12 > Status ____× ← → | f | ↓ Rows 1 to 1 of 1 1 to 1 of Columns **Events Status** Active_Events ____× Summary + → ↑ ↓ Rows _____1 to ____6 of ____ Columns 2 to 3 of 7 ♦Time +Storage Storage Shortage Type of Event Shortage Level 12/01/27 00:00:05 Available_Frame_Queue_Shortage Shortage 12/01/27 00:00:13 Available_Frame_Queue_Shortage Relieved 12/01/27 01:31:13 Pageable_Storage Warning D 12/01/27 01:59:15 12/01/27 02:00:35 Pageable_Storage Shortage Auxiliary_Storage Warning 12/01/27 02:02:09 Pageable_Storage Relieved Friday January 27 2012 25/006



Storage Shortage details shows Frame Types

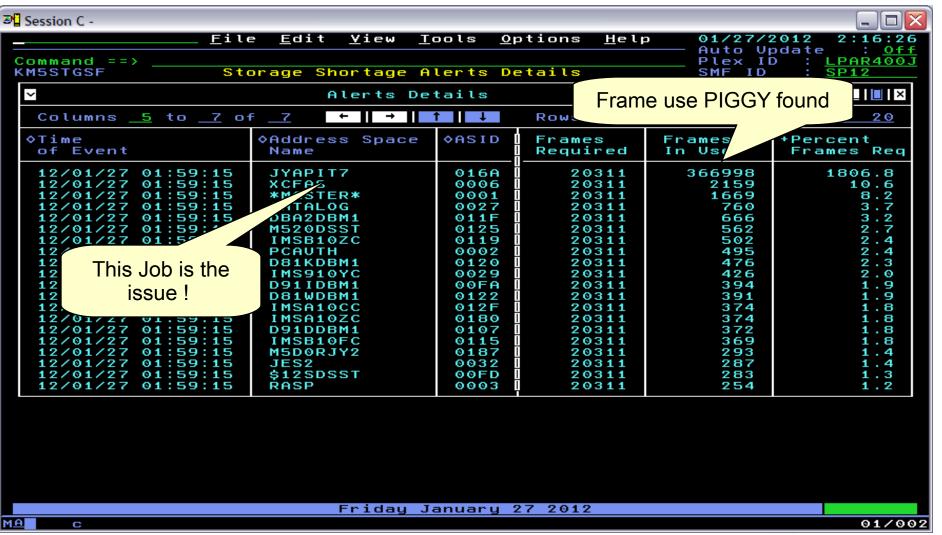












While Investigating Job issues – Take Action!



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KM5ASPO		Options Mer	iu			
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	Started T 2. C - Cancel Address Space					8 18
Batch Job	TSO User 3. A Address Space Bottlenecks Summary Batch Job 4. B Bottleneck Analysis for Address Space					42
<u> </u>	5. D Sto	orage Usage b	y Address Sp	pace		
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_ CICS3AAB	01A6	14.8		0.0	0.0	
_ CICS3AAA	0443	14.8		0.0	0.0	
_ CICS3AAC	019C	13.6		0.0	0.0	
_ MPRATNAE	0306	13.6		0.0	0.0	
_ DBW3MSTR	0146	11.4		0.0	0.0	
_ CICSSTAA _ CICSSTAB	044F 0451	11.4 11.4		2.3	0.0 0.0	
CICS3THB VTAM44	0451 014D	11.4 10.2		9.1	0.0	
_ CQSA11	0151	10.2	9.1	1.1	0.0	
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Take some action on those Bad Boy Jobs



№월 Session A - [43 x 80]						
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	Port: 23	LU Name:	Disco	nnect		
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_ MPRATN5						
_ IMSA	03B7	34.1 [28.4	5.7	0.0	
_ CSQAMSTE		33.0 [3.4	29.5	0.0	
_ XCFAS	0006	30.7 [⊙.⊙	30.7	0.0	
_ CICS2FA6		29.5	26.1	3.4	0.0	
_ DBW3DBM1	014C 036C	20.5 [19.3 [0.0	0.0 0.0	0.0 0.0	
_ MPRA201 _ MPRA106	0380	19.3 19.3	19.3 19.3	0.0	0.0	
_ MPRA108	038E	19.3	19.3	0.0	0.0	
_ MPRA100	03AA	19.3	19.3	0.0	0.0	
_ MPRATNBS		18.2	18.2	0.0	⊙.⊙	
_ USSWORK1	1 0438	17.0	17.0	0.0	⊙.⊙	
_ CICS3AAE		14.8	14.8	0.0	0.0	
_ CICS3AAA		14.8	14.8	0.0	0.0	
_ CICSBAAC		13.6	13.6	0.0	0.0	
_ MPRATNAE _ DBW3MSTF		13.6 [11.4 [13.6	0.0 0.0	0.0 0.0	
_ CICSSTA		11.4	9.1	2.3	0.0	
_ CICSSTAE		11.4	9.1	2.3	0.0	
VTAM44	014D	10.2	1.1	9.1	0.0	
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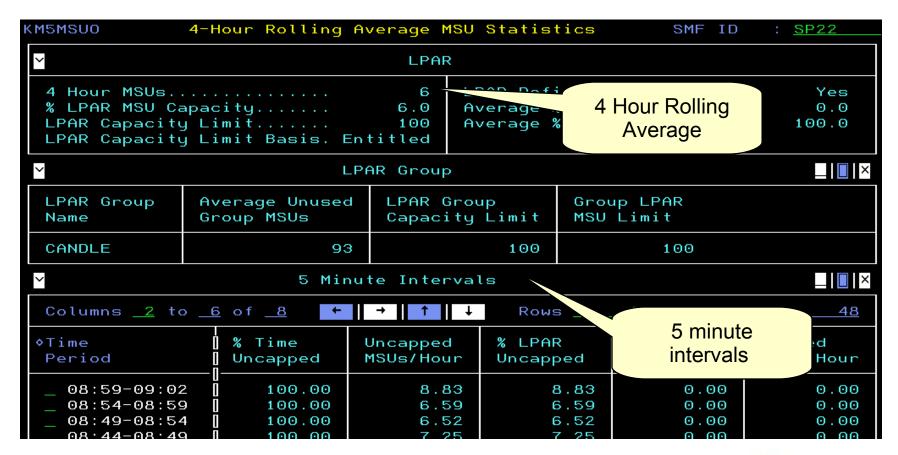
Job Bottleneck Analysis – big screen view



❷眥 Session B - [62 x 160]					
File Edit View Communication Actions Window Help					
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Host: 9.12.20.154 Po	rt: 23	LU Name:	Disconnect		
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KM5B0TA2		Bottleneck An		SMF ID : <u>J</u>	30
		Address Space DBS1			
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_ Active I/O	0.3 .	Contention(%) by	DASD LB0136 9003 Resource		
Step Name Proc Step. Service Class CPU Wait EFA Wait EFA Wait ZIPP Wait ZIPP Wait Stimer Wait Enquee Wait MVS Lock Wait Server Paging Server MPL Delay		IEFFROC STC12V50 3.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	CPU Loop Index. Resource Group Capping. Active I/O. Queued I/O. Tape Mount. Shared Pages. Server Swap-In. Common Page-In. Private Page-In. Hiperspace Page-In. Cross Memory Page-In.		7.00.50 40.00 .00 .00 .00 .00 .00 .00 .00 .00
Contention(%) by Resource (JES,HSM,SWAP & CRYPTO) Tuesday January 24 2012 MORE MORE					
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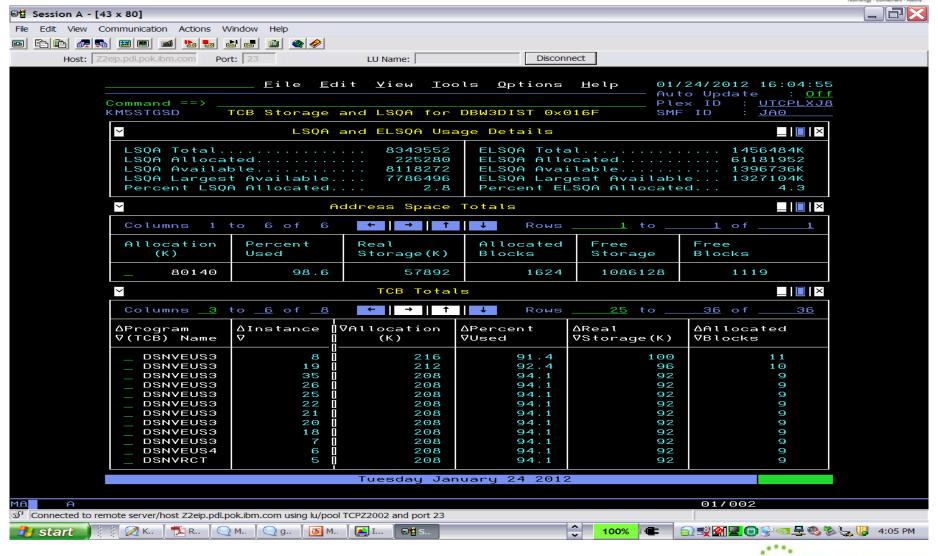
New Problem Determination for MSU allows Operations and SMEs to see what is happening

Monitor over time to identify and fix potential problems



Any Job LSQA/ELSQA TCB Storage Issues?





JOB Storage by Subpool and Key issues?





CPU – CPU – CPU – Job burning CPU issues?



❷법 Session B - [43 x 80]	
File Edit View Communication Actions Window Help	
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Host: J Zzeip.pdi.pok.ibin.com Port: J Z3 Lu Name: J	Disconnect
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<u> </u>	ols <u>O</u> ptions <u>H</u> elp 01/19/2012 10:24:31 ————————————————————————————————————
Command ==>	Plex ID :
KM5B0TA2 Bottleneck Ana	alysis SMF ID :
✓ Address Space DBW3	DIST Summary
◇Attribute	◇Percent [020406080100
_ Using CPU	26.2
_ Using zIIP	32.4
_ Using zIIP on CP	2.3
_ CPU Loop Index	95.0 [
_ CPU Wait	24.1
_ zIIP Wait Stimer ECB Wait	9.9 [4.9 [
_ Stimer ECD wait	4.9
	Resource
Step Name DBW3DIST	Using CPU
Proc Step IEFPROC	Using IFA 0.0
Service Class STCI5V05	Using zIIP
CPU Wait	CPU Loop Index 95.0
ECB Wait	Resource Group Capping 0.0 Active I/O 0.0
VIO Wait	Queued I/0 0.0
zIIP Wait	Tape Mount
Stimer Wait 0.0	Shared Pages 0.0
Enqueue Wait 0.0	Server Swap-In 0.0
MVS Lock Wait 0.0	Common Page-In 0.0
Stimer ECB Wait 4.9	Private Page-In
Server Paging 0.0 Server MPL Delay 0.0	Hiperspace Page-In 0.0 Cross Memory Page-In 0.0
der ver in 2 betag	Orosa Hellorg Page 111
✓ Contention(%) by Resource	(JES, HSM, SWAP & CRYPTO) ■ □ ×
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JES2 Job Status 0.0	
JES2 Job Requeue 0.0	
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Investigating HiperDispatch







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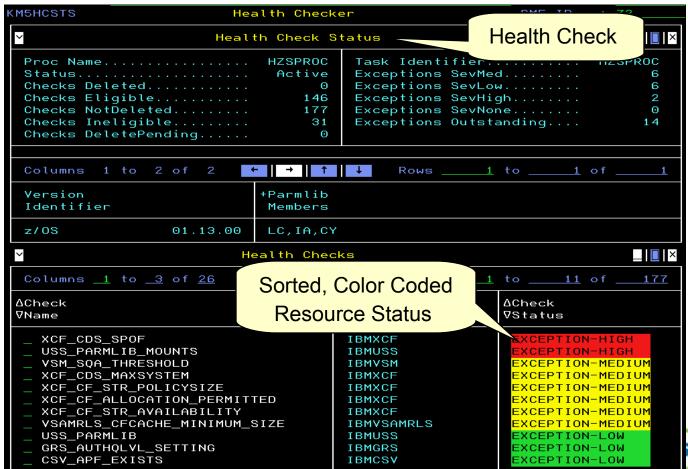
11:12 AM



Healthcheck analysis assists in finding and fixing problems quickly in e3270ui

Regularly monitor key IT resources and usage

Select and see best practices recommendations on how to fix







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

- USS comes included in OMEGAMON XE on z/OS
- Complete view of increasing Unix overhead and activities available with Enhanced 3270 User Interface





Investigating Sysplex issues Menu



Options Menu

Select an option and then press ENTER

- 1. B Report Classes Data for Sysplex
- 2. C Enterprise CPC Overview
- 3. D Service Definition Data
- 4. E Enterprise Global Enqueues
- 5. F Sysplexes Coupling Facility
- 6. R Resource Groups
- 7. S LPAR Overview for Sysplex
- 8. T Top Consumers for Sysplex
- 9. V Service Classes for Sysplex
- 10. X XCF Utilization
- 11. Z zOS System Resources



Investigating z/OS System Resources



KM5SYSMN z/OS System Resources for CANSP22

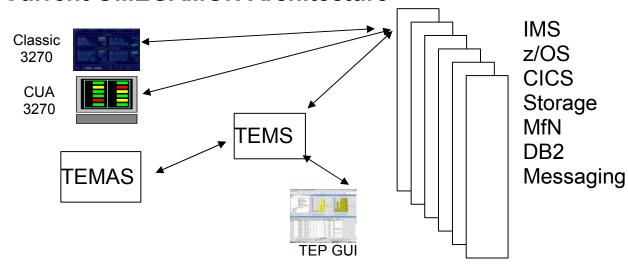
Select one of the following, then press ENTER

- 1. A Address Space Overview
- 2. B Address Space Bottlenecks Summary
- 3. C CPC Details and LPAR Clusters
- 4. D System CPU Utilization
- 5. E Enclave Information
- H Health Checker
- 7. M 4-Hour Rolling Average MSU Statistics
- 8. 0 Operator Alerts
- 9. P System Paging & Dataset Activity
- 10. R Enqueue, Reserve, and Lock Summary
- 11. S Storage Utilization
- 12. V DASD Devices
- 13. W WLM Service Class Resources
- 14. Z z/OS UNIX System Services Overview

Redesigned OMEGAMON moving to simplified architecture allowing for decreased resource utilization

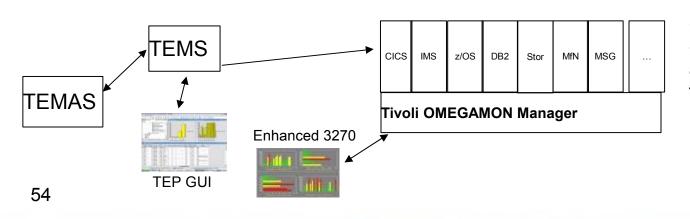


Current OMEGAMON Architecture



Multiple Address Spaces and User Interfaces across each **OMEGAMON**

Enhanced OMEGAMON Architecture



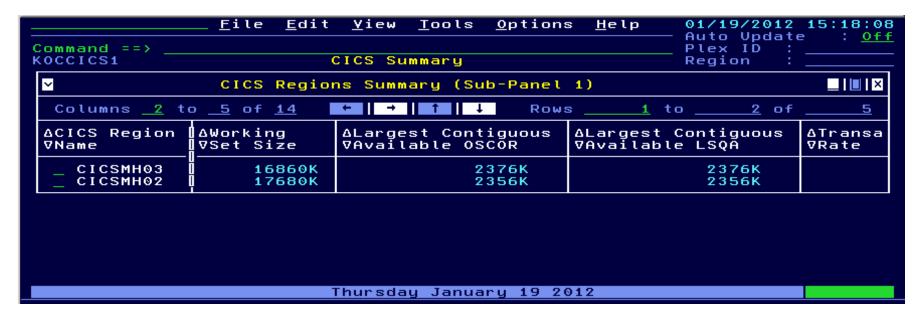
Single Manager and SME User Interface across OMEGAMON family



User Interface Workspaces – From This comes the screen: Workspace Sub-Panel using Keyword Language

```
WORKSPACE CICS SUMMARY
<WORKSPACE>
HEADER='CICS Summaru'
<SUBPANEL>
TYPE=SUMMARY
HEADER='CICS Regions Summary (Sub-Panel 1)'
QUERY='SELECT CICSNAME, WORKSET, MAXOSCOR,
MAXLSQA, TRANRATE, ORIĞINNODE, SYSTEMID,
FROM OMCICS.CICSROV,
WHERE SYSTEM.PARMA('NODELIST','*MVS_CICS',9),
ORDER BY CICSNAME DESC ;'
SORTCOLS=CICSNAME, TRANRATE, WORKSET, MAXOSCOR, MAXLSQA
DISPLAYCOLS=ALL
STATICCOLS=1
KEYCOLS='CICSNAME(NOSTRIP), SYSTEMID , ORIGINNODE'
ACTION=CICSNAME(S,"Select a CICS Region", KCPRGNO, DEFAULT)
<WORKSPACEEND>
```

User Interface Workspaces Workspace Sub-Panel using Keyword Language – Resulting Display





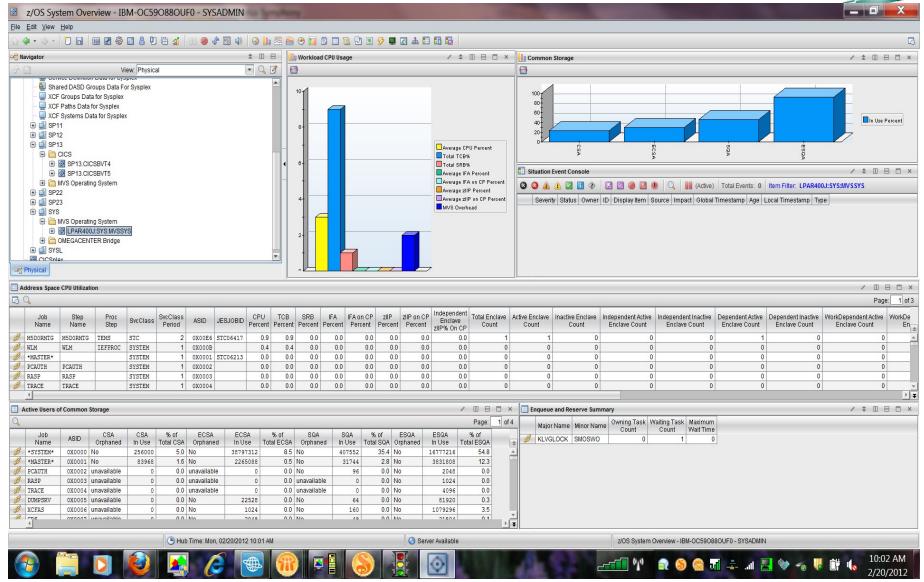


One zOS address space needed

- Designed to handle many OMEGAMON users
- Reads the workspace panels builds screens
- Discovers the OMEGAMON XE agents
- zOS 64 bit memory exploiter
- Built for 2012 zOS functions
- Will use zIIP processor
- Enhanced 3270 User Interface to be included in:
 - OMEGAMON XE for zOS
 - OMEGAMON XE for CICS
 - OMEGAMON XF for DB2
 - OMEGAMON XE for IMS
 - OMEGAMON XE for Messaging
 - OMEGAMON XE for Storage
 - OMEGAMON XE for Mainframe Networks



OMEGAMON XE zOS – TEP view too!





Enhanced Configuration and Maintenance capability with <u>Self-Describing Agents</u>

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

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and software for a smarter planet

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 autodiscovery of system values

single reference book for upgrade guidance

IBM Tivoli Management Services on z/OS Version 6.2.3

PARMGEN Reference

IBM

IRM Confidential

"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

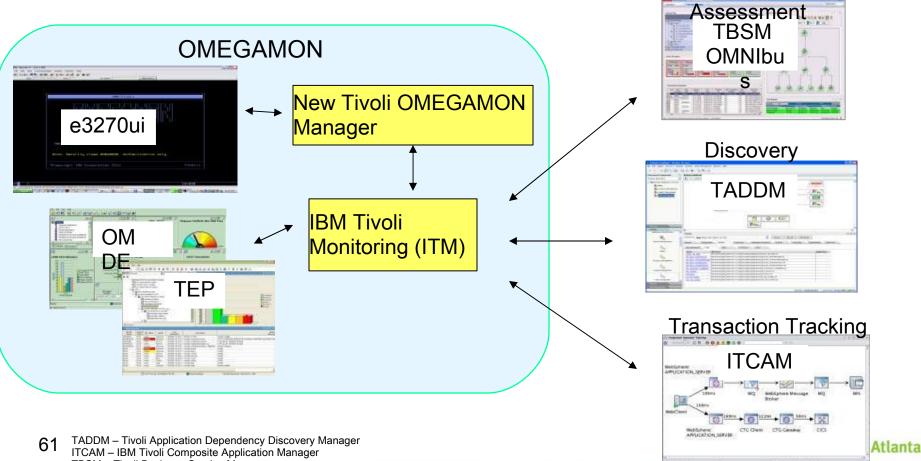
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Business

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





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"





and a smarter planet

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



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OMEGAMON XE on zOS 5.1 Pub Links:



http://publib.boulder.ibm.com/infocenter/tivihelp/v15r1/index.jsp

OMEGAMON Enhanced 3270 User Interface Guide, the Common Planning and Configuration Guide, the PARMGEN Reference, and the Upgrade Guide, found below:

http://publib.boulder.ibm.com/infocenter/tivihelp/v15r1/com.ibm.omegamon_share.doc_623fp1/index.htm

