



## Exploring z/OS with OMEGAMON XE on z/OS:

## Providing Visibility and Monitoring into your System z environment

Joe Winterton, IBM Tivoli OMEGAMON

[josephw@us.ibm.com](mailto:josephw@us.ibm.com)

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## Agenda

- What is new with OMEGAMON XE on z/OS 4.2.0?
- z/OS Workloads - where is the pain today?
- Exploring one z/OS LPAR – Lets do it !
- Perplexed with your Sysplex?
- z196/z10 Processor's – Come in all shapes and sizes
- z/OS Storage – what's up with Virtual and Real?
- z/OS DASD, DASD and more DASD exploring
- Let OMEGAMON explore 24X7 for you !



## Exploring z/OS with OMEGAMON XE on z/OS

**What is new in OMEGAMON XE on  
z/OS 4.2.0?**

## OMEGAMON XE on z/OS 4.2.0 updates

- z/OS 1.12 Currency Support
- Enhanced Critical Memory Alerts using z/OS ENF signals
- Address Space Storage by Subpool and Key and LSQA
- Enhanced HiperDispatch support
- LPAR Group Unused Capacity

## OMEGAMON XE on z/OS 4.2.0 Important links:

zAdvisor: <http://www-01.ibm.com/software/tivoli/systemz-advisor/2009-12/omegamon-xe-version-420.html>

- Information Center:

<http://www.ibm.com/developerworks/wikis/display/tivolidoccentral/Tivoli+OMEGAMON+XE+on+zOS>

- Service Management Connect for System z (SMC)

<https://www.ibm.com/developerworks/servicemanagement/z/index.html>

- zWiki:

<http://www.ibm.com/developerworks/wikis/display/tivoliomegamon/Tivoli%20OMEGAMON%20XE%20on%20zOS>

# When Exploring – may need GPS/map to help navigate

The screenshot shows the 'XCF Paths Data for Sysplex - IBM-PSQEU4XHHBD - JWINT' application window. The left pane displays a tree view of system components, with 'LPAR400J:MVS:SYSPLX' and 'SP11' highlighted. The right pane shows a table of XCF paths information.

**SYSPLEX LEVEL on the Tree**

**LPAR LEVEL on the Tree**

Destination Device	Transport Class	Statu
ListStructure	DEFAULT	Working
4F68	TCLRG	Working
4E68	TCMED	Working
4F6A	DEFAULT	Working
CFList	DEFAULT	Working
06/29/07 08:03:58 LPAR400J SP22 CFList SP12 CFList	DEFAULT	Working
06/29/07 08:03:58 LPAR400J SP22 4F59 SP13 4F69	TCLRG	Working
06/29/07 08:03:58 LPAR400J SP22 4E59 SP13 4E69	TCMED	Working
06/29/07 08:03:58 LPAR400J SP22 4E5A SP13 4E6A	DEFAULT	Working
06/29/07 08:03:58 LPAR400J SP22 CFList SP13 CFList	DEFAULT	Working
06/29/07 08:03:58 LPAR400J SP22 4E5D SYSL 4E69	TCMED	Working
06/29/07 08:03:58 LPAR400J SP22 4E5E SYSL 4E6A	DEFAULT	Working
06/29/07 08:03:58 LPAR400J SP22 CFList SYSL CFList	DEFAULT	Working
	TCLRG	Working
	TCMED	Working
	DEFAULT	Working
	TCLRG	Working
	TCMED	Working
	DEFAULT	Working
	TCLRG	Working
	TCMED	Working
06/29/07 08:03:58 LPAR400J SP22 4E6E SYSG 4E6A	DEFAULT	Working
06/29/07 08:03:58 LPAR400J SP22 CFList SYSG CFList	DEFAULT	Working
06/29/07 08:03:58 LPAR400J SP22 4F4D SYSA 4F69	TCLRG	Working
06/29/07 08:03:58 LPAR400J SP22 4E4D SYSA 4E69	TCMED	Working
06/29/07 08:03:58 LPAR400J SP22 4E4E SYSA 4E6A	DEFAULT	Working
06/29/07 08:03:58 LPAR400J SP22 CFList SYSA CFList	DEFAULT	Working
06/29/07 08:03:58 LPAR400J SP22 4F5D	TCLRG	Restarting
06/29/07 08:03:58 LPAR400J SP12 ListStructure	ListStructure	DEFAULT Working
06/29/07 08:03:58 LPAR400J SP12 CFList SP23 CFList	DEFAULT	Working
06/29/07 08:03:58 LPAR400J SP12 CFList SP13 CFList	DEFAULT	Working
06/29/07 08:03:58 LPAR400J SP12 CFList SYSL CFList	DEFAULT	Working
06/29/07 08:03:58 LPAR400J SP12 CFList SP22 CFList	DEFAULT	Working
06/29/07 08:03:58 LPAR400J SP12 CFList SP11 CFList	DEFAULT	Working
06/29/07 08:03:58 LPAR400J SP12 CFList SYSG CFList	DEFAULT	Working
06/29/07 08:03:58 LPAR400J SP12 CFList SYSA CFList	DEFAULT	Working



## Exploring z/OS with OMEGAMON XE on z/OS

**z/OS Workloads – Where is our pain today?**

# Sysplex Service Class – Pain identification

The screenshot displays the 'Service Classes Data for Sysplex' interface. It includes three charts: 'Performance Indices' (Where performance index greater than 0), 'Actual Host' (Where Actual Host value greater than 0), and 'Transactions / Second' (Where transaction rate greater than 0). Below the charts is a table of service class data.

Service Class	Goal	Goal Importance	Actual Host	Performance Index	Worst Performance Index	Transaction Rate	Actual Network	Actual Total	Workload	Period	Goal Type
IMSMPRS	Velocity(+I/O) > 30	High	0	30.00	30.00	0.0	0	0	BATCH	1	Velocio
OMVSJOBS	Velocity(+I/O) > 20	High	0	20.00	20.00	0.0	0	0	TSO	2	Velocio
OMVSJOBS	Velocity(+I/O) > 10	Medium	0	10.00	10.00	0.0	0	0	TSO	3	Velocio
STC	Velocity(+I/O) > 30	High	33	0.90	30.00	0.0	0	0	TSO	1	Velocio
STCCMS	Velocity(+I/O) > 20	Medium	38	0.52	0.86	0.0	0	0	TSO	2	Velocio
TSO	Pct Resp 40 % < 750.0 ms	Highest	375	0.50	0.50	0.3	0	375	TSO	2	PctResp
TSO	Velocity(+I/O) > 30	Medium	61	0.49	0.49	0.0	0	61	TSO	4	Velocio
BATCH	Velocity(+I/O) > 15	Medium	31	0.48	15.00	0.0	0	31	BATCH	2	Velocio
STC	Velocity(+I/O) > 20	Medium	42	0.47	0.80	0.0	0	42	STC	2	Velocio
STCONLN	Velocity(+I/O) > 20	High	54	0.37	20.00	0.0	0	0	TSO	2	Velocio
STCPROD	Velocity(+I/O) > 20	High	55	0.36	1.66	0.0	0	0	TSO	2	Velocio
TSO	Avg Resp < 5.0 s	High	1128	0.22	0.22	0.0	0	0	TSO	2	PctResp
TSO	Avg Resp < 500.0 ms	Highest	43	0.08	0.08	0.0	0	0	TSO	2	PctResp
STCCMS	Velocity(+I/O) > 30	High	0	0.00	0.00	0.0	0	0	TSO	2	Velocio
OMVSJOBS	Velocity(+I/O) > 20	Highest	0	0.00	0.00	0.0	0	0	TSO	2	Velocio
SVSOTHER	Velocity(+I/O) > 20	Unavailable	0	0.00	0.00	0.0	0	0	TSO	2	Velocio

Performance index value scaled to hundredths, calculated for this service class on an individual z/OS image.

What Service Class is having issues?

Are the issues with lower importance work?



# Service Class – Sysplex WebSphere Addr Spaces

Address Spaces Workspace for Service Class - IBM-0792DD00843 - SYSADMIN

View: Physical

z/OS Systems

- UTCPLEXJ8:MVS:SYSPLEX
  - Coupling Facility Policy Data for Sysplex
  - Coupling Facility Structures Data for Sysplex
  - Coupling Facility Systems Data for Sysplex
  - Global Enqueue Data for Sysplex
  - GRS Ring Systems Data for Sysplex
  - Report Classes Data for Sysplex
  - Resource Groups Data for Sysplex
  - Service Classes Data for Sysplex
  - Service Definition Data for Sysplex
  - Shared DASD Groups Data For Sysplex
  - XCF Groups Data for Sysplex

Physical

Velocity and CPU Percent

Where Velocity or any Processor% greater than 0

Pages and I/O per Second

Where Page or I/O Rate greater than 0

Central and Expanded Storage F...

Address Spaces for Service Class

Address Space	System Name	ASID	Report Class	Velocity	Page Rate	CSTOR Frames	ESTOR Frames	I/O Rate	CPU Percent	IFA Percent	IFA On CP Percent	zIIP Percent	zIIP On CP Percent
WP0WBJ80	J80	0X01BF	RWASCR	86.6	0.0	5973	0	0.1	12.1	0.0	0.0	0.0	0.0
WP0WBJC0	JC0	0X0262	RWASCR	76.4	0.0	6161	0	0.1	7.2	0.0	0.0	0.0	0.0
WSP1S48S	J80	0X01D7	RWASCR	0.0	0.0	148000	0	306.8	5.3	0.0	0.0	0.0	0.0
WSP1S28S	J80	0X01D5	RWASCR	0.0	0.0	149864	0	148.3	1.7	0.0	0.0	0.0	0.0
WSP1S48	J80	0X01C8	RWASCR	4.4	0.0	52883	0	2.8	0.9	0.0	0.0	0.0	0.0
WSP1A8	J80	0X01C3	RWASCR	0	0	0	0	0	0	0	0	0	0
WSP1S28	J80	0X01C5	RWASCR	3	0	0	0	0	0	0	0	0	0
WP2DMG	JC0	0X0239	RWASCR	0	0	0	0	0	0	0	0	0	0
WP2AGNC	JC0	0X0249	RWASCR	0	0	0	0	0	0	0	0	0	0
WT9AGNC	JC0	0X0255	WT9STNA	0	0	0	0	0	0	0	0	0	0
WSP1M	J80	0X01C2	RWASCR	0	0	0	0	0	0	0	0	0	0
WP0AGNC	JC0	0X0240	RWASCR	0	0	0	0	0	0	0	0	0	0
WP0AGN8	J80	0X0190	RWASCR	0	0	0	0	0	0	0	0	0	0
WT9CA00	JC0	0X0243	WT9ST00	0	0	0	0	0	0	0	0	0	0
WP0SR0CA	JC0	0X025C	RWASCR	0	0	0	0	0	0	0	0	0	0
WP0SR28	J80	0X01EF	RWASCR	0	0	0	0	0	0	0	0	0	0
WP0SR08A	J80	0X01E3	RWASCR	0	0	0	0	0	0	0	0	0	0

Hub Time: Tue, 06/26/2007 01:52 PM Server Available

Address Spaces Workspace for Service Class - IBM-0792DD00843 - SYSADMIN

Tuesday 6/26/2007

**What LPAR and What Address Space in this Sysplex Service Class are needing what resources?**

# Service Class LPAR WebSphere Addr Space CPU

The screenshot displays the 'Address Space CPU Usage Class and Period' tool. The main window shows a 3D bar chart titled 'CPU Usage' with a y-axis from 0 to 14. A blue callout bubble points to the chart with the text: "High end cpu users" on this LPAR?". Below the chart is a table titled 'Address Space CPU Utilization' for System J80, Service Class WI2VEL50, Period 1. The table lists various jobs and their CPU utilization percentages.

SvcClass	SvcClass Period	Job Name	Step Name	Proc Step	ASID	JESJOBID	CPU Percent	TCB Percent	SRB Percent	IFA Percent	IFA on CP Percent	zIIP Percent	zIIP on CP Percent	Ir Er
WI2VEL50	1	WPOWBJ80	WPOWBJ80	WPOWBSRV	0X01BF	S0055450	13.0	13.0	0.0	0.0	0.0	0.0	0.0	
WI2VEL50	1	WSP1M	WSP1M	BBOCTL	0X01C2	S0006986	0.4	0.0	0.0	0.4	0.0	0.0	0.0	
WI2VEL50	1	WSP1S28	WSP1S28	BBOCTL	0X01C5	S0006988	0.4	0.4	0.0	0.0	0.0	0.0	0.0	
WI2VEL50	1	WSP1S48	WSP1S48	BBOCTL	0X01C8	S0006990	0.4	0.0	0.0	0.4	0.0	0.0	0.0	
WI2VEL50	1	WSP1S58S	WSP1S58S	BBOSR	0X01D6	S0007037	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
WI2VEL50	1	WSP1S48S	WSP1S48S	BBOSR	0X01D7	S0007038	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
WI2VEL50	1	WSP1S98S	WSP1S98S	BBOSR	0X01D9	S0007041	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
WI2VEL50	1	WSP1MS	WSP1MS	BBOSR	0X01DA	S0007059	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
WI2VEL50	1	WPOSRO8A	WPOSRO8A	BBOSR	0X01E3	S0149590	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
WI2VEL50	1	WP1DMGS	WP1DMGS	BBOSR	0X01E7	S0051606	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

For System J80 Service Class WI2VEL50 Period 1

Hub Time: Tue, 06/26/2007 01:39 PM Server Available Address Space CPU Usage Class and Period - IBM-0792DD00843 - SYSADMIN

# Service Class – Sysplex CICS Addr Spaces CPU

Address Spaces Workspace for Service Class - IBM-0792DD00843 - SYSADMIN

View: Physical

z/OS Systems

- UTCPLXJ8:MVS:SYSPLEX
  - Coupling Facility Policy Data for Sysplex
  - Coupling Facility Structures Data for Sysplex
  - Coupling Facility Systems Data for Sysplex
  - Global Enqueue Data for Sysplex
  - GRS Ring Systems Data for Sysplex
  - Report Classes Data for Sysplex
  - Resource Groups Data for Sysplex
  - Service Classes Data for Sysplex
  - Service Definition Data for Sysplex
  - Shared DASD Groups Data for Sysplex
  - XCF Groups Data for Sysplex
  - XCF Paths Data for Sysplex
  - XCF Systems Data for Sysplex
- J80
- DB2

Physical

Velocity and CPU Percent

Where Velocity or any Processor% greater than 0

Pages and I/O per Second

Where Page or I/O Rate greater than 0

Central and Expanded Storage F...

Where Central or Expanded greater than 0

Address Space	System Name	ASID	Report Class	Velocity	Page Rate	CSTOR Frames	ESTOR Frames	I/O Rate	CPU Percent	IFA Percent	IFA On CP Percent	zIIP Percent	zIIP On CP Percent
CICS3A8A	J80	0X0187	SYSSTC	28.5	0.0	23739	0	0.0	71.7	0.0	0.0	0.0	0.0
CICSCT8A	J80	0X0181	SYSSTC	77.7	0.0	20793	0	5.5	9.9	0.0			
CICSCA8B	J80	0X017C	SYSSTC	50.0	0.0	56603	0	39.4	8.6	0.0			
CICSCA8C	J80	0X017D	SYSSTC	22.7	0.0	55387	0	38.0	8.4	0.0			
CICSCA8A	J80	0X017B	SYSSTC	52.3	0.0	56432	0	38.1	8.3	0.0			
CICS1A8A	J80	0X0178	SYSSTC	77.7	0.0	13374	0	4.7	5.8	0.0			
CICS1A8C	J80	0X017A	SYSSTC	50.0	0.0	13244	0	4.3	5.2	0.0			
CICS1A8B	J80	0X0179	SYSSTC	100.0	0.0	13227	0	4.0	4.7	0.0			
CICSCACB	JC0	0X017E	SYSSTC	100.0	0.0	40611	0	13.0	3.6	0.0			
CICSCACA	JC0	0X017B	SYSSTC	85.7	0.0	44186	0	11.4	3.3	0.0			
CICSCACC	JC0	0X0180	SYSSTC	80.0	0.0	39234	0	11.4	3.1	0.0	0.0	0.0	0.0
CICS2T8A	J80	0X01DB	SYSSTC	100.0	0.0	18969	0	0.0	3.0	0.0	0.0	0.0	0.0
CICS1T8A	J80	0X0149	SYSSTC	50.0	0.0	21200	0	1.1	2.9	0.0	0.0	0.0	0.0

For Service Class CICSRCN on UTCPLXJ8

Hub Time: Tue, 06/26/2007 01:52 PM Server Available Address Spaces Workspace for Service Class - IBM-0792DD00843 - SYSADMIN

100%

1:55 PM  
Tuesday  
6/26/2007

**We see the I/O regions**

# Service Class – LPAR Navigation to Enclaves

**What about DDF, zIIP, Enclave usage and issues?**

The screenshot displays the WLM Service Class Resources interface for System J80. The main window shows a table of service classes with columns for Service Class, Period, Duration, Average Response Time, Performance Index, Actual Host, Percent CPU, Percent IFA, Percent IFA on CP, and Percent zIIP. A context menu is open over the table, listing options like 'Enclaves in Service Class Period' and 'Address Space Bottlenecks in Service Class Period'. To the right, there are three charts: 'I/Os Per Second', 'Average Storage Use in Bytes', and 'Average Storage Use in Bytes'. The system status bar at the bottom shows 'Hub Time: Tue, 06/26/2007 12:36 PM', 'Server Available', and 'WLM Service Class Resources - IBM-0792DD00843 - SYSADMIN'.

Service Class	Period	Duration	Average Response Time	Performance Index	Actual Host	Percent CPU	Percent IFA	Percent IFA on CP	Percent zIIP
STCI2V30	1	30	0	6.00	5	0.1	0.0	0.0	0.0
STCI2V40	1	40	0	0.48	82	16.3	0.0	0.0	0.0
STCI2V50	1	50	66767	0.63	79	5.6	0.0	0.0	0.0
STCI2V60	1	60	0	0.68	87	2.0	0.0	0.0	0.0
STCI2V70	1	70	0	0.89	78	20.2	0.0	0.0	0.0
STCI3V40	1	40	0	0.00	0	0.0	0.0	0.0	0.0
STCI3V50	1	50	0	0.00	0	0.0	0.0	0.0	0.0
Enclaves in Service Class Period		5	0	0.10	46	67.4	0.8	0.3	34.5
Address Space Bottlenecks in Service Class Period		20	50000	0	0	0.0	0.0	0.0	0.0
Address Space CPU Utilization for ServClass Period		10	0	0.00	0	0.0	0.0	0.0	0.0
Link Wizard...		30	3000	2389	100	0.2	0.0	0.0	0.0
Link Anchor...		10	0	43	94	2.9	0.0	0.0	0.0
		10	0	3195	40	83.6	39.4	19.0	0.0

# Service Class – LPAR DDF Enclave CPU usage

**Check out Enclave CPU usage by Token**

Token	Owning System	Owning Jobname	Owning JESJOBID	Owning ASID	SubType	Type	Status	CPU Percent	IFA Percent	IFA on CP Percent	zIIP Percent	zIIP on CP Percent	
00000094006EA3D7	J80	WP11DIST	S0006777	0X017E	DDF	Indep	Inactive	0.0	0.0	0.0	0.0	0.0	0000000000000000
000000CC003738E5	J80	WP11DIST	S0006777	0X017E	DDF	Indep	Inactive	0.0	0.0	0.0	0.0	0.0	0000000000000000
000001B4006D4A01	J80	WP11DIST	S0006777	0X017E	DDF	Indep	Active	13.4	0.0	0.0	7.3	0.0	0000000000000000
000001FC006D4A02	J80	WP11DIST	S0006777	0X017E	DDF	Indep	Active	14.7	0.0	0.0	7.8	0.0	0000000000000000
00000244006D4A25	J80	WP11DIST	S0006777	0X017E	DDF	Indep	Active	39.1	0.0	0.0	21.3	0.0	0000000000000000
00000264006D4A03	J80	WP11DIST	S0006777	0X017E	DDF	Indep	Active	13.9	0.0	0.0	7.3	0.0	0000000000000000
0000026C006D4A34	J80	WP11DIST	S0006777	0X017E	DDF	Indep	Active	16.5	0.0	0.0	9.1	0.0	0000000000000000
000002B8006C979C	J80	WP11DIST	S0006777	0X017E	DDF	Indep	Inactive	0.0	0.0	0.0	0.0	0.0	0000000000000000
00000310006E5FC1	J80	DBS1DIST	S0006482	0X014B	DDF	Indep	Active	0.4	0.0	0.0	0.4	0.0	0000000000000000

For Service Class STCI5V05 Period 1 System J80

Hub Time: Tue, 06/26/2007 12:35 PM Server Available Enclaves in Selected Service Class and Period - IBM-0792DD00843 - SYSADMIN

# Service Class – LPAR Address Space CPU Usage

Address Space CPU Usage Class and Period - IBM-0792DD00843 - SYSADMIN

File Edit View Help

View: Phys...

Overview  
Activity  
Processors  
Summary

**Any zAAP rolover to CP's?**

Where CPU Percent is greater than 0

SvcClass	Proc Step	ASID	JESJOBID	CPU Percent	TCB Percent	SRB Percent	IFA Percent	IFA on CP Percent	zIIP Percent	zIIP on CP Percent	Independent Enclave CPU%
STCOMVS	STEP1	0X01CB	S0006995	14.7	11.7	3.0	0.0	0.0	0.0	0.0	0.0
STCOMVS	STEP1	0X02C5	S0051930	23.4	0.0	0.0	13.0	10.4	0.0	0.0	0.0
STCOMVS	STEP1	0X02CE	S0038864	18.2	3.0	0.0	7.3	7.8	0.0	0.0	0.0
STCOMVS	3 U0230183	STEP1	0X02D0	S0145968	15.6	1.7	0.0	9.5	4.3	0.0	0.0
STCOMVS	3 U0230253	STEP1	0X02D1	S0019220	15.2	0.4	0.0	8.6	6.0	0.0	0.0
STCOMVS	3 U0230073	STEP1	0X02D4	S0145977	21.7	1.3	0.0	10.4	10.0	0.0	0.0
STCOMVS	3 U0230163	STEP1	0X02DE	S0018321	26.0	0.0	0.0	16.0	10.0	0.0	0.0
STCOMVS	3 U0230113	STEP1	0X02E5	S0053164	27.8	23.4	0.0	1.7	2.6	0.0	0.0

Microsoft Excel - ~0697552.xls

100%

12:30 PM  
Tuesday  
6/26/2007

For System J80 Service Class STCOMVS Period 3

Hub Time: Tue, 06/26/2007 12:27 PM Server Available Address Space CPU Usage Class and Period - IBM-0792DD00843 - SYSADMIN

# LPAR WebSphere Workflow Analysis

Workflow Analysis Workspace for Service Class - IBM-0792DD00843 - SYSADMIN

File Edit View Help

View: Physical

Execution S...

Windows Systems

z/OS Systems

UTCPLXJ8:MVS:SYSPLEX

- Coupling Facility Policy Data for Sysplex
- Coupling Facility Structures Data for Sysplex
- Coupling Facility Systems Data for Sysplex
- Global Enqueue Data for Sysplex
- GRS Ring Systems Data for Sysplex
- Report Classes Data for Sysplex
- Resource Groups Data for Sysplex
- Service Classes Data for Sysplex
- Service Definition Data for Sysplex
- Shared DASD Groups Data For Sysplex
- XCF Groups Data for Sysplex
- XCF Paths Data for Sysplex
- XCF Systems Data for Sysplex

J80

- DB2
- IMS
- MVS Operating System
- UTCPLXJ8:J80:MVSSYS

Physical

Workflow Analysis

Using CPU CPU Wait Using IFA On CP IFA Wait Using zIIP On CP zIIP Wait Resource Group Capping Common Page-In Wait Hiperspace Page-In Wait Private Page-In Wait VIO Wait Cross Memory Wait Enqueue Wait

Using CPU	CPU Wait	Using IFA On CP	IFA Wait	Using zIIP On CP	zIIP Wait	Resource Group Capping	Common Page-In Wait	Hiperspace Page-In Wait	Private Page-In Wait	VIO Wait	Cross Memory Wait	Enqueue Wait
0.8	0.1	0.9	0.2	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

27.1 (W12VEL50)

Other OMEGAMON's on the Tree

For Service Class W12VEL50 on UTCPLXJ8

Hub Time: Tue, 06/26/2007 01:37 PM Server Available Workflow Analysis Workspace for Service Class - IBM-0792DD00843 - SYSADMIN

100%

1:40 PM Tuesday 6/26/2007

# Service Class – LPAR Address Space Bottlenecks

Address Space Bottlenecks in Service Class/Period - IBM-0792DD00843 - SYSADMIN

View: Physical

Refresh Now (F5) rates

Where Percent is greater than 5

Address Space Bottlenecks Summary - Contention (%) by Resource																		
ASID	Job Name	Step Name	Proc Step	Using CPU	Using IFA	Using zIIP	CPU Wait	IFA Wait	zIIP Wait	Active I/O	Queued I/O	Enqueue Wait	Tape Mount	Resource Group Capping	Paging Wait	Server Wait	JES Wait	HS Wait
0X01CB	WSWS2	STEP1		9.0	0.0	0.0	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0X02C5	U0230263	STEP1		25.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0X02D1	U0230133	STEP1		0.0	11.1	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0X02D3	U0230143	STEP1		20.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Brain View

Left Brain View

For System J80 Service Class STCOMVS Period 3

Hub Time: Tue, 06/26/2007 12:30 F Server Available Address Space Bottlenecks in Service Class/Period - IBM-0792DD00843 - SYSADMIN

12:33 PM Tuesday 6/26/2007





## Exploring z/OS with OMEGAMON XE on z/OS

**Exploring an LPAR – Lets do it !**

# z/OS LPAR/System 4.2.0 Health workspace

**2) CPU running hot?**

**1) Warnings to review**

**3) Which address spaces using CPU the most?**

**5) Common Storage usage issues?**

**4) Any JOBS waiting for datasets or other ENQ lock out issues?**

# CPU Loop Warning alert – helps with loopers:

**Situation Event Console**

Severity	Status	Owner	Situation Name	Display Item	Source	Impact
Warning	Open	KM5_CPU_Loop_Warn	KM5_CPU_Loop_Warn		M542DEMO:SP13:MVSSYS	Address Space Overview
Warning	Open	KM5_No_Sysplex_DASD_Filter_Warn	KM5_No_Sysplex_DASD_Filter_Warn		M542DEMO:MVS:SYSPLEX	Shared DASD Groups Data For Sysplex

**Message Log**

Status	ID	Display Item	Origin Node	Global Timestamp	Local Timestamp	Node	Type
Open	KM5_CPU_Loop_Warn		M542DEMO:SP13:MVSSYS	11/27/08 13:10:17	11/27/08 13:10:16	DBSP13:CMS	Sampled
Open	KM5_No_Sysplex_DASD_Filter_Warn		M542DEMO:MVS:SYSPLEX	11/25/08 00:41:05	11/25/08 00:41:05	DBSP11:CMS	Sampled
Open	Sysplex_Workloads_Perfdx_Crit		M542DEMO:MVS:SYSPLEX	11/24/08 23:45:36	11/24/08 23:45:36	DBSYSG:CMS	Sampled
Open	KM5_No_Sysplex_DASD_Filter_Warn		M542DEMO:MVS:SYSPLEX	11/24/08 15:45:35	11/24/08 15:45:35	DBSYSG:CMS	Sampled
Open	KM5_No_Sysplex_DASD_Filter_Warn		M542DEMO:MVS:SYSPLEX	11/24/08 15:44:22	11/24/08 15:44:22	DBSP22:CMS	Sampled

**Open Situation Counts - Last 24 Hours**

Sysplex\_Workloads\_Perfdx\_Crit

KM5\_CPU\_Loop\_Warn

Count

Hub Time: Thu, 11/27/2008 01:57 PM

Server Available

Enterprise Status - IBM-6939C1631B9 - Joe Winterton

# Development Systems = Target Rich Environment:

**Event Details - Similar by Situation Name - IBM-6939C1631B9 - Joe Winterton**

File Edit View Help

Navigator View: Physical

Enterprise

Logical Physical

**Selected Event Using ID**

Severity	Status	Owner	Situation Name	Display Item	Source	Impact	Opened	Local Time
Warning	Open		KM5_CPU_Loop_Warn		M542DEMO:SP13:MVSSYS	Address Space Overview	11/27/08 13:10:17	11/27/08 13:10:17

**Similar Events by Situation Name**

Severity	Status	Owner	Situation Name	Display Item	Source	Impact	Opened	Local Time
Warning	Open		KM5_CPU_Loop_Warn		M542DEMO:SP13:MVSSYS	Address Space Overview	11/27/08 13:10:17	11/27/08 13:10:17
Warning	Closed		KM5_CPU_Loop_Warn		M542DEMO:SYS:MVSSYS	Address Space Overview	11/20/08 13:47:55	11/20/08 13:47:55
Warning	Closed		KM5_CPU_Loop_Warn		M542DEMO:SP22:MVSSYS	Address Space Overview	11/20/08 11:38:15	11/20/08 11:38:15
Warning	Closed		KM5_CPU_Loop_Warn		M542DEMO:SP13:MVSSYS	Address Space Overview	11/19/08 14:53:27	11/19/08 14:53:27
Warning	Closed		KM5_CPU_Loop_Warn		M542DEMO:SP22:MVSSYS	Address Space Overview	11/18/08 14:22:27	11/18/08 14:22:27
Warning	Closed		KM5_CPU_Loop_Warn		M542DEMO:SP12:MVSSYS	Address Space Overview	11/11/08 08:23:05	11/11/08 08:23:05
Warning	Closed		KM5_CPU_Loop_Warn		M542DEMO:SYS:MVSSYS	Address Space Overview	11/06/08 10:19:00	11/06/08 10:19:00
Warning	Closed		KM5_CPU_Loop_Warn		M542DEMO:SYS:MVSSYS	Address Space Overview	11/04/08 16:14:00	11/04/08 16:14:00

Event Notes Location: [https://&request\\_type=EVENTRESULTN,object\\_type=REPORT,object\\_id=KM5\\_CPU\\_Loop\\_](https://&request_type=EVENTRESULTN,object_type=REPORT,object_id=KM5_CPU_Loop_)

Event Tools Location: <http://ibm-6939c1631b9.1920///cnp/kdh/lib/classes/candle/v>

**Best Practices**

**Best practices and tools for IT service management**

Search for and download integrated extensions for IBM service management applications from the [IBM Tivoli Open Process Automation Library \(OPAL\)](#) to help with diagnosing problems.

Get the *Log and Trace Analyzer for Java Desktop* for evaluating multiple event and error logs; after you have installed it, [click here](#) to start. The Log and Trace Analyzer enables you evaluate multiple event and error logs with time synchronization.

Hub Time: Thu, 11/27/2008 01:58 PM Server Available Event Details - Similar by Situation Name - IBM-6939C1631B9 - Joe Winterton

**For the Month of Nov - List of 8 Looper warnings on 5 LPARs detected !**

# LPAR – SP13 – JOB = PLDSIP51:

z/OS System Overview - IBM-6939C1631B9 - Joe Winterton

File Edit View Help

**Navigator**

View: Physical

- GIS Ring Systems Data for Sysplex
- Report Classes Data for Sysplex
- Resource Groups Data for Sysplex
- Service Classes Data for Sysplex
- Service Definition Data for Sysplex
- Shared DASD Groups Data For Sysplex
- XCF Groups Data for Sysplex
- XCF Paths Data for Sysplex
- XCF Systems Data for Sysplex
- SP11
- SP12
- SP13
  - MVS Operating System
    - M542DEMO.SP13.MVSSYS
- SP22
- SP23
- SYS

Logical Physical

**Workload CPU Usage**

- Average CPU Percent
- Total TCB%
- Total SRB%
- Average IFA Percent
- Average IFA on CP Percent
- Average zIIP Percent
- Average zIIP on CP Percent
- MVS Overhead

**Common Storage**

In Use Percent

**Situation Event Console**

(Active) Total Events: 1 Item Filter: M542DEMO

Severity	Status	Owner	Situation Name	Display Item	Source
Warning	Open		KM5_CPU_Loop_Warn		M542DEMO:SP13:MVSSYS

**Address Space CPU Utilization**

Page: 1 of 2

Job Name	Step Name	Proc Step	SvcClass	SvcClass Period	ASID	JESJOBID	CPU Percent	TCB Percent	SRB Percent	IFA Percent	IFA on CP Percent	zIIP Percent	zIIP on CP Percent	Independent Enclave zIIP% on CP	Total Enclave Count	Active Enclave Count	Inactive Enclave Count	Independent Active Enclave Count	Independ. Encl.
PLDSIP51	PLDSIP51	AGENT	STCCMS	2	0X00B8	STC27429	88.6	88.6	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0
M53042RD	M53042RD	TEMS	STC	2	0X0071	STC27137	4.3	4.3	0.0	0.0	0.0	0.0	0.0	0.0	1	0	1	0	0
WLM	WLM	IEFPROC	SYSTEM	1	0X000B		0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0
§34SDSST	§34SDSST	TEMS	STCPROD	1	0X0076	STC27050	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0

**Active Users of Common Storage**

Page: 1 of 3

Job Name	ASID	CSA Orphaned	CSA In Use	% of Total CSA	ECSA Orphaned	ECSA In Use	% of Total ECSA	SQA Orphaned	SQA In Use	% of Total
*SYSTEM*	0X0000	No	166912	3.3	No	41943040	22.5	No	314368	
*MASTER*	0X0001	No	89088	1.7	No	2221056	1.2	No	26624	
PCAUTH	0X0002	unavailable	0	0.0	unavailable	0	0.0	No	128	
RASP	0X0003	unavailable	0	0.0	unavailable	0	0.0	unavailable	0	
TRACE	0X0004	unavailable	0	0.0	unavailable	0	0.0	unavailable	0	

**Enqueue and Reserve**

Major Name
KLVGLOC

Hub Time: Thu, 11/27/2008 01:59 PM

Server Available

z/OS System Overview - IBM-6939C1631B9 - Joe Winterton

**Job – PLDSIP51 is detected as a looper !!**

# JOB – PLDSIP51 – Wait/use details:

Address Space Bottlenecks Detail - IBM-6939C1631B9 - Joe Winterton

File Edit View Help

Navigator View: Physical

- M542DEMO:SP13:MVSSYS
  - Address Space Overview
  - Channel Path Activity
  - Common Storage
  - Cryptographic Coprocessors
  - DASD MVS
  - DASD MVS Devices
  - Enclave Information
  - Enqueue, Reserve, and Lock Summary
  - LPAR Clusters
  - Operator Alerts
  - Page Dataset Activity
  - Real Storage
  - System CPU Utilization
  - System Paging Activity
  - Tape Drives
  - User Response Time

Logical Physical

Execution States for PLDSIP51

Attribute	Percent	Resource
Using CPU	92.1	
CPU Loop Index	100.0	
CPU Wait	7.8	

Only using CPU and waiting on CPU

Address Space Bottlenecks Detail - Contention (%) by Resource

ASID	Job Name	Step Name	Proc Step	Service Class	Using CPU	Using IFA	Using zIIP	CPU Wait	IFA Wait	zIIP Wait	CPU Loop Index	Active I/O	Queued I/O	Enqueue Wait	Tape Mount	Resource Group Capping	VIO Wait	Common Page-In	Hiperspace Page-In	Private Page-In	Cross Memory Page-In	Shared Pages	Server Paging	Server Swap-In	Server MPL
0X00B8	PLDSIP51	PLDSIP51	AGENT	ST...	92.1	0.0	0.0	7.8	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Magic happens here in 4.2.0 – Does the address space do any NON CPU items????

For System SP13

Hub Time: Thu, 11/27/2008 01:59 PM Server Available Address Space Bottlenecks Detail - IBM-6939C1631B9 - Joe Winterton

# Look at detailed CPU Use numbers:

Address Space CPU Usage Details - IBM-6939C1631B9 - Joe Winterton

File Edit View Help

Navigator View: Physical

- Shared DASD Groups Data For Sysplex
- XCF Groups Data for Sysplex
- XCF Paths Data for Sysplex
- XCF Systems Data for Sysplex
- SP11
- SP12
- SP13
  - MVS Operating System
    - M542DEMO:SP13:MVSSYS
      - Address Space Overview
      - Channel Path Activity
      - Common Storage
      - Cryptographic Coprocessors
      - DASD MVS
      - DASD MVS Devices
      - Enclave Information
      - Enqueue, Reserve, and Lock Summary

Logical Physical

Short Term CPU Usage

Job CPU Usage

Address Space CPU Usage Details

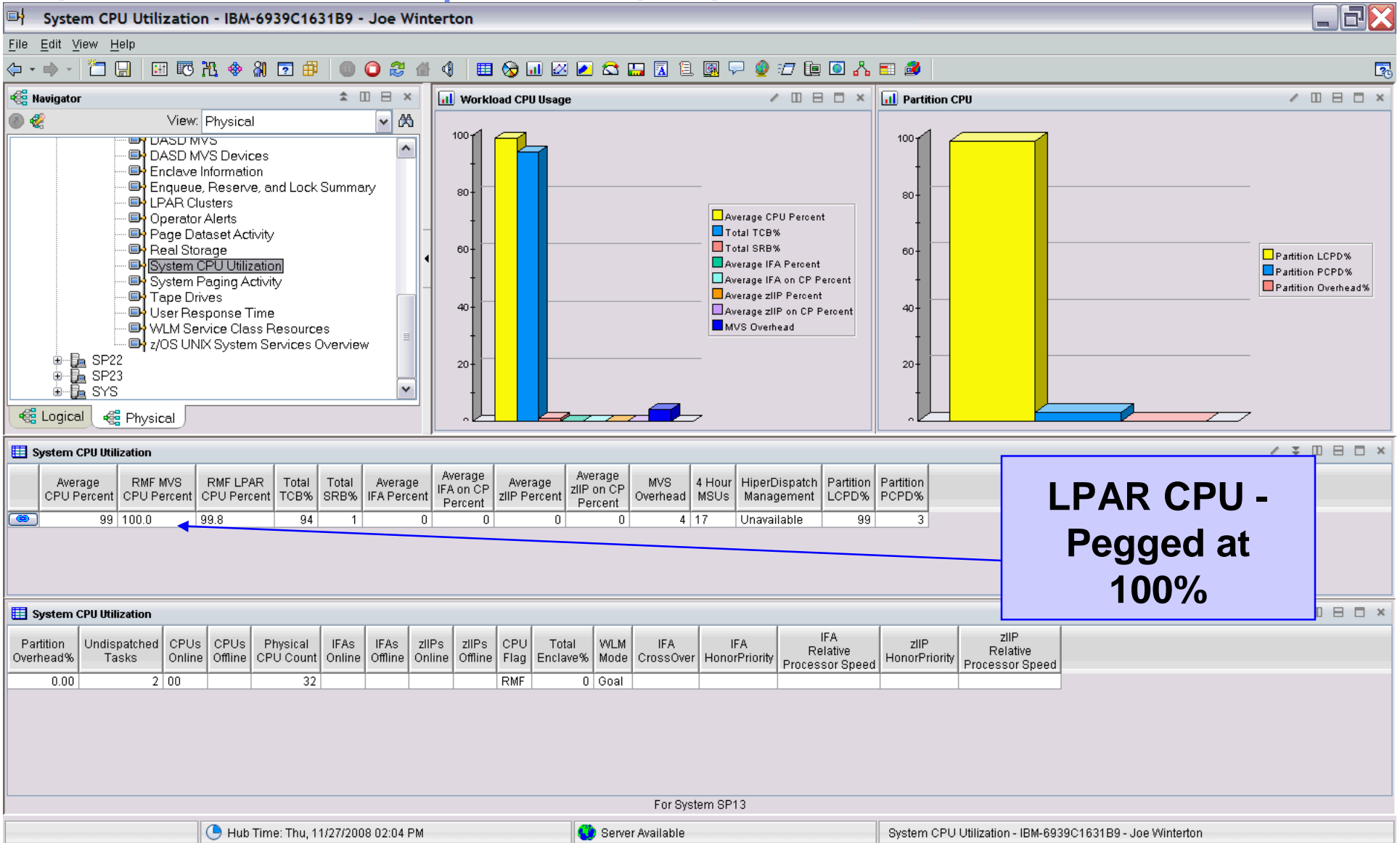
Job Name	Step Name	ASID	Type	CPU Percent	TCB Percent	SRB Percent	IFA Percent	IFA on CP Percent	zIIP Percent	zIIP on CP Percent	Job CPU Percent	Job TCB Percent	Job SRB Percent	Job Additional SRB Service Percent	Job Preemptable Home SRB Service Percent	Job CPU Time	Job TCB Time	Job SRB Time	Job Additional SRB Service Time	Job Preemptable Home SRB Service Time	Job Start Time
PLDSIP51	PLDSIP51	0X00B8	STC	91.7	91.7	0.0	0.0	0.0	0.0	0.0	32.8	32.8	0.1	0.0	0.0	3,839.28	3,838.95	0.33	0.00	0.00	11/27/08 10:45:5

For System SP13

Hub Time: Thu, 11/27/2008 02:00 PM Server Available Address Space CPU Usage Details - IBM-6939C1631B9 - Joe Winterton

**Since started at 10:45 am till now 2:00 pm ,used 3839 cpu tcb seconds**

# Overall LPAR impact at CPU use level:



**LPAR CPU - Pegged at 100%**



# Check back at usage – up to 5676 secs cpu:

Address Space CPU Usage Details - IBM-6939C1631B9 - Joe Winterton

File Edit View Help

Navigator View: Physical

- Service Classes Data for Sysplex
- Service Definition Data for Sysplex
- Shared DASD Groups Data For Sysplex
- XCF Groups Data for Sysplex
- XCF Paths Data for Sysplex
- XCF Systems Data for Sysplex
- SP11
- SP12
- SP13
  - MVS Operating System
    - M542DEMO:SP13:MYSSYS
      - Address Space Overview
        - KM5\_CPU\_Loop\_Warn
        - Channel Path Activity
        - Common Storage
        - Cryptographic Coprocessors
        - DASD MVS

Logical Physical

Short Term CPU Usage

Job CPU Usage

Address Space CPU Usage Details

Job Name	Step Name	ASID	Type	CPU Percent	TCB Percent	SRB Percent	IFA Percent	IFA on CP Percent	zIIP Percent	zIIP on CP Percent	Job CPU Percent	Job TCB Percent	Job SRB Percent	Job Additional SRB Service Percent	Job Preemptable Home SRB Service Percent	Job CPU Time	Job TCB Time	Job SRB Time	Job Additional SRB Service Time	Job Preemptable Home SRB Service Time	Job Start Time
PLDSIP51	PLDSIP51	0X00B8	STC	92.6	92.6	0.0	0.0	0.0	0.0	0.0	41.3	41.3	0.1	0.0	0.0	5,676.95	5,676.60	0.35	0.00	0.00	11/27/08 10:45:5

Physical View

By 2:34 PM now up to 5676 tcb cpu seconds !!

For System SP13

Hub Time: Thu, 11/27/2008 02:34 PM Server Available Address Space CPU Usage Details - IBM-6939C1631B9 - Joe Winterton



# Additional Inspect Data Shows CSECT Hot Spots

Inspect Address Space CPU Use - LTLFRARI - SYSADMIN

View: Physical

Sampling Statistics

Interval	Samples Taken	Samples Used
5	1000	1000

Agent Messages

Message

KM3IN008I GRANULARITY SET TO 0X00000100

CPU Usage for ASID: 002E JOB: LOOPER

le	Load Module ASID Decimal	Load Module ASID Jobname	Load Module CPU % of job	Load Module CPU % of TCB	CSECT Name	CSECT Offset in load module	CSECT Address	CSECT CPU % of load module	CSECT CPU % of TCB	CSECT CPU % of job	Offset in CSECT	CPU % of CSECT
-	-	-	100.0	100.0	IXXRIN	0X000068B0	0X04BF18B0	47.0	47.0	47.0	0X00000400	31.0
-	-	-	-	-	-	-	-	-	-	-	0X00000200	17.3
-	-	-	-	-	-	-	-	-	-	-	0X00000300	15.1
-	-	-	-	-	-	-	-	-	-	-	0X00000F00	14.1
-	-	-	-	-	-	-	-	-	-	-	0X00001100	13.7
-	-	-	-	-	-	-	-	-	-	-	0X00001000	4.5
-	-	-	-	-	-	-	-	-	-	-	0X00001400	2.2
-	-	-	-	-	-	-	-	-	-	-	0X00001500	1.3
-	-	-	-	-	-	-	-	-	-	-	0X00001200	0.3
-	-	-	-	-	IXXRVA	0X000094F8	0X04BF44F8	23.1	23.1	23.1	0X00000500	37.3
-	-	-	-	-	-	-	-	-	-	-	0X00000000	33.4
-	-	-	-	-	-	-	-	-	-	-	0X00000A00	12.4

For System

Hub Time: Tue, 09/19/2006 12:27 PM Server Available Inspect Address Space CPU Use - LTLFRARI - SYSADMIN

Start z/OS Defects - 9/19/06 - ... SYSG Inspect Address Spa... Enterprise Status - LTLF... Looper Screen Shots 2.do... 12:27 PM

# You take action to cancel LOOPER

The screenshot displays the Tivoli Monitoring console interface. A 'Take Action' dialog box is open, allowing the user to perform an action on a selected job. The dialog contains the following fields:

- Action Name:** <Select Action>
- Action Command:** Cancel Job
- Destination Systems:** (Empty list)

The background console shows a table of system metrics and job details. The 'Initial Situation Values' table is as follows:

CPU Percent	IO per Second	Managed System	Job Name	TCB Percent	SRB Percent	Step Name	Proc Step	SvcClass	SvcClass Period
76.9	-76.5	LPAR400J:SYS:MVSSYS	SGLAZ002	76.9	0.0	GO		BATCH	2

Below this, another table lists job details:

Job Name	TCB Percent	SRB Percent	Step Name	Proc Step	SvcClass	SvcClass Period
SGLAZ002	68.2	0.0	GO		BATCH	
LOOPER	65.2	0.0			BATCH	

The console also shows a 'Command View' section with 'Action Name' and 'Command' fields, and a 'Destination Systems' list. The system status bar at the bottom indicates 'Hub Time: Tue, 08/08/2006 10:55 AM' and 'Server Available'.

# Now this one looks like a LOOPER

**Address Space Overview - IBM-6939C1631B9 - Joe Winterton**

File Edit View Help

Navigator View: Physical

- M542DEMO:SYSL:MVSSYS
  - Address Space Overview
  - Channel Path Activity
  - Common Storage
  - Cryptographic Coprocessors
  - DASD MVS
  - DASD MVS Devices
  - Enclave Information
  - Enqueue, Reserve, and Lock Sum
  - LPAR Clusters
  - Operator Alerts
  - Page Dataset Activity
  - Real Storage
  - System CPU Utilization
  - System Paging Activity
  - Tape Drives
  - User Response Time
  - WLM Service Class Resources

Logical Physical

**CPU Usage** Page: 1 of 2

Where usage greater than 0%

Central Storage Frame Count Page: 1 of 3

Where frame count greater than 0

**Address Space Counts** Page: 1 of 3

Address Space Count	Started Task Count	Batch Job Count	TSO User Count	APPC Count	Total Enclave Count	Active Enclave Count	Inactive Enclave Count
111	103	0	5	3	2	0	2

**Address Space CPU Utilization Summary** Page: 1 of 2

Job Name	Step Name	Proc Step	Type	SvcClass	SvcClass Period	ASID	JESJOBID	CPU Percent	TCB Percent	SRB Percent	IFA Percent	IFA c Per
VWACTH0L	VWACTH0L	TEMS	STC	STC	2	0X011E	STC17163	94.7	94.7	0.0	0.0	
CONSOLE	CONSOLE		STC	SYSTEM	1	0X000A		6.5	6.5	0.0	0.0	
VDHAH00L	VDHAH00L	TEMS	STC	STC	2	0X010D	STC15107	1.7	1.7	0.0	0.0	
WLM	WLM	IEFPROC	STC	SYSTEM	1	0X000B		0.4	0.4	0.0	0.0	
D71EIRLM	D71EIRLM	IRLM	STC	STCONLN	1	0X00E2	STC13508	0.4	0.0	0.4	0.0	
*MASTER*			STC	SYSTEM	1	0X0001	STC13310	0.0	0.0	0.0	0.0	
PCAUTH	PCAUTH		STC	SYSTEM	1	0X0002		0.0	0.0	0.0	0.0	
RASP	RASP		STC	SYSTEM	1	0X0003		0.0	0.0	0.0	0.0	
TRACE	TRACE		STC	SYSTEM	1	0X0004		0.0	0.0	0.0	0.0	
DUMPSRV	DUMPSRV	DUMPSRV	STC	SYSTEM	1	0X0005		0.0	0.0	0.0	0.0	
XCFAS	XCFAS	IEFPROC	STC	SYSTEM	1	0X0006		0.0	0.0	0.0	0.0	

Hub Time: Wed, 01/28/2009 12:37 PM Server Available Address Space Overview - IBM-6939C1631B9 - Joe Winterton

start Inprint Ma... Display all "... Joseph H Wi... Address Sp... Microsoft Po... Lotus Sa... 100% 12:37 PM

**High CPU usage**

# CPU Loop Index tells you to relax !!

The screenshot displays the 'Address Space Bottlenecks Detail' tool for IBM-6939C1631B9. The 'Execution States for VWACTH@L' window shows the following data:

Attribute	Percent	Resource
Using CPU	62.5	
CPU Loop Index	64.3	
Stimer ECB Wait	23.7	
Active I/O	7.7	DASD SV0016 5B1B
CPU Wait	1.8	
Stimer Wait	0.9	
Active I/O	0.4	DASD PRI193 871E
Active I/O	0.4	DASD SRVC06 8715
Active I/O	0.4	DASD SRVC02 8711
Active I/O	0.4	DASD NONSMS 870F
Active I/O	0.4	DASD SRVC05 8714
Active I/O	0.4	DASD SRVC01 8710
Active I/O	0.4	DASD CLNT14 870D

The 'Address Space Bottlenecks Detail - Contention (%) by Resource' window shows the following data for job VWACTH@L:

ASID	Job Name	Step Name	Proc Step	Service Class	Using CPU	Using IFA	Using zIIP	CPU Wait	IFA Wait	zIIP Wait	CPU Loop Index	Active I/O	Queued I/O	Enqueue Wait	Tape Mount	Resource Group Capping	VIO Wait	Common Page-In	Hiperspace Page-In	Private Page-In	Cross Memory Page-In	Shared Pages
0X011E	VWACTH@L				0.0	0.0	0.0	1.8	0.0	0.0	64.3	10.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

A blue callout bubble points to the 'Active I/O' column in the contention table, containing the text: "Index factors in the I/O going on by the job".

# A overnight Looper– over 50K z10 cpu seconds:

**Left without action – Job loops all night !!**

Job ID	Unknown Active Enclave Count	Unknown Inactive Enclave Count	Job CPU Percent	Job CPU Time	Job TCB Percent	Job TCB Time	Job SRB Percent	Job SRB Time	Job Additional SRB Service Percent	Job Additional SRB Service Time	Job Preemptable Home SRB Service Percent	Job Preemptable Home SRB Service Time	Job Start Time	Job Elapsed Time	Start Up Monitored
0208016	0	0	34.6	50,406.33	34.6	50,406.33	0.1	0.48	0.0	0.00	0.0	0.00	11/04/08 17:24:36	145,801.03	Yes
3331814	0	0	2.0	1,433.14	1.8	1,329.09	0.2	104.04	0.0	0.00	0.0	0.00	11/05/08 13:04:04	75,033.57	Yes
WILM	0	0	1.0	2,499.12	1.0	2,411.78	0.1	87.35	0.0	0.00	0.0	0.00	11/03/08 08:28:58	264,339.18	No
3381811	0	0	0.8	1,038.21	0.8	1,013.15	0.1	25.06	0.0	0.00	0.0	0.00	11/04/08 18:53:09	140,488.04	Yes
M514220S	0	0	0.5	750.26	0.5	732.96	0.1	17.29	0.0	0.00	0.1	15.01	11/04/08 10:45:24	169,753.54	Yes
\$64SD8ST	0	0	0.6	1,321.97	0.5	1,282.94	0.1	39.03	0.0	0.00	0.0	0.00	11/03/08 08:28:58	264,339.18	No
E81055P	0	0	0.1	62.11	0.1	51.35	0.1	10.76	0.0	0.00	0.0	0.00	11/03/08 16:29:43	235,494.31	Yes
M590286	1	0	0.5	1,276.41	0.5	1,248.99	0.1	27.42	0.0	0.00	0.0	0.00	11/03/08 08:28:58	264,339.18	No
CVT2408	0	0	0.5	1,066.10	0.5	1,039.04	0.1	27.06	0.0	0.00	0.1	23.15	11/03/08 10:35:34	256,743.53	Yes
L2DBD8ST	0	0	1.3	3,123.77	1.2	3,036.37	0.1	87.40	0.0	0.00	0.0	0.00	11/03/08 11:13:21	254,476.45	Yes
0710RLM	0	0	0.3	263.31	0.0	0.04	0.3	263.27	0.0	0.00	0.0	0.00	11/05/08 04:38:53	105,344.73	Yes
	0	0	0.5	1,147.58	0.1	137.82	0.4	1,009.76	0.0	0.00	0.0	0.03	11/03/08 08:28:58	264,339.18	No
	0	0	0.0	0.03	0.0	0.00	0.0	0.03	0.0	0.00	0.0	0.00	11/03/08 08:28:58	264,339.18	No
	0	0	0.1	6.02	0.0	0.00	0.1	6.02	0.0	0.00	0.0	0.00	11/03/08 08:28:58	264,339.18	No
	0	0	0.0	0.03	0.0	0.00	0.0	0.03	0.0	0.00	0.0	0.00	11/03/08 08:28:58	264,339.18	No
	0	0	0.1	118.69	0.1	73.99	0.1	44.70	0.0	0.00	0.0	0.00	11/03/08 08:28:58	264,339.18	No
	0	0	0.7	1,614.37	0.4	800.72	0.4	813.65	0.0	0.00	0.0	0.00	11/03/08 08:28:58	264,339.18	No
	0	0	0.4	1,012.50	0.3	753.58	0.1	258.91	0.0	0.00	0.0	0.00	11/03/08 08:28:58	264,339.18	No

File Edit View Help

View: Physical

Physical

UNIX Kernel

UNIX Mounted File Systems

UNIX Processes

Dubbed Address Spaces

UNIX BPXPRMxx Values

UNIX Files

UNIX Kernel

UNIX Logged on Users

UNIX Mounted File Systems

UNIX Processes

Link Wizard...

Link Anchor...

Hub Time: Wed, 01/10/2007 11:09 AM Server Available z/OS UNIX System Services Overview - IBM-PSQEU4XHHBD - JWINT

start Joseph... Microso... Microso... z/OS ... Microso... fomyer... Address 11:09 AM

**Many good workspaces to explore USS performance in XE**

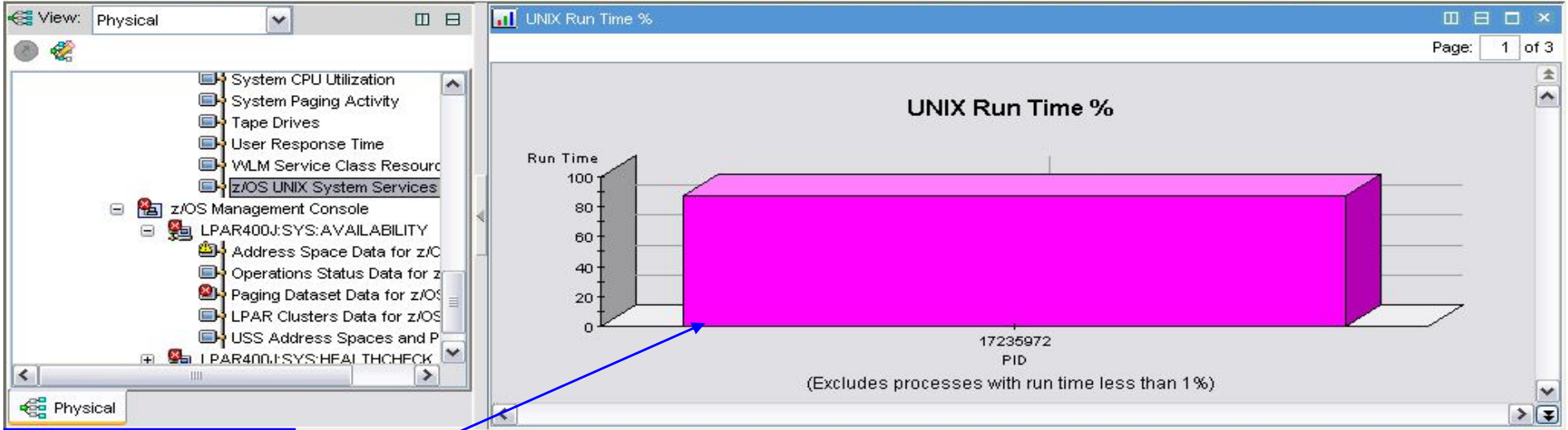
ASID	A/S Name	CPU Time%
0X000E	OMVS	0.00
0X0020	BPX0INIT	0.04
0X0023	Q5G3CHIN	0.00
0X0026	OHGSDSST	0.81
0X0027	NET25	0.00
0X0053	IMS9CCON	0.00
0X008B	TCPIPG	0.00
0X0094	S7SGC5	0.02
0X0097	S8HUB1	0.11
0X009B	\$FTPG1	0.00
0X009D	CICSR88L	0.00
0X00A0	HZSPROC	0.10

Command Name	Jobname	UNIX Run Time%	Process Status
BPXPINPR	BPX0INIT	0.00	More Than One Open Task In Process
BPESYIN0	IMS9CCON	0.00	More Than One Open Task In Process
KLV	S8HUB1	0.00	More Than One Open Task In Process
ISTMGCEH	NET25	0.53	More Than One Open Task In Process
KLV	\$GNSMV	0.00	One Regular Task in One Process in Addr
EZBTTMST	TCPIPG	0.00	Multiple Tasks In Process + Multiple Proces
EZBTCPIP	TCPIPG	0.00	Multiple Tasks In Process + Multiple Proces
KLV	\$GNSON	0.00	One Regular Task in One Process in Addr
EZBTTSSL	TCPIPG	0.00	More Than One Process In Addr Space
EZBTMCTL	TCPIPG	0.00	More Than One Process In Addr Space
EZACFALG	TCPIPG	0.00	More Than One Process In Addr Space
EZASASUB	TCPIPG	0.00	More Than One Process In Addr Space

Mount Point	File System Name	Mode	Status
/SP12/tmp	SP12/TMP	RDWR	Active
/SP13/tmp	SP13/TMP	RDWR	Active
/SYSL/tmp	SYSL/TMP	RDWR	Active
/SP22/tmp	SP22/TMP	RDWR	Active
/SYSG/tmp	SYSG/TMP	RDWR	Active
/SP11/tmp	SP11/TMP	RDWR	Active
/SP23/tmp	SP23/TMP	RDWR	Active
/SYSAT/tmp	SYSATMP	RDWR	Active
/u	*AMD/u	RDWR	Active
/ohctst	OMVS.OHCTST.HFS	RDWR	Active
/u/bqian	OMVS.BQIAN.USER.DIR	RDWR	Active
/u/kzhan	OMVS.KZHAN.USER.DIR	RDWR	Active
/u/thacker	OMVS.THACKER.USER.DIR	RDWR	Active
/u/ktake	OMVS.KTAKE.USER.DIR	RDWR	Active







**Out of Control Process**

ASID	Process ID	Parent Process ID	UNIX Run Time%	Process Status	Execution State	MVE Stat.
0X0027	1	0	0.00	More Than One Open Task In Process	File system kernel wait	Normal
0X00A8	17235970	1	0.00	More Than One Process In Addr Space	Running not in kernel wait	Normal
0X002A	458755	1	0.20	More Than One Open Task In Process	Running not in kernel wait	Normal
0X0023	17235972	1	87.63	One Regular Task in One Process in Addr Space	Running not in kernel wait	Normal
0X0090	50790405	1	0.00	Multiple Tasks In Process + Multiple Processes In Addr Spa...	Running not in kernel wait	Normal
0X00A8	50790406	1	0.00	More Than One Process In Addr Space	Running not in kernel wait	Normal
0X0030	458759	1	0.00	One Regular Task in One Process in Addr Space	File system kernel wait	Normal
0X00A5	17235976	1	0.00	One Regular Task in One Process in Addr Space	File system kernel wait	Swapped
0X0090	458761	1	0.00	More Than One Process In Addr Space	Running not in kernel wait	Normal
0X0090	458762	1	0.00	More Than One Process In Addr Space	Running not in kernel wait	Normal
0X0090	458763	1	0.00	More Than One Process In Addr Space	File system kernel wait	Normal
0X0090	458764	1	0.00	More Than One Process In Addr Space	File system kernel wait	Normal
0X0090	458765	1	0.00	Multiple Tasks In Process + Multiple Processes In Addr Spa...	Running not in kernel wait	Normal

UNIX Threads - IBM-PSQEU4XHHBD - JWINT

File Edit View Help

View: Physical

UNIX Threads for PID 17235972

Thread ID	Thread Sequence	UNIX Run Time	UNIX Run Time%	Process ID	Process ID Hex	ASID	Weight
127ac91000000000	0	241,057.328	89.84	17235972	0x01070004	0X0023	Normal

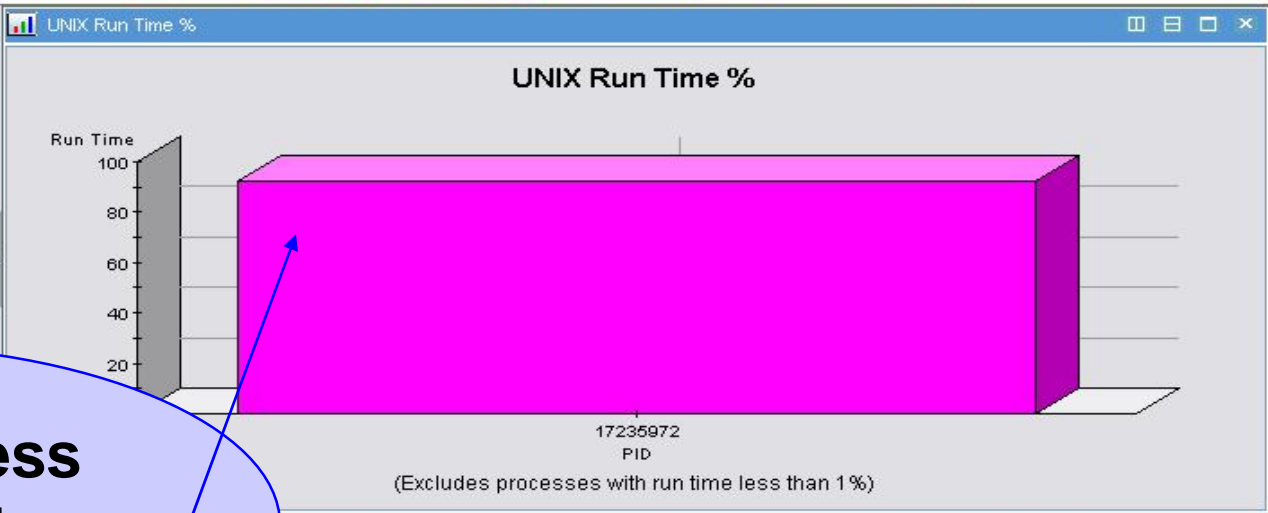
**Thread ID of Process – LOOK AT THE CPU USED !!**

Hub Time: Wed, 01/17/2007 04:18 PM Server Available UNIX Threads - IBM-PSQEU4XHHBD - JWINT

start c:\ Joseph H... 5 Sameti... You and IB... UNIX Thre... Microsoft P... Address 4:18 PM



- View: Physical
- Physical
  - DASD MVS
  - DASD MVS Devices
  - Enclave Information
  - Enqueue and Reserve Summ
  - LPAR Clusters
  - Operator Alerts
  - Page Dataset Activity
  - Real Storage
  - System CPU Utilization
  - System Paging Activity
  - Tape Drives



**Was a Process  
LOOPER and we  
cancelled it.**

	Saved Set User	Effective Group ID	Real Group ID	Saved Set Group ID	Terminal Device	Total Size	User CPU Time	System CPU Time	
17235972	DCUSER	DCUSER	0	0		7163904	181,192.38	60,397.45	2

# Getting any HiperDispatch benefits yet?

**System CPU Utilization - BKEALY - SYSADMIN**

View: Physical

Workload CPU Usage

Partition CPU

**HiperDispatch Active ??**

	Average CPU Percent	RMF MVS CPU Percent	RMF LPAR CPU Percent	Total TCB%	Total SRB%	Average IFA Percent	Average IFA on CP Percent	Average zIIP Percent	Average zIIP on CP Percent	MVS Overhead	4 Hour MSUs	HiperDispatch Management	Partition LCPD%	Partition PCPD%
	13	105.8	11.9	90	39	2	0	0	0	16	20	On	14	4

Partition Overhead%	Undispatched Tasks	CPUs Online	CPUs Offline	Physical CPU Count	IFAs Online	IFAs Offline	zIIPs Online	zIIPs Offline	CPU Flag	Total Enclave%	WLM Mode	IFA CrossOver	IFA HonorPriority	IFA Relative Processor Speed	zIIP HonorPriority	zIIP Relative Processor Speed
0.03	0	00,01,02,03,04,05,06,07,08,09		43	0A,0B		0C,0D		RMF	0	Goal		Yes	1.00:1	Yes	1.00:1

**For System Z2**

Hub Time: Fri, 01/04/2008 04:16 PM    Server Available    System CPU Utilization - BKEALY - SYSADMIN

# The HiperDispatch Details – IF 1

**CP by CP view**

**z/OS view vs z196 view**

LCPU ID	HiperDispatch Priority	Share Percent	Physical CP Dispatch Pct	Management Percent	MVS Pct	Parked Pct	Status
0X0000	High	100.0	93.845	0.393	94.695	0.000	Online
0X0001	High	100.0	92.791	0.328	93.951	0.000	Online
0X0002	Medium	88.3	43.316	0.420	95.134	0.000	Online
0X0003	Low	0.0	28.913	0.222	93.023	28.797	Online
0X0004	Low	0.0	21.164	0.176	92.669	47.304	Online
0X0005	Low	0.0	36.888	0.273	90.969	19.569	Online
0X0006	Low	0.0	0.000	0.000	0.000	100.000	Parked
0X0007	Low	0.0	0.000	0.000	0.000	100.000	Parked
0X0008	Low	0.0	41.176	0.300	92.043	0.000	Online
0X0009	Low	0.0	40.978	0.296	91.068	0.000	Online

LCPU ID	HiperDispatch Priority	Share Percent	Physical CP Dispatch Pct	Management Percent	MVS Pct	Parked Pct	Status
0X000A	Medium	32.4	27.628	0.088	83.827	0.000	Online
0X000B	Low	0.0	0.000	0.000	0.000	100.000	Parked
0X000C	Low	0.0	0.000	0.000	0.000	100.000	Parked
0X000D	Low	0.0	25.484	0.074	79.719	0.000	Online

LCPU ID	HiperDispatch Priority	Share Percent	Physical CP Dispatch Pct	Management Percent	MVS Pct	Parked Pct	Status
0X000E	Medium	16.2	0.079	0.005	1.021	0.000	Online
0X000F	Low	0.0	0.000	0.005	0.000	100.000	Online

# Unused Group MSU's average for the LPAR – IF1

**Workload CPU Usage**

How much room do we have left on this LPAR?

RMF MVS PU Percent	RMF LPAR CPU Percent	Total TCB%	Total SRB%	Average IFA Percent	Average IFA on CP Percent	Average zIIP Percent	Average zIIP on CP Percent	MVS Overhead	4 Hour MSUs	Percent LPAR MSU Capacity	LPAR Group Name	LPAR Group Capacity Limit	Average Unused Group MSUs	Group LPAR MSU Limit	HiperDispatch Management	Partition LCPD%	Partition PCPD%
86.6	39.3	112	44	7	0	0	0	37	240	77.6	TESTPLEX	600	-15	300	On	38	10

Partition Overhead%	Undispatched Tasks	CPUs Online	CPUs Offline	Physical CPU Count	IFAs Online	IFAs Offline	zIIPs Online	zIIPs Offline	CPU Flag	Total Enclave%	WLM Mode	IFA CrossOver	IFA HonorPriority	IFA Relative Processor Speed	zIIP HonorPriority	zIIP Relative Processor Speed
0.08	0	00,01,02,03,04,05,06,07,08,09		56	0A,0B,0C,0D		0E,0F		RMF	0	Goal		Yes	1.00:1	Yes	1.00:1

For System Z2

Hub Time: Mon, 10/05/2009 03:03 PM    Server Available    System CPU Utilization - IBM-3C5320032B2 - SYSADMIN

# In 4.2.0 – USS - UNIX Processes, files, MFS, zFS

The screenshot displays the 'z/OS UNIX System Services Overview' application window. The interface is divided into several panes:

- Navigator:** A tree view on the left showing system components like LPAR Clusters, Operator Alerts, Real Storage, and z/OS UNIX System Services Overview.
- Dubbed Address Spaces:** A table listing ASIDs, A/S Names, and CPU Time%.
 

ASID	A/S Name	CPU Time%
0X00FC	SSAGT3	0.28
0X00D7	\$X4SM2	0.08
0X0033	HZSPROC	0.06
0X00E6	SNMPQE22	0.04
0X001E	GFSCPROC	0.03
0X00FD	M5S042H1	0.03
0X00D5	VTAM36	0.03
0X00E4	QSNMFD22	0.01
0X00F1	D5D5001	0.01
0X00E2	\$PORT22	0.00
0X00E3	RXSERVE	0.00
0X00E5	IOBSNMP	0.00
0X00E7	\$TN22	0.00
0X00E9	PLDSM38	0.00
0X00EA	PLM2M38	0.00
0X00EF	D81CDIST	0.00
0X00FE	K3MVS22	0.00
0X00FF	S8RMT1	0.00
0X0106	CICSJ521	0.00
- UNIX Processes:** A table listing Command Name, Jobname, UNIX Run Time%, Process Status, and Exit Code.
 

Command Name	Jobname	UNIX Run Time%	Process Status	Exit Code
BPXPINPR	BPXOINIT	0.00	More Than One Open Task In Process	Running not
HZSTKSCH	HZSPROC	0.00	More Than One Process In Addr Space	Running not
DSIATTMT	\$ND221	0.00	More Than One Process In Addr Space	Running not
ISTMGCEH	VTAM36	0.19	One Regular Task in One Process in Addr Space	File system
CEAPSRVR	CEA	0.00	One Regular Task in One Process in Addr Space	File system
syslogd	SYSLOGD3	0.00	One Regular Task in One Process in Addr Space	File system
DSIATTMT	\$ND221	0.00	More Than One Process In Addr Space	Running not
inetd	INETD4	0.00	One Regular Task in One Process in Addr Space	File system
CSQXJST	MQRGCHIN	0.00	More Than One Process In Addr Space	Running not
BPXVCLNY	GFSCPROC	0.00	More Than One Process In Addr Space	Running not
BPXVCMT	GFSCPROC	0.00	More Than One Process In Addr Space	IPC MSGRC
BPESYIN0	I91DCCON	0.00	More Than One Open Task In Process	Running not
KLVST600	\$X4SDF	0.00	One Regular Task in One Process in Addr Space	Running not
KLVST600	\$X4SM2	0.00	One Regular Task in One Process in Addr Space	Running not
GFSCINIT	GFSCPROC	0.00	56	Running not
DSIDUBME	\$ND221	0.00	More Than One Process In Addr Space	Running not
CSQXTNSV	MQRGCHIN	0.00	More Than One Process In Addr Space	Running not
CSQXDISP	MQRGCHTM	0.00	More Than One Process In Addr Space	Running not
- UNIX Kernel:** A table showing process statistics.
 

Number of Processes	Max Processes	Used Processes%	USock Curr Pct	ISock Curr Pct	I6Sock Curr Pct
49	300	16.33	0.70	0.20	0.09
- UNIX Logged-on Users:** A table for user login information.
- UNIX Mounted File Systems:** A table listing mount points, file system names, modes, and statuses.
 

Mount Point	File System Name	Mode	Status
/SP13	OMVS.SP13.HFS	RDWR	Active
/SYSG/var/spool	OMVS.SYSG.CRON.SPOOL.DIR	RDWR	Active
/SYSG/dev	OMVS.SYSG.DEV	RDWR	Active
/SYSG	OMVS.SYSG.HFS	RDWR	Active
/SP22/var/spool	OMVS.SP22.CRON.SPOOL.DIR	RDWR	Active
/SP22/dev	OMVS.SP22.DEV	RDWR	Active
/SP22/var	OMVS.SP22.VAR	RDWR	Active
/SP22/etc	OMVS.SP22.ETC	RDWR	Active
/SP22/hfs	OMVS.SP22.HFS	RDWR	Active
/etc	OMVS.SYSG.ETC	RDWR	Active
/var	OMVS.SYSG.VAR	RDWR	Active
/var/spool	OMVS.SYSL.CRON.SPOOL.DIR	RDWR	Active
/dev	OMVS.SYSL.DEV	RDWR	Active
/var	OMVS.SYSL.VAR	RDWR	Active
/U/etc	OMVS.SYSL.ETC	RDWR	Active
/SYSL	OMVS.SYSL.HFS	RDWR	Active
/SP13/etc	OMVS.SP13.ETC	RDWR	Active
/SP13/var	OMVS.SP13.VAR	RDWR	Active
/SP13/dev	OMVS.SP13.DEV	RDWR	Active
/SP13/var/spool	OMVS.SP13.CRON.SPOOL.DIR	RDWR	Active
/SP12/var/spool	OMVS.SP12.CRON.SPOOL.DIR	RDWR	Active
/SP12/dev	OMVS.SP12.DEV	RDWR	Active
/SP12/var	OMVS.SP12.VAR	RDWR	Active

A blue oval with the text "Full set of USS monitoring Workspaces" is overlaid on the interface, with an arrow pointing to the 'UNIX Mounted File Systems' pane.



# Running out of USS, Internet, IPV6 Sockets?

**Take Action**

Action Name:

Command:

Arguments...

Destination Systems

Run

**Process Utilization**

Used%

Number of Processes (Yellow bar)

Max Processes (Blue bar)

0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

**UNIX Kernel**

Pages	mmap Storage Pages Limit	mmap Storage Pages%	USock Maximum	USock Current	USock Curr Pct	USock HW Mark	USock HW Pct	ISock Maximum	ISock Current	ISock Curr Pct	ISock HW Mark	ISock HW Pct	I6Sock Maximum	I6Sock Current	I6Sock Curr Pct	I6Sock HW Mark	I6Sock HW Pct	uname sysname	uname version	uname release
0	40960	0.00	2000	32	1.60	36	822	1.02	35000	110	0.31	116	0.33	OS/390	03	19.00				

UNIX system's most sockets in use (high water mark) at one time.

Hub Time: Fri, 01/08/2010 03:55 PM

Server Available

UNIX Kernel - IBM-6939C1631B9 - Joe Winterton

start | Infoprint Ma... | Display all "M... | Lotus No... | UNIX Kernel... | Microsoft Po... | PGATOUR.co... | 100% | 3:55 PM

# USS zFS monitoring added in 4.2.0:

The screenshot displays the 'zFS Overview' interface for IBM-6939C1631B9. A callout bubble labeled 'Kernel Operations Details' points to the 'zFS Kernel Summary' and 'zFS Kernel Detail' sections.

**zFS Average Operation Wait Time** (Bar Chart):

Operation	Average Wait Time
zfs_opens	14
zfs_removes	7
zfs_getattrs	4
zfs_accesses	8
zfs_lookups	72
zfs_readdir	48
zfs_ioctl	0
zfs_status	0

**zFS Kernel Summary** Table:

Collection Interval	zFS Address Space	Total Operations	Average Wait Time
61.264	zfs	175	58

**zFS Kernel Detail** Table:

Operation Name	Operation Count	Operation Rate	Average Wait Time
zfs_opens	12	0.20	14
zfs_removes	12	0.20	7
zfs_reads	0	0.00	0
zfs_writes	0	0.00	0
zfs_ioctl	0	0.00	0
zfs_getattrs	6	0.10	4
zfs_setattrs	0	0.00	0
zfs_accesses	6	0.10	8
zfs_lookups	12	0.20	72
zfs_creates	0	0.00	0
zfs_links	0	0.00	0
zfs_renames	0	0.00	0
zfs_mkdir	0	0.00	0
zfs_rmdir	0	0.00	0
zfs_readdir	12	0.20	48
zfs_symlinks	0	0.00	0
zfs_readlinks	0	0.00	0
zfs_fsmys	0	0.00	0
zfs_truncs	0	0.00	0
zfs_lockctl	0	0.00	0
zfs_audits	0	0.00	0

**zFS Directory Cache** Table:

Buffer Count	Total KBytes	Cache Requests	Cache Hits	Cache Hit Ratio	Cache Updates	Cache Backing Buffers	Cache Backing Buffer Size	Cache Backing KBytes	Cache Backing Requests	Cache Backing Hits	Cache Backing Ratio
4096	32768	312	312	100.0	0	0	0	0	0	0	0

**zFS Metadata Cache** Table:

Primary Buffers	Primary Buffer Size	Primary KBytes	Primary Requests	Primary Hits	Primary Hit Ratio	Primary Updates	Backing Buffers	Backing Buffer Size	Backing KBytes	Backing Requests	Backing Hits	Backing Ratio
4096	8	32768	338	338	100.0	4	0	0	0	0	0	0

**zFS Storage Summary** Table:

Total Bytes	Total Pieces	Total Alloc Requests	Total Free Requests
101124150	307424	309572	2148

# USS zFS User Cache monitoring in 4.2.0:

zFS User Cache - IBM-E9503533F87 - SYSADMIN \*ADMIN MODE\*

File Edit View Help

**Navigator**

View: Physical

- SP22
  - MVS Operating System
    - LPAR400J:SP22:MVSSYS
  - SYS
    - MVS Operating System
      - LPAR400J:SYS:MVSSYS
        - Address Space Overview
        - Channel Path Activity
        - Common Storage
        - Cryptographic Coprocessors
        - DASD MVS
        - DASD MVS Devices
        - Enclave Information
        - Enqueue, Reserve, and Lock Summary
        - LPAR Clusters
        - Operator Alerts
        - Page Dataset Activity
        - Real Storage
        - System CPU Utilization
        - System Paging Activity
        - Tape Drives
        - User Response Time
        - WLM Service Class Resources
        - z/OS UNIX System Services Overview

**zFS User Cache Statistics**

**File System Reads**

Reads Faulted	Read Fault Ratio	Writes Faulted	Write Fault Ratio	Read Waits	Read Wait Ratio
1	100.000	0	0.000	0	0.000

**File System Writes**

Scheduled Writes	Fsync Waits	Error Writes	Error Waits	Scheduled Deletes	Reclaim Writes	Reclaim Waits	Write Waits	Write Wait Ratio
0	0	0	0	0	0	0	0	0.00

**External Requests**

Schedules	Fsyncs	Unmaps	Reads	Async Reads	Writes	Getattrs	Flushes
1	0	1	1	1	0	2	0

**Page Management**

Local Segment Size	Page Size	Cache Pages	Free Pages	VM Segtable Cachesize	Reclaim Steals	Waits For Reclaim	Dataspace Count
64	4	256000	254813	0	0	0	16

**Dataspaces**

Dataspace Name	Dataspace Alloc Segs	Dataspace Free Pages
ZFSUCD00	7	15930
ZFSUCD01	7	15929
ZFSUCD02	7	15929
ZFSUCD03	7	15923
ZFSUCD04	7	15927
ZFSUCD05	7	15929
ZFSUCD06	7	15921
ZFSUCD07	7	15923
ZFSUCD08	6	15930
ZFSUCD09	7	15930
ZFSUCD0A	6	15918
ZFSUCD0B	6	15918
ZFSUCD0C	7	15930
ZFSUCD0D	7	15916
ZFSUCD0E	7	15930
ZFSUCD0F	7	15930

Hub Time: Sun, 09/28/2008 02:06 AM      Server Available      zFS User Cache - IBM-E9503533F87 - SYSADMIN \*ADMIN MODE\*

# 4.2.0 – Suspend Lock Information – RMF-collects:

**Count of Enqueue and Reserve Waiting Address Spaces**

**Wait Time of Enqueue and Reserve Waiting Address Spaces**

**Enqueue and Reserve Summary**

Major Name	Minor Name	Owning Task Count	Waiting Task Count	Maximum Wait Time
KLVGLOCK	JLPAR400	0	1	2
KLVGLOCK	OM542DEM	0	1	0

**Spin Locks Held**

Resource Name	Mode	Held Percent	RMF Status

**Suspend Lock Activity**

Resource Name	Lock Type	Job Name	ASID	Requesting Address	Held Percent	Interrupted Percent	Dispatchable Percent	Suspend Percent	R
AFOP22	Local	AFOP22	0X0010	0X000A3208	1.00	0.00	0.00	0.00	Suspend

**Spin Lock Waiters**

Resource Name	Job Name	ASID	Requesting Address	Spin Percent
SRM		0X0000	0X00000000	0.00
DISP		0X0000	0X00000000	0.00
SRM		0X0000	0X00000000	0.00
SRM		0X0000	0X00000000	0.00

**Callout Bubble Text:**  
Suspend Lock  
Spin Locks Held  
Spin Lock Waiters



## Exploring z/OS with OMEGAMON XE on z/OS

**Perplexed with your Sysplex?**

# XCF Systems – who is talking to whom?

The screenshot displays the 'XCF Systems Data for Sysplex' application interface. The main window is titled 'XCF Systems Data for Sysplex - IBM-PSQEU4XHHBD - JWINT'. It features a tree view on the left with 'XCF Systems Data for Sysplex' selected. The main area is divided into two panes: 'XCF Systems' and 'XCF Paths'. A blue oval highlights the 'XCF Systems' table with the text 'Class, Paths From, To, Status'. A blue arrow points from this oval to the 'XCF Paths' table below.

**XCF Systems Table:**

System Name	Monitoring Interval	Operator Interval	Status	System Level
SP11	90.00	90.00	Active	z/OS 01.07.01
SP12	90.00	90.00	Active	z/OS 01.08.00
SP13	90.00	90.00	Active	z/OS 01.09.00
SP22	90.00	90.00	Active	z/OS 01.08.00
SP23	90.00	90.00	Active	z/OS 01.06.01
SYSG	90.00	90.00	Active	z/OS 01.06.01
SYSL	90.00	90.00	Active	z/OS 01.07.01

**XCF Paths Table:**

System From	Origin Device	System To	Destination Device	Transport Class	Status	Retry Percent
SP11	4F5D	SYSA	CFLList	TCLRG	Restarting	0
SP11	CFLList	SYSA	CFLList	DEFAULT	Working	0
SP11	4E4E	SYSA	4E72	DEFAULT	Working	0
SP11	CFLList	SYSA	CFLList	TCMED	Working	0
SP11	4E4D	SYSA	4E71	TCMED	Working	0
SP11	CFLList	SYSA	CFLList	TCLRG	Working	0
SP11	4F4D	SYSA	4F71	TCLRG	Working	0
SP11	CFLList	SYSG	CFLList	DEFAULT	Working	0
SP11	4E6E	SYSG	4E72	DEFAULT	Working	0
SP11	CFLList	SYSG	CFLList	TCMED	Working	0
SP11	4E6D	SYSG	4E71	TCMED	Working	0
SP11	CFLList	SYSG	CFLList	TCLRG	Working	0
SP11	4F6D	SYSG	4F71	TCLRG	Working	0

# XCF Classes – How we doing?

XCF System Statistics Data - IBM-PSQEU4XHHBD - JWINT

View: Physical

z/OS Systems

- LPAR400J:MVS:SYSPLEX
  - Coupling Facility Policy Data for Sysplex
  - Coupling Facility Structures Data for Sysplex
  - Coupling Facility Systems Data for Sysplex
  - Global Enqueue Data for Sysplex
  - GRS Ring Systems Data for Sysplex
  - Report Classes Data for Sysplex
  - Resource Groups Data for Sysplex
  - Service Classes Data for Sysplex
  - Service Definition Data for Sysplex
  - Shared DASD Groups Data For Sysplex
  - XCF Groups Data for Sysplex

XCF Outbound Buffer Utilization by Message Size for SYSG

XCF System Statistics

System From	System To	Transport Class	Signals Sent	Signals Received	Times Path Unavailable	Times Buffer Unavailable	Buffer Length	Percent Fit	Percent Smaller	Percent Larger	Percent Degraded
SYSG	SP11	DEFAULT	1313	0	0	0	930	100.0	0.0	0.0	0.0
SYSG	SP22	TCLRG	26	0	0	0	20412	0.0	84.6	15.3	15.3
SYSG	SYSL	TCLRG	25	0	0	0	20412	0.0	84.0	16.0	16.0
SYSG	SP13	TCLRG	30	0	0	0	20412	0.0	70.0	30.0	30.0
SYSG	SP23	TCLRG	21	0	0	0	20412	0.0	100.0	0.0	0.0
SYSG	SP12	TCLRG	21	0	0	0	20412	0.0	100.0	0.0	0.0
SYSG	SYSA	TCLRG	26	0	0	0	20412	0.0	84.6	15.3	15.3
SYSG	SYSG	TCLRG	40	0	0	2	20412	0.0	5.0	95.0	55.0
SYSG	SP11	TCLRG	21	0	0	0	20412	0.0	100.0	0.0	0.0
SYSG	SYSL	TCMED	40	0	0	0	12220	0.0	100.0	0.0	0.0
SYSG	SYSG	TCMED	195	0	0	1	12220	1.0	98.9	0.0	0.0
SYSG	SYSA	TCMED	120	0	0	0	12220	4.1	95.8	0.0	0.0
SYSG	SP11	TCMED	33	0	0	0	12220	0.0	100.0	0.0	0.0
SYSG	SP23	TCMED	33	0	0	0	12220	0.0	100.0	0.0	0.0
SYSG	SP22	TCMED	62	0	0	0	12220	6.4	93.5	0.0	0.0
SYSG	SP13	TCMED	43	0	0	0	12220	0.0	100.0	0.0	0.0

For System SYSG on LPAR400J

Hub Time: Wed, 05/02/2007 04:33 PM Server Available XCF System Statistics Data - IBM-PSQEU4XHHBD - JWINT

start | Joseph ... | Display ... | Sam... | XCF Sy... | Microsof... | Session ... | Address | 4:31 PM

The details are here !!

# XCF Groups – Who has problems?

XCF Groups Data for Sysplex - IBM-PSQEU4XHHBD - JWINT

File Edit View Help

View: Physical

z/OS Systems

- LPAR400J:MVS:SYSPLEX
  - Coupling Facility Policy Data for Sysplex
  - Coupling Facility Structures Data for Sysplex
  - Coupling Facility Systems Data for Sysplex
  - Global Enqueue Data for Sysplex
  - GRS Ring Systems Data for Sysplex
  - Report Classes Data for Sysplex
  - Resource Groups Data for Sysplex
  - Service Classes Data for Sysplex
  - Service Definition Data for Sysplex
  - Shared DASD Groups Data For Sysplex
  - XCF Groups Data for Sysplex

Group Member and Problem Counts

Where Problem Count greater than 0

XCF Groups

Group Name	Member Count	Problem Count
N37	3	3
SYSDAE	11	2
N1	1	1
I81GRP	1	1
I71MOTMA	1	1
D81GRP	6	1
N45	1	1
N38	1	1
NMS01	1	1
N6	1	1
I91GRP	1	1
I71GRP	1	1
KMQQSGEX	1	1

Number of members in the group reporting a problem status.

**Check out the Problem Status members**

For Sysplex LPAR400J

Hub Time: Fri, 06/29/2007 08:47 AM Server Available XCF Groups Data for Sysplex - IBM-PSQEU4XHHBD - JWINT

start [Taskbar icons] 8:48 AM



# XCF Paths – An alert on a problem !

Sysplex Level Overview - IBM-6939C1631B9 - Joe Winterton

File Edit View Help

Navigator View: Physical

- Report Classes Data for Sysplex
- Resource Groups Data for Sysplex
- Service Classes Data for Sysplex
- Service Definition Data for Sysplex
- Shared DASD Groups Data For Sysplex
- XCF Groups Data for Sysplex
- XCF Paths Data for Sysplex
- XCF Systems Data for Sysplex

**Global Enqueue**

Major Name	Minor Name	Owning Task Count	Waiting Task Count	Maximum Wait Time
KLVGLOCK	OM542DEM	1	6	0
KLVGLOCK	PKDSPXGR	1	1	1
KLVGLOCK	XCVTM5PL	1	1	0
SYSDSN	TSL2.V310.OMEGVIEW.RKLVSNAP	1	1	330003

**CRITICAL**  
KHL\_XCF\_Paths\_Problem M542DEMO:zOS:ManagementConsole 02/13/09 10:01:06

KFWITM1011 Select workspace link button to view situation event results.

Logical Physical

**Service Classes**

Service Class	Goal	Goal Importance	Actual Host	Performance Index	Worst Performance Index	Tran F
BATCH	Velocity(+I/O) > 30	Medium	25	1.20	1.20	
BATCH	Velocity(+I/O) > 15	Medium	21	0.71	0.71	
IMSMPRS	Velocity(+I/O) > 30	High	1	30.00	30.00	
OMVSJOBS	Velocity(+I/O) > 20	Highest	0	0.00	0.00	
OMVSJOBS	Velocity(+I/O) > 20	High	0	20.00	20.00	
OMVSJOBS	Velocity(+I/O) > 10	Medium	50	0.20	10.00	
STC	Velocity(+I/O) > 30	High	32	0.93	30.00	
STC	Velocity(+I/O) > 20	Medium	68	0.34	0.60	

**Coupling Facility Structures**

Structure Name	CF Name	Structure Type	Structure Status	Maximum Users	Total Users	Problem Users	Storage Size	Perstor Stor Size
CICSRLS	CF01	Cache	ActiveInUse	64	4	0	1280	
CIXLG_DFHLOG_1	CF01	List	ActiveInUse	32	2	0	1088	
DFHXQLS_SHAH	CF01	List	ActivePersistent	32	1	0	3072	
D71GRP_GBP0	CF01	Cache	ActiveInUse	64	2	0	1024	
D71GRP_LOCK1	CF01	Lock	ActivePersistent	7	2	0	832	

**Shared DASD Groups**

Group Name	Average True Percent Busy	Highest True Percent Busy	Highest True Percent Busy Volser	Average Device Contention Index
PRIVATE NON-SMS VOLUMES	0.0	12.1	CPL001	59.280
SGBB01	0.0	0.0	WAS002	50.850
SGBLD	0.0	0.0	BLD003	57.402
SGBOOK	0.0	0.0	BOOKS1	65.909
SGCIMS	0.0	0.0	AUCS04	67.193
SGCIMST	0.0	0.0	AUCT16	66.275
SGCLIENT	0.0	0.0	CLNT04	54.638
SGCONSUL	0.0	0.0	CONS01	62.377
SGBD2	0.0	0.0	DB2006	58.404

**XCF Groups**

Group Name	Member Count	Problem Count
ARCPLEX0	2	0
ATRRRS	2	0
BARGHDSL	3	0
BK3DS22L	1	0
BM5S0H1L	2	0
BM5S0RCL	1	0
BM54HDSL	1	0
BNL9DSL	2	0
DYDST01	4	0

Hub Time: Fri, 02/13/2009 10:52 AM Server Available Sysplex Level Overview - IBM-6939C1631B9 - Joe Winterton

start Infopri... Joseph... Micros... om\_02... Display... Lot... Syspl... Micros... 98% 10:53 AM

# XCF Path issue – Expert Advice

**KHL\_XCF\_Paths\_Problem - IBM-6939C1631B9 - Joe Winterton**

File Edit View Help

View: Physical

**Navigator**

- Report Classes Data for Sysplex
- Resource Groups Data for Sysplex
- Service Classes Data for Sysplex
- Service Definition Data for Sysplex
- Shared DASD Groups Data For Sysplex
- XCF Groups Data for Sysplex
- XCF Paths Data for Sysplex
- XCF Systems Data for Sysplex
- z/OS Management Console
  - Coupling Facility Policy Data for Sysplex
  - Coupling Facility Systems Data for Sysple
  - Coupling Facility Structures Data for Syspl
  - Coupling Facility Paths Data for Sysplex
  - XCF Systems Data for Sysplex
  - XCF Paths Data for Sysplex
  - XCF Paths Data for Sysplex
  - XCF Paths Data for Sysplex
- SP11
- MVS Operating System

**Initial Situation Values**

Status	Managed System	Timestamp	Sysplex Name	SMFID	System Name	System From	Origin Device	System To	Destination Device	Tran Cl:
Restarting	M542DEMO:ZOS:ManagementConsole	02/13/09 10:01:05	M542DEMO	SP22	SP22	SP22	4F5D			TCL
Restarting	M542DEMO:ZOS:ManagementConsole	02/13/09 10:01:04	M542DEMO	SP23	SP23	SP23	4F5D			TCL

**Current Situation Values**

Status	Managed System	Timestamp	Sysplex Name	SMFID	System Name	System From	Origin Device	System To	Destination Device	Tran Cl:
Restarting	M542DEMO:ZOS:ManagementConsole	02/13/09 10:54:02	M542DEMO	SP22	SP22	SP22	4F5D			TCL
Restarting	M542DEMO:ZOS:ManagementConsole	02/13/09 10:54:02	M542DEMO	SP23	SP23	SP23	4F5D			TCL

**Command View**

**Take Action**

Action Name: <Select Action>

Command:

Arguments...

Destination Systems

**Expert Advice**

Location: <http://ibm-6939c1631b9:1920///cnp/kdh/lib/classes/candle/khl/resources/>

**Expert Advice**

**KHL\_XCF\_Paths\_Problem**

[Situation Description](#) **Situation Description**  
Bad status for an XCF path

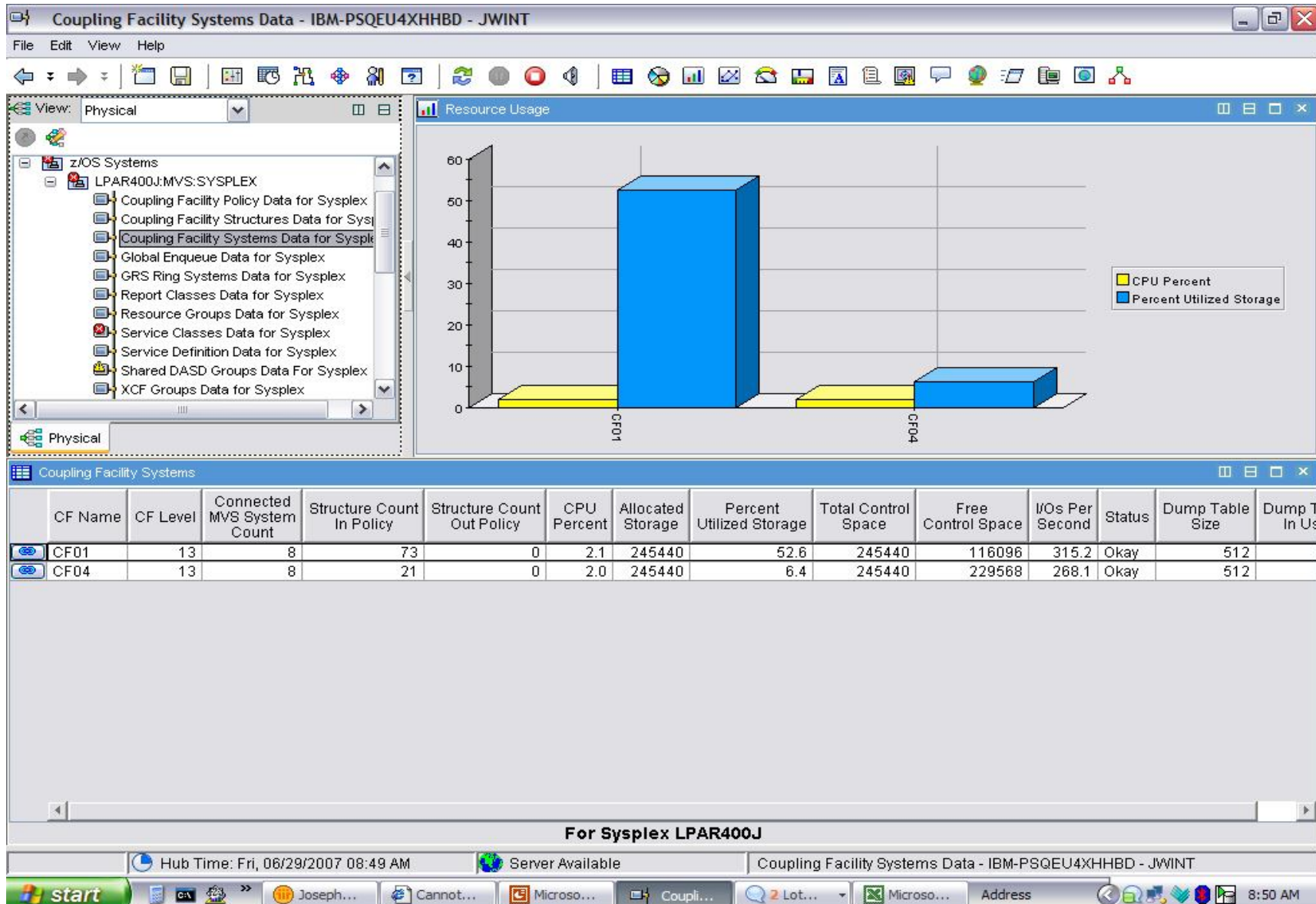
[Suggested Actions](#) **Suggested Actions**  
The XCF Path identified is returning a status other than Working. The status may be the result either of dynamic reconfiguration or of a failure on the path. Notify the system programmer.

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Hub Time: Fri, 02/13/2009 10:53 AM Server Available KHL\_XCF\_Paths\_Problem - IBM-6939C1631B9 - Joe Winterton

start Infopri... Joseph... Micros... om\_02... Display... Lot... KHL... Micros... 98% 10:54 AM

# Whats up with the CF's in our Plex?



For Sysplex LPAR400J

Hub Time: Fri, 06/29/2007 08:49 AM

Server Available

Coupling Facility Systems Data - IBM-PSQEU4XHHBD - JWINT

# Whats are the CF's detail stats in our Plex?

**Check out the detail activity to the CF**

Volatility Status	Average Sync Operation Delay	Average Failed Operation Time	Sub-Channels Allocated	Sub-Channels In Use	Maximum Sub-Channels	Asynchronous Requests per minute	nous R	to A	ercentage	Total Request Count this interval	Percent of Total Requests - Sync	Percent of Total Requests - Async	Highest 1 Async Request Structure	Highest 2 Async Request Structure	H		
Volatile	0.0	0.0	14	14	14	4,764.0	48.0	0.0	0.0	9,650	0.8	82.3	IXCSTR1	4212.0	JES2_MAS	270.0	IXCT

Percentage of the total requests that were asynchronous operations for this system during this interval period.

For CF system CF04 on M542DEMO

Hub Time: Sun, 01/10/2010 10:53 AM    Server Available    Statistics Workspace for CF System - IBM-6939C1631B9 - Joe Winterton

# Do we have any structure(s) in our CF?

Coupling Facility Structures Data for Sysplex - IBM-PSQEU4XHHBD - JWINT

File Edit View Help

View: Physical

z/OS Systems

- LPAR400J:MVS:SYSPLEX
  - Coupling Facility Policy Data for Sysplex
  - Coupling Facility Structures Data for Sysplex
  - Coupling Facility Systems Data for Sysplex
  - Global Enqueue Data for Sysplex
  - GRS Ring Systems Data for Sysplex
  - Report Classes Data for Sysplex
  - Resource Groups Data for Sysplex
  - Service Classes Data for Sysplex
  - Service Definition Data for Sysplex
  - Shared DASD Groups Data For Sysplex
  - XCF Groups Data for Sysplex

Physical

User Counts

Where Problem Users greater than 0

Percentage of CF System Total Storage

Where percentage greater than 1

Coupling Facility Structures

Structure Name	CF Name	Structure Type	Structure Status	Conous Re per minute	Conous R per minu	Maximum Users	Total Users	Problem Users	Storage Size	Percent CF Storage Size	Element Count	Duplex	AutoAlter
CICSRLS	CF01	Cache	ActiveInUse	6.7	28.4	64	1	0	1280	0.5	1342	Disabled	No
CIXLG_DFHLOG_1	CF01	List	ActiveInUse	0.0	0.0	32	1	0	1088	0.4	44	Disabled	Yes
DFHXQLS_SHAHI	CF01	List	ActivePersistent	0.0	0.0	32	1	0	3008	1.2	0	Disabled	No
D71GRP_GBP0	CF01	Cache	ActiveInUse	8.9	3.8	64	4	1	1024	0.4	233	Disabled	Yes
D71GRP_GBP16K0	CF01	Cache	ActiveInUse	0.0	0.0	64	1	1	256	0.1	5	Disabled	Yes
D71GRP_GBP32K	CF01	Cache	ActiveInUse	0.0	0.0	64	1	1	1024	0.4	539	Disabled	Yes
D71GRP_LOCK1	CF01	Lock	ActivePersistent	63.6	441.1	32	4	0	1536	0.6	0	Disabled	Yes
D71GRP_SCA	CF01	List	ActivePersistent	325.2	151.7	32	4	0	1024	0.4	666	Disabled	Yes
D81GRP_GBP0	CF01	Cache	ActiveInUse	0.5	7.9	64	2	0	1024	0.4	830	Disabled	Yes
D81GRP_GBP8K0	CF01	Cache	ActiveInUse	0.0	0.0	64	1	1	448	0.1	280	Disabled	Yes
D81GRP_LOCK1	CF01	Lock	ActivePersistent	0.0	250.6	7	2	0	768	0.3	0	Disabled	Yes
D81GRP_SCA	CF01	List	ActivePersistent	137.2	103.1	32	2	0	1024	0.4	416	Disabled	Yes
HZS_HEALTHCHKLOG	CF01	List	ActiveInUse	15.6	2.3	32	6	0	1024	0.4	445	Disabled	No
IA1AIRLM	CF01	Lock	ActivePersistent	0.0	0.0	23	1	1	1280	0.5	0	Disabled	Yes
IA1CFMHQ	CF01	List	ActivePersistent	0.0	0.0	32	1	1	1088	0.4	3	Disabled	Yes

For Sysplex LPAR400J

Hub Time: Fri, 06/29/2007 08:53 AM Server Available Coupling Facility Structures Data for Sysplex - IBM-PSQEU4XHHBD - JWINT

start Joseph... Cannot... Microso... Coupli... Lot... Microso... Address 8:54 AM

# Who is using that structure in our CF?

Users Workspace for CF Structure - IBM-PSQEU4XHHBD - JWINT

File Edit View Help

View: Physical

Notepad

Physical

Users of CF Structure

Address Space	ASID	Connection Name	System Name	Connection Status	AllowRebuild	Allow User Managed Duplexing	AllowAlter	Allow System Managed Processing	Suspend	Connection Problem Flag
XCFAS	0X0006	SIGPATH_010004C4	SYSA	Active	Yes	No	Yes	No	Unavailable	0
XCFAS	0X0006	SIGPATH_020004EE	SYSG	Active	Yes	No	Yes	No	Unavailable	0
XCFAS	0X0006	SIGPATH_030004D8	SP11	Active	Yes	No	Yes	No	Unavailable	0
XCFAS	0X0006	SIGPATH_040004EA	SP22	Active	Yes	No	Yes	No	Unavailable	0
XCFAS	0X0006	SIGPATH_050004EB	SYSL	Active	Yes	No	Yes	No	Unavailable	0
XCFAS	0X0006	SIGPATH_060004EC	SP13	Active	Yes	No	Yes	No	Unavailable	0
XCFAS	0X0006	SIGPATH_070004ED	SP12	Active	Yes	No	Yes	No	Unavailable	0
XCFAS	0X0006	SIGPATH_080004E7	SP23	Active	Yes	No	Yes	No	Unavailable	0

For structure IXCTMED on LPAR400J

Hub Time: Fri, 06/29/2007 10:15 AM Server Available Users Workspace for CF Structure - IBM-PSQEU4XHHBD - JWINT

start [Taskbar icons] 10:16 AM

# Plex wide Enqueues – RRS in this example?

Global Enqueue and Reserve Workspace - IBM-6939C1631B9 - Joe Winterton

File Edit View Help

Navigator View: Physical

- Enterprise
  - Windows Systems
  - z/OS Systems
    - M542DEMO:MVS:SYSPLEX
      - Coupling Facility Policy Data for Sysplex
      - Coupling Facility Structures Data for Sysplex
      - Coupling Facility Systems Data for Sysplex
      - Global Enqueue Data for Sysplex
      - GRS Ring Systems Data for Sysplex
      - Report Classes Data for Sysplex
      - Resource Groups Data for Sysplex
      - Service Classes Data for Sysplex
      - Service Definition Data for Sysplex
      - Shared DASD Groups Data For Sysplex
      - XCF Groups Data for Sysplex
      - XCF Paths Data for Sysplex
      - XCF Systems Data for Sysplex
      - SP11
        - MVS Operating System
          - M542DEMO:SP11:MVSSYS

Logical Physical

Wait Times

Where wait time greater than 0

Owning Address Space	Waiting Address Space	System Name	Swapped	Type	ASID	Wait Time
ATRRRS	ATRRRS	SP11	NotSwapped	Exclusive	0X0031	7
ATRRRS	ATRRRS	SP12	NotSwapped	Exclusive	0X0032	1
ATRRRS	ATRRRS	SP13	NotSwapped	Exclusive	0X001D	1
ATRRRS	ATRRRS	SP22	NotSwapped	Exclusive	0X0036	3
ATRRRS	ATRRRS	SP23	NotSwapped	Exclusive	0X001C	4
ATRRRS	ATRRRS	SYSG	NotSwapped	Exclusive	0X001E	0
ATRRRS	ATRRRS	SYSL	NotSwapped	Exclusive	0X001D	2
ATRRRS	ATRRRS	SYSG	NotSwapped	Exclusive	0X001E	0

For Resource SYSZATR::X'D3D7C1D9F4F0F0D160D9C5E2E3C1D9E3' on M542DEMO

Hub Time: Wed, 01/14/2009 09:00 AM Server Available Global Enqueue and Reserve Workspace - IBM-6939C1631B9 - Joe Winterton

start Infopr... In... Josep... Glob... donn... Micros... 57% 9:00 AM



## Exploring z/OS with OMEGAMON XE on z/OS

**z196/z10 Processors – Come in all shapes and sizes !**



# What is the LPAR Setup, Busy and weight Info?

How is my z10 addressing the LPAR cpu needs?

LPAR Clusters - IBM-6939C1631B9 - Joe Winterton

File Edit View Help

Navigator

System Paging Activity

Logical Physical

LPAR Logical Utilization (e.g. Velocity)

Actual (Effective) vs. Target (Logical)

LPAR Physical Utilization

Actual (%CPU) vs. Target (%Weight)

CPC Status

CPC Model#	CPC Serial#	CPs %CPU	CPs %Overhead	CPs Weight	Physical CPs	Special CPs	MSUs	CPs Storage	Interval Time	Model Capacity ID	Model Permanent Capacity ID	Mod C
2097-756	057800	71.7	27.3	265	56	8	3395	773120	8.060	2097-756	Unavailable	Una

LPAR Clusters

Cluster Name	Physical %CPU	Overhead %CPU	Current Weight	Physical %Weight	Cluster LPARs
PERFFPLEX. 7800. 2097	7.2	0.0	0	0.0	1
TDMFFPLEX. 7800. 2097	0.2	0.0	2	0.8	1
NS45FFPLEX. 7800. 2097	0.1	0.0	26	9.8	2
MONOMO. 7800. 2097	3.0	0.4	7	2.6	1
MONOAN. 7800. 2097	1.3	0.0	3	1.1	1
PLEX1. 7800. 2097	8.7	0.7	53	20.0	3

CPC LPARs Status

Cluster Name	LPAR Name	Physical %CPU	Overhead %CPU	Current Weight	Physical %Weight	CPU Index	Effective %Weight	Logical %Weight	Effective Weight Index	Logical %CPU	CPU %Ready	WLM Managed	Initial Weight	Maximum Weight	Minimum Weight	LCP Onlir
N/A	RALVM3	8.6	2.4	48	18.1	0.5	37.4	63.4	0.6	30.2	50.6	NO	48	48	48	16
PERFFPLEX. 7800. 2097	TIVMYS4	7.2	0.0	DED	DED	Unavailable	100.2	Unavailable	Unavailable	100.0	0.0	NO	Unavailable	Unavailable	Unavailable	4
N/A	RALNS61	7.1	0.0	DED	DED	Unavailable	99.6	Unavailable	Unavailable	99.6	0.4	NO	Unavailable	Unavailable	Unavailable	4
RALNS22. 7800. 2097	RALNS22	7.1	0.0	DED	DED	Unavailable	99.3	Unavailable	Unavailable	99.3	0.8	NO	Unavailable	Unavailable	Unavailable	4
LOCAL. 7800. 2097	RALNS24	3.6	0.0	DED	DED	Unavailable	99.9	Unavailable	Unavailable	99.9	0.1	NO	Unavailable	Unavailable	Unavailable	2
LOCAL. 7800. 2097	RALNS28	3.6	0.0	DED	DED	Unavailable	100.5	Unavailable	Unavailable	100.0	0.0	NO	Unavailable	Unavailable	Unavailable	2
LOCAL. 7800. 2097	RALNS29	3.6	0.0	DED	DED	Unavailable	100.5	Unavailable	Unavailable	100.0	0.0	NO	Unavailable	Unavailable	Unavailable	2
LOCAL. 7800. 2097	RALNS25	3.5	0.0	DED	DED	Unavailable	99.3	Unavailable	Unavailable	99.3	0.8	NO	Unavailable	Unavailable	Unavailable	2
PLEX1. 7800. 2097	RALNS8	3.4	0.2	17	6.4	0.5	87.6	89.6	1.0	47.9	6.8	NO	17	17	17	4

As seen from System: SYS

Hub Time: Sun, 01/10/2010 11:15 AM

Server Available

LPAR Clusters - IBM-6939C1631B9 - Joe Winterton

# z10 - CPC Capacity Upgrade/Provisioning – 4.2.0

The screenshot displays the 'LPAR Clusters - IBM-E9503533F87 - SYSADMIN \*ADMIN MODE\*' interface. It includes a Navigator pane on the left, two bar charts at the top, and two tables at the bottom.

**LPAR Logical Utilization (e.g. Velocity)** chart: Compares Effective %Weight (green) and Logical %Weight (pink) for clusters CANSF23, CANSYS6, CANSF11, CANSF13, and CANSF22.

**LPAR Physical Utilization** chart: Compares Physical %CPU (green) and Physical %Weight (blue) for the same clusters.

**CPC Status** table:

Interval Time	Model Capacity ID	Model Permanent Capacity ID	Model Temporary Capacity ID	Model Capacity Rating	Model Permanent Capacity Rating	Model Temporary Capacity Rating	OOCoD/CPM Adjustments	CBU Adjustments
354.813	2064-109	2064-109	2064-109	265	265	265	No	No

**LPAR Clusters** table:

Cluster Name	Physical %CPU	Overhead %CPU	Current Weight	Physical %Weight	Cluster LPARs
LPAR400J.0960.2064	24.8	0.2	450	100.0	5

**CPC LPARs Status** table:

Cluster Name	LPAR Name	Physical %CPU	Overhead %CPU	Current Weight	Physical %Weight	CPU Index	Effective %Weight	Logical %Weight	Effective Weight Index	Logical %CPU	CPU %Ready	WLM Managed	Initial Weight	Maximum Weight
LPAR400J.0960.2064	CANSF23	0.8	0.0	50	11.1	0.1	34.6	50.0	0.7	3.6	6.9	NO	50	50
LPAR400J.0960.2064	CANSYS6	16.0	0.1	175	38.9	0.4	90.8	116.7	0.8	48.1	4.9	YES	175	0
N/A	RA1MSCF9	11.1	0.0	DED	DED	Unavailable	Unavailable	Unavailable	Unavailable	99.7	Unavailable	Unavailable	Unavailable	Unavailable
LPAR400J.0960.2064	CANSF11	2.4	0.0	50	11.1	0.2	58.5	50.0	1.2	10.9	7.7	NO	50	50
LPAR400J.0960.2064	CANSF13	2.0	0.0	75	18.7	0.1	80.8	150.3	0.5	17.5	4.2	NO	75	75
LPAR400J.0960.2064	CANSF22	3.6	0.1	100	22.2	0.2	64.0	66.6	1.0	10.7	6.0	YES	100	0
N/A	RA1HCD	Unavailable	Unavailable	0	0.0	Unavailable	Unavailable	0.0	Unavailable	Unavailable	Unavailable	NO	Unavailable	Unavailable
N/A	PHYSICAL	0.0	0.5	0	0.0	Unavailable	0.0	0.0	Unavailable	0.0	0.0	NO	0	0

**New Attributes:**

- TempModel, ID,
- Permanent Capacity
- OOCoD/CPM, CBU Adjustment indicators

**YES – added capacity !!**

## New in 4.2.0 - zIIP exploitation (redirect OMEGAMON collection cycles to zIIP)

- **OMEGAMON XE on z/OS DASD data collection processing is redirected to zIIPs where these are available.**
- **Redirection of processing occurs by default.**
- **zIIP redirection may be disabled by adding a “KM5ZIIPOFFLOAD=NO” statement to the RKANPARU(KDSENV) parm file.**
- **A specific area of OMEGAMON XE DASD analysis was selected for zIIP redirection.**

# Who is using the zIIP? – look at enclaves?:

**Workload CPU Usage**

Category	Value (%)
Average CPU Percent	~13
Total TCB%	~16
Total SRB%	~1
Average IFA Percent	~78
Average IFA on CP Percent	~13
Average zIIP Percent	~1
Average zIIP on CP Percent	~1
MVS Overhead	~1

**Common Storage**

System	In Use Percent
OSA	~35
ECSA	~75
SQA	~50
ESQA	~75

**Address Space CPU Utilization**

Job Name	Step Name	Proc Step	SvcClass	SvcClass Period	ASID	JESJOBID	CPU Percent	TCB Percent	SRB Percent	IFA Percent	IFA on CP Percent	zIIP Percent	zIIP on CP Percent	Independent Enclave zIIP% On CP	Total Enclave Count	Active Enclave Count	Inactive Enclave Count
DBS02BF4	DBS02BF4	02CI	STC	2	0X012C	STC03612	2.1	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
WLM	WLM	IEFPROC	SYSTEM	1	0X000B		1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
L2DBDSS	L2DBDSS	TEMS	STC	2	0X00FA	STC00295	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
GRS	GRS		SYSTEM	1	0X0007		0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
MSS042RG	MSS042RG	TEMS	STC	2	0X00ED	STC00194	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1	1	0
SSHTR1	SSHTR1	TEMS	STC	2	0X0104	STC03567	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0

**Active Users of Common Storage**

Job Name	ASID	CSA Orphaned	CSA In Use	% of Total CSA	ECSA Orphaned	ECSA In Use	% of Total ECSA	SQA Orphaned
*SYSTEM*	0X0000	No	272384	5.2	No	39845888	21.2	No
*MASTER*	0X0001	No	93184	1.8	No	2323456	1.2	No
PCAUTH	0X0002	unavailable	0	0.0	unavailable	0	0.0	No
RASP	0X0003	unavailable	0	0.0	unavailable	0	0.0	unavailable
TRACE	0X0004	unavailable	0	0.0	unavailable	0	0.0	unavailable
DUMPSRV	0X0005	unavailable	0	0.0	No	17408	0.0	No
XCFAS	0X0006	unavailable	0	0.0	No	1024	0.0	No
GRS	0X0007	unavailable	0	0.0	No	2048	0.0	No

**Enqueue and Reserve Summary**

Major Name	Minor Name	Owning Task Count	Waiting Task Count	Maximum Wait Time
KLVGLOCK	OM542DEM	0	1	0
KLVGLOCK	XK322PLE	0	1	2
KLVGLOCK	2M5420	0	1	2
SYSZTIOT	JOB=CPC503AL DSAB=007E2FC7	1	1	49

**Callout:** zIIP Processor being pushed

# What is the zIIP processor doing?:

System CPU Utilization - IBM-6939C1631B9 - Joe Winterton

File Edit View Help

Navigator View: Physical

- Address Space Overview
- Channel Path Activity
- Common Storage
- Cryptographic Coprocessors
- DASD MVS
- DASD MVS Devices
- Enclave Information
- Enqueue, Reserve, and Lock Sumr
- LPAR Clusters
- Operator Alerts
- Page Dataset Activity
- Real Storage
- System CPU Utilization**
- System Paging Activity
- Tape Drives
- User Response Time
- WLM Service Class Resources
- z/OS UNIX System Services Overv

Logical Physical

Workload CPU Usage

Partition CPU

System CPU Utilization

	Average CPU Percent	RMF MVS CPU Percent	RMF LPAR CPU Percent	Total TCB%	Total SRB%	Average IFA Percent	Average IFA on CP Percent	Average zIIP Percent	Average zIIP on CP Percent	MVS Overhead	4 Hour MSUs	HiperDispatch Management	Partition LCPD%	Partition PCPD%
	14	16.4	16.3	15	2	0	0	78	0	0	29	Off	14	0

System CPU Utilization

Partition Overhead%	Undispatched Tasks	CPUs Online	CPUs Offline	Physical CPU Count	IFAs Online	IFAs Offline	zIIPs Online	zIIPs Offline	CPU Flag	Total Enclave%	WLM Mode	IFA CrossOver	IFA HonorPriority	IFA Relative Processor Speed	zIIP HonorPriority	zIIP Relative Processor Speed
0.01	0	00,01,02		64			03		RMF	0	Goal		Yes	1.00:1	Yes	1.00:1

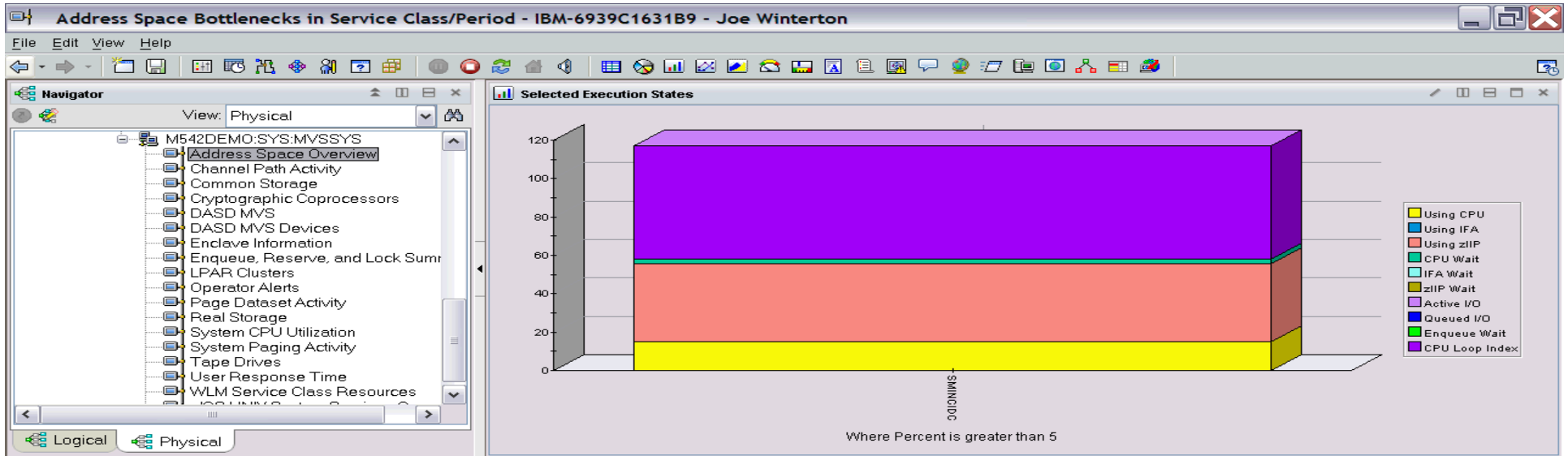
For System SYS

Hub Time: Tue, 12/09/2008 02:32 PM Server Available System CPU Utilization - IBM-6939C1631B9 - Joe Winterton

start Inprint ... Inter... New Me... System... Lotu... Microsoft... 100% 2:33 PM



# SMINCIDC LONG SQL – lots of GETPAGES:



**Address Space Bottlenecks Summary - Contention (%) by Resource**

Service Class	Period	ASID	Job Name	Step Name	Proc Step	Type	Using CPU	Using IFA	Using zIIP	CPU Wait	IFA Wait	zIIP Wait	CPU Loop Index	Active I/O	Queued I/O	Enqueue Wait	Tape Mount	Resource Group Capping	Paging Wait	Server Wait	JES Wait	HSM Wait	SWAP Wait	EC	
BATCH	2	0X0036	SMINCIDC	LONGSQL		Batch	14.8	0.0	40.8	2.7	0.0	0.0	58.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41
BATCH	2	0X0039	MDIFAGG	CANSIS	AGENT	Batch	1.0	0.0	0.0	0.5	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
BATCH	2	0X0037	MDIFATMG	CANSDET	TEMS	Batch	0.0	0.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0

**End result – Normal DB2 job doing what it does and ends in a bit over 6 hours !!**

# ICSF status in the Plex

Cross-System Cryptographic Coprocessor Overview - IBM-PSQEU4XHHBD - JWINT

File Edit View Help

View: Physical

z/OS Systems

- LPAR400J:MVS:SYSPLEX
  - Coupling Facility Policy Data for Sysplex
  - Coupling Facility Structures Data for Sysplex
  - Coupling Facility Systems Data for Sysplex
  - Global Enqueue Data for Sysplex
  - GRS Ring Systems Data for Sysplex
  - Report Classes Data for Sysplex
  - Resource Groups Data for Sysplex
  - Service Classes Data for Sysplex
  - Service Definition Data for Sysplex
  - Shared DASD Groups Data For Sysplex
  - XCF Groups Data for Sysplex

Physical

ICSF Subsystems by System

SMFID	Status	CryptoSvcs	CCMKeyOK	1 CC	1 CMOS	1 PCI	PCIStatus	Ur
SP11	Not Found	Inactive	Unknown	Unknown	Unknown	Unknown	Unknown	Ur
SP12	Active	Active	Yes	Yes	No	Yes	Active	Ye
SP13	Active	Active	Yes	Yes	Yes	No	None	Ye
SP22	Terminating	Inactive	No	No	Yes	No	None	Ye
SP23	Not Found	Inactive	Unknown	Unknown	Unknown	Unknown	Unknown	Ur
SYS	Active	Active	Yes	Yes	Yes	No	None	Ye
SYSL	Active	Active	Yes	Yes	No	Yes	Active	Ye

Service Call Performance by System

SMFID	ArrivalRate	SvcTime	Pending	Bytes
SP11	0	0.000	0	0
SP12	0	0.000	0	0
SP13	0	0.000	0	0
SP22	0	0.000	0	0
SP23	0	0.000	0	0
SYS	0	0.000	0	0
SYSL	0	0.000	0	0

Top Users by System

JOBNAME	SMFID	ArrivalRate	SvcTime	Pending	Bytes	LastSvcCall	LastSvcDesc
---------	-------	-------------	---------	---------	-------	-------------	-------------

Hub Time: Fri, 07/06/2007 08:45 AM Server Available Cross-System Cryptographic Coprocessor Overview - IBM-PSQEU4XHHBD - JWINT

start | Josep... | Micro... | Displa... | Cros... | Micro... | Address | 8:46 AM



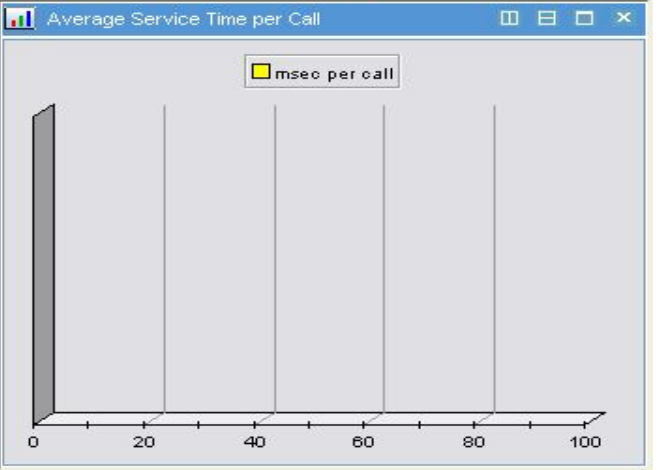
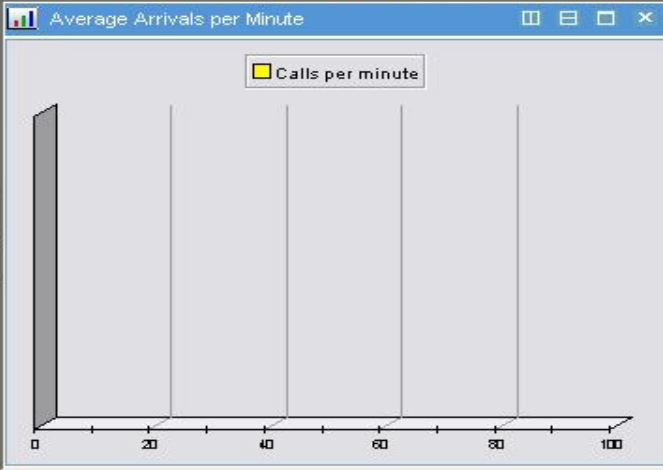
# Service Call Performance – for the LPAR

Service Call Performance - IBM-PSQEU4XHHBD - JWINT

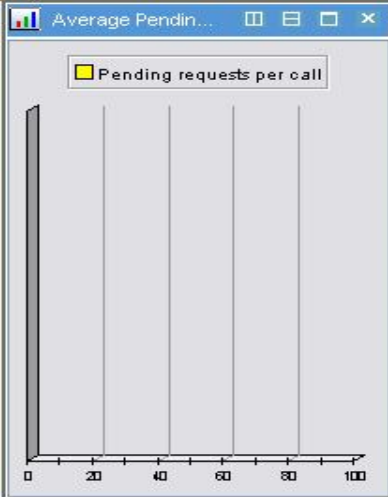
File Edit View Help

View: Physical

- MVS Operating System
  - LPAR400J:SP13:MVSSYS
    - z/OS Management Console
      - SP22
      - SP23
      - SYS
      - SYSL
  - MVS Operating System
    - LPAR400J:SYSL:MVSSYS
      - Address Space Overview
      - Channel Path Activity
      - Common Storage
      - Cryptographic Coprocessors



SvcDesc	ArrivalRate	SvcTime	Pending	Bytes	SMFID	SvcCall
ANSI X9.17 EDC Generate	0	0.000	0	0	SYSL	CSNAEGN
ANSI X9.17 Key Export	0	0.000	0	0	SYSL	CSNAKEX
ANSI X9.17 Key Import	0	0.000	0	0	SYSL	CSNAKIM
ANSI X9.17 Key Translate	0	0.000	0	0	SYSL	CSNAKTR
ANSI X9.17 Transport Key Partial ...	0	0.000	0	0	SYSL	CSNATKN
Cipher Decipher	0	0.000	0	0	SYSL	CSFEDC
Ciphertext Translate	0	0.000	0	0	SYSL	CSNBCTT
Ciphertext Translate with ALET	0	0.000	0	0	SYSL	CSNBCTT1
Clear Key Import	0	0.000	0	0	SYSL	CSNBCKI
Clear PIN Encrypt	0	0.000	0	0	SYSL	CSNBCPE
Clear PIN Generate	0	0.000	0	0	SYSL	CSNBPGN
Clear PIN Generate Alternate	0	0.000	0	0	SYSL	CSNBCPA
Control Vector Translate	0	0.000	0	0	SYSL	CSNBCVT
Cryptographic Variable Encipher	0	0.000	0	0	SYSL	CSNBCVE
Data Key Export	0	0.000	0	0	SYSL	CSNBKX
Data Key Import	0	0.000	0	0	SYSL	CSNBKIM
Decipher	0	0.000	0	0	SYSL	CSNBDEC



Hub Time: Fri, 07/06/2007 08:49 AM Server Available Service Call Performance - IBM-PSQEU4XHHBD - JWINT



## Exploring z/OS with OMEGAMON XE on z/OS

**What's up with z/OS Virtual or Real Storage ?**

# LPAR - ECSA Allocation Warning

The screenshot displays the z/OS System Overview interface. A 'Warning' event is highlighted in the Situation Event Console, titled 'OS390\_ECSA\_Allocation\_Pct\_Warn'. A blue arrow points from this event to the 'Active Users of Common Storage' table below.

Job Name	ASID	CSA Orphaned	CSA In Use	% of Total CSA	ECSA Orphaned	ECSA In Use	Total
*SYSTEM*	0X0000	No	274432	5.3	No	40894464	41168896
*MASTER*	0X0001	No	95232	1.8	No	2382848	2478080
PCAUTH	0X0002	unavailable	0	0.0	unavailable	0	0
RASP	0X0003	unavailable	0	0.0	unavailable	0	0
TRACE	0X0004	unavailable	0	0.0	unavailable	0	0
DUMPSRV	0X0005	unavailable	0	0.0	No	30720	30720
XCFAS	0X0006	unavailable	0	0.0	No	1024	1024
GRS	0X0007	unavailable	0	0.0	No	2048	2048

**Very important to monitor ECSA issues !**

# LPAR view of Common Virtual Storage usage

The screenshot displays the 'Common Storage' management interface. On the left is a 'Navigator' pane showing a tree view of system components, with 'Common Storage' selected. The main area contains two 3D bar charts and a data table. The 'In Use Percent' chart shows ECSA at approximately 91%, CSA at 35%, SQA at 100%, and ESQA at 86.3%. The 'Growth' chart shows a significant increase for ECSA, while others are near zero. The table below provides the following data:

Area	Allocation	Allocation Percent	In Use	In Use Percent	Total Size	Unowned	Growth	SQA Overflow	ESQA Overflow	Initial Size
CSA	1847296	35	1637376	31.4	5214208	209920	0	0	0	5214208
ECSA	175771648	91	173453312	90.2	192397312	8492032	138240	0	0	192397312
SQA	1126400	100	640000	56.8	1126400	34816	0	0	0	1126400
ESQA	31428608	100	27116544	86.3	31428608	194560	1032	0	0	31428608

A callout bubble points to the ECSA row in the table, containing the text: "Oh my, ECSA is over 90% and growing".

# IF1 - Common Storage subpools and key usage view

Common Storage - Subpools - IBM-6939C1631B9 - Joe Winterton

File Edit View Help

Navigator View: Physical

- M542DEMO:SYS:MVSSYS
  - Address Space Overview
  - Channel Path Activity
  - Common Storage**
  - Cryptographic Coprocessors
  - DASD MVS
  - DASD MVS Devices
  - Enclave Information
  - Enqueue, Reserve, and Lock Sumr
  - LPAR Clusters
  - Operator Alerts
  - Page Dataset Activity
  - Real Storage
  - System CPU Utilization
  - System Paging Activity
  - Tape Drives
  - User Response Time
  - WLM Service Class Resources

Logical Physical

**CSA**

Subpool	Storage Key	Extents	Storage Allocated(k)	Allocated Percent Area	Storage Used(k)	Storage Used Percent Area	Storage Used Percent Allocated	Largest Free Block	Largest Free Block Pct Allocated
227	0	3	28	0.5	16.9	0.3	60.4	3952	13.7
227	6	7	28	0.5	25.0	0.4	89.4	1920	6.6
227	7	1	4	0.0	0.1	0.0	3.5	3952	96.4
228	0	1	4	0.0	0.1	0.0	4.6	3904	95.3
228	1	1	4	0.0	2.7	0.0	67.5	1216	29.6
228	6	4	52	1.0	48.1	0.9	92.5	3936	7.3
228	7	27	120	2.3	102.3	2.0	85.2	2072	1.6

**Extended CSA**

Subpool	Storage Key	Extents	Storage Allocated(k)	Allocated Percent Area	Storage Used(k)	Storage Used Percent Area	Storage Used Percent Allocated	Largest Free Block	Largest Free Block Pct Allocated
241	0	1259	53052	28.2	52,183.6	27.7	98.3	4088	0.0
241	7	1516	43816	23.3	43,351.5	23.0	98.9	3856	0.0
231	7	2694	30048	15.9	29,981.7	15.9	99.7	1792	0.0
241	6	317	10504	5.5	10,225.1	5.4	97.3	4088	0.0
228	7	194	9712	5.1	9,652.1	5.1	99.3	2368	0.0
231	6	390	5708	3.0	5,628.4	2.9	98.6	2752	0.0
227	6	375	3376	1.7	3,364.4	1.7	99.6	1280	0.0

**SQA**

Subpool	Storage Key	Extents	Storage Allocated(k)	Allocated Percent Area	Storage Used(k)	Storage Used Percent Area	Storage Used Percent Allocated	Largest Free Block	Largest Free Block Pct Allocated
226	0	5	28	2.5	24.3	2.2	86.9		
239	0	6	24	2.1	18.3	1.6	76.3		
245	0	9	1048	95.2	582.6	52.9	55.5	45	

**Extended SQA**

Subpool	Storage Key	Extents	Storage Allocated(k)	Allocated Percent Area	Storage Used(k)	Storage Used Percent Area	Storage Used Percent Allocated	Largest Free Block	Largest Free Block Pct Allocated
226	0	5	24	0.0	24.0	0.0	100.0	0	
239	0	346	4548	14.8	3,946.0	12.8	86.7	3840	
245	0	459	2,376	69.6	17,789...	57.9	83.2	1347584	
247	0	33	840	2.7	839.5	2.7	99.9	432	
248	0	155	3904	12.7	3,886.6	12.6	99.5	3840	

**Common Storage Totals**

Area	Total Size(k)	Extents	Storage Allocated(k)	Allocated Percent Area	Storage Used(k)	Storage Used Percent Area	Storage Used Percent Allocated	Free Storage Total(k)	Free Storage Percent
CSA	5	223	1804	35.4	1,612.8	31.7	89.4	3288	64.6
<b>ECSA</b>	183	8028	171552	<b>91.3</b>	169,412.6	90.2	98.7	15720	8.4
SQA	1	20	1100	100.0	625.2	56.8	56.8	0	0.0
ESQA	30	998	30692	100.0	26,485.3	86.3	86.2	0	0.0

For System SYS

Hub Time: Fri, 12/18/2009 09:00 AM Server Available Common Storage - Subpools - IBM-6939C1631B9 - Joe Winterton

start Infoprin... Display ... Session... Mail - In... zTeleco... Microso... Welco... Com... 100% 9:00 AM

ECSA SP 241  
Key 0 and 7 are  
the big areas

# The "Real Storage" LPAR usage view

The screenshot displays the 'Real Storage' interface for LPAR IBM-6939C1631B9. It includes a Navigator pane on the left, two 3D bar charts at the top right, and two data tables at the bottom.

**Unreferenced Interval Count** (3D Bar Chart): Shows a single yellow bar representing the interval count over time (0 to 4,000 seconds).

**Available Frames** (3D Bar Chart): Shows a single yellow bar representing the number of available frames (0 to 2,400).

**Real Storage Table** (For System SP1):

Storage Type	Area Start Address	Area End Address	Total Frames Allocated	Total Fixed Frames Allocated
High Private	2G	16EB	6197	1280
Shared	0X00000000	0X00000000	133	28
Data Spaces	0X00000000	0X00000000	54316	0
Other	0X00000000	0X00000000	1128	10
Extended Private	0X0BE00000	0X7FFFFFFF	49545	13217
Extended CSA	0X078B7000	0X0BDF5FFF	5150	2455
Extended PLPA	0X028D0000	0X078B5FFF	1813	53
Extended SQA	0X01A10000	0X028CFFFF	3346	2715
Extended Nucleus	0X01000000	0X01A0FFFF	2576	2576
Nucleus	0X00FD6000	0X00FFFFFF	42	42
SQA	0X00EC3000	0X00FD5FFF	86	86
PLPA	0X00CD7000	0X00EC2FFF	138	0
CSA	0X00800000	0X00CD6FFF	116	46
Private	0X00002000	0X00801FFF	4379	1808

**Real Storage Summary** (For System SP23):

Total Frames	Online Frames	Total Fixed Frames	Available Frames	Offline Frames	Unreferenced Interval Count	Frames Used Percent
131072	131072	24316	2109	0	3660	98.3

**Annotations:**

- A blue box points to the 'Total Fixed Frames Allocated' column in the Real Storage table, containing the text: "Where are the real frames used now in z/OS".
- A blue oval points to the 'Frames Used Percent' value (98.3) in the Real Storage Summary table, containing the text: "IF1 - Frames used % - for Real Storage usage?".

System Information: Hub Time: Fri, 12/18/2009 09:05 AM; Server Available; Real Storage - IBM-6939C1631B9 - Joe Winterton; © 2011 IBM Corporation.

# The "Real Storage" z/OS alert is active now

Time of Event	Storage Shortage Type	Storage Shortage Level	Frame Type Required	Events Per Day	Time Span (Days)	Events Status
12/18/09 08:24:02	Pageable Storage	Warning	Pageable Frames DREF Fixed	4.50	2	Active Events
12/18/09 09:07:12	Available Frame Queue Shortage	Shortage	Available Queue Frames	44.00	2	No Active Events
12/18/09 09:07:16	Available Frame Queue Shortage	Relieved	Available Queue Frames	44.00	2	No Active Events

Looks like this is not a one off issue

# The "Real Storage" Alert trends on the LPAR

Storage Shortage Alerts Trends - IBM-6939C1631B9 - Joe Winterton

File Edit View Help

Navigator View: Physical

- Enterprise
  - Windows Systems
  - z/OS Systems
    - M542DEMO:MVS:SYSPLX
      - Coupling Facility Policy Data for Sysplex
      - Coupling Facility Structures Data for Sysplex
      - Coupling Facility Systems Data for Sysplex
      - Global Enqueue Data for Sysplex
      - GRS Ring Systems Data for Sysplex
      - Report Classes Data for Sysplex
      - Resource Groups Data for Sysplex
      - Service Classes Data for Sysplex
      - Service Definition Data for Sysplex
      - Shared DASD Groups Data For Sysplex
      - XCF Groups Data for Sysplex
      - XCF Paths Data for Sysplex
      - XCF Systems Data for Sysplex
    - z/OS Management Console
    - SP11
    - SP12

Logical Physical

Frames Required Trend

Trend Details

Time of Event	Storage Shortage Type	Storage Shortage Level	Frame Type Required	Frames Required
12/18/09 08:24:02	Pageable Storage	Warning	Pageable Frames DREF Fixed	12931
12/18/09 06:24:02	Pageable Storage	Warning	Pageable Frames DREF Fixed	12893
12/18/09 04:24:02	Pageable Storage	Warning	Pageable Frames DREF Fixed	12201
12/18/09 02:24:02	Pageable Storage	Warning	Pageable Frames DREF Fixed	12212
12/18/09 00:24:02	Pageable Storage	Warning	Pageable Frames DREF Fixed	12109
12/17/09 22:24:02	Pageable Storage	Warning	Pageable Frames DREF Fixed	12326
12/17/09 20:24:02	Pageable Storage	Warning	Pageable Frames DREF Fixed	12396
12/17/09 18:24:02	Pageable Storage	Warning	Pageable Frames DREF Fixed	12404
12/17/09 16:24:02	Pageable Storage	Warning	Pageable Frames DREF Fixed	12851

For System SP23

Hub Time: Fri, 12/18/2009 09:14 AM Server Available Storage Shortage Alerts Trends - IBM-6939C1631B9 - Joe Winterton

start Infoprin... Display ... Session... Mail - In... zTeleco... Microso... Welco... Stora... 100% 9:15 AM

We have a Real Memory starved LPAR



# Address Space usage of Storage - overview

The screenshot displays the 'Address Space Overview' tool interface. A central callout bubble contains the text: 'Address Space Storage overview, Common use or IF1 - LSQA view'. The interface includes a 'Navigator' pane on the left with a tree view of system components, a 'CPU Usage' chart, a 'Central Storage Frame Count' bar chart, and a 'Fixed Storage' bar chart. A table titled 'Address Space Counts' is visible in the lower-left quadrant.

Address Space Count	Started Task Count	Batch Job Count	TSO User Count	APPC Count	Total Enclave Count	Active Enclave Count	Inactive Enclave Count
3				10	6	4	

ASID	JESJOBID	CPU Percent	TCB Percent	SRB Percent	IFA Percent	IFA t Per
0X0007	STC08270	7.0	7.0	0.0	0.0	
0X0153	STC11121	3.0	3.0	0.0	0.0	
0X00A9	STC05828	2.0	2.0	0.0	0.0	
0X0006		1.0	0.0	1.0	0.0	
0X000B		1.0	1.0	0.0	0.0	
0X0010	STC09793	1.0	1.0	0.0	0.0	
0X00EB	STC05950	1.0	1.0	0.0	0.0	
0X0151	STC08238	1.0	1.0	0.0	0.0	
0X015C	STC07436	1.0	1.0	0.0	0.0	
0X0170	STC11798	1.0	1.0	0.0	0.0	



# Monitored Address space LSQA usage – IF1

Address Space Storage - Subpools and LSQA: Monitored Address Spaces - IBM-6939C1631B9 - Joe Winterton

File Edit View Help

Navigator View: Physical

- M542DEMO.SYS.MVSSYS
  - Address Space Overview
  - Channel Path Activity
  - Common Storage
  - Cryptographic Coprocessors
  - DASD MVS
  - DASD MVS Devices
  - Enclave Information
  - Enqueue, Reserve, and Lock Summ
  - LPAR Clusters
  - Operator Alerts
  - Page Dataset Activity
  - Real Storage
  - System CPU Utilization
  - System Paging Activity
  - Tape Drives
  - User Response Time
  - WLM Service Class Resources

Address Space Totals

Address Space Name	ASID	Allocation(K)	Percent Used	Real Storage(K)	Allocated Blocks	Free Storage	Free Blocks
IMS930AI	0X001C	16444	98.0	684	149	327808	127
IMS910II	0X0020	16444	98.0	700	149	327800	127
VTAM25	0X0022	35764	97.5	14776	932	897688	529
IMS910MI	0X0028	16124	98.1	616	139	302024	118
IMS9AFP2	0X005D	11784	97.0	484	169	354912	153
IMS9AFP1	0X005E	11784	97.0	488	169	354424	153
IMS9AFP3	0X005F	11724	97.0	480	176	357160	156
IMS9AMS1	0X0060	16020	97.5	1080	1095	407976	806

TCB Totals

Address Space Name	ASID	Program(TCB) Name	Program(TCB) Instance	Allocation(K)	Percent Used	Real Storage(K)	Allocated	Free	Free
IMS930AI	0X001C	RG-N-LSQA	1	9100	99.6				
IMS930AI	0X001C	IEAVAR00	2	360					
IMS930AI	0X001C	IEESB605	3	736					
IMS930AI	0X001C	DXRRLS01	4	512					
IMS930AI	0X001C	DXRRL0B0	5						
IMS930AI	0X001C	GLSTASK	6						
IMS930AI	0X001C	DXRRL0B0	7						
IMS930AI	0X001C	IEAVTSDT	8						
IMS910II	0X0020	RG-N-LSQA	1						

Subpool Key Storage Details

Address Space Name	ASID	Record Type	Program(TCB) Name	Program(TCB) Instance	Subpool	Storage Key	Allocation(K)	Percent Used	Real Storage(K)	Free	Free
IMS930AI	0X001C	Below the Line	RG-N-LSQA	1	205	0	0	0.0	0		
IMS930AI	0X001C	Above the Line	RG-N-LSQA	1	205	0	308	98.7	40		
IMS930AI	0X001C	Subpool Key Total	RG-N-LSQA	1	205	0	308	98.7	40	10	
IMS930AI	0X001C	Below the Line	RG-N-LSQA	1	215	0	0	0.0	0	0X00000000	
IMS930AI	0X001C	Above the Line	RG-N-LSQA	1	215	0	124	94.7	32	5	0X7F604000
IMS930AI	0X001C	Subpool Key Total	RG-N-LSQA	1	215	0	124	94.7	32	5	0X00000000
IMS930AI	0X001C	Below the Line	RG-N-LSQA	1	225	0	0	0.0	0	0	0X00000000
IMS930AI	0X001C	Above the Line	RG-N-LSQA	1	225	0	76	91.4	76	5	0X7F5FF000
IMS930AI	0X001C	Subpool Key Total	RG-N-LSQA	1	225	0	76	91.4	76	5	0X00000000

LSQA Usage Details

Address Space Name	ASID	LSQA Total	LSQA Allocated	LSQA Available	LSQA Largest Available	Percent LSQA Allocated	ELSQA Total	ELSQA Allocated	ELSQA Available	ELSQA Largest Available	Percent ELSQA Allocated
VTACTW@L	0X01E5	833536	337920	495616	28672	68.3	988636160	12411904	976224256	962592768	1.3
IMS910CC	0X01BE	6729728	442368	6287360	5685248	7.0	1846363136	38618112	1807745024	1767899136	2.1
IMS910AC	0X00C8	6718464	414720	6303744	5713920	6.6	1821822976	13029376	1808793600	1796210688	0.7
VTERE2	0X0212	7742464	320512	7421952	6959104	4.3	1816305664	11706368	1804599296	1787822080	0.6
IMS910BC	0X01F6	7742464	320512	7421952	6975488	4.3	1824664576	11676672	1812987904	1800404992	0.6
IMS9CCON	0X01BF	8467456	316416	8151040	7696384	3.9	1812541440	14233600	1798307840	1783627776	0.8
IMS9AMS1	0X0060	8474624	294912	8179712	7774208	3.6	1821900800	11010048	1810890752	1799356416	0.6
IMS9CFP3	0X0061	8492032	275456	8216576	7835648	3.4	1825383424	11346944	1814036480	1800404992	0.6
IMS9CFP2	0X0062	8500224	275456	8224768	7843840	3.4	1825352704	11316224	1814036480	1800404992	0.6
IMS9CFP1	0X0063	8500224	275456	8224768	7843840	3.4	1825123328	11086848	1814036480	1803550720	0.6
IMS9CMS1	0X0064	8473600	277504	8196096	7815168	3.4	1825132544	11096064	1814036480	1803550720	0.6
IMS9CMS3	0X0068	8477696	273408	8204288	7827456	3.3	1825085680	11059200	1814036480	1803550720	0.6

Address Spaces Currently Monitored by a Situation (History Eligible)

Hub Time: Fri, 12/18/2009 09:45 AM Server Available Address Space Storage - Subpools and LSQA: Monitored Address Spaces - IBM-6939C1631B9 - Joe Winterton

Are your Server Address Spaces running out of LSQA or ELSQA?



Address Space Common Storage - Active Users - IBM-PSQEU4XHHBD - JWINT

File Edit View Help

View: Physical

Service Classes Data for Sysplex  
 Service Definition Data for Sysplex  
 Shared DASD Groups Data For Sysplex  
 XCF Groups Data for Sysplex  
 XCF Paths Data for Sysplex  
 XCF Systems Data for Sysplex  
 z/OS Management Console  
 SP11  
 SP12  
 SP13  
 MVS Operating System  
 LPAR400J:SP13:MVSSYS  
 Address Space Overview  
 More...  
 z/OS Management Console  
 LPAR400J:SP13:AVAILABILITY  
 Address Space Data for z/C  
 Operations Status Data for z/

CSA Page: 1 of 3  
 % of Total CSA

ECSA Page: 1 of 3  
 % of Total ECSA

SQA Page: 1 of 3  
 % of Total ESQA

Active Users of Common Storage Page: 1 of 3

Job Name	ASID	CSA Orphaned	CSA In Use	% of Total CSA	ECSA Orphaned	ECSA In Use	% of Total ECSA	SQA Orphaned	SQA In Use	% of Total SQA	ESQA Orphaned	ESQA In Use	% Total
*SYSTEM*	0X0000	No	159744	3.1	No	18874368	26.7	No	284672	22.1	No	9470976	
Address Space Common Storage - Orphaned Elements													
Address Space Common Storage - Allocation Details													
Address Space Common Storage - Trend Details													
Link Wizard...													
Link Anchor...													
WMLP5017	0X0000	unavailable	0	0.0	No	169984	0.2	unavailable	0	0.0	unavailable	0	

For System SP13

Hub Time: Wed, 01/10/2007 10:19 AM Server Available Address Space Common Storage - Active Users - IBM-PSQEU4XHHBD - JWINT

start Joseph H ... Microsoft ... Microsoft ... Address ... Microsoft ... Address 10:19 AM

Here are the big ECSA users, \*SYSTEM\* and NET33

View: Physical

- Service Classes Data for Sysplex
- Service Definition Data for Sysplex
- Shared DASD Groups Data For Sysplex
- XCF Groups Data for Sysplex
- XCF Paths Data for Sysplex
- XCF Systems Data for Sysplex
- z/OS Management Console
- SP11
- SP12
- SP13
  - MVS Operating System
    - LPAR400J:SP13:MVSSYS
      - Address Space Overview
      - More...
  - z/OS Management Console
    - LPAR400J:SP13:AVAILABILITY
      - Address Space Data for z/OS
      - Operations Status Data for z/OS

**Look at the Large ECSA Orphaned Storage Elements !! This can be the root cause of over use of ECSA problem.**

CSA Orphaned Storage Elements

Job Name	ASID
AF0G018	0X00A1
AF0G018	0X00A1
AF0G018	0X00A1
0H3S0I00	0X008E
0H3S0I00	0X008E

ECSA Orphaned Storage Elements

Job Name	ASID	Start Address	End Address	Size	Age	Age Units	Fixed	Subpool	Storage Key	Requ Return /
\$3NDSST	0X0066	0X080C52C8	0X080E4FFF	130360	003:02	Days	No	241	0	0X0B
IRRDPTAB	0X001E	0X092550B8	0X09269FFF	85832	003:02	Days	No	241	0	0X00
0H3S02@C	0X0088	0X06B8D000	0X06B9DFFF	69632	002:11	Days	No	241	7	0X07
0H3S02@C	0X0088	0X064A1000	0X064B1FFF	69632	002:08	Days	No	241	7	0X07
0H3S02@C	0X0088	0X065B6000	0X065C6FFF	69632	002:10	Days	No	241	7	0X07

SQA Orphaned Storage Elements

Job Name	ASID	Start Address	End Address	Size	Age	Age Units	Fi
CATALOG	0X0010	0X00FCF120	0X00FCF19F	128	003:02	Days	Ye
IMSAL0GC	0X00A3	0X00FB0B00	0X00FB0B7F	128	002:10	Days	Ye
IMSAL0GC	0X00A3	0X00FC6D28	0X00FC6D3F	24	002:10	Days	Ye
IMSAL0GC	0X00A3	0X00FCA688	0X00FCA6B7	48	002:10	Days	Ye
IMSAL0GD	0X00A4	0X00FB0540	0X00FB05BF	128	002:10	Days	Ye
IMSAL0GD	0X00A4	0X00FB05C0	0X00FB063F	128	002:10	Days	Ye
M5GBRMTD	0X0065	0X00FC3FD0	0X00FC3FFF	48	003:02	Days	Ye
M5GBRMTD	0X0065	0X00FCD010	0X00FCD03F	48	003:02	Days	Ye

ESQA Orphaned Storage Elements

Job Name	ASID	Start Address	End Address	Size	Age	Age Units	Fixed
AF0G018	0X00A1	0X01B030E0	0X01B04557	5240	002:10	Days	Yes
0H3MQ	0X008E	0X026D4800	0X026D4FFF	2048	002:23	Days	No
0H3MQ	0X008E	0X026D4000	0X026D47FF	2048	002:23	Days	No
0H3MQ	0X008E	0X02098160	0X0209895F	2048	002:23	Days	No
0H3MQ	0X008E	0X01FA3800	0X01FA3FFF	2048	002:23	Days	No
0H3MQ	0X008E	0X01FA5488	0X01FA5C87	2048	002:23	Days	No
0H3MQ	0X008E	0X01CC6488	0X01CC6C87	2048	002:23	Days	No
CATALOG	0X0010	0X026112C0	0X026116BF	1024	003:02	Days	No
0H3MQ	0X008E	0X01FA3488	0X01FA37FF	888	002:23	Days	No
0H3MQ	0X008E	0X01FA3110	0X01FA3487	888	002:23	Days	No

For System SP13

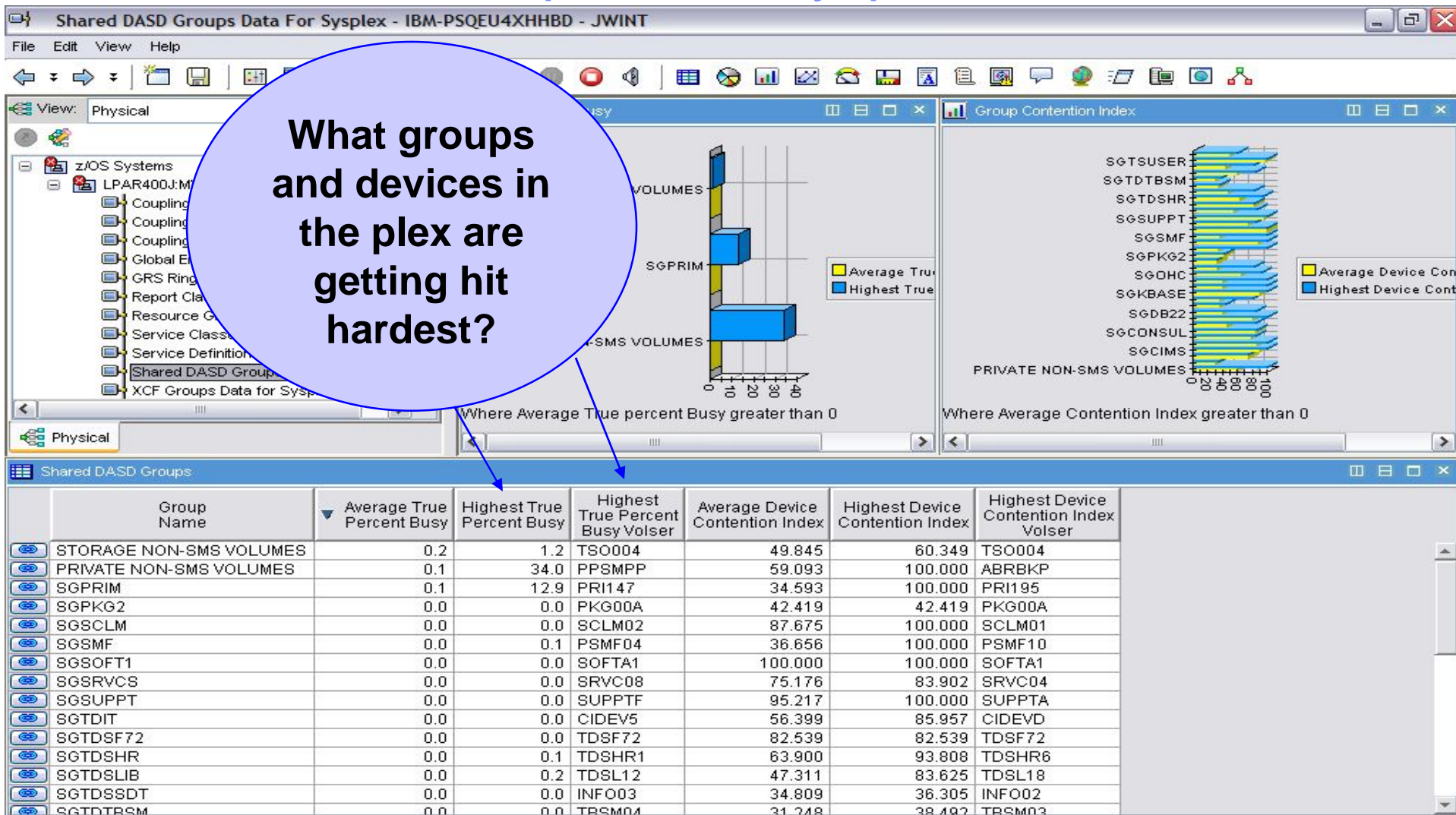


## Exploring z/OS with OMEGAMON XE on z/OS

**zOS Dasd, Dasd and more Dasd  
exploring ?**

# Shared DASD Groups in the Sysplex

What groups and devices in the plex are getting hit hardest?



For Sysplex LPAR400J



# Shared DASD Group in the Plex

Shared DASD Devices Workspace - IBM-PSQEU4XHHBD - JWINT

File Edit View Help

View: Physical

z/OS Systems

- LPAR400J:MVS:SYSPLEX
  - Coupling Facility Policy Data for Sysplex
  - Coupling Facility Structures Data for Sysplex
  - Coupling Facility Systems Data for Sysplex
  - Global Enqueue Data for Sysplex
  - GRS Ring Systems Data for Sysplex
  - Report Classes Data for Sysplex
  - Resource Groups Data for Sysplex
  - Service Classes Data for Sysplex
  - Service Definition Data for Sysplex
  - Shared DASD Groups Data For Sysplex
  - XCF Groups Data for Sysplex

Physical

True Busy

Contention Index

Page: 1 of 6

Where true busy greater than 0

Where contention index greater than 0

Device Contention Index

Shared DASD Devices

Page: 1 of 6

	Volume Serial Number	Control Unit Type	Device Type	True % Busy	Device Contention Index	Worst Response Time	Worst Response Time System	Cumulative I/O Rate	Worst Disconnect Time	Worst Disconnect Time System
	CSP131	2105	3390	0.4	48.922	78.0	SYSL	2.4	0.1	SP13
	CSP111	2105	3390	0.0	99.158	31.8	SYSL	0.1	0.0	SYS
	G1701C	3990-3	3390	0.1	14.423	15.9	SYSL	0.0	0.0	SP13
	G1801C	3990-3	3390	0.1	21.495	12.6	SP22	0.2	0.0	SYS
	CPL001	2105	3390	31.1	10.544	12.1	SP23	55.4	0.2	SP12
	G1601C	3990-3	3390	0.2	6.478	9.1	SYS	0.1	0.0	SYS
	CSP121	2107	3390	0.0	67.564	6.8	SYS	2.3	0.0	SYS
	G1802C	3990-3	3390	0.0	2.272	5.5	SYSL	0.1	0.0	SP23
	CSP221	2105	3390	0.2	39.194	3.4	SP22	1.3	0.1	SP22
	G1803C	3990-3	3390	0.0	10.860	3.4	SYS	0.1	0.0	SP22
	DAE002	2105	3390	0.6	10.031	3.3	SP23	2.2	0.2	SP23
	G1804F	3990-3	3390	0.0	9.898	2.8	SYS	0.1	0.0	SP12
	G1805F	3990-3	3390	0.0	13.100	3.0	SYS	0.4	0.0	SP23

For Group PRIVATE NON-SMS VOLUMES on LPAR400J

Hub Time: Fri, 07/06/2007 09:24 AM Server Available Shared DASD Devices Workspace - IBM-PSQEU4XHHBD - JWINT

start | 0% | Vacation Pla... | Microsoft Excel | Display all "M... | Shared DA... | Microsoft Po... | Address | 9:25 AM

**Which LPAR in the Plex is getting impacted the most?**

# LPAR – z/OS DASD view

**Checking for long response time, delay times, etc**

Address	Volume	Storage Group	Response	I/O Rate	Cache Status	Percent Reserve	PAV Count	Dev Allocations	Dev Busy Delay Time	CU Busy Delay Time	Director Port Busy Delay	LCU Number	Model	I/O Queue Time	I/O Pending Time
0X32C9	SV0013	N/A	17.5	0.3	Active	0.0	0.0	13.0	0.0	0.0	0.0	0X003A	2107	0.0	0.2
0X32CA	SV0014	N/A	7.6	0.1	Active	0.0	0.0	61.0	0.0	0.0	0.0	0X003A	2107	0.0	0.1
0X32D0	PAGL03	N/A	6.6	0.3	Active	0.0	0.0	1.0	0.0	0.0	0.0	0X003A	2107	0.0	0.3
0X32CE	OHC007	SGOHC	6.0	0.9	Active	0.0	0.0	47.0	0.0	0.0	0.0	0X003A	2107	0.0	0.2
0X327F	PP0B1P	N/A	6.0	0.4	Active	0.0	0.0	8.0	0.0	0.0	0.0	0X003A	2107	0.0	0.2
0X32D1	PAGL04	N/A	5.6	0.3	Active	0.0	0.0	1.0	0.0	0.0	0.0	0X003A	2107	0.0	0.2
0X32CF	OHC008	SGOHC	4.3	0.2	Active	0.0	0.0	37.0	0.0	0.0	0.0	0X003A	2107	0.0	0.2
0X32CD	OHC006	SGOHC	2.8	0.5	Active	0.0	0.0	113.0	0.0	0.0	0.0	0X003A	2107	0.0	0.2
0X3282	PP0C2P	N/A	1.4	0.0	Active	0.0	0.0	2.0	0.0	0.0	0.0	0X003A	2107	0.0	0.1
0X32FC	DCH8S2	SGDCHSS	0.5	0.0	Active	0.0	0.0	67.0	0.0	0.0	0.0	0X003A	2107	0.0	0.1
0X3280	PP0B2P	N/A	0.5	0.1	Active	0.0	0.0	2.0	0.0	0.0	0.0	0X003A	2107	0.0	0.1

For System SYSL

Hub Time: Mon, 07/09/2007 02:55 PM    Server Available    DASD MVS Devices - IBM-PSQEU4XHHBD - JWINT

start    0%    Joseph H Wi...    PMR - 74806...    Lotus Sa...    DASD MVS ...    Microsoft Po...    Address    2:56 PM



## Exploring z/OS with OMEGAMON XE on z/OS

**Let OMEGAMON explore 24X7 for you !**

## It is all about Situations – Availability, Performance exploring

- Situations are the building blocks of systems management logic in the Tivoli Enterprise Portal (TEP)
- Situations may be used to highlight performance problems within z/OS resources
  - ▶ Monitor z/OS resource usage (CPU, Storage, I/O)
  - ▶ Monitor z/OS sysplex effecting items (Locks, XCF, CF)
- Situations may be used to identify z/OS problems that impact availability
  - ▶ Monitor application availability
  - ▶ Monitor major subsystem (CICS, IMS, DB2) availability

# Situations—Highlight Performance And Availability Issues

**Click to see alert detail**

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

Area	Allocation	Percent	In Use	Percent	Total Size	Unowned	Growth	SQA Overflow	ESQA Overflow
CSA	2342912	62	2222080	58.8	3776512	14336	0	0	0
ECSA	133705728	36	133001216	36.2	367751168	766976	45472	0	0
SQA	0	0	679936	23.2	2928640	25600	0	0	0
ESQA	0	0	28549120	46.1	61919232	2048	600	0	0

For System MVSA

# TEP – Enterprise Console - Overview

Enterprise Status - IBM-6939C1631B9 - Joe Winterton

File Edit View Help

Navigator View: Physical

- Enterprise
  - Windows Systems
  - z/OS Systems
    - M542DEMO:MVS:SYSPLEX
      - Coupling Facility Policy Data for Sysplex
      - Coupling Facility Structures Data for Sysplex
      - Coupling Facility Systems Data for Sysplex
      - Global Enqueue Data for Sysplex
      - GRS Ring Systems Data for Sysplex
      - Report Classes Data for Sysplex
      - Resource Groups Data for Sysplex
      - Service Classes Data for Sysplex
      - Service Definition Data for Sysplex
      - Shared DASD Groups Data For Sysplex
      - XCF Groups Data for Sysplex
      - XCF Paths Data for Sysplex
      - XCF Systems Data for Sysplex
    - z/OS Management Console

Logical Physical

Situation Event Console (Active) Total Events: 8 Item Filter: Enterprise

Severity	Status	Owner	Situation Name	Display Item	Source
Critical	Open		Sysplex_Workloads_PerfIdx_Crit		M542DEMO:MVS:SYSPLEX
Warning	Open		OS390_ECDSA_Allocation_Pct_Warn		M542DEMO:SYS:MVSSYS
Warning	Open		KM5_CPU_Loop_Warn		M542DEMO:SP12:MVSSYS
Warning	Open		KM5_Storage_Shortage_Warning		M542DEMO:SYSL:MVSSYS
Warning	Open		KM5_Storage_Shortage_Warning		M542DEMO:SP22:MVSSYS
Warning	Open		KM5_Storage_Shortage_Warning		M542DEMO:SP23:MVSSYS
Warning	Open		Sysplex_DASD_Dev_ContIndx_Warn		M542DEMO:MVS:SYSPLEX
Critical	Acknowledged	JWINT	KHL_XCF_Paths_Problem		M542DEMO:zOS:ManagementConsole

Open Situation Counts - Last 24 Hours

My Acknowledged Events

Severity	Status	Owner	Name	Display Item	Source
Critical	Acknowledged	JWINT	KHL_XCF_Paths_Problem		M542DEMO:zOS:ManagementConsole
Critical	Closed	JWINT	KHL_XCF_Paths_Problem		M542DEMO:zOS:ManagementConsole
Warning	Closed	JWINT	Sysplex_DASD_Dev_ContIndx_Warn		M542DEMO:MVS:SYSPLEX
Critical	Closed	JWINT	OS390_RMF_Not_Active_Crit		M542DEMO:SP23:MVSSYS

Message Log

Status	Name	Display Item	Origin Node	Global Timestamp	Local Time
Open	Sysplex_Workloads_PerfIdx_Crit		M542DEMO:MVS:SYSPLEX	02/10/10 09:34:02	02/10/10 09:34:02
Open	OS390_ECDSA_Allocation_Pct_Warn		M542DEMO:SYS:MVSSYS	02/10/10 09:29:04	02/10/10 09:29:04
Open	KM5_Service_Class_Dynamic_Thre		M542DEMO:SP22:MVSSYS	02/10/10 09:29:04	02/10/10 09:29:04
Open	KM5_Service_Class_Dynamic_Thre		M542DEMO:SP23:MVSSYS	02/10/10 09:06:55	02/10/10 09:06:55
Open	KM5_Service_Class_Dynamic_Thre		M542DEMO:SYS:MVSSYS	02/10/10 08:44:05	02/10/10 08:44:05
Stopped	KHL_XCF_Systems_Problem			02/09/10 21:15:53	02/09/10 21:15:53
Stopped	KHL_XCF_Paths_Problem			02/09/10 21:15:42	02/09/10 21:15:42
Stopped	KHL_SMF_Problem			02/09/10 21:15:42	02/09/10 21:15:42
Stopped	KHL_Syslog_Problem			02/09/10 21:15:41	02/09/10 21:15:41
Stopped	KHL_RMF_Problem			02/09/10 21:15:38	02/09/10 21:15:38
Stopped	KHL_Paging_Dataset_Utilization			02/09/10 21:15:26	02/09/10 21:15:26
Stopped	KHL_OLTEP_Active			02/09/10 21:15:18	02/09/10 21:15:18
Stopped	KHL_High_Severity_Check			02/09/10 21:15:18	02/09/10 21:15:18
Stopped	KHL_HealthChecker_Problems			02/09/10 21:15:18	02/09/10 21:15:18
Stopped	KHL_GTF_Active			02/09/10 21:15:05	02/09/10 21:15:05

Hub Time: Wed, 02/10/2010 09:35 AM Server Available Enterprise Status - IBM-6939C1631B9 - Joe Winterton

# Is everything just fine? (or not !)

Enterprise Status - IBM-6939C1631B9 - Joe Winterton

File Edit View Help

View: Physical

**Navigator**

- Enterprise
  - Windows Systems
  - z/OS Systems
    - M542DEMO:MVS:SYSPLEX
      - Coupling Facility Policy Data for Sysplex
      - Coupling Facility Structures Data for Sysplex
      - Coupling Facility Systems Data for Sysplex
      - Global Enqueue Data for Sysplex
      - GRS Ring Systems Data for Sysplex
      - Report Classes Data for Sysplex
      - Resource Groups Data for Sysplex
    - M542DEMO:SP11:MVSSYS
    - z/OS Management Console
      - SP12
        - MVS Operating System
          - M542DEMO:SP12:MVSSYS
      - SP13
        - MVS Operating System
          - M542DEMO:SP13:MVSSYS

**Situation Event Console** (Active) Total Events: 6 Item Filter: Enterprise

Severity	Status	Owner	Situation Name	Display Item	Source
Critical	Open		Sysplex_Workloads_PerfIdx_Crit		M542DEMO:MVS:SYSPLEX
Critical	Acknowledged	JWINT	KHL_XCF_Paths_Problem		M542DEMO:ZOS:ManagementConsole
Warning	Open		KM5_Storage_Shortage_Warning		M542DEMO:SP23:MVSSYS
Critical	Acknowledged	JWINT	OS390_RMF_Not_Active_Crit		M542DEMO:SP23:MVSSYS
Critical	Acknowledged	JWINT	KHL_RMF_Problem		M542DEMO:ZOS:ManagementConsole
Warning	Acknowledged	JWINT	Sysplex_DASD_Dev_ContIndx_Warn		M542DEMO:MVS:SYSPLEX

**CRITICAL**  
 Sysplex\_Workloads\_PerfIdx\_Crit M542DEMO:MVS:SYSPLEX 01/27/10 10:45:39

KFWITM101| Select workspace link button to view situation event results.

**Open Situation Counts - Last 24 Hours**

**My Acknowledged Events**

Severity	Status	Owner	Name	Display Item	Source
Warning	Acknowledged	JWINT	Sysplex_DASD_Dev_ContIndx_Warn		M542DEMO:MVS:SYSPLEX
Critical	Acknowledged	JWINT	OS390_RMF_Not_Active_Crit		M542DEMO:SP23:MVSSYS
Critical	Acknowledged	JWINT	KHL_RMF_Problem		M542DEMO:SP23:AVAILABILITY
Critical	Acknowledged	JWINT	KHL_XCF_Paths_Problem		M542DEMO:ZOS:ManagementConsole

**Message Log**

Status	Name	Display Item	Origin Node	Global Timestamp	Local Time
Open	KM5_Service_Class_Dynamic_Thre		M542DEMO:SP23:MVSSYS	01/27/10 10:45:57	01/27/10 1
Open	Sysplex_Workloads_PerfIdx_Crit		M542DEMO:MVS:SYSPLEX	01/27/10 10:45:39	01/27/10 1
Open	KM5_Service_Class_Dynamic_Thre		M542DEMO:SP11:MVSSYS	01/27/10 10:20:56	01/27/10 1
Open	KM5_Service_Class_Dynamic_Thre		M542DEMO:SP12:MVSSYS	01/27/10 09:54:49	01/27/10 0

Hub Time: Wed, 01/27/2010 10:48 AM Server Available Enterprise Status - IBM-6939C1631B9 - Joe Winterton

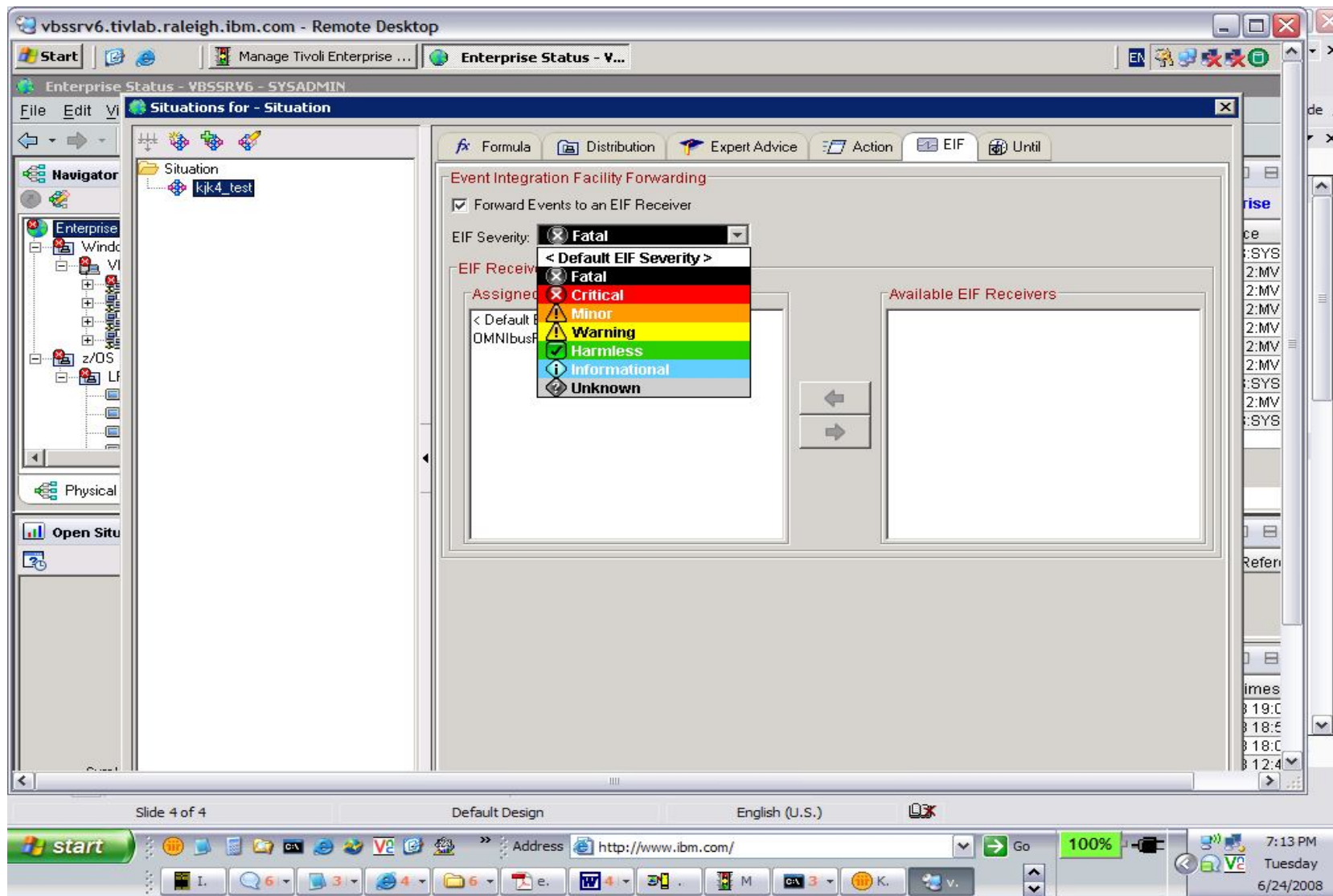
start Infoprint M... Intern... Lotus ... Enterpris... Microsoft P... IBM Lotus ... On Deman... 100% 10:48 AM

## Tivoli Event Console (TEC) and Netcool/OMINbus event forwarding enablement- 4.2.0

- With Tivoli Enterprise Console (TEC) or Netcool/OMNIBus, in addition to IBM Tivoli Monitoring, to manage events, you can now forward events reported by OMEGAMON XE on z/OS monitoring agents to these event management products.
- Before events can be forwarded, event forwarding must be enabled on the hub monitoring server, and a default destination server must be defined. In addition, the TEC or Netcool/OMNIBus server (the event server) must be configured to receive the events, a forwarding process must be installed on the event server, and, for events forwarded to TEC a baroc file for the agent must be installed and imported on the event server.
- After situation forwarding is enabled, by default all situation events are forwarded to the specified event server. However, you can customize which situation events are forwarded and to which event server, using the Situation editor in the Tivoli Enterprise Portal.



# Tivoli Event Console (TEC) and Netcool/OMINbus event forwarding enablement, TEP ... Situation definition:



# Tivoli Event Console (TEC) and Netcool/OMINbus event forwarding enablement, ... TEPS Console (ITM events):

The screenshot displays the Tivoli Enterprise Status console interface. The top navigation pane shows a tree view of system components, including Windows Systems (VBSSRV6) and z/OS Systems (LPAR400J:MVS:SYSPLEX). The main area is divided into several panels:

- Situation Event Console:** A table listing active events with columns for Severity, Status, Owner, Situation Name, Display Item, and Source. A pink oval highlights the 'Owner' column.
- Open Situation Counts - La...:** A bar chart showing the count of events for various situation names.
- My Acknowledged Events:** A table listing events with columns for Severity, Status, Owner, Situation Name, Display Item, Source, Impact, Opened, Local Timestamp, Type, and Reference ID.
- Message Log:** A table listing event messages with columns for Status, Name, Display Item, Origin Node, and Global Timestamp.

The status bar at the bottom indicates: Hub Time: Tue, 06/24/2008 07:09 PM, Server Available, and Enterprise Status - VBSSRV6 - SYSADMIN.

Severity	Status	Owner	Situation Name	Display Item	Source
Critical	Open		Sysplex_Workloads_PerfIdx_Crit		LPAR400J:MVS:SYSPLEX
Critical	Open	kjk5_test			LPAR400J:SP22:MVSSYS
Critical	Open	kjk4_test			LPAR400J:SP22:MVSSYS
Critical	Open	kjk3_test			LPAR400J:SP22:MVSSYS
Critical	Open	kjk2_test			LPAR400J:SP22:MVSSYS
Critical	Open	kjk1_test			LPAR400J:SP22:MVSSYS
Critical	Open	OS390_LPAR_OverheadPercent_Crit			LPAR400J:SP22:MVSSYS
Warning	Open	OS_CMD_DASD_Device_ContIdx_Warn			LPAR400J:MVS:SYSPLEX
Critical	Open	OS390_AvgCPU_Pct_Crit			LPAR400J:SP22:MVSSYS
Warning	Open	Sysplex_DASD_Dev_ContIdx_Warn			LPAR400J:MVS:SYSPLEX
Critical	Open	KR9_TBSM_Web_App_Critical			VBSSRV6:R9

Situation Name	Count
testme	1
kjk5_test	1
kjk4_test	1
kjk3_test	1
kjk2_test	1
kjk1_test	1
Sysplex_Workloads_PerfIdx_Crit	1
OS_CMD_WLM_Performance_Idx_Crit	1
OS_CMD_DASD_Device_ContIdx_Warn	1
OS390_LPAR_OverheadPercent_Crit	1

Severity	Status	Owner	Situation Name	Display Item	Source	Impact	Opened	Local Timestamp	Type	Reference ID
	Open		Sysplex_Workloads_PerfIdx_Crit		LPAR400J:MVS:SYSPLEX			06/24/08 19:01:51		
	Closed		Sysplex_Workloads_PerfIdx_Crit		LPAR400J:MVS:SYSPLEX			06/24/08 18:56:51		
	Open		Sysplex_Workloads_PerfIdx_Crit		LPAR400J:MVS:SYSPLEX			06/24/08 18:06:51		
	Open	kjk5_test			LPAR400J:SP22:MVSSYS			06/24/08 12:41:31		
	Open	kjk4_test			LPAR400J:SP22:MVSSYS			06/24/08 12:36:30		
	Open	kjk3_test			LPAR400J:SP22:MVSSYS			06/24/08 12:31:40		
	Open	kjk2_test			LPAR400J:SP22:MVSSYS			06/24/08 12:21:50		
	Open	kjk1_test			LPAR400J:SP22:MVSSYS			06/24/08 12:16:27		
	Open	OS390_LPAR_OverheadPercent_Crit			LPAR400J:SP22:MVSSYS			06/24/08 11:29:46		

Status	Name	Display Item	Origin Node	Global Timestamp
Open	Sysplex_Workloads_PerfIdx_Crit		LPAR400J:MVS:SYSPLEX	06/24/08 19:01:51
Closed	Sysplex_Workloads_PerfIdx_Crit		LPAR400J:MVS:SYSPLEX	06/24/08 18:56:51
Open	Sysplex_Workloads_PerfIdx_Crit		LPAR400J:MVS:SYSPLEX	06/24/08 18:06:51
Open	kjk5_test		LPAR400J:SP22:MVSSYS	06/24/08 12:41:31
Open	kjk4_test		LPAR400J:SP22:MVSSYS	06/24/08 12:36:30
Open	kjk3_test		LPAR400J:SP22:MVSSYS	06/24/08 12:31:40
Open	kjk2_test		LPAR400J:SP22:MVSSYS	06/24/08 12:21:50
Open	kjk1_test		LPAR400J:SP22:MVSSYS	06/24/08 12:16:27
Open	OS390_LPAR_OverheadPercent_Crit		LPAR400J:SP22:MVSSYS	06/24/08 11:29:46

# Tivoli Event Console (TEC) and Netcool/OMINbus event forwarding enablement, ... TEC Console (forwarded events):

The screenshot displays the IBM Tivoli Enterprise Console Event Viewer interface. The top window, titled "vbssrv4 - Event Viewer: Group AllActiveEvents - All Active Events", shows a "Working Queue" with 30 selected events. Below this is a table of event details with columns for Time Received, Event Type, Class, Hostname, Severity, Status, and Message. A pink oval highlights the "Acknowledge", "Close", "Details", and "Information" buttons at the bottom of this window.

Time Received	Event Ty...	Class	Hostname	Severity	Status	Message
24. Juni 2008 03:45:28 EDT	Other	ITM_TCP_...	VBSSRV6	Minor	Open	testme[(Segments_Sent/sec>0 ) ON Primary:VBSSRV6:NT (Segments_...
24. Juni 2008 03:50:25 EDT	Other	ITM_TCP_...	VBSSRV6	Minor	Open	testme[(Segments_Sent/sec>0 ) ON Primary:VBSSRV6:NT (Segments_...
24. Juni 2008 03:55:23 EDT	Other	ITM_TCP_...	VBSSRV6	Minor	Open	testme[(Segments_Sent/sec>0 ) ON Primary:VBSSRV6:NT (Segments_...
24. Juni 2008 04:25:23 EDT	Other	ITM_TCP_...	VBSSRV6	Minor	Open	testme[(Segments_Sent/sec>0 ) ON Primary:VBSSRV6:NT (Segments_...
24. Juni 2008 04:29:24 EDT	Other	ITM_TCP_...	VBSSRV6	Minor	Open	testme[(Segments_Sent/sec>0 ) ON Primary:VBSSRV6:NT (Segments_...
24. Juni 2008 04:55:23 EDT	Other	ITM_TCP_...	VBSSRV6	Minor	Open	testme[(Segments_Sent/sec>0 ) ON Primary:VBSSRV6:NT (Segments_...
24. Juni 2008 09:28:24 EDT	Other	ITM_TCP_...	VBSSRV6	Minor	Open	testme[(Segments_Sent/sec>0 ) ON Primary:VBSSRV6:NT (Segments_...
24. Juni 2008 11:31:50 EDT	Other	ITM_Syste...	SP22	Critical	Open	OS390_LPAR_OverheadPercent_Crit[(Partition_Overhead%>=0.00 ) O...
24. Juni 2008 11:42:34 EDT	Other	ITM_Syspl...	sp22.tivla...	Critical	Open	OS_CMD_WLM_Performance_Idx_Crit[(Performance_Index>=0.00 ) O...
24. Juni 2008 12:18:31 EDT	Other	ITM_USS_...	SP22	Warning	Open	kjk1_test[(CPU_Seconds>=0.000 ) ON LPAR400]:SP22:MYSSYS (CPU_...
24. Juni 2008 12:23:54 EDT	Other	ITM_USS_...	SP22	Warning	Open	kjk2_test[(CPU_Time%<>99.00 ) ON LPAR400]:SP22:MYSSYS (CPU_TI...
24. Juni 2008 12:33:44 EDT	Other	ITM_Addr...	SP22	Critical	Open	kjk3_test[(Independent_Enclave_zlIP%.On_CP<>99.0 ) ON LPAR400]:...
24. Juni 2008 12:38:34 EDT	Other	ITM_Addr...	SP22	Fatal	Open	kjk4_test[(Independent_Active__Enclave_Count<>99 ) ON LPAR400]:...
24. Juni 2008 12:43:35 EDT	Other	ITM_DASD...	SP22	Warning	Open	kjk5_test[(I/O_Rate<>99.0 ) ON LPAR400]:SP22:MYSSYS (I/O_Rate=...
24. Juni 2008 19:18:57 EDT	Other	ITM_Syspl...	sp22.tivla...	Critical	Open	Sysplex_Workloads_PerfIdx_Crit[(Performance_Index>1.50 ) ON LPAR...

The bottom window, titled "All Events", shows a list of all events with the same columns as the top window. The severity levels range from Minor to Critical, and the status is consistently "Open".

# Tivoli Event Console (TEC) and Netcool/OMINbus event forwarding enablement, ... Netcool Console (forwarded events):

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

Node	Alert Group	Summary	Last Occurrence	Count	
LPAR400J:SP22:MV...	ITM_Address_Space_CPU_Utilization	kjk4_test([Independent_Active_Enclave_Count<99 ] ON LPAR400J:SP22:MVSSYS ([indep...	6/24/2008 12:37:24...	2	ITM.P
LPAR400J:SP22:MV...	ITM_Address_Space_CPU_Utilization	kjk3_test([Independent_Active_Enclave_zIIP%_On_CP<99.0 ] ON LPAR400J:SP22:MVSSYS ([indep...	6/24/2008 12:32:34...	2	ITM.P
LPAR400J:MVS:SY...	ITM_Sysplex_WLM_Service_Class_Period	OS_CMD_WLM_Performance_Idx_Crit([Performance_Index>1.50 ] ON LPAR400J:MVS:SYSPL...	6/24/2008 11:45:30...	5	ITM.P
VBSSRV6:R9	ITM_KRS_TBSM_URL_MONITOR	KR9_TBSM_Web_App_Critical([HTT... ON VBSSRV6:R9 ([HTTPr...	6/21/2008 2:54:03...	1	ITM.P
vbssrv5	Administrator	Attempt to login as root from host vbssrv5 failed	6/20/2008 10:19:38...	1	Proble
Primary:VBSSRV6:NT	ITM_TCP_Statistics	testme([Segments_Sent/sec>0 ] ON Primary:VBSSRV6:NT ([Segments_Sent/sec=2 ])	6/24/2008 9:27:14 ...	1	ITM.P
VBSSRV5	isql	A isql process running on VBSSRV5 has connected as username root	6/20/2008 11:11:46...	1	Proble
LPAR400J:SP22:MV...	ITM_DASD_MVS_Devices	kjk5_test([I/O_Rate<99.0 ] ON LPAR400J:SP22:MVSSYS ([I/O_Rate=0.0 ])	6/24/2008 12:42:26...	2	ITM.P
LPAR400J:SP22:MV...	ITM_USS_Address_Spaces	kjk2_test([CPU_Time%<99.00 ] ON LPAR400J:SP22:MVSSYS ([CPU_Time%=0.08 ])	6/24/2008 12:22:44...	2	ITM.P
LPAR400J:SP22:MV...	ITM_USS_Address_Spaces	kjk1_test([CPU_Seconds>=0.000 ] ON LPAR400J:SP22:MVSSYS ([CPU_Seconds=747.472 ])	6/24/2008 12:17:21...	3	ITM.P
LPAR400J:MVS:SY...	ITM_Sysplex_DASD	OS_CMD_DASD_Device_ConfIdx_Warn([Average_Device_Contention_Index>=0.000 ] ON LPA...	6/23/2008 8:43:30 ...	1	ITM.P
LPAR400J:MVS:SY...	ITM_Sysplex_DASD	Sysplex_DASD_Dev_ConfIdx_Warn([Average_Device_Contention_Index>0.500 ] ON LPAR40...	6/23/2008 4:07:47 ...	1	ITM.P
vbssrv5	Windows Event List	A NT Event List@092A15EC process running on vbssrv5 has connected as username root	6/20/2008 2:48:46 ...	2	Proble
LPAR400J:MVS:SY...	ITM_Sysplex_WLM_Service_Class_Period	Sysplex_workloads_PerfIdx_Crit([Performance_Index>1.50 ] ON LPAR400J:MVS:SYSPL...	6/24/2008 7:02:46 ...	1	ITM.P

0 rows selected | 6/24/2008 7:15:35 PM | root | NCOMS [PRI]

## Summary

- What is new with OMEGAMON XE on z/OS 4.2.0
- z/OS Workloads - where is the pain today?
- Exploring one z/OS LPAR – Lets do it !
- Perplexed with your Sysplex?
- z196/z10 Processor's – come in all shapes and sizes
- z/OS Storage – what's up with Virtual and Real?
- z/OS DASD, DASD and more DASD exploring
- Let OMEGAMON explore 24X7 for you !

# Thank You for Joining Us today!

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

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