

zEnterprise eXposed!

Experiences with zManager

Guest Platform Management Provider

Session 10908

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Platform Performance Management

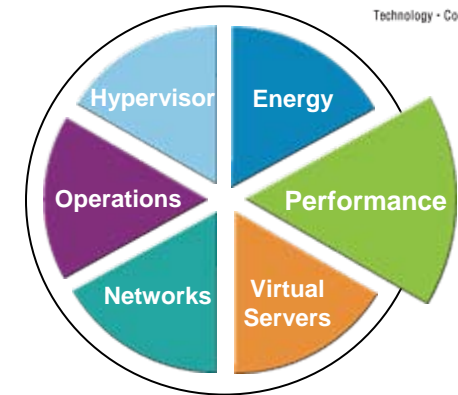
- ◆ Role
- ◆ Workloads
- ◆ Application Response Measurement
- ◆ Guest Platform Management Provider

Reports

- ◆ Workloads report
- ◆ Virtual servers report
- ◆ Hops report
- ◆ Topology report

Platform Performance Management

- ▶ zManager component responsible for workload based, goal oriented resource management, monitoring, and reporting
- ▶ Scope is the ensemble
- ▶ User interface is the ensemble HMC
- ▶ Workload goals are specified in workload performance policy
- ▶ Workload monitoring to determine if performance goals are being met
- ▶ Manage processor resources across AIX virtual servers and z/VM virtual servers
- ▶ Optional Guest Platform Management Provider to interface with operating systems



PPM Key Pieces



A workload is a customer defined collection of virtual servers

- ◆ Provides a way to group virtual servers to manage and monitor performance for a business application
- ◆ Has one or more performance policies
- ◆ Specify workload importance and goals in performance policy

Virtual servers in a workload

- ◆ Must be in the same ensemble
- ◆ Can be on different blades or nodes
- ◆ May reside in more than one workload
- ◆ Virtual servers not assigned to a custom workload are in default workload

Performance Policy

Active performance policy is used by zManager to manage platform resources used by the virtual servers

A 'Default' performance policy is provided

Additional policies may be defined, as needed

Only one policy can be active

Change active policy dynamically

Each performance policy has

- ◆ A name
- ◆ Business importance:
Highest, High, Medium, Low, or Lowest
- ◆ One or more service classes

Service Classes

Performance policy has a 'default' service class

Additional service classes may be defined

Each service class has

- ◆ A name
- ◆ Performance goal type
 - Discretionary
 - Velocity – Fastest, Fast, Moderate, Slow, Slowest
- ◆ Business importance for velocity goal
 - Highest, High, Medium, Low, or Lowest
- ◆ Classification rules to assign incoming work to service class

zManager will assign a PI for every service class

- ◆ $PI = 1.0$ – Service Class Achieving Goal
- ◆ $PI > 1.0$ – Service Class Missing Goal
- ◆ $PI < 1.0$ – Service Class Overachieving Goal

Defining a Workload



New Workload

Hardware Management Console

Ensemble Management > ATSENS1 > **Workloads**

Workloads | Topology

Filter

Select ^	Name ^	Virtual Servers ^	Performance Policy ^
<input type="checkbox"/>	Default	106	Default

Tasks: Workloads

- Configuration
 - [New Workload](#)

New Workload: Create a new ensemble workload. - Click to launch

New Workload Wizard



New Workload - ATSENS1



→ Welcome

Workload Name

Select Virtual Servers

Create Performance Policy

Create Service Class

Service Class Goal

Classification Rule

Manage Service Classes

Manage Performance Policies

Activate Policy

Summary

Welcome

Welcome to the New Workload wizard.

Use this wizard to create a workload. A workload provides you with a resource through which you can manage and monitor the end-to-end work being done by your virtual servers.

This wizard guides you through the following tasks:

- Naming and categorizing the workload
- Defining the virtual servers which perform work
- Creating performance policies to specify performance goals
- Creating service classes to prioritize and classify work within a policy
- Activating a performance policy

Workload Name



New Workload - ATSENS1

✓ [Welcome](#)

→ [Workload Name](#)

Select Virtual Servers

Create Performance Policy

Create Service Class

Service Class Goal

Classification Rule

Manage Service Classes

Manage Performance Policies

Activate Policy

Summary

Workload Name

Enter a name, description, and category for the workload.

Name: *Trade_wkld

Description: Mary's Trade Workload

Category:

Workload Virtual Servers

Select Virtual Servers

Select virtual servers and custom groups to add into the workload. Adding a custom group into the workload adds all virtual servers in the group.

Show:

Available Virtual Servers:

Select ^	Name ^	Hyperviso ^	Workloads ^
<input type="checkbox"/>	zmgrt1a	B.2.01	
<input type="checkbox"/>	zmgrt1c	B.2.03	
<input type="checkbox"/>	zmgrt1d	B.2.03	
<input type="checkbox"/>	zmgrt1h	B.2.03	
<input type="checkbox"/>	zmgrt1w	B.2.03	
<input type="checkbox"/>	zmgrt2c	B.2.04	
<input type="checkbox"/>	zmgrt2d	B.2.04	
<input type="checkbox"/>	zmgrt2h	B.2.04	ZMGRT2
<input type="checkbox"/>	zmgrt2w	B.2.04	ZMGRT2
<input type="checkbox"/>	zmgrt3c	B.2.05	
<input type="checkbox"/>	zmgrt3d	B.2.05	

--- Select Action ---

Total: 185 Filtered: 185 Selected: 0

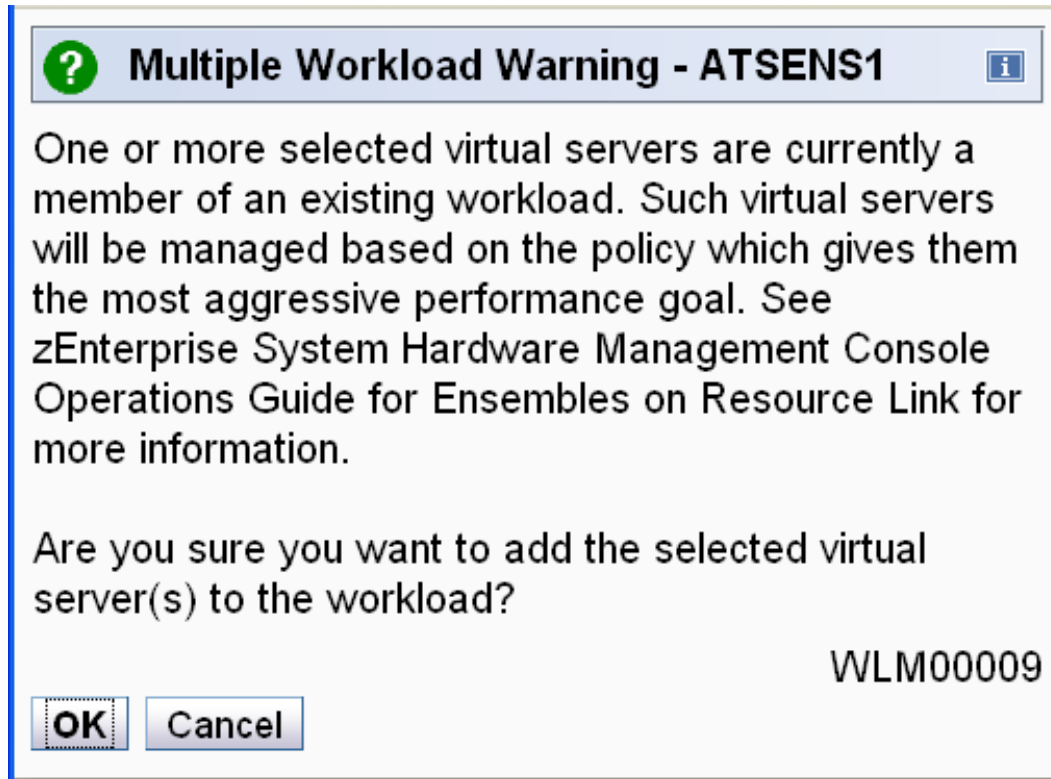
Selected:

- [rjaihsx1 \(C.1.02\)](#)
- [TOSP11 \(TSYS\)](#)
- [zmgrt1h \(B.2.03\)](#)
- [zmgrt1w \(B.2.03\)](#)
- [zmgrt2w \(B.2.04\)](#)

Add >

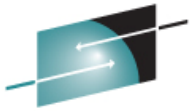
< Remove

Virtual Server in Multiple Workloads



If a virtual server is currently in a workload, a warning message is issued

Workload Performance Policy



SHARE

Connections - Results

Create Performance Policy

You may create a performance policy for the workload now or use the default performance policy and create a performance policy later.

*Create Option

Default

New

New based on:

Policy Details

Workload: Trade_wkld

Name: *Trade_policy

Description: Performance policy for Trade application

Business importance: *High

- Highest
- High
- Medium
- Low
- Lowest

Workload Service Class



SHARE
Technology • Connections • Results

Create Service Class - Trade_policy

You may create a service class for the performance policy now or use the default service and create a service class later.

*Create Option

Default

New

New based on: ▼

Service Class Details

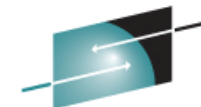
Workload: Trade_wkld

Performance policy: Trade_policy

Name: *TradeSC

Description: Service Class for Trade application

Workload SC Performance Goal



SHARE
Technology - Connections - Results

Service Class Goal - Trade_policy:TradeSC

Select the performance goal and business importance for this service class.

Performance Goal

Velocity: * Fast

Discretionary

Business importance: * High

- Highest
- High**
- Medium
- Low
- Lowest

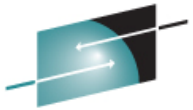
Performance Goal

Velocity: * Moderate

Discretionary

Business importance: * Moderate

- Fastest
- Fast
- Moderate**
- Slow
- Slowest



Workload Classification Rule

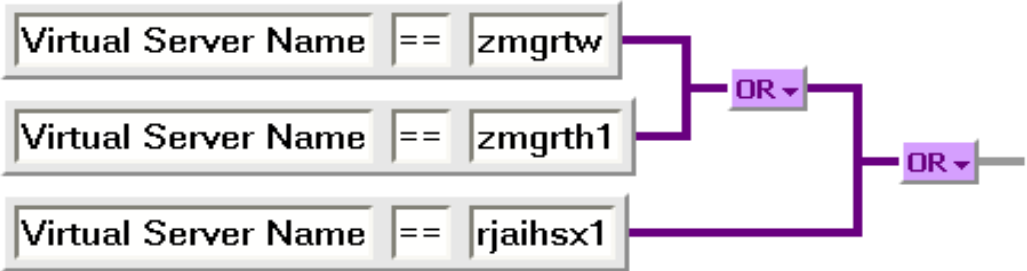
Classification Rule - Trade_policy:TradeSC

Define the service class's classification rule using the rule builder.

Classification rule:

Logical Operators

AND OR



<Select Filter Type> == ?

- Hostname
- OS Level
- OS Name
- OS Type
- Virtual Server Name

Workload Service Classes



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Technology · Connections · Results

Manage Service Classes - Trade_policy

Create, delete, edit, or re-order service classes for this policy.

--- Select Action ---

Select	Service Class	Performance Goal	Business Importance	Description
<input type="radio"/>	TradeSC	Velocity - Fast	High	Service Class for Trade application
<input type="radio"/>	Default	Velocity - Moderate	Medium	The default workload performance
		Total: 2 Selected: 0		

Workload Performance Policies

Manage Performance Policies

Use the table below to edit or delete a defined performance policy or create another performance policy.

--- Select Action ---

Select	Performance Policy	Business Importance	Description
<input type="radio"/>	Trade_policy	High	Performance policy for Trade application
<input type="radio"/>	Default	Medium	The default workload performance policy
Total: 2 Selected: 0			

Workload Activate Performance Policy

Activate Policy

Select the performance policy to activate when the workload is created.

--- Select Action --- ▾

Select	Performance Policy	Business Importance	Description
<input checked="" type="radio"/>	Trade_policy	High	Performance policy for Trade application
<input type="radio"/>	Default	Medium	The default workload performance polic
		Total: 2	

Launch Customize Scheduled Operations to schedule future performance policy activations. The task will be launched after the workload has been created.

Workload Summary



New Workload - ATSENS1

- ✓ [Welcome](#)
- ✓ [Workload Name](#)
- ✓ [Select Virtual Servers](#)
- ✓ [Create Performance Policy](#)
- ✓ [Create Service Class](#)
- ✓ [Service Class Goal](#)
- ✓ [Classification Rule](#)
- ✓ [Manage Service Classes](#)
- ✓ [Manage Performance Policies](#)
- ✓ [Activate Policy](#)
- [Summary](#)

Summary

Click Finish to create the workload, its performance policies and their service classes and activate the selected policy.

Workload

Name: Trade_wkld
Active performance policy: Trade_policy
Description: Mary's Trade Workload
Category:
Virtual servers: TSYS.B.2.B.2.03.zmgrt1h
TSYS.B.2.B.2.03.zmgrt1w
TSYS.B.2.B.2.04.zmgrt2w
TSYS.C.1.C.1.02.rjaihsx1
TSYS.TOSP11

Custom groups:

Performance Policies

Workload Summary - Default Policy



New Workload - ATSENS1

- ✓ [Welcome](#)
- ✓ [Workload Name](#)
- ✓ [Select Virtual Servers](#)
- ✓ [Create Performance Policy](#)
- ✓ [Create Service Class](#)
- ✓ [Service Class Goal](#)
- ✓ [Classification Rule](#)
- ✓ [Manage Service Classes](#)
- ✓ [Manage Performance Policies](#)
- ✓ [Activate Policy](#)
- [Summary](#)

Summary

Click Finish to create the workload, its performance policies and their service classes and activate the selected policy.

Performance Policies

Default

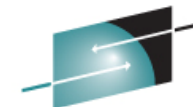
Description:	The default workload performance policy
Business importance:	Medium

Service Classes

Default

Description:	The default workload performance policy service class.
Performance goal:	Velocity - Moderate
Business importance:	Medium
Classification rule:	. * == ". *"

Workload Summary - Trade_Policy



New Workload - ATSENS1

- ✓ [Welcome](#)
- ✓ [Workload Name](#)
- ✓ [Select Virtual Servers](#)
- ✓ [Create Performance Policy](#)
- ✓ [Create Service Class](#)
- ✓ [Service Class Goal](#)
- ✓ [Classification Rule](#)
- ✓ [Manage Service Classes](#)
- ✓ [Manage Performance Policies](#)
- ✓ [Activate Policy](#)
- [Summary](#)

Summary

Click Finish to create the workload, its performance policies and their service classes and activate the selected policy.

Trade_policy

Description: Performance policy for Trade application
Business importance: High

Service Classes

TradeSC

Description: Service class for Trade application
Performance goal: Velocity - Fast
Business importance: High
Classification rule: ((Virtual Server Name == "zmgrtw"
OR Virtual Server Name == "zmgrth1")
OR Virtual Server Name == "rjaihsx1")

Default

Description: The default workload performance policy service class.
Performance goal: Velocity - Moderate
Business importance: Medium
Classification rule: .* == ".*"

< Back

Next >

Finish

Cancel

Help

Workload Created



Workload Created - ATSENS1



Workload "Trade_wkld" has been created.
Launch [Workload Details](#) to view performance policy activation progress. Launch [Workloads Report](#) to monitor the workload.

OK

Ensemble Management > ATSENS1 > **Workloads**





Workloads Topology



Filter

Tasks

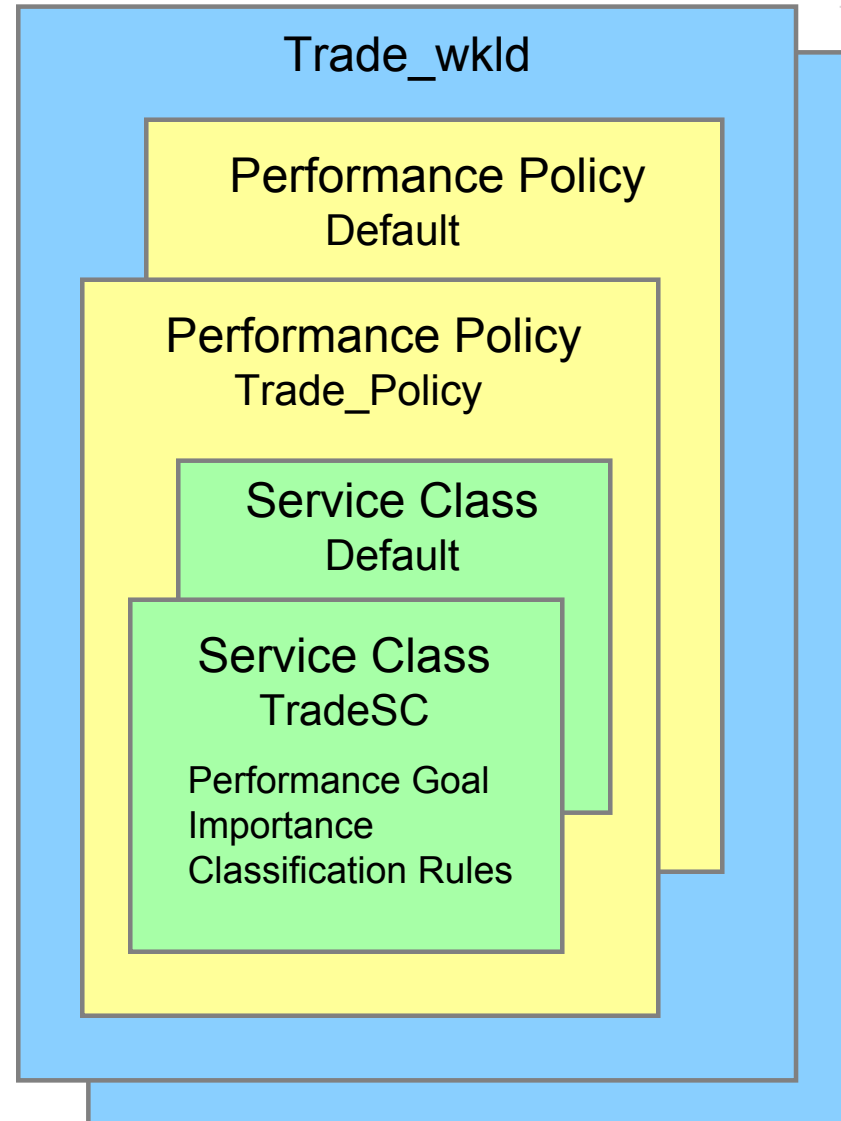
Views

Select ^	Name ^	Virtual Servers ^	Performance Policy ^	Performance Policy Status ^	Performance Policy Business Importance ^
<input type="checkbox"/>	 Default	106	Default	Active	Medium
<input type="checkbox"/>	 rja_wkld	4	rja_wkld1	Active	Highest
<input type="checkbox"/>	 Test zVM Workload	0	Test zVM Policy	Active	Medium
<input type="checkbox"/>	 Trade_wkld	5	Trade_policy	Active	High

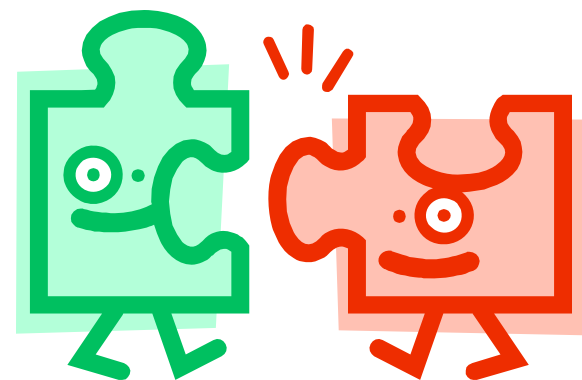
Trade Workload Performance Policy

Workload contains:

- ◆ Virtual servers
- ◆ Performance policies
- ◆ Each performance policy has service classes and classification rules



ARM and GPMP



Application Response Measurement



ARM V4.0 is an approved standard of *The Open Group* Method to monitor performance and availability of applications

- ◆ Measure end-to-end transaction response time
- ◆ A correlator is passed to secondary applications and other managed servers that process the application

Movement of work request from one application or server to another is considered a 'HOP'

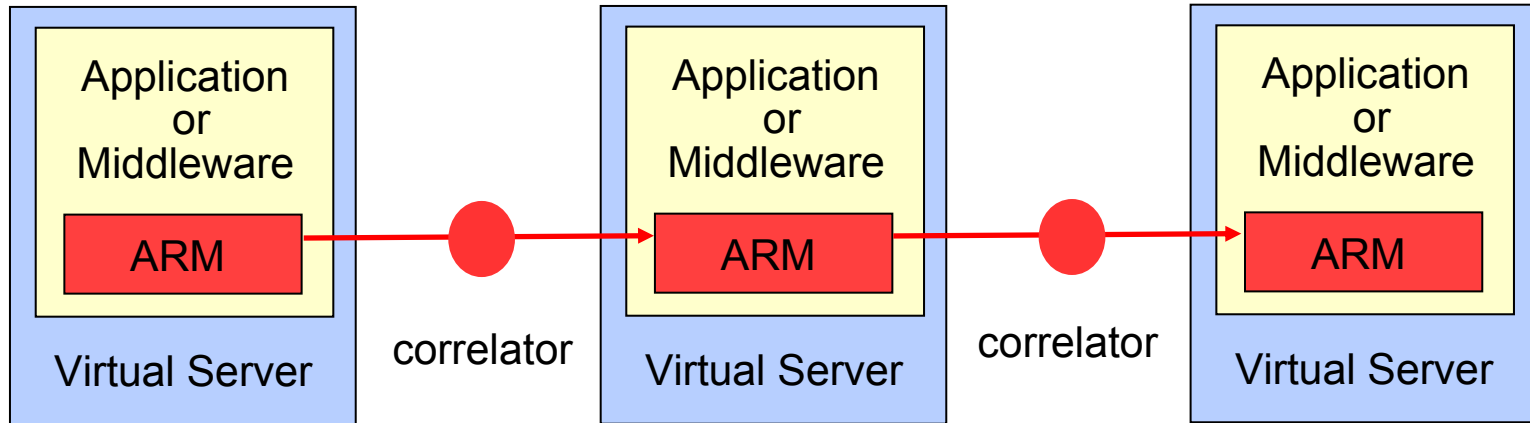
For accurate data, all applications and servers processing a work request must be ARM enabled

ARM enabled middleware

- ◆ Web Server support provided by WebSphere plugin IHS/Apache, IIS, Domino, iPlanet
- ◆ WebSphere Application Server V6, V7, V8
- ◆ DB2 Universal Database – including z/OS DB2

Workflow Example with ARM Services

Standards Based Application Instrumentation



Information in the correlator used by zManager to report

- Name of the applications, middleware, and servers processing transaction

- End-to-end transaction response time

- Time spent in each "HOP"

All applications and servers processing work request must be ARM enabled

Guest Platform Management Provider



GPMP – Link between operating system and zManager

Lightweight component of PPM

Collects performance data for work running on a virtual server and passes it to zManager

With ARM instrumented middleware support, GPMP provides metrics that allows detailed transaction topology as transaction hops through virtual servers

- ◆ ARM-instrumented middleware applications required
- ◆ Middleware that calls ARM APIs while servicing work requests

Benefits of GPMP



GPMP provides additional monitoring data

Additional classification rule filters to classify a virtual server

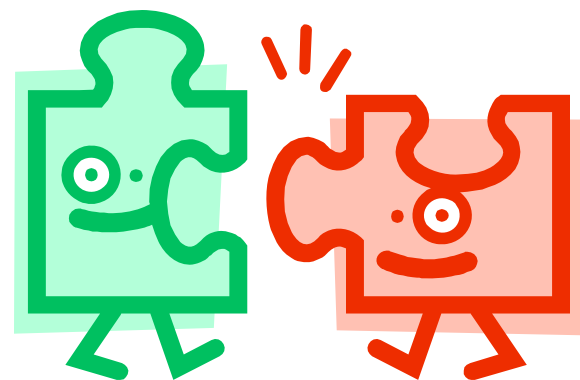
- ◆ HostName
- ◆ SystemName
- ◆ OS Level
- ◆ OS Type

Option of mapping zManager service classes to z/OS WLM service classes

With ARM instrumented middleware support, GPMP provides

- ◆ End-to-end transaction response times
- ◆ Virtual Server Topology report and Hops Report

Enabling GPMP on z/OS



Enable GPMP on z/OS

Sample job in SYS1.SAMPLIB(HVEENV)

Procedure to implement GPMP on z/OS includes

- ◆ Defining the RACF security environment

 - Create user and group ids - group HVEMCA, user HVEMCA1

 - Authorize access to INMN

 - RDEFINE SERVAUTH EZB.OSM.sysname.tcpname

- ◆ Specifying parameters for run-time environment

 - Provide location of Java 2 1.5 or 1.6 runtime environment

 - Create UNIX file system directories

 - Specify parameters for GPMP

- ◆ Verifying HVEMCA procedure is in SYS1.PROCLIB

- ◆ Starting the GPMP address space

 - z/OS R12, R13 – WLM can be setup to automatically start GPMP

 - z/OS R10, R11 – GPMP must be started manually

Start GPMP Address Space

Verify ARM is enabled

- ◆ D WLM,AM if not F WLM,AM=ENABLE

Start GPMP

- ◆ F WLM,START,GPMP

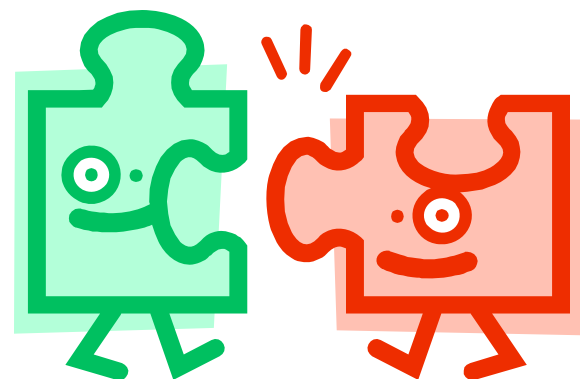
```
F WLM,GPMP,START
$HASP100 HVEMCA    ON STCINRDR
IEF695I START HVEMCA WITH JOBNAME HVEMCA IS ASSIGNED TO USER
HVEMCA1 , GROUP HVEMCA
HASP373 HVEMCA    STARTED
$HASP100 BPXAS    ON STCINRDR
$HASP373 BPXAS    STARTED
BPXP024I BPXAS INITIATOR STARTED ON BEHALF OF JOB HVEMCA RUNNING
IN ASID 0018
$HASP100 BPXAS    ON STCINRDR
$HASP373 BPXAS    STARTED
FEW0600I GPMP started.
IWM070I GPMP POLICY HAS BEEN ACTIVATED
```

Display GPMP Status

Display Status of GPMP with D WLM,AM,ALL

```
IWM075I 17.49.20 WLM DISPLAY 433
  ARM SERVICES ARE ENABLED
  GUEST PLATFORM MANAGEMENT PROVIDER JOBNAME=HVEMCA ASID=0018
  GPMP POLICY IS ACTIVE
  NUMBER OF REGISTERED PROCESSES=1, APPLICATIONS=1
  ADDRESS SPACES CURRENTLY REGISTERED WITH ARM:
    JOBNAME=DSNADIST ASID=004D
      APPLICATION=DDF
        IDENTITY PROPERTIES=0 CONTEXT NAMES=0
          STARTED APPLICATION INSTANCES:
            DSN9
              TRAN=0 GROUP=DSN9WSC
                REGISTERED TRANSACTIONS:
                  SYS_DefaultZWLMtransactionName
```

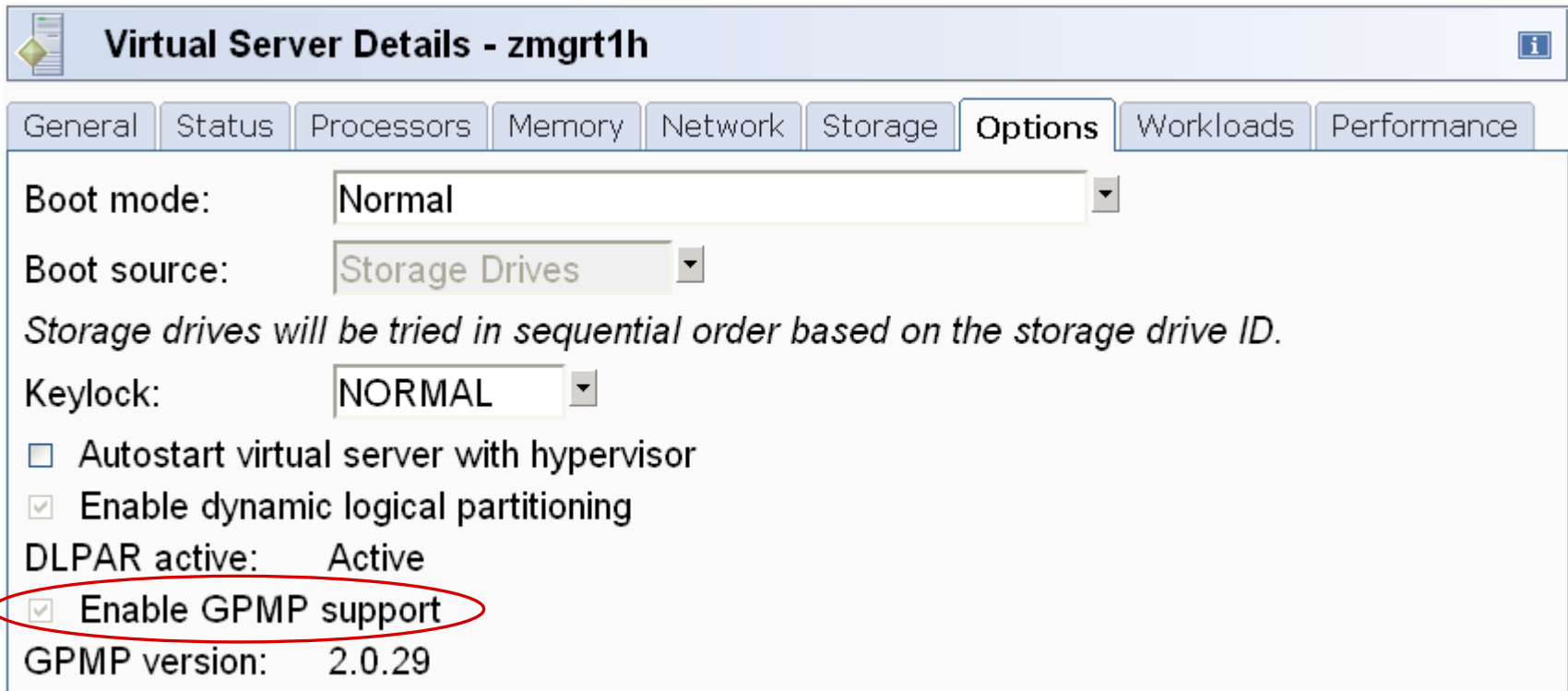
Enabling GPMP on Virtual Servers on the Blades



Enable GPMP Virtual Server

Enable GPMP on the virtual server

- ◆ Virtual Server Details -> Options -> Enable GPMP support
- ◆ Creates a virtual Ethernet adapter for access to the INMN



Virtual Server Details - zmgrt1h

General | Status | Processors | Memory | Network | Storage | **Options** | Workloads | Performance

Boot mode: Normal

Boot source: Storage Drives

Storage drives will be tried in sequential order based on the storage drive ID.

Keylock: NORMAL

Autostart virtual server with hypervisor

Enable dynamic logical partitioning

DLPAR active: Active

Enable GPMP support

GPMP version: 2.0.29

Enable GPMP Virtual Server

Mount virtual media for access to ISO image with GPMP
Under Available images select GPMP Installation Image



Enable GPMP on AIX Virtual Server



Enable EWLM services on AIX virtual server

- ◆ With smitty ewlm or command `ewlmcfg -c`
- ◆ Confirm EWLM services enabled with command: `ewlmcfg -q`

Install GPMP rpm package

- ◆ Mount GPMP package on a directory mount point
- ◆ Change to directory and install - `rpm -ivh <gpmp package>`
- ◆ Default group is `ibmgpmp`
- ◆ Default user is `ibmgpmp` user may not be `uid 0`

Set GPMP to start automatically

- ◆ `su ibmgpmp -c "/opt/ibm/gpmp/gpmp autostart on"`

Enable GPMP on Linux on x Blade



Install GPMP rpm package

- ◆ Mount GPMP package on a directory mount point
- ◆ Change to directory and install - rpm -Uvh <gpmp package>
- ◆ Default group is ibmgrpmp
- ◆ Default user is ibmgrpmp user may not be uid 0
- ◆ Default ARM group is ibmlarm for userids accessing ARM data

Set GPMP to start automatically

- ◆ `su ibmgrpmp -c "/opt/ibm/gpmp/gpmp autostart on"`

x-Blade GPMP ISO Image

Files in GPMP ISO image on x-Blade include:

```
# mount /dev/cdrom media/cdrom
mount: block device /dev/cdrom is write-protected,
mounting read-only
# cd media/cdrom; ls
autorun.inf gpmp-2.0.31-1.x86_64.rpm Windows
#cd Windows; ls
Autorun.inf
gpmp.ico IBM Guest Platform Management Provider.msi
setup.exe Setup.ini
```

GPMP Status

```
su ibmgpmp -c "/opt/ibm/gpmp/gpmp"
```

```
FEW6030I Persistent storage settings for the guest platform management provider:
```

```
FEW6034I      Autostart flag is on
```

```
FEW6036I      Shared memory ID is 4
```

```
FEW6037I      The guest platform management provider is not running
```

```
su ibmgpmp -c "/opt/ibm/gpmp/gpmp start"
```

```
FEW6101I The guest platform management provider is starting.
```

```
su ibmgpmp -c "/opt/ibm/gpmp/gpmp"
```

```
FEW6030I Persistent storage settings for the guest platform management provider:
```

```
FEW6034I      Autostart flag is on
```

```
FEW6036I      Shared memory ID is 4
```

```
FEW6038I      Main process ID is 7995420
```

Performance Monitoring and Reporting



Workload Monitoring and Reporting



Report virtual server resource usage in a Workload

User interface for reports is the ensemble HMC

Reports current data and fairly recent history

- ◆ Interval of data displayed is user selectable
- ◆ Granularity of data kept changes over time
 - 1 minute granularity kept for most recent hour
 - 15 minute interval data kept after first hour
- ◆ History of 36 hours

Report data can be downloaded to local workstation

- ◆ Uses CSV format
- ◆ Can only download data currently represented on screen

Navigating the Reports

Workloads report lists all workloads

These reports are for a specific workload

- ◆ Service Classes Report
- ◆ Virtual Servers Report
- ◆ Resource Adjustment Report
- ◆ Virtual Server Topology Report
- ◆ Hops Report



Workloads Report



List of workloads


High level view of “performance health” of each workload

- ◆ Indication if workload service class is missing goals
- ◆ Locate worst performing service class / performance index (PI)
- ◆ Details for a specific workload

Bar graph of virtual server utilization distribution

Graph of service class PI

Workloads Report Example

 **Workloads Report - ATSENS1**

Report Interval: Starting 8/4/11 5:54:05 PM for 15 minutes (8/4/11 6:09:05 PM) [Modify](#)

--- Select Action --- Filter

Select	Workload	Service Class With Largest PI (PI)	Performance Policy
<input type="radio"/>	Arbitrage	GROUP1 (1.00)	Standard
<input type="radio"/>	CLAIMS		STANDARD
<input type="radio"/>	Default	Default (0.46)	Default
<input checked="" type="radio"/>	rja_wkld	SrvClsForFastestHighest (1.61)	rja_wkld1
<input type="radio"/>	Test zVM Workload		Test zVM Policy
<input type="radio"/>	Trade_wkld	TradeSC (0.60)	Trade_policy
<input type="radio"/>	zBX_Sizing	Default (0.40)	zBX_Sizing_Policy
<input type="radio"/>	ZMGRT1	ZMGRT1SC (1.00)	ZMGRT1A

Total: 11 Filtered: 11 Selected: 1

[Workload Charts](#)

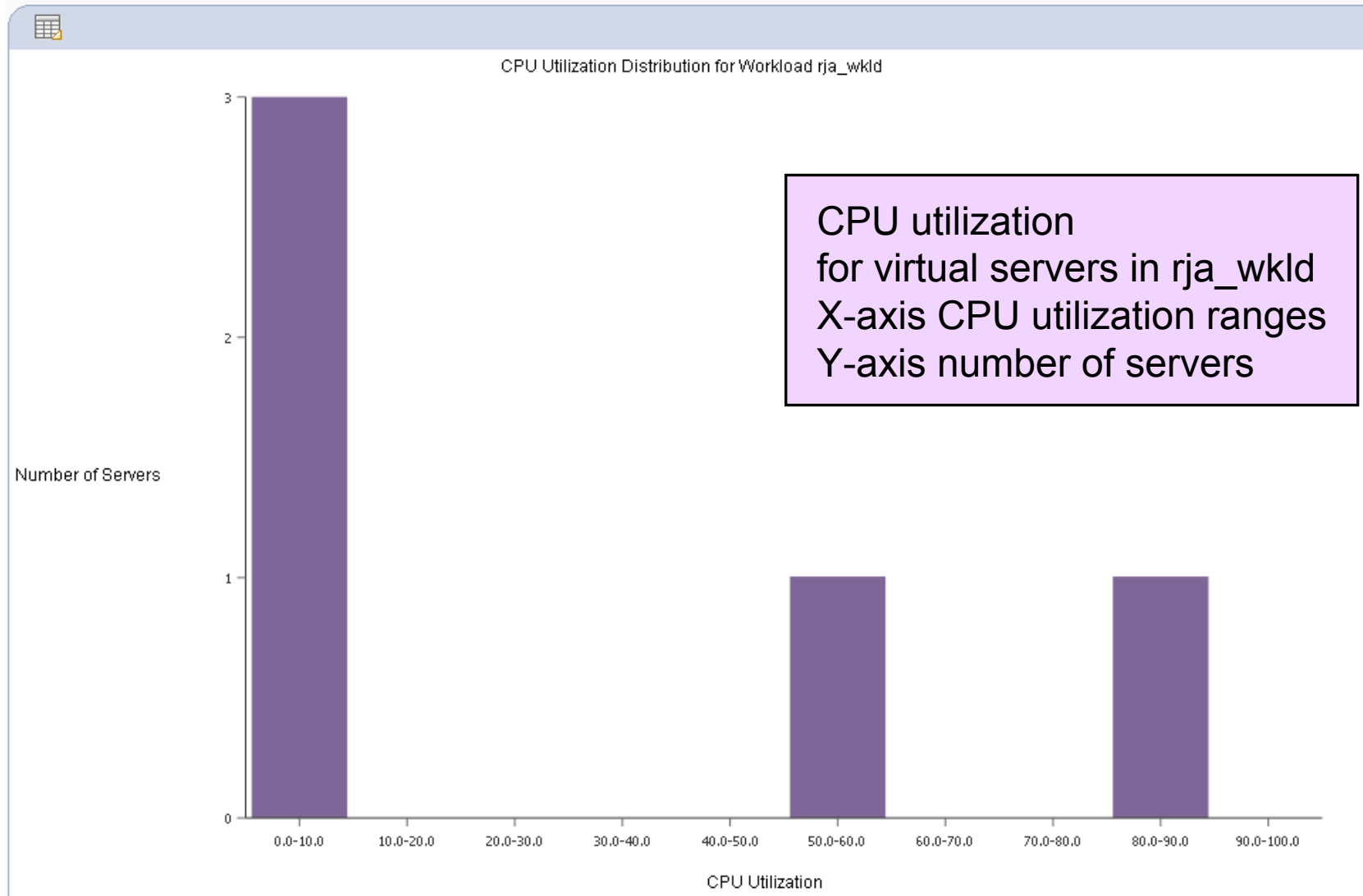
[Close](#) [Help](#)

Service class with largest PI is rja_wkld with 1.61
View workload information for rja_wkld

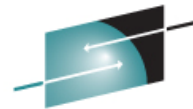
Workloads Report - CPU Utilization



Charts: CPU Utilization | [Performance Index](#)

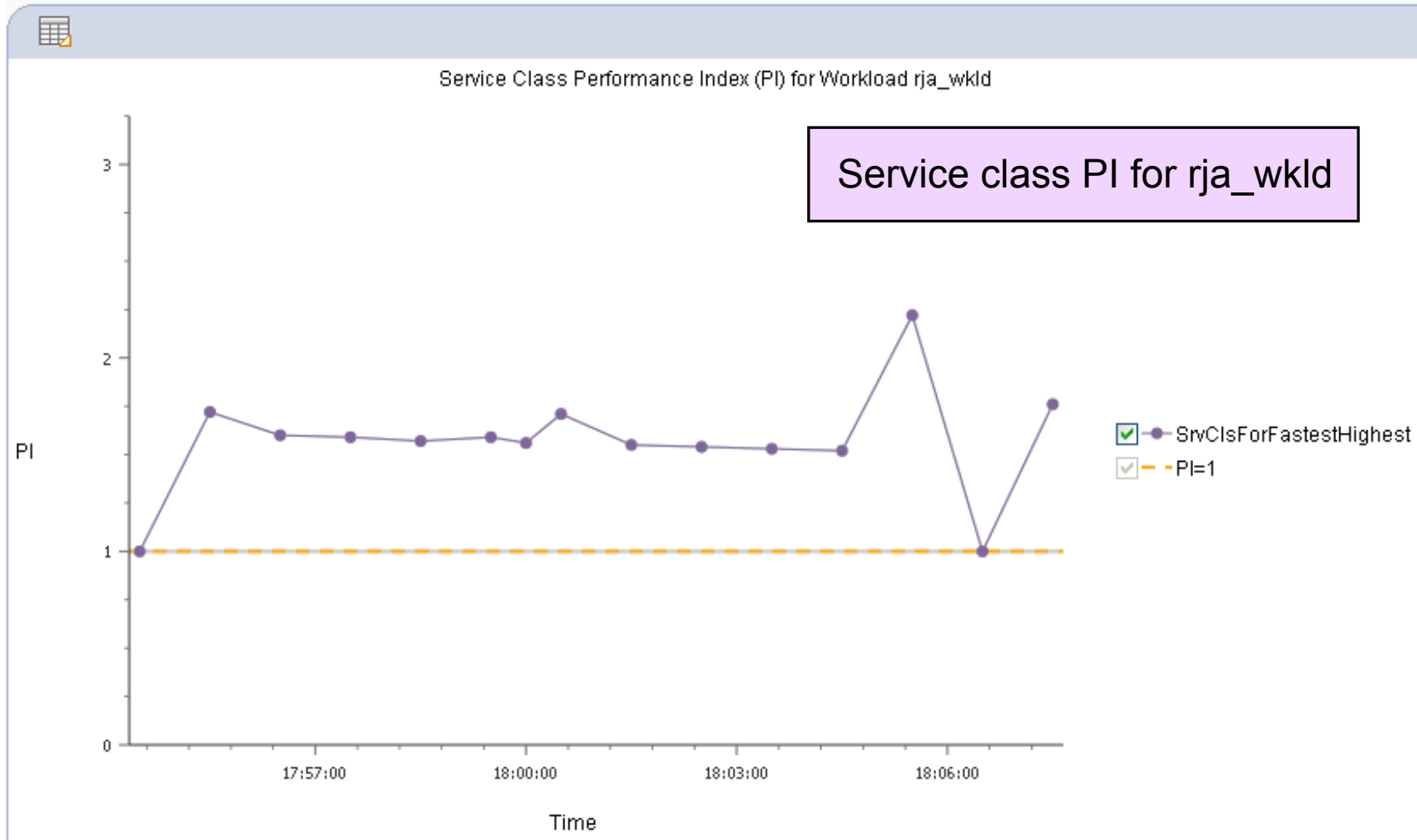


Workloads Report - PI



Charts: [CPU Utilization](#) | Performance Index

Results



Virtual Servers report

- ◆ List of virtual servers
- ◆ Resource information for each virtual server
 - Virtual processors
 - Service class and PI
 - Allocated memory
 - Physical CPU utilization
 - OS view of CPU utilization

Resource adjustment report

- ◆ Resource adjustment actions taken over report interval
- ◆ Donor and receiver virtual servers

Virtual Servers Report

Virtual Servers Report - rja_wkld

Report Interval: Starting 2/2/12 1:30:00 AM for 15 minutes (2/2/12 1:45:00 AM) [Modify](#)

--- Select Action --- Filter

Select ^	Virtual Server ^	Hypervisor ^	Hypervisor Type ^	Hostname ^	Virtual Processors ^	Allocated Memory (MB) ^	Physical CPU Utilization (%) ^	Hypervisor CPU Delay (%) ^	Service Class (PI) ^
<input checked="" type="radio"/>	rjaihs1	B.2.14	PowerVM	rja_ihs1.dmz	2	8,192	60.7	39.2	Default (0.48)
<input type="radio"/>	rjaihsx1	C.1.02	x Hyp	zbx-rja-ihsx1	4	4,096	0.0	0.1	SrvClsForFastestHighest (1.59)
<input type="radio"/>	rjawas1	B.2.14	PowerVM	rjawas1.dmz	5	8,192	0.5	0.1	SrvClsForFastestHighest (1.59)
<input type="radio"/>	rjawas2	B.2.14	PowerVM	rja_was2.dmz	5	8,192	93.6	6.0	Default (0.48)
<input type="radio"/>	TOSP11	TSYS	PR/SM	ZBLC.dmz	4	4,096	0.0		SrvClsForFastestHighest (1.59)

Page 1 of 1 Total: 5 Filtered: 5 Displayed: 5 Selected: 1

Five virtual servers in rja_wkld
Information for each virtual server

Resource Adjustment Report



Service Class Resource Adjustments Report - SrvClsForFastestHighest

Report Interval: Starting 2/2/12 2:13:08 AM for 15 minutes (2/2/12 2:28:08 AM) [Modify](#)

Successful Adjustments:

Virtual Server	Type	Workload	Service Class	Processing Units Before	Processing Units After	Time
<input checked="" type="checkbox"/> rjawas1	Receiver	rja_wkld	SrvClsForFastestHighest	0.50	0.55	Feb 2, 2012 2:22:54 AM EST
rjawas2	Donor	rja_wkld		4.00	3.95	
<input checked="" type="checkbox"/> rjawas1	Receiver	rja_wkld	SrvClsForFastestHighest	0.55	0.57	Feb 2, 2012 2:24:26 AM EST
rjawas2	Donor	rja_wkld		3.95	3.93	
<input checked="" type="checkbox"/> rjawas1	Receiver	rja_wkld	SrvClsForFastestHighest	0.57	0.59	Feb 2, 2012 2:25:57 AM EST
rjawas2	Donor	rja_wkld		3.93	3.91	
<input checked="" type="checkbox"/> rjawas1	Receiver	rja_wkld	SrvClsForFastestHighest	0.59	0.79	Feb 2, 2012 2:27:28 AM EST
rjawas2	Donor	rja_wkld		3.91	3.71	

Page 1 of 1 Total: 8 Filtered: 8 Displayed: 8

Receiver rjawas1 before 0.50 after 0.55 processing units
Donor rjawas2 before 4.00 after 3.95 processing units

Hops and Topology Reports

Information from ARM and GPMP used to create reports

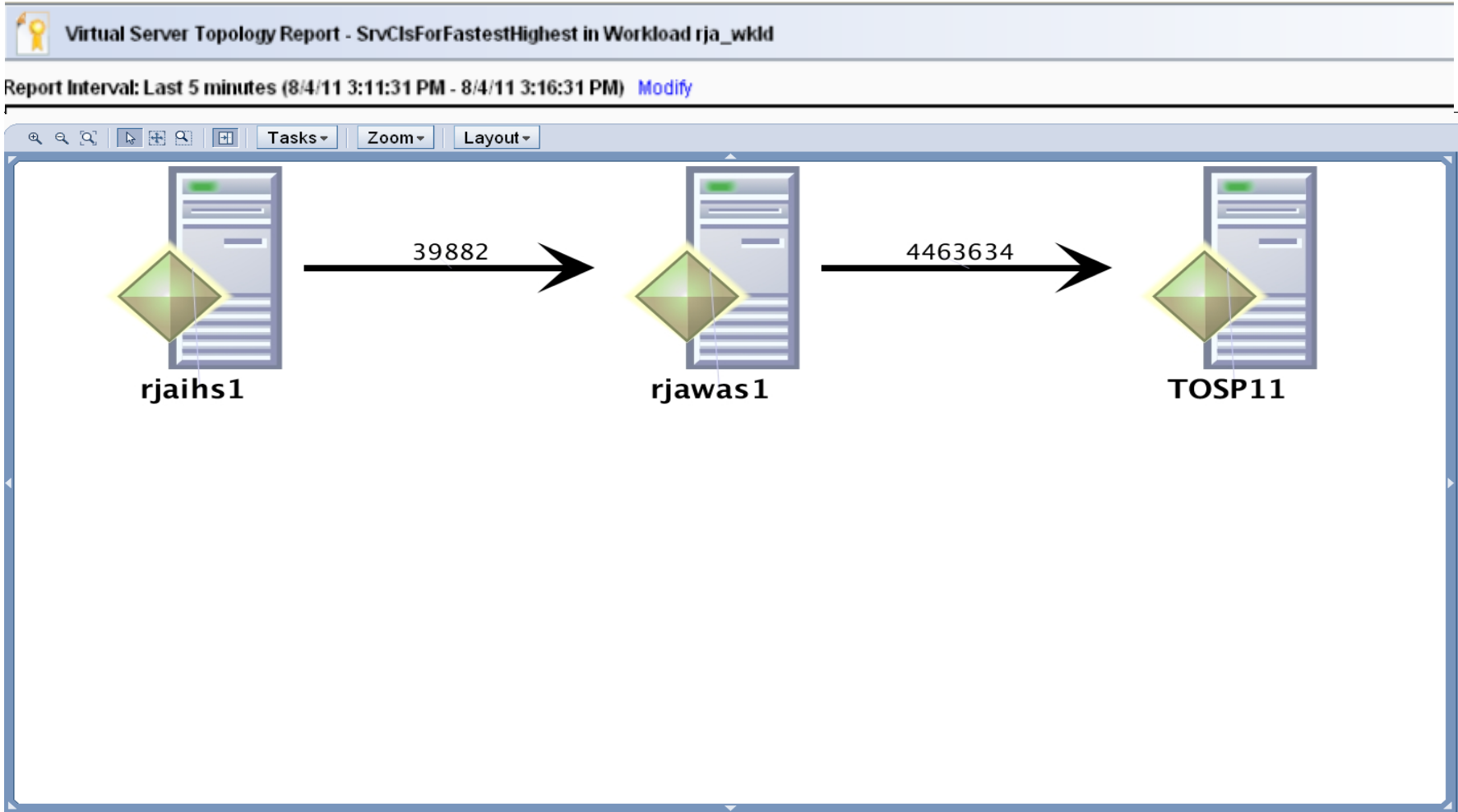
Hops report

- ◆ Shows each hop for application in a specific service class
- ◆ For each hop provides
 - Name, hop number
 - Transaction information
 - Average response times

Virtual Server Topology Report

- ◆ Relationship of virtual servers running a workload
- ◆ Graphical representation of virtual servers

Virtual Server Topology Report



Hops Report

Hops Report - SrvClsForFastestHighest in Workload rja_wkld i											
Report Interval: Last 5 minutes (8/4/11 3:08:36 PM - 8/4/11 3:13:36 PM) Modify											<input type="button" value="A^"/> <input type="button" value="A"/> <input type="button" value="V"/> <input type="button" value="V^"/>
Details for SrvClsForFastestHighest:											
Workload: rja_wkld		Performance goal: Velocity - Fastest		PI: 1.00							
Performance policy: rja_wkld1		Business importance: Highest		Performance: Fastest							
<div style="display: flex; justify-content: space-between; align-items: center;"> <div> <input type="button" value="+"/> <input type="button" value="Print"/> <input type="button" value="Excel"/> <input type="button" value="Filter"/> <input type="button" value="Refresh"/> <input type="button" value="Save"/> </div> <div> --- Select Action --- <input type="button" value="v"/> <input type="text" value="Filter"/> </div> </div>											
Name ^	Hop Num ^	Group Name ^	Successful Transactions ^	Failed Transactions ^	Stopped Transactions ^	Inflight Transactions ^	Queue Time (s) ^	Execution Time (s) ^	Successful Average Response Time (s) ^	Inflight Average Response Time (s) ^	
[-] Hop 0	0		22,281	0	0	202	0.000000	0.000273	0.165120	0.094535	
[-] IBM Webserving Plugin	0	IBM_HTTP_Server	22,281	0	0	202	0.000000	0.000273	0.165120	0.094535	
rjaihs1	0		22,281	0	0	202	0.000000	0.000273	0.165120	0.094535	
[-] Hop 1	1		37,486	0	0	90	0.000000	0.001384	0.019575	0.015683	
[-] WebSphere:APPLICATION	1	server1	37,486	0	0	90	0.000000	0.001384	0.019575	0.015683	
rjawas1	1		37,486	0	0	90	0.000000	0.001384	0.019575	0.015683	
[-] Hop 2	2		4,363,388	0	0	3	0.000000	0.000265	0.000265	0.000673	
[-] DDF	2	DSN9WSC	4,363,388	0	0	3	0.000000	0.000265	0.000265	0.000673	
TOSP11	2		4,363,388	0	0	3	0.000000	0.000265	0.000265	0.000673	

GPMP Stopped

Test with GPMP stopped on AIX virtual servers and z/OS

Reports affected

- ◆ Hops report
- ◆ Virtual server topology report
- ◆ Virtual server report

Topology Report - GPMP Stopped



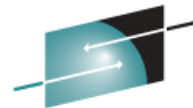
Virtual Server Topology Report - SrvClsForFastestHighest in Workload rja_wkld

Report Interval: Last 5 minutes (8/4/11 6:41:26 PM - 8/4/11 6:46:26 PM) [Modify](#)

Tasks Zoom Layout

The main content area of the report is a large, empty rectangular frame with a blue border. It is currently blank, suggesting that the topology data for the specified interval is not visible or has not been rendered.

Hops Report - GPMP Stopped



SHARE
Technology - Connections - Results

Hops Report - SrvCIsForFastestHighest in Workload rja_wkld i											
Report Interval: Last 5 minutes (8/4/11 6:39:39 PM - 8/4/11 6:44:39 PM) Modify											<< < > >>
Details for SrvCIsForFastestHighest:											
Workload: rja_wkld		Performance goal: Velocity - Fastest		PI: 1.00							
Performance policy: rja_wkld1		Business importance: Highest		Performance: Fastest							
<div style="display: flex; justify-content: space-between; align-items: center;"> <div> </div> <div> --- Select Action --- </div> <div> <input type="text" value="Filter"/> </div> </div>											
Name ^	Hop Number ^	Group Name ^	Successful Transactions ^	Failed Transactions ^	Stopped Transactions ^	Inflight Transactions ^	Queue Time (s) ^	Execution Time (s) ^	Successful Average Response Time (s) ^	Inflight Average Response Time (s) ^	
[-] Hop 0	0		0	0	0	4	0.000000	0.000000	0.000000	374.435577	
[-] IBM Webserving Plugin	0	IBM_HTTP_Server	0	0	0	0	0.000000	0.000000	0.000000	0.000000	
rjaihs1	0		0	0	0	0	0.000000	0.000000	0.000000	0.000000	
[-] WebSphere:APPLICATION_SERVER	0	server1	0	0	0	4	0.000000	0.000000	0.000000	374.435577	
rjawas1	0		0	0	0	4	0.000000	0.000000	0.000000	374.435577	
[-] Hop 1	1		0	0	0	0	0.000000	0.000000	0.000000	0.000000	
[-] WebSphere:APPLICATION_SERVER	1	server1	0	0	0	0	0.000000	0.000000	0.000000	0.000000	
rjawas1	1		0	0	0	0	0.000000	0.000000	0.000000	0.000000	
[-] Hop 2	2		0	0	0	0	0.000000	0.000000	0.000000	0.000000	
[-] DDF	2	DSN9WSC	0	0	0	0	0.000000	0.000000	0.000000	0.000000	
TOSP11	2		0	0	0	0	0.000000	0.000000	0.000000	0.000000	

Virtual Server Report - GPMP Started



Virtual Servers Report - rja_wkld

Report Interval: Starting 8/4/11 2:54:07 PM for 15 minutes (8/4/11 3:09:07 PM) [Modify](#)

--- Select Action ---

Select	Virtual Server	Virtual Processors	Allocated Memory (MB)	Physical CPU Utilization (%)	Hypervisor CPU Delay (%)	Service Class (PI)	OS Processes Total CPU Using Samples (%)	OS Processes Total CPU Delay Samples (%)	OS Processes Total I/O Delay Samples (%)	OS Processes Total Page Delay Samples (%)
<input checked="" type="radio"/>	rjaihs1	2	8,192	23.4	10.8	SrvClsForFastestHighest (1.00)	13.5	20.9	0.0	65.6
<input type="radio"/>	rjawas1	4	8,192	71.1	3.1	SrvClsForFastestHighest (1.00)	3.4	1.8	0.0	94.8
<input type="radio"/>	rjawas2	5	8,192	45.5	46.4	Default (0.53)	2.9	0.3	0.0	96.7
<input type="radio"/>	TOSP11	2	4,096	6.0		SrvClsForFastestHighest (1.00)	1.0	40.3	0.4	0.0

Virtual server report for rja_wkld
 OS Processes columns contain data provided by GPMP

Virtual Server Report - GPMP Stopped

Virtual Servers Report - rja_wkld

Report Interval: Last 5 minutes (8/4/11 6:34:34 PM - 8/4/11 6:39:34 PM) [Modify](#)

--- Select Action ---

Select	Virtual Server	Virtual Processors	Allocated Memory (MB)	Physical CPU Utilization (%)	Hypervisor CPU Delay (%)	Service Class (PI)	OS Processes Total CPU Using Samples (%)	OS Processes Total CPU Delay Samples (%)	OS Processes Total I/O Delay Samples (%)	OS Processes Total Page Delay Samples (%)
<input checked="" type="radio"/>	rjaihs1	2	8,192	22.7	8.3	SrvClsForFastestHighest (1.00)				
<input type="radio"/>	rjawas1	4	8,192	63.3	15.2	SrvClsForFastestHighest (1.00)				
<input type="radio"/>	TOSP11	2	4,096	5.9		SrvClsForFastestHighest (1.00)				

OS Processes columns are blank

Summary

Platform Performance Manager function of zManager provides tools to manage workloads running in the ensemble

Resources are directed to virtual servers based on the goals and importance levels of the workload

HMC is user interface to create workloads and view reports

ARM enabled middleware and GPMP allow for end-to-end monitoring of application performance

Manage workloads in multi-tier application environment