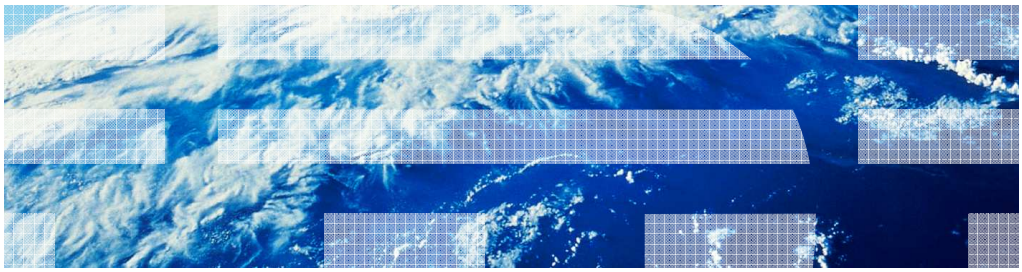
z/OS V1R13

RMF: Integrated ensemble performance monitoring



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Session objectives

- RMF™ Integrated Ensemble Performance Monitoring includes support for the following platforms:
  - AIX®
  - Linux® on system x
  - Linux on system z
- Core component: RMF Distributed Data Server (DDS)
- The following GUI's are available for monitoring:
  - RMF Performance Data Portal
  - z/OS®MF Resource Monitoring

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Overview (1 of 5)

- Problem Statement / Need Addressed
  - The new IBM zEnterprise™ System i®ntegrates the mainframe together with distributed environments
  - Management functions and performance tools for the new platforms are required
- Solution
  - Provide seamless performance monitoring solution for the operating systems running on POWER7® and System x blades
- Benefit / Value
  - Single point of control for performance monitoring
  - Identify performance problems at a glance
  - Common look and feel for all platforms running on zEnterprise Systems

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Overview (2 of 5)

- The Common Information Model (aka CIM) instrumentation is available for almost all operating systems of this planet
- RMF has the infrastructure already in place
  - To combine performance data from multiple systems to a Sysplex wide view
  - To display performance data by means of state-of-the-art graphical frontends

Isn‘t it a good idea to bring those powerful things together ?

✓ We thought it is and we created the RMF Ensemble Monitoring Data Portal

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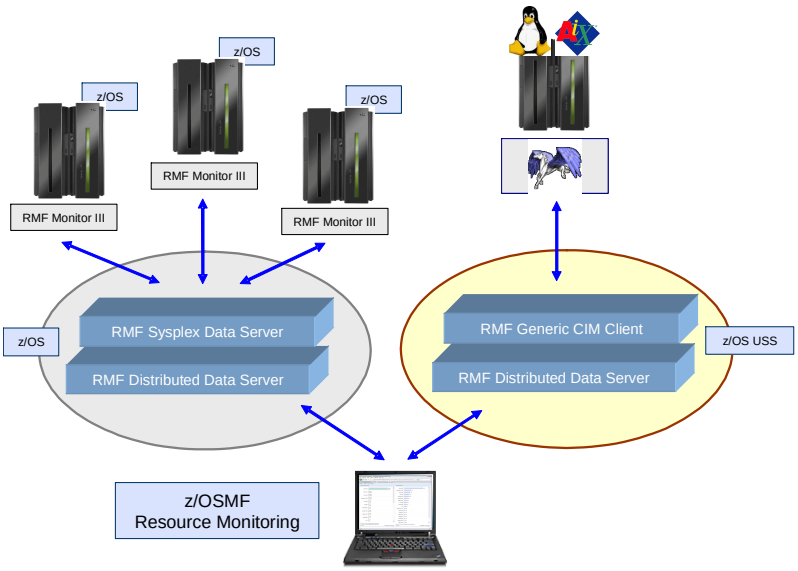
Overview (3 of 5)

Architecture



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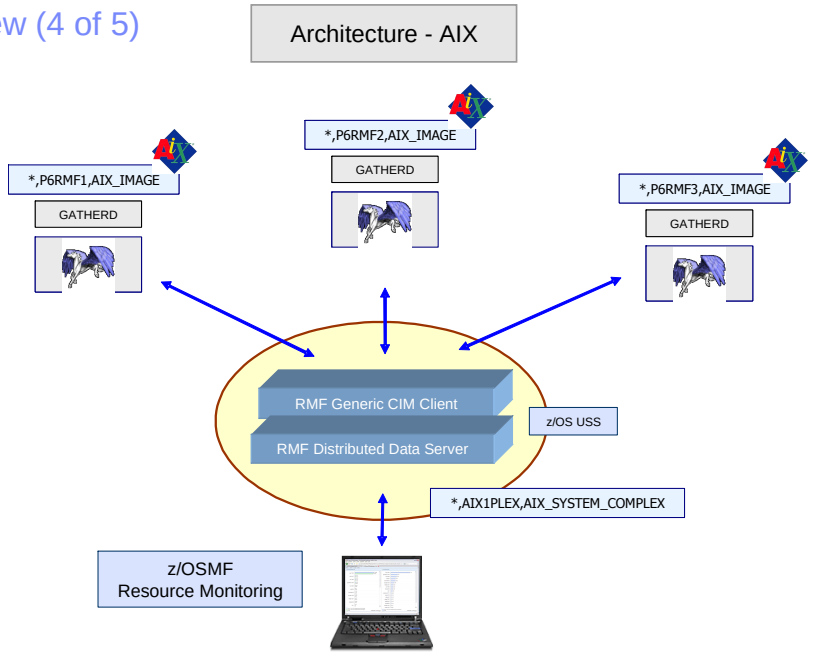
Overview (4 of 5)



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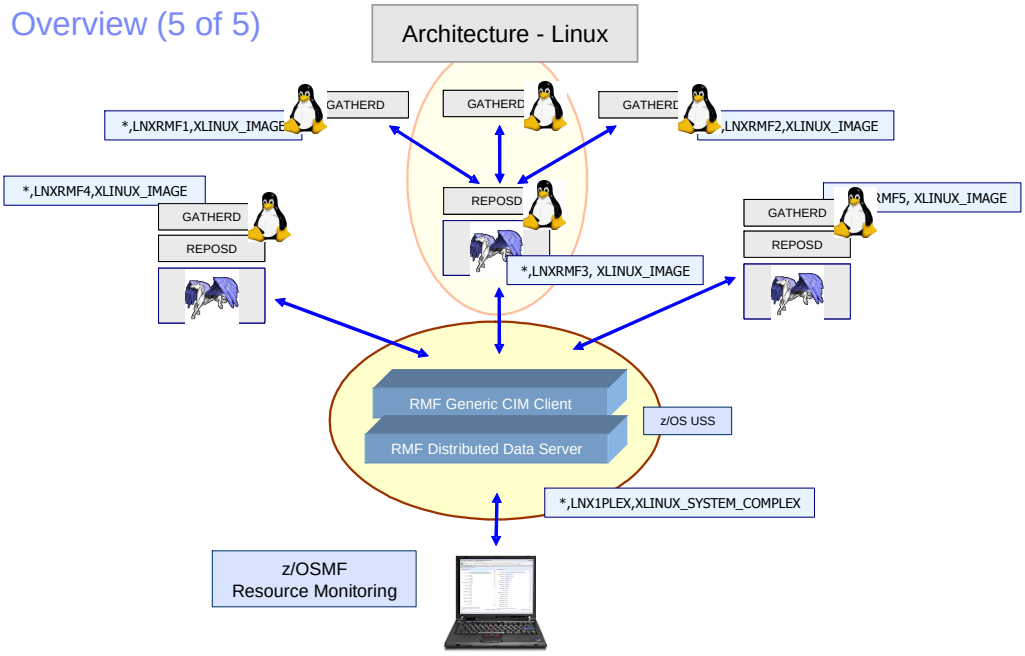
Overview (5 of 5)



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Usage and invocation (1 of 10)

- Started Task: SYS1.PROCLIB(GPM4CIM)
- Runs in USS Environment via BPXBATCH
- Multiple instances can run in parallel: one STC per platform
  - S GPM4CIM.GPM4A
  - S GPM4CIM.GPM4X
  - S GPM4CIM.GPM4Z

```
//GPM4CIM  PROC OS=A
//STEP1    EXEC PGM=BPXBATCH,TIME=NOLIMIT,REGION=0M,
//       PARM='PGM /usr/lpp/gpm/bin/gpm4cim cfg=/etc/gpm/gpm4&OS..cfg'
//STDENV   DD  PATH='/etc/gpm/gpm4cim.env'
//STDOUT   DD   PATH='/var/gpm/logs/gpm4cim&OS..out',
//         PATHOPTS=(OWRONLY,OCREAT,OTRUNC),
//         PATHMODE=(SIRUSR,SIWUSR,SIRGRP)
//STDERR   DD   PATH='/var/gpm/logs/gpm4cim&OS..trc',
//         PATHOPTS=(OWRONLY,OCREAT,OTRUNC),
//         PATHMODE=(SIRUSR,SIWUSR,SIRGRP)
//SYSPRINT DD   SYSOUT=*
//SYSOUT   DD   SYSOUT=*
//         PEND
```


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Usage and invocation (2 of 10)

```
//GPM4CIM  PROC OS=A
//STEP1    EXEC PGM=BPXBATCH,TIME=NOLIMIT,REGION=0M,
//       PARM='PGM /usr/lpp/gpm/bin/gpm4ci  cfg=/etc/gp      4&OS..cfg'
//STDENV   DD   PATH='/etc/gpm/gpm4cim.
//STDOUT   DD   PATH='/var/gpm/logs/gpm      &OS..out',
//         PATHOPTS=(OWRONLY,OCRE      ,
//         PATHMODE=(SIRUSR,S      SR
//STDERR   DD   PATH='/var/      /logs/gpm4cim&OS..trc',
//         PATHOPTS=(OWR      ,OCREAT,OTRUNC),
//         PATHMODE=(S      R,SIWUSR,SIRGRP)
//SYSPRINT DD   SYSO
//SYSOUT   DD   SYS      =*
//         PEND
```

```
MAXSESSIONS_HTTP(20)                        /* MaxNo of concurrent HTTP requests */
HTTP_PORT(8805)                             /* Port number for HTTP requests     */
HTTP_ALLOW(*)                               /* Mask for hosts that are allowed   */
HTTP_NOAUTH(*)                              /* No server can access without auth.*/
AIX_COMPLEX(WEBPLEX)                        /* Name of system complex            */
AIX_IMAGE(p6rmf1.pok.ibm.com)               /* Hostname of member                */
AIX_IMAGE(p6rmf2.pok.ibm.com)
```

GPM_HOME=/etc/gpm/
ICLUI_TRACETO=STDERR
_BPX_SHAREAS=NO
_BPXK_AUTOCVT=ON
LIBPATH=/usr/lpp/gpm/bin:/usr/lpp/wbem/lib

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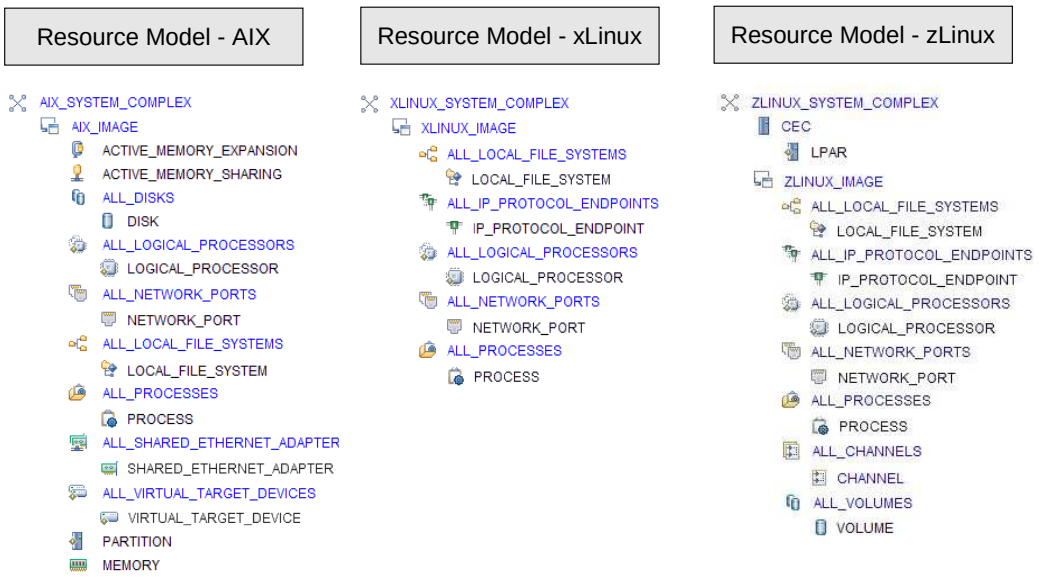
Usage and invocation (3 of 10)



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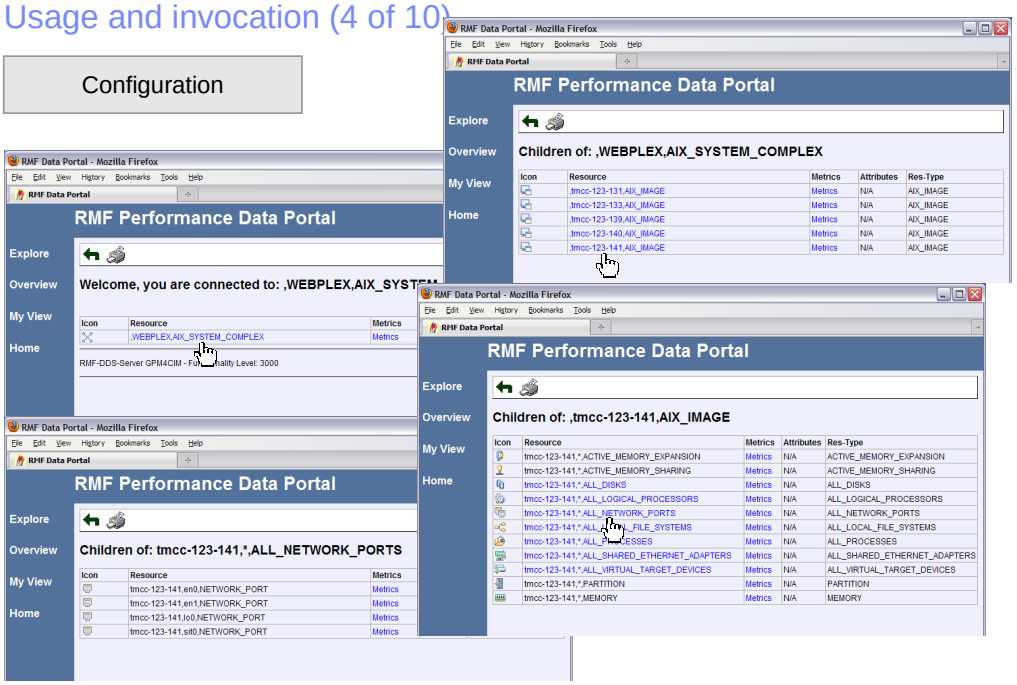
Usage and invocation (4 of 10)

Configuration



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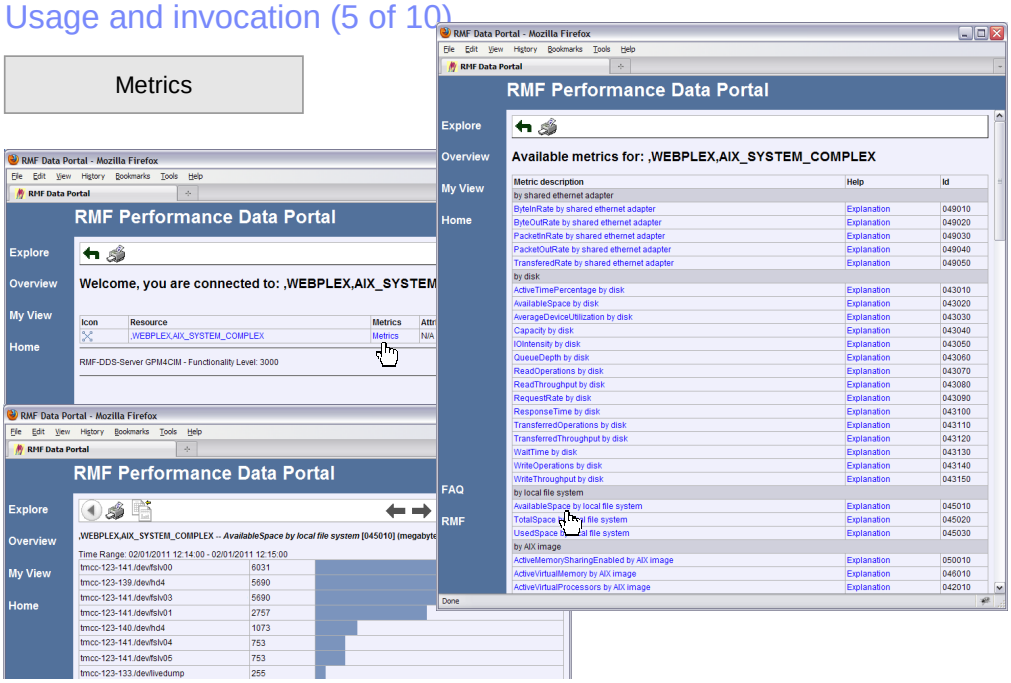
Usage and invocation (5 of 10)

Metrics



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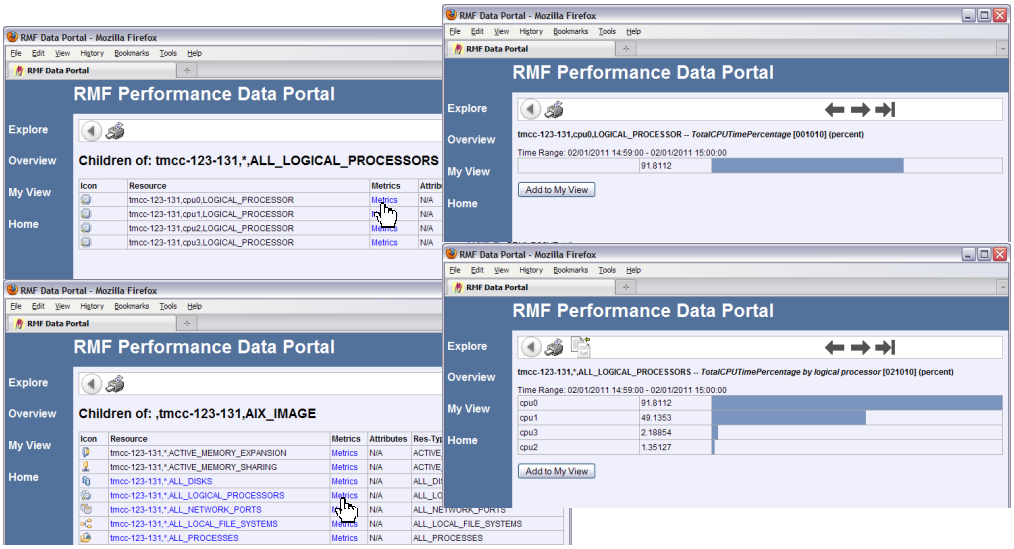
Usage and invocation (6 of 10)

Metric Values



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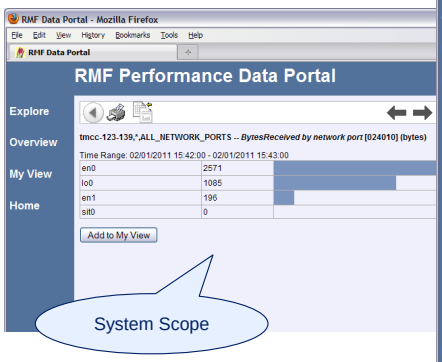
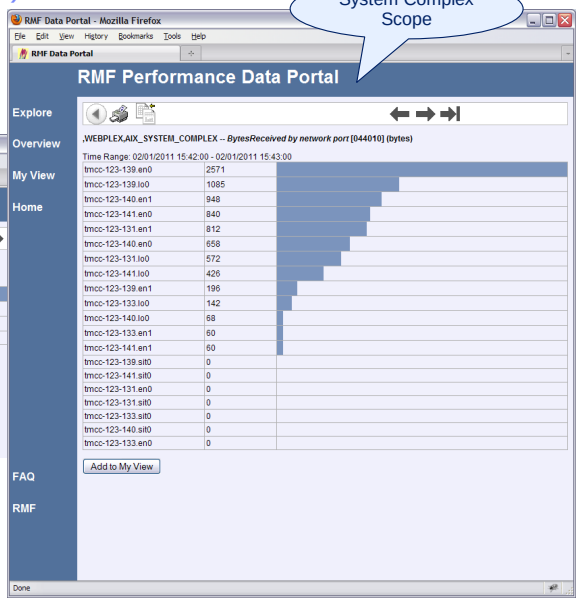
Usage and invocation (7 of 10)

Metric Scope





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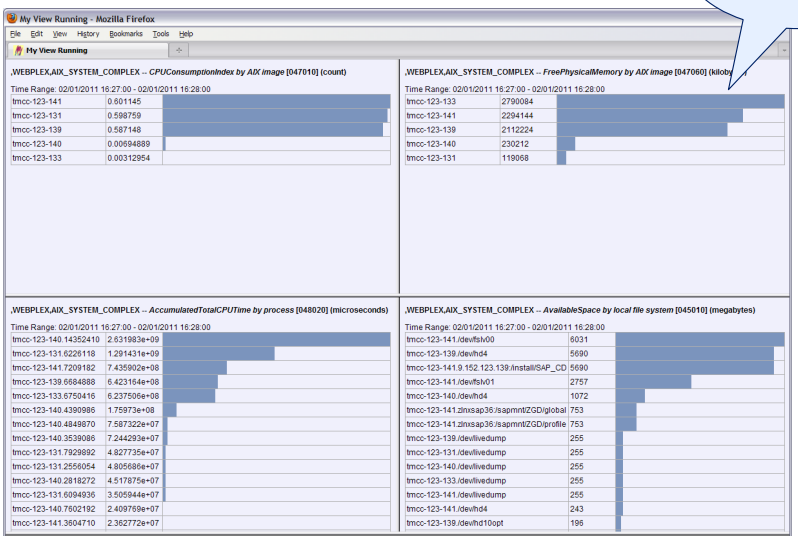
Usage and invocation (8 of 10)

Personal View

Health Check:
- Processor
- Memory
- Filesystem



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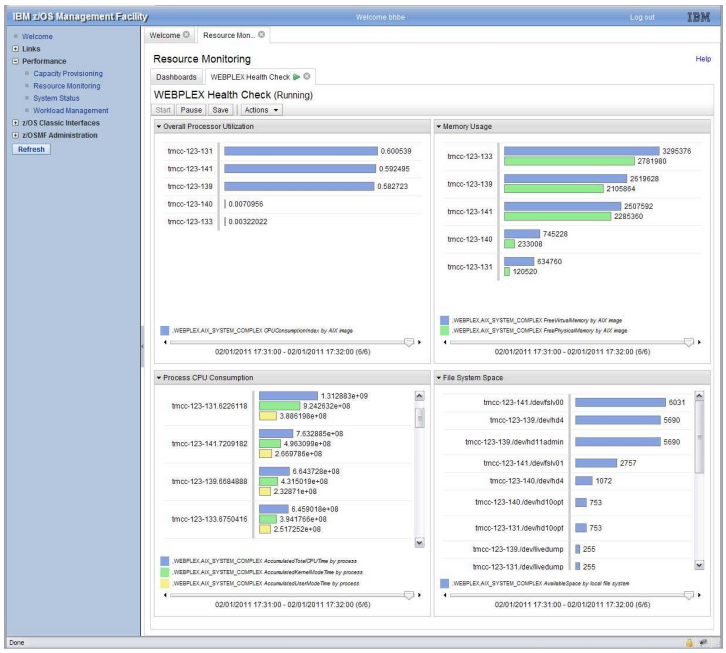
Usage and invocation (9 of 10)

z/OSMF Integration



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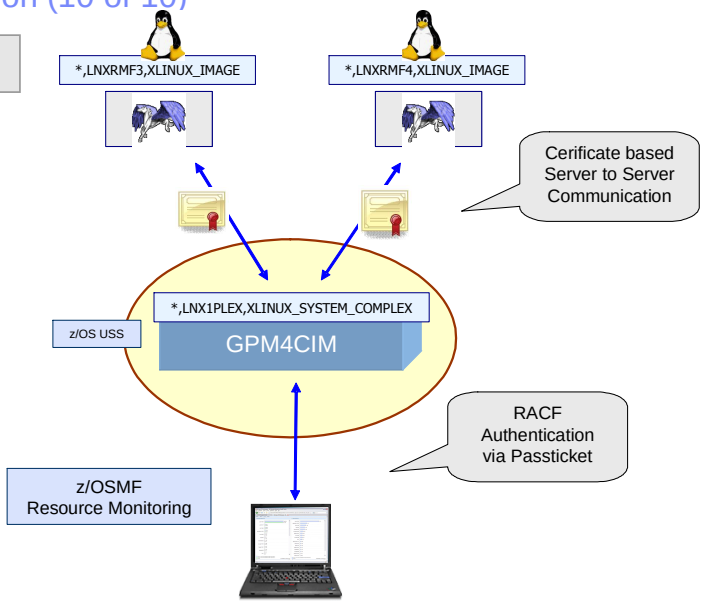
Usage and invocation (10 of 10)

Security



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Interactions and dependencies

- Software Dependencies
  - AIX
    - AIX 5.3+, 6.1+
    - Packages:
      sysmgt.cimserver.pegasus
      sysmgt.cim.providers
      sysmgt.cim.smisproviders
  - Linux
    - RED HAT Linux 5.3, 5.4, 6.0 32 & 64 bit
    - SUSE Linux 10, 11 32 & 64 bit
    - Packages:
      tog-pegasus or sblim-sfcb
      sblim-gather-provider
      (sblim = standard based linux instrumentation for manageability)
- Hardware Dependencies
  - HW running any of the above operating systems

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Migration and coexistence considerations

- The GPM4CIM Started Tasks are running independent of the existing RMF Distributed Data Server for z/OS (aka GPMSERVE).
- GPM4CIM instances and GPMSERVE can run on the same sysplex or even on the same system. Each instance uses it's dedicated TCP/IP port number.

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Installation

- All parts are installed to the HFS directory /usr/lpp/gpm
- /usr/lpp/gpm/bin
  - gpm4cim
  - libgpmccli.so
  - gpm4cim_setup.sh
- /usr/lpp/gpm/etc
  - gpm4cim.env
  - gpm4A.cfg
  - gpm4A.ini
  - gpm4X.cfg
  - gpm4X.ini
  - gpm4Z.cfg
  - gpm4z.ini

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Installation

- The post installation script gpm4cim_setup.sh
  - copies the environment files and configuration files to the runtime directory. Default: /var/gpm
  - Allocates the directory for log and trace files. Default: /var/gpm/logs

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Session summary

- RMF Integrated Ensemble Performance Monitoring is the powerful solution for the challenges in the hybrid world of the new IBM zEnterprise System with the zBX blade centers.
- The exploitation of DDS technology provides a seamless transition for performance monitoring of z/OS systems and the distributed platforms
- The z/OSMF GUI provides a WEB 2.0 based state-of-the-art frontend
- Alternatively: Instant access to all metrics via web browser
- GPM4CIM is an out-of-the-box solution: the installation takes a couple of minutes, almost no customization is needed

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Appendix - References

- RMF homepage: http://www.ibm.com/systems/z/os/zos/features/rmf
- Product information, newsletters, presentations, ...
- Downloads
  - Spreadsheet Reporter
  - RMF PM Java™ Edition
- Documentation and news:
  - RMF Report Analysis, SC33-7991
  - RMF Users Guide, SC33-7990
    - PDF files can be downloaded from: http://www.ibm.com/systems/z/os/zos/bkserv

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