



TTEC-GO ITM Vios v6.2.2

IBM Tivoli Monitoring (ITM V6.2.2)
(VIOS V2.1.3.0; (FP23) Agents:
VIOS Premium v6.2.2)

Yew Hoong Ng

ITM AIX/System P Architecture: Internals

ITM Servers

TEP Client

Console Server

TEPS

Console Database

Management Server

TEMS

Warehouse

Topology
Availability
PerformanceHMC OS
HMC/IVM

CEC

VIOS
Availability
Health
PerformanceAIX
Availability
Health
Performance

HMC Agent

CEC Agent

AIX

AIX

VIOS
Premium Agent
CEC
Base Agent
VIOS

AIX Premium Agent

AIX

AIX Premium Agent

AIX

AIX
Premium Agent
WPAR

AIX

CEC LPARs

Premium Monitoring Agents: Prerequisites

Required AIX Levels

The System p agents depend on the AIX perfagent.tools fileset to collect performance data.

There are known APARs in older levels of the perfagent.tools fileset that can cause the agent data provider to core dump, can cause the CEC data provider to show monitored LPARs as unmonitored, and can cause invalid data to be collected.

Please see this technote for a complete description of the APARs and the recommended levels of the perfagent.tools fileset: #1447016

Premium Monitoring Agents: Prerequisites (V 6.2.2 new)

IBM Tivoli Monitoring for System P Agent(s)

- ITM 6.2.2 FP1 or higher for the ITM infrastructure (TEP/TEPS/TEMS)
- AIX 5.3 TL5 or higher for AIX, CEC and HMC Agents
- VIOS V2.1.3 FP23 contains the latest VIOS and CEC agents.
They can also be downloaded from:
<http://www14.software.ibm.com/webapp/set2/sas/f/vios/download/home.html>
- ITM HMC, CEC and VIOS agents require ssh connections to HMC ver 6, SP1.2 or higher.

Premium Monitoring Agents: Prerequisites (V 6.2.1 new)

IBM Tivoli Monitoring for System P Agent(s)

- ITM 6.2.1 or higher for the ITM infrastructure (TEP/TEPS/TEMS)
- AIX 5.3 TL5 or higher for AIX, CEC and HMC Agents
- VIOS V2.1 FP2 contains the latest VIOS and CEC agents.
They can also be downloaded from:
<http://www14.software.ibm.com/webapp/set2/sas/f/vios/download/home.html>
- ITM HMC, CEC and VIOS agents require ssh connections to HMC ver 6, SP1.2 or higher.

Premium Monitoring Agents: Prerequisites (V 6.2.0.1 new)

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- ITM HMC, CEC and VIOS agents require ssh connections to HMC ver 6, SP1.2 or higher.

Premium Monitoring Agents: Install (V 6.2.2 new)

AIX Premium, CEC Base, and HMC Base agents are installed and configured using the instructions found in:

Chapter 2 of the IBM Tivoli Monitoring V6.2.2: AIX Premium Agent User's Guide v 6.2.2 (SC23-2237-05)

Chapter 2 of the IBM Tivoli Monitoring V6.2.2: CEC Base Agent User's Guide v 6.2.2 (SC23-5239-06)

Chapter 2 of the IBM Tivoli Monitoring V6.2.2: HMC Base Agent User's Guide v 6.2.2 (SA23-2239-04)

The new VIOS agents are installed as part of VIOS **V2.1.3, FP23** .
Configuration instructions can be found in:

- ITM VIOS Premium Agent User's Guide:

Chapter 2 of the IBM Tivoli Monitoring V6.2.2: VIOS Premium Agent User's Guide v 6.2.2 (SA23-2238-04)

- Configuration using VIOS commands: lssvc, cfgsvc, startsvc, stopsvc

- ▶ Command Reference Guide:

http://publib.boulder.ibm.com/infocenter/eserver/v1r3s/index.jsp?topic=/iphb1/iphb1_vios_commandslist.htm

Premium Monitoring Agents: Install (V 6.2.1 new)

AIX Premium Agents are installed and configured using the instructions found in:

Chapter 2 of the IBM Tivoli Monitoring V6.2.2: AIX Premium Agent User's Guide v 6.2.1 (SC23-2237-04)

The new VIOS agents are installed as part of VIOS **V2.1 FP2** .
Configuration instructions can be found in:

- ITM VIOS Premium Agent User's Guide:

Chapter 2 of the IBM Tivoli Monitoring V6.2.2: VIOS Premium Agent User's Guide v 6.2.1 (SA23-2238-03)

- Configuration using VIOS commands: lssvc, cfgsvc, startsvc, stopsvc

- ▶ Command Reference Guide:

http://publib.boulder.ibm.com/infocenter/eserver/v1r3s/index.jsp?topic=/iphb1/iphb1_vios_commandslist.htm

Premium Monitoring Agents: Install (V 6.2.0.1 new)

AIX Premium Agents are installed and configured using the instructions found in:

Chapter 2 of the IBM Tivoli Monitoring: AIX Premium Agent User's Guide v 6.2.0.1 (SC23-2237-03)

The new VIOS agents are installed as part of VIOS **Fix Pack 21** or higher. Configuration instructions can be found in:

- ITM VIOS Premium Agent User's Guide:

Chapter 2 of the VIOS Premium Agent User's Guide v 6.2.0.1 (SA23-2238-02)

- Configuration using VIOS commands: lssvc, cfgsvc, startsvc, stopsvc

- ▶ Command Reference Guide:

http://publib.boulder.ibm.com/infocenter/eserver/v1r3s/index.jsp?topic=/iphb1/iphb1_vios_commandslist.htm

Standard Agent Configuration

```
<andleHome/bin>./itmcmd config -A px      (px – AIX, pk – CEC , va –VIOS, )  
./itmcmd config -A -o ph      (ph-HMC)
```

Agent configuration started...

Will this agent connect to a TEMS? [YES or NO] (Default is: YES):

TEMS Host Name (Default is: dan2003s):

Network Protocol [ip, sna, ip.pipe or ip.spipe] (Default is: ip.pipe):

Now choose the next protocol from one of these:

- ip.sna, ip.spipe or none

Network Protocol 2 (Default is: none):

IP.PIPE Port Number (Default is: 1918):

Enter name of KDC_PARTITION (Default is: null):

Configure connection for a secondary TEMS? [YES or NO] (Default is: NO):

Enter Optional Primary Network Name or "none" (Default is: none):

Are you installing this product into a clustered environment (Default is: NO):

Agent configuration completed...

Agent code

- kpxagent – Factory AIX Premium Agent
 - ▶ aixDataProvider
- kvaagent – Factory VIOS Premium Agent
 - ▶ viosDataProvider
- kpkagent – Factory CEC Base Agent
 - ▶ cecDataProvider
- kphagent – Factory HMC Base Agent
 - ▶ hmcDataProvider

Hints & Tips (V 6.2.2 new)

VIOS

- The VIOS Premium and CEC Base Agents are preinstalled on a VIOS system. No further installation is required, but the agents must be configured and bound to a TEMS/TEPS in order to be viewed from a TEP.
- The VIOS and CEC Base Premium Agent requires an established “ssh” connection to the HMC that controls the VIOS partition.
- VIOS is a closed system and does not support the running of non-certified software. Currently the only ITM agents certified to run on the VIOS are the ITM VIOS, ITM CEC and ITM Log Alert agent.
- ITM remote operations to the VIOS Agent are not currently supported because ITM Remote Operations require the ITM Unix OS agent to be running on that end point. The ITM Unix OS agent is not certified for the VIOS environment.

CEC

- It is recommended that the CEC agent be run from a VIOS partition on a CEC to avoid problems caused by partition mobility.
- Refer to Chap 2 of the CEC UG for requirements to link to IBM System Director functions.
- The CEC agent **is no longer required to** be installed on an AIX partition that resides on the CEC to be monitored..
- The CEC agent requires the following to properly monitor AIX LPARs and Frame utilization:
 - ▶ Network connectivity to other AIX LPARs on the same CEC via UDP port 2279.
 - ▶ Each AIX LPAR must have the xmservd/xmtopas agent running in order to be monitored properly.
 - ▶ A “ssh” connection between the CEC Agent’s LPAR and the CEC’s managing HMC. Run the “key.pl” shell script (in the “CANDLEHOME/aix523/pk/bin” directory) to establish the “ssh” connection.
- The following conditions may cause a LPAR to be listed as “Unmonitored”:
 - ▶ Connectivity on UDP port 2279 is blocked.
 - ▶ The xmservd/xmtopas agent is not running.

AIX

- An AIX agent can be installed on any AIX partition.
- All AIX agents on a CEC are typically bound to the same TEMS/TEPS so they can be viewed from the same TEP.

HMC

- **The “Managed Systems” Nav Item and it’s associated Ws have been superseded by the “Managed CECs” Nav Item & Ws.**

Hints & Tips (V 6.2.1 new)

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- The VIOS and CEC Base Premium Agent requires an established “ssh” connection to the HMC that controls the VIOS partition.
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- ITM remote operations to the VIOS Agent are not currently supported because ITM Remote Operations require the ITM Unix OS agent to be running on that end point. The ITM Unix OS agent is not certified for the VIOS environment.

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Hints & Tips (V 6.2.0.1 new)

VIOS

- The VIOS Premium Agent is preinstalled on a VIOS system. No further installation is required, but the agent must be configured and bound to a TEMS/TEPS in order to be viewed from a TEP.
- The VIOS Premium Agent requires an established “ssh” connection to the HMC that controls the VIOS partition.
- VIOS is a closed system and does not support the running of non-certified software. Currently the only ITM agents certified to run on the VIOS are the ITM VIOS, ITM CEC (only in Integrated Virtualization Manager (IVM) configurations), and ITM Log Alert agent.
- ITM remote operations to the VIOS Agent are not currently supported because ITM Remote Operations require the ITM Unix OS agent to be running on that end point. The ITM Unix OS agent is not certified for the VIOS environment.

CEC

- The CEC agent must be installed on an AIX partition that resides on the CEC to be monitored..
- The CEC agent requires the following to properly monitor AIX LPARs and Frame utilization:
 - ▶ Network connectivity to other AIX LPARs on the same CEC via UDP port 2279.
 - ▶ Each AIX LPAR must have the xmservd/xmtopas agent running in order to be monitored properly.
 - ▶ A “ssh” connection between the CEC Agent’s LPAR and the CEC’s managing HMC. Run the “key.pl” shell script (in the “CANDLEHOME/aix523/pk/bin” directory) to establish the “ssh” connection.
- The following conditions may cause a LPAR to be listed as “Unmonitored”:
 - ▶ Connectivity on UDP port 2279 is blocked.
 - ▶ The xmservd/xmtopas agent is not running.

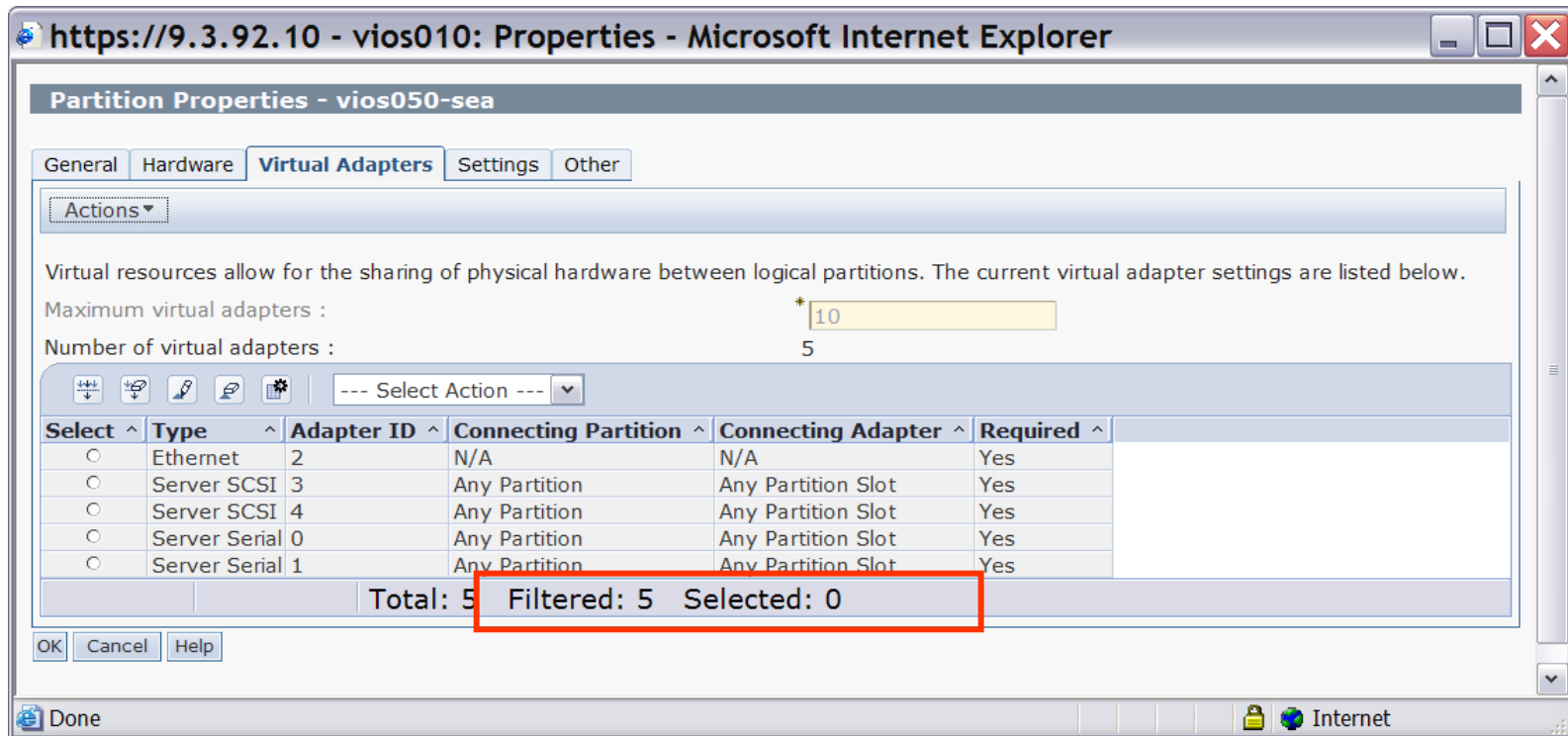
AIX

- An AIX agent can be installed on any AIX partition.
- All AIX agents on a CEC are typically bound to the same TEMS/TEPS so they can be viewed from the same TEP.

HMC

- A HMC agent can be installed on any AIX partition, but requires a “ssh” connection to the HMC it is to monitor, so it is

Hints & Tips (Cont)



NOTE: VIOS Agent Storage Mapping Client data will be missing if the HMC settings for VIOS LPAR Virtual Adapter “Connecting Partition” and “Connecting Adapter” are set to “Any Partition” or “Any Partition Slot”, respectively. They need to be set to the specific Partition and Connecting Adapter of the VIOS client in order for the ITM VIOS agent to map them properly.

Files

■ Files and Directories

- ▶ <andlehome> typically set to: /opt/IBM/ITM
- ▶ <andlehome>/bin - ITM commands
- ▶ <andlehome>/logs - agent and provider logs
- ▶ <andlehome>/config – agent conf files (e.g. for AIX Premium = px)
 - px.config px.ini
- ▶ <andlehome> - Agent files (e.g. for AIX Premium = px)
 - ./aix523/px/bin/kpx.ref
 - ./aix523/px/bin/kpxagent
 - ./aix523/px/tables/ATTRLIB/kpx.atr

kpx (px) is the AIX Premium agent
kva (va) is the VIOS Premium agent
kpk (pk) is the CEC base agent
kph (ph) is the HMC base agent

Reference Materials (V 6.2.2 new)

Product pub sections and readme information that cover component/function.

IBM Tivoli Monitoring Administrator's Guide
 IBM Tivoli Monitoring Installation and Setup Guide
 IBM Tivoli Monitoring Problem Determination Guide
 IBM Tivoli Monitoring User's Guide
 IBM Tivoli Monitoring Readme First

- SC23-2237-05, IBM Tivoli Monitoring v6.2.2: AIX Premium Agent v 6.2.2 (new)
- SA23-2238-04, IBM Tivoli Monitoring v6.2.2 : VIOS Premium Agent v 6.2.2 (new)
- SC23-5239-06, IBM Tivoli Monitoring v6.2.2 : CEC Base Agent v 6.2.2 (new)
- SA23-2239-04, IBM Tivoli Monitoring v6.2.2 : HMC BASE Agent v 6.2.2 (new)

Files:	Title:	Part Number:
ITM eAssembly	ITM Tivoli Monitoring Version 6.2.2 (ITM 6.2.2), Multiplatform, Multilingual eAssembly	CR62TML
Agent files	ITM Tivoli Monitoring V6.2.2 Agents for System P V6.2.2 AIX, English	CZEH4EN
Support files	IBM Tivoli Monitoring V6.2.2 Agents For System P V6.2.2 Agent Support Files, English	CZEH2EN
Language Support files	IBM Tivoli Monitoring V6.2.2 Agents for System p V6.2.2 AIX, Language Support, Multiplatform, Multilingual	CZEH3ML

Reference Materials (V 6.2.1 new)

Product pub sections and readme information that cover component/function.

IBM Tivoli Monitoring Administrator's Guide
 IBM Tivoli Monitoring Installation and Setup Guide
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 IBM Tivoli Monitoring User's Guide
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- SC23-2237-04, IBM Tivoli Monitoring v6.2.2: AIX Premium Agent v 6.2.1 (new)
- SA23-2238-03, IBM Tivoli Monitoring v6.2.2 : VIOS Premium Agent v 6.2.1 (new)
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Files:	Title:	Part Number:
ITM eAssembly	ITM Tivoli Monitoring Version 6.2.2 (ITM 6.2.2), Multiplatform, Multilingual eAssembly	CR62TML
Agent files	ITM Tivoli Monitoring V6.2.2 Agents for System P V6.2.1 AIX, English	CZ60DEN
Support files	IBM Tivoli Monitoring V6.2.2 Agents For System P V6.2.1 Agent Support Files, English	CZ60CEN
Language Support files	IBM Tivoli Monitoring V6.2.2 Agents for System p V6.2.1 AIX, Language Support, Multiplatform, Multilingual	CZ60PML

Reference Materials (V 6.2.0.1 new)

Product pub sections and readme information that cover component/function.

IBM Tivoli Monitoring Administrator's Guide
IBM Tivoli Monitoring Installation and Setup Guide
IBM Tivoli Monitoring Problem Determination Guide
IBM Tivoli Monitoring User's Guide
IBM Tivoli Monitoring Readme First

- SC23-2237-03, IBM Tivoli Monitoring: AIX Premium Agent v 6.2.0.1 (new)
- SA23-2238-02, IBM Tivoli Monitoring: VIOS Premium Agent v 6.2.0.1 (new)
- SC23-5239-04, IBM Tivoli Monitoring: CEC Base Agent v 6.2.0.1 (new)
- SA23-2239-02, IBM Tivoli Monitoring: HMC BASE Agent v 6.2.0.1 (new)

Files:	Title:	Part Number:
ITM eAssembly	ITM Tivoli Monitoring Version 6.2.1 (ITM 6.2.1), Multiplatform, Multilingual eAssembly	CR62TML
Agent files	ITM Tivoli Monitoring Agents for System P V6.2 Interim Feature1 for AIX, Linux and Solaris, English	CZ26IEN
Windows Support files	IBM Tivoli Monitoring Agents For System P V6.2 Interim Feature 1 for Windows, English	CZ26HEN
Language Support files	IBM Tivoli Monitoring Agents for System p V6.2 Interim Feature 1: Language Support, Multiplatform, Multilingual	CZ26JML

APAR fixed in this release (V 6.2.2 new)

VIOS agents:

- APAR: IZ70172: NPIV data is not reported on TEPS, if the managing_system parameter has “-” in it.

CEC agent:

- APAR: IZ69882: CEC agent does not show correct data after HMC reboot.
- APAR IZ70748: CEC agent showing incorrect CPU pool data. (Candidate)

APAR fixed in this release (V 6.2.1 new)

AIX and VIOS agents:

- APAR: IZ52381: MACHINE DUMPS IF THE HISTORY COLLECTION IS "ENABLED" FOR DISKS.
- APAR: IZ47609: ITM AIX & VIOS PREMIUM AGENTS CORE WHEN DISK HISTORICAL COLLECTION IS ENABLED
- APAR: IZ45664: AIX DATA PROVIDER SHOWING DIFFERENT ADAPTERS THAN IOSTAT
- APAR: IZ53879: NETWORK MAPPINGS IS NOT DISPLAYED IN TEPS FOR VIOS AGENT
- APAR IZ59700: PX SYSTEM WORKSPACE HAS NO DATA (AIX 5.3 TL5 & TL6).
- APAR IZ56834: PX AGENT FAILS IN ITM 620
- APAR IZ56974: PX AGENT FAILS IN ITM 620
- APAR IZ54068: SORTING MECHANISM FOR COLUMNS DOES NOT WORK

CEC agent:

- APAR: IZ52615: CEC AGENT DUMPS CORE IF WRONG CEC IS SPECIFIED USING KEY.PL

HMC agent:

- APAR: IZ54599: KEY.PL DOES NOT TAKE THE USERNAME ATTRIBUTE.

APARs included (V 6.2.0.1 new)

AIX Premium Agent

- IZ42131 Disks displayed under adapter when they don't have any disks attached to them
- IZ42365 The workspace AIX premium->Networking->Network Interfaces shows a wrong gateway IP address for the server.
- IZ42995 Error in PX logs 'SH: /ETC/LSDEV: NOT FOUND'
- IZ44956 Processes have CPU_PCT of 100.0 at the same time
- IZ48304 Defined users workspace does not return any data

CEC Base Agent

- IZ35880 The CEC agent shows the same information on the name and hostname
- IZ36612 Context CPU switches, phantom interrupts & capacity weight for the last 2 servers (shared) are wrong
- IZ40596 Global CEC - CPU unallocated not reflecting correct values
- IZ40732 In CEC utilization view, number of un-monitored CPUs and inactive LPARs is wrong
- IZ43220 Allocated memory used PCT is always 0
- IZ45743 key.pl to use different split value

HMC Base Agent

- IZ26616 HMC agent does not start successfully using HMC V7
- IZ45743 key.pl to use a different split value

VIOS Premium Agent

- IZ36125 Data for storage mappings & storage mapping details views of VIOS agent are misaligned
- IZ48304 Defined users workspace does not return any data

Known Problems (V 6.2.0.1)

- AIX, HMC, CEC and Unix OS agents go offline after an upgrade. So far this has only been observed on AIX 5.3. The work around is to manually start the agents after the upgrade.
- LPAR Info (in VIOS environment): “Physical CPU Units Used” is returning pool entitlement configured (pool_entc) instead of CPU Units used (physb)
- LPAR Info (in VIOS Environment): “Max CPU Cap Used Pct” values need to be multiplied by 100 to give proper percent. This also affects the VIOS Situation that tests this attribute.



Overview of SystemP and ITM Environment

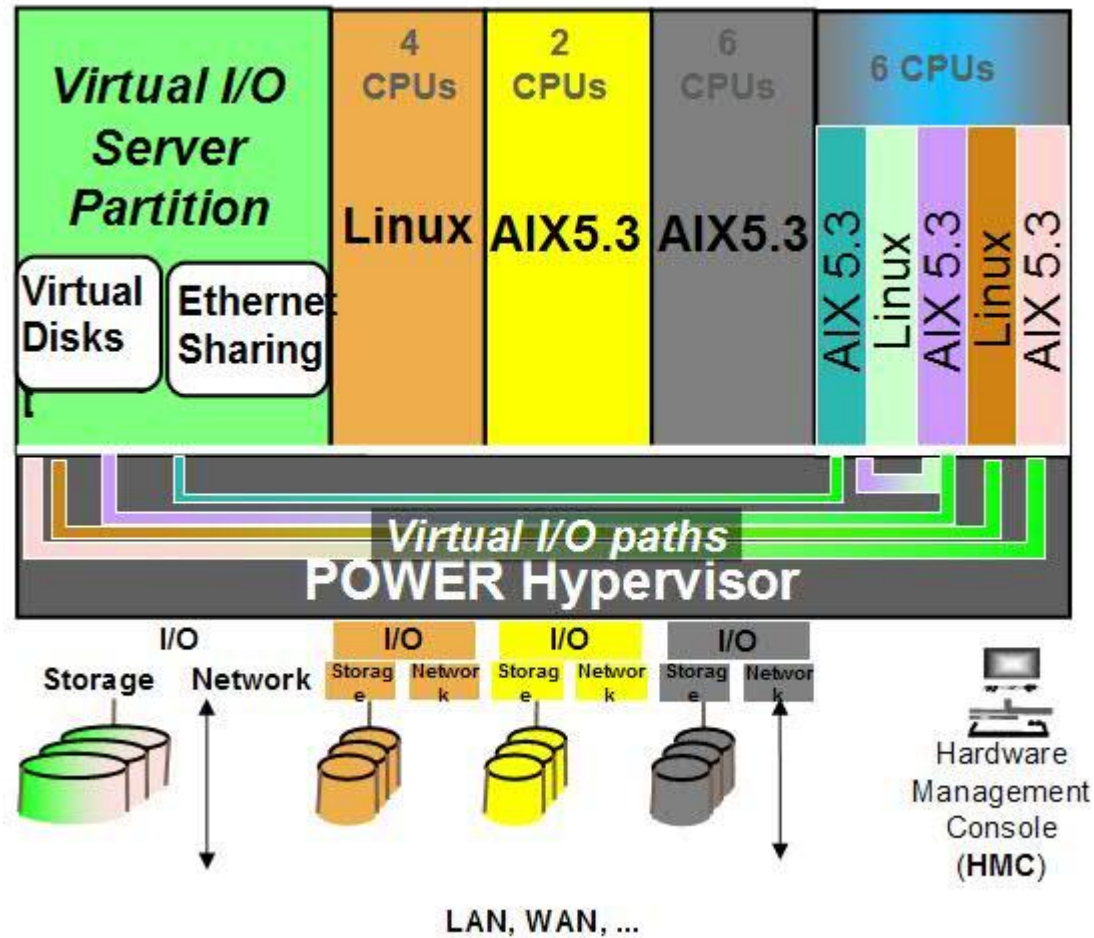
What is system P?

- Systems developed by IBM using POWER based processors.
- Processors are designed using the POWER technology
- POWER (Performance Optimization With Enhanced RISC)
- Multiple Generations
 - P5 (supports SMT)
 - P6 (Frequency Scaling)
 - P7 (4 SMT threads)
- Types:
 - Low Range
 - Mid Range
 - High End

What is CEC?

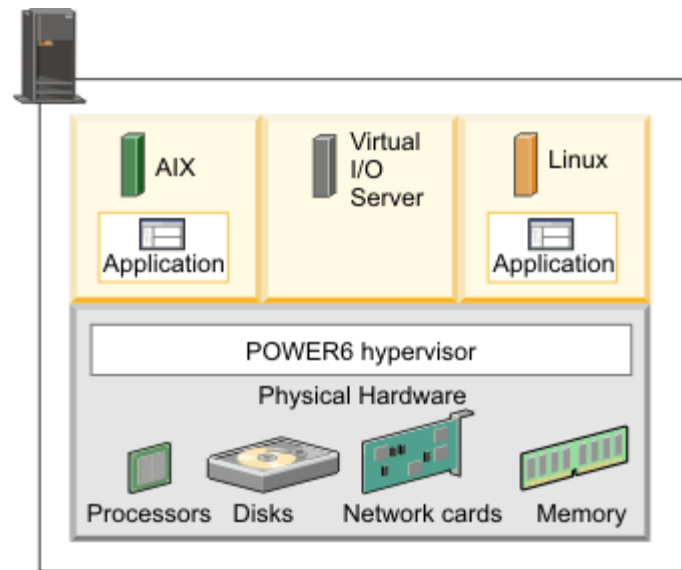
- CEC (Central Electronics Complex)
- Houses memory, processing, I/O subsystem
- Interconnections between all subsystems
- System example:
 - A fully configured p5-570:
 - Supports up to 160 partitions

CEC & LPAR overview



What is Hypervisor?

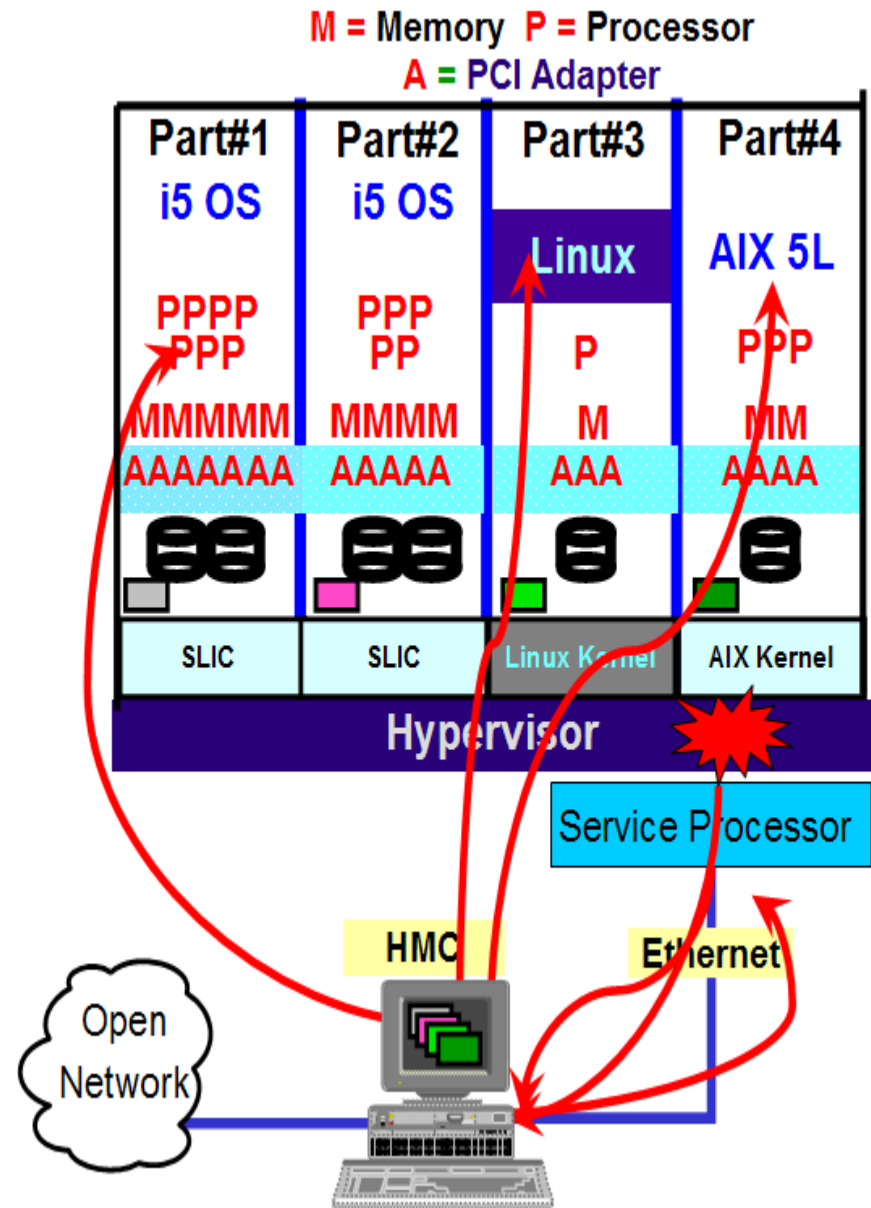
- Layer between hardware and Operating Systems
- Provides functionality & features for virtualization
- Also called as POWER Hypervisor
- Virtualizes and provides resources to partitions



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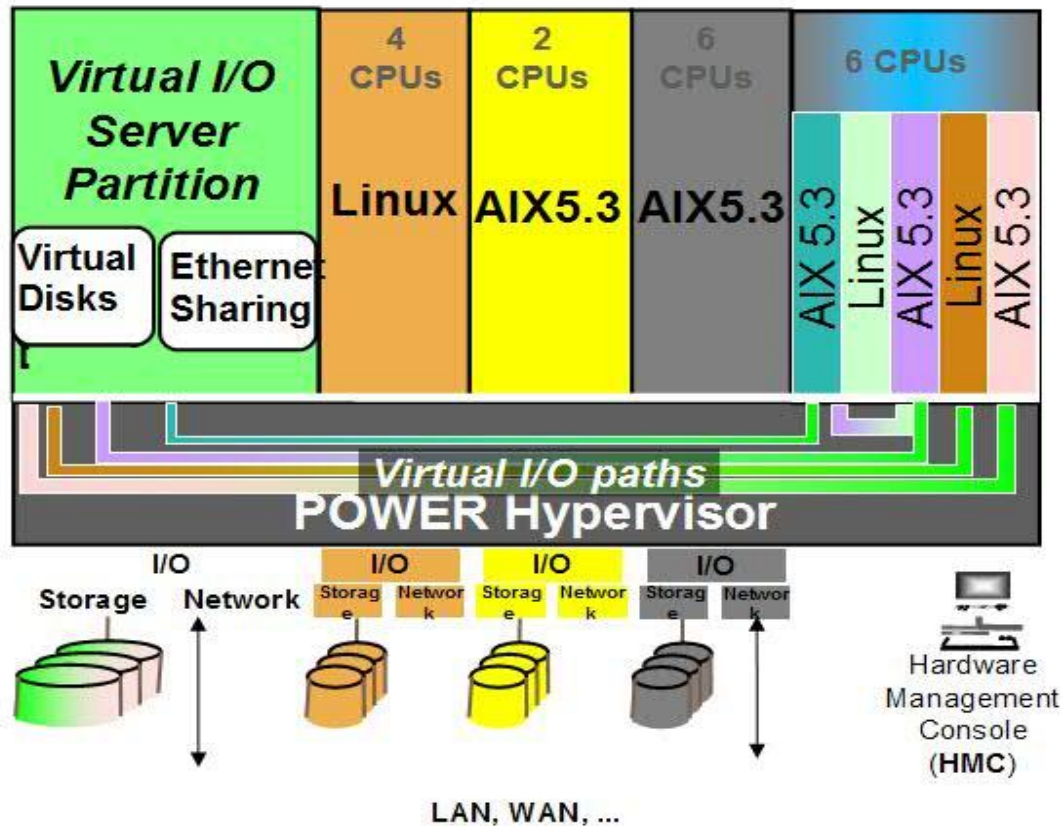
What is HMC?

- Hardware Management console
- Resource allocation
- Needed in multiple partition environment for managing them.



Virtual I/O Server Overview

- Virtual I/O Server partition is allocated physical I/O slots for the adapters (SCSI or Ethernet)



Virtual I/O Server Details

- Component of Advanced POWER Virtualization feature
- Implemented as customized AIX-based appliance
- Can only be run in special Virtual I/O Server partitions
 - Up to 4 Virtual I/O Server partitions supported per system
- Must have physical I/O slots for storage and networking

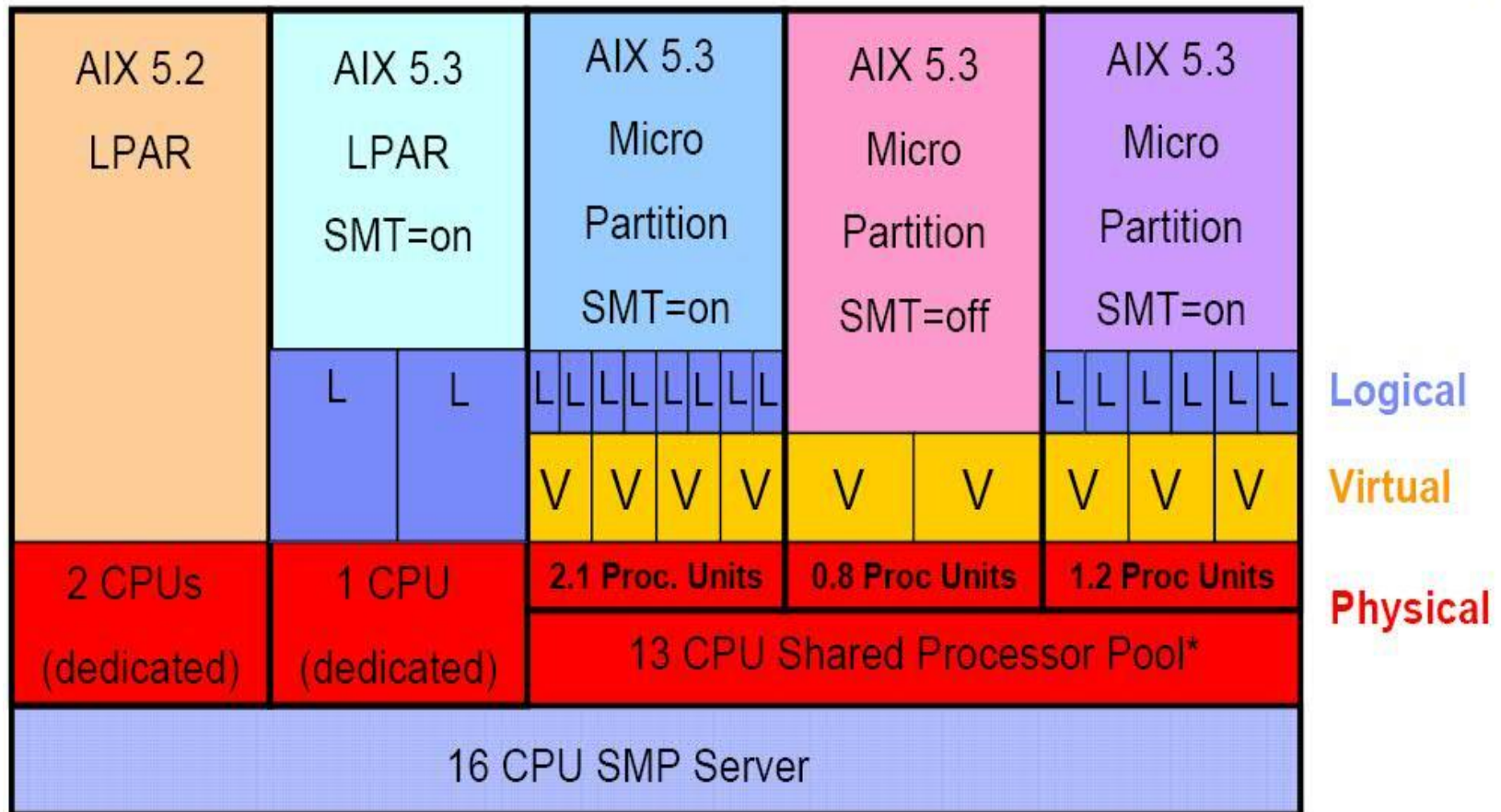
Benefits of Virtualized I/O

- Partitions can be created without requiring additional physical I/O resources
- Economical I/O model:
 - Efficient utilization of resources through sharing
- Facilitates server consolidation
- Allows client attachment to previously unsupported storage solutions

Logical Partition Overview

- Each partition acts as an server
- Facilitates running multiple workloads independently
- Share few attributes like system ID, processor attributes
- Failure of one LPAR does not affect another
- Types
 - Shared (processors are allocated from the shared pool)
 - Dedicated (Dedicated processors are available)

Overview





Debugging issues with SystemP VIOS Agent

VIOS Agent

- > Monitors VIOS data
- > Uses libSpmi.a library
- > Same functionality / metrics as AIX agent. Collects network & storage mappings.
- > Depends on HMC for network & storage mappings

VIOS Agent Tracing

Each System P agent is comprised of two processes, the factory agent and the data provider. The procedure to set tracing differs by release.

Version 6.2.2.2

For release 6.2.2.2, KBB_RAS1 tracing should be set to "ALL" (For example, KBB_RAS1=ALL) in \$CANDLEHOME/config/va.ini file

Starting with 6.2.2.2 (6.2.2 Interim Feature 2 or 06.22.02.00), data provider tracing relies only on KBB_RAS1=ALL in the files listed above.

The data provider messages will go in the \$CANDLEHOME/logs/<hostname>_va_*DataProvider*.log. There will be no separate .trc file as there was in earlier releases.

The factory agent messages will go in the \$CANDLEHOME/logs/<hostname>_va_kvaagent*.log.

VIOS Agent Tracing (continued)

Version 6.2.2.1

To trace the data provider for 6.2.2.1 (6.2.2 Interim Feature 1 or 06.22.01.00):

- Data provider tracing is triggered by an environment variable and the resulting trace logs will go in the \$CANDLEHOME/logs directory.
- Add VIOS_DEBUG=1 to \$CANDLEHOME/config/va.ini
- Restart the agent, and a new trace log will be: \$CANDLEHOME/logs/viosProvider.trc
- On multiple restarts, the previous trace file will be renamed to \$CANDLEHOME/logs/viosProvider.trc.last before starting a new trace file.

VIOS Agent Tracing (continued)

Versions before 6.2.2.1

To trace the data provider for VIOS agents prior to 6.2.2.1:

- Create a file called `/tmp/trace.TRZ`
- Restart the agent
- This will create a new file: `/tmp/itmProvider.trc`
- NOTE: Trace messages will be sent to this file until the agent is stopped. So, after collecting the data, stop the agent and remove the `/tmp/trace.TRZ` file and restart the agent.
- Continue to collect the normal agent files in `$CANDLEHOME/logs`

VIOS Agent Tracing (continued)

To trace the flow of data from the factory agent perspective:

- set KBBRAS1=ERROR (UNIT:genericagent ALL) (UNIT:cps_socket ALL) (UNIT:cpci ALL)
- genericagent will show the data that the factory agent is sending to the TEMA to forward to TEMS
- cps_socket and cpci will show the factory agent requests to the data provider and the response the factory agent receives from the data provider.
- The log file is <host name>px<time stamp>*.log located in the <ITM home>/logs directory.

Common Problems

Timeout Issues with Data Providers

The agents collect data from

- Factory agent custom provider.
- Script Data Provider.

--> Both these data providers use timeout variables.

a. Factory Agent Custom Provider:

1. Uses CDP_COLLECTION_TIMEOUT environment variable.
2. It specifies the number of seconds that the agent will wait for the custom provider to provide metrics for a particular attribute group
3. The default value is 60 seconds.
4. You can set the variable in <CANDLEHOME>/config/va.ini using:

CDP_COLLECTION_TIMEOUT=100

Restart the agent.

Common Problems

Timeout Issues with Data Providers (continued)

b. Script Data Provider:

1. Uses CDP_DP_SCRIPT_TIMEOUT environment variable.
2. It specifies the number of seconds that the agent will wait for the script provider to provide metrics for a particular attribute group
3. The default value is 30 seconds.
4. You can set the variable in <CANDLEHOME>/config/va.ini using:

```
CDP_DP_SCRIPT_TIMEOUT=100
```

Restart the agent.

Common Problems

CPU, network interface, and Workload Manager (WLM) metrics are not dynamically updated

Metrics for these attribute groups are taken from the System Performance Measurement Interface (SPMI) shared library. After the SPMI is initialized, it creates a list of CPUs, network interfaces, and WLM classes configured. The SPMI library does not reinitialize these lists until one of the following occurs:

1. The system is rebooted.
2. The number of consumers using the library goes to zero, and programs that were using the library end their SPMI connection gracefully.
3. A manual recycling of the SPMI shared library is performed.

Common Problems

CPU, network interface, and Workload Manager (WLM) metrics are not dynamically

Updated (continued)

Recycling of the IBM Tivoli Monitoring agent might not solve the problem if there are other SPMI consumers. A consumer is any program that has established a connection with the SPMI to acquire data. It is also possible to have a program that is a DDS (Dynamic Data Supplier) that provides data to the SPMI. Some examples of both are: topas, xmtopas, xmservd, xmtrend, and the IBM Tivoli Monitoring: AIX Premium Agent.

To recycle the SPMI without rebooting:

1. All data SPMI consumers and DDSs must end.
2. Ensure that there are no Shared Memory IDs remaining that start with a key of 0x78.
3. If so, run `ipcrm -m id`.
4. Run `slibclean`.