



IBM STG Technical Conference

# IBM Systems and Technology Group Technical Conference

## IBM Tivoli Monitoring System Edition for IBM System p™

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IBM System p Product Introduction Centre



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Revised February 6, 2004

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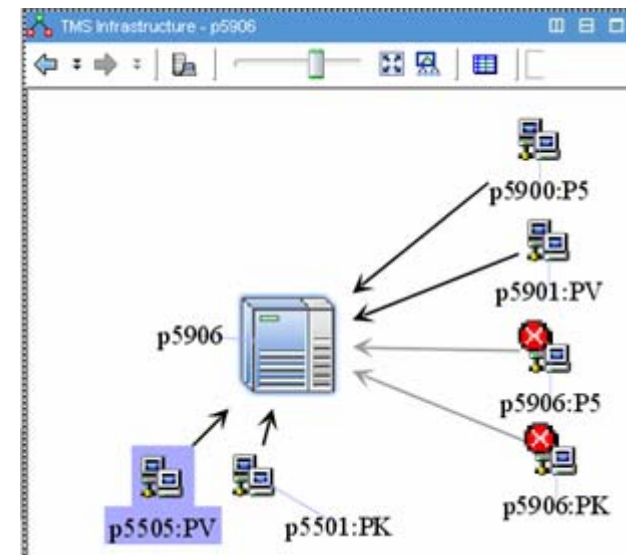
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Revised September 8, 2005

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Self-Monitoring Topology

**Note: Server and Agents provided for AIX only**



# Monitoring ?

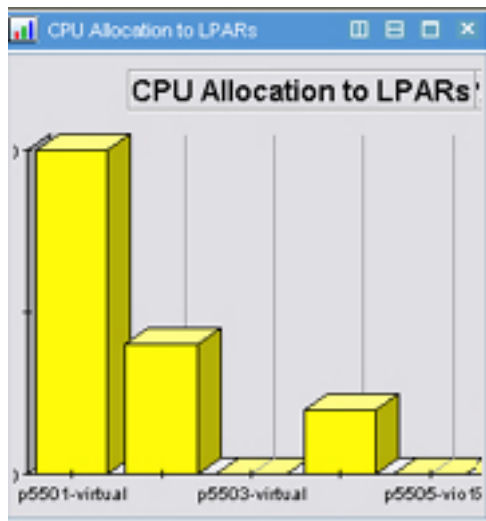
Depends on : When, Why, What, How, Who ....

**Dashboard**

Name	Status
VSM Systems	Critical
HMC Systems	Warning
Systems with Linux	OK
Systems with Windows	OK
Blade Chassis	OK
Systems with iOS	OK

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1



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**Enterprise Message Log**

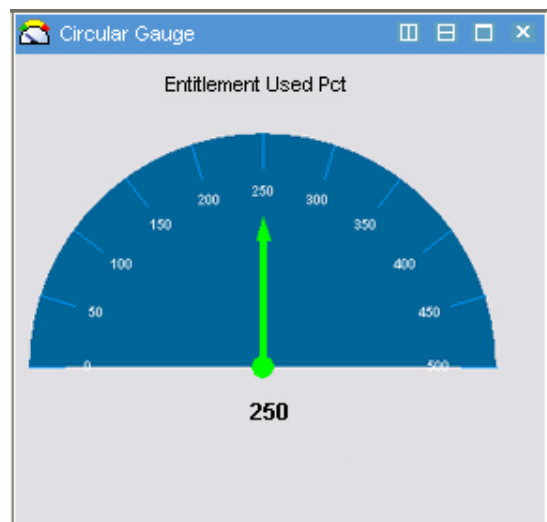
Status	Name
Open	MS_Offline
Open	KP5_PHYS_MEM_Free_Warn
Open	KP5_NIM_Res_NotRunning_Info
Open	MS_Offline
Open	KPV_LPARCPU_Idle_Info

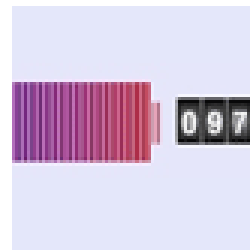
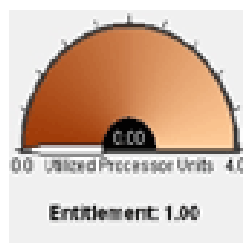
**My Acknowledged Events**

Severity	Status	Owner
Warning	Acknowledged	SYSADMIN
Informational	Acknowledged	SYSADMIN
Informational	Acknowledged	SYSADMIN

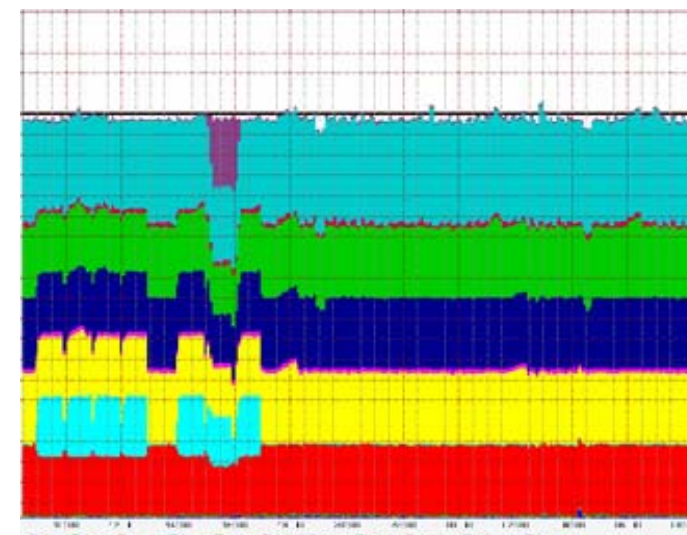
3



4

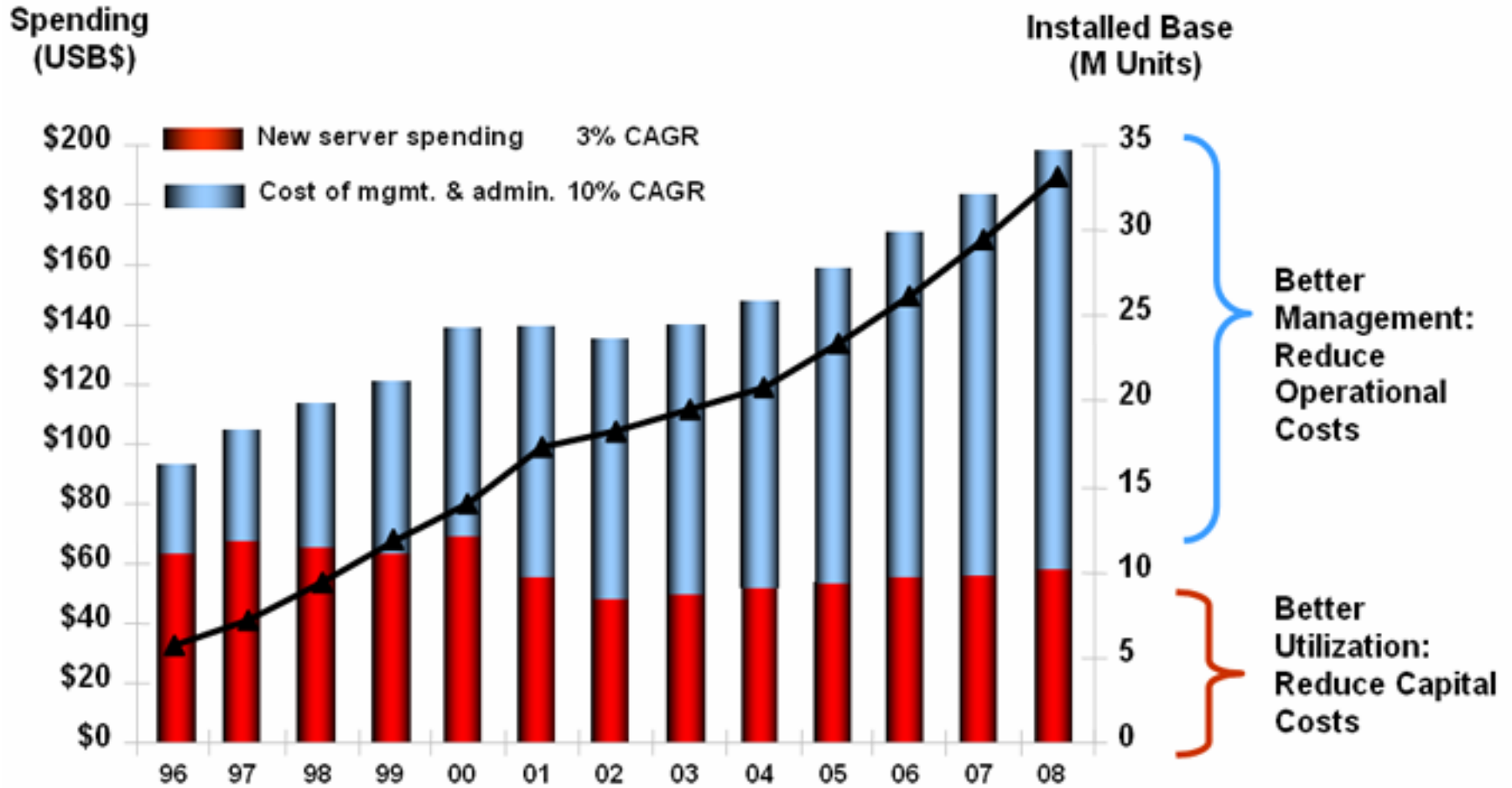


5



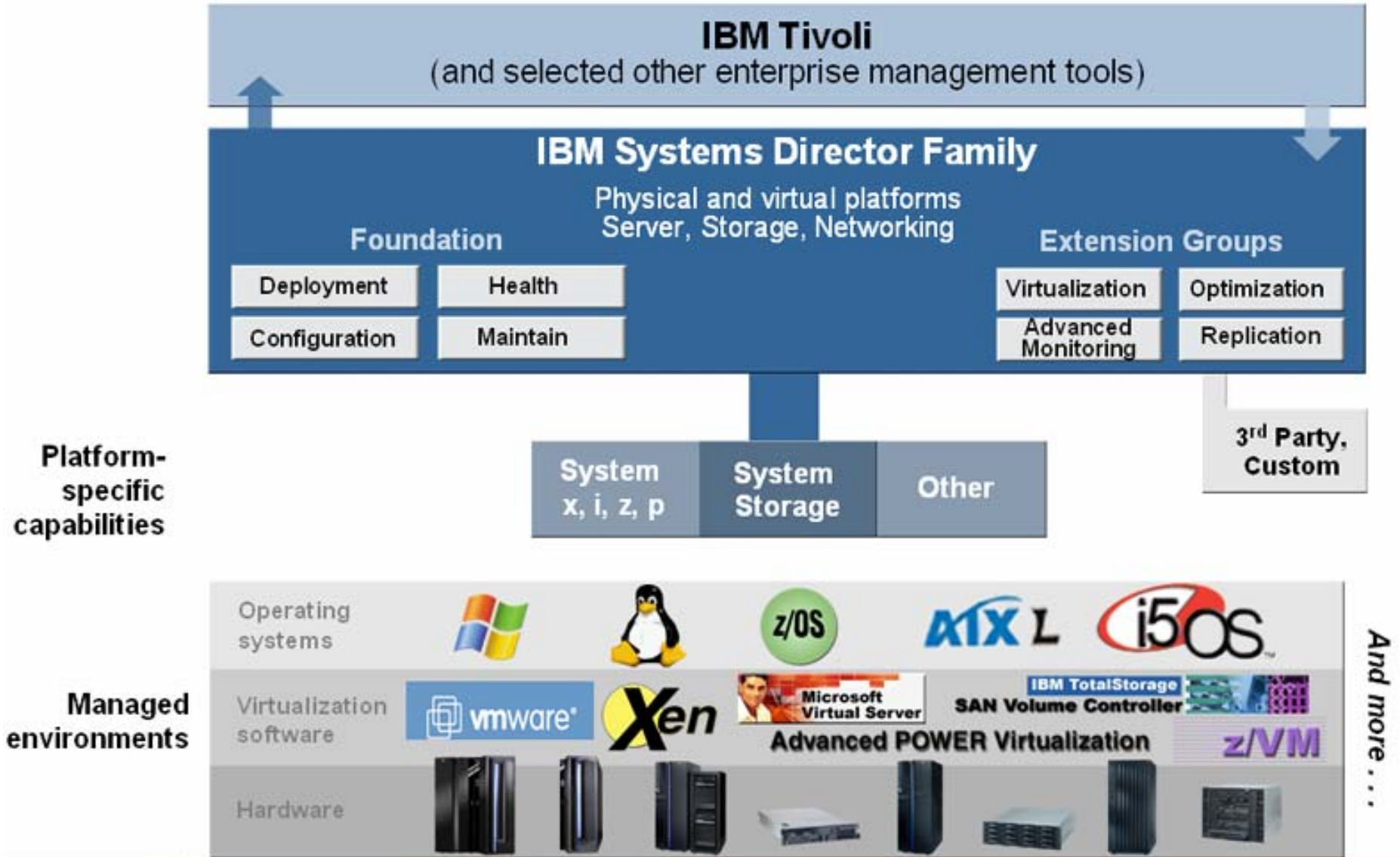
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# Total cost of ownership (TCO) for servers continues to rise, even as total server spend remains flat — and operational costs are the reason



IDC, 2006

# End to end management approach





# IBM Systems Director Family

*Open, modular design with a broad range of capability*

**ITMSESP**

## Extensions

Advanced Monitoring

Virtualization Management

Replication

Usage & Accounting

Workload Management

Power Management

Availability



Configuration

Maintenance

Deployment

Problem Determination

Monitoring

## Foundation



# ITMSESP : IBM Tivoli Monitoring System Edition for System p

- No-charge download
  - ▶ Announced Oct 24, 2006
  - ▶ Available Dec 15, 2006
- Status and Threshold monitoring
  - ▶ Predefined workspaces for monitoring
  - ▶ Predefined thresholds for alerting
- Tivoli Enterprise Portal
  - ▶ “Console” for visualization of data
- “Best Practice” solutions
  - ▶ For AIX and VIO Server  
( Situation Event Monitoring )

## Easily upgraded to the full IBM Tivoli Monitoring V6.1 product

For the 1-year free S/W support, need to order the feature codes described on Tivoli website  
<http://www-306.ibm.com/software/tivoli/products/monitor-systemp/>

### New 64-bit Web browser for AIX 5L, and systems monitoring facility for AIX 5L and VIOS available for no charge

IBM United States Software Announcement 206-275  
October 24, 2006

ENUS206275.PDF (22KB)

Table of contents		Document options
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↓ Announcement sell sheet		

*(Corrected on December 18, 2006)*

The Description section was revised with information regarding upgrading to VIOS.

*(Corrected on December 15, 2006)*

The title and At a glance sections were revised to clarify the functions of the no-charge software.

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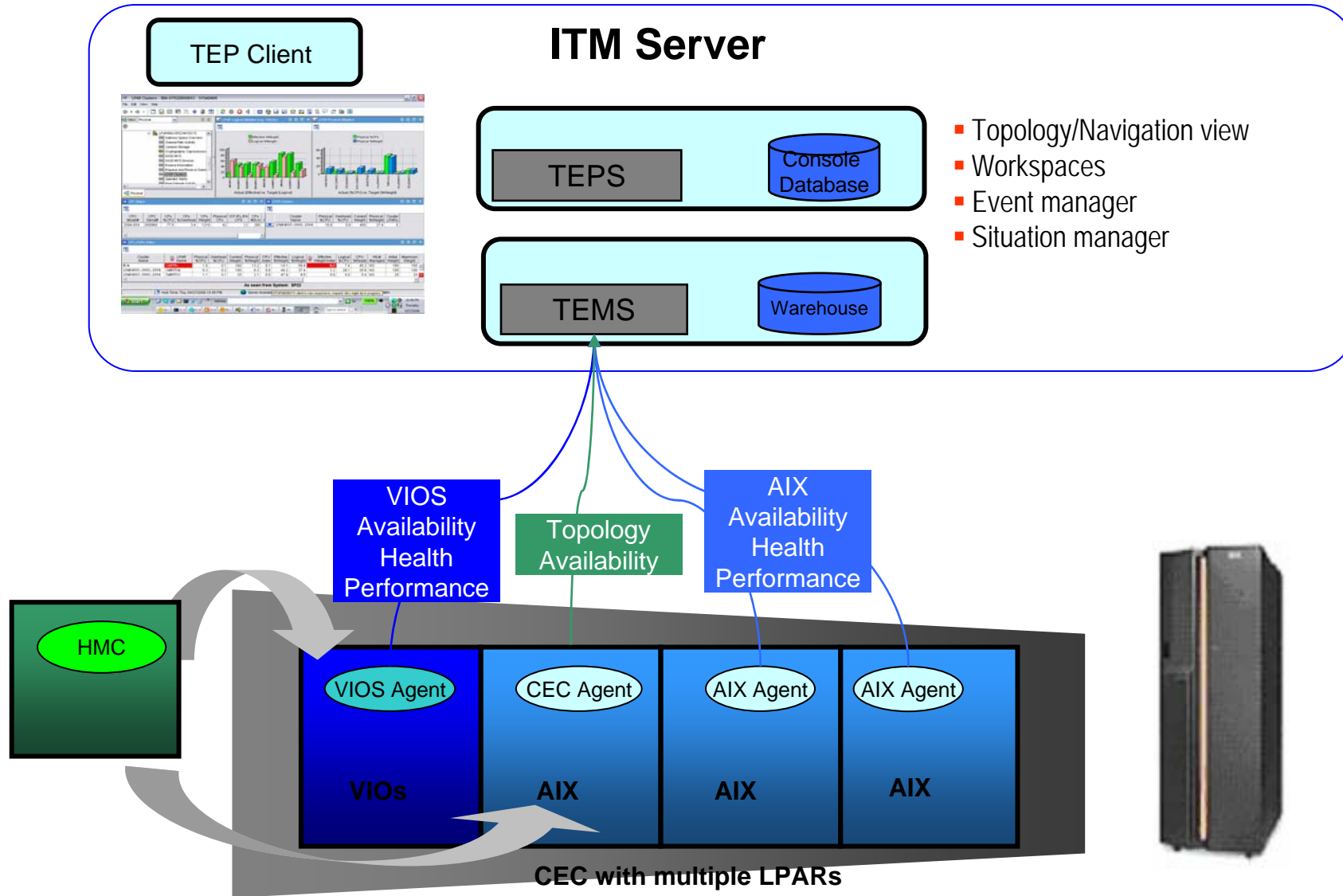
## ITM SE : Compared to ITM 6.1

Feature/Function	ITM SE for System p	ITM
Topology and Navigation	Yes	Yes, plus more
Availability Monitoring	Yes	Yes, plus more
Health	Yes	Yes, plus more
Customer Customizable Workspaces, Navigators, Eventing, Situations	Yes	Yes, plus more
Performance and Throughput	No	Yes
Historical Data Collection	No	Yes
Workflows	No	Yes

- ITM 6.1 provides :
  - ▶ Enhanced AIX monitors – deeper metrics
  - ▶ Ability to use other Operating System monitors
  - ▶ Application / Database monitors
  - ▶ Data Warehouse – monitor trends / capacity requirements

Note: Further details In the backup charts at the end of this presentation.

# ITMSESP : Overview

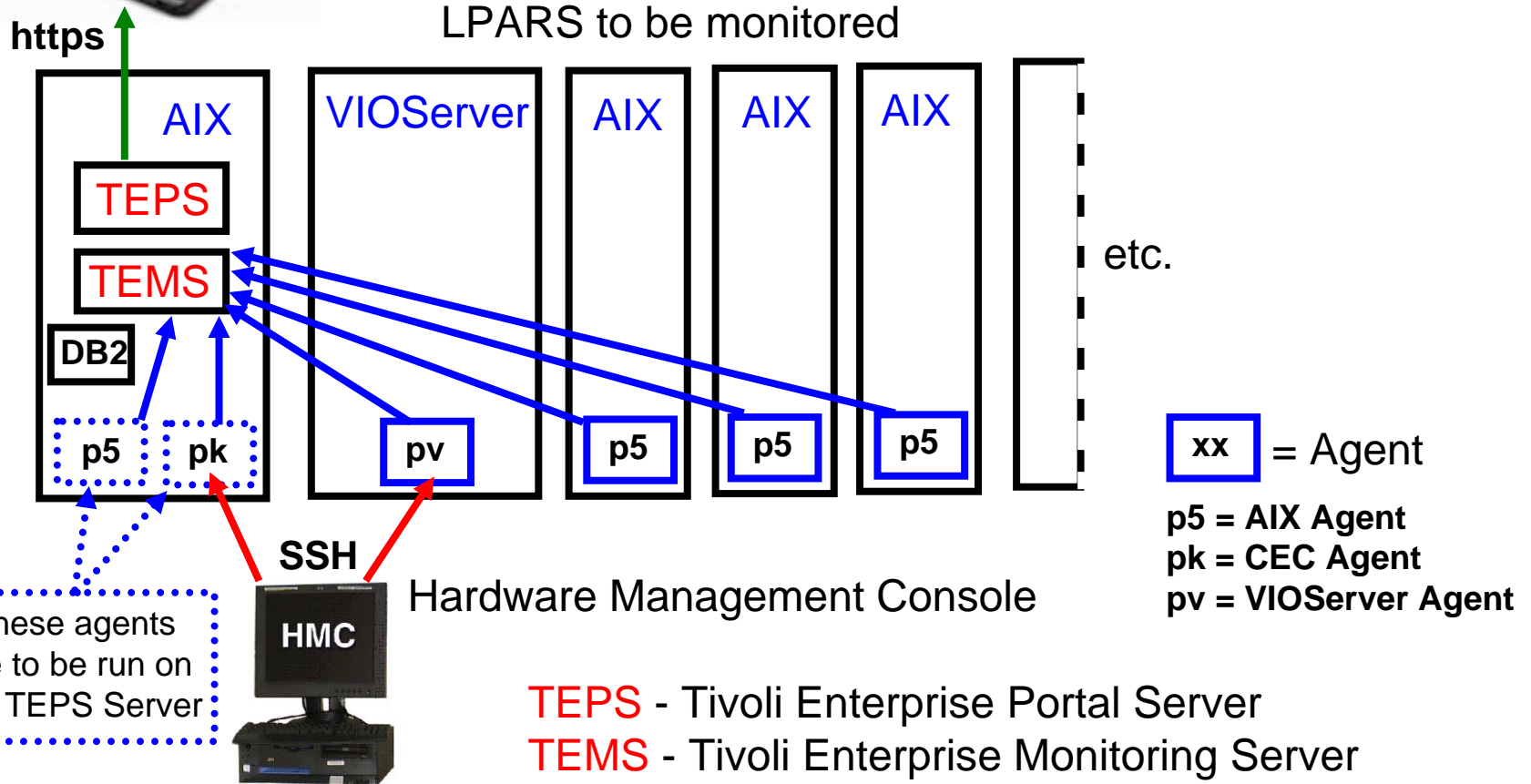




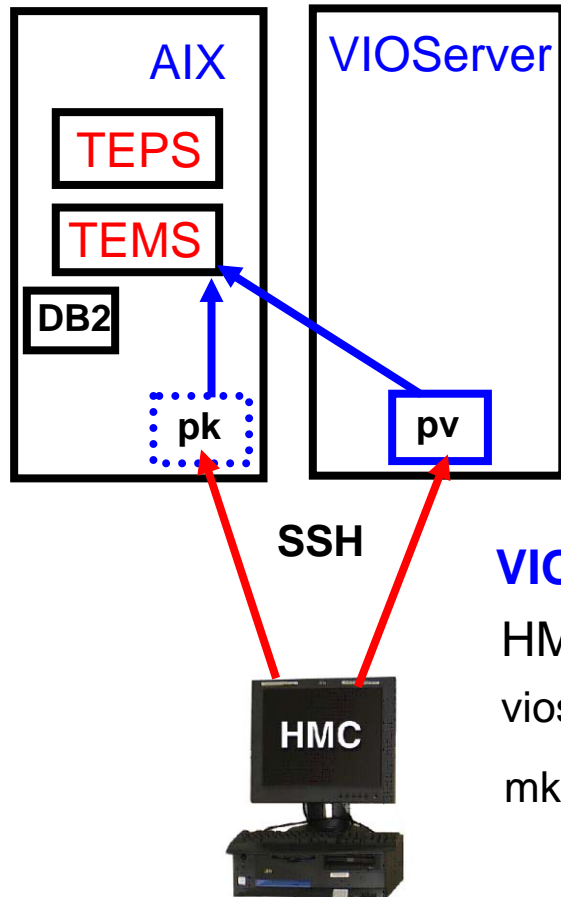
# ITMSESP : Overview



Tivoli Enterprise Portal "console"



# ITMSESP : Enable Agents to collect data from HMC



## CEC Agent : "pk"

Script provided :

`/opt/IBM/ITM/aix513/pk/bin/key.pl`

- Uses scp to copy Public Key to the HMC
- Create a configuration file for the Agent ( HMC hostname and Managed Server name)

## VIOS Agent : "pv"

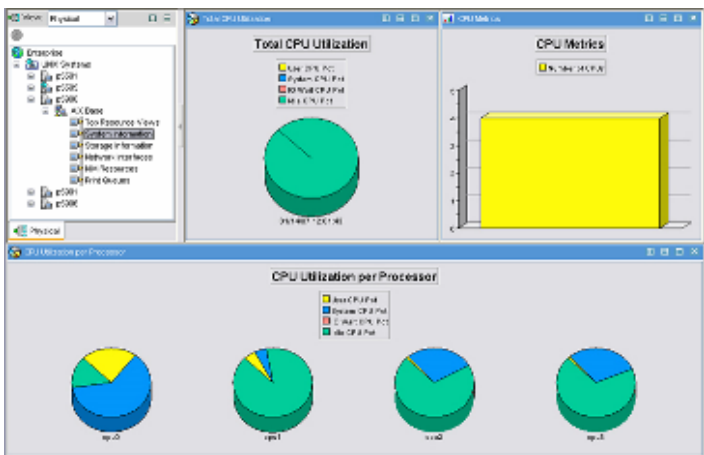
HMC line-mode commands

```
viosvrcmd -m <server> -p <partition> -c "cfgsvc ITM_base -key"
```

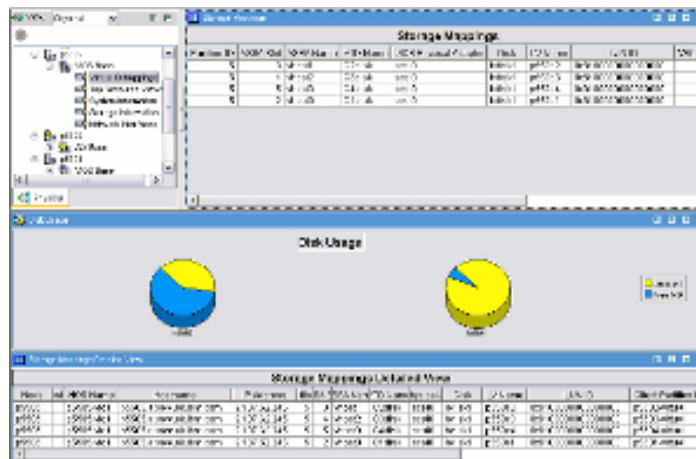
```
mkauthkeys --add '<result from viosvrcmd command>'
```

# ITMSESP : Overview

## AIX Agent



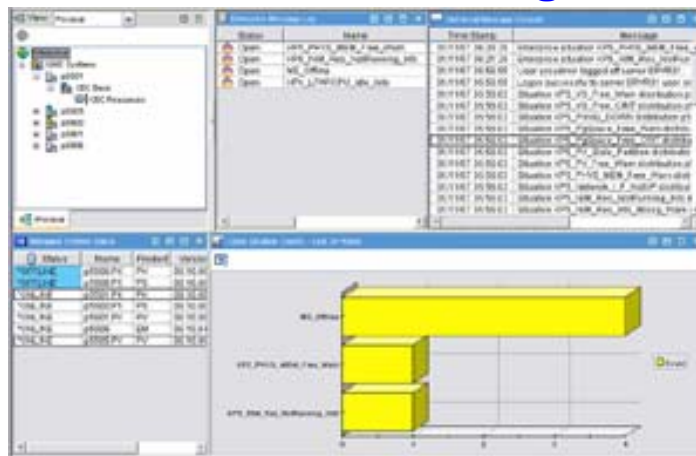
## VIO Server Agent



## CEC Agent



## Situation Monitoring





# AIX Base Agent - other workspaces

The screenshot shows the AIX Base Agent workspace interface. On the left, a tree view displays system resources like 'p5502', 'p5505', 'p5900', 'p5901', and 'p5906'. A context menu is open over the 'AIX Base' folder, listing actions such as 'Workspace', 'Resources - Summary Graph', 'Performance Object Status', and 'System Inventory'. Blue arrows indicate the flow from these menu items to their respective data visualizations: 'Resources - Summary Graph' points to a 3D bar chart of physical volume resources; 'Performance Object Status' points to a table of performance objects; and 'System Inventory' points to a detailed system configuration panel.

Query Name	Object Name
Work_Interfaces	Network_Interfaces
Resources	NIM_Resources
Queues	Print_Queues
50_CPU_Processes	Top_50_CPU_Processes
50_Memory_Processes	Top_50_Memory_Processes
_Summary	CPU_Summary
_Detail	CPU_Detail
Physical_Memory	Physical_Memory
Virtual_Memory_Management	Virtual_Memory_Management
Paging_Space	Paging_Space
Logical_Partition	Logical_Partition
Physical_Volumes	Physical_Volumes
Volume_Groups	Volume_Groups
Logical_Volumes	Logical_Volumes
Items	Items

Name	State	Volume Group Name	CCW
node0	active	node0	1

System Software Version	Number of CPUs	Time Stamp
5.3.0.0-85.04	4	07/24/07 09:35:36

Memory Size MB	Model
512	p5502 P5

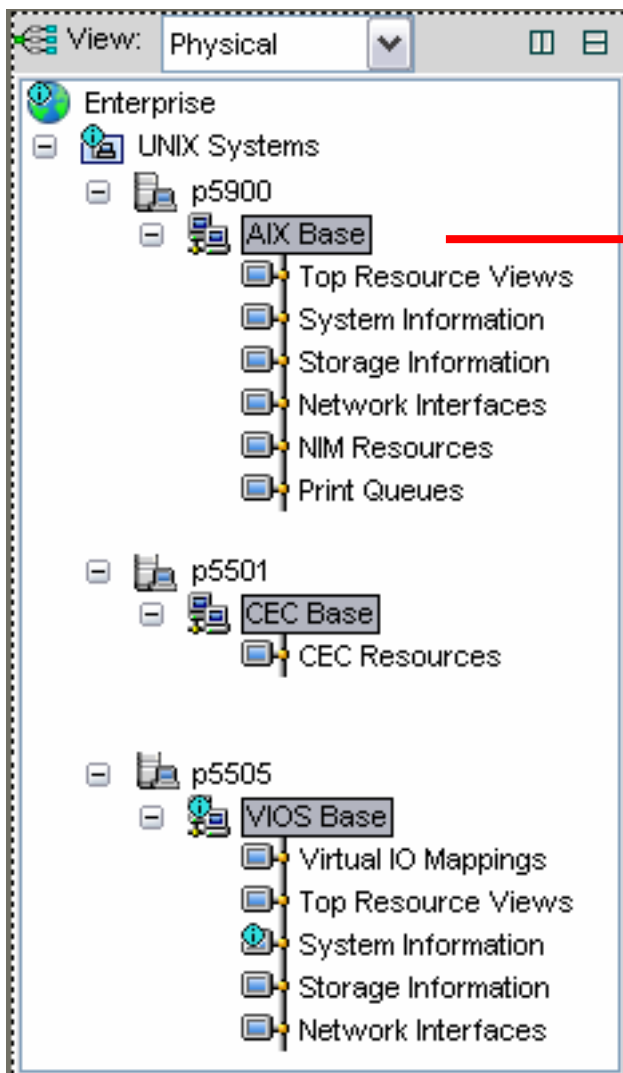
Name	State	IP Address	Domain	Gateway	Netmask
en0	up	1.17.5.247	ibm.ibm.com	1.17.5.1	1.17.5.2

LPR Number	Number of Physical CPUs	Entitlement	Shared Mode	Capped Mode	DMT Mode
3	3	3.4	shared	enforced	on

LPR Number	Number of Physical CPUs	Number of Logical CPUs	Number of Actual CPUs	Available CPUs in Pool	Number of Physical CPUs in Shared Pool
3	3	4	3	5	5

Note: "Performance Objects" simply refers to the code which is collecting the data.

# ITM SE Agents: AIX Base Agent



**AIX Base**

- Number of CPUs
- Total Real Memory
- Network Interface Resources
- Physical Volumes
- Logical Partition Attributes
- Logical Partition Units



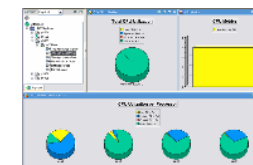
**Top Resource Views**

- Mounted Filesystem Sizes
- Mounted Filesystem Metrics
- CPU Processes
- Memory Processes



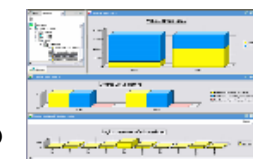
**System Information\***

- Total CPU Utilization
- CPU Metrics
- CPU Utilization per Processor



**Storage Information**

- Volume Group Sizes
- Volume Group Metrics
- Logical Volumes in Volume Group



**Network Interfaces**

- Network Interface Status



**NIM Resources**

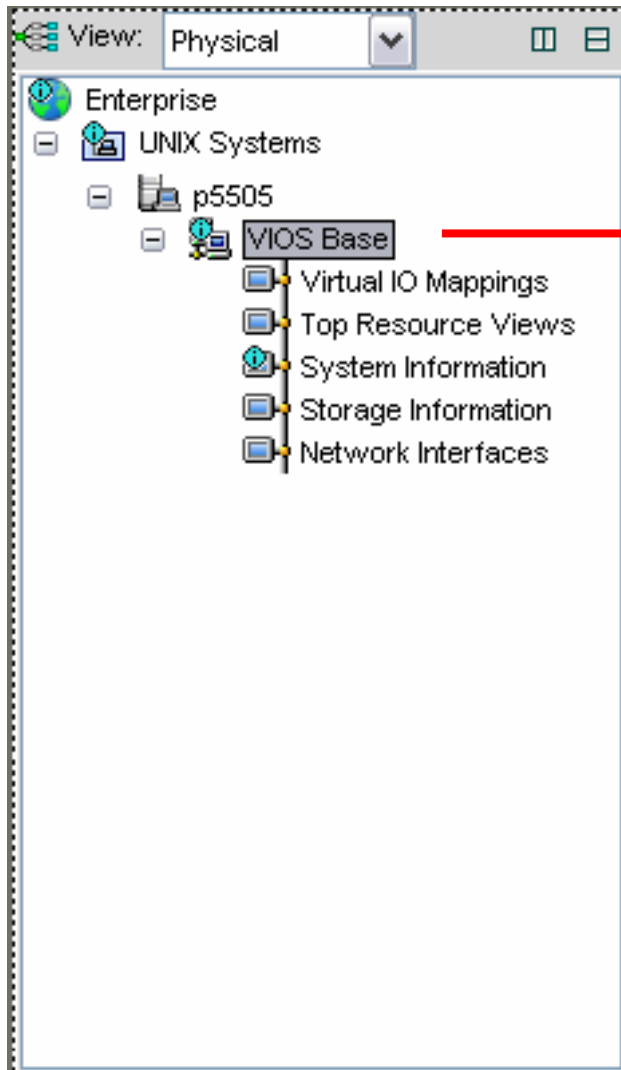
- NIM Server data

**Print Queues**

- Print queue status

\* Note: CPU Metrics are similar to vmstat output

# ITM SE Agents: VIO Server Base Agent



## VIOS Base

- Number of CPUs
- Total Real Memory
- Network Interface Resources
- Logical Partition Attributes
- Logical Partition Units

## Virtual IO Mappings

- Storage Mappings
- Disk Usage
- Storage Mappings detailed view

## Top Resource View

- Mounted Filesystems
- Mounted Filesystem Metrics
- CPU Processes
- Memory Processes

## System Information\*

- Total CPU Utilization
- CPU Metrics
- CPU Utilization per Processor

## Storage Information

- Volume Group Sizes
- Volume Group Metrics
- Logical Volumes in Volume Group

## Network Interfaces

- Network Interface Status



\* Note: CPU Metrics are similar to vmstat output



# ITM SE Agents: VIO Server Base Agent

## Virtual IO Mappings

The screenshot displays the 'Storage Mappings' window for a VIO Server Base Agent. It includes a tree view on the left, a main table of mappings, disk usage charts, and a detailed view table.

**Storage Mappings Table:**

VSSA Slot	VSSA Name	VTD Name	LV Name	LUN ID	VSCA Slot	Client Partition Name	Client Partition State
4	vhost2	C3disk	p550c3	0x8100000000000000	2	p5503-virtual	Running
3	vhost1	C2disk	p550c2	0x8100000000000000	2	p5502-virtual	Running
2	vhost0	C1disk	p550c1	0x8100000000000000	2	p5501-virtual	Running
5	vhost3	C4disk	p550c4	0x8100000000000000	2	p5504-virtual	Running

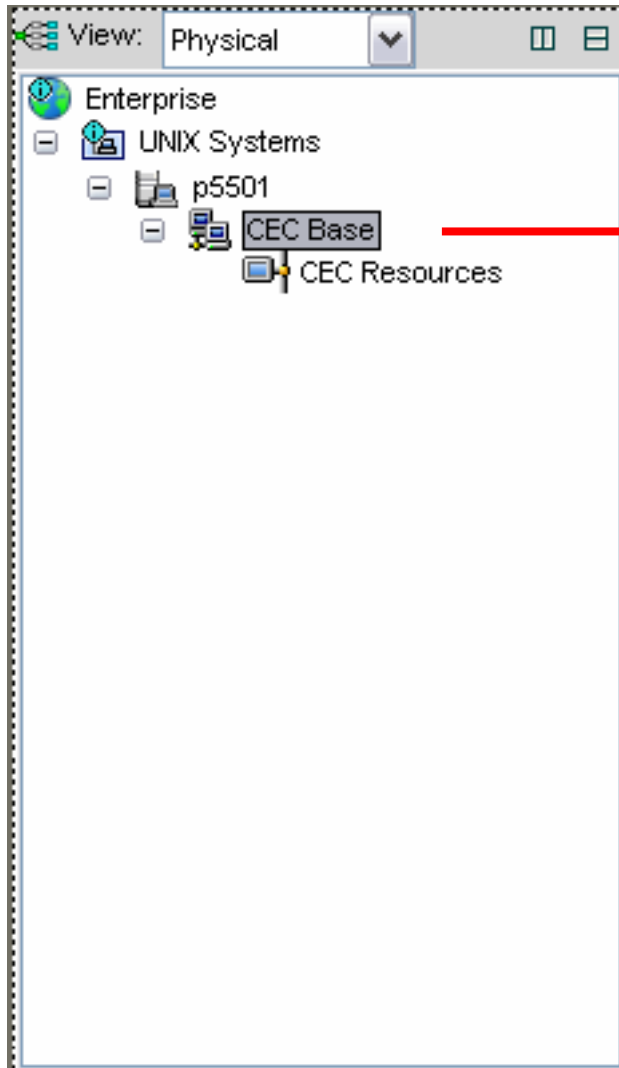
**Disk Usage:** Two pie charts show the usage for hdisk0 and hdisk1. A legend indicates yellow for 'Used MB' and blue for 'Free MB'.

**Storage Mappings Detailed View Table:**

Node	Timestamp	VIOS Name	Hostname	IP Address	Partition ID	VSSA Slot	VSSA Name	VTD Name	VIOS Physical Adapter	Dis
p5505:PV	02/15/07 05:30:23	p5505-vio1	p5505.aixncc.uk.ibm.com	9.137.62.245	5	4	vhost2	C3disk	scsi0	hdisk
p5505:PV	02/15/07 05:30:23	p5505-vio1	p5505.aixncc.uk.ibm.com	9.137.62.245	5	3	vhost1	C2disk	scsi0	hdisk
p5505:PV	02/15/07 05:30:23	p5505-vio1	p5505.aixncc.uk.ibm.com	9.137.62.245	5	2	vhost0	C1disk	scsi0	hdisk
p5505:PV	02/15/07 05:30:23	p5505-vio1	p5505.aixncc.uk.ibm.com	9.137.62.245	5	5	vhost3	C4disk	scsi0	hdisk

# ITM SE Agents: CEC Base Agent

“CEC” = Central Electronics Complex (or the overall system).



## CEC Base

CEC Resource Inventory  
CEC LPAR Metrics



## CEC Resources\*

CEC Number of LPARs  
CEC CPU Allocation  
CEC Memory Allocation  
CPU Allocation to LPARs  
Memory Allocation to LPARs



- Retrieves data from HMC
  - ▶ Overall system resources allocated
  - ▶ Resources for each LPAR

\* Note: This DOES show Capacity Entitlement for each LPAR, but NOT the uncapped weighting.

# Tivoli Enterprise Portal : Help Information

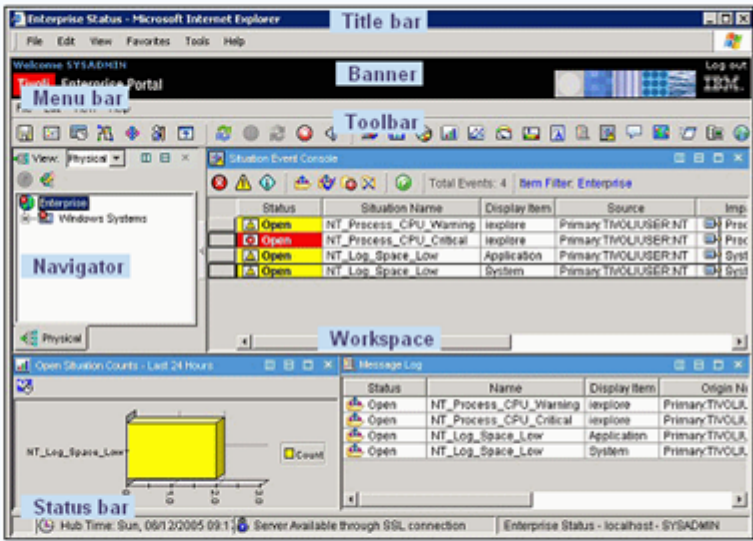
Comprehensive Help and Reference Information provided through TEP Console

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**Application window**

This topic introduces the following elements of the Tivoli Enterprise Portal window:



The Tivoli Enterprise Portal window displays information about monitored resources in your enterprise. On the left is the Navigator, which shows the arrangement of your monitored network and allows you to access information collected by different agents on your monitored systems. On the right is a workspace. The workspace can be divided into as many smaller frames, or panes, as you can reasonably fit inside the window. When you select an item in the Navigator, a new workspace opens with a set of views for that item.

Click “Help” on the Tivoli Enterprise Portal console, or:

<http://<TEPS-Server>:1920///cnp/kdh/lib/classes/candle/fw/resources/help/contents.htm>



# Tivoli Enterprise Portal : Help Information

Reference information – such as the data Metrics provided by each Agent

The screenshot displays the Tivoli Enterprise Portal interface. The main window shows 'Volume Group Information' for system 'p5906'. A red arrow points from the 'Storage Information' link in the left-hand navigation tree to the help window. The help window, titled 'Contents', lists various attributes for the 'VIOS Base Agent'. A second red arrow points from the 'Storage Mappings attributes' entry in the list to the right-hand pane of the help window, which displays the definition for the 'VSSA Name' attribute.

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    - Top 50 Memory Processes attributes
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    - Volume Groups attributes
  - VIOS Base Agent Situations
  - VIOS Base Agent Take Action Commands
  - Organization of the Predefined Workspaces

**Node (ORIGINNODE)** The managed system name of the agent.

**Timestamp (TIMESTAMP)** The value is the time collected from the agent system when the data row was built and sent from the agent to the Tivoli Enterprise Monitoring Server (or stored for historical purposes). It represents the local time zone of the agent system.

**VIOS Name (VIOS\_NAME)** Server Partition Name of VIOS (as per the profile on HMC).

**Hostname (HOSTNAME)** The VIOS hostname.

**IP Address (IP\_ADDRESS)** The VIOS IP address.

**Partition ID (PI)** The Server Partition ID for VIOS.

**VSSA Slot (VSSA\_SLOT)** The Virtual SCSI Server Adapter Slot number.

**VSSA Name (VSSA\_NAME)** The VSSA Name on VIOS (eg vhost0).

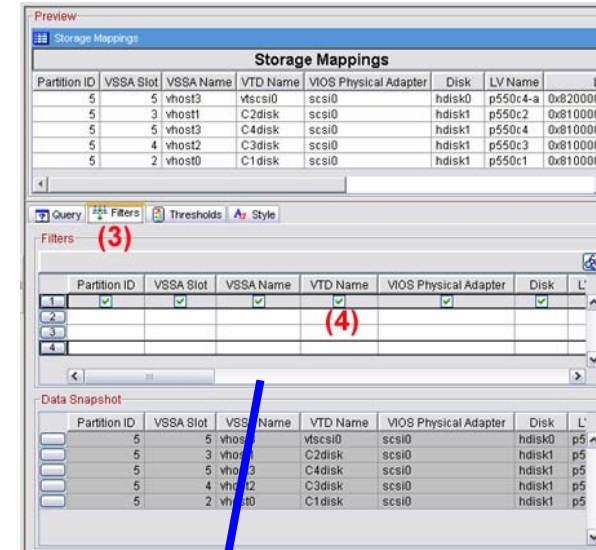
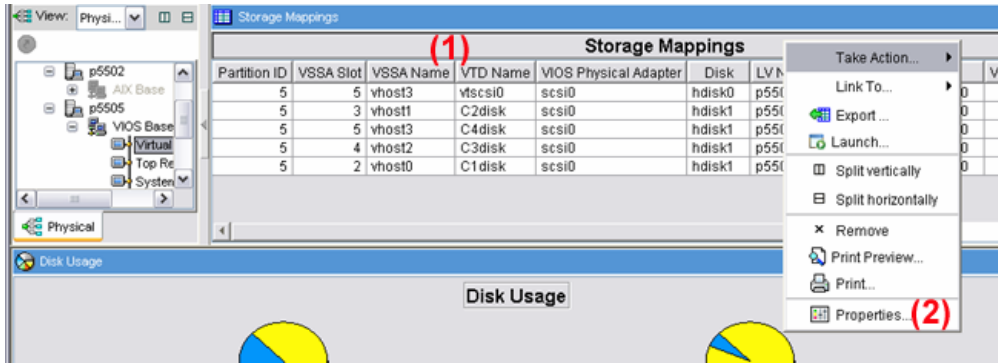
**VTD Name (VTD\_NAME)** The Virtual Target Device Name.

**VIOS Physical Adapter (VPA)** The VIOS Physical adapter which is being used to access disks.



# Tivoli Enterprise Portal : Customizing Workspace

Changing a Workspace / Save as a New Workspace



- (1) Right-click
- (2) Select Properties
- (3) Select Filters
- (4) Select the desired Metrics, click O.K.
- (5) Click "File" / "Save Workspace As"

**My new selection of Metrics**

Storage Mappings								
Partition ID	VSSA Name	VTD Name	Disk	LV Name	Client Partition Name	Client Partition State	VIOS Name	Client Hostname
5	vhost3	vtscsi0	hdisk0	p550c4-a	p5504-virtual	Running	p5505-vio1	p5504.abncc.uk.ibm.com
5	vhost1	C2disk	hdisk1	p550c2	p5502-virtual	Running	p5505-vio1	p5502.abncc.uk.ibm.com
5	vhost3	C4disk	hdisk1	p550c4	p5504-virtual	Running	p5505-vio1	p5504.abncc.uk.ibm.com
5	vhost2	C3disk	hdisk1	p550c3	p5503-virtual	Running	p5505-vio1	p5503.abncc.uk.ibm.com
5	vhost0	C1disk	hdisk1	p550c1	p5501-virtual	Running	p5505-vio1	p5501.abncc.uk.ibm.com

# Tivoli Enterprise Portal : Selecting Workspaces

Right-click  
Select Workspace

The screenshot shows the Tivoli Enterprise Portal interface. On the left, a tree view displays system resources under the 'Physical' view. A right-click context menu is open over the 'Virtual IO Mappings' folder. The menu options include 'Workspace', 'Take Action...', 'Link To...', 'Launch...', 'Situations...', 'Print Preview...', 'Print...', and 'Properties...'. The 'Workspace' submenu is expanded, showing 'Storage Mappings' (checked), 'Network Mappings', and 'Dai's VIO Storage' (circled in blue). On the right, a 'Storage Mappings' table is visible, and at the bottom, a 'Disk Usage' section shows a pie chart.

Partition ID	VSSA Slot	VSSA Name	VTD Name	VIOS Physic
5	5	vhost3	vtscsi0	scsi0
5	3	vhost1	C2disk	scsi0
5	5	vhost3	C4disk	scsi0
5	4	vhost2	C3disk	scsi0
			disk	scsi0

# ITM SE Situation Monitoring

The screenshot displays the ITM SE Situation Monitoring interface with several panels:

- Enterprise Message Log:** A table listing active situations.
 

Status	Name	Time Stamp	Message
Open	KP5_PHYS_MEM_Free_Warn	01/11/07 06:26:29	Enterprise situation KP5_PHYS_MEM_Free_...
Open	KP5_NIM_Res_NotRunning_Info	01/11/07 06:21:29	Enterprise situation KP5_NIM_Res_NotRun...
Open	MS_Offline	01/11/07 05:56:55	User sysadmin logged off server SRVR01.
Open	KPV_LPARCPU_Idle_Info	01/11/07 05:56:55	Logon successful to server SRVR01 user sy...
- Managed System Status:** A table showing the status of various systems.
 

Status	Name	Product	Version
*OFFLINE	p5906:PK	PK	06.10.00
*OFFLINE	p5906:P5	P5	06.10.00
*ONLINE	p5501:PK	PK	06.10.00
*ONLINE	p5900:P5	P5	06.10.00
*ONLINE	p5901:PV	PV	06.10.00
*ONLINE	p5906	EM	06.10.04
*ONLINE	p5505:PV	PV	06.10.00
- Open Situation Counts - Last 24 Hours:** A 3D bar chart showing the count of open situations.
 

Situation Name	Count
MS_Offline	4
KP5_PHYS_MEM_Free_Warn	1
KP5_NIM_Res_NotRunning_Info	1

## Examples:

- Free Memory LT 5%
- User\_CPU GT 95%
- FS\_Free LT 15%
- VG\_Free LT 5%

## Situation Monitoring

- Message Console
- Message Logs
- Status Information

Note: There are no default Actions defined.

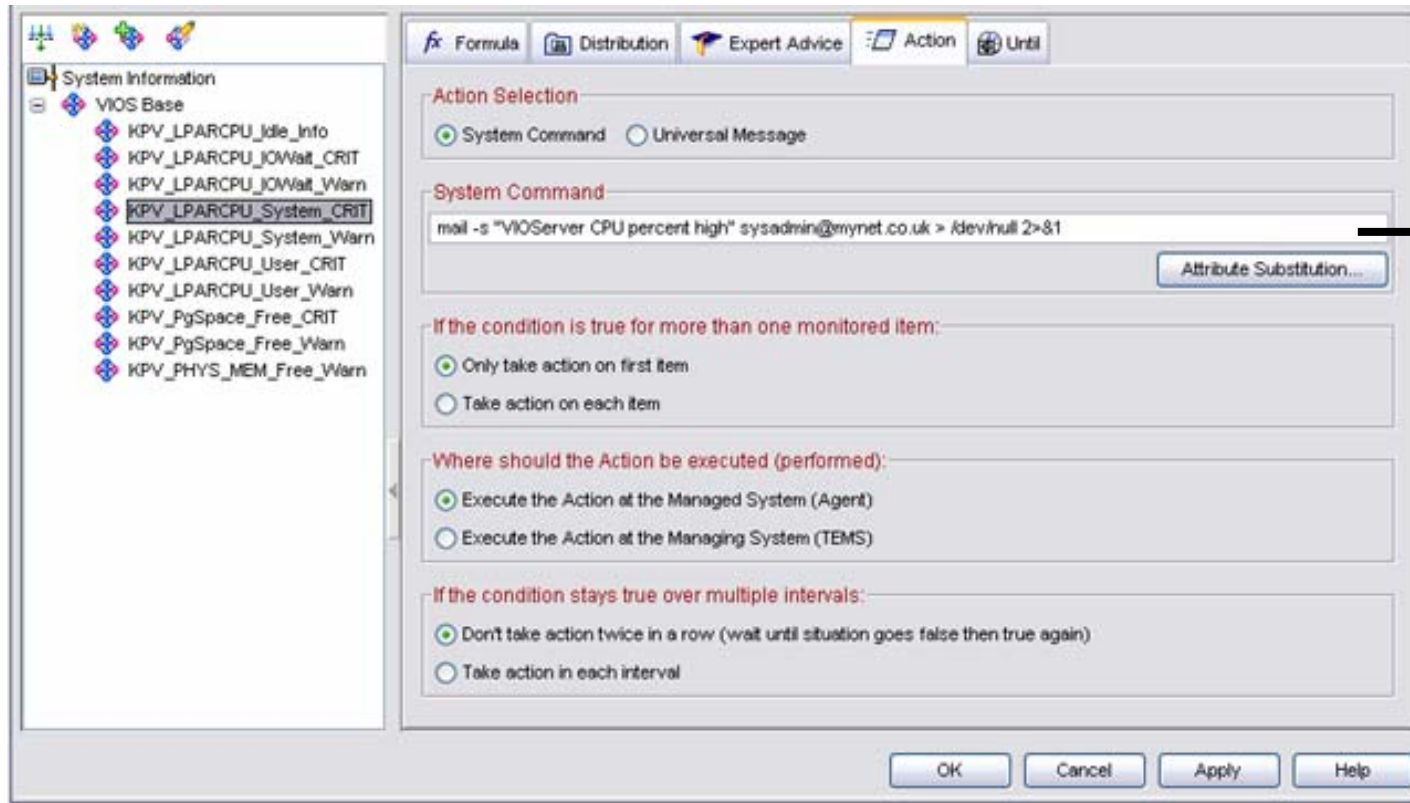
# ITM SE Situation Monitoring - status

**Situation at Managed System: p5506:P5**

Name	Status	Description	Auto Start	Advice
Free_Space_CRIT	Stopped	Free space on a mounted File System is getting Critically...		
Free_Space_Warn	Stopped	Warning: Free space on a mounted File System is gettin...		
CPU_Idle_Info	Started	LPAR CPU_Idle indicating an underutilized system	✓	
CPU_IOWait_CRIT	Started	LPAR CPU_IO Wait times are extremely high	✓	
CPU_IOWait_Warn	Started	LPAR CPU_IO Wait is higher than normal	✓	
CPU_System_CRIT	Started	LPAR CPU_System utilization is extremely high	✓	
CPU_System_Warn	Started	LPAR CPU_System utilization is between 10-25 percent	✓	
CPU_User_CRIT	Started	LPAR CPU_User utilization is very high	✓	
CPU_User_Warn	Started	LPAR CPU_User utilization is between 75-95 percent	✓	
Net_I_F_NotUP	Started	Network Interface is not up	✓	
Res_Info_Missg_Warn	Started	NIM Resource is missing information from the object defi...	✓	
Res_NotRunning_Info	Started	NIM Resource is not running	✓	
Page_Free_CRIT	Started	Available Paging Space is getting critically low	✓	
Page_Free_Warn	Started	Page Space Free is getting low	✓	
MEM_Free_Warn	Open	Physical Memory Free is getting low	✓	
Print_QUEUE_DOWN	Started	Print Queue is not up	✓	
KP5_PV_Free_Warn	Stopped	Physical Volume Free space is getting low		
KP5_PV_Stale_Partition	Stopped	There are Stale Physical Volume Partitions		
KP5_VG_Free_CRIT	Stopped	Free space in a Volume Group is getting Critically low.		
KP5_VG_Free_Warn	Stopped	Warning: Free space on a Volume Group is getting low.		



# ITM SE Situations – add an Action

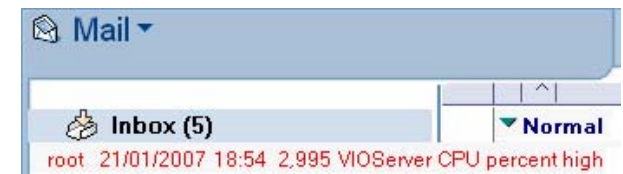


For example:  
Send and e-mail

**KPV\_LPARCPU\_User\_CRIT** LPAR CPU\_User utilization is extremely high.

\*IF \*VALUE KPV\_LOGICAL\_PARTITION.User\_CPU\_Pct \*GT 95  
This situation is evaluated every 3 minutes.

"True" after the situation is triggered 11 consecutive times.



# ITM SE Situations – Modify existing situations

The screenshot shows the ITM SE interface with a context menu open over the 'Initial Situation Values' table. The table contains the following data:

Idle CPU Pct	Node	Timestamp	User CPU Pct	System CPU Pct	IO Wait CPU Pct	Entitlement
100	p5505:PV	0	0	0	0	0.0

The context menu options include: Take Action..., Link To..., Launch..., Export..., Split vertically, Split horizontally, Remove, Print Preview..., Print..., and Properties...

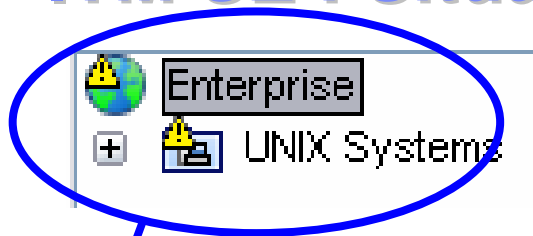
The 'Preview' dialog box shows the 'Current Situation Values' table and configuration options. The table data is as follows:




Idle CPU Pct	Node	Timestamp	User CPU Pct	System CPU Pct	IO Wait CPU Pct	Enti
99	p5505:PV	01/21/07 12:11:22	0	0	0	

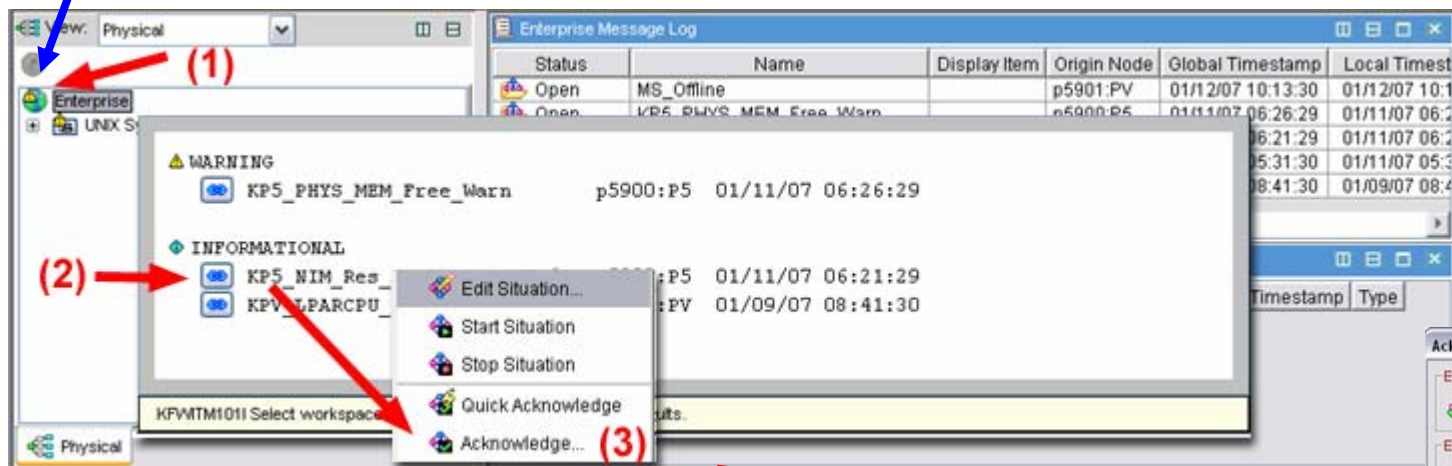
Below the table are sections for 'Filters' and 'Data Snapshot'. The 'Filters' section has a table with columns: Idle CPU Pct, Node, Timestamp, User CPU Pct, System CPU Pct, IO Wait. Row 1 has checkmarks in the Node, Timestamp, User CPU Pct, and System CPU Pct columns. The 'Data Snapshot' section shows a table with the same columns as the main table, containing the values: 99, p5505:PV, 01/21/07 12:11:22, 0, 0.

Buttons at the bottom: OK, Cancel, Apply, Test, Help.

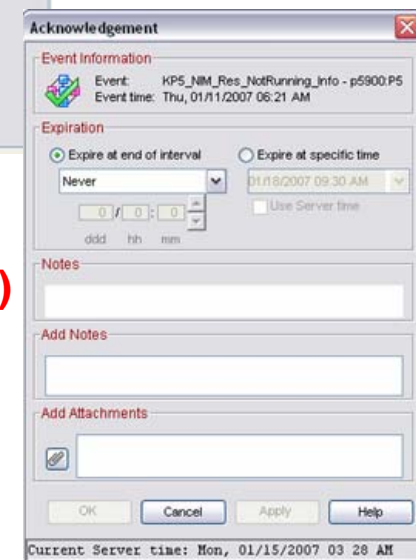
# ITM SE : Situation Events - Acknowledge / Close



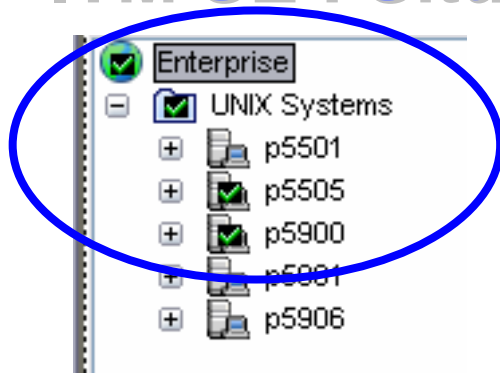
Icons    indicate the presence of Events



- (1) Place the mouse-pointer over the Event indicator list of events pops up
- (2) Right-click an event – Situation Event console pops up
- (3) Click Acknowledge
- (4) Log any action taken, and specify when the event should expire



# ITM SE : Situation Events



☑ Tick shows that events have been acknowledged

Event details can be viewed from the “Acknowledged” List

Status	Name	Display Item	Origin Node	Global Timestamp
Acknowledged	KP5_NIM_Res_NotRunning_Info		p5900:P5	01/13/07 03:03:23
Open	MS_Offline		p5901:PV	01/12/07 03:03:23
Open	KP5_PHYS_MEM_Free_Warn		p5900:P5	01/11/07 09:07:07
Open	KP5_NIM_Res_NotRunning_Info		p5900:P5	01/11/07 09:07:07
Open	MS_Offline		p5906:P5	01/11/07 09:07:07
Open	KPV_LPARCPU_Idle_Info		p5505:PV	01/09/07 09:07:07

Severity	Status	Owner	Situation Name
Warning	Acknowledged	SYSADMIN	KP5_PHYS_MEM_Free_Warn
Informational	Acknowledged	SYSADMIN	KPV_LPARCPU_Idle_Info
Informational	Acknowledged	SYSADMIN	KP5_NIM_Res_NotRunning_Info

**Event Notes**

**Event Information**

Event: KP5\_PHYS\_MEM\_Free\_Warn - p5900:P5  
 Event time: Thu, 01/11/2007 09:07:07 AM

**Notes**

01/18/07 09:07 - SYSADMIN:  
 Event acknowledged, ownership assigned.

01/18/07 09:48 - SYSADMIN:  
 Test LPAR, no action required.

Add Notes

Add Attachments

OK Cancel Apply Help

Current Server time: Mon, 01/15/2007 03:46 AM

See Backup Foils for details of the Monitored Situations



## ITM SE : Minimum Requirements

### ■ AIX 5.3 TL5 SP4

- ▶ Technology Level 5 plus Service Pack 4
- ▶ <http://www-03.ibm.com/servers/eserver/support/unixservers/aixfixes.html>

**oslevel -s 5300-05-04**

### ■ VIO Server 1.3.0.1

- ▶ Fix Pack 8.1
- ▶ <http://techsupport.services.ibm.com/server/vios/download/home.html>

### ■ For TEMS/TEPS Server

- ▶ approximately 1GB disk space in rootvg
- ▶ **plus** approx 1.5GB for download/unpacking

### ■ SSH connection from LPAR to HMC

- ▶ For CEC and VIO Agents
- ▶ Requires openssl and openssh packages
- ▶ <http://www-03.ibm.com/servers/aix/products/aixos/linux/download.html>

AIX Toolbox  
Cryptographic Content

### ■ Windows PC for TEP Console

# ITM SE Package download

Note: The download package was updated in March with fixes including the new U.S. DST dates

Includes NEW **install\_servers.sh** script

Files required on AIX TEMS/TEPS Server

Note: Agent code for VIO Server is included in the FixPack 8.1 update.

Files required on AIX LPARS which are to be monitored

Note: Additional products required for the CEC Agent: openssl and openssh.

Files required on PC

Not required

IBM Tivoli Monitoring System Edition for System P	
<b>Downloads</b>	
<b>ITM TEPS &amp; TEMS Servers</b>	
The servers need to be installed on one system, which will collect data for the agents.	
<input type="checkbox"/>	<b>ITM TEPS &amp; TEMS Servers</b> itm.servers.tar (400MB)
<b>ITM agent base files and agent support files for servers</b>	
This tar image contains all the AIX and CEC agents and their prerequisites.	
<input type="checkbox"/>	<b>ITM agent base files, AIX agent, CEC agent and agent support files for servers</b> itm.agents.tar (180MB)
This tar image contains all the current PATCHES for AIX and CEC agents and their prerequisites (in addition to the file above).	
<input type="checkbox"/>	<b>ITM agent PATCH files for AIX agent, CEC agent and agent support files for servers</b> agentPatches.tar (777KB)
<b>DB2 Driver files</b>	
<input type="checkbox"/>	<b>DB2 Driver files</b> db2.tar.Z (187MB)
<b>Console which will install on Windows and point to the AIX servers</b>	
<input type="checkbox"/>	<b>Console which will install on Windows and point to the AIX servers</b> itm.console.zip (135MB)
<b>Console support files for Windows</b>	
Contains AIX and CEC agent definitions.	
<input type="checkbox"/>	<b>Console support files for Windows</b> console.support.files.zip (168MB)
<b>Installation and configuration instructions for servers and agents</b>	
<input type="checkbox"/>	<b>Installation and configuration instructions for servers and agents</b> ITM_README.doc
<b>ITM 6.1 documentation</b>	
Includes overview, requirements and problem determination.	
<input type="checkbox"/>	<b>ITM 6.1 documentation</b> itm_agents_doc.zip
<b>ITM Demo DVD</b>	
<input type="checkbox"/>	<b>ITM Demo DVD</b> ITM_61_DemoCD_v13.zip (670MB)
<input type="checkbox"/>	<b>Demo DVD Documentation</b> ITM_61_DemoCD_v13.doc

Read this first

<https://www14.software.ibm.com/webapp/iwm/web/preLogin.do?source=swg-itmsesp>

## ITM SE : Installation Tips

- ITM\_README.doc

- ▶ Provided with the ITMSE Package
- ▶ <https://www14.software.ibm.com/webapp/iwm/web/preLogin.do?source=swg-itmsesp>

- Summary

- ▶ **In general** (1) install TEMS/TEPS (2) then install the Agents, (3) then install the Windows Console.
- ▶ **Unless** you also want to run Agents on the **same** server as TEMS/TEPS – in which case, install the Agent code first.

- Downloaded filesets ( for AIX )

sum	filename	how to unpack
32531 182705	db2.tar.Z	zcat db2.tar.Z   tar -xvf -
22726 390820	itm.servers.tar	tar -xvf itm.servers.tar
34918 166560	itm.agents.tar	tar -xvf itm.agents.tar
25233 777	agentPatches.tar	tar -xvf agentPatches.tar

- Agent Support files ( TEMS/TEPS servers on Linux )

- ▶ For existing customers already using TEMS/TEPS on Linux

# ITM SE : Installation Tips

## `install_servers.sh`

### ITM installation

Welcome to the IBM Tivoli Monitoring System Edition for System P product! This script provides a convenient method of installing and configuring the TEMS and TEPS components of ITM (for more information regarding the TEMS and TEPS please consult the ITM documentation). More precisely, the following will take place to install and configure the ITM servers:

1. Verify any ITMSESP requirements
2. Install the DB2 and ITM filesets
3. Initialize DB2 (required for the TEPS)
4. Install the TEMS and TEPS components
5. Configure the TEMS
6. Install the support files for the AIX, VIOS and CEC agents
7. Execute the help-merge script (to enable online help)
8. Seed the situations (on the TEMS)

Would you like to continue with the installation? (y/n) =>

Hint: This step takes approximately 10 minutes, with no further intervention required.



# ITM SE : Installation Tips

## Messages while the script is running:

```
Use of silent install mode implies license agreement acceptance.  
You can view the license file details in the  
/opt/IBM/ITM/LAP/license directory
```

**View the license information**

```
As a reminder, you should install product support on each of your TEM  
servers for any agents you have just installed. This is done via the  
"[ITM home]/bin/itmcmd support" command on your TEM servers.
```

```
You may now configure any locally installed IBM Tivoli Monitoring product  
via the "/opt/IBM/ITM/bin/itmcmd config" command.
```

**There is no need to perform these steps - they were already  
done by the install\_server.sh script**

# ITM SE : Installation Tips

When the script has finished:

The following must now be done:

```
Set the db2inst1 user's password (as root) : passwd db2inst1
(afterwards you must 'su - db2inst1' and 'passwd' due to security)
Configure the TEPS : /opt/IBM/ITM/bin/CandleConfig -A cq
(DB2 was configured to function with the default TEPS config values)
```

Useful ITM management commands:

```
Start/stop the TEMS : /opt/IBM/ITM/bin/CandleServer start|stop TEMS
Start/stop the TEPS : /opt/IBM/ITM/bin/CandleAgent start|stop cq
Reconfigure the TEMS : /opt/IBM/ITM/bin/CandleConfig -S -t TEMS
Reconfigure the TEPS : /opt/IBM/ITM/bin/CandleConfig -A cq
```

Additional installation notes:

```
The name of the TEMS installed is 'TEMS'.
Please consult the README for additional information.
```

**Important** : Now install the Agent PATCH Files.

Example:

```
tar -xvf agentPatches.tar
cd agentPatches <<=== View the README files
tar -xvf 6.1.0-TIV-ITM_AIX_BASE-LA0001.tar
tar -xvf 6.1.0-TIV-ITM_CEC_BASE-LA0001.tar
/opt/IBM/ITM/aix513/ui/bin/itmpatch -h /opt/IBM/ITM -i
/images/agentPatches/6.1.0-TIV-ITM_AIX_BASE-LA0001/kp5_aix513_tema_la0001.tar
```

# ITM SE : Installation Tips – Configure the TEPS

```
/opt/IBM/ITM/bin/CandleConfig -A cq
```

Hint: If TEMS/TEPS are on the same server, take all the defaults here.

```
Will this agent connect to a CMS? [YES or NO] (Default is: YES):
CMS Host Name (Default is: p5506): <<== hostname
Network Protocol [ip, sna, ip.pipe, or ip.spipe] (Default is: ip.pipe):
Network Protocol 2 (Default is: none):
IP.PIPE Port Number (Default is: 1918):
Enter name of KDC_PARTITION (Default is: null):
Enter Optional Primary Network Name or "none" (Default is: none):
Enable SSL for TEP Clients (y/n)(Default is: N):
Enter the DB2 instance name(Default is: db2inst1):
Enter the DB2 admin ID(Default is: db2inst1):
Enter the password for the DB2 admin ID: <<== password
Enter the TEPS DB2 database name(Default is: TEPS):
Enter the TEPS DB2 database login ID(Default is: itmuser):
Enter the password for the TEPS DB2 database login ID: <<== password
Is it OK to create the TEPS login ID if not found (y/n)(Default is: Y):
DB2 or Oracle(JDBC) for Warehouse? [DB2 or JDBC] (Default is: DB2):
Enter the Warehouse database name(Default is: WAREHOUS):
Enter the Warehouse user ID(Default is: itmuser):
Enter the password for the Warehouse user ID: <<== password
```

Note: after entering the last password, the script takes about 3 minutes to finish.

# ITM SE : Configure and Start the Agents

## AIX and CEC Agent

**`/opt/IBM/ITM/bin/CandleConfig -A xx` where `xx` is `p5` or `pk`**

NOTE: The command will prompt for a TEMS server <hostname>  
For everything else, take the defaults

Agent configuration started...

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

TEMS Host Name (Default is: p5506): <<=====

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        - 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):

Agent configuration completed...

**`/opt/IBM/ITM/bin/CandleAgent start xx` where `xx` is `p5` or `pk`**



# ITM SE : Installation Tips – Configure the Agents

## VIOServer Agent

```
cfgsvc ITM_base -attr Restart_On_Reboot=TRUE HOSTNAME=tems_server
```

This command:

- Checks for HMC entry in SSH known\_hosts file
- Runs mkitab to run the startup command on reboot
- Runs the "itmcmd config" command

```
startsvc ITM_base
```

This command:

- Runs the CandleAgent start pv command

# ITM SE : Server / Agent Status Information

`/opt/IBM/ITM/bin/cinfo`

```
-- CINFO Menu --
1) Show products installed in this CandleHome
2) Show which products are currently running
3) Show configuration settings
4) Show installed CD release versions
X) Exit CINFO
2

***** Thu 15 Feb 04:49:47 2007 *****
User       : root           Group: system bin sys security cron audit lp
Host name  : p5506.aixncc.uk.ibm.com   Installer Lvl:06.10.04.01
CandleHome: /opt/IBM/ITM
*****
Host       Prod    PID      Owner   Start   ID    ..Status
p5506     ms      528612   root    13:34:41  TEMS  ..running
p5506     cq      409786   root    13:35:20  None  ..running

-- CINFO Menu --
1) Show products installed in this CandleHome
2) Show which products are currently running
3) Show configuration settings
4) Show installed CD release versions
X) Exit CINFO
```

## ITM SE : Installation Tips

### ■ ITM\_README.doc

- ▶ Provided with the ITMSE Package
- ▶ <https://www14.software.ibm.com/webapp/iwm/web/preLogin.do?source=swg-itmsesp>

### ■ CEC Agent

- ▶ After installing the code, run the following command  
`cp /opt/IBM/ITM/aix513/pk/bin/key.pl /usr/bin`
- ▶ Then configure and start the Agent

### ■ VIO Server Agent

- ▶ Installed as part of Fix Pack 8.1
- ▶ On HMC:  
`viosvrcmd -m <server> -p <partition> -c "cfgsvc ITM_base -key"  
mkauthkeys --add '<result from viosvrcmd command>'`
- ▶ On VIO Server:  
`cfgsvc ITM_base -attr Restart_On_Reboot=TRUE HOSTNAME=<TEMS server>  
startsvc ITM_base`

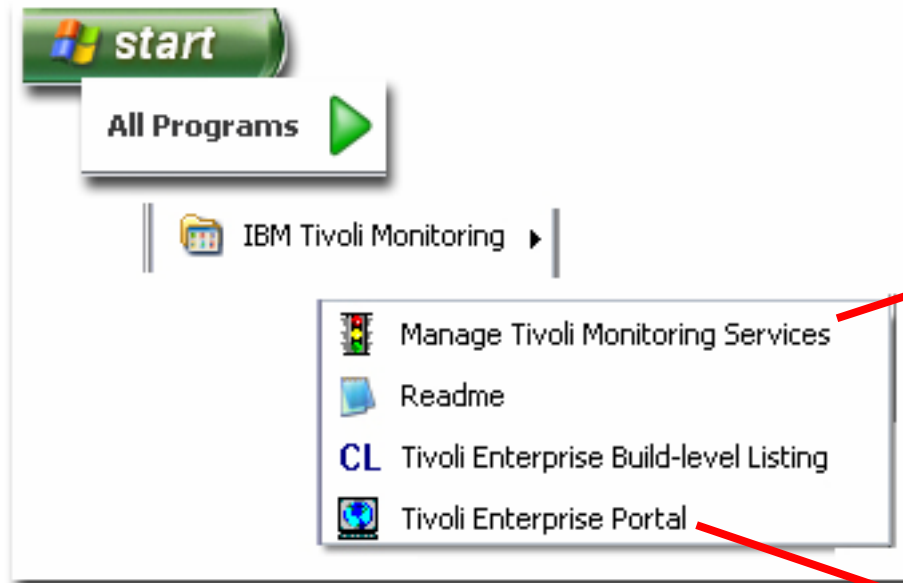
## VIO Server : FixPack 8.1 update

- Backup VIO Server
  - ▶ Quiesce any client LPARs
  - ▶ Ensure that appropriate backup of VIOServer has been taken
  - ▶ For example: Redpaper APV Best Practices REDP-4194-00
  - ▶ <http://www.redbooks.ibm.com/redbooks.nsf/redbooks/>
- `updateios -dev <directory> -accept -install`
  - ▶ If using NFS server for the FP 8.1 images:
  - ▶ **Either:** ensure that VIO Server has **root access** to the exported directory, **and** the directory is exported **READ-WRITE**
  - ▶ **Or :** Run the command `inutoc <dir>` on the NFS server ( where `<dir>` is the directory containing the FixPack 8.1 files ) before running `updateios` on the VIO Server.
- `updateios -commit`
  - ▶ Any previous updates need to be committed first
  - ▶ Open another terminal session to VIOServer and run “`tail -f install.log`” whilst running.
  - ▶ If the “`updateios -commit`” appears to hang, and there are no more messages from `install.log`, Ctrl-C from the “`updateios -commit`” and re-run. Repeat until successful

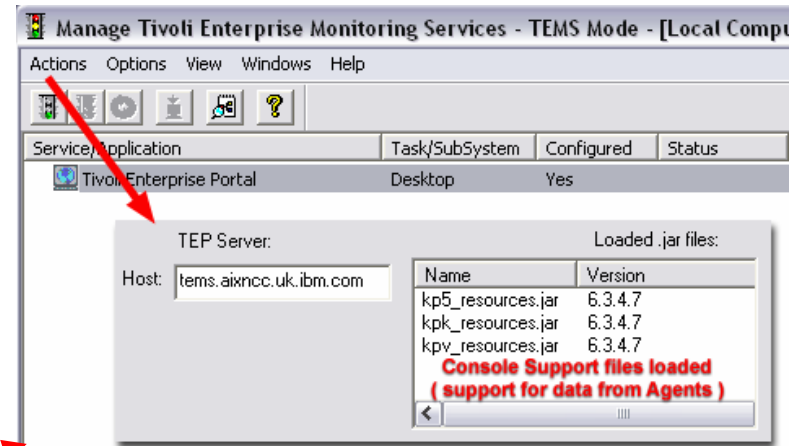


# Tivoli Enterprise Portal : Basic Usage Guide

## TEP console application on Windows



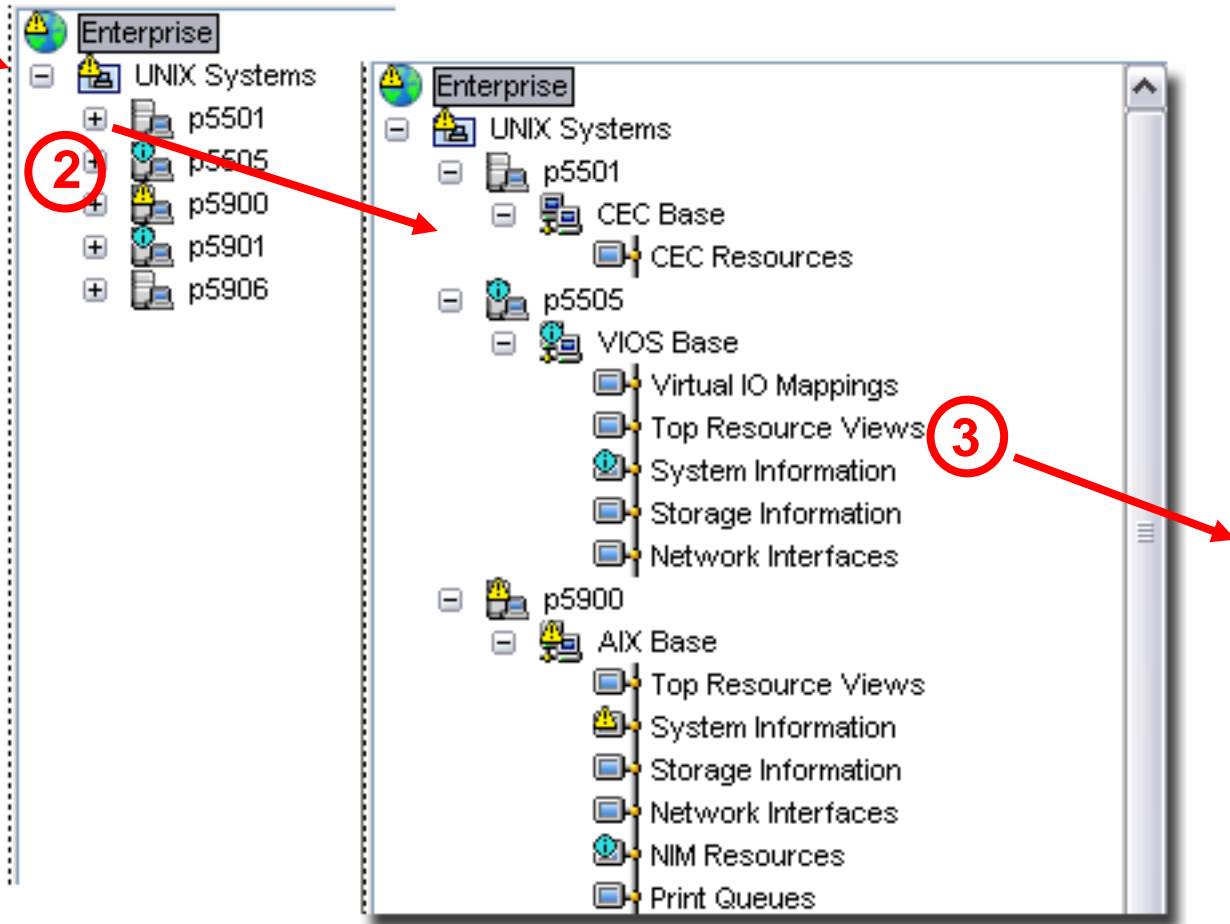
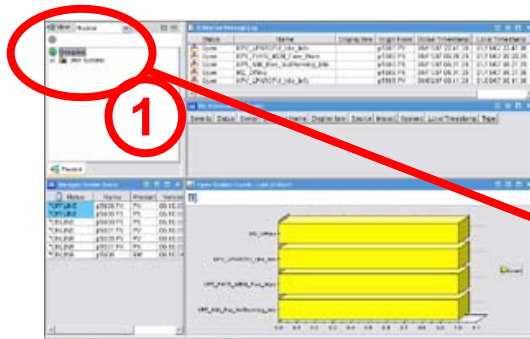
Start the TEP Console Login



Configure the TEMS Server hostname  
Verify that the support files are loaded



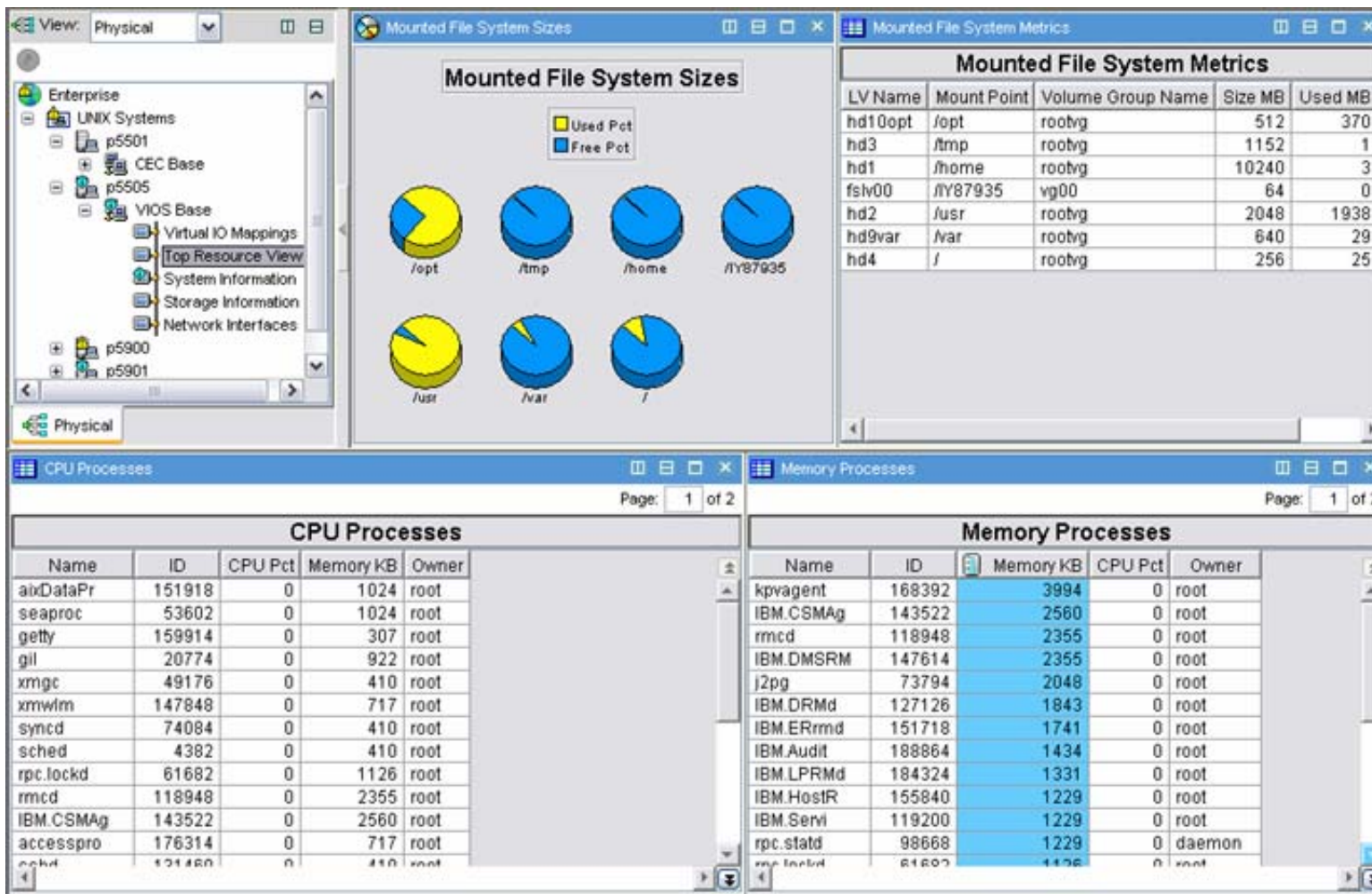
# Tivoli Enterprise Portal : Basic Usage Guide



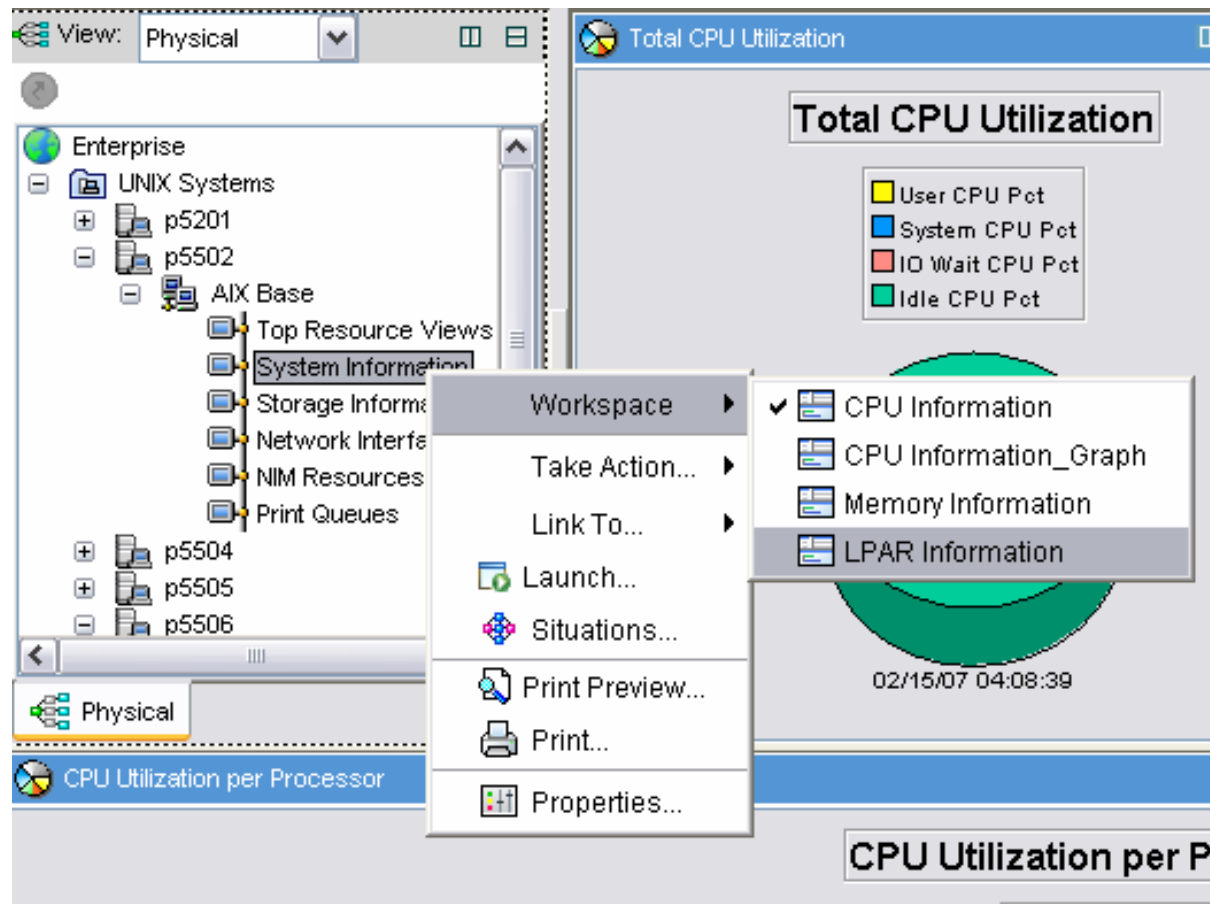
- (1) Click the + next to UNIX Systems
- (2) Click the + next to the Managed System
- (3) Click the desired Monitoring Application  
Example: VIOS Base  
( see next Page )

# Tivoli Enterprise Portal : Basic Usage Guide

## VIOS Base – Top Resource View



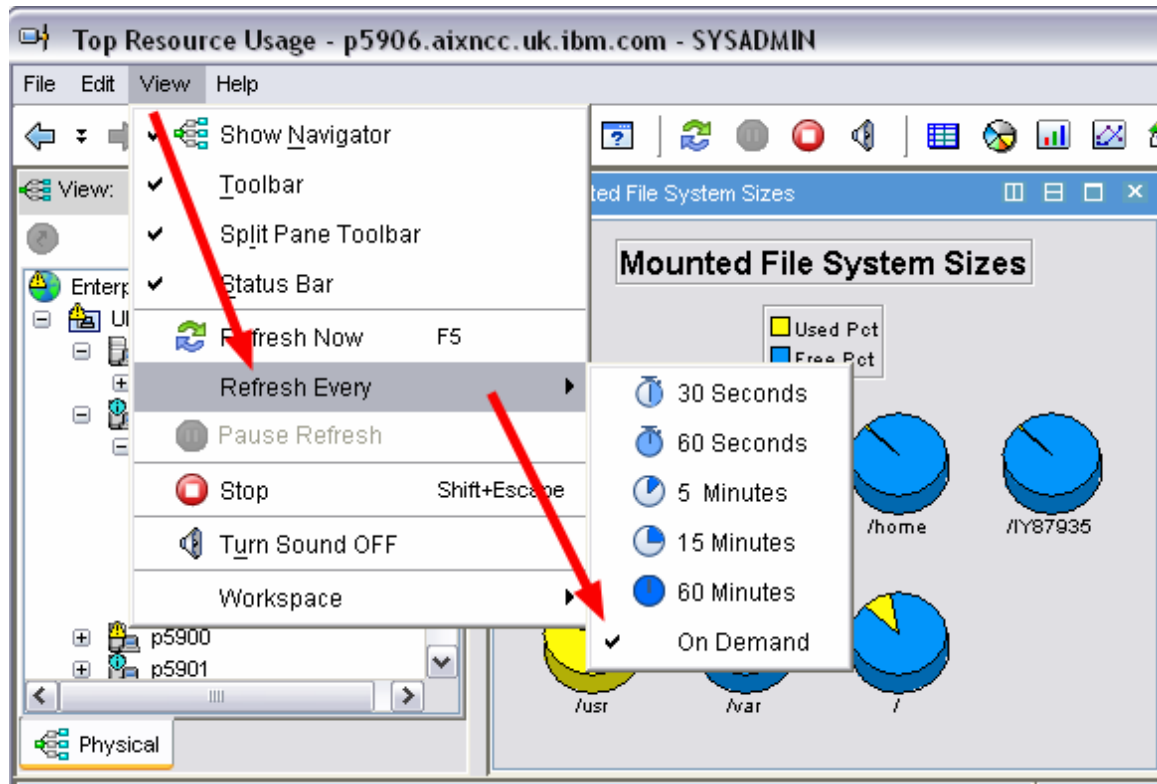
## Tivoli Enterprise Portal : Workspace selection



- (1) Click the + next to UNIX Systems
- (2) Click the + next to the Managed System
- (3) Click the + next to the desired Agent
- (4) Right-click the desired section and select Workspace



# Tivoli Enterprise Portal : Basic Usage Guide



Note: The Information displayed ("View") is not updated automatically  
Use the menu options to configure automatic refresh if desired

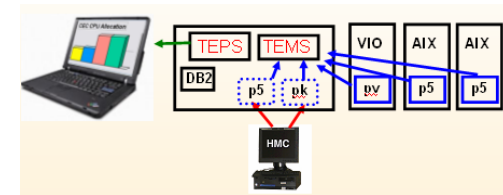
## ITM SE : Additional Information - External

- Wiki / Forum
  - ▶ General VIO Server performance / monitoring
  - ▶ [http://www-941.ibm.com/collaboration/wiki/display/WikiPtype/VIOS\\_Monitoring](http://www-941.ibm.com/collaboration/wiki/display/WikiPtype/VIOS_Monitoring)
  - ▶ Forum for Q&A
  - ▶ [http://www-128.ibm.com/developerworks/forums/tivoli\\_forums.jsp](http://www-128.ibm.com/developerworks/forums/tivoli_forums.jsp)
- Tivoli Documentation
  - ▶ Info Center Library
  - ▶ <http://publib.boulder.ibm.com/infocenter/tivihelp/v15r1/index.jsp?toc=/com.ibm.itm.doc/toc.xml>
- IBM Tivoli Monitoring 6.1
  - ▶ Introduction - education Website
  - ▶ <http://www-306.ibm.com/software/tivoli/education/J910619Z18256I39.html>
- Other
  - ▶ Redbooks ( e.g. Getting Started with IBM Tivoli Monitoring 6.1 SG24-7143-00 )
  - ▶ <http://www.redbooks.ibm.com/redbooks.nsf/redbooks/>

## ITM SE : Summary

Consolidate IBM System p™ management information

- **Packaged Solution**
  - ▶ Significantly easier installation process
- **Agent code for AIX and VIO Server**
  - ▶ Plus Cross-Partition “CEC” Agent
- **Monitor system Health and Availability**
  - ▶ Status information and Resource allocation
- **Best Practices**
  - ▶ Pre-defined key metrics and thresholds for alerts
- **Easy to use portal (console)**



My Acknowledged Events			
	Severity	Status	Owner
⊞	Warning	Acknowledged	SYSADMIN
⊞	Informational	Acknowledged	SYSADMIN
⊞	Informational	Acknowledged	SYSADMIN

Provided at no additional charge to IBM System p™ clients

## BACKUP FOILS / MORE DETAILS

### Other Monitoring Tools

**See also** [http://www-941.ibm.com/collaboration/wiki/display/WikiPtype/VIOS\\_Monitoring](http://www-941.ibm.com/collaboration/wiki/display/WikiPtype/VIOS_Monitoring)

### Situations Monitored by the Agents Comparison of ITMSE SE and ITM 6.1



# Other Monitoring Tools – nmon

<http://www-941.ibm.com/collaboration/wiki/display/WikiPtype/nmon>

```

nmon-----=faster-----Host=this-----Refresh=2 secs-----10:13.02
CPU-Utilisation-Small-View
0-----25-----50-----75-----100
CPU User%  Sys%  Wait%  Idle% |
 0  93.5   1.0   0.0   5.5 |UUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU> |
 1 100.0   0.0   0.0   0.0 |UUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU> |
 2 100.0   0.0   0.0   0.0 |UUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU> |
 3  91.5   0.0   0.0   8.5 |UUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU > |
System Averages
All  96.3   0.2   0.0   3.5 |UUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU> |
+-----+-----+-----+-----+
    
```

Provides data related to MicroPartitions – Entitled Capacity and Physical CPU used

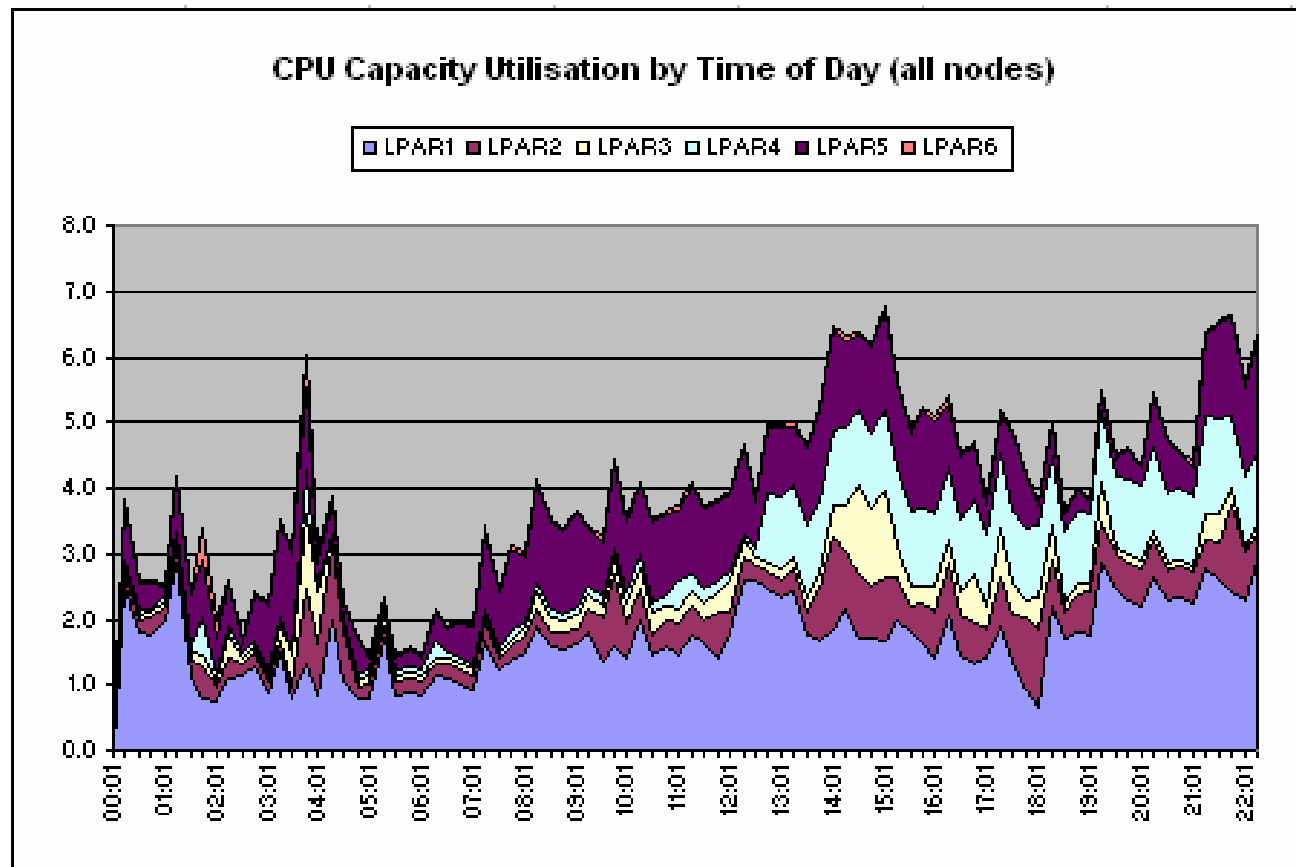
```

nmon-----P=PagingSpace-----Host=op177-----Refresh=2 secs-----04:31.07
CPU-Utilisation-Small-View -----EntitledCPU= 0.50 UsedCPU= 0.894-----
Logical CPUs 0-----25-----50-----75-----100
CPU User%  Sys%  Wait%  Idle% |
 6  69.3   3.0   1.0  26.6 |UUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU> |
 7  88.5   0.5   0.0  11.0 |UUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU> |
EntitleCapacity/VirtualCPU +-----+-----+-----+-----+
EC+  97.0   1.2   0.1   1.7 |UUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU> |
VP  88.7   1.1   0.0   1.5 |UUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUUU---- |
EC= 178.8% VP= 89.4%  +--No Cap-- |-----100% VP=1 CPU+
    
```

# Other Monitoring Tools – nmon Analyzer

Now supports consolidation of data from Multiple LPARs

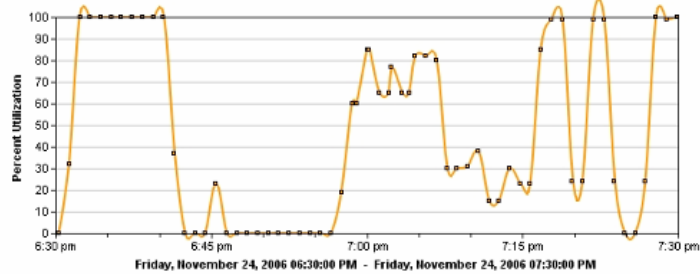
<http://www-941.ibm.com/collaboration/wiki/display/WikiPtype/nmonanalyser>



# Other Monitoring Tools – SNMP

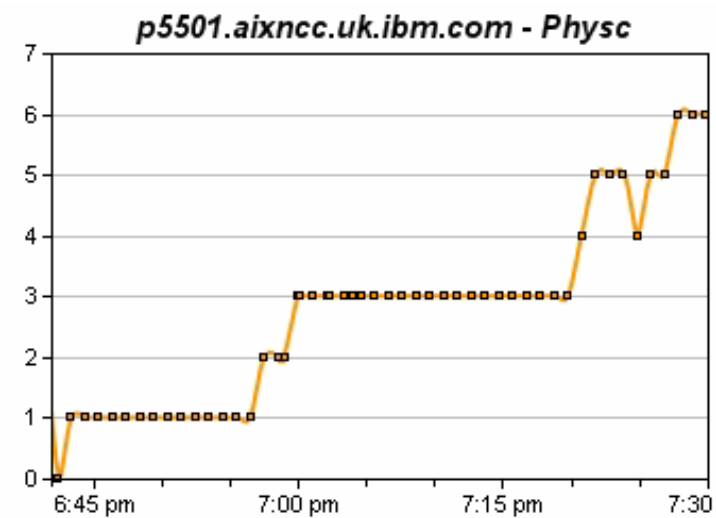
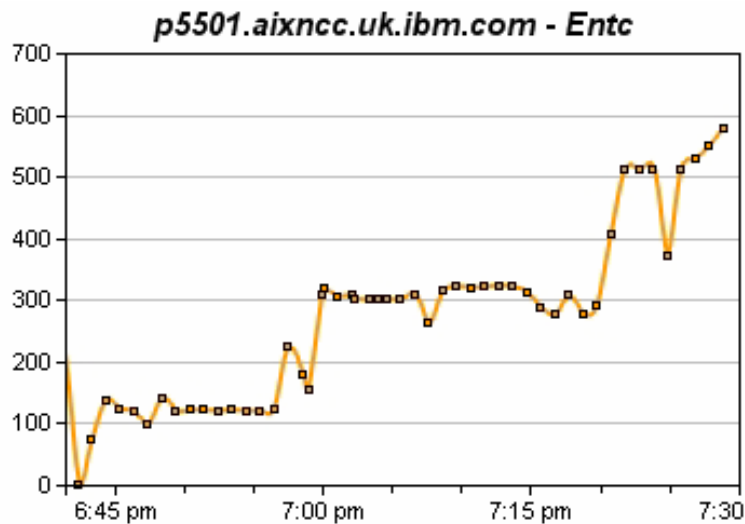
SNMP tools can access the same data as topas by generating MIB definitions and SMUX interface to xmservd daemon

[http://www-941.ibm.com/collaboration/wiki/display/WikiPtype/VIOS\\_Monitoring](http://www-941.ibm.com/collaboration/wiki/display/WikiPtype/VIOS_Monitoring)



Viewing 1 to 8 of 8 results Results Per Page: 100

Device	Description	CPU Load
p5501.aixncc.uk.ibm.com (9.137.62.241)	Processor	85.22 %
p5501.aixncc.uk.ibm.com (9.137.62.241)	Processor	51.98 %
p5501.aixncc.uk.ibm.com (9.137.62.241)	Processor	34.87 %
p5501.aixncc.uk.ibm.com (9.137.62.241)	Processor	9.26 %
p5501.aixncc.uk.ibm.com (9.137.62.241)	Processor	6.27 %
p5501.aixncc.uk.ibm.com (9.137.62.241)	Processor	4.88 %
p5501.aixncc.uk.ibm.com (9.137.62.241)	Processor	0.22 %
p5501.aixncc.uk.ibm.com (9.137.62.241)	Processor	0 %



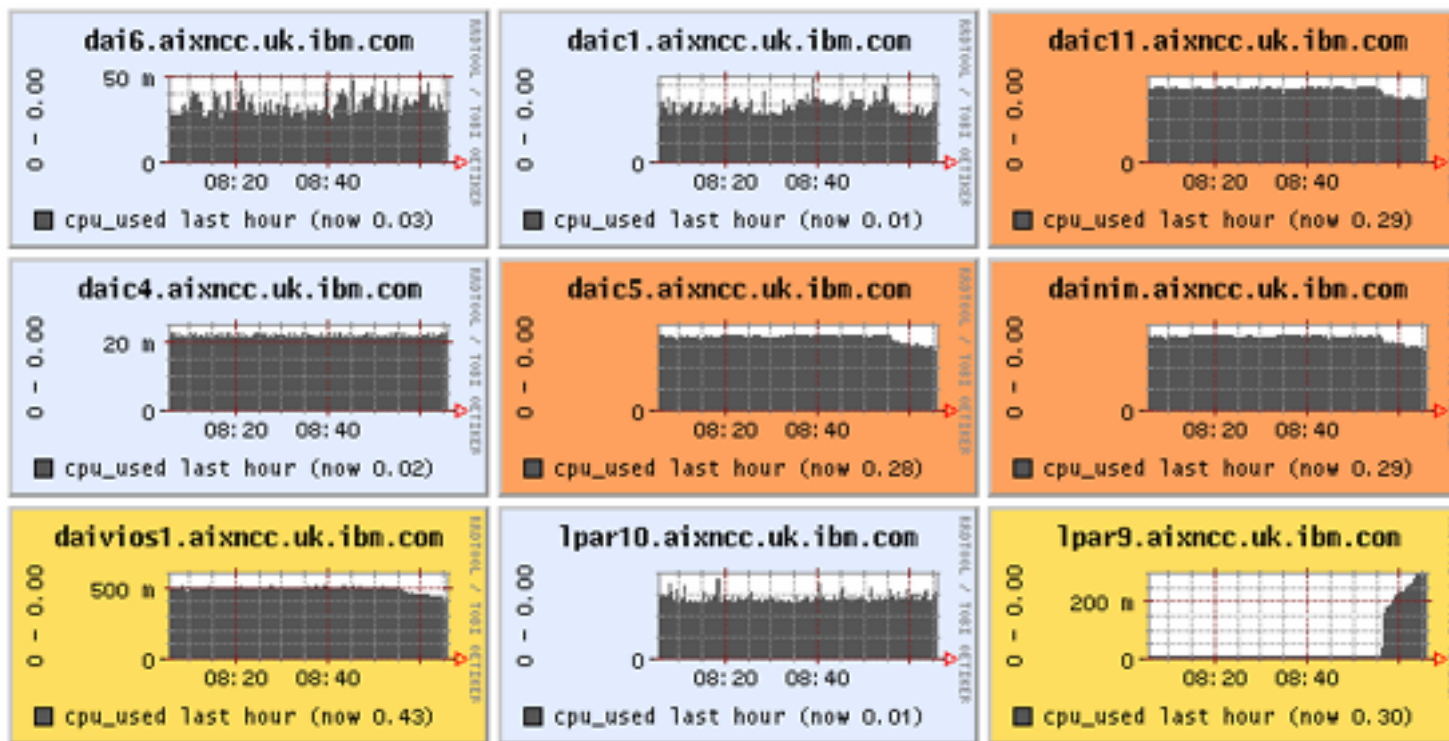
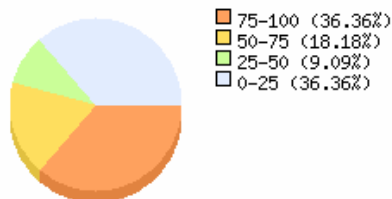
**Requires an SNMP monitoring application**

# Other Monitoring Tools - Ganglia

## BedfontLakes Grid

CPU's Total: **60**  
 Hosts up: **21**  
 Hosts down: **1**

Cluster Load Percentages



<http://www.ibm.com/collaboration/wiki/display/WikiPtype/ganglia>

# Other Monitoring Tools – topas + recording

## Reports

```
#Report: CEC Summary --- hostname: p5900 version: 1.1
Start: 12/19/06 11:48:30 Stop: 12/19/06 14:05:30 Int: 5 Min Range: 137 Min
Partition Mon: 2 UnM: 0 Shr: 1 Ded: 1 Cap: 1 UnC: 1
-----CEC-----
Time ShrB DedB Mon UnM Avl UnA Shr Ded PSz APP Mon UnM Avl UnA InU
11:53 0.16 0.00 2.2 0.0 0.0 0 0.2 2 4.0 3.8 2.0 0.0 0.0 0.0 0.0
11:58 0.28 0.00 2.2 0.0 0.0 0 0.2 2 4.0 3.7 2.0 0.0 0.0 0.0 0.0
12:03 0.00 0.00 2.0 0.0 0.0 0 0.2 2 4.0 3.7 2.0 0.0 0.0 0.0 0.0
12:08 0.02 0.00 2.2 0.0 0.0 0 0.2 2 4.0 3.7 2.0 0.0 0.0 0.0 0.0
12:13 0.00 0.00 2.2 0.0 0.0 0 0.2 2 4.0 3.7 2.0 0.0 0.0 0.0 0.0
12:18 0.00 0.00 2.2 0.0 0.0 0 0.2 2 4.0 3.7 2.0 0.0 0.0 0.0 0.0
12:23 0.00 0.00 2.2 0.0 0.0 0 0.2 2 4.0 3.7 2.0 0.0 0.0 0.0 0.0
12:28 0.00 0.00 2.2 0.0 0.0 0 0.2 2 4.0 3.7 2.0 0.0 0.0 0.0 0.0
12:33 0.00 0.00 2.2 0.0 0.0 0 0.2 2 4.0 3.7 2.0 0.0 0.0 0.0 0.0
12:38 0.03 0.00 5.2 0.0 0.0 0 0.2 2 4.0 3.7 2.0 0.0 0.0 0.0 0.0
12:43 0.04 1.07 5.2 0.0 0.0 0 0.2 2 4.0 3.7 2.0 0.0 0.0 0.0 0.0
12:48 0.01 1.25 5.2 0.0 0.0 0 0.2 2 4.0 3.7 2.0 0.0 0.0 0.0 0.0
12:53 0.01 1.38 5.2 0.0 0.0 0 0.2 2 4.0 3.7 2.0 0.0 0.0 0.0 0.0
12:58 0.02 0.28 5.2 0.0 0.0 0 0.2 2 4.0 3.7 2.0 0.0 0.0 0.0 0.0
13:03 0.02 0.00 5.2 0.0 0.0 0 0.2 2 4.0 3.7 2.0 0.0 0.0 0.0 0.0
13:08 0.02 0.00 5.2 0.0 0.0 0 0.2 2 4.0 3.7 2.0 0.0 0.0 0.0 0.0
13:13 0.02 0.02 5.2 0.0 0.0 0 0.2 2 4.0 3.7 2.0 0.0 0.0 0.0 0.0
...

Topas CEC Monitor Interval: 10 Tue Feb 13 04:00:06 2007
Partitions Memory (GB) Processors
Shr: 3 Mon: 4.5 InUse: 4.0 Shr: 0.8 PSz: 5 Shr_PhysB: 0.02
Ded: 2 Avl: - Ded: 3 APP: 5.0 Ded_PhysB: 0.00

Host OS M Mem InU Lp Us Sy Wa Id physB Ent %EntC Vcsw Phi
-----
p5504 A53 c 0.5 0.5 1 0 3 0 95 0.01 0.20 4.0 221 0
p5502 A53 U 0.5 0.5 2 0 0 0 99 0.00 0.40 1.2 326 0
p5506 A53 U 2.0 2.0 2 0 1 0 98 0.00 0.20 2.2 282 0
-----
p5503 A53 S 0.5 0.4 4 0 0 0 99 0.00
p5505 A53 S 1.0 0.6 2 0 0 0 99 0.00
```

Display of Cross-partition performance metrics

Weekly data can be used as input to IBM Systems Workload Estimator

<http://www.ibm.com/systems/support/tools/estimator/index.html>

Recorded data can be analyzed using nmon analyzer

<http://www-941.ibm.com/collaboration/wiki/display/WikiPtype/nmonanalyser>



# Other Monitoring Tools – WLE

Version: 2006.5.fix.2 12-Jan-07 www-912 IBM Systems Workload Estimator

## PTX #1

AIX 5L™ - 5.3  
LPAR Dedicated Proc

Measured Workload (origin PTX agent) Definition

1. System Information:

Company Name:	
Serial:	ccb46b4c
System CPU:	80.5 % of 8.53 RPERF
<u>Number of Cores:</u>	2.0
Operating System:	AIX 5L™ - 5.3
Memory:	
Disk Group Info:	

1 months of data available.

Most recent entry: 2006-12-23

Immediate Solution				Growth Solution			
100		100					
90		90	-16%				
80		80	<1%				
70		70					
60		60					
50		50					
40		40	-84%				
30		30					
20		20					
10		10					
0		0					
p5-520Q-9131	20.25 1650 4	p5-570-9117	74.95 2200 12-16				
1		1					
20.25		85.46 (for 14.0 cores)					
4		14 cores of 12-16					
58%		84%					
refer to LPAR detail		refer to LPAR detail					
2,653 of 32,000		17,051 of 512,000					
5 of 8		5 of 24					
93 of 2,097		93 of 7,340					
Yes, Dedicated or Shared		Yes, Dedicated or Shared					
IBM® Power5+		IBM® Power5+					
1650 MHz		2200 MHz					

## VIO Agent : Situations monitored

KPV\_Network\_I\_F\_NotUP Status of a Network Interface is not up  
KPV\_PHYS\_MEM\_Free\_Warn Available Physical Memory is getting low  
KPV\_PgSpace\_Free\_CRIT Available Paging Space is getting critically low  
KPV\_PgSpace\_Free\_Warn Available Paging Space is getting low  
KPV\_LPAPCPU\_IOWait\_CRIT When LPAR CPU\_IO Wait time is extremely high  
KPV\_LPAPCPU\_IOWait\_Warn When LPAR CPU\_IOWait is higher than normal  
KPV\_LPAPCPU\_Idle\_Info LPAR CPU\_Idle has been very low for a long time  
KPV\_LPAPCPU\_System\_CRIT When LPAR CPU\_System utilization is extremely high  
KPV\_LPAPCPU\_System\_Warn When LPAR CPU\_System utilization is abnormally high  
KPV\_LPAPCPU\_User\_CRIT LPAR CPU\_User utilization is extremely high  
KPV\_LPAPCPU\_User\_Warn When an LPAR is utilizing significant CPU\_User resources  
KPV\_PV\_Free\_Warn Physical Volume Free space is getting low  
KPV\_PV\_Stale\_Partition Stale Partitions on a Physical Volume  
could not be updated in a mirrored LVM environment  
KPV\_VG\_Free\_CRIT When a Volume Group is critically low on free space  
KPV\_VG\_Free\_Warn When a Volume Group is low on free space  
KPV\_FS\_Free\_CRIT When a Filesystem is critically low on free space  
KPV\_FS\_Free\_Warn When a Filesystem is low on free space

## AIX Agent : Situations monitored

KP5\_Network\_I\_F\_NotUP Status of a Network Interface is not up.  
KP5\_NIM\_Res\_NotRunning\_Info The state of a NIM Resource is not running  
KP5\_NIM\_Res\_Info\_Missg\_Warn The state of a NIM Resource is: Information is missing  
KP5\_PrintQ\_DOWN Printer Queue is DOWN  
KP5\_PHYS\_MEM\_Free\_Warn Available Physical Memory is getting low.  
KP5\_PgSpace\_Free\_CRIT Available Paging Space is getting critically low  
KP5\_PgSpace\_Free\_Warn Available Paging Space is getting low  
KP5\_LPARCPU\_IOWait\_CRIT When LPAR CPU\_IO Wait time is extremely high  
KP5\_LPARCPU\_IOWait\_Warn When LPAR CPU\_IOWait is higher than normal  
KP5\_LPARCPU\_Idle\_Info LPAR CPU\_Idle has been very low for a long time  
KP5\_LPARCPU\_System\_CRIT When LPAR CPU\_System utilization is extremely high  
KP5\_LPARCPU\_System\_Warn When LPAR CPU\_System utilization is abnormally high  
KP5\_LPARCPU\_User\_CRIT LPAR CPU\_User utilization is extremely high  
KP5\_LPARCPU\_User\_Warn When an LPAR is utilizing significant CPU\_User resources  
KP5\_PV\_Free\_Warn Physical Volume Free space is getting low  
KP5\_PV\_Stale\_Partition Stale Partitions on a Physical Volume  
could not be updated in a mirrored LVM environment  
KP5\_VG\_Free\_CRIT When a Volume Group is critically low on free space  
KP5\_VG\_Free\_Warn When a Volume Group is low on free space  
KP5\_FS\_Free\_CRIT When a Filesystem is critically low on free space  
KP5\_FS\_Free\_Warn When a Filesystem is low on free space

# ITMSESP : Compared to ITM 6.1

Monitoring Capabilities	w/AIX Target 4Q 06	w/ITM Target 1Q 07
<b>Topology Navigation</b> <ul style="list-style-type: none"> <li>HMC, IVM, VIOS, CEC, LPARs, VIOS Server and Client, WPARs</li> </ul>	X	X
<b>Basic Availability Monitoring</b> <ul style="list-style-type: none"> <li>HMC, IVM, VIOS, LPAR, WPAR Status</li> <li>AIX and VIOS System Level CEC, LPAR, CPU, Memory Metrics</li> </ul>	X	X
<b>Advanced Availability Monitoring</b> <ul style="list-style-type: none"> <li>AIX and VIOS System Level: CEC, LPAR, CPU, Memory Metrics, WLM, System Daemons, Processes, etc.</li> </ul>		X
<b>Basic Health</b> <ul style="list-style-type: none"> <li>AIX and VIOS - CPU, Memory, LPAR</li> </ul>	X	X
<b>Advanced Health Monitor</b> <ul style="list-style-type: none"> <li>AIX and VIOS - CPU, Memory, Disk, and Network Thresholds, File System Status, Paging Space, Status of Daemons and Services (i.e. NFS, http), Top Resource Consumers, LPAR</li> </ul>		X
<b>Performance and Throughput Metrics</b> <ul style="list-style-type: none"> <li>AIX and VIOS Systems</li> <li>Existing ITM Metrics (i.e. CPU, Memory, I/O, Network, File System)</li> <li>AIX PTX Metrics (i.e. CPU, Memory, LAN, TCP, UDP, IP , WLM, Process, LPAR, Disk, I/O, LVM, Paging Space, IPC, NFS, CEC)</li> <li>Customized VIOS and WPAR Metrics</li> </ul>		X

## ITMSESP : Compared to ITM 6.1

Monitoring Capabilities	w/AIX Target 4Q 06	w/ITM Target 1Q 07
Universal Agent		X
Access to BP Solution Catalog		X
Summarization and Pruning Agent		X
Warehouse Proxy Agent		X
Unix Log File Agent		X
"Other" OS Agents		X
Scalability	Single HUB TEMS	X
Autonomic Function – standard event format (WEF), standard manageability interfaces (WSDM), advanced problem determination using LTA (fee agent)	X	X
TEC Integration (Send Events to TEC and TEC Console Integration)	X	X



## ITMSESP : Compared to ITM 6.1

Monitoring Capabilities	w/AIX Target 4Q 06	w/ITM Target 1Q 07
Data Warehousing	Only 24 hrs.	Full TDW
Supported Platforms	AIX	All Supported Platforms
TEPS DB	X	X
Can Add/Install Application Agents to ITM Infrastructure		X
Workflows		X
Cross-agent workspaces		X
Take Action	X	X

**The End**