

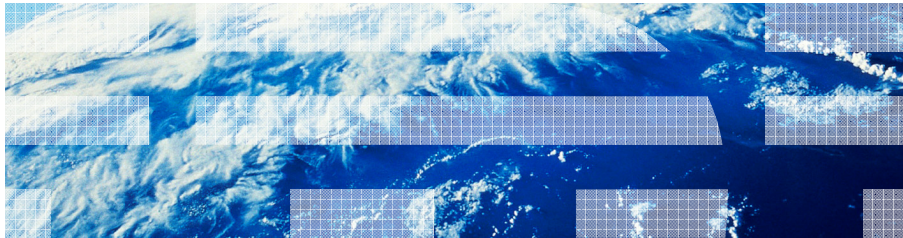


IBM Tivoli Monitoring for POWER/AIX

Andy Thomas

andy.thomas@uk.ibm.com

Consulting IT Specialist – IBM UK



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Power System Technical Webinar Series



Agenda:

ITM Introduction

Exploration of ITM Agents Workspaces

HMC Agent

CEC Agent

VIOS Agent

AIX Agent

UNIX Logs Agent

UNIX Agent

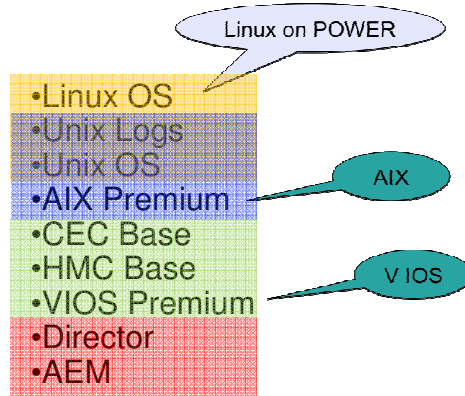
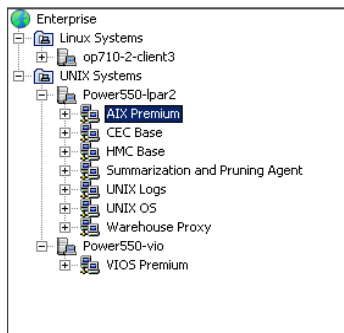
Tivoli Common Reporting

ITM Server Dashboard

Feature Matrix – AIX EE & Systems Director

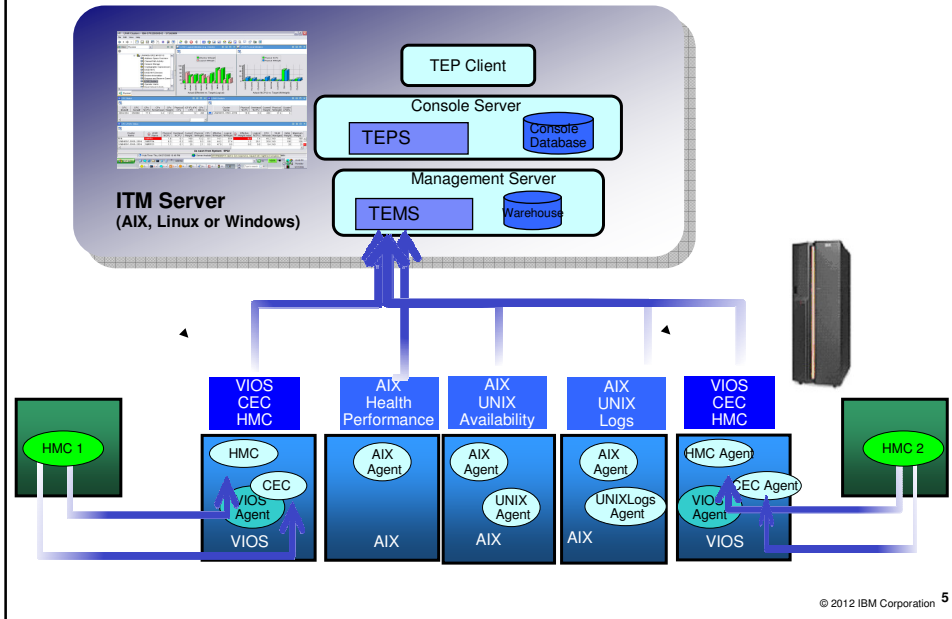
Products	Director Express	Director Standard	Director Enterprise	AIX EE
IBM System Director	YES	YES	YES	YES
Active Energy Manager		YES	YES	YES
VMControl Express	YES	YES	YES	YES
VMControl Standard/Image Mgr		YES	YES	YES
VMControl Enterprise/System pools			YES	YES
IBM Tivoli Monitoring			YES	YES
Tivoli Application Dependency Manager			YES	YES
Network Control		YES	YES	YES
Transition Manager for HP® SIM	YES	YES	YES	YES
Service & Support Manager	YES	YES	YES	YES
Workload Partitions Manager				YES
AIX				YES

POWER Agents



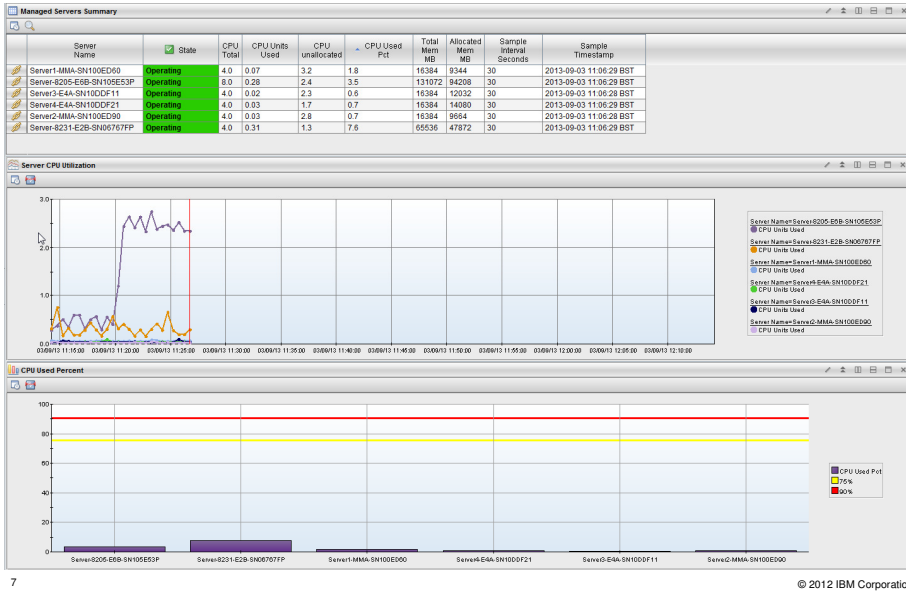
- Agent run on Linux x86 or POWER
- Agent run on AIX or Linux
- Agent run on AIX on POWER
- Agent run on VIO5
- Agent run on Director Server

ITM & POWER Architecture

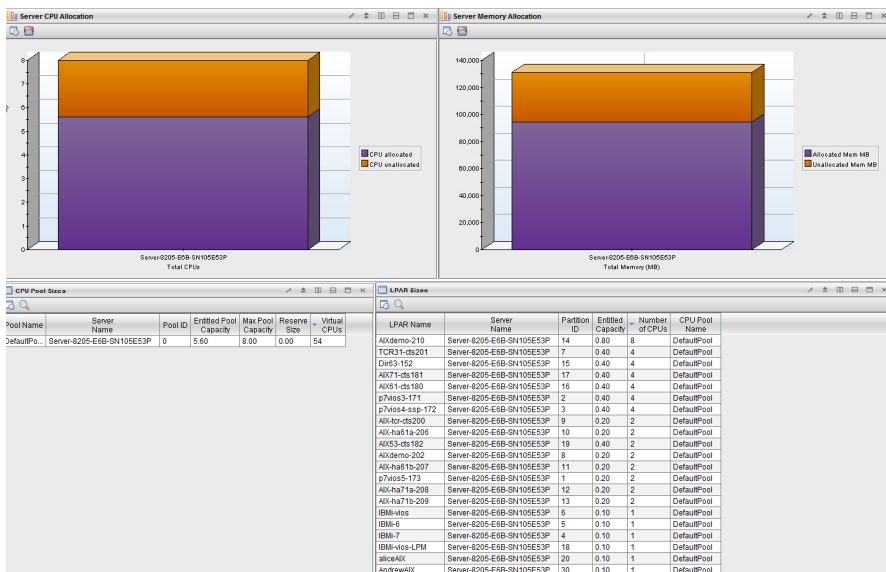


ITM - HMC Agent

ITM – Overview – HMC agent – Managed Servers



ITM – Overview – HMC agent – Servers





ITM – Overview – HMC agent – Servers - LPARs

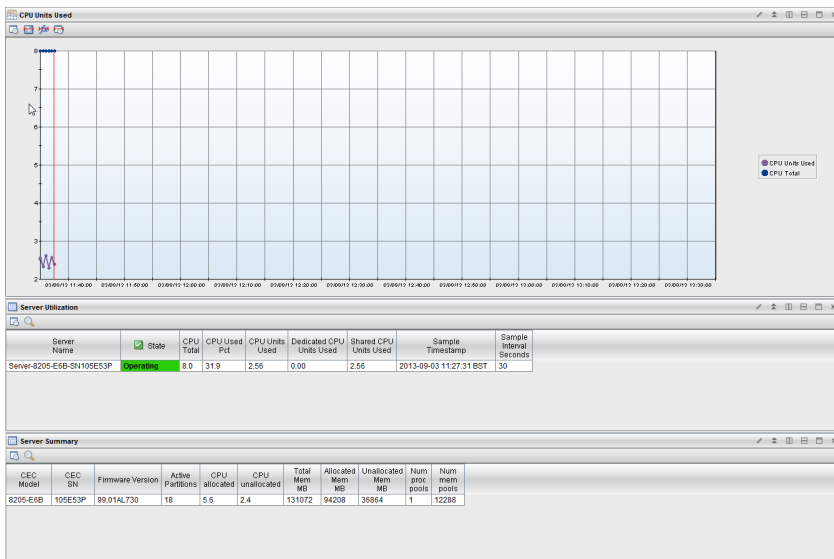
Shared LPARs										
LPAR Name	Server Name	State	Number of CPUs	Capped Mode	Entitled Capacity	CPU Pool Name	CPU Units Used	Entitled Capacity Used Pct	CPU Capacity Used Pct	
TCR31-ct5201	Server-8205-EBB-SN105E53P	Running	4	uncapped	0.40	DefaultPool	2.02	505.2	49.5	
AKX-hs71a-208	Server-8205-EBB-SN105E53P	Running	2	uncapped	0.20	DefaultPool	0.06	31.6	3.2	
AKX-hs71b-209	Server-8205-EBB-SN105E53P	Running	2	uncapped	0.20	DefaultPool	0.06	28.9	2.9	
IBM-vios LPM	Server-8205-EBB-SN105E53P	Running	1	capped	0.10	DefaultPool	0.00	2.6	2.8	
DirS3-152	Server-8205-EBB-SN105E53P	Running	4	uncapped	0.40	DefaultPool	0.07	18.5	1.8	
p7vos3-171	Server-8205-EBB-SN105E53P	Running	4	uncapped	0.40	DefaultPool	0.05	14.4	1.4	
p7vos5-173	Server-8205-EBB-SN105E53P	Running	2	uncapped	0.20	DefaultPool	0.03	12.9	1.3	
p7vos4-esp-172	Server-8205-EBB-SN105E53P	Running	4	uncapped	0.40	DefaultPool	0.05	11.7	1.2	
AKX-gmo-202	Server-8205-EBB-SN105E53P	Running	2	uncapped	0.20	DefaultPool	0.02	9.6	1.0	
AKX-ct5-200	Server-8205-EBB-SN105E53P	Running	2	uncapped	0.20	DefaultPool	0.02	8.2	0.8	
AKX-hs1b-207	Server-8205-EBB-SN105E53P	Running	2	uncapped	0.20	DefaultPool	0.01	4.5	0.5	
AKX-hs1a-206	Server-8205-EBB-SN105E53P	Running	2	uncapped	0.20	DefaultPool	0.01	4.6	0.5	
IBM-vios	Server-8205-EBB-SN105E53P	Running	1	uncapped	0.10	DefaultPool	0.00	4.2	0.4	
IBM-7	Server-8205-EBB-SN105E53P	Running	1	uncapped	0.10	DefaultPool	0.00	4.0	0.4	
AK71-ct5181	Server-8205-EBB-SN105E53P	Running	4	uncapped	0.40	DefaultPool	0.01	2.4	0.2	
AK53-ct5182	Server-8205-EBB-SN105E53P	Running	2	uncapped	0.40	DefaultPool	0.00	0.9	0.2	
AKX-gmo-210	Server-8205-EBB-SN105E53P	Running	8	uncapped	0.80	DefaultPool	0.02	2.1	0.2	
AK531-ct5180	Server-8205-EBB-SN105E53P	Running	4	uncapped	0.40	DefaultPool	0.01	1.5	0.2	
aliceAIX	Server-8205-EBB-SN105E53P	Not Activated	1	capped	0.10	DefaultPool	Not Collected	Not Collected	Not Collected	
AndrewAIX	Server-8205-EBB-SN105E53P	Not Activated	1	capped	0.10	DefaultPool	Not Collected	Not Collected	Not Collected	

Dedicated LPARs					
LPAR Name	Server Name	State	Number of CPUs	Donation Mode	CPU Capacity Used Pct

Unconfigured LPARs			
LPAR Name	Server Name	State	Number of CPUs



ITM – Overview – HMC agent – Servers - Server



ITM - CEC Agent

ITM – Overview – CEC agent – CEC Base

The screenshot displays the CEC Resource Inventory application interface. It includes a navigation pane on the left, a main window with several data tables, and a status bar at the bottom.

CEC Resource Inventory Table:

Name	Number of PartBons	CPU Total	CPU Allocated	CPU Unallocated	CPU Allocated Pct	CPU Unallocated Pct	CPU Shared Pool Size	Num Dedicated Mem LPARs	Num Shared Mem LPARs	Num AMS Pools	Memory Total MB	Memory Allocated MB	Memory Unallocated MB	Memory Allocated Pct	Mem Avail Pct
Server-8205-E6B-SN1105E3P	17	8.0	4.1	3.9	51	49	8.0	8	4	1	131972	75776	55296	58	42

CPU Shared Pools Table:

CPU Pool ID	CPU Units Consumed	Available CPU Units in Pool	Avail Shared Pool Pct	Pool Entitlement	Maximum Pool Capacity	LPARs Using Pool
0	1.65	6.32	79.00	4.10	8.00	12

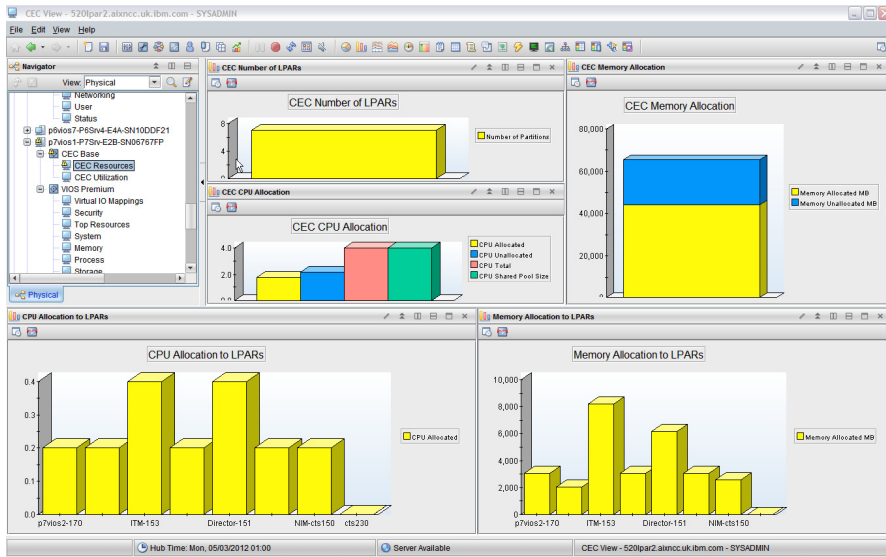
Active Memory Sharing (AMS) Pools Table:

AMS Pool ID	Available Memory Pool Pct	AMS Mempool Size	AMS Total LPARs Using Pool
0	Not Collected	24.00	30.04

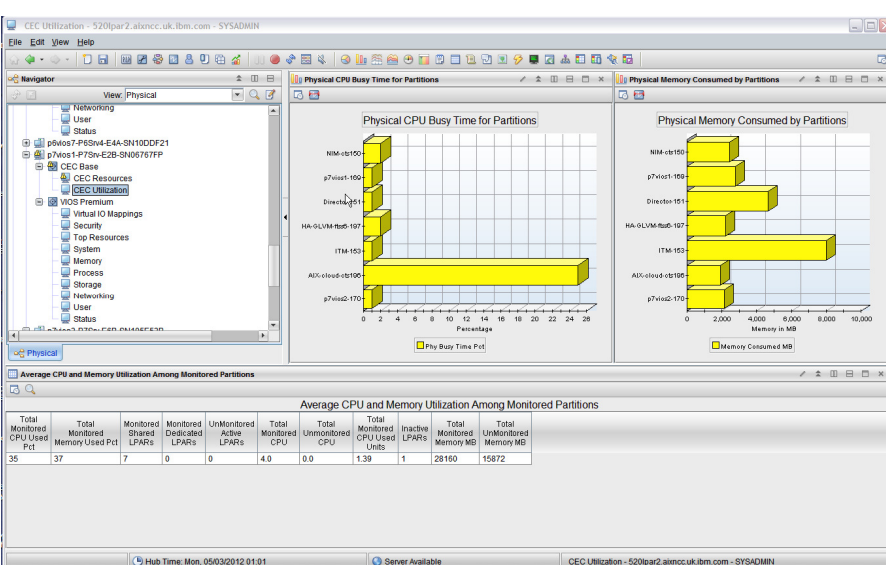
CEC LPAR Metrics Table:

Name	ID	State	Monitoring Status	Environment	PoolID	Entitlement	CPU Allocated Pct	Memory Allocated MB	Memory Allocated Pct	Capped Mode	Shared Mode	Machine ID	OS Version	Hostname	CPU Capacity Weight
DirS-152	15	Running	monitored	linux	0	0.40	5	8192	6	uncapped	shared	800008A365500000	AX7.1	ds152.sbank.uk.ibm.com	128
AXIdemo-2	14	Running	monitored	linux	0	0.80	10	2048	2	uncapped	shared	800008A365500000	AX7.1	9.196.148.210	128
AX-ha71b-	13	Running	monitored	linux	0	0.20	3	3072	2	uncapped	shared	800008A365500000	AX7.1	ds203.sbank.uk.ibm.com	128
AX-ha71a-	12	Running	monitored	linux	0	0.20	3	3072	2	uncapped	shared	800008A365500000	AX7.1	ds208.sbank.uk.ibm.com	128
AX-ha61b-	11	Running	monitored	linux	0	0.20	3	2048	2	uncapped	shared	800008A365500000	AX6.1	ds207.sbank.uk.ibm.com	128
AX-ha61a-	10	Running	monitored	linux	0	0.20	3	2048	2	uncapped	shared	800008A365500000	AX6.1	ds206.sbank.uk.ibm.com	128
TCR-ds200	9	Running	monitored	linux	0	0.20	3	6144	5	uncapped	shared	800008A365500000	AX7.1	ds200.sbank.uk.ibm.com	128
AXIdemo-2	8	Running	monitored	linux	0	0.20	3	2048	2	uncapped	shared	800008A365500000	AX7.1	ds202.sbank.uk.ibm.com	128
AXIdemo-2	7	Running	monitored	linux	0	0.20	3	2048	2	uncapped	shared	800008A365500000	AX7.1	ds201.sbank.uk.ibm.com	128
IBM-i-vos	4	Not Activated	unmonitored	os400	0	0.00	0	4096	3	uncapped	shared	-	-	-	Not Collected
IBM-i-5	5	Running	unmonitored	os400	0	0.10	1	4096	3	uncapped	shared	-	-	-	Not Collected
IBM-i-7	4	Not Activated	unmonitored	os400	0	0.00	0	4096	3	uncapped	shared	-	-	-	Not Collected

ITM – Overview – CEC agent – CEC Resources

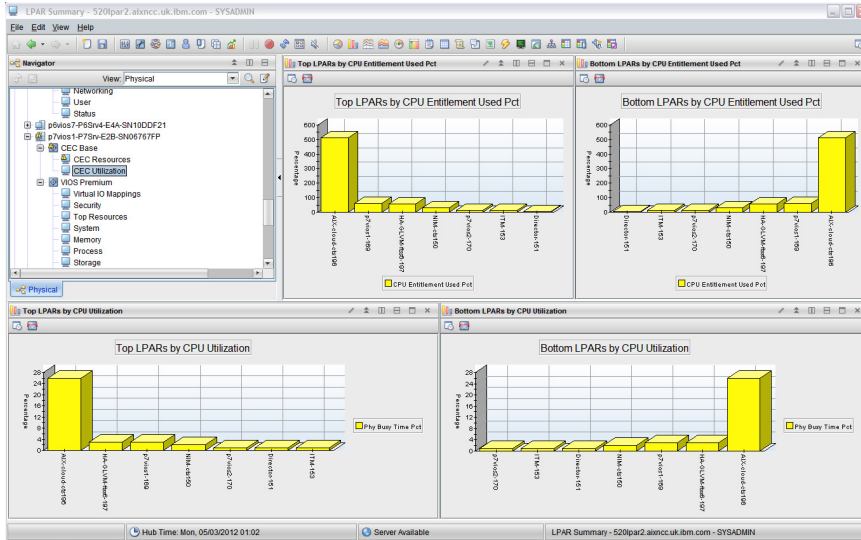


ITM – Overview – CEC agent – CEC Utilization

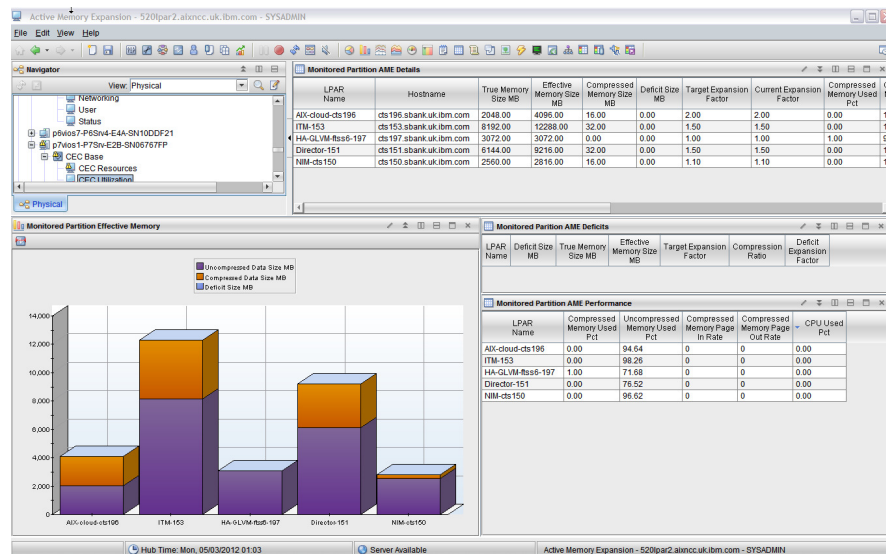




ITM – Overview – CEC agent – LPar Summary – Top & Bottom LPars in a frame

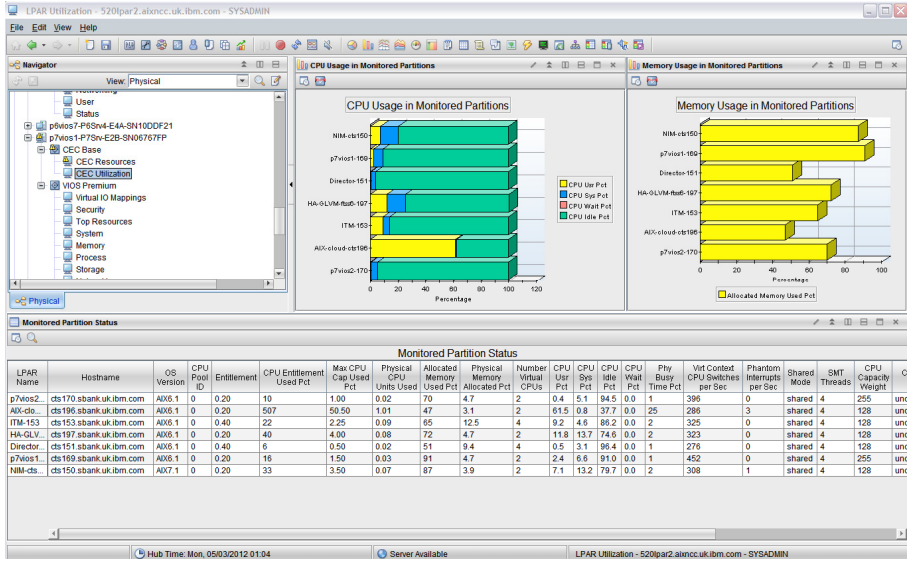


ITM – Overview – CEC agent – AME

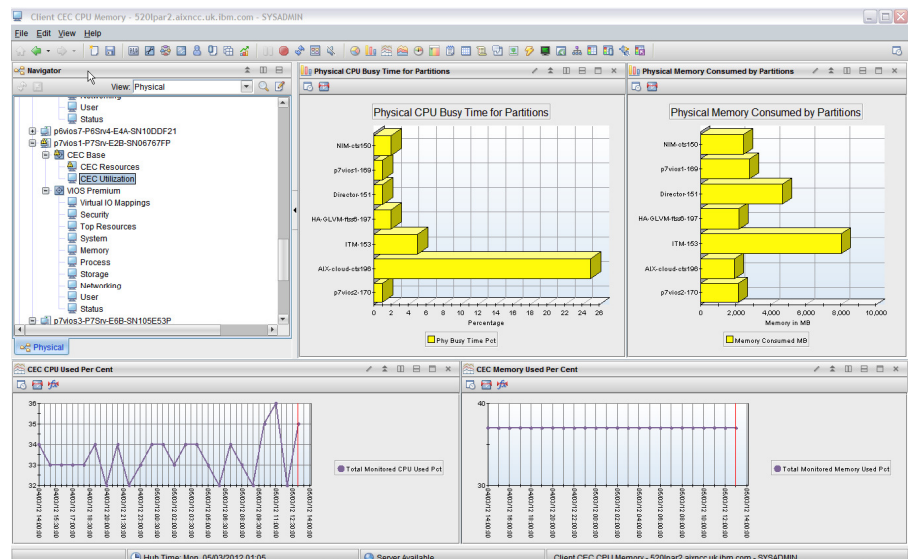




ITM – Overview – CEC agent – LPar Utilization & Detailed LPar metrics



ITM – Overview – CEC agent – Client CEC – Rolling CPU & Memory usage





ITM – Overview – CEC agent – CEC Situations

Manage Situation at Managed System: p7vios1:PK

Name	Status	Description	Auto Start	Overrides Exist	Advice	Action	Until	Inferna
KPK_Avail_MemPool_Fcd_Low_Warn	Started	This AMS Shared Memory Pool is almost fully used.	✓		!			0d / 0h : 1
KPK_Avail_Pool_Pcd_Low_Warn	Stopped	The percentage of available pool CPUs is low.			!			0d / 0h : 1
KPK_CEC_avg_cpu_usage_Warn	Started	Average CPU usage on the CEC is high.	✓		!			0d / 0h : 1
KPK_CEC_avg_mem_usage_Warn	Started	Average Memory usage on the CEC is high.	✓		!			0d / 0h : 1
KPK_HMC_Failover_Slow_Info	Stopped	An HMC Failover event happened because of slow HMC r...			!		☹	0d / 0h : 0
KPK_HMC_Failover_Warn	Stopped	An HMC Failover event has occurred.			!		☹	0d / 0h : 0



ITM - VIOs Premium Agent



ITM – Overview – VIOs agent – Storage mappings

Storage Mappings

Partition ID	VSSA Slot	VSSA Name	VTD Name	MOS Physical Adapter	Disk	LV Name	LUN ID	VSCA Slot	Client Partition ID	Client Partition Name	Client Partition State	Disk Transfers per Sec	Disk Transfers Sec Pct	Client Device Name
2	30	vhos_vtcsi3	ssas0	hdisk2	vwpar_p6ipar9		0x8300000000000000	30	5	ncc151-AK71-211	Runni...	1.0	0.0	hdisk0
2	23	vhos_vgldhs	ssas0	hdisk4	goldhs		0x8100000000000000	23	7	smis-broc-193	Runni...	2.0	0.0	unavailable
2	20	vhos_vtcsi8	fscc0	hdisk31			0x8100000000000000	20	3	GTS-219	Runni...	0.6	0.0	hdisk0
2	25	vhos_vp5202	ssas0	hdisk4	pf5202		0x8300000000000000	25	19	pf5202-59-220	Runni...	2.0	0.0	unavailable
2	21	vhos_vgldsbv1	ssas0	hdisk4	goldsbv1		0x8300000000000000	21	4	goldsb-191	Runni...	2.0	0.0	unavailable
2	21	vhos_vgldsbv0	ssas0	hdisk4	goldsbv0		0x8200000000000000	21	4	goldsb-191	Runni...	2.0	0.0	unavailable
2	12	vhos_vtcsi6	fscc0	hdisk27			0x8100000000000000	60	8	ncc154-Ora-214	Runni...	2.7	0.0	hdisk0
2	25	vhos_vmm1	ssas0	hdisk4	nmm1		0x8200000000000000	25	19	pf5202-59-220	Runni...	2.0	0.0	unavailable
2	12	vhos_gofs2	fscc0	hdisk14			0x8300000000000000	60	8	ncc154-Ora-214	Runni...	0.0	0.0	hdisk0
2	30	vhos_gofs1	fscc0	hdisk14			0x8200000000000000	30	5	ncc151-AK71-211	Runni...	0.0	0.0	hdisk0

Disk Usage

Four pie charts showing disk usage for hdisk0, hdisk1, hdisk2, and hdisk3. Legend: Used MB (yellow), Free MB (blue).

Storage Mappings Details

VIOS Name	Hostname	IP Address	Partition ID	VSSA Slot	VSSA Name	VTD Name	MOS Physical Adapter	Disk	LV Name	LUN ID	Client Partition Name	Client Hostname	Client IP Address	Client Partition ID	Client Partition State	VSC Slot
p6vios5-165	p6vios5	9.196.148.165	2	30	vhos_vtcsi3	ssas0	hdisk2	vwpar_p6ipar9		0x8300000000000000	ncc151-AK71-211	cts211.sbank.uk.ibm.com	9.196.148.211	5	Runni...	30
p6vios5-165	p6vios5	9.196.148.165	2	23	vhos_vgldhs	ssas0	hdisk4	goldhs		0x8100000000000000	smis-broc-193	cts193.sbank.uk.ibm.com	9.196.148.193	7	Runni...	23



ITM – Overview – VIOs agent – Network mappings

Network Mappings

VLAN ID	Partition Name	Partition State	Hostname	Partition ID	VEA Slot	Trunk	Shared Ethernet Adapter	Physical Ethernet Adapters	Virtual Ethernet Adapters	Failover	Priority	Bridging	Server Bytes Sent Per Sec	Server Bytes Received Per Sec	Server Packets Sent Per Sec
1	p520b-59-220	Runni...		10	2								0	0	0
1	smis-ls-192	Runni...	cts192.sbank.uk.ibm.com	6	2								0	0	0
1	GTS-219	Runni...	cts219.sbank.uk.ibm.com	3	2								0	0	0
1	goldsb-191	Runni...	cts191.sbank.uk.ibm.com	4	2								0	0	0
1	AK-TPC-222	Runni...	cts222.sbank.uk.ibm.com	1	2								0	0	0
1	ncc154-Ora-214	Runni...	cts214.sbank.uk.ibm.com	8	2								0	0	0
1	smis-broc-193	Runni...	cts193.sbank.uk.ibm.com	7	2								0	0	0
1	ncc151-AK71-211	Runni...	cts211.sbank.uk.ibm.com	5	2								0	0	0
1	p6vios5-165	Runni...	cts165.sbank.uk.ibm.com	2	11	yes	ent4	ent1	ent3	disabled	1	yes	71930	71990	51
1	ncc1219-221	Runni...	cts221.sbank.uk.ibm.com	9	2								0	0	0

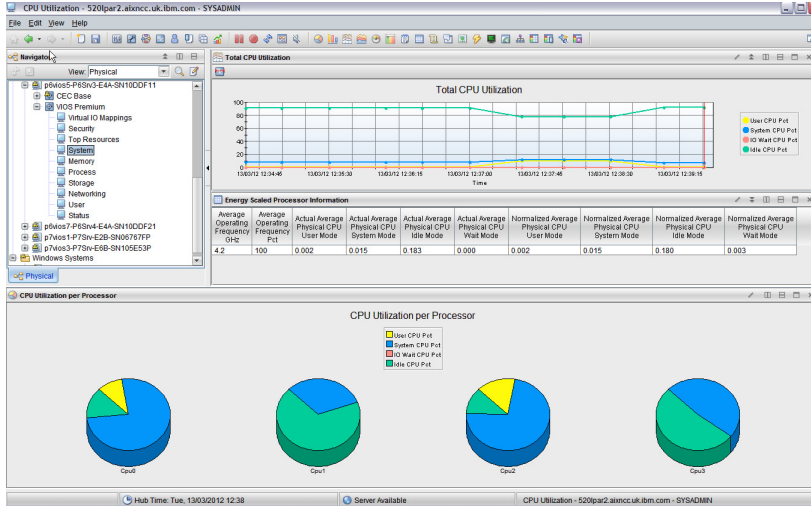
Network Interfaces

Name	State	IP Address	MTU	Mask	Domain	Outgoing	Nameserver
ent4	up	9.196.148.165	1500	255.255.255.0	sbank.uk.ibm.com	9.196.148.1	9.64.162.21

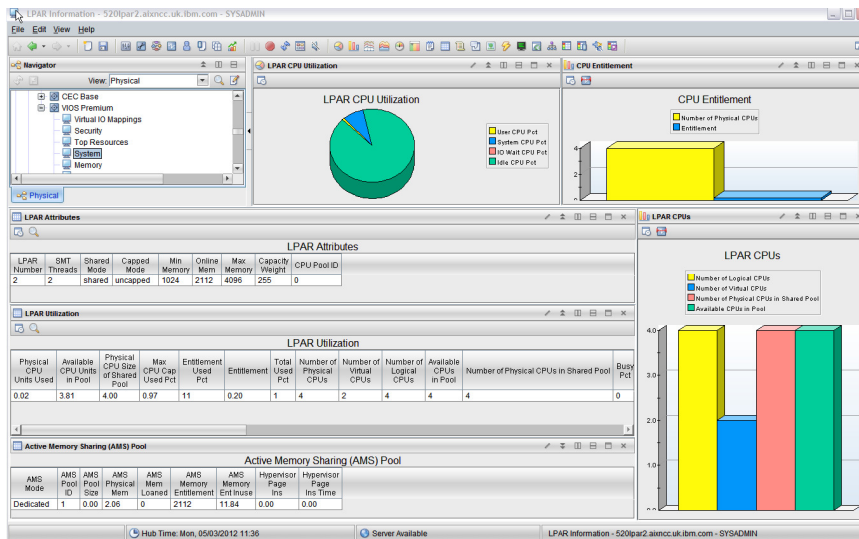
Network Mappings Details

VLAN ID	Partition Name	Partition State	Hostname	IP Address	Partition ID	VEA Slot	VEA MAC	VEA IP Address	Shared Ethernet Adapter	SEA Address	SEA MAC	Physical Ethernet Adapters	Virtual Ethernet Adapters	Failover	Priority	Bridging
1	p520b-59-220	Runni...			10	2	22A70E5AF02									
1	smis-ls-192	Runni...	cts192.sbank.uk.ibm.com	9.196.148.192	6	2	22A70E75A702									
1	GTS-219	Runni...	cts219.sbank.uk.ibm.com	9.196.148.219	3	2	22A70E697D02									
1	goldsb-191	Runni...	cts191.sbank.uk.ibm.com	9.196.148.191	4	2	22A70E6691A02									
1	AK-TPC-222	Runni...	cts222.sbank.uk.ibm.com	9.196.148.222	1	2	22A70C6C0A02									

ITM – Overview – VIOs agent – System – CPU Utilization



ITM – Overview – VIOs agent – System – LPar Information (includes AMS)



ITM – Overview – VIOs agent – Storage – Physical Storage Performance

Physical Adapter Throughput

Name	Transfers per Sec	Transfers Bytes per Sec	Read KB per Sec	Written KB per Sec
sisas0	14	2388208	2296	46
fca0	4	17153	0	17

Physical Disk Error Rates

Name	Parent	Read Timeouts per Sec	Failed Read per Sec	Write Timeout per Sec	Failed Writes per Sec
hdisk1_Path0	sisas0	0	0	0.0	0
hdisk3_Path0	sisas0	0	0	0.0	0
hdisk4_Path0	sisas0	0	0	0.0	0
hdisk5_Path0	sisas0	0	0	0.0	0
hdisk6_Path0	sisas0	0	0	0.0	0

Physical Disk Queue Metrics

Name	Parent	Avg Request In WaitQ MS	Min Request In WaitQ MS	Max Request In WaitQ MS	Avg WaitQ Size	Avg ServiceQ Size	ServiceQ Full per Sec
hdisk1_Path0	sisas0	2.1	0.0	91.4	0	0	572
hdisk3_Path0	sisas0	0.1	0.0	1.2	0	0	0
hdisk4_Path0	sisas0	0.0	0.0	0.0	0	0	0
hdisk5_Path0	sisas0	0.2	0.0	1.2	0	0	0
hdisk6_Path0	sisas0	2.1	0.0	95.5	0	0	573
hdisk2_Path0	sisas0	0.1	0.0	1.3	0	0	0
cd0	sisas0	0.0	0.0	0.0	0	0	0

Physical Disk Throughput

Name	Active Disk Pct	Transfers Bytes per Sec	Transfers kB per Sec	Transfers per Sec	Read KB per Sec	Written KB per Sec	Read Transfers per Sec	Avg Read Transfer MS	Min Read Service MS	Max Read Service MS	Write
hdisk1_Path0	1.0	13290	13	3	0	13	0	3.4	0.2	7.9	26
hdisk3_Path0	1.4	873761	853	3	846	0	1681	41.9	0.1	90.0	15
hdisk4_Path0	1.1	7831	8	2	0	8	0	0.6	0.2	0.1	15
hdisk6_Path0	1.6	732613	698	4	698	0	1302	47.4	0.2	94.3	0

ITM – Overview – VIOs agent – Storage – Virtual Storage Performance

Virtual Adapter and Virtual Disk Summary

Name	Type	Transfers per Sec	Transfers Bytes per Sec	Read KB per Sec	Written KB per Sec
vhos7	Vadapter	0	430	0	0
goldhs_vgoldhs	TargetDisk	0	0	0	0
vhos4	UserCenter	2	4140	0	0

Virtual Adapter and Virtual Disk Error Rates

Name	Parent	Read Timeouts per Sec	Failed Read per Sec	Write Timeout per Sec	Failed Writes per Sec
vhos7	N/A	0	0	0.0	0
goldhs_vgoldhs	vhos7	0	0	0.0	0
vhos4	N/A	0	0	0.0	0
ax6me2_vbscsi0	vhos4	0	0	0.0	0
vhos5	N/A	0	0	0.0	0
goldhs_vgoldhs	vhos5	0	0	0.0	0
goldhs_vgoldhs	vhos5	0	0	0.0	0

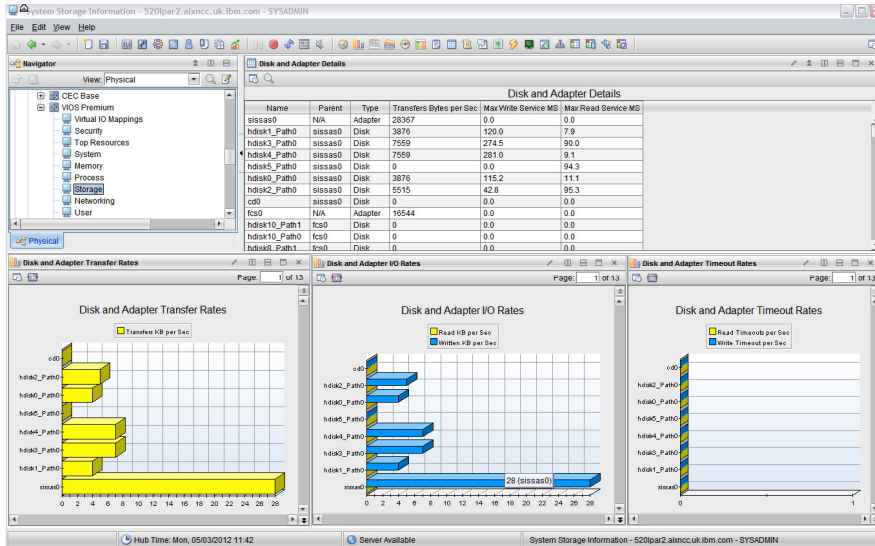
Virtual Adapter and Virtual Disk Queue Metrics

Name	Parent	Avg Request In WaitQ MS	Min Request In WaitQ MS	Max Request In WaitQ MS	Avg WaitQ Size	Avg ServiceQ Size	ServiceQ Full per Sec
vhos7	N/A	0.0	0.0	0.0	0	23	0
goldhs_vgoldhs	vhos7	0.0	0.0	0.0	0	23	0
vhos4	N/A	0.0	0.0	0.0	0	74	0
ax6me2_vbscsi0	vhos4	0.0	0.0	0.0	0	74	0
vhos5	N/A	0.0	0.0	0.0	0	48	0
goldhs_vgoldhs	vhos5	0.0	0.0	0.0	0	48	0
goldhs_vgoldhs	vhos5	0.0	0.0	0.0	0	48	0

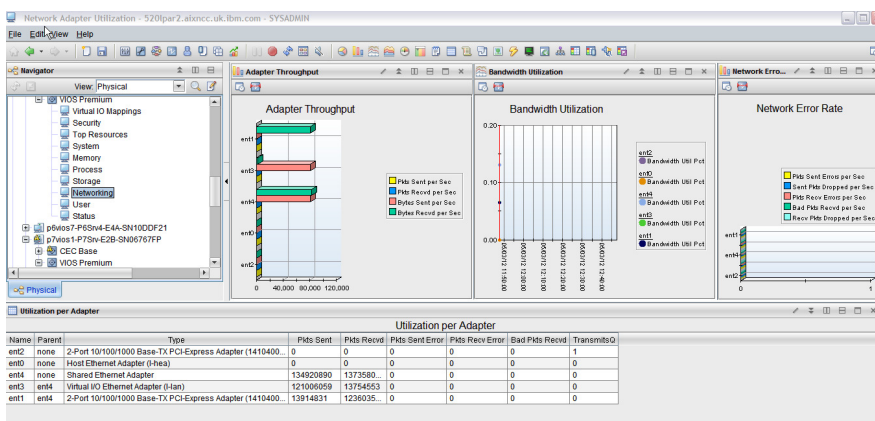
Virtual Adapter and Virtual Disk Throughput

Name	Transfers per Sec	Read KB per Sec	Written KB per Sec	Avg Read Transfer MS	Min Read Service MS	Max Read Service MS	Write Transfers per Sec	Avg Write Transfer MS	Min Write Service MS	Max Write Service MS
vhos7	0	0	0	0.2	0.0	0.1	0	0.0	0.0	0.0
goldhs_vgoldhs	0	0	0	0.0	0.0	0.0	0	11.0	1.9	65.8
vhos4	2	0	0	1.0	0.0	0.5	1	0.0	0.0	0.0
ax6me2_vbscsi0	1	0	0	1.0	0.0	0.5	1	0.0	0.0	0.0

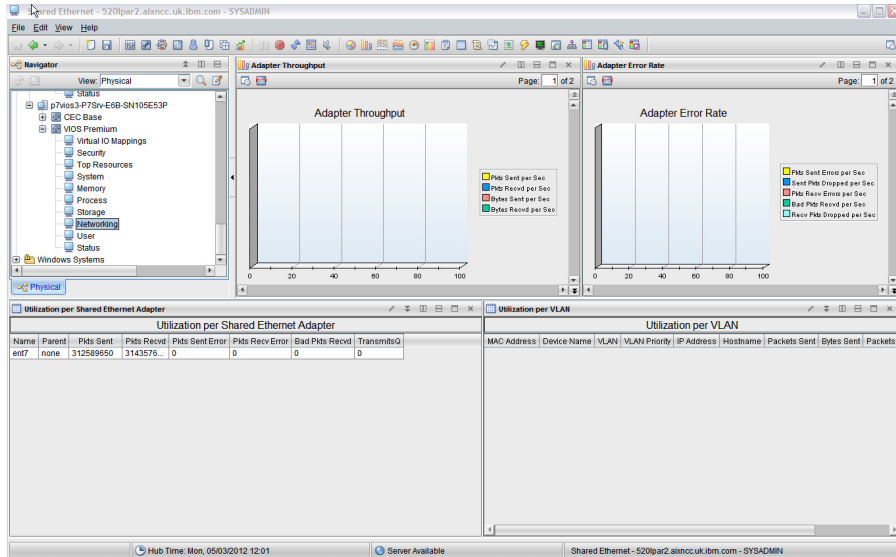
ITM – Overview – VIOs agent – Storage – System Storage Information



ITM – Overview – VIOs agent – Networking – Network Adapter Utilization



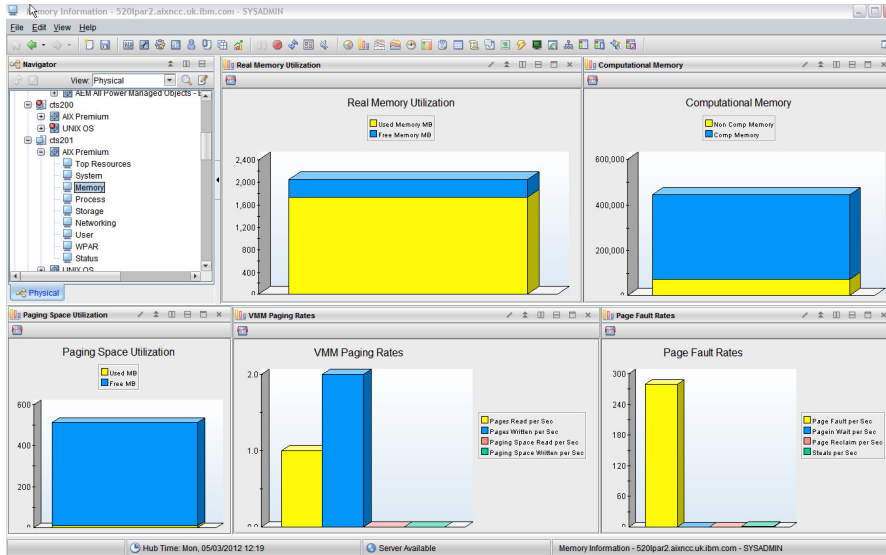
ITM – Overview – VIOs agent – Networking – Shared Ethernet



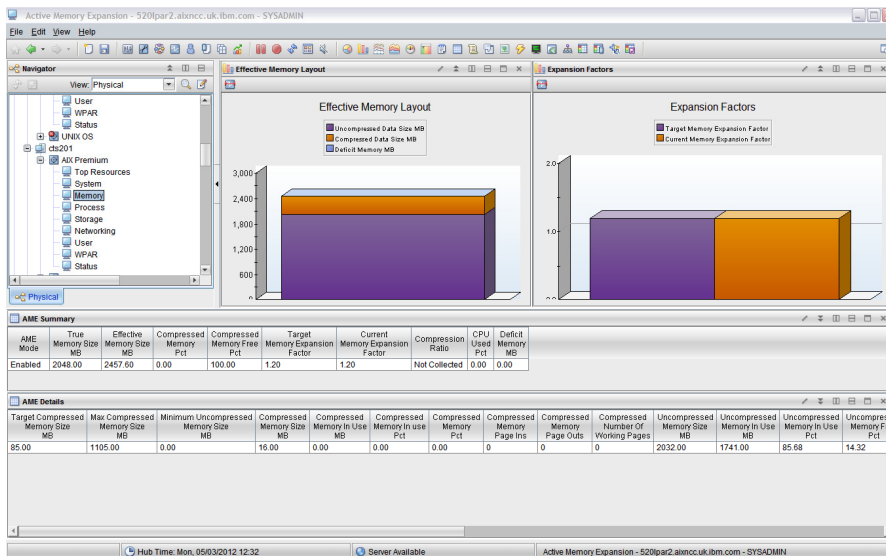
ITM - AIX Premium Agent



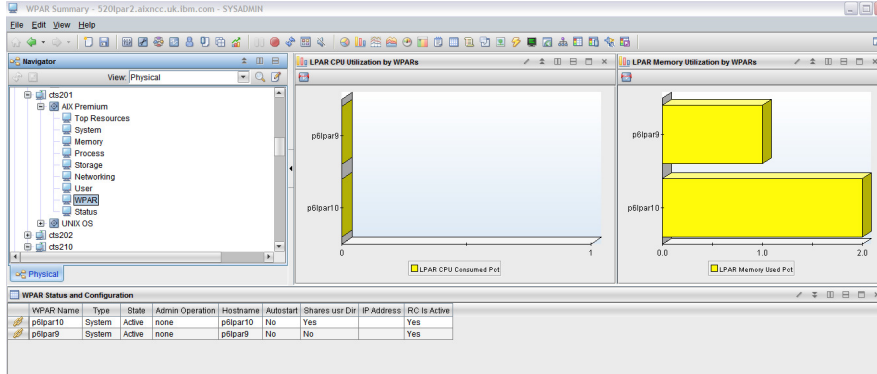
ITM – Overview – AIX agent - Memory



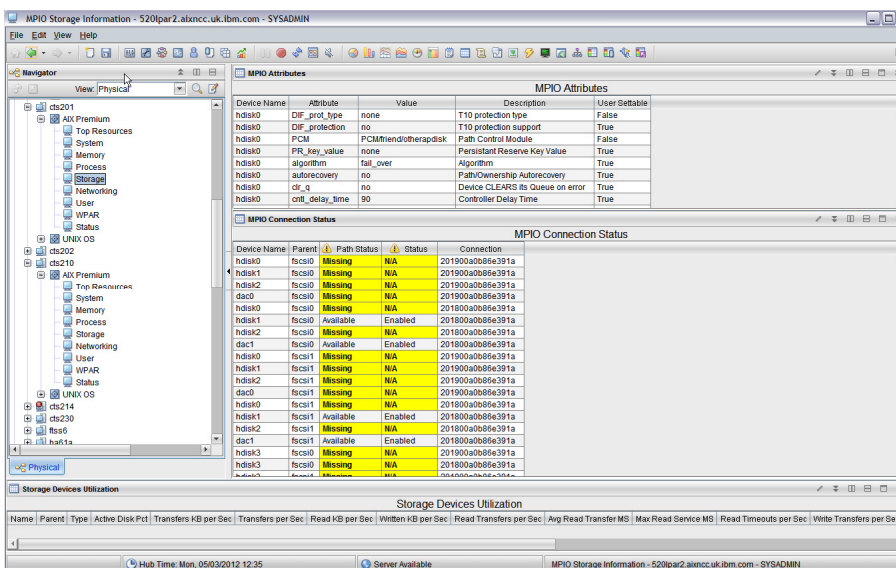
ITM – Overview – AIX agent – Memory - AME



ITM – Overview – AIX agent – WPar



ITM – Overview – AIX agent – Storage - MPIO





ITM – Overview – AIX agent – System (includes AMS)

The screenshot displays the IBM ITM interface for LPAR Information. It includes several panels:

- Navigator:** Shows a tree view of system resources including AX Premium, Top Resources, System, Memory, Process, Storage, Networking, User, WPAR, and Status.
- LPAR CPU Utilization:** A pie chart showing the distribution of CPU Pct: User CPU Pct (yellow), System CPU Pct (blue), IO Wait CPU Pct (red), and Idle CPU Pct (green).
- CPU Entitlement:** A 3D bar chart showing the Number of Physical CPUs and Entitlement.
- LPAR Attributes Table:**

LPAR Number	SMT Threads	Shared Mode	Capped Mode	Min Memory	Online Mem	Max Memory	Capacity	CPU Pool ID
7	4	shared	uncapped	1024	2304	9728	128	0
- LPAR Utilization Table:**

Physical CPU Units Used	Available CPU Units in Pool	Physical CPU Size of Shared Pool	Max CPU Cap Used	Entitlement Used Pct	Entitlement	Total Used Pct	Number of Physical CPUs	Number of Virtual CPUs	Number of Logical CPUs	Available CPUs in Pool	Number of Physical CPUs in Shared Pool	Busy Pct	Phys Pct
0.03	0.00	8.00	0.67	13	0.20	0	8	2	8	0	8	0	1
- Active Memory Sharing (AMS) Pool Table:**

AMS Mode	AMS Pool Size	AMS Physical Mem	AMS Mem Loaded	AMS Mem Entitlement	AMS Memory Ent In Use	Hypervisor Pct	Hypervisor Page In Time
Shared	0	24.00	2.00	0	334	12.48	0.00
- LPAR CPUs Table:**

Number of Logical CPUs	Number of Virtual CPUs	Number of Physical CPUs in Shared Pool	Available CPUs in Pool
8	2	8	0



ITM – Overview – AIX agent – System – CPU Utilization & Energy Scale

The screenshot displays the IBM ITM interface for CPU Utilization and Energy Scale. It includes several panels:

- Navigator:** Shows a tree view of system resources including AX Premium, Top Resources, System, Memory, Process, Storage, Networking, User, WPAR, and Status.
- Total CPU Utilization:** A line graph showing the percentage of CPU Pct over time for User CPU Pct (yellow), System CPU Pct (blue), IO Wait CPU Pct (red), and Idle CPU Pct (green).
- Energy Scaled Processor Information Table:**

Average Operating Frequency	Average Operating Frequency Pct	Actual Average Physical CPU User Mode	Actual Average Physical CPU System Mode	Actual Average Physical CPU Idle Mode	Actual Average Physical CPU Wait Mode	Normalized Average Physical CPU User Mode	Normalized Average Physical CPU System Mode	Normalized Average Physical CPU Idle Mode	Normalized Average Physical CPU Wait Mode
2.2	65	0.004	0.008	0.168	0.000	0.003	0.005	0.184	0.009
- CPU Utilization per Processor:** A table showing utilization per processor.



ITM – Overview – AIX agent – Manage Situations (Events/Monitors)

Manage Situation at Managed System: cts200:PX

Name	Status	Description	Auto Start	Overrides Exist	Advice	Action	Until	Tr
KPX_Active_Disk_Pct_Info	Stopped	The percentage of time the disks are busy is higher than...			ⓘ			0d / 0
KPX_AME_CPU_Used_High_Warn	Started	The CPU used for memory compression is higher than ex...	✓		ⓘ			0d / 0
KPX_AME_Deficit_Mem_Warn	Started	AME Deficit memory is greater than zero.			ⓘ			0d / 0
KPX_Avg_Read_Transfer_MS_Info	Stopped	The average time it takes to complete a disk read is high...			ⓘ			0d / 0
KPX_Avg_Req_In_WaitQ_MS_Info	Stopped	The time a disk transfer request is in the wait queue is hig...			ⓘ			0d / 0
KPX_Avg_Write_Transfer_MS_Info	Stopped	The average time it takes to complete a disk write is high...			ⓘ			0d / 0
KPX_Bad_Pkts_Recv_Info	Stopped	The rate that bad packets are received is higher than nor...			ⓘ			0d / 0
KPX_Device_Stopped_Warn	Stopped	Triggers when the status of a device is not normal.			ⓘ			0d / 0
KPX_Failed_Read_Per_Sec_Info	Stopped	The number of failed disk read requests per second is hi...			ⓘ			0d / 0
KPX_Failed_Writes_Per_Sec_Info	Stopped	The number of failed disk write requests per second is hi...			ⓘ			0d / 0
KPX_LPAR_MaxCPUCapUsed_Info	Stopped	Triggers when Max_CPU_Cap_Used Pct GT 80%.			ⓘ			0d / 0
KPX_LPAR_Moved_Info	Stopped	Triggers when last and current LPAR Machine ID are not e...			ⓘ			0d / 0
KPX_LPARBusy_pct_Warn	Stopped	The LPAR logical busy percentage is high.			ⓘ			0d / 0
KPX_LPARBase4_Info	Stopped	The LPAR CPU utilization is more than its entitlement.			ⓘ			0d / 0
KPX_LPARRespool_Warn	Stopped	The LPAR CPU free pool space is getting low.			ⓘ			0d / 0
KPX_LPARPhantIntrs_Info	Stopped	The number of LPAR phantom interrupts is high.			ⓘ			0d / 0
KPX_LPARPhyBusy_pct_Warn	Started	The LPAR physical busy percentage is high.	✓		ⓘ			0d / 0
KPX_LPARPhy_used_Info	Stopped	The PHYP (hypervisor) is using more CPU than expected.			ⓘ			0d / 0
KPX_LPARvcs_Info	Stopped	The LPAR virtual context switching rate is high.			ⓘ			0d / 0
KPX_Media_Spd_Half_Duplex_Warn	Started	Media speed selected is set to half duplex.	✓		ⓘ			0d / 0
KPX_memrepage_Info	Stopped	The Physical Memory Re paging rate is high.			ⓘ			0d / 0
KPX_Netwk_Bandwidth_High_Info	Started	Bandwidth utilization for the interface is higher than expect...	✓		ⓘ			0d / 0
KPX_perCPU_cs_Info	Stopped	The number of context switches per CPU is high.			ⓘ			0d / 0
KPX_perCPU_execs_Info	Stopped	The number of execs per CPU is high.			ⓘ			0d / 0
KPX_perCPU_forks_Info	Stopped	The number of forks per CPU is high.			ⓘ			0d / 0
KPX_perCPU_syscalls_Info	Stopped	The number of syscalls per CPU is high.			ⓘ			0d / 0
KPX_perp_InputErrs_Info	Stopped	The Internet Protocol input error rate is high.			ⓘ			0d / 0
KPX_perp_InputPkts_Drop_Info	Stopped	The IP input packets dropped rate is higher than expected.			ⓘ			0d / 0
KPX_perp_OutputErrs_Info	Stopped	The Internet Protocol output error rate is higher than expect...			ⓘ			0d / 0
KPX_perproc_IO_pgf_Info	Stopped	The process I/O page fault rate is higher than expected.			ⓘ			0d / 0
KPX_perproc_mem_textsz_Info	Stopped	The process resident text size is larger than expected.			ⓘ			0d / 0
KPX_perproc_memres_datazsz_Info	Stopped	The process resident data size is larger than expected.			ⓘ			0d / 0
KPX_perproc_memres_textsz_Info	Stopped	The process resident text size is larger than expected.			ⓘ			0d / 0
KPX_perproc_nonIO_pgf_Info	Stopped	The process non-I/O page fault rate is higher than expecte...			ⓘ			0d / 0
KPX_perproc_vol_cs_Info	Stopped	The voluntary context switches rate is higher than expected.			ⓘ			0d / 0
KPX_PHYP_Pct_High_Info	Stopped	The percent of time spent in the hypervisor is high.			ⓘ			0d / 0



ITM – Unix Logs Agent

ITM – Overview – Unix Logs

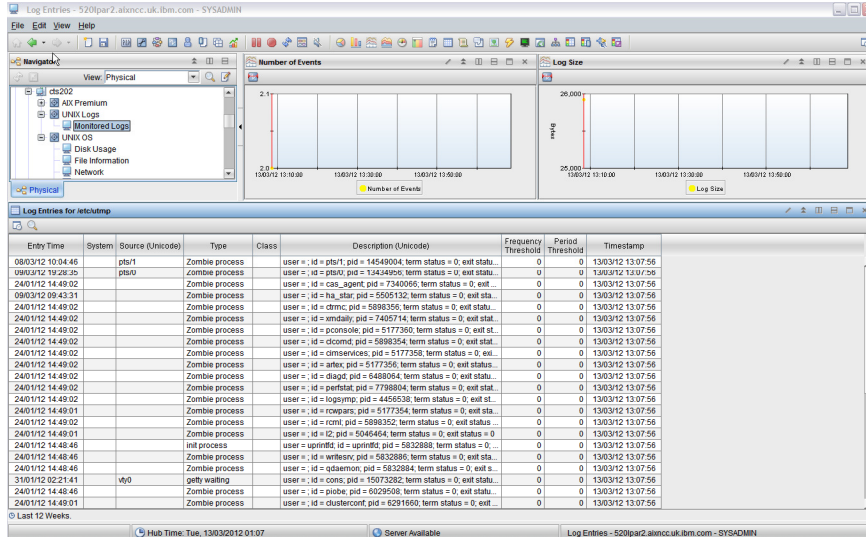
Managed System	Log Path (Unicode)	Log Name (Unicode)	Log Type	Monitor Status	Monitor Start/Stop Time	Number of Events	Number of Formal Errors	Log Size (Bytes)	Date Last Modified	Debug Mode	Format Command	Timestamp
cts202.KUL	/var/adm/ras/	erlog	Error Log	Running	24/01/12 15:25:28	80235	2	10485	13/03/12 12:57:28	No	enrt -c -smmddhhmmmy	13/03/12 12:58:26
cts202.KUL	/etc/	utmp	Administrative Log	Running	24/01/12 15:25:28	2	0	29920	09/03/12 19:28:35	No		13/03/12 12:58:26
cts202.KUL	/etc/secure/	failedlogin	Administrative Log	Running	24/01/12 15:25:28	9	0	5184	09/03/12 09:35:56	No		13/03/12 12:58:26
cts202.KUL	/var/adm/	wtmp	Administrative Log	Running	24/01/12 15:25:28	708	0	498784	09/03/12 19:28:35	No		13/03/12 12:58:26

ITM – Overview – Unix Logs - erlog

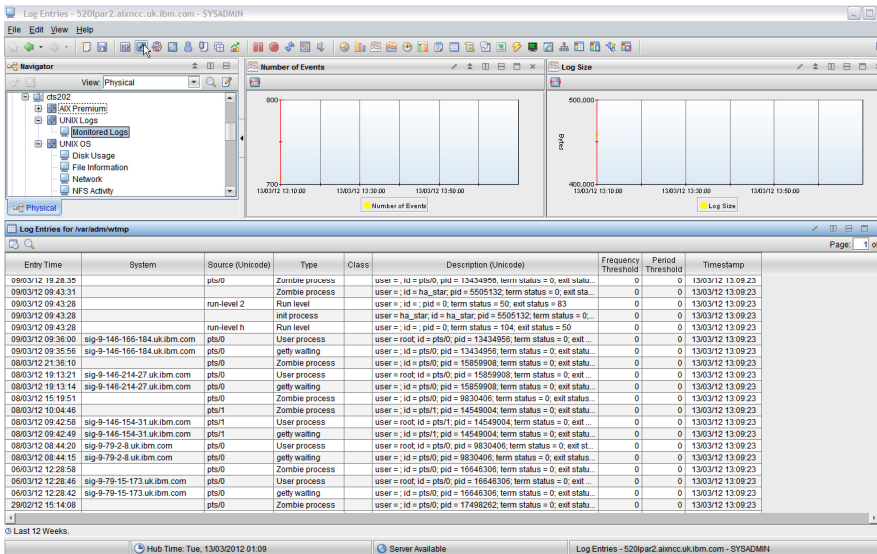
EntryTime	System	Source (Unicode)	Type	Class	Description (Unicode)	Frequency Threshold	Period Threshold	Timestamp
13/03/12 13:11:00	cts202	hdisk0	I	Hardware	AFF54E7C: PATH HAS RECOVERED	0	0	13/03/12 13:12:08
13/03/12 13:10:00	cts202	fcs0	T	Software	D712FEAE: LINK_DEAD events reported by the WIOS	0	0	13/03/12 13:12:08
13/03/12 13:10:00	cts202	hdisk0	P	Hardware	DE368540: PATH HAS FAILED	0	0	13/03/12 13:12:08
13/03/12 13:09:00	cts202	fcs0	I	Error Logger	54759803: Additional FC SCSI Protocol Driver Inter	0	0	13/03/12 13:12:08
13/03/12 13:09:00	cts202	fcs0	T	Software	D712FEAE: LINK_DEAD events reported by the WIOS	0	0	13/03/12 13:12:08
13/03/12 13:09:00	cts202	fcs0	T	Hardware	4B43A3D: LINK ERROR	0	0	13/03/12 13:12:08
13/03/12 13:09:00	cts202	fcs0	T	Hardware	4B43A3D: LINK ERROR	0	0	13/03/12 13:12:08
13/03/12 13:09:00	cts202	hdisk0	I	Hardware	AFF54E7C: PATH HAS RECOVERED	0	0	13/03/12 13:12:08
13/03/12 13:07:00	cts202	fcs0	T	Software	D712FEAE: LINK_DEAD events reported by the WIOS	0	0	13/03/12 13:12:08
13/03/12 13:07:00	cts202	hdisk0	P	Hardware	DE368540: PATH HAS FAILED	0	0	13/03/12 13:12:08
13/03/12 13:06:00	cts202	fcs0	I	Error Logger	54759803: Additional FC SCSI Protocol Driver Inter	0	0	13/03/12 13:12:08
13/03/12 13:06:00	cts202	fcs0	T	Software	D712FEAE: LINK_DEAD events reported by the WIOS	0	0	13/03/12 13:12:08
13/03/12 13:06:00	cts202	fcs0	T	Hardware	4B43A3D: LINK ERROR	0	0	13/03/12 13:12:08



ITM – Overview – Unix Logs - utmp



ITM – Overview – Unix Logs - wtmp





ITM – Overview – Unix Logs - FailedLogin

The screenshot shows the IBM ITM interface for monitoring system logs. The main window displays a tree view on the left with categories like '404 Premium', 'UNIX Logs', and 'Monitored Logs'. Two line graphs are visible: 'Number of Events' and 'Log Size', both showing a sharp spike at 13:03:12. Below the graphs is a table of log entries for the file '/etc/security/failedlogin'.

Entry Time	System	Source (Unicode)	Type	Class	Description (Unicode)	Frequen...	Period	Timestamp
09/03/12 09:35:56	sig-9-148-166-184.uk.ibm.com	pts/0	User process	user = UNKNOWN_USER, id = , pid = 13434956, term status = 0, exit status = 0	0	0	13/03/12 13:10:52	
08/03/12 19:13:15	sig-9-146-214-27.uk.ibm.com	pts/0	User process	user = UNKNOWN_USER, id = , pid = 15859908, term status = 0, exit status = 0	0	0	13/03/12 13:10:52	
08/03/12 08:44:16	sig-9-79-2-9.uk.ibm.com	pts/0	User process	user = UNKNOWN_USER, id = , pid = 9930406, term status = 0, exit status = 0	0	0	13/03/12 13:10:52	
29/02/12 14:54:44	sig-9-79-7-165.uk.ibm.com	pts/0	User process	user = UNKNOWN_USER, id = , pid = 17496262, term status = 0, exit status = 0	0	0	13/03/12 13:10:52	
27/02/12 14:22:03	IC0N-9-164-168-185.megacenter.de	pts/1	User process	user = UNKNOWN_USER, id = , pid = 14483546, term status = 0, exit status = 0	0	0	13/03/12 13:10:52	
05/02/12 14:09:30	IC0N-9-167-232-55.megacenter.de	pts/1	User process	user = UNKNOWN_USER, id = , pid = 11993104, term status = 0, exit status = 0	0	0	13/03/12 13:10:52	
05/02/12 14:04:52	IC0N-9-167-232-55.megacenter.de	pts/0	User process	user = UNKNOWN_USER, id = , pid = 10223756, term status = 0, exit status = 0	0	0	13/03/12 13:10:52	



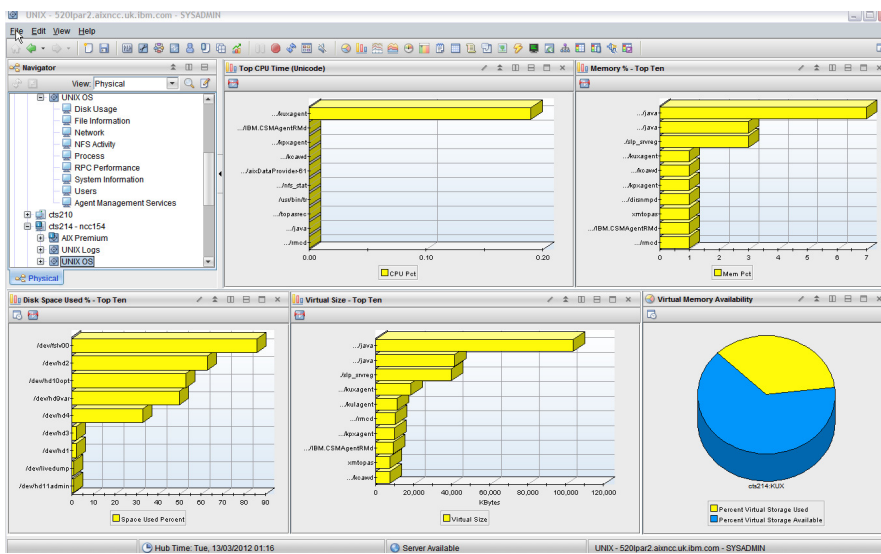
ITM – Overview – Unix Logs – Manage Situations - Extensive HACMP (PowerHA)

The screenshot shows the 'Manage Situation at Managed System' window for system 'cts202:KUL'. It displays a table of HACMP events with various columns for status and actions.

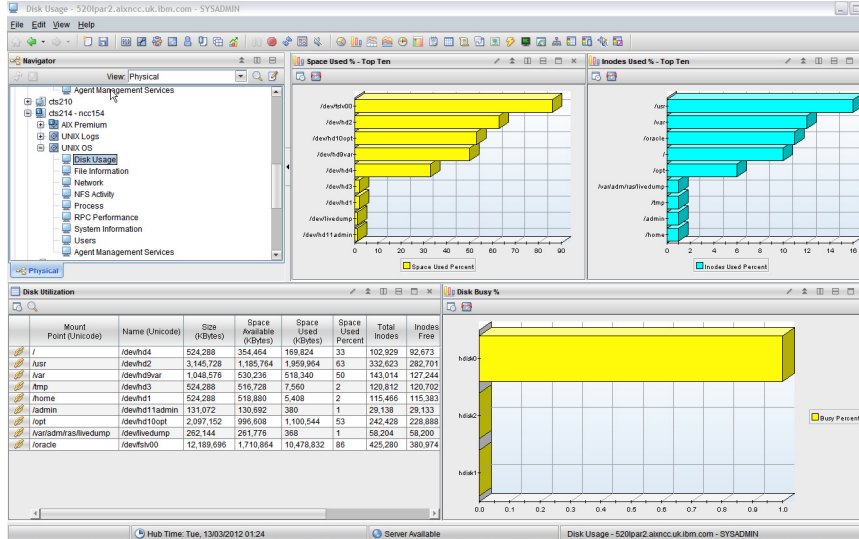
Name	Status	Description	Auto Start	Override Exist	Advice	Action	Until	Intra
HACMP_acquire_service_addr	Stopped	Changes boot address to the corresponding service addr...			U			0d / 1
HACMP_acquire_takeover_addr	Stopped	Acquires takeover IP address by checking configured stan...			U			0d / 1
HACMP_config_too_long	Stopped	Node has been in reconfiguration for more than six minut...			U			0d / 1
HACMP_event_error	Stopped	Occurs when an HACMP event script fail for some reason.			U			0d / 1
HACMP_fail_standby	Stopped	Standby network adapter failed or is no longer available			U			0d / 1
HACMP_get_disk_vg_fs	Stopped	Acquire system resources as part of a takeover.			U			0d / 1
HACMP_join_standby	Stopped	Standby network adapter is available			U			0d / 1
HACMP_network_down	Stopped	Occurs when the cluster determines that a network has fa...			U			0d / 1
HACMP_network_down_complete	Stopped	Occurs after a network down event has successfully comp...			U			0d / 1
HACMP_network_up	Stopped	Occurs when the cluster determines that a network is avai...			U			0d / 1
HACMP_network_up_complete	Stopped	Occurs when a network up event has successfully comple...			U			0d / 1
HACMP_node_down	Stopped	Occurs when a node is detaching from the cluster.			U			0d / 1
HACMP_node_down_complete	Stopped	Occurs when a node_down event has successfully compl...			U			0d / 1
HACMP_node_down_local	Stopped	Releases resources taken from a remote node; stops ap...			U			0d / 1
HACMP_node_down_local_complete	Stopped	Instructs the cluster manager to exit			U			0d / 1
HACMP_node_down_remote	Stopped	Places concurrent volume group in a non-concurrent mode			U			0d / 1
HACMP_node_down_rmt_complete	Stopped	Starts application server takeover.			U			0d / 1
HACMP_node_up	Stopped	Occurs when a node is joining the cluster.			U			0d / 1
HACMP_node_up_complete	Stopped	Occurs only after a node_up event has successfully comp...			U			0d / 1
HACMP_node_up_local	Stopped	Occurs when the local node attaches to the cluster.			U			0d / 1
HACMP_node_up_local_complete	Stopped	Starts application servers and checks for a takeover			U			0d / 1
HACMP_node_up_remote	Stopped	Causes the local node to release all resources.			U			0d / 1
HACMP_node_up_remote_complete	Stopped	Allows the local node to do an NFS mount			U			0d / 1
HACMP_release_service_addr	Stopped	Detaches the service address and configures the boot ad...			U			0d / 1
HACMP_release_takeover_addr	Stopped	Identifies a takeover address to be released.			U			0d / 1
HACMP_release_vg_fs	Stopped	Releases volume groups and file systems.			U			0d / 1
HACMP_start_server	Stopped	Starts application servers.			U			0d / 1
HACMP_stop_server	Stopped	Stops application servers.			U			0d / 1
HACMP_swap_adapter	Stopped	Exchanges or swaps the IP addresses of two network inte...			U			0d / 1
HACMP_swap_adapter_complete	Stopped	Occurs after a swap_adapter event has successfully finis...			U			0d / 1
UNIX_LAA_Bad_su_to_root_Warning	Stopped	Raises alert if more than 3 su failures to root within 1 min...			U		99d / 23h	0d / 1
UNIX_LAA_Log_Size_Warning	Started	Raises an alert if the size of any monitored log exceeds 1...			U			0d / 10

ITM – Unix Agent

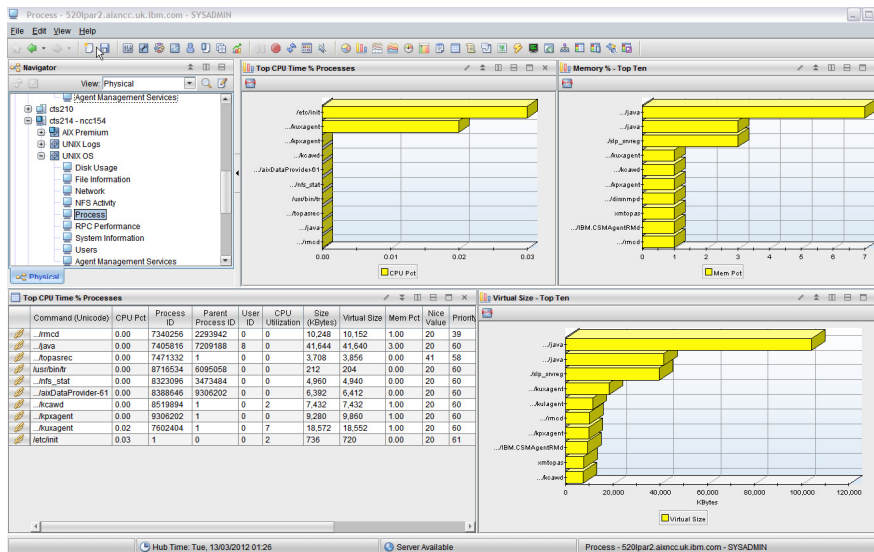
ITM – Overview – Unix OS



ITM – Overview – Unix OS – Disk Usage



ITM – Overview – Unix OS – Processes – top processes info.



ITM – Overview – Unix OS – System – AIX LPar .

The screenshot displays the Performance Explorer interface for LPAR 5 (ITM-153). It includes a tree view on the left, a pie chart for CPU Utilization, a 3D bar chart for CPU Entitlement, and a table for LPAR Attributes. The LPAR Attributes table is as follows:

LPAR Number	LPAR Name	HostName	Shared Mode	Capable Mode	SMT Threads	Dynamic Entitlement	Capacity	Entitlement	Entitlement Pct	CPU Entitlement	Number of Physical CPUs	Number of Logical CPUs	Number of Virtual CPUs	Max Memory	Min Memory	Max PPrs CPUs	
5	ITM-153	ds153	shared	uncapped	on	4	disable	128	0.4	40	40	4	16	4	12288	2048	4

Below the table, there are sections for LPAR Utilization and Active Memory Sharing (AMS) Pools.

ITM – Overview – Unix OS – Manage Situations

Manage Situation at Managed System: cts214:KUX

Name	Status	Description	Auto Start	Idle	Advice	Action	Until	Interval
UNIX_Active_Virtual_Memory	Stopped	Checks if Active Virtual approaches Total Virtual Memory						0d / 0h : 2m : 0s
UNIX_AMS_Alert_Critical	Started	Agent Management Services Critical Alert	✓					0d / 0h : 0m : 0s
UNIX_CMD_Disk_Inodes_Critical	Stopped	Rmp and Avar free Inodes critical. This situation is superce...						0d / 0h : 5m : 0s
UNIX_CMD_Disk_Space_Warning	Closed	Any Filemount with space usage GT 95%	✓					0d / 0h : 5m : 0s
UNIX_CMD_Process_Critical	Stopped	Checks for a particular process running						0d / 0h : 10m : 0s
UNIX_CMD_Runaway_Process	Started	Report High CPU processes	✓					0d / 0h : 10m : 0s
UNIX_CPU_Busy_Critical	Stopped	Monitors if the CPU workload is high (> 90%).						0d / 0h : 5m : 0s
UNIX_CPU_Busy_Warning	Stopped	Monitors if the CPU workload is > 70% and <= 90%.						0d / 0h : 5m : 0s
UNIX_CPU_Critical	Stopped	Process CPU utilization GE 85						0d / 0h : 10m : 0s
UNIX_CPU_Warning	Closed	Process CPU GE 70 and LT 85	✓					0d / 0h : 10m : 0s
UNIX_Disk_Availability	Stopped	Determines under utilized HD space						0d / 0h : 2m : 0s
UNIX_Filemount_Critical	Stopped	Checks for existence of specific mount point on a system						0d / 0h : 2m : 0s
UNIX_HD_Config_Critical	Stopped	Hard drive space OR inodes free going critical. This situ...						0d / 0h : 2m : 0s
UNIX_HD_Excessive_IO_Wait	Started	Note typical IO bound processor (NFS)	✓					0d / 0h : 2m : 0s
UNIX_Network_Collns_Critical	Stopped	Large number of network interface collisions						0d / 0h : 2m : 0s
UNIX_Network_Collns_Warning	Stopped	Small number of network interface collisions						0d / 0h : 2m : 0s
UNIX_Network_Errors	Stopped	Received or transmitted error limit exceeded.						0d / 0h : 2m : 30s
UNIX_Network_Interface_Busy	Stopped	Packets transmitted or received has exceeded the limit						0d / 0h : 2m : 30s
UNIX_Network_Interface_Idle	Stopped	Packets transmitted or received less than limit						0d / 0h : 2m : 30s
UNIX_NFS_RPC_Rejects	Stopped	Checks for rejected NFS/RPC calls						0d / 0h : 5m : 0s
UNIX_Process_Memory_Critical	Stopped	Report high memory usage processes						0d / 0h : 10m : 0s
UNIX_Process_Memory_Leak	Stopped	Report high virtual memory usage processes						0d / 0h : 5m : 0s
UNIX_Process_Memory_Warning	Stopped	Report high memory usage processes						0d / 0h : 10m : 0s
UNIX_Process_MISSING_inetd	Stopped	Test if the Internet Services Daemon, inetd, is up running.						0d / 0h : 5m : 0s
UNIX_scratch_tmp_Disk_Full	Started	Filemount scratch or tmp with space usage GT 95%	✓					0d / 0h : 5m : 0s
UNIX_System_Busy_Critical	Stopped	Check for critical state of I/O Wait, Low Free Mem, CPU Idle						0d / 0h : 2m : 0s
UNIX_System_Busy_Warning	Closed	Checks System CPU, Idle, I/O Wait, and Load Avg. for Bus...	✓					0d / 0h : 2m : 0s
UNIX_System_Capacity_Critical	Stopped	Monitors system capacity w/ process number and CPU Util						0d / 0h : 2m : 0s
UNIX_System_Paging_Critical	Stopped	Monitors if the VMM is working too hard to find free pages.						0d / 0h : 3m : 0s
UNIX_User_CPU_Critical	Stopped	Monitors if user CPU usage is system dominant and imp...						0d / 0h : 2m : 0s
UNIX_User_File_Exists	Stopped	Notes that a specific user file was found						0d / 0h : 2m : 0s
UNIX_Virtual_Memory_Warning	Started	Monitors if the available virtual memory is running low.	✓					0d / 0h : 5m : 0s

ITM – Tivoli Common Reporting

ITM – Overview – Tivoli Common Reporting for ITM

System-p Unix OS & AEM Reports

Work with reports

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Public Folders My Folders

Public Folders

Name	Modified	Actions
Common Reporting	16 September 2009 12:28:25	More...
IBM Tivoli Monitoring for System P Reports v6.2.2 IF2	3 August 2011 13:58:09	More...
IBM Tivoli Monitoring OS Agents Reports	10 May 2010 12:31:07	More...
Tivoli Monitoring for Energy Management	15 November 2011 16:52:30	More...

System-p Report Groups:

Work with reports

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Public Folders > IBM Tivoli Monitoring for System P Reports v6.2.2 IF2

Name	Modified	Actions
Performance Trends and Resource Forecasts	3 August 2011 13:58:14	More...
What-If Analysis for Workload Placement	3 August 2011 13:58:17	More...
Workload Right-Sizing and Balancing	3 August 2011 13:58:20	More...



ITM – Overview – Tivoli Common Reporting – System P Reports

Public Folders > IBM Tivoli Monitoring for System P Reports v6.2.2 IF2 > Performance Trends and Resource Forecasts

Name	Modified	Actions
CPU Pools Utilization Details	3 August 2011 13:58:10	More...
Frame Workload Trend and Forecast	3 August 2011 13:58:11	More...
LPAR Physical CPU Utilization Details	3 August 2011 13:58:12	More...
LPAR Physical Memory Utilization Details	3 August 2011 13:58:12	More...
LPAR Workload Trend and Forecast	3 August 2011 13:58:13	More...
VIOS Disk Capacity Details	3 August 2011 13:58:13	More...
VIOS Shared Ethernet Adapter Utilization	3 August 2011 13:58:14	More...

Public Folders > IBM Tivoli Monitoring for System P Reports v6.2.2 IF2 > What-If Analysis for Workload Placement

Name	Modified	Actions
Number of LPARs for CEC	3 August 2011 13:58:16	More...
Resources Needed For Additional LPARs on CEC	3 August 2011 13:58:17	More...

Public Folders > IBM Tivoli Monitoring for System P Reports v6.2.2 IF2 > Workload Right-Sizing and Balancing

Name	Modified	Actions
Top or Bottom CECs by Physical CPU Utilization	3 August 2011 13:58:18	More...
Top or Bottom CECs by Physical Memory Utilization	3 August 2011 13:58:18	More...
Top or Bottom LPARs by Physical CPU Utilization	3 August 2011 13:58:19	More...
Top or Bottom LPARs by Physical Memory Utilization	3 August 2011 13:58:20	More...
Top or Bottom VIOSs by Disk Capacity	3 August 2011 13:58:20	More...



ITM – Overview – Tivoli Common Reporting for ITM – Top/Bottom CEC's

Work with reports

Viewer - Top or Bottom CECs by Physical CPU Utilization

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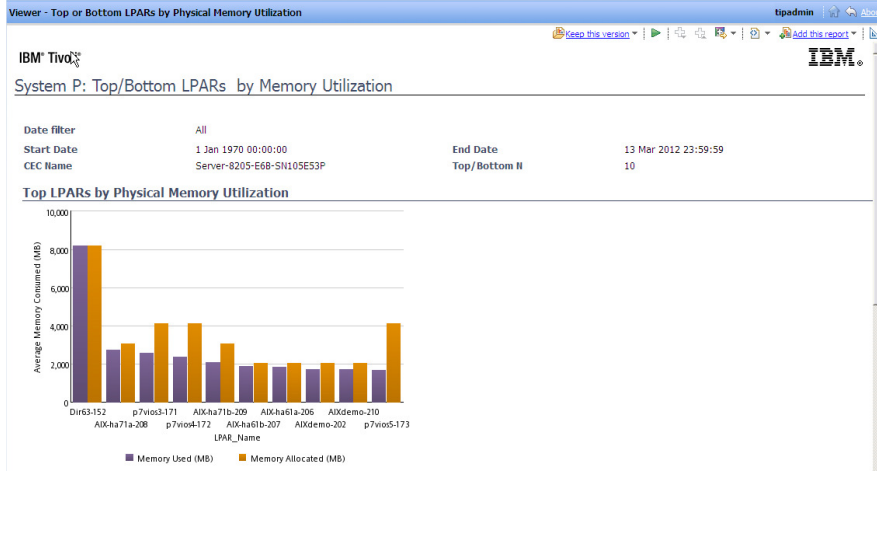
System P: Top/Bottom N CECs by Physical CPU Utilization

Date filter: All
 Start Date: 1 Jan 1970 00:00:00
 Shift Period: All
 Top/Bottom N: 10
 End Date: 13 Mar 2012 23:59:59
 Vacation Period: All

Top CECs by Physical CPU Utilization

CEC Name	CPU Units Used	CPU Units Allocated
Server-8231-E1B-SN06767FP	~2.0	~1.8
Server-8205-66B-SN106E53P	~1.0	~4.2
Server3-E4A-SN100DF11	~0.2	~2.2
Server2-MMA-SN100ED90	~0.1	~2.5
Server4-E4A-SN100DF21	~0.1	~1.2

ITM – Overview – Tivoli Common Reporting for ITM – Top/Bottom LPar's by memory



ITM Server Dashboards

ITM – Server Dashboard

Server Dashboards x

Managed System Groups

Managed System Groups

Learn more...

Actions

Overview Switch to Scorecard

Situation Events

Situation Event Count by Severity

Fatal	0
Critical	2
Warning	3
Harmless	0
Informational	0
Unknown	0

Situation Event Count by Managed ...

*WAREHOUSE_P...	1
*NT_SYSTEM	1
*CEC_BASE	3
*ALL_UNIX	0
*AIX_PREMIUM	0

Situation Event Count by Managed ...

Windows OS	1
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ITM – Server Dashboard – Unix system

Server Dashboards x

Managed System Groups > *ALL_UNIX > cts153:KUX

Learn more...

Actions

Overview Process

Managed System Groups

Situation Events

CPU Utilization (%) - Top 5

.../java	0.2
.../java	0.1
db2sysc	0.05
.../java	0.05
...	0.0

Memory Utilization (%) - Top 5

/usr/sbin/rs...	3.0
/opt/IBM/ITM...	2.5
/opt/IBM/ITM...	2.0
/opt/IBM/ITM...	1.5
/opt/IBM/ITM...	1.0

Situation Events

Severity	Status	Situation Name	Display Item	Source	Global Timestamp
No items to display					

Total: 0

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