Today

PowerVP – wow!

Starting at 10:00 am UK time by Gareth Coates

Smart Meeting → Put questions into the Chat box
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AIX   Linux   i for Business

Previous Sessions:
SSP4
Best Practices
Tricks of Power Masters
IBMi and External Storage
Monitoring with ITM
Whole Machine Monitoring
Electric Server Agent
RDX Removable disks
Dynamic Platform Optimiser
PowerSC
POWER Advisors
POWER7 Affinity and Perf
And more…..

Future Sessions →

- 5th Mar – PowerVC
- Coming soon - Power8, More Tricks
- Suggestions Welcome

POWER7+ BUILT ON
Power

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IBM

PowerVP
(virtualization performance)
...
WOW

Advanced Technology Support, Europe.

PowerVM AIX i for Business Linux

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Version 3

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What is it?

- PowerVP
  - which virtual workloads are using specific physical resources
  - See activity at various levels
    - Server
    - LPAR
    - bus
    - Processor Units
  - See affinity layout
  - Pinpoint bottlenecks
  - Real-time GUI
  - Recording
  - Customisable thresholds
  - Gets information from PHYP
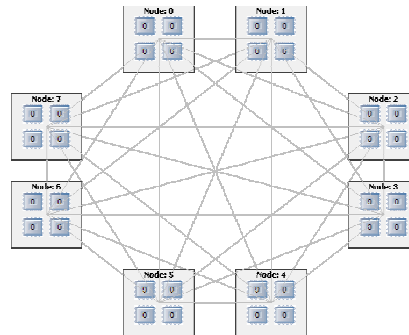
Why?

- At platform IPL, PHYP determines an optimal resource placement strategy
  - based on the partition configuration and the h/w topology

- Want a visual understanding of how the hardware resources were assigned and are being consumed by the various partitions.

- Want visual indications
  - going past a warning threshold (yellow)
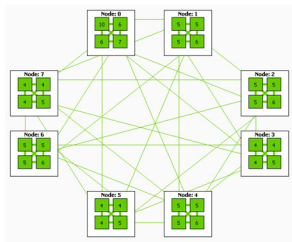 - entering an overcommitted threshold (red.)

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PowerVP

| System Topology | Node DRILL DOWN | Partition DRILL DOWN |
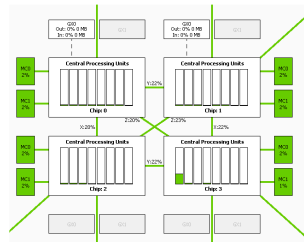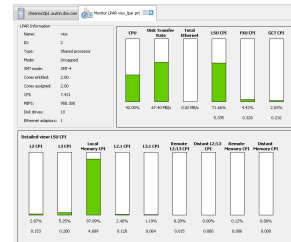
How do you use it?

- GUI
  - I run it on my ThinkPad running MS Windows 7
  - It is java

- Server
  - Any POWER7 or POWER7+ server
  - Firmware v7.70 or later

  Including Pure Systems nodes

  - Install software on one LPAR to gather information for the whole server
  - Optionally install software on other LPARs to pass data back via the first LPAR

Entitlement

- PowerVP is a new product that is currently being offered in a single standard edition.

- This edition is
  - sold as a stand-alone offering for PowerVM Standard Edition
  - included within PowerVM Enterprise Edition
    - New and existing users with SWMA
    - Download from ESS website
      - http://www.ibm.com/eserver/ess

How do you install it?

- Run a .EXE on Thinkpad
  - Installs the GUI
  - Creates a directory containing the server software
  - Can install direct to IBM i

- For AIX
  - ftp a .bff to an LPAR
  - installp
  - creates some more .bff files
  - Puts a Start script in /etc/rc.d/rc2.d
  - installp
  - start it

Performance data

- LPARs must be able to collect performance data

- HMC one liner to check

```
lssyscfg –r lpar –m $MACHINE –F "allow_perf_collection lpar_id name" |sort –k 2

1 31 blackvios1
1 32 blackvios2
1 51 black1_peter
1 56 black6_AIX61TL6
1 57 black7_gaz
0 58 black8_clive
1 59 black9-andyt
1 99 big_dummy
```

- HMC script to enable in all LPARS on $MACHINE:

```
lssyscfg –r lpar –m $MACHINE –F lpar_id | while read LPAR
do
  chsyscfg –m $MACHINE –r lpar  –i "lpar_id=${LPAR},allow_perf_collection=1"
  done
```

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Overview

- Graphically displays data from existing and new performance tools
- Converges performance data from across the system
- Shows CEC and partition level performance data
- Illustrates topology utilization with colored "heat" threshold settings
- Enables drill down for both physical and logical approaches
- Allows real-time monitoring for immediate drill down
- Logs data for later analysis and comparison
- Simplifies physical/virtual environment, monitoring, and analysis

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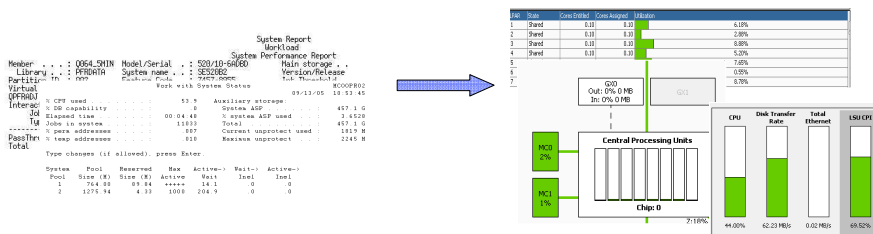
PowerVP – System Topology
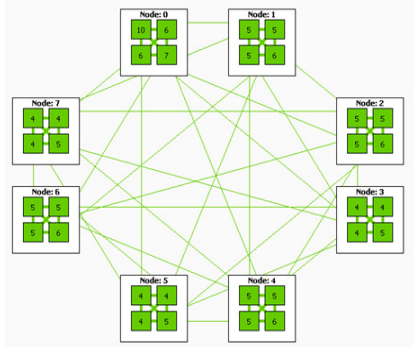
- The initial view shows the hardware topology of the system that you logged into

- In this view, we see a Power 795 with all eight books or nodes installed

- We can see each node has four chips/sockets. We can also see numbers in the boxes which indicates how busy each of the chips are. The green lines between the nodes shows the traffic on the SMP fabric between each node.

PowerVP – node drill down
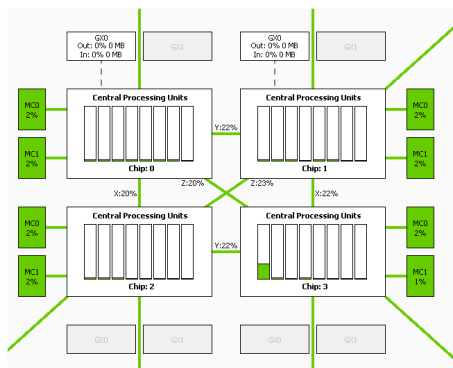
- This view appears when you click on one of the nodes and allows you to drill down on the node resources

- In this view we can see this system is using eight core chips.

- We can also see the green lines showing the busses between the chips. We can also see the Memory controllers and the GX busses which shows traffic to and from our remote I/O. We also see green lines on the top, bottom, and corners. These are the SMP connections to other nodes.

PowerVP – LPAR drill down
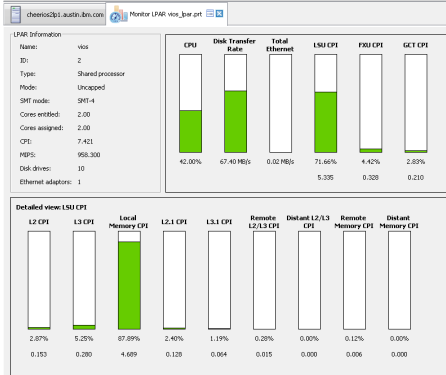
- This view allows us to drill down on resources being used by a specific partition that we clicked on.

- In this view, we see a Power 795 with all eight books or nodes installed

- We can see each node has four chips/sockets. We can also see numbers in the boxes which indicates how busy each of the chips are. The green lines between the nodes shows the traffic on the SMP fabric between each node.


Background

- Setting the stage:
  - Performance analysts requesting more detailed and comprehensive tools, especially with POWER7
  - Current tools present partition views
  - Need a single tool to view system-wide performance across entire CEC with ability to drill down to all individual partitions

- Developed as an internal tool
  - Rapid development of prototype technology
  - Tie together new POWER7 internal tools
  - Developed working prototype, tried use cases

- Very high interest from:
  - Power Systems performance analysts
  - Technology previews at AIX TCC & IBM i LUG

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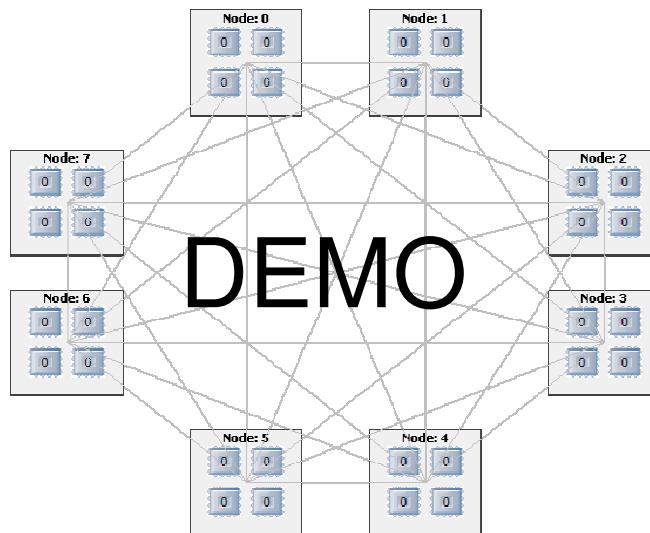
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What do you need?

- Power System models and ITE's with 770 firmware support
  - 710-E1D, 720-E4D, 730-E2D, 740-E6D (also includes Linux D models)
  - 750-E8D, 760-RMD
  - 770-MMC, 780-MHC
  - p260-22X, p260-23X, p460-42X, p460-43X, p270-24X, p470-44X, p24L-7FL
  - 71R-L1S, 71R-L1C, 71R-L1D, 71R-L1T, 7R2-L2C, 7R2-L2S, 7R2-L2D, 7R2-L2T

These are Power Nodes for Pure

- Power System models with 780 firmware support
  - 770-MMB, 780-MHB, and 795-FHB
  - 770-MMD, 780-MHD (2014)

- Agents will run on IBM i, AIX, Linux on Power and VIOS
  - i 7.1, AIX 6.1 and 7.1, Linux

- All models with pre-770 firmware do not have the required new instrumentation to support PowerVP

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* Some Power models and firmware releases listed above are currently planned for the future and have not yet been announced.
* All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

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Summary

- A very powerful, easy to use tool which reveals the inner mysteries of POWER7 (and later) servers

- Free if you have PowerVM Enterprise Edition

- Works with AIX, IBM i and Linux VMs (LPARs)

- Get to know it now – before you actually need it!

- And it is fun to use ☺

Power System Technical Webinar Series

Next Time

5th Mar
PowerVC
with Nigel Griffiths

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Thank you for attending this session!

PowerVP
New Power System Wide

Performance Monitoring Tool

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