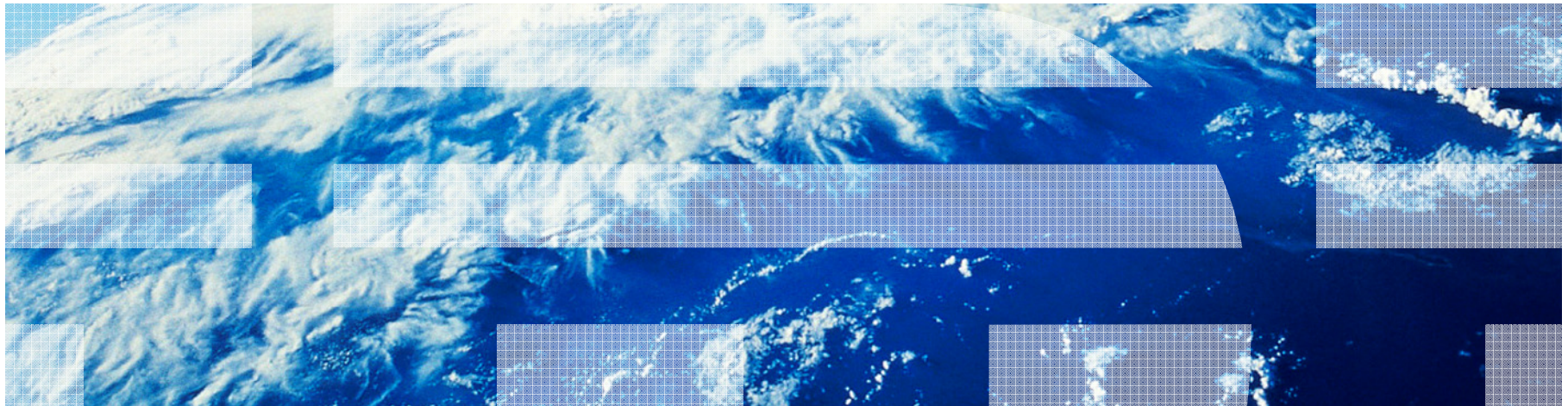




**SY07**

# Introduction to the Performance Advisors

Grover Davidson – Development Support



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- Planning
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All	Monday	Tuesday	Wednesday	Thursday	Friday
8:00-8:50	9:00-10:15	10:30-11:45	1:00-2:15	2:30-3:45	4:15-5:30

Tracks (All)

Your personal agenda plan will appear to the right of this section, when you first add a session. Each session in your plan is a hyperlink to the session evaluation page.

1. Use the section above to filter session data. Results will appear here. For example, selecting Wednesday, search: alex, will display all sessions on Wednesday containing text "alex".
2. To add session to your personal agenda plan, press the blue button next to the appropriate session slot.
3. To remove a session from your personal agenda plan, press the green button next to the appropriate session slot.

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- **IBM STG Technical Universities & Conferences web portal**
  
- **Direct link: [ibmtechu.com/uk](http://ibmtechu.com/uk)**
  
- **KEY FEATURES...**
  - Create a personal agenda using the agenda planner
  - View the agenda and agenda changes
  - Use the agenda search to find the sessions and/or
  - Download presentations
  - **Submit Session and Conference Evaluations**



# What is a Performance Advisor?

- Tool to evaluate LPAR sizing and configuration based on actual operating conditions.
- IBM developed tool that is executed on individual LPARs for a specified period of time.
- Generates output file that contains configuration and tuning advised based on actual data collected from an LPAR.






# Advisors are available for:

- VIO Servers
  - <http://www.ibm.com/developerworks/wikis/display/WikiPtype/VIOS+Advisor>
- LPAR Performance Advisor
  - <https://www.ibm.com/developerworks/wikis/display/WikiPtype/PowerVM+Virtualization+performance+lpar+advisor>
- Java Performance Advisor
  - <https://www.ibm.com/developerworks/wikis/display/WikiPtype/Java+Performance+Advisor>

# General Operations

- Data is collected and analyzed for a specific period
- Nothing can be said about operations outside of this period
- Output is viewed by opening the xml file generated
- Output xml needs to be located in same directory as the other files
- Requires privileged access on HMC/VIO Server/AIX LPAR to execute and collect data

# Indicators and their meaning

-  – No reason to change
-  – Indicates a tunable to be changed and recommends a new value
-  – LPAR configuration attribute
-  - Admin needs to check
-  – warning and should be investigated
- Clicking on the symbol will provide some help about the tunable
- Recommendations are based on the data collected over the period only



# Future Directions

- All 3 advisors are in the process of being productized
- Beta programs will continue focused on new features and functionality with limited support
- After features/functionality are productized, they are fully supported



# VIO and LPAR Server sizing matters

- If the VIO Server does not have enough resources it will be unable to service work from VIO Clients and their performance will be affected
- Look at the VIO Server before you size the VIO Client and again during peak workloads
- Over committing resources to a VIO Server reduces resource for everyone else
- Right sizing is what the VIO Server Performance Analyzer is all about

# VIO Server Performance Advisor

- Version 121211B was built to run on VIO Server version 2.1.0.10 and later.
- It is likely to produce anomalous results when run on earlier VIO Server versions.
- Run for a fixed period time, then an output file is generated to be input to your favorite web browser for viewing.
- Requires admin access to VIO Server

# Collecting data

- Obtain the package from IBM DeveloperWorks
- Unzip the package
- Creates `vios_advisor` directory
- ftp `vios_advisor` to VIO Server in the `padmin` home directory
- Login on VIO Sever with `padmin` and run `oem_setup_env`
- `chmod vios_advisor` to make it executable  
`chmod a+x vios_advisor`
- Collect data sample:  
`./vios_advisor minutes_to_run`

# Analyzing the data

- Ftp the xios\_advisor.xml file from the VIO Server to a system with a web browser that supports xml files
- Copy the other files in the zip package to the same directory
- Open the xml from and look at the results
- If all goes well, you now have a nice picture in your web browser
- If not, you do not have graphics and need to copy all other files into the same directory as the xml datafile

# VIO Server Report Sections

- Configuration
- CPU/Shared processor pool
- Memory
- I/O Activity
- Disk Adapters
- Disk Drives

# VIO Server Sample output

- Pointer to the Work Load Estimator is provided:

The ratings and recommendations in the table below were chosen with the following information:

**Hostname** : battalion-s








**PartitionID**: 1

**Monitoring Start Time** : 04/22 19:02:45

**Monitoring Stop Time** : 04/22 19:12:45 **Duration** : 10 min

**IBM Systems Workload Estimator link**: <http://ibm.com/systems/support/tools/estimator> (VIOS Sizings)

# VIOS - Configuration



SYSTEM - CONFIGURATION		
	Name	Value
	Processor Family	POWER7
	Server Model	IBM,8202-E4B
	Server Frequency	3.000 GHz
	Server - Online CPUs	8 cores
	Server - Maximum Supported CPUs	8 cores
	VIOS Level	2.2.0.12-FP24 SP-02
	VIOS Advisor Release	121211B



# VIOS - Memory

VIOS - MEMORY							
	Name	Measured Value	Recommended Value	First Observed	Last Observed	Risk 1=lowest 5=highest	Impact 1=lowest 5=highest
	Real Memory	3.000 GB	6.500 GB	04/22 19:02:45	-	1	2
	Available Memory	0.019 GB	1.5 GB Avail.	04/22 19:03:05	04/22 19:12:33	n/a	n/a
	Paging Rate	0.0 MB/s pg rate	-	-	-	n/a	n/a
	Paging Space Size	2.000 GB	-	04/22 19:02:45	-	n/a	n/a
	Free Paging Space	1.985 GB free	-	-	-	n/a	n/a
	Pinned Memory	1.049 GB pinned	-	-	-	n/a	n/a




# VIOS – IO Activity

VIOS - I/O ACTIVITY		
	Name	Value
	Disk I/O Activity	avg: 0 iops @ 0KB peak: 0 iops @ 0KB
	Network I/O Activity	[ avgSend: 0 iops 0.0MBps , avgRcv: 0 iops 0.0MBps ] [ peakSend: 0 iops 0.0MBps , peakRcv: 0 iops 0.0MBps ]

# VIOS – Disk Adapter

<b>VIOS - DISK ADAPTERS</b>							
	<b>Name</b>	<b>Measured Value</b>	<b>Recommended Value</b>	<b>First Observed</b>	<b>Last Observed</b>	<b>Risk 1=lowest 5=highest</b>	<b>Impact 1=lowest 5=highest</b>
	FC Adapter Count	0	-	04/22 19:02:45	-	n/a	n/a
	FC Avg IOps	avg: 0 iops @ 0KB	-	04/22 19:02:45	04/22 19:12:45	n/a	n/a
	FC Adapter Utilization	no activity	-	-	-	n/a	n/a
	FC Port Speeds	no FC present	-	-	-	n/a	n/a

# VIOS – Disk Activity

<b>VIOS - DISK DRIVES</b>							
	<b>Name</b>	<b>Measured Value</b>	<b>Recommended Value</b>	<b>First Observed</b>	<b>Last Observed</b>	<b>Risk 1=lowest 5=highest</b>	<b>Impact 1=lowest 5=highest</b>
	Physical Drive Count	7	-	04/22 19:02:45	-	n/a	n/a
	I/Os Blocked	optimal	-	-	-	n/a	n/a
	Long I/O Latency	optimal	-	-	-	n/a	n/a

# Futures for VIO PA

- There is work underway to add SEA adapter support
- Adding hostnames and time stamps to the default output file
- More detailed information about individual Fibre Channel adapter utilization
- Continued incorporation of best practices based on the real work seen on the server

# Installing VPA for LPARs

- Directions depend on HMC code version
- Read and follow the directions on the VPA WEBPAGE – ignore the ssh\_README file
- Also download the ssh.tar file and place it in the parent directory from the VPA as a tar file – do not un-tar it
- Follow the directions carefully and be patient – you will see several login prompts – do not answer them
- Login as root on from the AIX LPAR you going to run the VPA from
- If you have a problem, go back and recheck your steps – it took me time to get everything correct the first time.

# Collecting data

- To get the CEC System name from the HMC as directed on the webpage ssh onto the HMC:
  - `ssh hmc-hostname -l hscroot -a "lssyscfg -r sys -Fname"`  
I used hscroot as my HMC user id
- Run the VPA:
  - `./virt_vpa.pl -t 30 -hmc hmc-hostname -sys sys-name -user hscroot`  
-t is length of data collection in minutes
- Be sure to specify the user name and sys-name correctly
- There is no output generated until the data collection completes
- Data will be in a file named 'virt\_pa\_output.xml' in the directory VPA is run from



# Viewing the VPA report

- Copy the xml output file AND all the other files in the vpa directory to the system/directory where a web browser will be run
- Open the xml file with the web browser
- Take actions as indicated for the LPAR monitored

# VPA Report Sections

- CEC/System Configuration
- LPAR Configuration
- LPAR Memory Optimization
- LPAR Processor Optimization
- LPAR IO Optimization

# Java Performance Advisor

- Only supports AIX 6.1/AIX 7.1
- Supports multiple levels of advice:
  - Basic
  - Intermediate
  - Expert
- Can specify test or production environment
- Allow workload to be identified as primary or secondary
- PID of Java engine can be specified
- Future plans will include architecture specific advise and updates for WebSphere workloads

# Other things you should know

- Java Performance on Power7 – Best Practice
  - [http://www-304.ibm.com/partnerworld/wps/servlet/ContentHandler/stg\\_ast\\_sys\\_java\\_performance\\_on\\_power7](http://www-304.ibm.com/partnerworld/wps/servlet/ContentHandler/stg_ast_sys_java_performance_on_power7)
- Oracle Architecture and Tuning on AIX v2.20
  - <http://www-03.ibm.com/support/techdocs/atmastr.nsf/WebIndex/WP100883>
- Power7 Virtualization Best Practice Guide
  - [https://www.ibm.com/developerworks/wikis/download/attachments/53871915/P7\\_virtualization\\_bestpractice.doc?version=1](https://www.ibm.com/developerworks/wikis/download/attachments/53871915/P7_virtualization_bestpractice.doc?version=1)