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LPAR2RRD

www.meriis.com

www.lpar2rrd.com

Summary

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- What is LPAR2RRD and what it does?
- Where it can help?
- Support
- How it can save my money?
- Full version features
  - CPU Workload Estimator
  - Live Partition Mobility support
  - Custom Groups
- Business model
- Future
- Why to buy support?

LPAR2RRD overview

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- Free performance monitoring and capacity planning tool for IBM Power™ platform
- It creates CPU and MEM utilization graphs in highly virtualized environment
- It creates historical, trends and nearly on-line graphs
- It is agent less
  - no need to install agents on monitored virtual partitions - LPARs
- It natively supports following IBM technologies
  - CPU sharing
  - Live Partition Mobility
  - Active Memory Sharing

LPAR2RRD overview

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- It allows simulating of CPU load and its prediction on other IBM Power HW
- You might import its data to other 3rd party tools via CVS export
- It graphically representing complete physical and logical configuration of your IBM Power environment.
- It supports every OS running on IBM Power
- It is able of alerting itself or via 3rd party like Nagios
- Apart of alerting it reports when a LPAR or server reaches its max physical CPU resources

Why LPAR2RRD?

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- Apart of its functionality
  - It is easy to use. Mostly you get the information you are looking for in 2 - 3 clicks!
  - Used graphing form is understandable from technician to management level.
  - It does not require any management. It automatically recognizes and follows all changes in your virtual environment.

Where it can help?

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- in management of IBM Power environment
- for recognizing future needs based on historical trends
- in operational monitoring for quick search of anomalies in load
- for keeping actual configuration documentation of your environment
- in migrations as pre-check whether migrated LPARs fit into target HW

Support

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- Support will bring you following benefits:
  - you get someone who cares about your environment
  - defined response time
  - regular health checks
  - you might suggest new functionality
  - you might prioritize development of features you would like to see there
  - data retention change as you wish
  - additional features distributed only in full version

How it can save my money?

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- No one can precisely size a new HW for you without having and analyzing historical data.
  - the tool has historical data so it can do it!
  - others can only estimate what often leads to HW over sizing!
  - It is about trend graphing and mainly about feature called **CPU Workload Estimator**
- you can in a few clicks see how your servers, group of servers, group of applications are loaded include their trends
  - this might lead to better capacity planning and better understanding of future needs

CPU Workload Estimator

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- It might act as pre-check for migration of logical partitions to other already existed or new physical HW.
- It answers you a question if CPU load migrated partitions fit to the target HW in simple graphical form based on historical data.
- All calculations are done based on official IBM benchmarks rPerf or CPW.
  - this is available only in full version
- Simple usage, all of that requires just a few clicks to get required report.

CPU Workload Estimator
1st example

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- migration of 6 LPARs to new IBM Power 710
  - just a test if that HW would cope with CPU load of those 6 LPARs
- it works with last week performance data
  - you might select other time range
- based on rPerf benchmark
  - the target server has **45 rPerfs**
  - LPARs together utilize nearly **80 rPerfs** in the highest peek

- **from the graph is clear that in case of such migration the target HW does not cope with such CPU load!**

CPU Workload Estimator
1st example

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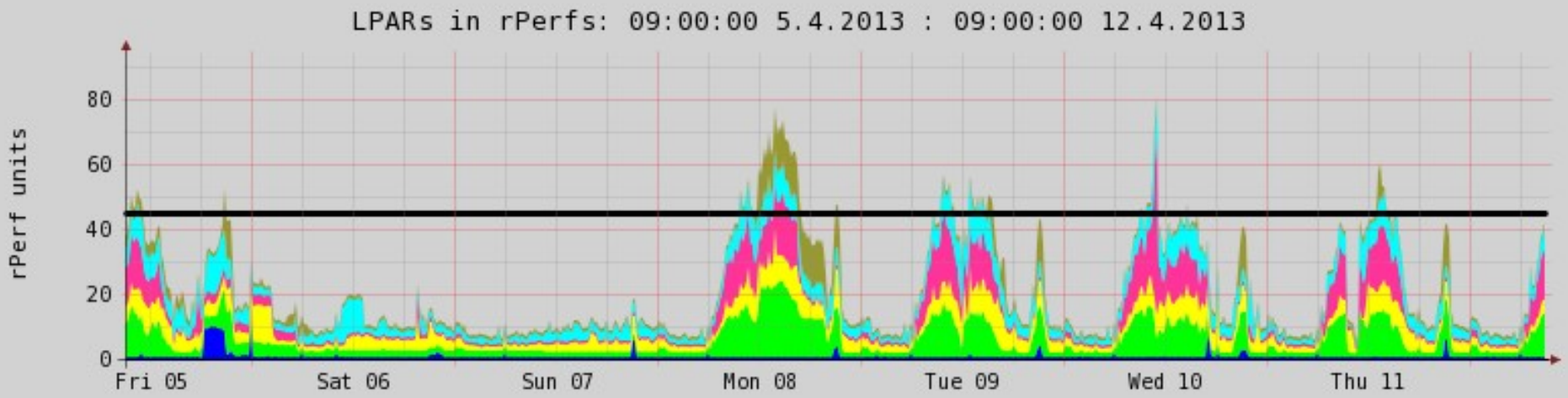

Server - LPAR	average	maximum	[rPerfs]
ASRV11 - ASRV11LPAR19	0.9	10.9	
BSRV21 - BSRV21LPAR7	5.3	23.7	
BSRV21 - BSRV21LPAR19	4.3	18.7	
BSRV22 - BSRV22LPAR10	4.3	56.5	
BSRV22 - BSRV22LPAR19	4.4	16.5	
BSRV22 - BSRV22LPAR8	1.9	13.1	

CPU limit for target server:
IBM Power 710 (model 8231-E2B) 45 rPerfs

Server details	number of cores	GHz	rPerf/core
IBM Power 710 (target)	4	3.0	11.3
ASRV11	16	3.0	9.7
BSRV21	16	3.0	9.7
BSRV22	16	3.0	9.7

CPU Workload Estimator: 2nd example

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- migration of 4 LPARs to existing IBM Power 750
- it works with last week performance data
- based on rPerf benchmark
  - the target server has **127 rPerfs**
  - the target server already running load about **50 rPerfs** (red area)
  - LPARs together use nearly **50 rPerfs** in a peek
  - Existing plus new load will be in the higest peak **100 rPerf** max

- **from the graph is clear that in case of such migration the target HW easily cope with such new CPU load!**

CPU Workload Estimator
2nd example

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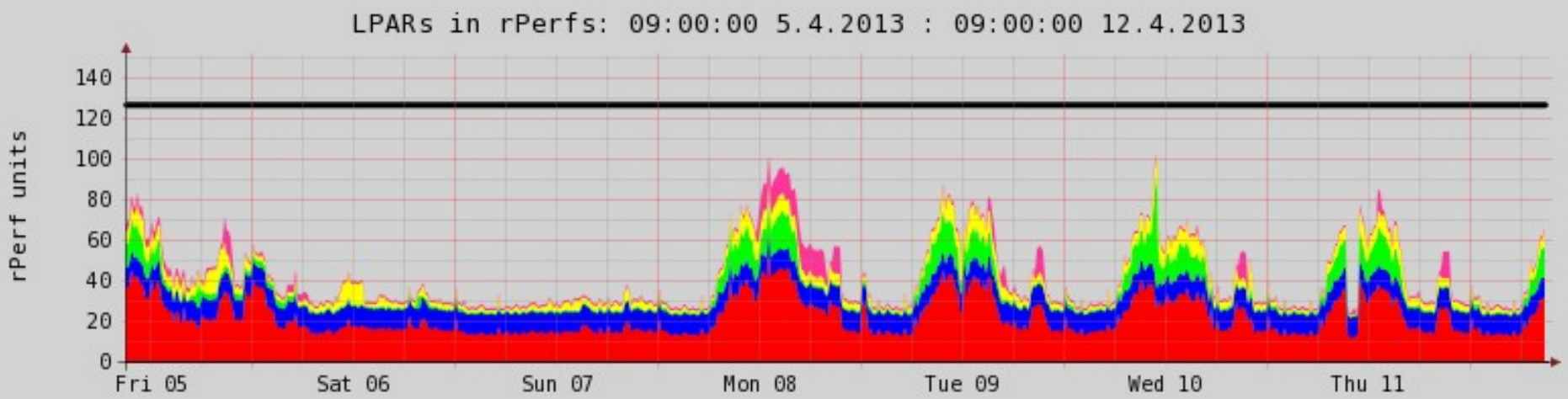

Server - POOL (already existing load on target)	average	maximum	[rPerfs]
BSRV21 - Default pool	21.8	56.0	
Server - LPAR (will be migrated)			
ASRV12 - ASRV12LPAR4	9.7	9.7	
BSRV22 - BSRV22LPAR10	4.3	56.5	
BSRV22 - BSRV22LPAR19	4.4	16.5	
BSRV22 - BSRV22LPAR8	1.9	13.1	
CPU pool limits for: BSRV21 / Default pool			
Max rPerfs	127		

Server details	number of cores	GHz	rPerf/core
BSRV21	16	3.0	9.7
ASRV12	16	3.0	9.7
BSRV22	16	3.0	9.7

CPU Workload Estimator

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- Other resources
  - How can LPAR2RRD help you in migration planning?
    - http://lpar2rrd.com/migration_benefits.htm
  - Live demo
    - http://lpar2rrd.com/live_demo.html
  - Documentation
    - http://lpar2rrd.com/cpu_workload_estimator.html

Total all servers usage

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- Following example shows typical utilization of IBM Power servers in productive environment at a customers for last week.
  - Such graphs are standard, available on 1 - 2 clicks
- You might easily see that
  - customer uses totally max 15 cores in a peak from 62 available IBM Power cores!! (4 x IBM Power 750)
  - **Note that such waste of resources can be seen everywhere ...**

Servers usage overview
1st example

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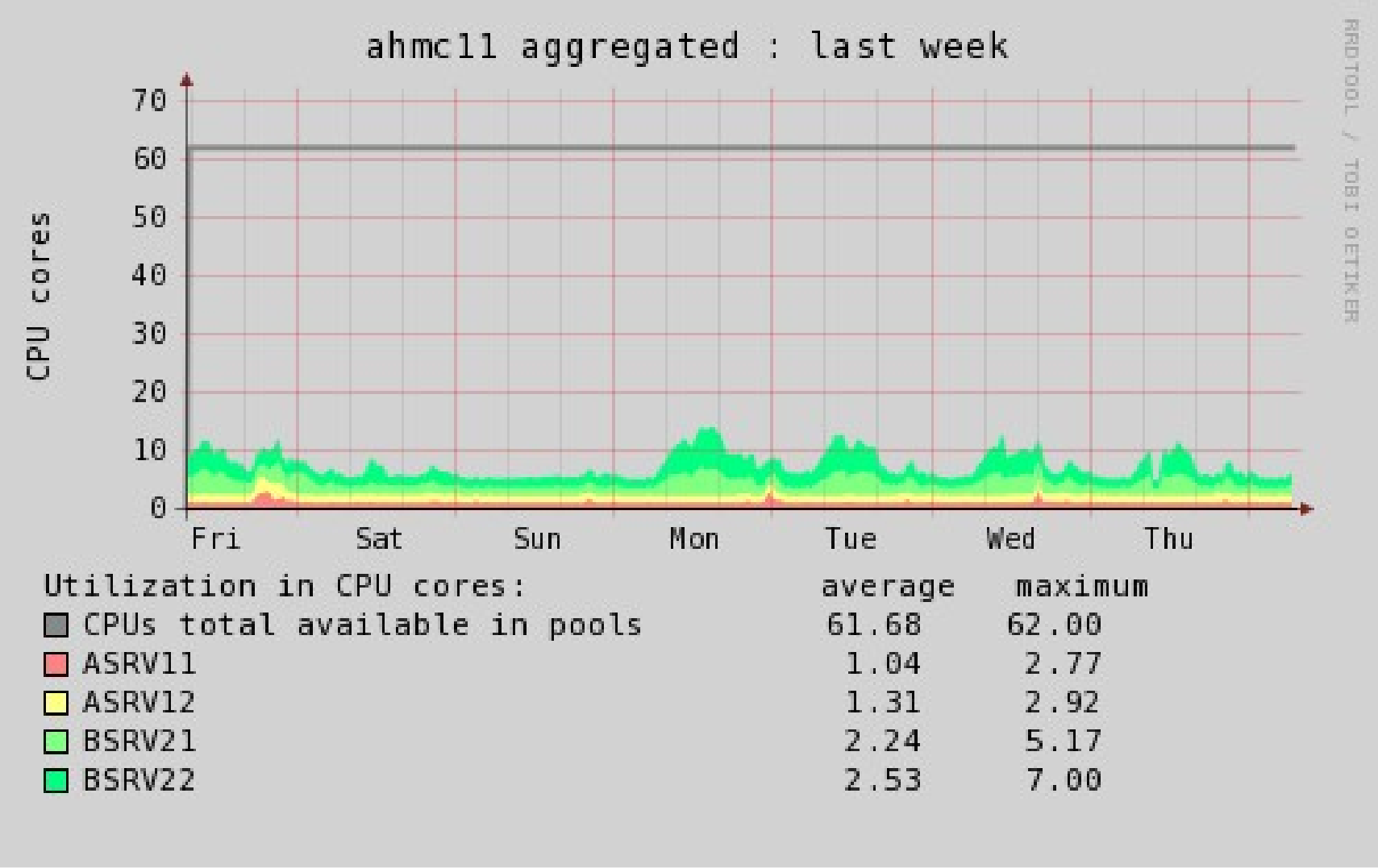

Live Partition Mobility support

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- Following example shows how LPAR2RRD works in environment where is used Live Partition Mobility technology
- You might see there LPAR called **aix1** which has run on 3 different physical servers in last 2 weeks
- This feature is part of full version only
- It keeps a track of all LPARs moves together with keeping their utilization all in one graph

http://lpar2rrd.com/live_partition_mobility_and_lpar_migration_docu.htm

Live Partition Mobility support

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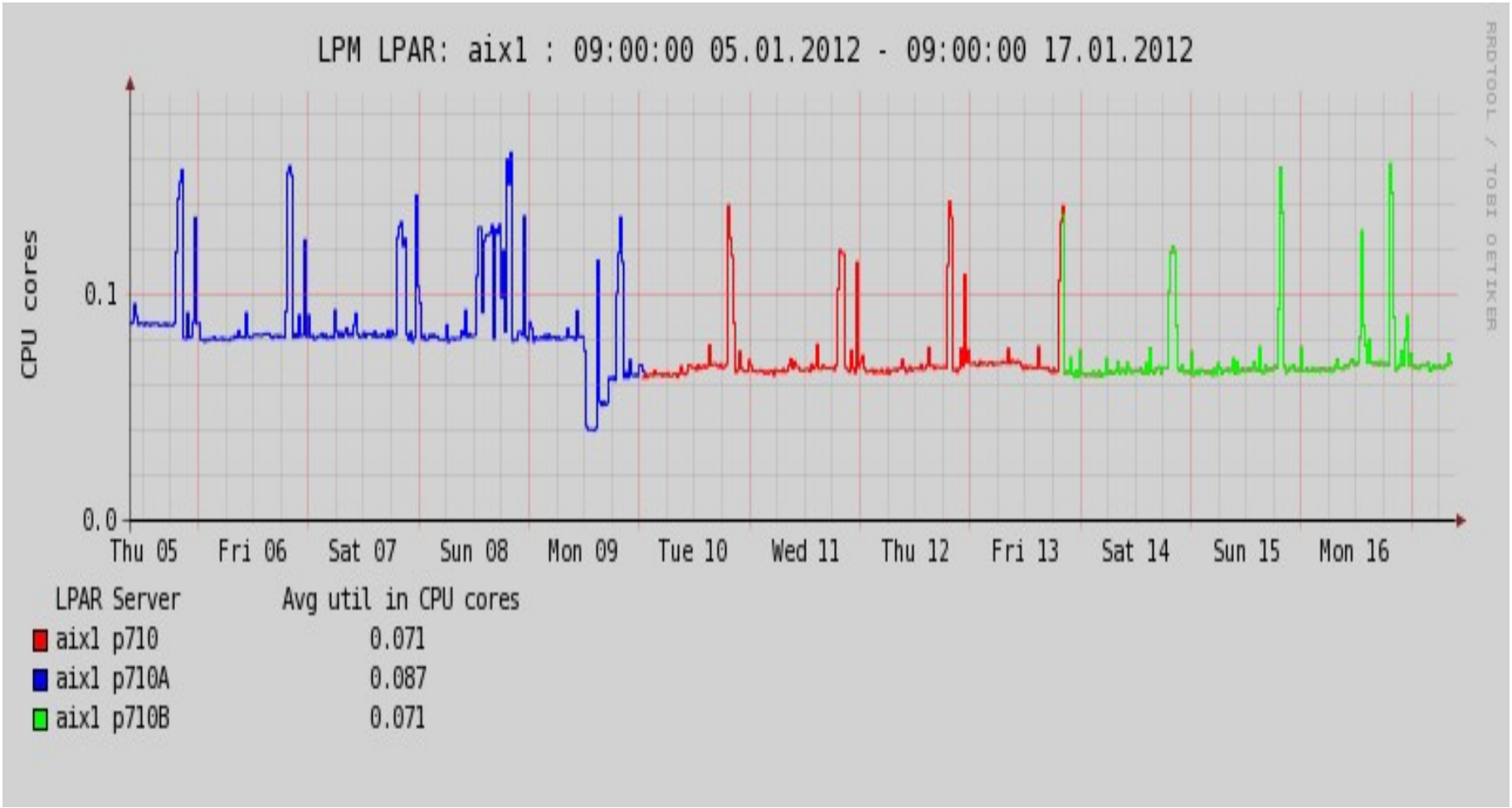

Custom Groups

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- You can group selected LPARs, CPU pools or whole servers and place them into aggregated graphs
- It allows you grouping whatever what make sense
  - applications
  - OS clusters
  - application clusters ...
- Limitations of free LPAR2RRD version is:
  - Max 4 items (LPARs/CPU pools/servers) per a group
- Following example shows
  - Total CPU utilization of 6 physical servers in last week graph

http://lpar2rrd.com/custom_groups.html

Custom Groups

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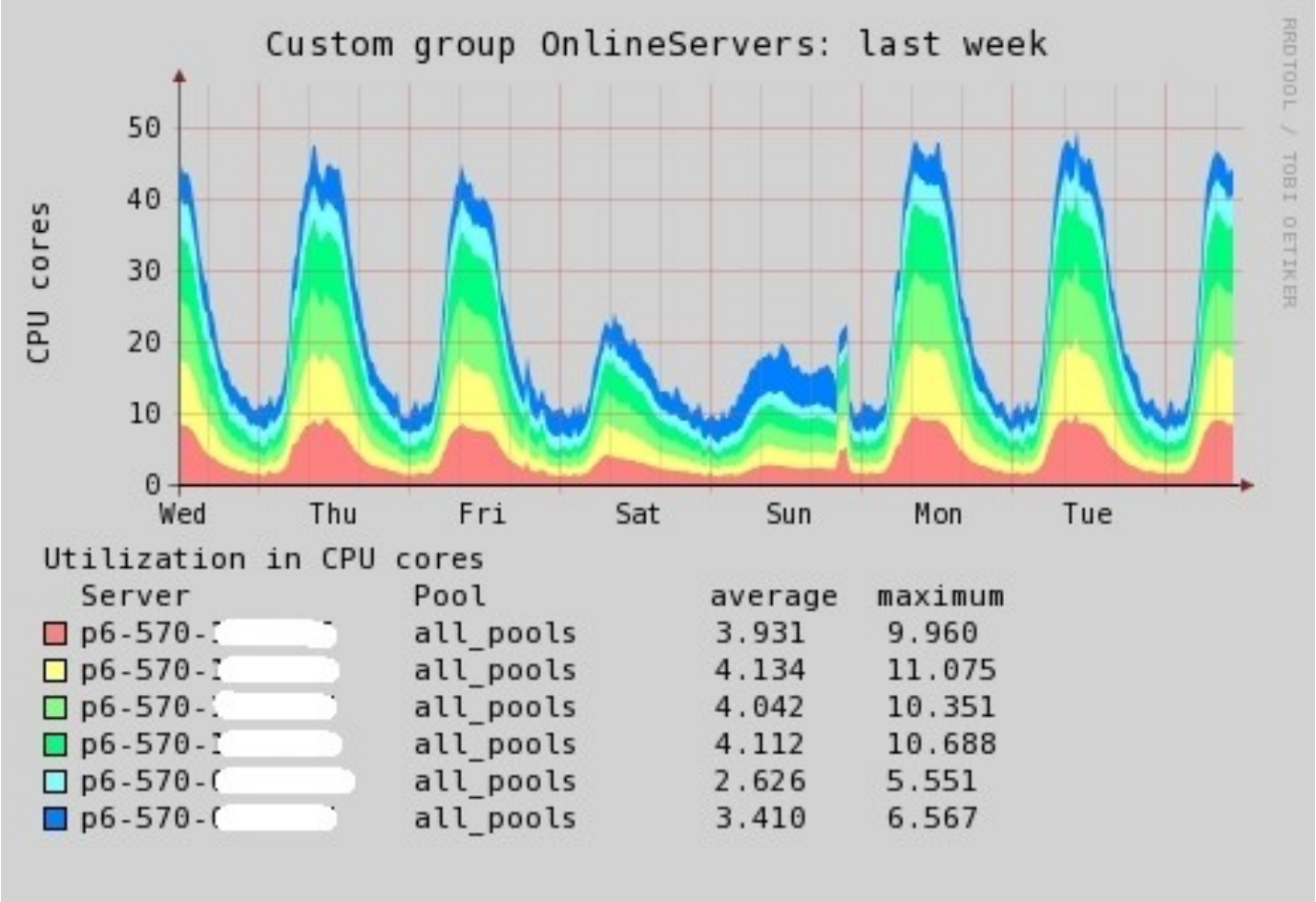

Custom Groups

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- You can group whatever across your all environment to get it to one graph
- Examples what can be grouped
  - all production Oracle DB LPARs
  - all SAP application LPARs
  - all development servers/LPARs
  - all LPARs belong to the same application to get information how many CPUs whole application needs for its run
  - .....
- Again simple usage and configuration, results are available on 2 clicks

Alerting

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- You can define alarms for any
  - CPU pool (or complete server).
    - **this feature you will not find in traditional monitoring tools!**
  - LPAR
- Useful especially for CPU pools and servers
- Alerting
  - Email
  - Native Nagios support
  - External script
  - Integration with others monitoring tools on a request

http://lpar2rrd.com/alerting.html

CPU max check

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- It is a batch job which once a day identifies LPARs or CPU pools (servers) which:
  - overcome their entitled CPU utilization in the highest peak
  - reached their maximum CPU utilization in the highest peak
  - all per last day, week and month
- It helps in identification of LPARs or CPU pools which have:
  - assigned too low CPU resources
  - all CPU resources in the server or CPU pool are consumed during a peak

http://www.lpar2rrd.com/cpu_max_check.html

Business model

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- Product is free (under GNU GPL v3 license)
- Support is for fee
- Support levels
  - Basic
  - Standard
  - Premium
- Features available only for customers under support
  - CPU Workload Estimator based on rPerf or CPW benchmark
  - Unlimited number of items in one Custom Group
  - Live Partition Mobility support

Support levels

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- Basic
  - general support based on our best effort
  - used mostly by customers which are interested only in full version features
- Standard
  - standard program to help you keeping product running
- Premium
  - next business day response time for critical issues
  - regular health checks
  - implementing of new functionality which customer asks for
  - ...

More info on : http://lpar2rrd.com/support.htm

Future

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- Dynamic alerting
  - Alerting without thresholds
  - The tool compares actual CPU load with historical and alerts if finds any anomaly
- Storage monitoring: STOR2RRD.com
  - IOps, Bytes/sec per port, rank, pool or volume
  - IBM DS8000 product line is about to release
  - IBM XIV and EMC storages under development
- Support of VMware or Linux RedHat KVM?

Why to buy support?

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- We believe that relatively small investment into LPAR2RRD support will bring you big benefits like:
  - proper planning of future IBM Power HW purchase
  - based on historical data you can argument vendors when they tend to oversize their future application requirements
  - migration planning will be much easier and safer
  - keep your IBM Power environment under your control in terms of resources
  - easy and fast identification of unused or overloaded resources

We are looking forward to hear you soon!
Pavel Hampl, LPAR2RRD author