



## **APRM Frequently Asked Question # 001**



### ***Why use APRM on a machine with "uncapped processors"?***

***Q. "Uncapped processors" is a feature of the new i5 hardware. What is it?***

Uncapped processors allows partitions sharing a processor pool to use processor power that another partition is not currently using, rather than let the processor power be idle. Uncapped processors provide great temporary processor balancing among partitions. Here's how it works:

Consider a simple situation with two partitions on a server with six processors. Partition one is used for production work and partition two is used for development. Management deemed the production partition to be twice as important as development, so production was configured with four of the six available processors and development with two. When both partitions are busy, production uses its own four processors and development uses their two processors. When the programming staff goes to lunch, their two processors will be mostly idle. With "uncapped processors" the production partition can use all six processors if their workload is large enough during the lunch interval. When the programmers return from lunch, however, production is forced to return the borrowed processors when the development partition becomes busy. If there is a lull in production activity, the programmers can use all six processors. The only form of specifying relative importance of the partitions is by setting the "uncapped weight" which advises the hypervisor/hardware as to what portion of any unused processor power to allocate per busy partition. Although uncapped processors can provide temporary relief for CPU intensive activity, it cannot guarantee consistent, predictable resource allocation based on partition workload, business rules and priorities.

When both partitions are busy, your only solution to improving performance in the higher-priority production partition requires manual intervention by typing commands into the i5's Hardware Maintenance Console (HMC). Unlike existing hardware, all dynamic LPAR changes must occur through the use of the HMC.

***Q. How is APRM different and why do I need it?***

APRM is an excellent complimentary product to uncapped processors that ensures overall consistent, predictable performance tuning.

The difference is that APRM automatically adjusts processing resources based on tuning rules and changing business conditions (i.e., partition workload). APRM has

patented technology to tune (reallocate) CPU power, interactive % and memory automatically according to customer-specified rules: minima, maxima and priority - partition by partition. APRM also recognizes that CPU power must sometimes be adjusted within a partition in order to satisfy interactive needs. Uncapped processors does not address memory nor interactive.

Because uncapped processors does not move interactive nor memory among partitions, you may find a partition is starved for other resources due to excessive CPU processing capacity. APRM monitors all resource needs and then ensures sufficient resources are allocated according to current partition activity. Of primary concern with the new hardware is APRM's ability to adjust memory to support both uncapped processor and APRM CPU allocations.

With APRM, tuning and partition performance historical data is collected and can be readily extracted and displayed. Reports are available for partitions even if they are not involved in the tuning process. Uncapped processors does not provide reports that detail amount of CPU that is loaned to a partition or the amount of activity that led to the change in resource.

In addition to APRM's ability to tune processing resources, APRM includes the ability to switch IOPs that control devices, such as tape drives or CD-ROMs, between partitions so media devices can be shared. Manually moving an IOP from one partition to another has inherent dangers. For example, if an operator manually moves an IOP that has disk drives attached to it, your system may fail. APRM prevents your operators from making this catastrophic mistake. Uncapped processors does not include this important feature.

***Q. Dynamic LPAR allows me to manually move processing resources. Why do I need the automatic capabilities of APRM?***

Businesses are hunting for autonomic, self-running machines because their environments are complex and interwoven. The best way to keep them running is to avoid costly human mistakes. Businesses learned long ago that computers are very useful to safely run repetitive tasks and businesses greatly value these tools. That's the whole idea behind smooth-sailing, self-healing, on-demand environments, and APRM fits right in. Without APRM, you have individuals issuing commands in these complex environments. Studies show that the vast majority of downtime is caused by human error and APRM eliminates the human factor.

So if you don't buy APRM, do you have a highly-skilled, highly paid technician constantly monitoring processor resources and entering commands to manage them, or by an operator-level person who's thinking about the weekend? Not a good approach either way. Much better to have APRM software to transform a company's infrastructure into an on-demand, self-tuning environment.