

MANAGE MIPS TO CONTROL MAINFRAME COSTS

Using ASG Performance and
Capacity Management Solution





MANAGE MIPS TO CONTROL MAINFRAME COSTS

Using ASG Performance and Capacity Management Solution

OVERVIEW

Business demand is fueling application growth and increases in computing capacity at record rates. At the same IT organizations are trying to manage this increased complexity while maintaining or even reducing expenditures. In many cases, it simply isn't working because as the business grows, effective utilization of IT resources is not always maximized. The simple view is, if the business and its related applications and transactions are growing at 20 percent annually, then computing capacity must also grow by 20 percent. However, MIPS don't come cheap... especially in the mainframe world!

IBM® has made architectural changes to its System Z platform through the introduction of cost effective specialty processors for executing specific types of workloads thereby reducing the amount of general processor MIPS required to run existing applications. But in many cases even these cheaper processors are not being utilized to their maximum potential.

What IT needs is a way to enable business growth to out-pace MIPS growth by maximizing utilization of existing resources. In order to accomplish this, IT needs the tools to understand how existing MIPS capacity is being used and where it can make adjustments to enable application and transaction growth without having to purchase more MIPS.

FEATURES

- Maximize use of expensive CPU resources
- Prevent unnecessary CPU and MIPS upgrades
- Identify workloads that can be run on less expensive zIIP processors
- Forecast workload and application growth based on historical data and business needs
- Ensure IT is getting the most from its processor resources
- Determine where, when, and what is causing high MIPS consumption
- Reduce CPU consumption and recover wasted processing time
- Improve application throughput and plan for growth to avoid costly upgrade charges



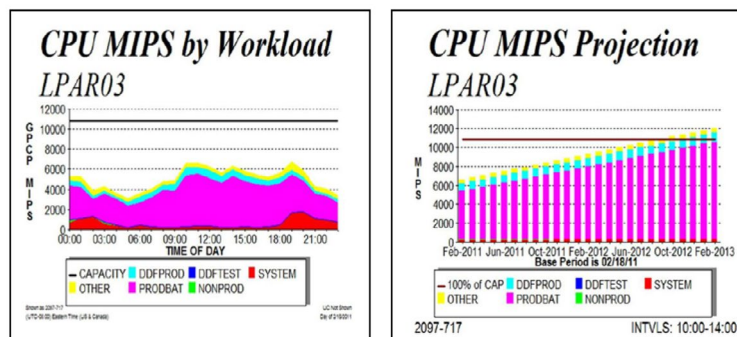
MANAGE MIPS TO CONTROL MAINFRAME COSTS

Using ASG Performance and Capacity Management Solution

MAXIMIZE USE OF EXPENSIVE CPU MIPS

ASG has the tools and solutions to help IT organization maximize the use of their mainframe MIPS. ASG's z/OS-based performance and capacity management offerings provide a number of capabilities that support strategies for reducing or controlling MIPS consumption in a mainframe environment, including these key features:

- Determining where high MIPS consumption is currently occurring, when it is occurring, and what is causing it.** This is the first step in any plan to reduce or contain MIPS growth. You have to know what workloads are causing high CPU consumption, the time periods when it is happening, and what processors are being pushed to the limit.
- Forecasting future MIPS consumption by workload.** Forecast MIPS utilization based upon projected growth for applications to understand if you have enough existing capacity to address the growth without simply going out and purchasing more processing power. This forecasting capability is designed to accommodate varying workload growth levels over time as well as changing business requirements.
- Determining the applicability and potential benefits of using less expensive specialty processors such as zLIPs to process the same work and reduce MIPS consumption.** The effective use of specialty processors ensures that more expensive MIPS are reserved for only those workloads that must run on general processors. Understanding what workloads can be moved to cheaper and faster specialty processors is a great tool for reducing MIPS capacity on more expensive general purpose central processors. Many IT organizations are not reaping benefits yielded by using specialty processors to contain MIPS growth. At the same time, overloaded specialty processors can result in workloads that would normally run on a specialty processor being moved back to general purpose processors thereby consuming more expensive MIPS. ASG solutions provide you the information you need to make sure you are making full use of specialty processors without overloading them to the point where it causes impact and degradation.

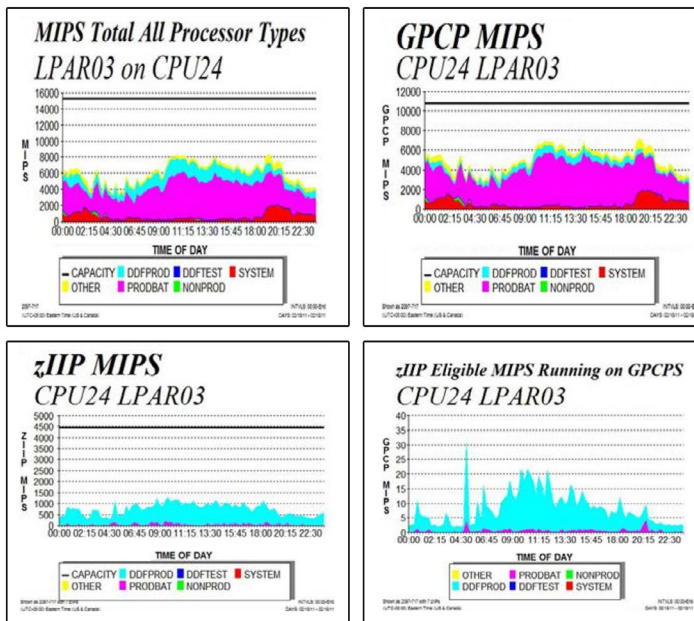


Historical data is used to forecast MIPS growth on LPAR03 over a two-year period based on business assumptions



MANAGE MIPS TO CONTROL MAINFRAME COSTS

Using ASG Performance and Capacity Management Solution



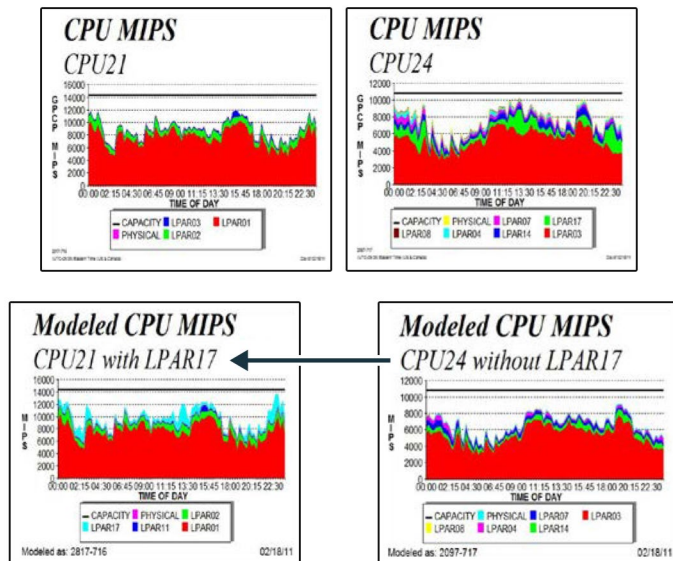
Analysis of MIPS utilization on both general and specialty processors such as zIIP. At peak periods LPAR03 on CPU24 uses about 8000 Total MIPS, with nearly 7000 MIPS on General Processors and only about 1000 MIPS on zIIPs. zIIP eligible work MIPS that are running on General Processors are identified as targets for movement to zIIPs.

- Determining the optimum settings for various IParS in logical partitioned environment to enable effective competition/ sharing of CPU resources.** All IBM mainframes run LPARs in a logically partitioned environment with PR/SM managing the distribution of the CPU resources (MIPS) among LPARs. There are a number of configuration settings for LPARs running in this environment that influence how effectively this distribution of the CPU resource takes place. ASG's LPAR Modeling can be used to assess the effectiveness of the user-specified system settings for LPARs and determine the effect of potential changes to those settings to provide the maximum use of CPU resources.
- Forecasting placement of IParS on different mainframes to maximize resource utilization and control MIPS growth.** Managing MIPS consumption may sometimes involve moving the workloads in one or more LPARs to another CPU in the installation. Using ASG's CPU Modeling facility you can get a 24-hour picture of current MIPS consumption for all LPARs in the installation. It also allows you to model the movement of LPARs to other existing or newly proposed CPUs and then graphically charts MIPS consumption levels for all CPUs involved in the analysis.



MANAGE MIPS TO CONTROL MAINFRAME COSTS

Using ASG Performance and Capacity Management Solution



LPAR Modeling is being used to show the effect of moving LPAR17 from CPU24 to CPU21 to enable more balanced utilization of physical processors and allow for growth.

- Analyzing the effectiveness of using defined capacity for z/OS LPARs to control MIPS consumption and the possible adverse affects of soft capping.** “Defined capacity” allows an IBM z/OS main-frame user to limit the MIPS consumption of particular LPARs. When an LPAR exceeds its defined capacity in a sustained manner it “capped” reducing its access to CPU resources. Comprehensive monitoring and reporting of defined capacity and LPAR capping enables you to set appropriate LPAR caps to ensure effective use of CPU resources without impacting performance via over or under capping of LPARs.
- Analyzing actual delays in accessing CPU resources that may manifest themselves as high MIPS consumption.** Delays inside of PR/SM for access to physical hardware central processor resources by an LPAR can be mistaken for high CPU MIPS consumption. LPAR Modeling identifies how much delay for access to central processor resources exists inside of z/OS versus how much delay exists inside of PR/SM for these resources. If you mistakenly identifying delay for resources versus actual high CPU MIPS consumption, you may incorrectly decide to increase MIPS capacity when in reality all you need to do is some better setting of configuration options and tuning. LPAR modeling enables you to avoid this pitfall.



MANAGE MIPS TO CONTROL MAINFRAME COSTS

Using ASG Performance and Capacity Management Solution

CONTROL AND CONTAIN MIPS GROWTH

ASG performance and capacity management solutions provide organizations with the tools needed to achieve IT Infrastructure optimization and effective business capacity planning preventing unnecessary MIPS upgrades and ineffective use of existing processor resources. As outlined above, a good MIPS utilization and growth planning exercise must include the following:

- Determining where high MIPS consumption is currently occurring, when it is occurring, and what is causing it
- Forecasting future MIPS consumption by workload and application
- Effective use of zIIP specialty processors for eligible work to reduce MIPS consumption on more expensive general purpose processors
- Effective use of LPAR placement
- Effectively capping LPAR demand
- Determining the optimum settings for various LPARs in logical partitioned environment to enable effective competition/sharing of CPU resources
- Analyzing actual delays in accessing CPU resources that may manifest themselves as high MIPS consumption

Taking these steps will ensure that IT organizations maximize their CPU resources and only upgrade capacity when it is truly needed.





MANAGE MIPS TO CONTROL MAINFRAME COSTS

Using ASG Performance and Capacity Management Solution

ASG has the most advanced and robust performance and application management solutions in the market to identify and address inefficiencies in today's massively-scaled z/OS-based systems. Key benefits include:

- Reducing CPU consumption and recovering wasted processing time
- Uncovering system, database, I/O and application performance inefficiencies
- Pinpointing application execution delays and execution metrics
- Delivering in-depth performance profiles at transaction level
- Providing in-depth analysis of Websphere-based applications running on z/OS
- Improving application throughput and planning for growth to avoid costly upgrade charges

The ASG portfolio contains dynamic solutions for monitoring every area of IBM's z/OS operating system and its sub-systems including: CICS, DB2, IMS, and MQ across every LPAR in the enterprise. These solutions provide real-time performance information on important software and hardware resources and long-term online data for after the fact analysis of resource usage trends, service levels, I/O contention, job delays, exceptions, and more.

Robust application performance management tools designed for performance engineers, technical analysts, and applications development teams help to isolate the sources of excessive processing faster and easier than traditional application performance analysis products, improving application response and lowering CPU consumption.

ASG-TMON® PA for Automated Analysis, Reporting, Modeling and Capacity planning. ASG-TMON® for real time monitoring and near term historical analysis, and ASG-TriTune for detailed Application Performance Management provide you with all the tools needed to ensure your it organization maximizes use of CPU resources, tunes applications and transaction effectively to prevent them from consuming MIPS unnecessarily, and prevent unnecessary CPU and MIPS capacity upgrades until they are truly required.



FOLLOW US



www.asg.com

ASG Technologies is a global software company providing the only integrated platform and flexible end to end solution for the information powered enterprise. ASG is the only solutions provider for both Information Management and IT Systems and has over 3,000 customers worldwide. To learn more visit www.asg.com.

ASG Technologies | 1.239.435.2200 or 1.800.932.5536 | 708 Goodlette Road North, Naples, Florida USA 34102 | www.asg.com

© 2018 ASG Technologies Group, Inc.

All products mentioned are trademarks or registered trademarks of their respective holders.

ASG_ManageMIPStoControlMainframeCosts_20191029en