



## Mainframe Performance Analysis and Capacity Planning Health Check

This study is produced using customer supplied RMF (or CMF) reports. Based on these reports, a series of charts are produced which show how the current processor is being utilized. This includes utilization reports for the entire processor as well as utilization by each LPAR and workload within the LPAR. Additionally, performance metrics are shown for each workload to help customers identify where they are having performance problems. Where performance problems are identified, the study will quantify the amount of delay due to each mainframe resource. For example, the study will show the amount of delay due to constraints in access to the general purpose CPs, the ZIIP CPs, memory, disk I/O, etc. This information is critical in helping customers to identify where tuning will produce the maximum benefit.

The Capacity Planning component of this study is designed to help customers plan for changes in workloads over a one to four year horizon. The study starts by building a model of the current system. Based on customer supplied estimates for workload changes, the current configuration is modeled against these changes. Both processor utilization and workload performance can be modeled. When the current configuration is shown to be too small to satisfy customer SLAs, other larger configurations are modeled to show the minimum configuration needed to satisfy SLAs.

Multiple configuration and workload changes can be modeled. These include:

- Individual workload growth or reductions.
- Size and Number of CPUs
- Upgrading to new processors with new features
- Addition of zIIP CPs
- Disk response time improvements
- LPAR Settings such as Number of Logical CPUs per LPAR and Weighting Factors

The model can also predict the impact of latent demand when upgrading a CPU running at high utilization (resulting in higher than expected utilization on the new processor). These studies can also be used to evaluate the consolidation of multiple processors onto a single larger processor (i.e. old technology to new technology).

The data required to run this study is included in two RMF reports. These are the CPU and Workload Activity Reports. These reports should be run for 5 consecutive days, 24 hours per day. If you need to limit the size of these reports, they can be limited to the peak hour each day (same hour each day). If a night time as well as daytime view are required, the reports can include both a day time and night time peak hour each day. The reporting interval should be either 15 or 30 minutes. The RMF reports can be created using the following RMF post processor parameters:

- REPORTS(CPU)
- SYSRPTS(WLMGL(SCPER,RCLASS,SYSNAM(smfid)))

The REPORTS(CPU) parameter requests a CPU report. The WLMGL(SCPER) parameter requests the Goal Mode Workload Report and the SCPER sub-parameter requests that the report be at the Period within Service Class level. The RCLASS parameter also requests a report by Report Class. The Workload Activity Report should be run for the dominant production LPAR. If there is more than one dominant LPAR, you can run multiple Workload Reports.

If the system image is part of a Parallel/Sysplex, you must request that the Workload Activity Report be limited to a single system image. The report can be filtered to a single image by using the following RMF parameter - SYSNAM(smfid) where smfid is the 4 digit SMFID of the desired image.

Finally, if you are collecting SMF type 113 (MF) records, you can create EDF files by running SMF records through the CP3K Extract program. EDF files should be created for each dominant LPAR. These files are used by the IBM z/PCR tool to properly establish the capacity of the current machines. The CP3K Extract program can be downloaded at no cost from the IBM web site.

All of these reports should be downloaded as text files and sent to Vicom Infinity thru the internet as email attachments. The address is MDEITCH@VICOMINFINITY.COM. For very large files, network time can be reduced by compressing these files into a single .ZIP file using any available version of PKZIP or equivalent compression tool. If you want to see future growth scenarios modeled, include a description of these scenarios.