How much capacity can your mainframe really deliver ?

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In recent years most performance analysts have started using the zPCR tool, provided by IBM, to assess the existing mainframe capacity and to evaluate possible upgrades.

Four sets of information are required to perform a zPCR study:

- hardware characteristics;
- PRSM configuration (by LPAR);
- operative system level (by LPAR);
- workload characteristics (by LPAR).

The first three are easy to obtain using RMF, EPV for z/OS or other tools.

Before the availability of z10, understanding workload characteristics also looked very simple. According to IBM most of z/OS production systems in the world could be well represented by a LoIO-Mix workload. A formula based on the ratio between the DASD I/O rate and the MSUs used allows you to verify if a system should be considered as LoIO.
EPV for z/OS tracks the changes over time of this ratio (in the IOM index view) for each system collected.

After z10 became available, IBM started warning about a "new" workload appearing as LoIO but making the hardware perform less efficiently. This workload is called, in LSPR terms, DI-Mix.
The difference between LoIO-Mix and DI-Mix is very big; the same machine will provide 20-25% less capacity when running DI-Mix compared to a LoIO-Mix workload.

In this paper we will briefly discuss:

- z10 hardware implementation;
- why using the right workload characteristics is so important;
- how to identify a DI-Mix workload.