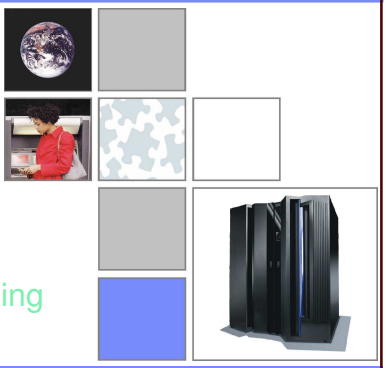
IBM System z9



LSPR and Capacity Planning
July 2005 Education

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Agenda

- What's changing for IBM System z9™
- IBM System z9 109 (z9-109) considerations
- LSPR considerations
- New Multi-Image LSPR table
- Why use capacity planning tools?
- Capacity Planning Tools Qualifying for System Assurance
- zPCR available to customers
- zPCR Demo

What's Changing for System z9

- **New LSPR data for z/OS® -1.6 …**
  - Supports up to 32 CPs in a single image on z9-109 and IBM eServer™ zSeries® 990 (z990)
  - Special LPAR configuration table added
  - **CB-S** workload eliminated; new **CB-J** workload added
- **Capacity planning tools affected**
  - zPCR
  - CP2000
  - BWATOOL
  - SPSSZR
  - zPSG
  - zTPM

Z9-109 Considerations in zPCR

- LPAR configuration capacity planning for z9-109, z990, and IBM eServer zSeries 890 (z890)
  - z/OS 1.6 or z/OS 1.4 (Traditional partition only)
    - System z9 and zSeries Applications Assist Processor (zAAP) LCPs may be defined with z/OS-1.6
  - z/VM® (IFL or Traditional partition)
  - Linux® (IFL or Traditional partition)
  - VSE/ESA™ (Traditional partition only)
  - CFCC (ICF or Traditional partition)
- Z9-109 has four unique CP pools (Traditional, zAAP, IFL, ICF)
- Z9-109 Weight/Capping is controlled by pool
- Z9-109 Weight/Capping assignment for zAAP partitions are no longer tied to its associated traditional z/OS 1.6 partition
- Z9-109 supports 60 partitions; zPCR modeling will likely be limited to 30 partitions initially

LSPR Versions Supported

- Current LSPR Data (supporting z9-109)
  - **Z9-109**, **z990**, **z900**, **z890**, and **z800** (measured in LPAR-mode)
    - **z/OS-1.6** (**CB-L, CB-J, WASDB, OLTP-W, and OLTP-T**)
    - **z/VM** (**WASDB/LVm**)
    - **Linux** (**WASDB/L**)
- Prior LSPR Data (excludes z9109)
  - **z990**, **z900**, **z890**, and **z800** (measured in LPAR-mode)
    - **z/OS-1.4** (**CB-L, CB-S, WASDB, OLTP-W, and OLTP-T**)
  - **z900**, **z890**, **z800**, **G6**, **G5**, **Multiprise® 3000**, and prior (measured in basic mode)
    - **OS/390® 2.10** (**CBW2, CB84, TSO, CICS® /DB2®, and IMS™**)
      - Amdahl and HDS processor families remain in older **PCRW** tool
    - **z/VM (CMS1)**
    - **VSE/ESA (CICS)**

LSPR Data Considerations

- z/OS 1.6
  - Supports maximum of 32 CPs
- z/OS 1.4
  - Supports maximum of 16 CPs
  - LSPR data for 17 through 32 CPs assumes multiple partitions

Note: N-way capacity relationships of z/OS 1.6 are improved over those of z/OS 1.4

LSPR Workload Considerations

- LSPR Workload Primitives (MVS™)

z/OS-1.6	z/OS-1.4	OS/390 V2R10
CB-L (CBW2)	CB-L (CBW2)	CBW2
CB-J (New)	CB-S (CB84)	CB84
WASDB	WASDB	TSO
OLTP-W	OLTP-W	CICS /DB2
OLTP-T (IMS)	OLTP-T (IMS)	IMS

LSPR Workload Considerations

- Suggested workload mixes designed for bridging between LSPR tables
  - TI-Mix — Transaction intensive — 60% online, 40% other
  - TD-Mix — Transaction dominant — 40% online, 60% other
  - TM-Mix * — Transaction moderate — 30% online, 70% other
  - CB-Mix — Batch intensive — 100% other
  - LoIO-Mix — I/O rate < 30 per MSU — Special case
- Suggested mix workloads are defined uniquely with each LSPR version to help assure consistency with capacity relationships. This is necessary due to the differences in LSPR workload primitives that were measured.

* Default workload in CP2000/zPCR; user should change appropriately

New Multi-Image LSPR Table

- **LSPR now includes performance ratios based on the average multi-image configurations**
  - Single-Image
    - One z/OS image equal to the size of the model
    - 1-way to 32-way
  - Multi-Image
    - Multiple z/OS images
      - Range from 5 at the low end to 9 at the high end
    - 1-way to 54-way
    - Used as the basis for setting MIPS and MSU
- **Why are there two tables ?**
  - Over 95% of installed processors now use LPAR
- **Variables used in establishing the configurations**
  - Number of images
  - Size of each image
  - Relative weight
  - Ratio of logical to physical engines
    - Ranged from 5:1 at the low end to 1½:1 at the high end

Multi-Image LSPR Table cont'd.

- **Which LSPR Table should I use ?**
  - For high level sizing most users will find the multi-image table reflects configurations closest to their own
- **When comparing the two tables**
  - The capacity ratios will be higher in the single-image table for some models and lower for others

Capacity Planning Tools Qualified for Systems Assurance

- **zPCR study using *LPAR configuration capacity planning* function**
- **CP2000 study should be used when**
  - SCP is z/OS, z/VM, and/or Linux
  - Customer can provide RMF™ data or z/VM monitor data
  - Focus is on capacity and potentially storage, I/O and response time
  - FICON® study

  zPCR called by CP2000 for processor capacity relationships and LPAR cost
- **zTPM (a workload simulator) should be used when**
  - SCP is z/OS
  - Customer can provide RMF/CMF data
  - Focus is on performance as opposed to processor sizing

  zPCR is required to obtain processor capacity relationships and LPAR cost

  Note: A zPCR study is the minimum requirement

Why Make zPCR Available to Customers

- Customers want to do independent capacity planning
  - Often use MIPS tables for capacity relationships
    - Often do not take into account different SCP/workload types
- Current processors run only in LPAR mode
  - MIPS tables inaccurately represent LPAR-mode capacity
- Large processors increase amount of server consolidation activity
  - Increases complexity of LPAR configuration
- zPCR is the only tool which can accurately project impact of processor and LPAR changes
- zPCR will be available at No Charge
  - **Note: This does not remove IBM account team responsibility for System Assurance capacity plan review**

zPCR available to customers

- Controlled availability - September 2005
  - 4 in AG, 2 in EMEA, 2 in AP
  - zPCR 2.4 which includes support for z990 and prior processors
- General availability - October 2005
  - Password required for install (provided at the completion of education)
  - The then current version of zPCR
- GA Delivery via the Web
- Education via Web lecture
  - LSPR Concepts
  - LPAR Concepts
  - Introduction to zPCR
- Service
  - Usage questions via a newsgroup facility
  - Defect support via e-mail
- Customer responsible to keep their copy current
- Registration is part of installation process

Education and Assistance

- **Education**
  - CP2000 education available (ILS course code M2062)
  - Web based lectures at: w3.**ibm.com**/support/techdocs/atsmastr.html
    - LSPR Overview
    - zPCR Demonstration
  - LSPR Web site: http://www.**ibm.com**/servers/eserver/zseries/lspr/
- **Assistance for CP2000 or zTPM study is available from Techline**
  - Americas Group (AG)
    - IBMers: w3.**ibm.com**/support/americas/atechline.html or call **888-426-5525**
    - BPs: Call PartnerLink® at **800-426-9990**
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