IBM Mainframe Configuration

Operating Systems

Virtual CPU's

Logical Partitions

Logical Processor Units (PUs)

Processor Resource (PR) / Systems Manager™ (SM) (PR/SM™) – Type 1 Hypervisor – Firmware Layer

The PR/SM™ Facility creates logical partitions (LPARs) and assigns processing capacity to them. An LPAR is a logical sub-partition of a CPC. Central processor complex (CPC) on IBM z2 server that runs the PR/SM™ instruction set (aka mainframe computer). A CPC contains one or more CPs.

A System computer is outfitted with a number of physical CPUs, organized into types: Standard CPs, IFLs, zAAPs, zIVPs, and zIFs. A typical system comes with one or more engines of each type. Type-1 hypervisor is a native or bare-metal hypervisor running directly on the host’s hardware to control the hardware and to manage guest operating systems (OS). IBM developed the first hypervisors in the 1960s known as native hypervisors. Examples include: Xen and VMware ESX. Type-2 hypervisors run on a conventional OS. They abstract guest OS's from the host operating system. Examples include: VirtualBox and VMware Workstation.

When you think about processors, you need to think P-V-L (physical, virtual, logical). The physical CPUs are the hardware on the frame. The virtual CPUs are set up in the Hardware Management Console (HMC) when we decide how many virtual CPUs to give to an LPAR. The logical CPUs are visible and emulated when we turn on SMP. CP Socket: Physical Core = physical cores within the CPU that plug into the socket = hardware components; Logical Core = physical cores x number of threads that can run on each core; CP = Central Processor = HW unit that interprets and processes program instructions for the z/OS® operating system and products that run under it.

PSP: To support a successful VITA Architecture Review (VAR) process by depicting a logical view of the Mainframe LPAR configuration.

Examples include:
- Control the hardware and to manage guest operating systems
- They abstract guest OS’s from the host operating system
- They are hypervisors running directly on the host's hardware to control the hardware and to manage guest operating systems.

Benefits:
- Central Processor Resource (PR) / Systems Manager™ (SM) (PR/SM™) – Type 1 Hypervisor – Firmware Layer

The TRIM™ Facility creates logical partitions (LPARs) and assigns processing capacity to them. An LPAR is a logical sub-partition of a CPC. Central processor complex (CPC) on IBM z2 server that runs the PR/SM™ instruction set (aka mainframe computer). A CPC contains one or more CPs.

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