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Virtualization for Small and Medium Businesses

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Prior to the Integrated Virtualization Manager (IVM), a separate hardware management console (HMC) was required for a server to take advantage of the many virtualization features on the System p platform. The HMC allows you to partition a server, and to provision and manage those partitions. It also performs a number of other functions. However, the financial overhead of purchasing the HMC and its monitor is significant for the person who's running a small, single- or dual-server environment and only needs a couple LPARs. In order to assist low-end customers with the move to a virtualized environment, IBM introduced IVM for the p5-550Q and below (including the OpenPower 710 and 720) in October 2005. (Note: It isn't supported on the high-end servers (model 570 and above), but support was added in February 2006 for the p5-560Q.)

IVM is part of the Virtual I/O server (VIOS) code that ships when you order the Advanced POWER Virtualization (APV) feature with a server. It's designed to run in the VIOS LPAR and enables management of the VIOS functions. It also provides a Web interface to remotely manage the server.

Take Note

It's important to note that there are some restrictions on IVM and how it can be used. As I mentioned, it's only supported on the 560Q and lower, as it's designed for the low-end servers. Additionally, it can only manage resources on the physical server that it's running on. When installing a server that will use IVM, it must never have been attached to an HMC - there's no migration path from HMC-managed to IVM-managed. Nor is there a migration path from IVM to HMC, although connecting an HMC will disable IVM, and the HMC will see the partitions. You have to redefine the profiles, though.

The first LPAR that's installed must be the VIOS and, in order for IVM to work, the VIOS that IVM is running in must own all of the resources on the server. Thus, all of the partitions will be clients to the VIOS, and no other LPARs can own physical adapters. This means that there can be no AIX 5L v5.2 LPARs because they aren't supported as clients to the VIOS. However, AIX 5L v5.3 and the latest versions of SUSE Linux and Red Hat Linux are supported.

In order to keep the IVM small and fast, there are some additional resource limits. Specifically, there can only be one profile per partition, and a client partition can only have one virtual SCSI adapter and up to two virtual Ethernet adapters defined to it. Also, IVM doesn't interact with the service processor so it's necessary to use the ASMI interface in order to remotely control service processor functions such as power on and off.

IVM and Your Environment

IVM was designed for ease of use and for smaller, low-end systems. With IVM, you can create LPARs, and manage the virtual storage and virtual Ethernet on a server. You can use IVM to configure the server, and there's some limited support for Capacity on Demand (CoD) through the ASMI interface. Additionally, IVM can be used to create VIOS user accounts, backup the LPAR configurations, act as a Service Focal Point, and download and install updates to the firmware.

If you're considering an environment with one or two servers (560Q or less) and you don't need DLPAR, this may be the solution that saves you the money you'd normally invest in an HMC. However, if you need DLPAR, multiple profiles per LPAR, full support for CoD, redundant HMCs or multiple servers per control point, an HMC is a better choice. Additionally, if you want to run AIX 5L v5.2 or need dedicated adapters in LPARs, you'll need an HMC.

IVM is a great step forward for those who have a small number of servers and are happy to virtualize all of those resources. It can provide some cost savings and while offering ease of use and flexibility.

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