



Virtualization – A Little History

Share 'ravin Ganore | November 11, 2011

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Although server virtualization technology is currently receiving much attention, the concept is not new. Actually the idea came in the mid-1960s, when the Giants and expensive computers of the day reached to a high processing speed but they were unable to seize the expensive computing time due to management processes that needed to be done manually by the operator. To get the best out of expensive computer processing, it was necessary to run multiple processes in parallel. Thus arose the concept of time sharing, which culminated with the idea of virtualization.

Time Sharing: This concept means sharing time, i.e., idle time between the processes are shared with other processes to streamline the system. Multiple jobs are executed simultaneously, and the CPU meets each job for a little while, one by one in sequence. The time dedicated to each job are small enough so that users can interact with each program to recognize that there are no other programs running.

In 1972, an American computer scientist, **Robert P. Goldberg** introduced the theoretical basis of the architecture for virtual computer systems in his dissertation at Harvard University. In the same year IBM introduced a mainframe that was able to simultaneously run different operating systems under the supervision of a control program – hypervisor.

The IBM System 370 was the first commercial computer entirely designed for virtualization, with which, the operating system CP / CMS allows you to run multiple instances simultaneously. This was followed by the IBM z / VM, which took advantage of hardware virtualization. The VM / CMS is highly regarded and widely distributed in the industry and academia. Several modern approaches to virtualization implementations are very unique for mainframe of computers from IBM.

Over the years, virtualization has begun to fall by the wayside due to creation of new client / server applications and the decline of the mainframe platform that lost power before the rise of the x86 platform. According to VMWare, the widespread adoption of Windows and Linux as the operating system on servers in the 1990s eventually established the x86 architecture as the industry standard.

Share - to high costs for the purchase of a mainframe, companies began to acquire x86 servers according to demand, is a process called low-end **(several small machines doing the work of a large dedicated server)**. In this scenario, instead of having a high initial cost with the purchase of a mainframe, they opt for purchasing smaller servers according to need.

impact of this new strategy was to ensure a good deal of backlash against hardware scaling problems, and most of these servers were used for a single application. Thus, according to International Data Corporation, in each implementation of a typical x86 server, the roof of CPU usage was between 10 to 15% of the total capacity of this server.

These servers were oversized for the application that would perform, and as a result, ended up suffering the same problem of mainframes of the 1960s, that is, not all took advantage of their computing power, and were underutilized.

Then in 1999, VMware Inc. introduced the concept of virtualization on the x86 platform as a more efficient way to operate the equipment of the platform, taking advantage of x86 servers to provide a computational structure that would enable the full utilization of computational resources of these servers.

From 2005, processor manufacturers like Intel and AMD have given more attention to the need to improve hardware support in their products. Intel with its Intel VT and AMD with AMD-V. These hardware contains features which allow to exploit hypervisors that are used with the improved technique of virtualization (full virtualization) that make it easier to implement and enhance the performance.

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