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Although the full virtualization seems to be a hot cutting edge technology, the concept is not new. Back to the mid-1960s, the giant and expensive computers of the day had reached a high processing speed while the users can not make the most of the computing capability due to the management processes that need to be done manually by operators. Thus arose the concept of time sharing, which culminated with the idea of virtualization (Ganore).

In order to enable users get the best out of the expensive mainframe resources, the IBM first realize the time-sharing concept in commercial system by inducing the new implementation IBM7044, which allows simultaneously run different operating systems under the supervision of hypervisor in a single mainframe. Over the later years, the virtualization concept and technology has been applied only in the mainframe computer, while it advanced relatively slow on the PC server x86 platform because the processing capability in x86 platform can barely handle one or two applications, let alone sparing more resources for virtualized applications.

With the increasing power of processing in x86 platform, VMware introduce its entry into virtualization by publishing a commercial product named VMware Workstation, a software suite which allows users to run multiple instances of x86 or x86-64 -compatible operating systems on a single physical PC (Hammersley).

Since then, virtualization technology comes into normal people’s lives in laptop and has been developed by leaps and bounds on x86 platform. Especially when CPU came into multicore era, PC had unprecedented processing power than before, many companies and technologies has focused on virtualization and hence the concept get fully explored and advanced.

From 2005, processor manufacturers like Intel and AMD have given more attention to the need to improve hardware support in their products, 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 (Ganore). In the last decade, every major player in servers has integrated virtualization into their offerings. In addition to VMware and Microsoft, Sun, Veritas, and HP would all acquire virtualization technology (“The history”).

The main reason for performing the virtualization is operational efficiency, where organizations can use their existing hardware more efficiently by putting more load on each computer (Scarfone et al.). Also, full virtualization allows users to run different applications on different operating systems simultaneously on a single PC. The advancement of virtualization is pushed by the increasing processing capability of CPU as well as the development of interest in the benefits that comes along with the advance of virtual computer systems (Robert Goldberg, 1-3).

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