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Can HPCclouds supersede traditional high performance computing?

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With the advent of cloud computing, flexible and scalable services have been provided with the ambition to utilize bare metal resources in a more efficient way. The base technology for cloud computing is represented by virtualization; hence servers can contain several virtualized operating systems in a single physical box. As a small example, most of the servers offering web services are virtualized, from elastic e-business applications controlled by introduced user traffic through to virtual storage offerings managed by user's individual disk space demands. These encapsulated virtual machines are the key to flexibility and scalability, but due to fully virtualized operating systems the overall performance of those various resources decreases.

In contrast to flexible and scalable traditional cloud operation models, high performance computing requires a maximum of performance in computational power as well as I/O. Thus, performance dropping virtualization is not regarded at all even if it would provide beneficial capabilities. Within this talk, innovative approaches for high performance clouds will be introduced and elaborated in order to compare execution performance with configurability and flexibility.

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