

## **Resource virtualization and optimization via Grid and Cloud Computing**

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Virtualized resources serve up computing and data processing capacity as needed by the business. Emerging Grid, Virtualized Storage Infrastructure (VSI), and Information Integration technologies, for example, allow a collection of technology resources to be shared and managed just as if they were one large, virtualized compute environment. Virtualization of the resources makes IT more flexible and simplifies the complexity of the underlying infrastructure, whether it is the network connectivity, computing platforms, or databases and storage systems. A much simpler and scalable environment allows users to develop new applications and dynamically distribute these applications across a vast pool of shared resources.

Grid computing enables the virtualization of distributed computing and data resources such as processing, network bandwidth and storage capacity to create a single system image, granting users and applications seamless access to vast IT capabilities. Just as an Internet user views a unified instance of content via the Web, a grid user essentially sees a single, large virtual computer, which provides us a technology to optimize resources.

Cloud computing is one type of the grid computing model which changes the way which software is accessed via the Internet. These cloud applications utilize massive data centers and powerful servers that host Web applications and services. In most cases, they can be accessed by anyone with a suitable Internet connection and a standard Web browser.

The end result of virtualization creates an environment that can deliver far superior service levels with inherent resiliency and cost efficiency. Virtualization provides the grid and cloud infrastructure underpinnings to enable more sophisticated capabilities for rule driven allocation of capacity, and more granular resource sharing mechanisms.