**Virtualization, Cloud Computing and Grid Computing**

**Virtualization** is a type of software that allows a single computer (or cluster of connected computers) to function as if it were several different computers, each running its own operating system and software. Virtualization software underpins most cloud computing efforts, and can make computing more efficient, cost-effective, and scalable.

In the simplest terms, **cloud computing** means storing and accessing data and programs over the Internet instead of your computer's hard drive or a company’s server or main frame computer. Examples of the consumer cloud are Google Docs (for applications) and DropBox (for storage)

Some businesses choose to implement Software-as-a-Service (SaaS), where the business subscribes to an application it accesses over the Internet. (Think Salesforce.com.) There's also Platform-as-a-Service (PaaS), where a business can create its own custom applications for use by all in the company. And also there is Infrastructure-as-a-Service (IaaS) (also known as hardware-as-a-service), where companies like Amazon, Google, and Rackspace provide a backbone and storage capacity that can be "rented out" by other companies. (Think Netflix providing services to you because it's a customer of the cloud-services at Amazon.)

At its most basic level, **grid computing** is a computer network in which each [computer's resources](http://computer.howstuffworks.com/question466.htm) are shared with every other computer in the system. Processing power, [memory](http://computer.howstuffworks.com/computer-memory.htm) and data storage are all community resources that authorized users can tap into and leverage for specific tasks. A grid computing system can be as simple as a collection of similar computers running on the same [operating system](http://computer.howstuffworks.com/operating-system.htm) or as complex as inter-networked systems comprised of every computer platform you can think of. It's a special kind of distributed computing. In distributed computing, different computers within the same network share one or more resources. In the ideal grid computing system, every resource is shared, turning a computer network into a powerful supercomputer. With the right user interface, accessing a grid computing system would look no different than accessing a local machine's resources. Every authorized computer would have access to enormous [processing](http://computer.howstuffworks.com/microprocessor.htm) power and storage capacity.