cloud computing
chapter 1

* Define High Performance Computing (HPC) ?
- Is a discipline refers to using parallel data processing to improve computing performance and perform complex calculations

* Parallel Computing ?
- Type of computation in which many calculations or processes are carried out simultaneously. Large problems can often be devided into smaller ones, which can be solved at the same time

* The main features of (HPC) ?
- The processor machines can be of homogenous or heterogenous type
- HPC systems are normally found in those applications where it's required to use of solve scientific problems

* Define Distributed Computing ?
- Computing discipline that consists of multiple computers or processor machines connected through a network

* Define cluster computing ?
- Computing discipline that refers to a set of connected computers that perform a single system. These computers are basic units of a much bigger system, which is called a node

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✱ Define Grid Computing ?

- network of computing or processor machines managed with akind of software suchas middleware, inorder to access and use the resources remotely

✱ Difference between Grid Computing and electrical Power Grid ?

Grid Computing	Electric Power Grid
- The infrastructure that makes this possible is called the computing resource suchas PCs	- The infra structure that makes this possible is called the Power grid
- The grid is also pervasive in the sense that the remote computing resources would be accessible from different platforms	- The power grid is pervasive: electricity is available essentially everywhere
- The grid computing is a utility: we ask for computing power or storage capacity	- The power grid is a utility: we ask only for electricity

✱ Define Cloud Computing ?

- Delivery of different services through the internet. These resources includ tools and applications like data storage, servers, databases and software

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* Define Bio-Computing ?
- Use the concepts of biologically derived or simulated models that perform computational processes in order to solve a problem. It's combined application of mathematics, statistics and computer science

* Define mobile computing ?
- Computing discipline that involves mobile communication, mobile hardware and mobile software. In mobile computing the processing elements are small

* Define Quantum Computing ?
- Type of computation that harnesses the collective properties of quantum states, such as superposition, interference and intanglement to perform calculations

* Define optical computing ?
- Using the photons in visible light or infrared beams rather than electric current, to perform digital computation

* Define Nano Computing ?
- Computing systems that are constructed from nano-scale components

* define network computing ?
- generic term in computing which refers to computers or nodes working together over a network

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* Cloud Computing Vs. Grid Computing ?

Cloud Computing	Grid Computing
- Follows client-server computing architecture	- Follows a distributed computing architecture
- scalability is high	- scalability is normal
- more flexible than grid comp.	- Less flexible than cloud comp.
- is service-oriented	- is application-oriented
- Accessible through standard web protocols	- Accessible through grid meddleware

* Cloud Computing Vs. cluster Computing ?

Clould Computing	Cluster Computing
- Provides on-demand IT services and resources	- Performs level of computational tasks in a modular approach
- Uses heterogeneous type of resource	- User hemogenous types of resources
- more cost effective	- Least cost effective
- security is the responsibility of cloud service provider	- Getway is responsible for securing all cluster nodes
- Requires low maintenance	- Requires more maintenance

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* Cloud Computing Vs. HPC ?

Cloud	HPC
- Can be scaled over various services - Are Latency tolerant - The replication way is Full service replication - Cloud access is comparatively easy - wide rang of platforms is supported to clouds	- Can be scaled over parallel threads - Not latency tolerant - The replication way is only data replication - HPC access is a complex and difficult - Limited range of platforms is supported to HPC