

- Cloud computing is an internet based computing through which various shared information, softwares are provided to computers .
- They are like virtual resources.
- Properties and characteristics
 - High scalability and elasticity
 - High availability and reliability
 - High manageability and interoperability
 - High accessibility and portability
 - High performance and optimization
- The three models of service are -
 - Platform as a service
 - Software as a service
 - Infrastructure as a service
- Few examples of cloud computing services are-
 - AWS (Amazon Web Services)
 - Azure
 - Google cloud

- We use cloud in our many tasks of our daily life. Few may use them knowingly, few may not. But, there is an extensive usage of cloud technology today. Both private and public firms today are in a way develop cloud infrastructure and introduce that to the people. It is a revolution of this era. Cloud computing is also used for data analytics. In the first part of the course, we learn how to build cloud computing and the second part is how the cloud computing analyses the machine learning.

- Perils of corporate computing - Capital investment, Heavy fixed costs, Redundant expenditures, High energy cost, low CPU utilization, Dealing with unreliable hardware, High levels of overcapacity (technology and labor), Not sustainable. The advantages of cloud computing are - ubiquitous, convenient, on-demand network access, rapid provisioned. The three different models for delivery are

- Software as a Service(SaaS),
 - Platform as a Service(PaaS),
 - Infrastructure as a Service(IaaS).
- SaaS - use provider's applications over a network (SalesForce.com).
PaaS - Deploy customer created applications to a cloud (AppEng),
IaaS - provide computer hardware in terms of processor storage, network. When there is a large amount of data to transmit economically over internet(petabyte data), we utilise lots of disks, networks and CPUs which also leads to cyber infrastructure is expensive. Users buy Big Data services from clouds to share this overhead. The one of the technique for distributing computing is "MapReduce". The MapReduce algorithm contains two important tasks, namely Map and Reduce. Map takes a set of data and converts it into another set of data, where individual elements are broken down into tuples (key/value pairs). Hadoop is used to process the MapReduce program.
- From the interview, it is said that focusing on capabilities of technology is better than underlying algorithm of that technology. It is also said that, Yahoo is open to open source technology which includes "Hadoop", "ATS(Apache Traffic Server)". Yahoo uses private cloud. Private cloud is a cloud technology utilised only by internal departments of the company.
- Generally people purchase things based on costs. In the same way, cost also played a crucial role in computing services. This economics laid foundation for creation and development of cloud computing services. This is termed as "cloudonomics". The two factors of economics that necessitates cloud computing are - utility pricing, benefits of common infrastructure. Utility pricing - cloud services do not need to be cheaper to be economic(Car example). Sometimes, It would be economical to rent than to own, depending on your utility. Utility pricing is beneficial when demand varies over time.

- Cloud can be beneficial when the Utility premium is less than the ratio of peak demand to average demand according to the Cloudonomics.
- In software defined architecture, the services are can be managed by the service providers, virtualization, access control, service logic, Cloud Provisioning middleware, Hardware,software and resources.
- Cloud provisioning middleware matches the services with the Hardware and the software.
- PaaS can be better for costs than IaaS. IaaS provide only hardware and rest to be managed by the clients. PaaS provides multi-tenancy. The users may share the same physical computer and database.
- In Mirantis Architecture, Dashboard is connected to the fuel controller. In turn controller allows one to bring up Openstack controller, Networks, Compute servers and storage
- OpenStack software controls large pools of compute, storage, and networking resources throughout a datacenter, managed through a dashboard or via the OpenStack API.