DAY 2 Assignment

**1.Client**-**server architecture**

It is a network **architecture** in which each computer or process on the network is either a **client** or a **server**.

Servers are powerful computers or processes dedicated to managing disk drives, printers, or network traffic .

While Clients are usually user pcs which run applications and use the resources of the servers for some tasks.

**2.Basics of Cloud Computing**

Cloud Computing can be defined as delivering computing power( CPU, RAM, Network Speeds, Storage OS software) a service over a network (usually on the internet) rather than physically having the computing resources at the customer location.

The term “Cloud” came from a network design that was used by network engineers to represent the location of various network devices and there inter-connection. The shape of this network design was like a cloud.

**3.History of Cloud Computing**

Early 1990s  
Historically, telecommunications companies primarily offered only dedicated, point-to-point data circuits to their users. Beginning in the 1990s, however, they began expanding their offerings to include virtual private network services. This allowed the telcom companies to provide the same quality of service at a fraction of the cost, as they were able to optimize resource utilization in order to improve the efficiency of their overall bandwidth.  
  
Late 1990s  
In these earliest stages, the term “cloud” was used to represent the computing space between the provider and the end user. In 1997, Professor Ramnath Chellapa of Emory University and the University of South California defined cloud computing as the new “computing paradigm where the boundaries of computing will be determined by economic rationale rather than technical limits alone.” This has become the basis of what we refer to today when we discuss the concept of cloud computing.  
  
During the second half of the 1990s, companies began to gain a better understanding of cloud computing and its usefulness in providing superior solutions and services to customers while drastically improving internal efficiencies. In 1999, Salesforce.com became one of the first major movers in the cloud arena, pioneering the concept of delivering enterprise-level applications to end users via the Internet. The application could be accessed by any customer with Internet access and companies were able to purchase the service on a cost-effective on-demand basis.  
  
Early 2000s  
Shortly after Salesforce.com brought this new concept to the world’s attention, Amazon.com proved it could outlast the dot-com bubble burst with the introduction of its web-based retail services in 2002. Amazon was the first major organization to modernize its data centers, which were utilizing only about 10% of their capacity at any given time (which was commonplace at the time, because companies were worried about sudden spikes in capacity needs). Amazon realized that the new cloud computing infrastructure model could allow them to use their existing capacity with much greater efficiency.  
  
Late 2000s  
Meanwhile, Google had become a key player in the Internet commerce marketplace. In 2006 the company launched its Google Docs services, which brought the power of cloud computing and document sharing directly to end users.  
**4.Why Cloud Computing?**

With increase in computer and Mobile user’s, data storage has become a priority in all fields. Large and small scale businesses today thrive on their data & they spent a huge amount of money to maintain this data. It requires a strong IT support and a storage hub. Not all businesses can afford high cost of in-house IT infrastructure and back up support services. For them Cloud Computing is a cheaper solution. Perhaps its efficiency in storing data, computation and less maintenance cost has succeeded to attract even bigger businesses as well.  
  
Cloud computing decreases the hardware and software demand from the user’s side. The only thing that user must be able to run is the cloud computing systems interface software, which can be as simple as Web browser, and the Cloud network takes care of the rest.

**5.Cloud Computing Architecture**

Cloud Computing is made of. Cloud computing comprises of two components front end and back end. Front end consist client part of cloud computing system. It comprise of interfaces and applications that are required to access the cloud computing platform.  
While back end refers to the cloud itself, it comprises of the resources that are required for cloud computing services. It consists of virtual machines, servers, data storage, security mechanism etc. It is under providers control.

**6.Advantages and Disadvantages**

Following are the benefits of cloud computing:

1. Lower IT infrastructure and computer costs for users
2. Improved performance
3. Fewer Maintenance issues
4. Instant software updates
5. Improved compatibility between Operating systems
6. Backup and recovery
7. Performance and Scalability
8. Increased storage capacity
9. Increase data safety

Disadvantages of Cloud Computing  
Downtime  
As cloud service providers take care of a number of clients each day, they can become overwhelmed and may even come up against technical outages.  
  
Security  
Although cloud service providers implement the best security standards and industry certifications, storing data and important files on external service providers always opens up risks. Using cloud-powered technologies means you need to provide your service provider with access to important business data.

Vendor Lock-In  
Although cloud service providers promise that the cloud will be flexible to use and integrate, switching cloud services is something that hasn’t yet completely evolved. Organizations may find it difficult to migrate their services from one vendor to another. Hosting and integrating current cloud applications on another platform may throw up interoperability and support issues. For instance, applications developed on Microsoft Development Framework (.Net) might not work properly on the Linux platform.  
  
Limited Control  
Since the cloud infrastructure is entirely owned, managed and monitored by the service provider, it transfers minimal control over to the customer. The customer can only control and manage the applications, data and services operated on top of that, not the backend infrastructure itself. Key administrative tasks such as server shell access, updating and firmware management may not be passed to the customer or end user.

**7.Public, Private and Hybrid Cloud**

1. **Private Cloud:** Here**,** computing resources are deployed for one particular organization. This method is more used for intra-business interactions. Where the computing resources can be governed, owned and operated by the same organization.
2. **Community Cloud:** Here**,** computing resources are provided for a community and organizations.
3. **Public Cloud:** This type of cloud is used usually for B2C (Business to Consumer) type interactions. Here the computing resource is owned, governed and operated by government, an academic or business organization.
4. **Hybrid Cloud:** This type of cloud can be used for both type of interactions - B2B (Business to Business) or B2C ( Business to Consumer). This deployment method is called hybrid cloud as the computing resources are bound together by different clouds.

**8.Cloud Services Providers**

Amazon Web Services.  
Kamatera.  
Microsoft Azure.  
Google Cloud Platform.  
Adobe.  
VMware.  
IBM Cloud.  
Rackspace.

**9.Cloud Computing Services**

* **Software as a Service (SaaS)**
* **Platform as a Service (PaaS)**
* **Infrastructure as a Service (IaaS)**

SaaS or software as a service is a software distribution model in which applications are hosted by a vendor or service provider and made available to customers over a network (internet).

Platform as a service, is referred as PaaS, it provides a platform and environment to allow developers to build applications and services. This service is hosted in the cloud and accessed by the users via internet.

IaaS (Infrastructure As A Service) is one of the fundamental service model of cloud computing alongside PaaS( Platform as a Service). It provides access to computing resources in a virtualized environment “the cloud” on internet. It provides computing infrastructure like virtual server space, network connections, bandwidth, load balancers and IP addresses. The pool of hardware resource is extracted from multiple servers and networks usually distributed across numerous data centers. This provides redundancy and reliability to IaaS