Final Term Paper (Spring - 2020)
Cloud Computing

Name: Wajid ullah	ID #:12995

Semester: 8th **Date: 25, June, 2020**
Time: 6 hours **Total Marks: 50**
Instructor: M Omer Rauf

Note: Attempt all Questions. Answers should be in your own words. Plagiarism will not be tolerated, if detected, it will lead to failure.

Question No. 1: (20)

a. Explain in detail network and cloud-based storage.

ANS: **Network Storage:** Network storage means data store on a local device a hard drive/ memory are on a server in your network its also called network attached storage(NAS) we can also say that NAS is like having a private cloud in office and its also provide all benefits of public cloud on site.
 NAS devices are flexible and scale out , meaning that as you need additional storage, you can add to what you have. NAS uses file based protocols for example NFS(UNIX) SMB(Windows) AFP(Apple Macintosh) NAS provides variety of protocols to its users.

Advantages: > Increased security all permissions of data are controlled by an organization internal IT person.

>: NAS is quick for the storage of data locally.
>: Physical possession of data.
>: No internet connection is required.

Disadvantages:
>: Virus and malware can destroy the data in the hardware.

 >: Its becomes harder when changes came in storage areas a company have to buy new hard drives so its expensive.
>: The migration of date from old hard drives to new hard drives.
>: Hard drives are fragile with time they failed and it can cost a business fortune.

Cloud Base Storage: Cloud storage means storing your data in a physical hardware remotely which can be accessed by your computer and mobile via the internet. Users sends files to the cloud and is maintained by the cloud storage provider. Cloud servers are encompass by many servers linked together by a master server the complexity of cloud storage servers depends on

the provider the simplest system may involve one server. There are many example of cloud base storage but the most common is Dropbox.

Advantages:
 >: The access of data a user can access his data from any time anywhere from any device.
>: Sharing of data in cloud is easier.
>:Cloud storage reduces the cost of hardware because in cloud a user does not need hardware.
>:The expansion of the capacity is easy.
>:For the crashes and damage to data the cloud provider is responsible no the user.

Disadvantages:
>: Internet connection is always needed for accessing files and data.
>: Security threats to the cloud with increasing attacks on the cloud data by the hackers.
>: The privacy and security of the data may be concern.
>: Technical difficulties may occur from the cloud provider which may cause data lose.
>:In the cloud the user not have that much control his data his all is maintained by the cloud provider.

Question No. 2:   (20)

a. Explain in detail web application and multitenant technology.

ANS: Web Application: Web application is the computer program which utilizes web technologies and web browsers to perform task for the user.
web applications are coded in their respective languages which is supported by the internet browsers such as Java script and HTML.
Web application requires web servers to mange the client requests and sometimes web application also needed database to store data of the users. Application servers technologies are many for example ASP.NET, ASP , Cold fusion , PHP and JSP. Example Microsoft office 360

Multitenant Technology: Multi-tenancy is an architecture in which a single instance of a software application serves multiple customers. In the multitenant technology the customer is called tenant. Tenant can customize the UI and design of the application and can do some business changes but the tenant can not customize the code of the application. In cloud computing, the meaning of multi-tenant architecture has broadened because of new service models that take advantage of virtualization and remote access. example Netflix.

b. Explain in detail cloud security threats.
   ANS: With people now a days converting to cloud and the numbers and increasing day by day so with a large of data there also security threats to the cloud and to the data of the people some of the security threats are given and discussed below:

   1:**Poor Access Management:** Access of management is the common issues and a threat to cloud computing the access of point is key to everything because of that hackers are targeting it so much.

2:**Data breaches:** Data breach is cause and effect thing if someone data breach a center then a company may avoid security protocols in their systems.

3:**Human error:** According to researches 95% cloud security failure is user fault so a user itself can be a threat to cloud.

4:**DDoS Attacks: (**Distributed denial of service attack): It is a threat to both customer and cloud provider it can cause long service outages and exposure of customer data.

5:**Insecure APIs:** insecure APIs are also the big threat to cloud a weak API can be a initial point of the attack to the system from the attacker.

6:**Insider Threats:** A recent research report shows that 53% of the organizations surveyed confirm insider attacks against the organization.

7:**Exploits:** In cloud where customers sharing computing resources this may create a new attack surface for the hackers.

8:**Data Loss:** Data loss occurs due to interaction risks within the cloud architecture of the cloud application. Unauthorized person may delete or changes the data.

 These are some major threats to cloud now a days.

Question No. 3:   (10)

a.   Briefly describe following.
   a.   Advantages and disadvantages of cloud computing.
   Ans:
   Advantages:
    >: Cost Saving: Cloud can save your cost by not buying and hardware component for the storage of your data and it can save you a lot of money.
   >: High Speed: cloud computer allow you to get your desire service with a few clicks the faster deployment allows you to get the resources required from the system within the minutes.
   >:Back up and restore data: once a user store his data on the cloud its easy for the user backup and recovery of that data on physical hard drives that is time consuming process.
   >:Mobility: All a user need is internet connectivity and he can access his data from anywhere.
   >: Unlimited Storage Capacity: user can expend his storage on the cloud as much as he wants of course with the term and condition of the cloud provider.

   Disadvantages:
   >:Internet Dependency: For accessing cloud data a user must have internet connection without internet he can access his data.
   >: Security: cloud attacks are growing and may be a cloud provider not want to spend more money on cloud security it may cause user data loss.

>:Technical issues: if a user have technical difficulties on the cloud he must have to call to the service provider to fix his issues and a user have to wait for their response if a user have urgent work to do then this may be a bad problem.
>:Limited control: The user does not have much of control on his data.

b. Collaborative meeting in cloud.

   Ans: Collaborative meeting in cloud provides an affordable, accessible, configurable toolset for users to interact, exchange, cooperate and communicate across the full suite of communication channels. The benefit of cloud collaboration that improved worker collaboration are well documented ,from increased productivity to faster decision making grater mobility to improved morale, reduced travel time/costs to a smaller carbon footprint. Cisco is biggest provider of cloud collaborative meeting they called their collaborative meeting   Cisco Collaboration Meeting Rooms.

   Features of cloud collaboration: There are many features of cloud collaboration but some are give below:

   1:Universal user access
   2:IP voice and video
   3: sharing and conferencing
   4: Rich presence
   5: instant messaging
   6:Group chat