

Final Term Paper (Spring - 2020)
Cloud Computing

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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.

Question No. 2: (20)

- a. Explain in detail web application and multitenant technology.
- b. Explain in detail cloud security threats.

Question No. 3: (10)

- a. Briefly describe following.
 - a. Advantages and disadvantages of cloud computing.
 - b. Collaborative meeting in cloud.

Question No. 1:

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

Network:

A network consists of two or more computers that are connected to each other to share resources (such as printers and CDs), to exchange files, or to enable electronic communications. Computers on a network can be connected via cables, telephone lines, radio waves, satellites or infrared light.

Benefits of network:

1. Strength business connections
Networking is about sharing, not taking. It's about building trust and helping each other achieve goals
2. Get fresh ideas
Your network can be a great source of new insights and ideas to help you in your role.
3. Advance your career
Appearing and paying attention is one of the benefits of networking, which is essential for career development. If you regularly participate in professional and social programs, you can show your face better.
4. Get access to job opportunities
Expanding your contacts can open the door to new business opportunities, career advancement, personal advancement or just new knowledge.
5. Interconnected business contacts = more knowledge
Networking is a great opportunity to share best practices, learn business techniques from peers, and stay up-to-date with the latest developments in the industry.
6. Get career advice and support
Experienced peer advice is a key benefit of networking. Discussing common challenges and opportunities opens the door to valuable advice and counsel.
7. Build confidence
By connecting and meeting new people, you effectively leave your comfort zone and develop invaluable social skills and confidence that you can take with you wherever you go.
8. Gain a different perspective
It is easy to live your daily professional life and find yourself in a difficult situation. When you talk to other people in your area or experts in a particular area, you get information that is created just by looking at a situation with new eyes.
9. Develop long-lasting personal relationships
Of course, networking aims to promote and nurture professional relationships, but some of the strongest and longest friendships come from business relationships.
10. Get an answer to every question
As long as you have a solid network of professional relationships, you can be sure that anyone in your circle can answer even the most difficult questions.

Advantages of network:

Sharing devices like printers saves money. Site licenses (software licenses) are much cheaper than buying multiple standalone licenses. Files can be easily shared among users. Network users can communicate via email and instant messaging. Security is good - unlike standalone computers, users can't view other users' files. Data can be easily backed up as all data is stored on file server. Sharing devices like printers saves money. Site licenses (software licenses) are much cheaper than buying

multiple standalone licenses. Files can be easily shared among users. Network users can communicate via email and instant messaging. Security is good - unlike standalone computers, users can't view other users' files. Data can be easily backed up as all data is stored on file server.

Devices used in network are given bellow:

- hub
- switch
- router
- bridge
- gateway
- Modem
- Repeater
- Access point

Cloud-based storage:

Cloud storage is a model of a service that transmits and stores data in a remote storage system, where it is managed, backed up and available to users over the network (usually the Internet). Users typically pay a monthly fee for cloud data storage for each use. Also Cloud storage is a model for storing computer data in which digital data is stored in logical pools. Physical storage is spread across multiple servers (sometimes locations), Although costs per gigabyte have dropped dramatically, cloud storage providers have increased operating costs, which can make the use of technology significantly more expensive. The security of cloud storage services remains a concern for consumers.

Benefits of cloud storage:

- 1. Cloud Storage Can Save Costs:** Cloud providers buy a lot of storage and pass on those savings to consumers. But it's more than a low price per GB which saves money
- 2. Data Redundancy and Replication:** Most cloud storage providers also store multiple copies of your data in a single "data center" and offer excellent object stability to minimize the risk of data loss.
- 3. Data Tearing for Cost Savings:** Choose how fast and how often backups are restored, and on what basis your backups are placed.
- 4. Regulatory Compliance:** Keeping your backups in the same region can be the best place for data-driven regulatory compliance. Many cloud providers offer data centers around the world
- 5. Ransomware/Malware Protection:** Ransomware is just bad. Unfortunately, it is also in the news in large numbers. One of the scariest features of ransomware is that malware enters the network locally from the infected computer in order to obtain shares of documents and files that require encryption.

Types of cloud storage

1. Personal Cloud Storage
2. Public Cloud Storage
3. Private Cloud Storage
4. Hybrid Cloud Storage

Question No. 2:

Part (a)

a. Explain in detail web application and multitenant technology.

web application :

In a computer system, a web application is a client-side and server-side software application in which the client is executed or requested in a web browser. A web application is a computer program that uses web browsers and web technology to perform tasks on the Internet. Web applications are typically encoded in browser-supported languages, such as JavaScript and HTML, as these languages rely on the browser to make the program work. Some applications are dynamic and require server-side processing. Others are completely static and do not require any processing on the server.

Multitenant technology:

The multi-tenant application was designed to allow multiple users (tenants) to access the logic of the same application at the same time. Each tenant customizes the application they use, their administration and a dedicated example of the software, they have their own opinion about it, while using the same application. Other tenants are ignored. Multi-tenancy applications ensure that tenants do not have access to data and configuration information that is not their own.

Clients can customize application functions, e.g.

User Interface – Tenants can define a special look and feel for their application interface.

Business Process – Tenants can customize the business process rules, logic and workflow implemented in the application.

Data Model – Tenants can extend the application's data schema to delete or rename fields included in the application's data structure.

Access Control - Tenants can freely control the access rights of consumers and groups.

Part (b)

b. Explain in detail cloud security threats.

Cloud security threats.

Cloud computing is evolving rapidly and is changing the way companies use, store and share information, and change applications and workloads. At the same time, it has brought security risks and challenges. It has now become a natural target for bad actors as more and more data is transferred to the cloud. Unauthorized access to data at all levels of shared technology can be attacked to gain unauthorized access to data, e.g. CPU, RAM, Hyperispers, Applications, etc. Data loss: Data stored in the cloud can be lost due to hard drive failure. A CSP can accidentally delete data, an attacker can alter data, etc. An attack can be carried out, e.g. CPU, RAM, Hyperispers, Applications, etc. Data loss: Data stored in the cloud can be lost due to hard drive failure. A CSP can accidentally delete data, alter attack data, and so on.

5 threats of cloud security:

1. Data breaches:

Data breaches can be the primary target of an attack by which unauthorized users disclose, steal, or use sensitive information such as health, finance, personal identity, intellectual information, and other related information.

2. Insufficient identity, credential and access management:

Inadequate security of credentials can lead to security risks. Unauthorized users can read, modify and delete data or issue malware.

3. Insecure interfaces and APIs:

Cloud service providers provide a range of software user interfaces or application programming interfaces (APIs) that companies use to manage and interact with cloud services. In addition, users and third-party users often offer services to their customers through these interfaces. Unauthorized users can access and reuse these APIs or passwords. You can get content transfer, permission and logging features.

4. System vulnerability:

Exploitation errors in programs in the system can lead to security breaches. It helps a bad actor gain access to classified information and block services.

5. Account or service hijacking – using stolen passwords:

Account hijacking can be used to access and misuse highly privileged accounts. Attacks on software vulnerabilities such as fraud, phishing and exploitation are usually carried out using stolen passwords.

Question No. 3:

Part (a)

Briefly describe following.

- a. Advantages and disadvantages of cloud computing.

Advantages:

Cost Reduction:

It is a basic financial principle that profits come from making more money than you spend. Do you know what is not cheap? Everything about computers. When it comes to cloud computing professionals, this is at the top of the list for most companies. Good servers cost thousands of dollars just for hardware. This includes the ongoing maintenance of software and hardware. You also need a safe place to install. If you don't already have one, you need to get there. Servers also require constant cooling to function properly. So be prepared for the brutal cost of air conditioning.

Security:

The most obvious argument is that cloud providers make sure that security protocols and software are up-to-date because their business depends on it. Chances are, most cloud providers have full-time employees who specialize in digital security / network security. How many small and medium-sized companies can say the same thing?

Reliability:

Cloud providers are useless. Your data is not only stored on the server. It is stored on multiple servers. Depending on the provider, it can even be stored on multiple servers. Only if there is a catastrophic breakdown in a particular company.

Disadvantage:

Downtime:

The biggest disadvantage of cloud computing can be downtime. We're not talking about server downtime, but your Internet access has failed. Unless your Internet access is disabled, you can't do anything with the cloud.

Cloud Service Closes Shop:

In a mature industry, you are usually dealing with one of the few reputable providers that offer reliable and proven services. Cloud computing is a young industry in which many companies offer their business. Your cloud provider may need cash and will be closed forever.

Bandwidth issues:

To maximize performance, customers should plan accordingly and not pack large amounts of servers and storage devices into small sets of data centers.

Part (b)

b. Collaborative meeting in cloud.

Collaborative meeting in cloud:

This can be done through cloud hosting software. A profitable virtual meeting cannot be supported, so they are used instead of a virtual meeting face to face.

Collaborative Meeting Features:

Streaming video to allow to communicate face to face.

- Messenger.
- Zoom Meeting.
- What's app
- Google class room.
 - Used whiteboard or multimedia to control the presentation.
 - Share Application.
 - Meeting recoding.