Quiz 1

Cloud computing is the on-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user.

Different companies are using the cloud in different ways but overall most companies store their most crucial data in the cloud. At this point, most companies are migrating all their data and work to the cloud. The cloud is very beneficial in terms of backups [easier to store on the cloud bc you have more backup]

Types of cloud - Public , Private, Hybrid

- Private - used by government agencies mainly and data that companies want to keep very secret
- Public - most companies place their data in the public cloud as its much mor efficient and cost effective then having a private cloud

Over time companies are shifting from data centers to the cloud more and more

Virtualization vs abstraction

Companies incorporate a combination of SaaS , IaaS, and PaaS

SaaS - software as a service

IaaS - infrastructure as a service

PaaS - platform as a service

Cloud computing trends and needs

Trends

1. Abstraction of network, storage, db, security, and computing infrastructure
2. A price model that is retail in its conception
3. Service-Level Agreements

Historical evolution

- Idea phase (early 1960s)
- Pre - cloud phase (cloud started becoming prevalent in 2006 so this era was basically the 1990s - 2006)

- Cloud phase (2006 and after)

How did the cloud come to be

Phase 1

- Large system called "mainframes" located in back rooms that were accessed via terminals, had no local data processing, and utilized card-punching systems with job control language (a scripting language for mainframes).

Phase 2 - 1980s

- Stand-alone personal computers that could be connected via a modem
- Users interacted on a one-to-one basis using a mouse, keyboard, and display terminal
- Self - contained computing device that received additional software via floppy disk
- Eventually resulted in laptops
- This phase transitioned from terminal-based, single user-single job to GUI - based, single- user multiple jobs.

Phase 3 - Mid 1990s

- Development of web browsers to access the world wide web.
- Foundations of connecting users via the internet
- Utilization of TCP/IP protocol to make large sets of unreliable resources produce a reliable output.

Names of cloud providers: Amazon Web Services, Microsoft Azure, Google Cloud, etc.

Each cloud providers has different benefits.

Datacenters

- There are all kinds of datacenters around the world. Including underwater data centers that Microsoft has created
- Data centers require a large landmass and need to be at locations that don't have lots of natural disasters (california is a no go)
- College Station Data center name: FiberTown
- It is important to keep a data center cool and non dusty
- One security issue of data centers is that you don't want your data near another companies data as whoever comes to check that data may snoop into yours so a lot of big companies have their own data centers.

Unforeseen impacts

- Companies need to distribute their data loads amongst different providers because they do not want to be locked to a specific vendor. This causes problems in the long run
- Wearables are increasing in popularity (Professor Lightfoot mentioned that the future is wearables during his first lecture) because of its use of the cloud.
- Zoom became very popular because it saved recorded meeting footage to the cloud which was above its time as many of its competitors did not utilize the cloud to their benefit (i.e. Cisco Webex & skype)

- Impacted the it and business industries in ways we could have never imaged. Way more data than we could ever imagine as been able to be stored and used due to the utilization of the cloud.
- Cybersecurity needs to be uptight because we no longer have local stores to store data if the public cloud is hacked millions more private information is leaked [the scale of things is much larger bc of how grand the cloud is] . Efforts in the cyber security sector have been increased