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وزارة التعليم
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كلية علوم الحاسب
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Cloud Computing

Case study

Concept of cloud computing

In the context of cloud computing, this refers to any type of service that is hosted over the internet. Such services include servers, databases, software, networks, analytics, and other applications that are available through the cloud. Using the cloud computing many advantages. Back-up and restore data. Once the data is stored in the cloud, it is easier to get back-up and restore that data using the cloud. Also, unlimited storage capacity. The cloud provides us with a huge amount of storage space for keeping our important data such as documents, images, music, video, and so on in one place. In addition, Low maintenance cost. Moreover, mobility. Cloud computing allows us to easily access all cloud data via mobile.

Although there are many advantages, there are also disadvantages. In the first place. Internet Connectivity, as you know, in cloud computing, all data (image, audio, video, etc.) is stored on the cloud, and we access these data through the cloud using an internet connection. So you cannot access these data if you do not have good internet connectivity. In addition, Technical Issues. Cloud technology is always prone to an outage and other technical issues. Even, the best cloud service provider companies may face this type of trouble despite maintaining high standards of maintenance. Furthermore. Limited Control, because cloud infrastructure is owned, controlled, and monitored entirely by the service provider, cloud customers have less control over the function and execution of services within a cloud infrastructure.

Models And Usage of Cloud computing

Cloud computing is widely utilized and has gained immense popularity as a means for individuals and organizations to handle, process, and store their data. It can be divided into three general service modules, Infrastructure as a Service (IaaS): IaaS provides users access to raw computing resources such as processing power, data storage capacity, and networking, in the context of a secure data center. Platform as a Service (PaaS): PaaS services, which are aimed at software development teams, include computing and storage infrastructure as well as a development platform layer, which includes components such as web servers, database management systems, and software development kits (SDKs) for various programming languages. Software as a Service (SaaS): SaaS providers offer application-level services targeted to a wide range of company needs, such as customer relationship management (CRM), marketing automation, or business analytics.

Working of Cloud Computing

The cloud serves as a decentralized location for sharing information. Each cloud application has its own host, and the hosting company is responsible for maintaining the huge data centers that provide security, storage capacity, and computing power for maintaining the information users send. Cloud computing can be viewed from two different perspectives based on accessibility to resources and can be classified as public and private. In public clouds, resources are made available as a service, usually via the internet, with a fee charged based on usage. Customers can adjust their usage as needed and do not have to buy hardware to use the service. The public cloud provider manages the infrastructure and consolidates resources to meet the demands of its users. On the other hand, private clouds have resources that are located behind a firewall and managed by the user's organization. The organization is responsible for owning the hardware and software infrastructure, managing the cloud, and controlling access to its resources. These resources and services are typically not shared with entities outside of the organization.

The availability of Cloud Computing

A platform of online services called Amazon Web Services (**AWS**) provides networking, storage, and computing solutions at various abstraction levels. AWS is a public cloud computing platform that contain IaaS, PaaS, and SaaS which mentioned before. These services let you to host websites, operate business apps, and mine enormous volumes of data (Wittig & Wittig, 2018).

An example for companies that utilize AWS include:

- Netflix - which utilizes AWS for storing and handling the massive data needed for its video streaming services.
- Airbnb - utilizes AWS for supporting its booking and payment systems and managing the vast amount of data generated.
- Slack - the widely used team communication platform uses AWS to support its messaging and collaboration services.
- Dropbox - which uses AWS to store and manage the large amounts of data uploaded by its users.

Differing the Cloud service provider

AWS provides more cloud services and functionality inside those services than any other provider, including computing, storage, databases, networking, data lakes, and analytics. With AWS, not only the hardware needs of storage, computing power, and databases, are available but also are the services of machine learning and artificial intelligence, IoT, security, and much more. The platform and service capabilities of Amazon Web Services help companies to build, operate, scale and innovate with agility security at low cost. AWS has the most extensive cloud infrastructure with multiple availability zones across regions.

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