

2.1 Cloud Computing Basics

Cloud computing is a technology that allows users to access and use shared computing resources, such as servers, storage, databases, and software applications, over the internet. It eliminates the need for users to maintain their own infrastructure and provides on-demand access to a wide range of computing services.

There are three main types of cloud computing services:

1. **Infrastructure as a Service (IaaS):** Provides users with access to virtualized computing resources, such as servers, storage, and networking, over the internet.
2. **Platform as a Service (PaaS):** Provides users with a platform on which they can develop, run and manage applications, without having to worry about the underlying infrastructure.
3. **Software as a Service (SaaS):** Provides users with access to software applications over the internet, without having to install or maintain any software on their own devices.

Cloud computing offers several benefits, including:

1. **Scalability:** Cloud computing resources can be scaled up or down depending on the needs of the user, providing a flexible and cost-effective solution.
2. **Cost savings:** Cloud computing eliminates the need for users to invest in their own infrastructure, reducing capital expenditure and operating costs.
3. **Accessibility:** Cloud computing services can be accessed from anywhere with an internet connection, making it easy to collaborate and work remotely.
4. **Reliability:** Cloud computing providers offer high levels of uptime and redundancy, ensuring that services are always available.

However, there are also some potential risks associated with cloud computing, such as data privacy and security concerns, vendor lock-in, and dependency on internet connectivity. It's important for users to carefully evaluate their needs and choose a reliable and trustworthy cloud computing provider.

2.2 Desired features of Cloud Computing

Cloud computing offers several features that make it an attractive option for organizations looking to modernize their IT infrastructure and optimize their operations. Some of the key features of cloud computing include:

1. **On-demand self-service:** Cloud computing allows users to provision and access computing resources, such as servers, storage, and applications, on-demand and without requiring human intervention.
2. **Broad network access:** Cloud computing resources can be accessed over the internet from any device, location, or network.
3. **Resource pooling:** Cloud computing providers allocate and manage computing resources dynamically, allowing multiple users to share resources and optimize utilization.
4. **Rapid elasticity:** Cloud computing resources can be quickly scaled up or down to meet changing demand, providing flexibility and cost-efficiency.

5. Measured service: Cloud computing providers offer usage-based billing and monitoring, allowing users to only pay for the resources they consume.
6. Multi-tenancy: Cloud computing providers offer a multi-tenant architecture that allows multiple users to share the same infrastructure, reducing costs and improving efficiency.
7. Resiliency and fault tolerance: Cloud computing providers offer redundant and resilient infrastructure, ensuring high availability and minimal downtime.
8. Security and compliance: Cloud computing providers offer robust security measures and compliance certifications, ensuring the protection and confidentiality of data.
9. Interoperability and compatibility: Cloud computing providers offer open standards and APIs that allow easy integration with existing applications and infrastructure.

By offering these features, cloud computing enables organizations to focus on their core business objectives and achieve greater agility, innovation, and efficiency.