Commentary

Optimal Encrypted Multi-user Data Driven Techniques in Cloud Computing

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DESCRIPTION

The technology that makes the cloud function is referred to as cloud computing. This includes any form of virtualized IT infrastructure, such as servers, operating system software, networks, and other infrastructures abstracted using specialized software, rather than physical hardware. It can be time-consuming and expensive to understand different cloud computing resource types. Organizations must purchase physical servers and other infrastructure through a procurement process that takes months and supports cloud computing architectures. The purchased system requires physical space. It's usually a dedicated space with plenty of power and cooling. Once systems are configured and deployed, organizations need knowledgeable staff to manage them. This long process becomes difficult to scale as demand increases. Businesses may purchase more computing resources than they need, resulting in poor utilization. Cloud computing addresses these issues by providing computing resources as scalable, on-demand services. Simply cloud computing uses a network (most often the Internet) to connect users to a cloud platform to request and access rental computing services.

A central server handles all communication between client devices and servers to facilitate data sharing. Security and privacy features are common components in keeping this information safe. Cloud infrastructure includes the hardware and software components required to successfully implement the cloud computing model. Utility computing and on-demand computing are other names for cloud computing. Many organizations are moving to hybrid and multi-cloud environments to avoid vendor lock-in and maintain the flexibility to host sensitive workloads in more secure environments.

Data management is a major challenge due to the enormous amount of data generated every second. This affects both operational costs and efficiency. To meet this challenge, companies are moving to cloud computing frameworks. Currently, more than 90% of companies around the world use various cloud computing services based on their business needs. The most common types of cloud computing are Drop box, an application that provides easy file storage and data sharing, and Microsoft Azure, which provides data backup and recovery services. Google Pictures, Google Drive, Gmail, Amazon Prime, and Microsoft One Drive are some further well-known instances of cloud computing. Cloud computing is a generic term for anything that involves delivering hosted services over the Internet. These services fall into three main categories or types of cloud computing.

Software as a Service (SaaS)

This cloud-based model provides users with on-demand software or applications over the Internet. Software as a Service (SaaS) allows users to connect and use cloud-based apps over the Internet. Email, calendars, and workplace tools are common examples (such as Microsoft Office 365). SaaS offers a comprehensive software solution that is paid-as-you-go for from a cloud service provider.

Platform as a Service (PaaS)

It provides users with the IT infrastructure, including hardware and software, to easily develop, run, and manage applications. Platform-as-a-Service is a cloud computing model that offers customers a complete cloud platform (hardware, software, and infrastructure) without the associated costs, complexity, and flexibility. Develop, run, and manage applications flawlessly.

Infrastructure as a Service (IaaS)

It provides users with virtual hardware such as computer storage and networking. Infrastructure as a Service is a form of cloud computing that provides virtualized computing resources over the Internet. IaaS is one of the three main categories of cloud services, along with Software as a Service (SaaS) and Platform as a Service (PaaS). At its core, IaaS promotes access over ownership. This solution gives end users the flexibility to host custom apps or off-the-shelf software while providing a general-purpose data center for storage.

All types of cloud computing environments facilitate scalability by providing on-demand cloud services. The type of cloud computing environment that is best for the business depends on the needs and factors such as cost, technical capabilities, data security, governance, and service management. The cost of different

types of cloud computing is determined by the number of services provided by that cloud, such as server size, storage type, and storage size. Many companies choose private cloud over public cloud because private cloud is an easier way (or the only way) to meet regulatory compliance requirements. Others choose private clouds because their workloads involve confidential documents, intellectual property, Personally Identifiable Information (PII), patient data, financial data or other sensitive data. Cloud computing makes data backup, disaster recovery and business continuity easier and cheaper because data can be mirrored to multiple additional sites on the cloud provider's network. The largest cloud services operate in a global network of secure data centers that are regularly updated with the latest generation of fast and efficient computing devices. This offers several advantages over a single enterprise data center, including lower network latency for applications and better economies of scale.