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Cloud Computing-Technologies

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ABSTRACT

Cloud computing can be seen as a new phenomenon that is changing the way we use the Internet, and there are many things to consider. There are many new developments that are rapidly evolving, each with the potential to facilitate mechanical tendencies and people & there's lives. This article provides an overview of cloud computing, deployment models, service models, and cloud computing technologies, virtualization, SOA, network computing, and cloud computing tools.

Keyword: Cloud computing, Application, Challenges

Introduction

The term cloud refers to a network or the Internet. In other words, the cloud is available in remote regions. Cloud systems, whether open or private, can be better than web systems. Programs like email, web conferencing, and customer relationship management (CRM) will continue to run in the cloud. Cloud computing is based on web computing, where shared virtual servers provide platform hardware for software infrastructure and other resources and are hosted by paying customers while using the service. All data provided by digital systems is provided as a service in the cloud computing model. Cloud computing offers customers many options, including access to, purchase, transfer or download of a variety of unlicensed applications. It also reduces the cost of operating and installing computers and software because no infrastructure is required. Customers can access their data from anywhere. You just need to interact with the system (usually the internet). Cloud computing customers do not require any physical infrastructure and instead hire a third-party vendor. They use resources as services and pay only for the resources they use. Most distributed computer databases run on regular nodes and have server-dependent sections.In today's world, every organization is looking for a niche in which their business specifically requires cloud computing (CC) to gain a competitive edge in order to stay in business and stay competitive. A characteristic of cloud computing is that cloud users only pay for the services they use, so they are charged for each use [1]. This article not only introduces the different capabilities of cloud computing, but also provides an overview of cloud computing, its related services and delivery models. Cloud Computing and Cloud Computing Technologies: Cloud computing provides businesses with more storage space than traditional storage systems. Software is heavily updated and automatically amortized by many talented IT staff [2]. There are many different services and models working behind the scenes that make cloud computing affordable and accessible to end users. In most cases, distributed computing has two business models. Different departments and models working behind the scenes to make distributed computing convenient and accessible to end users. In most cases, distributed computing has two business models. a) Issuance form

Deployment model:

The deployment model defines the type of access to the cloud environment. So, how is the cloud deployed? Cloud access is divided into four types: private, public, hybrid and social.

Public cloud: This cloud is available to all online third-party customers who have registered for the cloud and have access to cloud resources on a pay-as-you-go model. This cloud is not as secure as a private cloud. Because it is open, all Internet users can access it. It is relatively more customizable than a private cloud. Large cloud service providers (CSPs) own and operate the cloud infrastructure responsible for building and providing ongoing support for public cloud and computing assets. An open cloud, also known as a remote cloud. Resources on the Internet are actively provided. Examples: Email, Google AppEngine, Microsoft Azure, Windows Azure, Amazon Elastic Compute Cloud (EC2).

Private cloud: This cloud was developed specifically for companies in the data center. The company manages all available cloud resources. Private clouds provide greater security than open or hybrid clouds. Private cloud resources are not as cheap as public clouds, but they offer more performance than open clouds. Connections are monitored and managed only in the cloud. It can be inside or outside your organization. A private cloud, also known as an internal or enterprise cloud, provides the right tools for many people behind a firewall.

Community cloud: Some companies jointly create and deploy policies, requirements, values and concerns similar to cloud infrastructure. The social cloud is formed at the level of economic scalability and democratic balance. Cloud infrastructure may be provided by a third party or within the community. The cloud has been modified by many organizations to support certain similar design communities. Cloud companies are more secure than public clouds.

Hybrid cloud: A combination of public, private and social clouds. However, critical operations are performed in the private cloud, and non-essential operations are performed in the public cloud. Hybrid cloud can provide these cost savings because public cloud is more expensive than private cloud. Because hybrid cloud models rely on internal IT infrastructure, ensuring data center scalability is critical. For example, cloud clients can send cloud services that process sensitive information to a private cloud and other insecure cloud services to a public cloud.

Service models: Clouds can connect to clients (clients or applications) at different times thanks to a feature called services[3]. The service model is the application model in which cloud computing occurs. There are three types of Internet services or service models. Infrastructure as a Service (IaaS) 2. Platform as a Service (PaaS) 3. Software as a Service (SaaS).

1) Infrastructure as a Service (IaaS): Cloud computing providers provide additional features for configuring physical and virtual machines, devices, etc. Virtual machines are best controlled by monitoring bundled software controlled by the emotional support network. The cloud client's job is to deliver the framework image to the virtual machine and plan the application. IaaS allows cloud providers to find convenient infrastructure online. IaaS resources such as repositories, bandwidth, monitoring services, IP addresses, firewalls, and virtual machines. Can be rented to consumers. Consumers have to pay for the time they use it. Examples include Rackspace, Windows Azure, Amazon EC2, and Google Compute Engine.

2) Platform as a Service (PaaS): Provides an online application development and publishing platform as a service for developers who can easily create, publish, and manage SaaS applications using this platform. Hardware also provides customization and provisioning necessary to run programs. A key component of PaaS is tools that enable non-designers to build web applications. Buyers are advised not to purchase expensive servers, equipment, energy storage equipment and information. So it's not difficult to scale or scale demanding application resources like Force.com, Google, Apache StratosApp, Engine, Windows Azure, and AWS Elastic Beanstalk.

3) Software as a Service (SaaS): Use a browser to deliver applications (eg ERP and CRM) as support to end customers over the Internet. Cloud customers can use anything installed and running on cloud infrastructure. This eliminates the need to install and run the software on every computer. Software maintenance and support requirements have also been reduced. Some SaaS applications are not configurable. B. Office Suite. SaaS also provides application programming interfaces (APIs) that allow developers to create custom applications (Google Apps, Microsoft Office 365, etc.).

CHARACTERISTICS OF CLOUD COMPUTING

Cloud computing has many features to meet the needs of customers and users and provide high-quality services, such as: Availability and Reliability: Server availability becomes more reliable, sharing the underlying infrastructure with distributed computing, reducing the potential for infrastructure frustration. [4] 5) Maintenance: Cloud computing applications are not installed on computers and are easy to maintain. It can also be accessed from a variety of locations and, finally, 6) is inexpensive. It is inexpensive because the business no longer has to build its own infrastructure. Payment based on resource consumption. 7) Pay-as-you-go service: An application programming interface (API) is provided to customers to access the service from the cloud and pay for usage changes. On-demand self-service: Cloud computing allows customers to access the services and resources they need and to interact with cloud service providers. You can call it while using the website. Compute resources such as virtual machines, compute power and storage. It can be used anywhere, anytime on the Internet [5]. 10) Aggregation of resources: Cloud computing allows multiple travelers to share resources. Only one physical instance of database, hardware, and infrastructure can be shared. physical server for example.

CLOUD COMPUTING TECHNOLOGIES

There are many innovations that make cloud computing platforms reliable, compatible and usable. i.e. virtualization. Service Architecture (SOA) c. network calculation d. i work at the computer .

Virtualization : Virtualization is a method by which a physical instance of a resource or application can be shared by other customers or organizations. This is done by giving physical resources logical names and making them available on demand [7]. The primary use of this technology is to provide applications with a standard version of the cloud client. For example, when an updated version of an app is released, the cloud provider must provide the updated version to the customer. VMware and Xen, for example, offer on-demand virtualized IT infrastructure. Virtual machines such as virtual private networks (VPNs) support optimized network environments for clients to receive cloud resources. Virtualization technology is the foundation of cloud computing because it provides flexible and scalable hardware services. The multi-tenant architecture enables virtual isolation between different tenants, allowing businesses to run their own instances and use and customize their own programs.

Types of Virtualization :
Following are types of virtualization:
1. Hardware Virtualization
2. Operating system Virtualization
3. Server Virtualization
4. Storage Virtualization
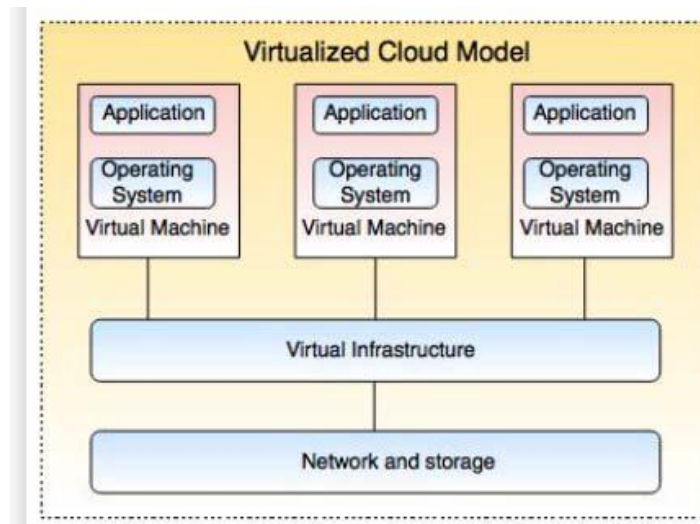
1) Virtual Machine: Directly installing Virtual Machine Manager (VMM) or Virtual Machine (VMS) software on a hardware system is called a virtual machine. Hardware virtualization is used for server platforms because controlling a virtual machine is not as difficult as controlling a physical server. There are several types of virtualization.

2) Operating System Virtualization: When the Virtual Machine Manager (VMM) or Virtual Machine Manager (VMS) software is installed directly on the hardware system of the host operating system, it is a virtual operating system. Server Virtualization: Powered by test applications on various operating systems.

3) Server Virtualization: Describes server virtualization when Virtual Machine Manager (VMM) or Virtual Machine (VMS) software is installed directly on the server machine. Server virtualization is used when a physical server is split across multiple servers to distribute the required load.

4) Virtual Storage: The process of collecting physical storage from various network storage devices is called virtual storage. Merging multiple storage devices into one physical storage looks like a single storage device. Storage virtualization is used for backup and recovery purposes.

B. Service-Oriented Architecture (SOA): A service-oriented architecture uses one application as a service to another. In fact, vendor types, practices, innovations... So you might consider exchanging information between users from different vendors without further planning or service improvement. The service-oriented architecture of cloud computing is an application architecture that integrates everyday business applications and decomposes them into specific business processes and functions called services. This part of the cloud transformation gives the community access to cloud-based connectivity with customizable strengths. As business needs change, OAs work with web service providers to publish, develop, and support web features, and bear the various costs associated with traditional IT services to enable web service buyers to access web services. SOA is an effective machine component in distributed processing because it enables internal mapping and component reuse and greatly reduces application development and deployment costs. Service-oriented computing introduces and exposes two key concepts underpinning cloud computing: quality of service (QoS) and software-as-a-service (SaaS) [8]. QoS provides a new delivery model for software-as-a-service applications by defining a set of functional and non-functional characteristics that can be used to evaluate the behavior of a service from various angles. Approved in the world of Application Service Providers (ASP).
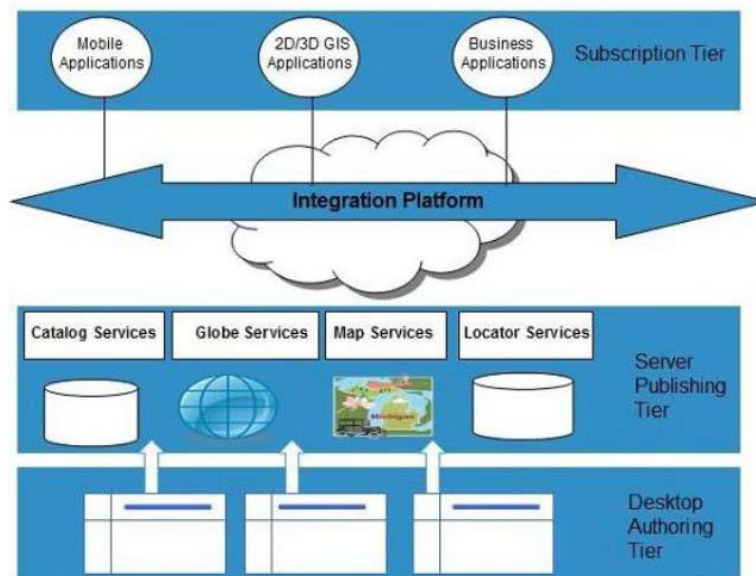
Grid computing: Network computing is defined as distributed computing in which multiple computers in different areas are connected to achieve a common goal. Computer sources are diverse and geographically dispersed. Thus, network computing breaks large problems into smaller components that can be distributed among the systems on the network. Network systems are distributed and large-scale for resource sharing through cluster computing. Network computing is pervasive in electronics science. It is a form of research that requires large amounts of computing power and collaboration between various data and computer services, and planning applications in networks can be a daunting task. Especially when optimizing the flow through the recording source. A network business process framework is a special type of business process management framework specifically designed for creating and executing business process processes, computing or information management procedures, and network configurations.
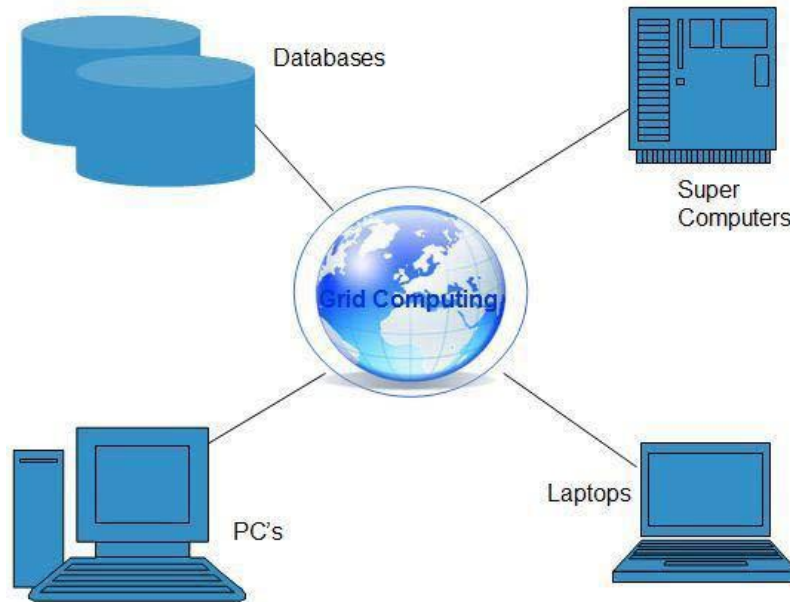
Utility Computing: These resources provide the necessary computer encoding capabilities. Managed computing, all parts of network computing, the concept of distributed computing follows the concept of network computing. In practice, the pricing of cloud computing can be very complex. Below are examples of Amazon S3 pricing as of November 2009. The cost of using Amazon S3 in the US is broken down into three parts: storage costs, data transfer costs, and application request costs. These charges are added to calculate the total invoice. Calculating the characteristics reduces the initial investment. Changes to an individual's or organization's accounting requirements change the invoice at no additional cost. If you consume less, your bill will be reduced accordingly.

CONCLUSION

Cloud computing can be seen as a new phenomenon that is changing the way we use the Internet, and there are many things to consider. There are many new developments that are rapidly evolving, each with the potential to facilitate mechanical tendencies and people's lives. This article provides an overview of cloud computing, deployment models, service models, cloud computing technologies, virtualization, SOA, network computing, and cloud computing tools. We wanted to focus on presenting and demonstrating a growth model for technologies used in cloud-based services. Various studies have been conducted with the specific end goal of providing the desired benefits and minimizing downtime when moving VM storage from one physical host to another. They are then combined to form a logical way to describe, discover, design, and manage computing resources and network components based on SOA ideas. This technology provides the scalability and scalability needed to ensure interoperability between heterogeneous systems and the resources that make up the cloud. It focuses on building dynamic systems that build the cloud to enable on-demand discovery, disassembly, and deployment services. The merger and organization of these departments is ideally managed in SOA.

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