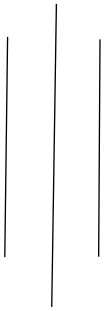
COLLEGE OF MANAGEMENT & INFORMATION TECHNOLOGY

BACHELOR IN INFORMATION TECHNOLOGY



Cloud Computing
BIT

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QUESTION No 1:

Elaborate your understanding about your virtualization and its type.

Answer:

Physical resources that every computer have are Processor, RAM, ROM, Network. In computer computing, server refers to physical-instance or physical-machine composes of Processor, RAM, ROM, Network. Simply concept of virtualization was introduced when single server had to handle multiple client request.

Hypervisor, a program/software is installed in server, so that virtual machine can be created/generated on a physical machine(server). Here physical machine means server itself. A Virtual Machine (VM) is a compute resource that uses software instead of a physical computer to run programs and deploy apps. Virtual Machine e.g.: Wap Emulator, Blue Stack. Therefore, with the Hypervisor (VMM) program/software is installed your system(server), you can create many virtual machines on your single physical instance, thus this is called virtual machine.

Here, we create many virtual machines on a single physical machine by using hypervisor. Therefore, that physical machine known as server is called host machine and all those virtual machines created on physical host machine are guest machine.

All virtual machines use the resources (Processor, RAM, ROM, Network) of the physical host machine(server) and we can assign a each one of the virtual machines to a single client. A client approaches virtual machine if any resources is needed and virtual machine approaches for those resources to physical host machine(server) and provide to client. So VM provide approach resource to server and provide it client according to client demand.

All VM which is operated in our server is monitored by software (Hypervisor/Virtual Machine Monitor) inside server. Here, server has its own base OS and the VM generated on server have their own respective OS.

Now coming back to cloud computing. Client computer is in separate geographical region and our servers VM is in another geographical region but client computer contacts to

servers VM for resources and use them and client pays to those resource/service providers as client are using server resources on rent client pay for it to service/resources provider.

Types of Virtualizations:

1. Application Virtualization:

Application virtualization helps a user to have remote access of an application from a server. The server stores all personal information and other characteristics of the application but can still run on a local workstation through the internet.

2. Network Virtualization:

The ability to run multiple virtual networks with each has a separate control and data plan. It co-exists together on top of one physical network. It can be managed by individual parties that potentially confidential to each other.

3. Desktop Virtualization:

Desktop virtualization allows the users' OS to be remotely stored on a server in the data center. It allows the user to access their desktop virtually, from any location by a different machine. Users who want specific operating systems other than Windows Server will need to have a virtual desktop.

4. Storage Virtualization:

Storage virtualization is an array of servers that are managed by a virtual storage system. The servers are not aware of exactly where their data is stored, and instead function more like worker bees in a hive. It makes managing storage from multiple sources to be managed and utilized as a single repository.

5. Server Virtualization:

This is a virtualization in which masking of server resources takes place. Here, the central-server (physical server) is divided into multiple different virtual servers by changing the identity number, processors. So, each system can operate its own operating systems in isolate manner.

6. Data virtualization:

This is the kind of virtualization in which the data is collected from various sources and managed that at a single place without knowing more about the technical information like how data is collected, stored & formatted then arranged that data logically so that its virtual view can be accessed by its interested people and stakeholders, and users through the various cloud services remotely.

QUESTION No 2:

Justify grid computing is preferable for running the high level ERP's rather than cloud computing.

Answer:

Grid computing is a system for connecting many computer nodes into a distributed architecture that delivers the compute resources necessary to solve complex problems.

In contrast, Cloud computing is the delivery of on-demand computing services from applications to storage and processing power typically over the internet and on a pay-as-you-go basis. Cloud computing is the technological capability to use IT infrastructures and services that are not installed on a local computer or server.

Using a network (Internet or Intranet), connections are made to external computers or servers that provide appropriate resources. Grid computing is preferable for running the high-level ERP's rather than cloud computing. The main advantages of grid computing are that it increases user productivity by providing transparent access to resources, and work can be completed more quickly. Grid operates as a decentralized management system which uses systems like distributed computing, distributed information, and distributed pervasive. In Grid computing, assets and resources are circulated over grids, though in Cloud computing, assets are overseen midway. How about we investigate the two processing advancements. Whereas Cloud computing oust the need of purchasing the programming software and hardware which requires complex design and exorbitant upkeep for building and sending applications it conveys it as an assistance or as a service over the web.

QUESTION No 3:

Research and explore your understanding on AWS and Alibaba Cloud.

Answer:

AWS (Amazon Web Services) is a comprehensive, evolving cloud computing platform provided by Amazon that includes a mixture of infrastructure as a service (IaaS), platform as a service (PaaS) and packaged software as a service (SaaS) offering. AWS (Amazon Web Service) is a Cloud Services which is a subsidiary of Amazon. It is a Global leader for cloud service provider. It has extensive global cloud infrastructure. It provides on demand cloud computing platforms and APIs to its users. It comprises of substantial number of products and services which includes computing, storage, networking, database, analytics, application services, deployment, management, Machine learning, mobile, developer tools, RobOps and tools for IoT which it provides in form of building blocks that can be used to create and deploy any types of application in the cloud. These services and products are designed to work with each other in applications that are sophisticated and highly scalable. It has a pay-as-you-go Approach for pricing. AWS has its roots as early in early 2000s. AWS was officially launched in 2006 although its previous iteration was already in market from couple of years before. Its popularity grew rapidly and by 2010 there were already hundreds of thousands of developers already signed up. Currently AWS provides over 200 products and services from web services to Artificial intelligence along with cloud computing, Simple Storage Service, Virtual private cloud, Relational database Services, Amazon CloudFront, and many more.

Alibaba Cloud, also known as Aliyan, is a cloud computing company, a subsidiary of Alibaba Group. Alibaba Cloud provides cloud computing services to online businesses and Alibaba's own e-commerce ecosystem. Alibaba Cloud, previously known as Aliyan, is a Chinese web hosting provider that specializes in cloud computing and it has been in the business since 2009. They exist as a branch of Alibaba Group and Its international operations are registered headquartered in Singapore, and have data centers in over 20 regions and more than 60 availability zones around the world. It is also one of the leading Cloud service providers in the world. At present, Alibaba Cloud offers cloud services that are available on a pay-as-you-go basis, and include Elastic Compute, Data Storage,

Relational Databases, Big-Data Processing, Anti-DDoS protection and Content Delivery Networks. Likewise, they have over three million customers currently and in countries and regions all over the world because of their countless cross-industry solutions. In addition, they are the number one in China, Asia-Pacific and one of the top five cloud hosting providers in the world.

QUESTION No 4:

Justify the pros and cons of grid computing.

Answer:

Grid computing is a system for connecting many computer nodes into a distributed architecture that delivers the compute resources necessary to solve complex problems.

Pros and cons of grid computing:

- Ensures easy scaling of applications and utilizes underused resources more adequately and adopts the use of open source, trust, transparency, and technology.
- Increases the computing reliability power and allows seamless sharing and distribution of computing resources across networks.
- Supports parallel processing of programs and data and guarantees optimal resource balancing.
- Grid environments are much more modular and computing doesn't have single points of failure.

Cons of grid computing:

- Suffers from proprietary approach and is very complex.
- If a node on the gird is down, a single point of failure occurs
- Applications would need tweaking to take full advantage of new models of computing.
- Grid computing technology the software and standards are still evolving processes.

QUESTION No 5:

How are cloud computing, grid computing, distributed computing related to each other. Justify with example.

Answer:

Cloud computing is the delivery of on-demand computing services from applications to storage and processing power typically over the internet and on a pay-as-you-go basis. Cloud computing is the technological capability to use IT infrastructures and services that are not installed on a local computer or server.

Grid computing is a system for connecting many computer nodes into a distributed architecture that delivers the compute resources necessary to solve complex problems.

A distributed system, also known as distributed computing, is a system with multiple components located on different machines that communicate and coordinate actions to appear as a single coherent system to the end-user.

As we can see all these three systems is used for resource s sharing, providing on demand IT resources/services like server, storage, database, networking, analytics, software etc. over internet. Distributed computing refers to solve a problem over distributed autonomous computers and they communicate between them over a network.

QUESTION No 6:

There are many companies working locally in Nepal to provide the service of web hosting. Prepare a report about the services those companies provide and justify whose service is better than according to your understanding.

Answer:

Some of companies working locally in Nepal to provide the service of web hosting are:

1. Gurkha. Host

Gurkha. Host has continually innovated new ways to deliver on our mission: to empower businesses to fully harness the web. Based in Jwagal, Kupondole, Lalitpur, Nepal; Gurkha. Host was founded in 2017 with one goal in mind: to create a better hosting company.

2. World Link

WorldLink is the largest Internet Service Provider (ISP) in Nepal and one of the most prominent IT companies. Founded in September 1995 with the aim of providing Internet and IT services by its present Chairman and Managing Director, Dileep Agrawal, WorldLink started off by providing store-and-forward e-mail services over a dial-up link to the Internet in the US.

3. Web Services Nepal

Web Creation Nepal is a well-established one stop I.T. company known for its efficient and first-class services we provide to our clients throughout the world. We are reliable team of experts comprising of Engineers, Developers, Designers, SEO experts, Marketing Executives and we work to the highest of standards.

4. WebHost Nepal

Web Host Nepal is an independently owned company powering over 5000 websites. Their hosting includes domain name, easy-to-use control panel, and free wordpress software. Web Host Nepal allows your business to grow without limiting disk space and bandwidth.

5. eHosting Server

eHostingServer provide cheapest Unlimited Web Hosting in Nepal, Web Development Service, Domain Registration, App Development, SEO, and all other IT service.

6. Babal Host

Babal Host is not just another addition to an extensive list of web hosting provider. We knew that spending a huge chunk of amount on setting up the data center was not an answer to the current problem.

Thank You!