Aim-: To Study and implement Infrastructure as a Service using Xen

Theory

Cloud computing is a computing paradigm, where a large pool of systems are connected in private or public networks, to provide dynamically scalable infrastructure for application, data and file storage.

Cloud Computing ensures quick delivery of on demand IT Services in cost effective way. The cloud computing comprises following advantages

1. **Reduce capital costs.** There's no need to spend big money on hardware, software or licensing fees so capital expenditure is very less.
2. **Reduce spending on technology infrastructure.** Maintain easy access to your information with minimal upfront spending. Pay as you go (weekly, quarterly or yearly), based on demand.
3. **Scalability and Speed:** Enterprises no longer have to invest time in buying and setting up the hardware, software and other resources necessary for a new application. They can quickly scale up or scale down their usage of services on the Cloud as per demands.
4. **Improve accessibility.** Get access to services at any time, from anywhere, on any device.
5. **Optimal Resource Utilization:** Servers, storage and network resources are better utilized as the Cloud is shared by multiple users, thus it cut down the waste of resources.
6. **Less personnel training is needed.** It takes fewer people to do more work on a cloud, with a minimal learning curve on hardware and software issues.
7. **Minimize licensing new software.** Stretch and grow without the need to buy expensive software licenses or programs.
8. **Flexibility of work practices.** Cloud computing allows employees to be more flexible in their work practices. For example, you have the ability to access data from home, on holiday.

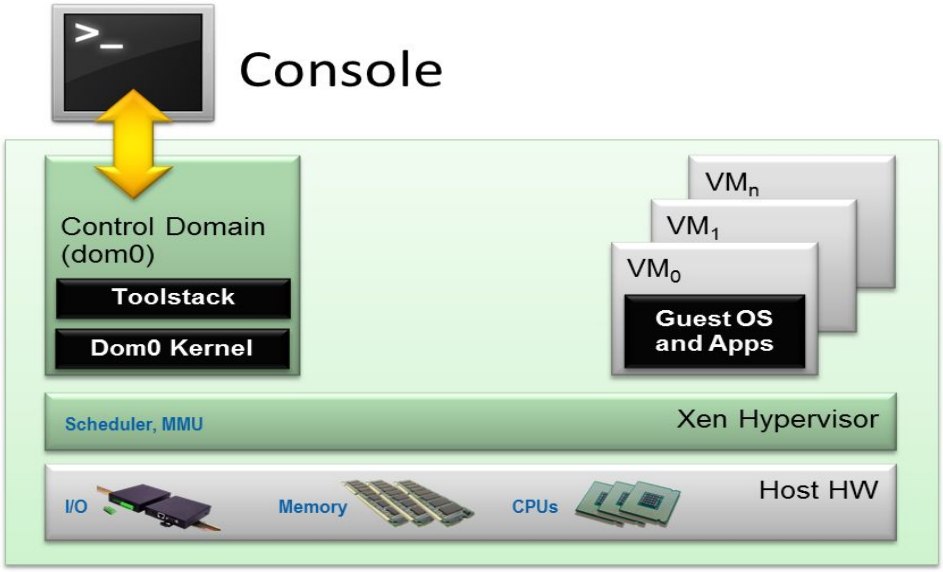
Based on Accessibility there are three types of clouds

1. Public Cloud - A public cloud can be accessed by any subscriber with an internet connection and access to the cloud space. Public cloud applications, storage, and other resources are made available to the general public by a service provider.
2. Private Cloud – A public cloud can be accessed by any subscriber within the premises over a intranet connection.
3. Community Cloud - A community cloud is shared among two or more organizations that have similar cloud requirements.
4. Hybrid Cloud - A hybrid cloud is essentially a combination of at least two clouds, where the clouds included are a mixture of public, private, or community

The cloud computing implementation has three Service Models

1) "**Infrastructure as a Service (IaaS)**" can be defined as the use of servers, storage, and virtualization to enable utility like services for users. The infrastructure consists of the facility, communication networks, physical compute nodes, and the pool of virtualized computing resources managed by a service provider
2) **2.** "**Platform as a Service (PaaS)**" can be defined as a computing platform that allows the creation of web applications quickly and easily and without the complexity of buying and maintaining the software and infrastructure underneath it
3) "**Software as a Service (SaaS)**" -: provides on demand Application delivery using cloud infrastructure to the user without any installation. Software-as-a-Service gives subscribed or pay-per-use users access to software or services that reside in the cloud and not on the user's device.

Architecture of Xen Hypervisor (to be draw on blank page)



The Xen Hypervisor is an exceptionally software layer that runs directly on the hardware and is responsible for managing CPU, memory, and interrupts

The implementation of IaaS using Xen Carries following Steps

A) Install Xen Server using following steps

1)Burn the downloaded Xenserver ISO to a CD and insert it into your optical drive

2)Make sure VT (or AMD-V) is enabled in your server's BIOS as well as make first boot device as cdrom.

3)Boot to the CD.

4)Answer the basic installation questions and reboot.

5)Perform initial configurations, such as assigning it an IP address, a host name, password, and so on.

6)Connect to your XenServer using XenCenter.

B) Install Xen Center

Xen center is management utility through which Xen server can be configured and managed. So Download the Citrix Xen Center by typing Ipaddress of Server on browser and install it.one the installation is over the ADD SERVER button allow you to add xen server by specifying ip address, username and password.

C) Creating Storage Repository

Storage repository is a storage space on Xen center computer which shares installable iso to Xen Server for VM Creation. It can be created by right clicking on Xen Server and pecifying shared path of windows repository.

D) Creating VM

This step allows you to create VM by right clicking on Xen server icon and specifying os template to be installed with CPU and Memory allocation

E)Accessing VM

at client side the OS Can be accessed using Remote desktop connection over windows or linux PC.

Conclusion

Thus we have successfully studies implementation of iaas using Citrix Xen.