

## Questions answered thorough chat window during session #3 on 04 Feb 2022

Question	Answer
<b>Question Asked</b>	<b>Answer Given</b>
Can a malware in a VM can attack the host OS	Security is a different topic all together. We do not plan to cover those in this session
How cloud computing and Virtualization are interlinked/ dependent? How functions get affected?	Virtualization is the key technology to enable cloud computing. Cloud computing is much more and require additional packages like how to charge based on utilization etc etc and scheduling to optimize the resources etc,T
in which case application programs directly interact with hardware?	There are some instances where you want full access to GPU and enable pass through feature. Like if a particular hardware does not support virtualization. In that case you can enable pass through where application can directly talk to the Hardware.
	Application programs do not normally in standard computing systems, applications have to go through the OS. This can happen in embedded systems, where only one application is running
what is isa	Instruction Set Architecture. It is the instruction which is supported by the hardware. Like Intel ISA is x86 and supports certain instructions,ISA is instruction set architecture, it gives the specification of the processor, in terms of what functionality it can provide. For example, multiplying two numbers which are available in its registers
what is multiplexing	Multiplexing in this context means two application program taking turns to run on the hardware. Basically, multiplexing means sharing based on time or resources or whatsoever concerned.
What are the jobs of hypervisors..	Creation and running of virtual machines (VMs). A hypervisor allows one computer to support multiple VMs by virtually sharing its resources, such as memory and processing. It is like splitting one machine to appear as multiple

what is hypervisor?

As discussed its role is to create and runs virtual machines (VMs). It allows one computer to support multiple VMs by virtually sharing its resources, such as memory and processing

KVM stands for?

[https://www.linux-kvm.org/page/Main\\_Page](https://www.linux-kvm.org/page/Main_Page)

ESX stands for?

<https://www.vmware.com/in/products/esxi-and-esx.html>

What is virtualization s/w

Virtualization S/W is basically the hypervisor which is in interface to hardware and VM running on top of it

Does hypervisor is sort of emulator to user application through which different programs can access resource simultaneously

Sort of but its main reason is partition the resources so that each VM can access its own resources independently without affecting others.

Who manages the Hypervisor?

Hypervisor is a privileged S/W running. Based on type of virtualization it may be managed by Host OS. It may be directly managing and talking the the Hardware and managing all things itself

what is a legacy os?

Earlier versions of OS that are not widely used now

What is the difference between emulation and simulation?

A simulator creates an environment that mimics the behaviour and configurations of a real device. On the other hand, an emulator duplicates all the hardware and software features of a real device

Do docker containers qualify as process VMs?

Docker is an example of container which can be considered light weight VM. We will talk about them in future lectures

How are resources such as CPU divided among multiple VMs? Is it time shared access, or do different cores get mapped to different VMs?

The main idea is ideally not to time share. But dedicate separate cores and memory to different VM . They are isolated and provided to different VM

Is it possible to virtualize the GPU in a similar fashion? Divide CUDA cores and memory between VMs?

Latest GPU can also be virtualized. We can divide the SM ( Group of cores ) and Memory among VM

What is ABI and ISA?

Application Binary Interface works as an interface between the operating system and application programs in the context of object/binary code. ISA is a visible part of the processor and programmer can look at the ISA because ISA works as the boundary between the hardware and software

What is ABI?

ABI (Application Binary Interface) refers to the calling conventions between functions, meaning what registers are used and what sizes the various C data types are. ISA (Instruction Set Architecture) refers to the instructions and registers a CPU has available.

Platform emulation means all the HW features are emulated in SW? Yes if the hardware supports emulation.

what is cloud computing?

Cloud computing is providing computing services—including servers, storage, databases, ... —over the Internet (“the cloud”) . Like Google cloud, Amazon cloud . Virtualization is the base technology which enables the isolation among the users access the cloud, It is the facility to provide different resources via internet like Google Cloud Platform etc

difference between host and guest os?

The host OS is the host OS that provides an environment in which the guest OS may run. The main difference between a host OS and a guest OS is that the host OS operates directly on the hardware. In contrast, the guest operating system runs on a virtual machine. Like I can have Windows as a host OS and run a VM having Linux as a guest OS