CSE427:VIRTUALIZATION AND CLOUD COMPUTING LABORATORY

L:0 T:0 P:2 Credits:1

Course Outcomes: Through this course students should be able to

CO1 :: analyze key technologies and capabilities required for setting up IT virtualization and cloud computing infrastructure

CO2 :: simulate the ultimate goal of assessing, measuring and planning for the deployment of cloud-based IT resources

CO3 :: establish the knowledge of cloud computing technology architectures based on Software-as- a-Service (SaaS), Platform-as-a-Service (PaaS) and Infrastructure-as-a-Service (IaaS) delivery models

List of Practicals / Experiments:

Understanding virtualization

- Virtualization and Cloud Computing
- Virtualizing servers
- Virtualizing desktops
- Virtualizing applications
- BIOS setting of Physical machine for virtualization technology

Understanding hypervisors

- Exploring the hypervisors
- Understanding type 1 hypervisor
- Understanding type 2 hypervisor
- Resource allocation
- Vmware ESX

Understanding virtual machines

- Examining CPU's in a virtual machine
- Examining memory in a virtual machine
- Examining network resources in a virtual machine
- Examining storage in a virtual machine
- Understanding how a virtual machine works
- Understanding virtual machine clones
- Understanding templates
- Understanding snapshots
- Understanding OVF
- Understanding containers

Creating a virtual machine

- Investigating the physical-to-virtual process
- hot and cold cloning
- Loading vmware workstation player
- Exploring vmware player
- Loading virtualbox
- Building a new virtual machine
- VM configuration
- Resource Allocation

- Full and Linked Clone in VMware Workstation

Installing a guest OS

- Installing windows on a virtual machine
- Loading windows into a virtual machine
- Installing vmware tools
- Understanding configuration options
- Optimizing a new virtual machine
- Installing linux on a virtual machine
- Exploring oracle vm virtualbox

Managing the hardware for VM

- Managing cpu for a virtual machine
- Configuring vm cpu options
- Hyper-threading
- Managing memory for a virtual machine
- Configuring vm memory options
- Memory optimizations
- Understanding storage virtualization
- Tuning practices for vm storage
- Understanding network virtualization
- Tuning practices for virtual networks

Understanding applications in a virtual machine

- Examining virtual infrastructure performance capabilities
- Deploying applications in a virtual environment
- Understanding virtual appliances and vApps
- Understanding google cloud,AWS and Microsoft azure services
- Understanding of API

Container technology

- installation
- Working with containers
- Configuring containers
- Building web server

Text Books:

1. CLOUD COMPUTING BIBLE by BARRIE SOSINSKY, WILEY

References:

1. CLOUD COMPUTING: PRINCIPALS AND PARADIGMS by JAMES BROBERG, RAJKUMAR BUYYA, WILEY