Experiment - 2

AIM = To study and implement hosted virtualization Using virtual Box and knn

* Virtualization in cloud computing
Virtualization is a technique how to separate a service from the underlying physical delivery of that service It's a process of creating a virtual version of something like computer hardware

⟿ * Benifits of virtualization.
→ More flexible and efficient allocation of resources
→ Enshance development productivity.
→ It lowers the cost of IT infrastructure.
→ Remote access and rapid Scalability
→ High availbility and disaster recovery
→ Pay peruse of the IT infrastructure deman
→ Enables running multiple Operating System.

* What is hypervisor give examples?
A hypervisor is a from of virtualization software used in cloud hosting to divide and allocate the resources on various pieces of hardware.
Ex = Virtual Box Microsoft Hyper-v, kvm, xen Windows virtual pc.

* Explain the types of hypervisor
Type 1 hypervisor =
This kind of hypervisor runs directly on the underlyin host system. It is also known as a native hypervisor or Bare metal hypervisor It does not require any base server operating System.
Ex = Critix xenserver microsoft Hyper-v hypervisor

→ Type 2 hypervisor :

A host operating system runs on the underlying host system It is also known as hosted hypervisor Such kin of hypervisor dose'nt run directly over the underlying hardware rather they run as an application in a host system (Physical Machine)

comparisons between virtual Box and kvm

virtual Box	kvm
→ Virtual Box is type 2 hypervisor	kvm is type 1 hypervisor which provides better performance.
→ Virtual Box provides a user-friendly graphical interface that makes it easier for beginners to manage virtual machines	kvm is managed through command line tools and APIs. Making it suitable for advanced users and system administrators
→ Virtual Box although it supports a wide range of hardware doesn't have the same level of hardware compatibility as kvm.	kvm has better hardware support including features like nested virtualization which allows running virtual machines within virtual machines.
X→ Virtual Box has limitations in resources managment which is less suitable in resource intensive application.	kvm allows for dynamic allocation of resources like cpu and memory to virtual Machine

Experiment - 3

Aim = To study and implement bare metal virtuali-
zation using xen.

functions performed by Bare-Metal hypervisor
A bare metal hypervisor also known as a Type
1 hepervisor directly runs on the bare metal hard
ware of a physical machine It primary functions
is to manage and allocate resources to multiple vir
ual machine (vms) each running its own operating
system. Here are they key functions performed b
large metal hypervisor.

→ Resource Virtualization
vm creation and management
Hardware abstraction.
Resource allocation and scheduling
Isolation and security
Live migration.
snapshot and cloning
performance monitoring and optimization.
Hardware pass through
Integration with managment tools.

ii) Compare hosted and bare metal hypervisions

Hosted hypervisors	Bare metal hypervisor
Hosted hypervisors are also called as type 2 hyper-visors which run on Conventional oprating System	Bare metal hypervisor are called as type1 hypervisor which run on system with vms running on them.

Hosted hypervisors	Bare metal hypervisors
In hosted hypervisor there is OS virtualization	While in Bare metal there is hardware virtualization
→ Not much Scalable because of its reliance on the underlying OS	while Bare metal hypervisor provides better Scalability
→ This are slower hypervisor because of systems dependency	This hypervisor are faster as compared to hosted one.
It has reduced performance rate as it runs with extra overhead.	It has higher performance as there's no middle layer.

(ii)

a) Horizontal land vertical Scaling:-
Horizontal Scaling is also know as Scaling out involves adding more machines or nodes to a system to handle increased load or demand

Vertical Scaling is called as Scaling up involves increasing the capacity of an individual machines by adding more resources Such as cpu, memory or Storage.

Experiment · 4.

Aim = To Study and implement infrastructure
a service using AWS.

Theory!

i) Amazon EC2 (Elastic Compute Could)
Amazon EC2 provides on-demand Scalable Comput
Capacity in the Amazon Web services (AWS) Cloud
Amazon-EC2 provides the following high level featu
→ Instances (virtual services)
→ Amazon Machine images (AMIs)
perconfigured templates for your instances that Pacle
the components you need for your server including ope
-ting System and additional Software)
→ Instance types =
various configuration of CPU Memory Storage netwo
-ing Capacity and graphics hardware for your intans
→ key pairs =
Secure log in information for your instances AWS stores
the public key and you store the private key in a
Secur place.
→ Instance Store volumes for temporary data that is delere
cohen you stop hiberate or terminate your intences

ii) Amazon Machine image (AMI)
An AMI is a Supported and maintained image Provided
by AWS that provides the information required to
launch an instance.
An AMI contains the following
One or More Amazon Elastic Block Store
(Amazon EBS)

Snapshots or for instance Store backed AMIs a templ
ate for the root volume of the instance.

→ launch permissions that control which AWs accounts
Can use the AMI to launch intances

→ A block device Mapping that specifies the volume to
attach to the instance Cohen its launched

iii] Types of Ec2 Computing instances :-
→ General purpose intances.
→ Compute optimized intances
→ Memory optimized instances
→ Storage optimized instances
→ Accelerated Computing instances.

iv] Elastic IP Address :-
An elastic IP address is a static public IPv4
Address designed for dynamic cloud computing one
Can as Sociat an Elastic IP Address with any
instance or network interface in any vpc in
Account

v] Remote desktop protocol (RDP) :-
RDP is a Secure network protocol developed by
microsoft It enables network adminstrators to
remotely diagonese problems that individual
users ecounter and givie users remote
access to thier physical work desktop
Computers.
B. RDP can be Used by Employees working from
home or travelling who need access to their
work Computers.