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 Aim- Implementation of Host based virtualization using VMware oTest NAT to NAT o Test bridge to bridge

Theory-

virtualization in a cloud computing is making virtual platform of servers operating system and storage devices. This will help the user by providing multiple machines at the same time it also allows sharing a single physical instance of resource or an application to multiple users. cloud virtualization also manage the workload by transforming traditional computing & make it more scalable, economic & efficient

Types of virtualization-

i) operating system virtualization

In os virtualization inc, the virtual machine software installs in the os of the host rather than directly on the hardware system. The most important use of operating system virtualization is for testing the application on different platform

ii) Application Virtualization

It helps user to have a remote access of an application from a server, the server stores the personal information and other characteristics of the application but still runs on local workstation

Teacher's Sign : _____

ii) Network virtualization.

The ability to run multiple virtual networks that each has a separate control & has a plan that exists together on top of physical n/w. It can be managed by individual parties.

iv) Storage virtualization

It is an array of servers that are managed by virtual storage system. The servers aren't aware of exactly where the data is stored and instead of functions more like write bus in a hive.

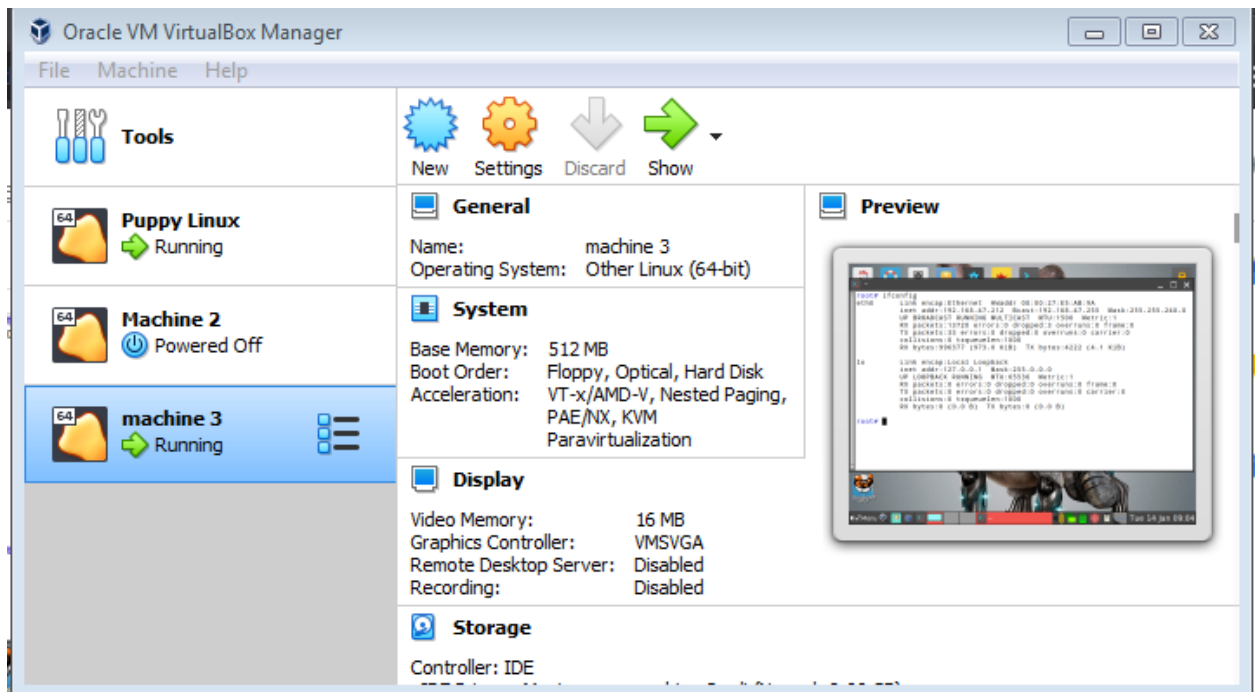
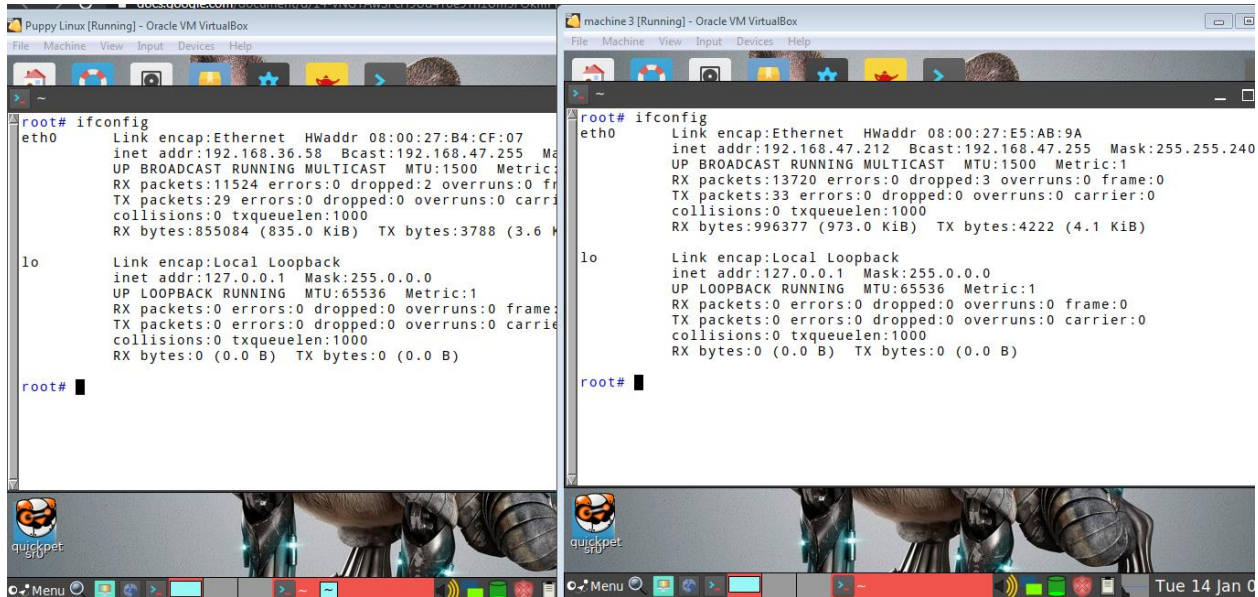
v) Network Address Translation (NAT)

NAT is a method of remapping one IP address space into another by modifying n/w address information in the IP header of packets while they are in transit across a traffic routing device.

Conclusion- Hence, the concept of virtualization its types & VAWare have been properly understood.

Experiment - Virtualization

Bridged Based Adapter

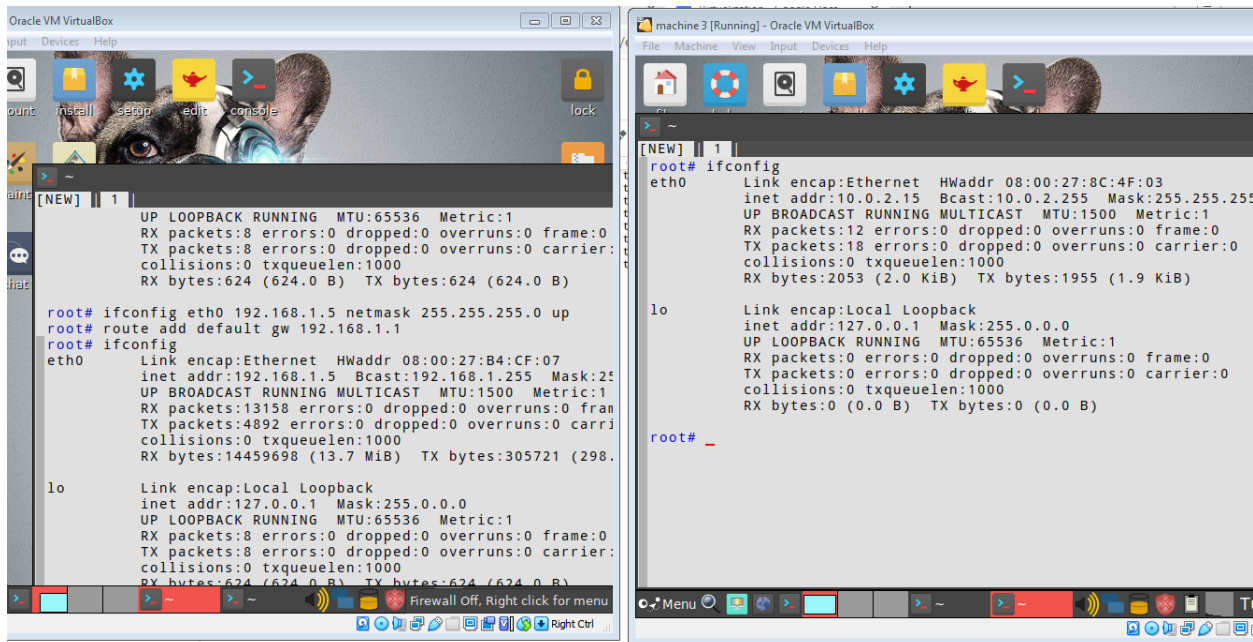


```
collisions:0 txqueuelen:1000
RX bytes:855084 (835.0 KiB) TX bytes:3788 (3.6 KiB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

root# ping 192.168.47.212
PING 192.168.47.212 (192.168.47.212): 56 data bytes
64 bytes from 192.168.47.212: seq=0 ttl=64 time=1.538 ms
64 bytes from 192.168.47.212: seq=1 ttl=64 time=0.681 ms
64 bytes from 192.168.47.212: seq=2 ttl=64 time=1.005 ms
64 bytes from 192.168.47.212: seq=3 ttl=64 time=0.590 ms
64 bytes from 192.168.47.212: seq=4 ttl=64 time=1.114 ms
64 bytes from 192.168.47.212: seq=5 ttl=64 time=1.019 ms
64 bytes from 192.168.47.212: seq=6 ttl=64 time=0.949 ms
64 bytes from 192.168.47.212: seq=7 ttl=64 time=0.967 ms
64 bytes from 192.168.47.212: seq=8 ttl=64 time=0.900 ms
64 bytes from 192.168.47.212: seq=9 ttl=64 time=0.833 ms
```

NAT



```
Oracle VM VirtualBox
File Machine View Input Devices Help
[NEW] 1
root# ifconfig
eth0      Link encap:Ethernet  HWaddr 08:00:27:8C:4F:03
          inet addr:10.0.2.15  Bcast:10.0.2.255  Mask:255.255.255
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:12 errors:0 dropped:0 overruns:0 frame:0
          TX packets:18 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:2053 (2.0 KiB)  TX bytes:1955 (1.9 KiB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

root# ifconfig eth0 192.168.1.5 netmask 255.255.255.0 up
root# route add default gw 192.168.1.1
root# ifconfig
eth0      Link encap:Ethernet  HWaddr 08:00:27:B4:CF:07
          inet addr:192.168.1.5  Bcast:192.168.1.255  Mask:255.255.255
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:13158 errors:0 dropped:0 overruns:0 frame:0
          TX packets:4892 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:14459698 (13.7 MiB)  TX bytes:305721 (298.0 KiB)

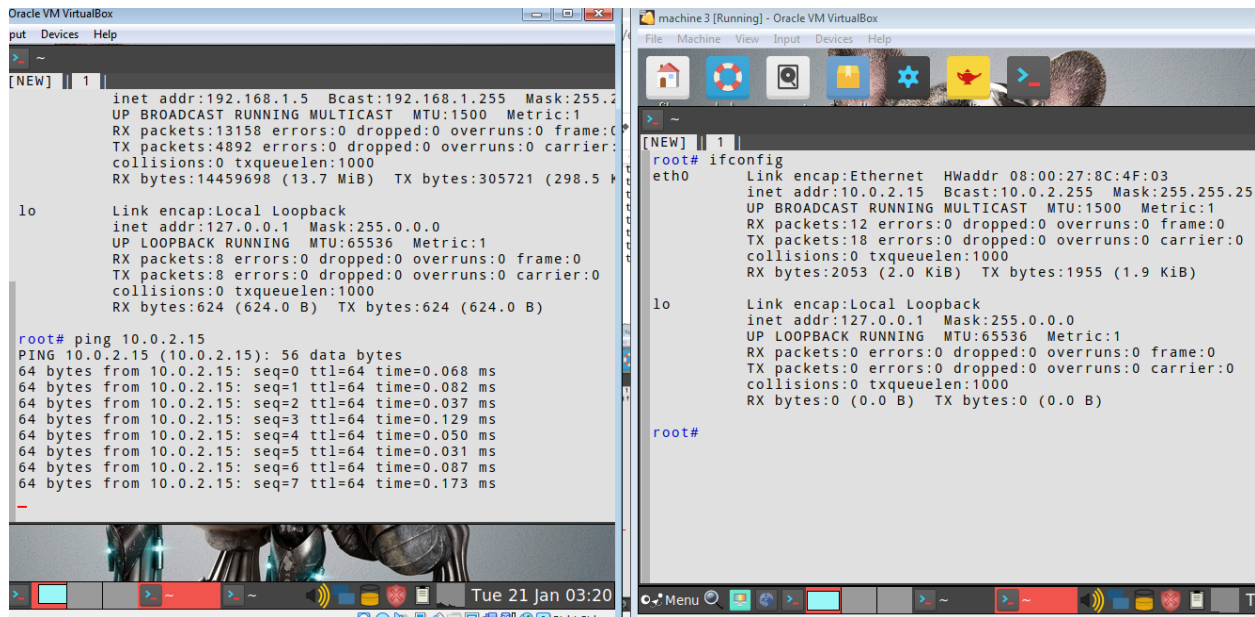
lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:8 errors:0 dropped:0 overruns:0 frame:0
          TX packets:8 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:624 (624.0 B)  TX bytes:624 (624.0 B)

root#
```

```
machine 3 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
[NEW] 1
root# ifconfig
eth0      Link encap:Ethernet  HWaddr 08:00:27:8C:4F:03
          inet addr:10.0.2.15  Bcast:10.0.2.255  Mask:255.255.255
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:12 errors:0 dropped:0 overruns:0 frame:0
          TX packets:18 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:2053 (2.0 KiB)  TX bytes:1955 (1.9 KiB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

root#
```



Commands:

`ifconfig eth0 192.168.1.5 netmask 255.255.255.0 up`

`route add default gw 192.168.1.1`

Host by adapter

