

Aim - Study NIST Model of cloud computing

Theory - NIST is designed to accelerate CC process. They have surveyed existing standards and security to design current new standard.

NIST defines CC as a model for enabling sharing of efficient computer resources. NIST long term goal is to provide leadership and guidance around CC.

Essential characteristics of cloud computing.

- * On demand self-service
- * Broad Network access
- * Resource Pooling
- * Rapid elasticity
- * Measured service

There are following service models

- * cloud software as a service (SaaS)
capable to provide application on cloud infrastructure
- * cloud IaaS as a server - provided to the consumer to deploy on cloud.

* Cloud Infrastructure as a service (IaaS)

→ capability provided to the consumer to deploy onto the cloud infrastructure

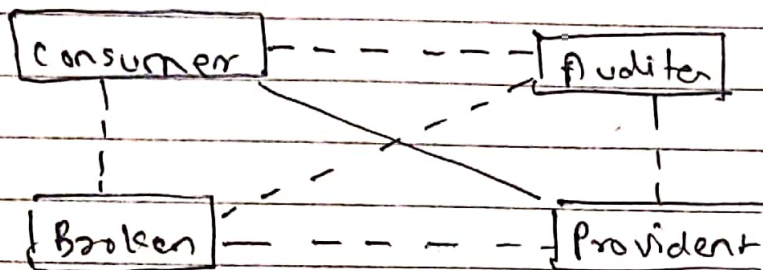
Deployment modes are more of type.

→ Private cloud

→ Communities

→ Public

→ Hybrid.



- Path b/w providers & consumers

- - Path b/w Auditor & consumers

--- Path for auditor

Cloud Service Management includes all of the service-related functions that are necessary for the management and operation of the services required by or proposed to cloud consumers.

Cloud Service Management

Business
Support

Provision's
config

Portability
Intuable

Customer
Mgmt

Rapid
Provision

Data
Portability

contract
Mgmt

Resource
change

Copy Data
to & from

Inventory
Mgmt

Monitoring
Report

Bulk Data
transfer

Accounting
&
Billing

Meters

Service
Inter preting

Reporting
& Audity

SLA
Management

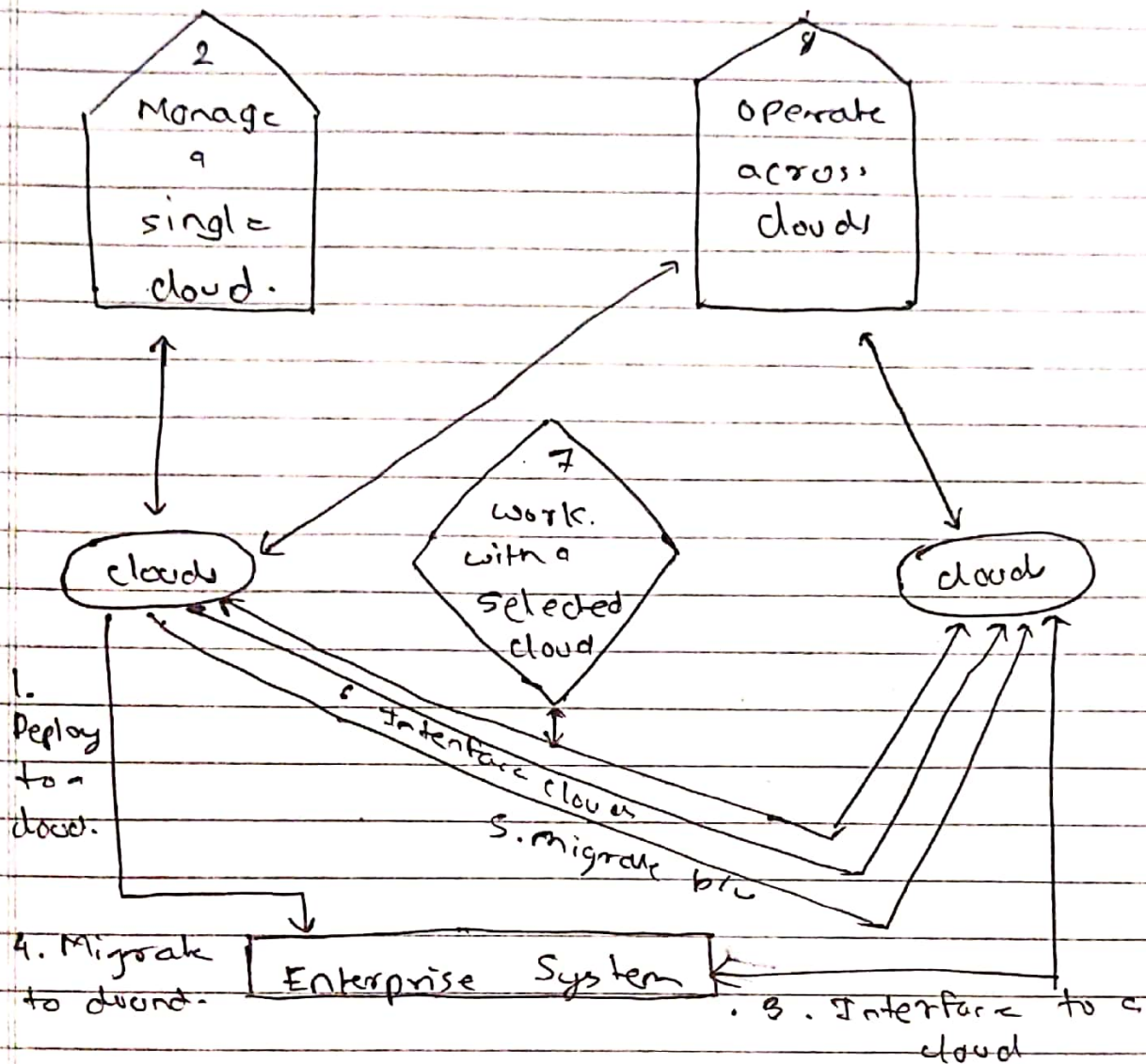
System
Portability

Pricing &
Ration

VM Interface
migration

Teacher's Sign: _____

Deployment Scenario perspective



Single cloud -

Scenario 1 - Deployed to 1 cloud

Scenario 2 - Manage resource on a single cloud

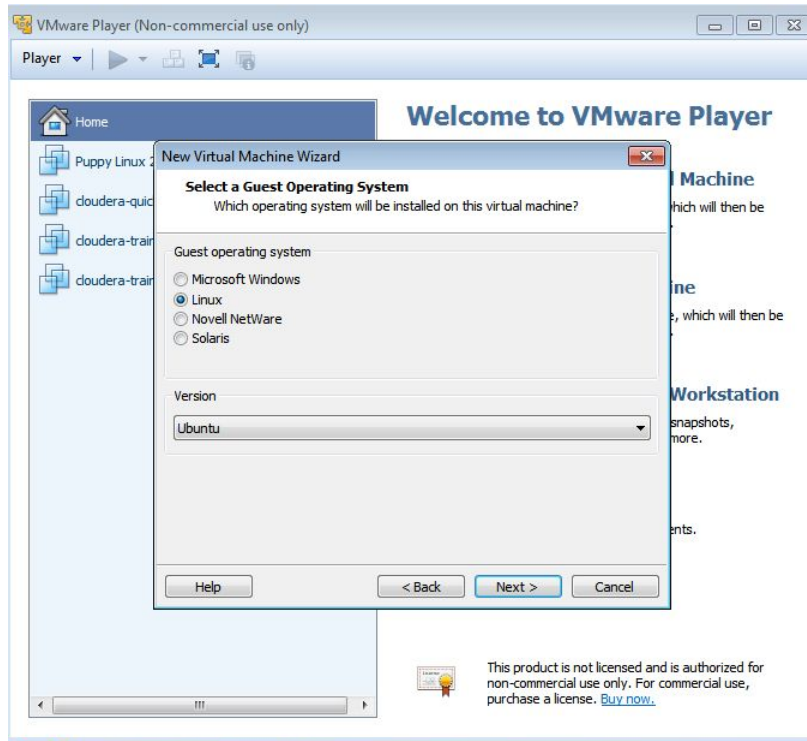
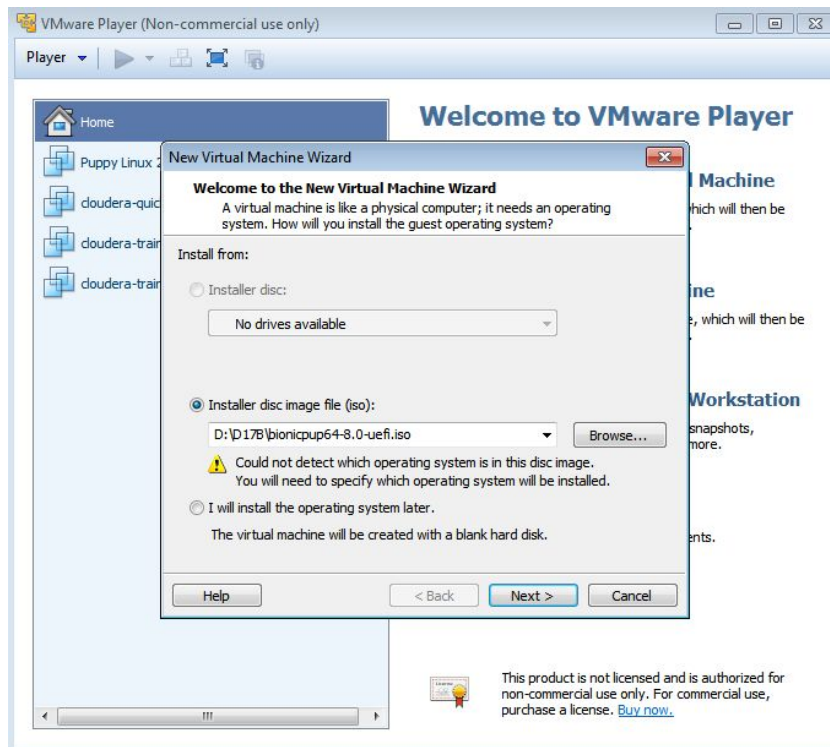
Scenario 3 - Interface system to a single cloud.

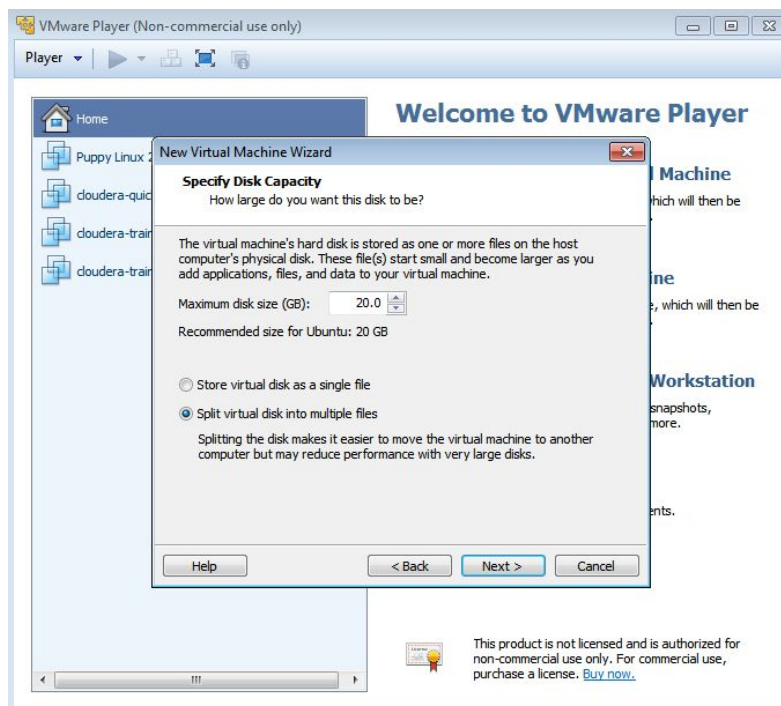
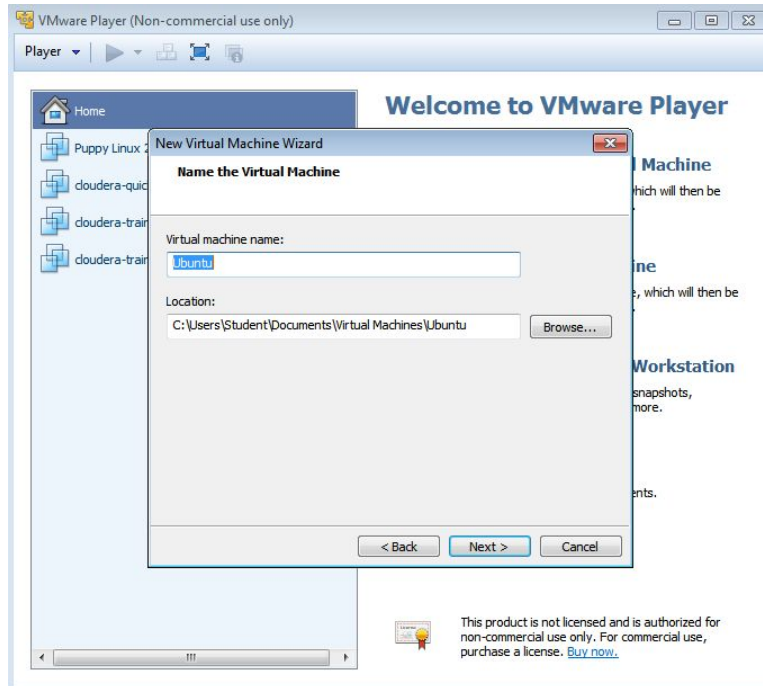
Scenario 4 - Enterprise system migrated or replaced on a single cloud

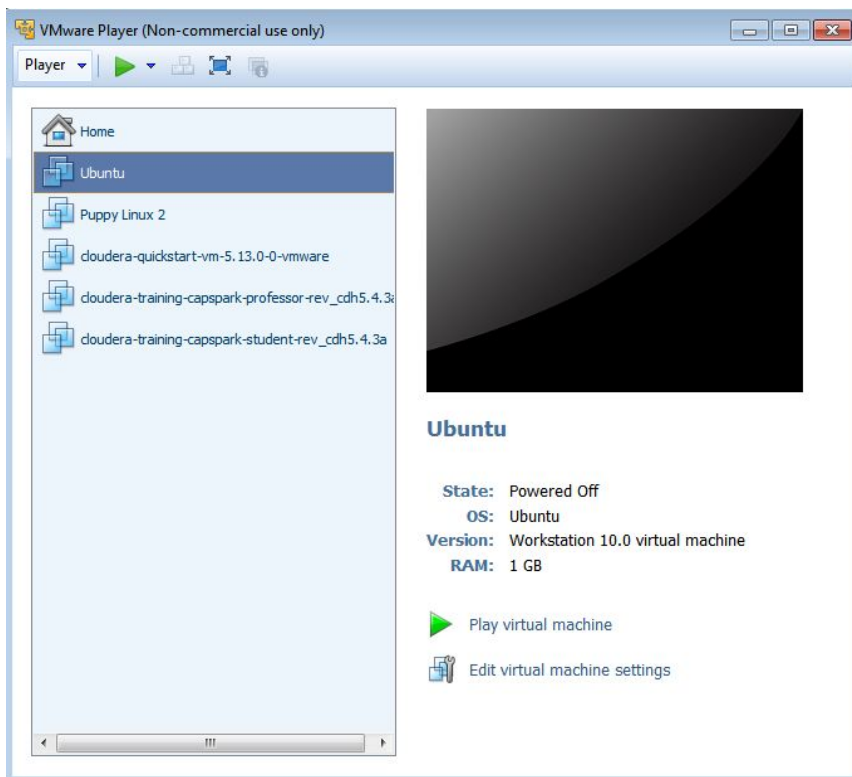
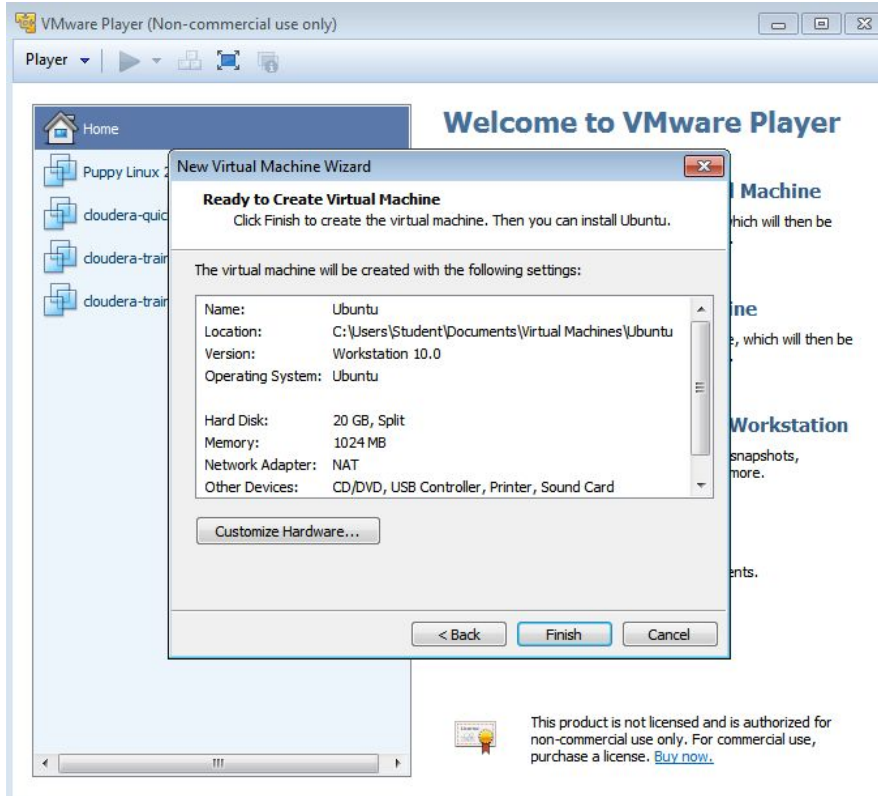
Conclusion - Hence we have successfully given info about various models & scenarios

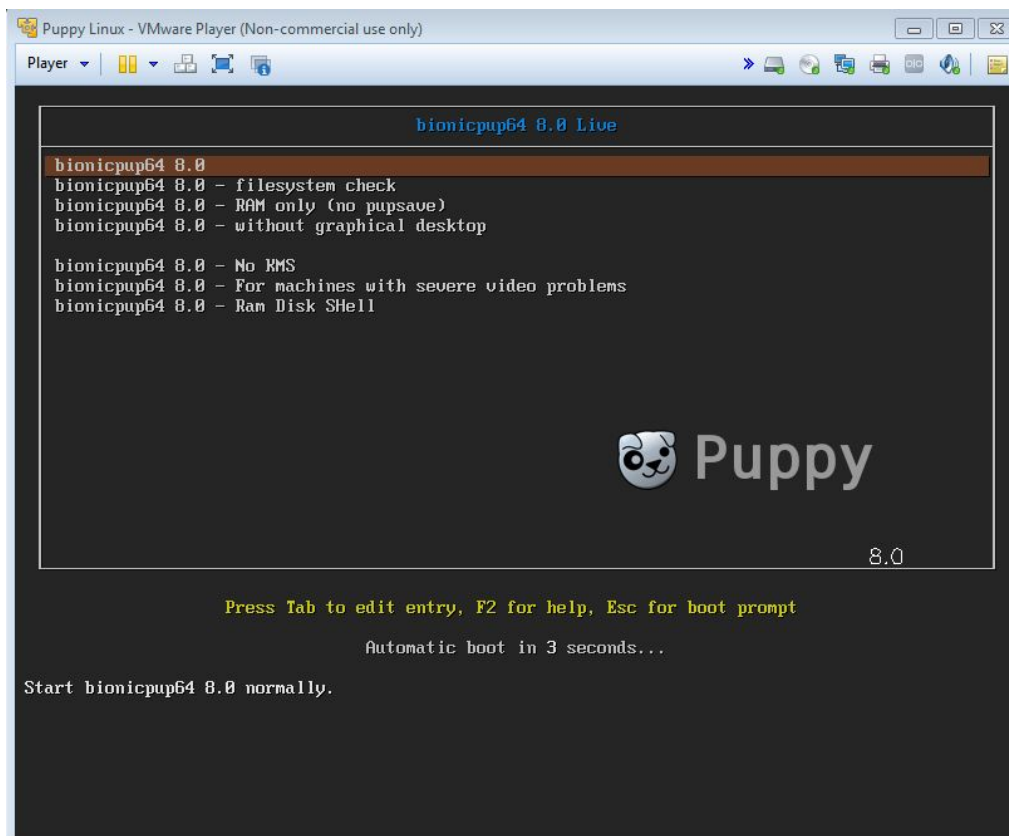
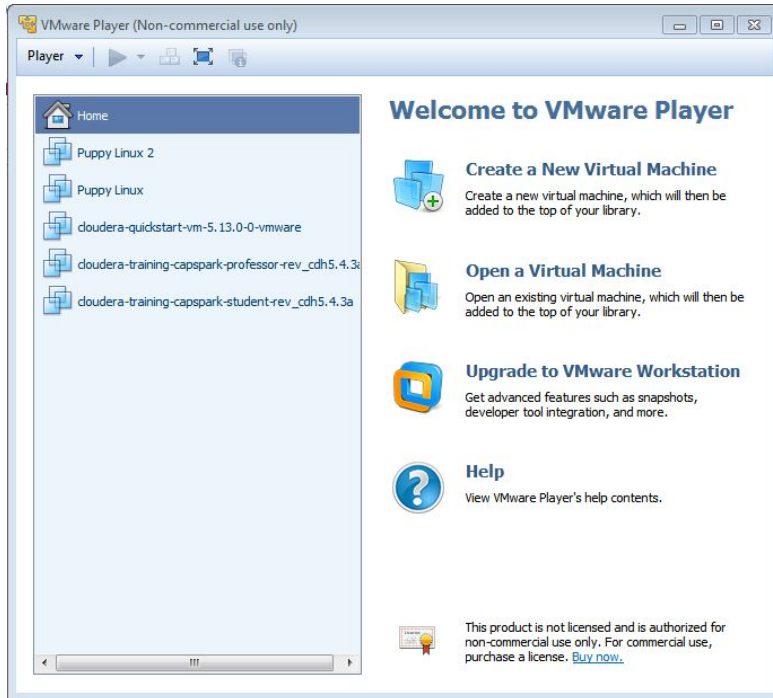
Teacher's Sign: _____

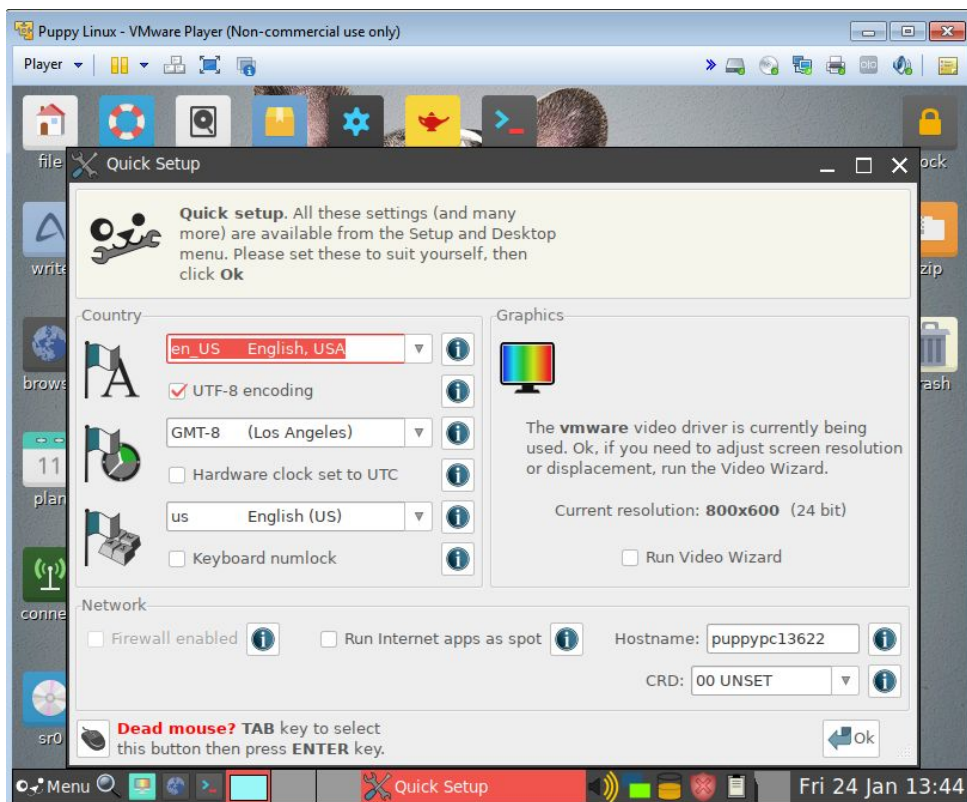
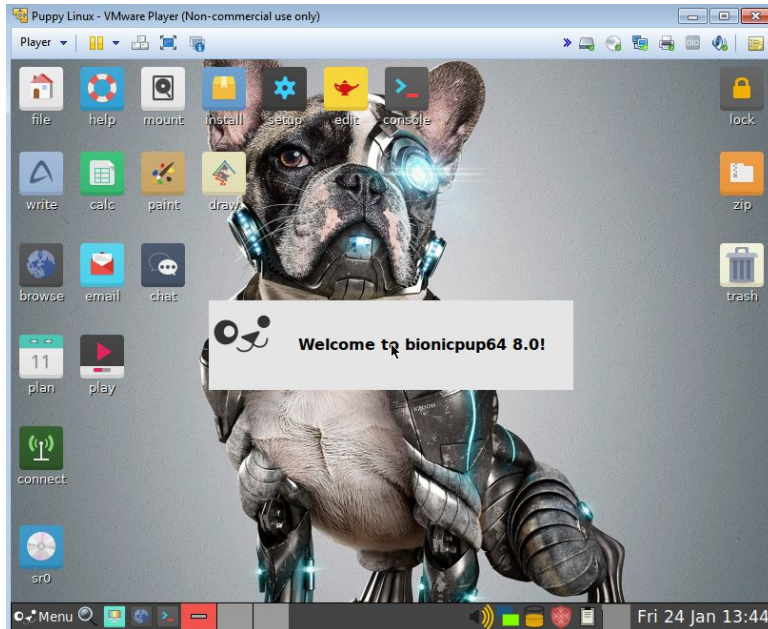
INSTALLATION











```
Puppy Linux - VMware Player (Non-commercial use only)
Player
root# ifconfig
eth0      Link encap:Ethernet  HWaddr 00:50:56:28:C9:08
          inet addr:192.168.32.99  Bcast:192.168.47.255  Mask:255.255.240.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:55903 errors:0 dropped:23 overruns:0 frame:0
          TX packets:38 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:3741716 (3.5 MiB)  TX bytes:2975 (2.9 KiB)
          Interrupt:19 Base address:0x2000

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#
```

NAT

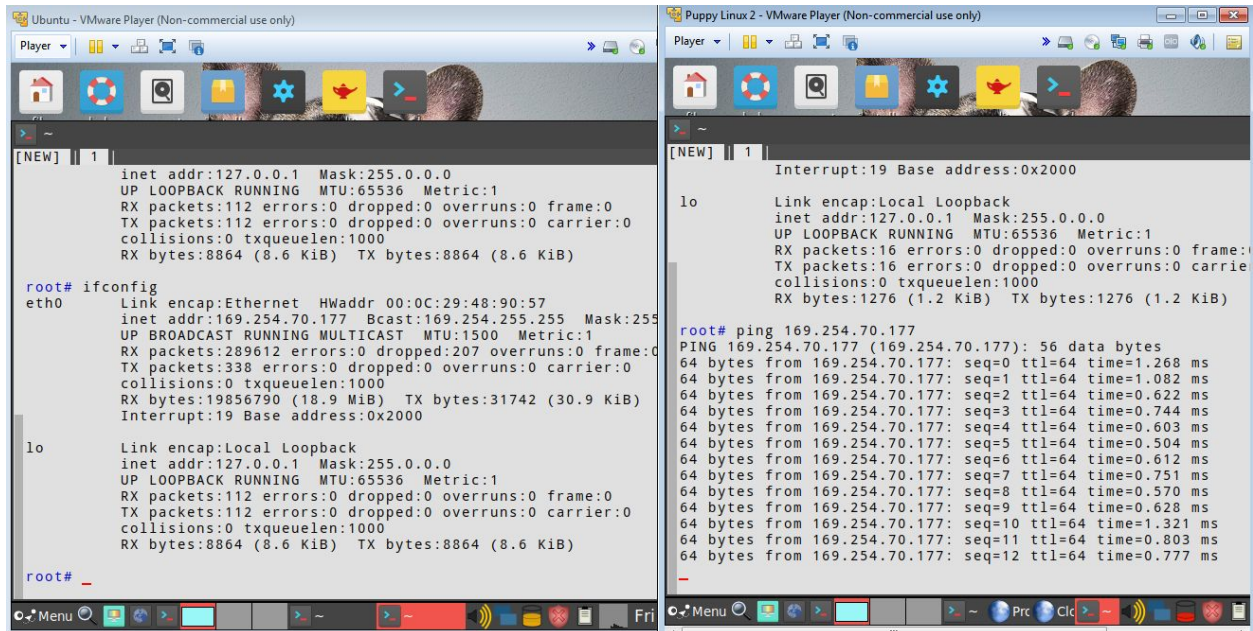
```
Puppy Linux - VMware Player (Non-commercial use only)
Player
root# ifconfig
eth0      Link encap:Ethernet  HWaddr 00:50:56:28:C9:08
          inet addr:192.168.32.99  Bcast:192.168.47.255  Mask:255.255.240.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:55903 errors:0 dropped:23 overruns:0 frame:0
          TX packets:38 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:3741716 (3.5 MiB)  TX bytes:2975 (2.9 KiB)
          Interrupt:19 Base address:0x2000

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#
```

```
Puppy Linux 2 - VMware Player (Non-commercial use only)
Player
root# ping 192.168.32.99
PING 192.168.32.99 (192.168.32.99): 56 data bytes
64 bytes from 192.168.32.99: seq=0 ttl=128 time=1.602 ms
64 bytes from 192.168.32.99: seq=1 ttl=128 time=1.536 ms
64 bytes from 192.168.32.99: seq=2 ttl=128 time=1.371 ms
64 bytes from 192.168.32.99: seq=3 ttl=128 time=1.462 ms
64 bytes from 192.168.32.99: seq=4 ttl=128 time=0.867 ms
64 bytes from 192.168.32.99: seq=5 ttl=128 time=1.326 ms
64 bytes from 192.168.32.99: seq=6 ttl=128 time=2.505 ms
64 bytes from 192.168.32.99: seq=7 ttl=128 time=1.512 ms
64 bytes from 192.168.32.99: seq=8 ttl=128 time=1.407 ms
64 bytes from 192.168.32.99: seq=9 ttl=128 time=0.968 ms
```

HOST ONLY



The image shows two side-by-side terminal windows from a VMware Player. The left window is titled 'Ubuntu - VMware Player (Non-commercial use only)' and shows the output of the 'ifconfig' command. It displays details for the 'eth0' interface (IP: 169.254.70.177) and the 'lo' loopback interface (IP: 127.0.0.1). The right window is titled 'Puppy Linux 2 - VMware Player (Non-commercial use only)' and shows the output of the 'ping' command to 169.254.70.177, displaying 12 successful pings with varying response times.

```
[NEW] 1
inet addr:127.0.0.1 Mask:255.0.0.0
UP LOOPBACK RUNNING MTU:65536 Metric:1
RX packets:112 errors:0 dropped:0 overruns:0 frame:0
TX packets:112 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:8864 (8.6 KiB) TX bytes:8864 (8.6 KiB)

root# ifconfig
eth0      Link encap:Ethernet HWaddr 00:0C:29:48:90:57
          inet addr:169.254.70.177 Bcast:169.254.255.255 Mask:255.255.255.255
          UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
          RX packets:289612 errors:0 dropped:207 overruns:0 frame:0
          TX packets:338 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:19856790 (18.9 MiB) TX bytes:31742 (30.9 KiB)
          Interrupt:19 Base address:0x2000

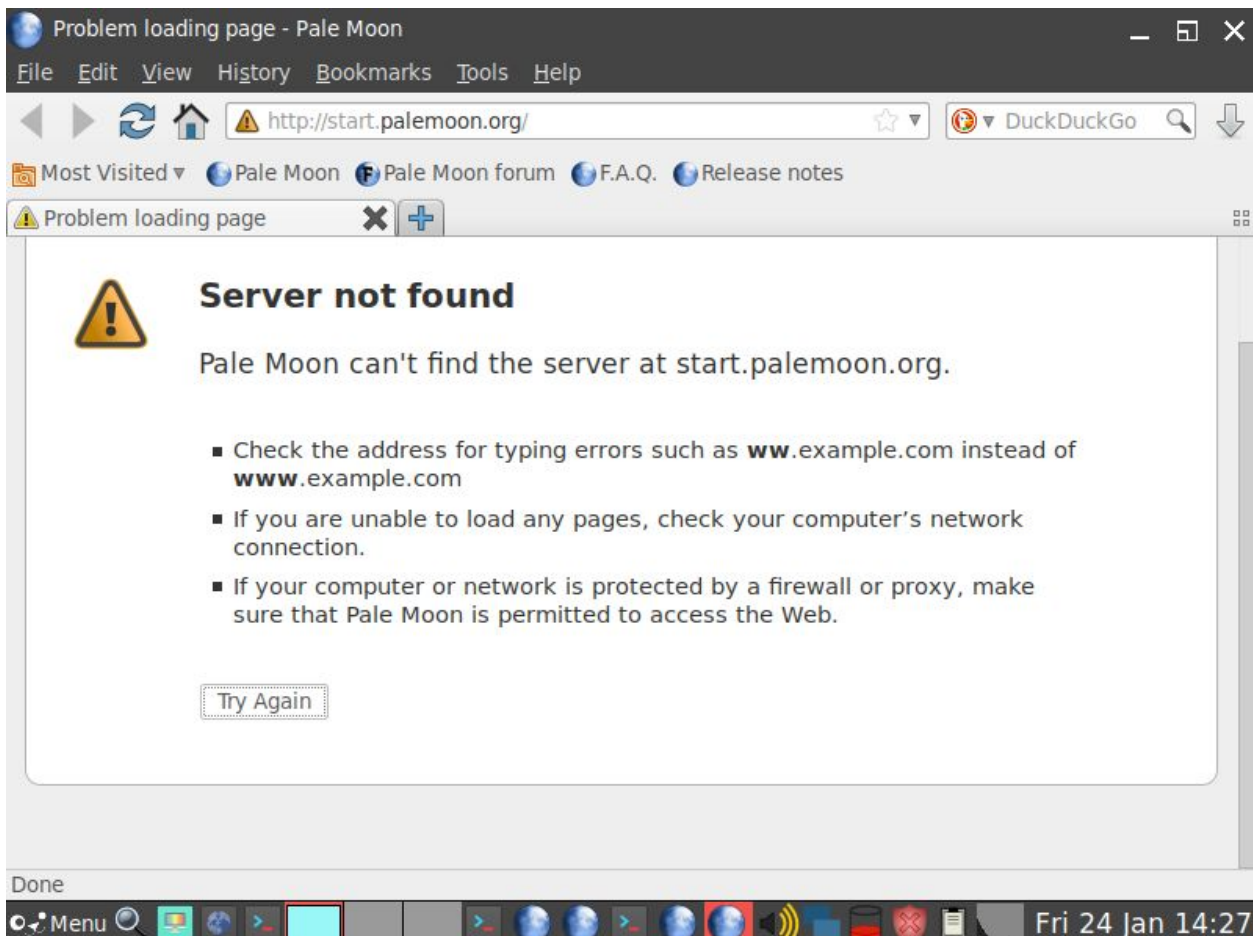
lo        Link encap:Local Loopback
          inet addr:127.0.0.1 Mask:255.0.0.0
          UP LOOPBACK RUNNING MTU:65536 Metric:1
          RX packets:112 errors:0 dropped:0 overruns:0 frame:0
          TX packets:112 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:8864 (8.6 KiB) TX bytes:8864 (8.6 KiB)

root#
```

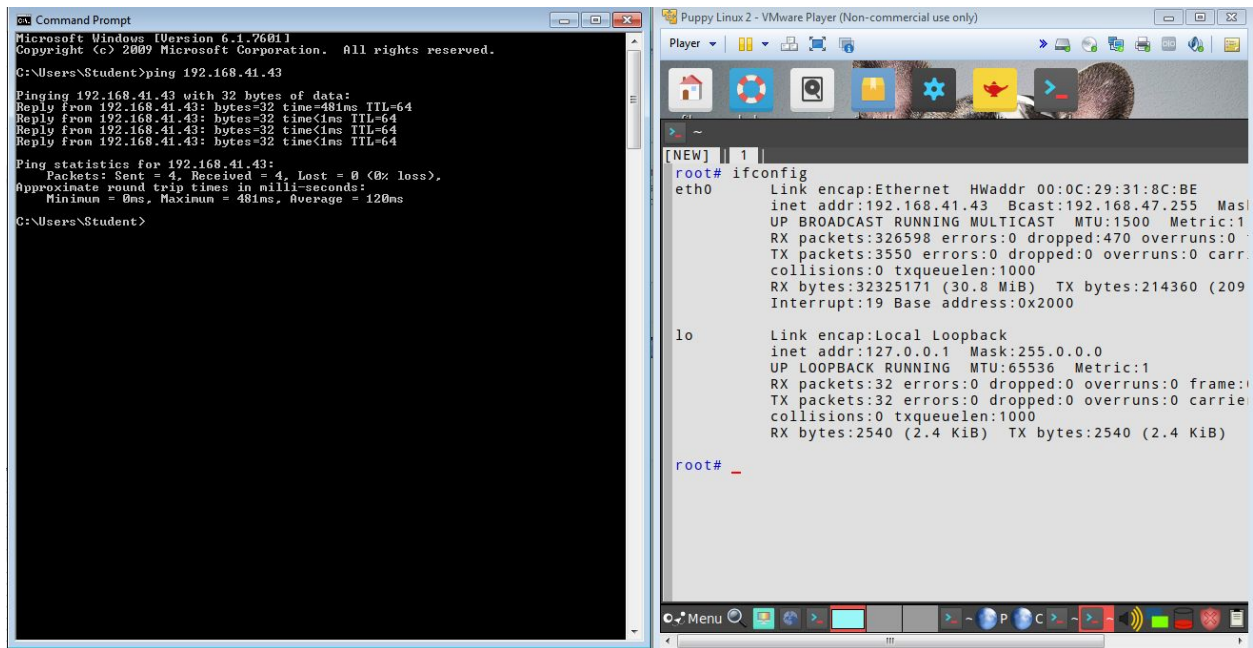
```
[NEW] 1
Interrupt:19 Base address:0x2000

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:16 errors:0 dropped:0 overruns:0 frame:0
TX packets:16 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:1000
RX bytes:1276 (1.2 KiB) TX bytes:1276 (1.2 KiB)

root# ping 169.254.70.177
PING 169.254.70.177 (169.254.70.177): 56 data bytes
64 bytes from 169.254.70.177: seq=0 ttl=64 time=1.268 ms
64 bytes from 169.254.70.177: seq=1 ttl=64 time=1.082 ms
64 bytes from 169.254.70.177: seq=2 ttl=64 time=0.622 ms
64 bytes from 169.254.70.177: seq=3 ttl=64 time=0.744 ms
64 bytes from 169.254.70.177: seq=4 ttl=64 time=0.603 ms
64 bytes from 169.254.70.177: seq=5 ttl=64 time=0.504 ms
64 bytes from 169.254.70.177: seq=6 ttl=64 time=0.612 ms
64 bytes from 169.254.70.177: seq=7 ttl=64 time=0.751 ms
64 bytes from 169.254.70.177: seq=8 ttl=64 time=0.570 ms
64 bytes from 169.254.70.177: seq=9 ttl=64 time=1.321 ms
64 bytes from 169.254.70.177: seq=10 ttl=64 time=0.803 ms
64 bytes from 169.254.70.177: seq=11 ttl=64 time=0.777 ms
64 bytes from 169.254.70.177: seq=12 ttl=64 time=0.777 ms
```



BRIDGED



The image shows two side-by-side windows. The left window is a Windows Command Prompt titled 'Command Prompt' with the following text:

```
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Student>ping 192.168.41.43

Pinging 192.168.41.43 with 32 bytes of data:
Reply from 192.168.41.43: bytes=32 time=481ms TTL=64
Reply from 192.168.41.43: bytes=32 time<1ms TTL=64
Reply from 192.168.41.43: bytes=32 time<1ms TTL=64
Reply from 192.168.41.43: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.41.43:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 481ms, Average = 120ms

C:\Users\Student>
```

The right window is a Puppy Linux VM titled 'Puppy Linux 2 - VMware Player (Non-commercial use only)'. It shows a terminal window with the following output:

```
[NEW] 1
root# ifconfig
eth0      Link encap:Ethernet  HWaddr 00:0C:29:31:8C:BE
          inet addr:192.168.41.43  Bcast:192.168.47.255  Mas
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:326598  errors:0  dropped:470  overruns:0
          TX packets:3550  errors:0  dropped:0  overruns:0  carr
          collisions:0  txqueuelen:1000
          RX bytes:32325171 (30.8 MiB)  TX bytes:214360 (209
          Interrupt:19  Base address:0x2000

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:32  errors:0  dropped:0  overruns:0  frame:
          TX packets:32  errors:0  dropped:0  overruns:0  carri
          collisions:0  txqueuelen:1000
          RX bytes:2540 (2.4 KiB)  TX bytes:2540 (2.4 KiB)

root#
```