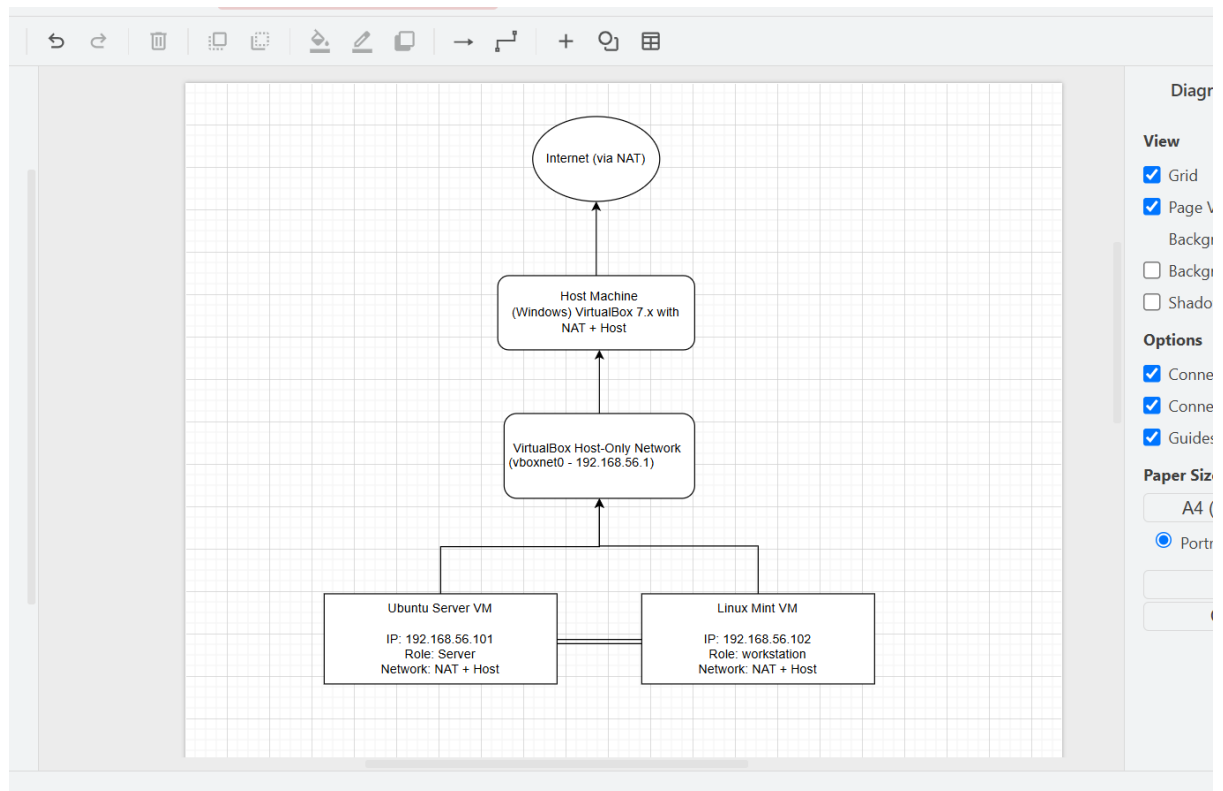


Week 1 Journal – System Planning & Distribution Selection

Module: Operating Systems

Assessment: Week 1 – Phase 1: System Planning and Distribution Selection

1. System Architecture Diagram



Notes:

I used my laptop as the host and set up two virtual machines inside VirtualBox. One is the **Ubuntu Server**, and the other is **Linux Mint**. I added both NAT (so they can use the internet) and Host-Only (so they can connect to each other). Each one got its own IP address 192.168.56.101 for Ubuntu and 192.168.56.102 for Mint. I tested both with ping and they worked fine.

2. Distribution Selection Justification

Chosen Server Distro: Ubuntu Server 24.04.3 LTS

Alternatives Considered: Debian 12, Rocky Linux 9

Comparison:

- Ubuntu Server 24.04.3 LTS: Beginner-friendly, lots of documentation, frequent updates, easy networking setup.
- Debian 12: Very stable but older packages.
- Rocky Linux 9: Enterprise-grade stability but fewer desktop support tools.

Decision:

I chose Ubuntu Server 24.04.3 LTS because it's stable, modern, and supported by a large community. It works well on my laptop, has simple commands, and fits the learning goals of the Operating Systems module.

3. Workstation Configuration Decision

Chosen Workstation: Linux Mint 22.2 "Zara" (Cinnamon)

Reasons:

- User-friendly interface and very similar to Ubuntu (same base).
- Easier to take screenshots and access files.
- Perfect for practicing both GUI and terminal commands.
- Stable and lightweight enough to run smoothly in VirtualBox.

4. Network Configuration

VirtualBox Settings:

- Adapter 1: NAT (Internet)
- Adapter 2: Host-Only Adapter → VirtualBox Host-Only Ethernet Adapter (192.168.56.1)

IP Addresses:

- The Ubuntu Server is configured with a Host-Only adapter and assigned the IP address 192.168.56.101. It serves as the main server in the setup.
- The Linux Mint virtual machine also uses a Host-Only adapter, with the IP address 192.168.56.102, functioning as a workstation.

Connectivity Tests:

From Server → Workstation: ping 192.168.56.102

From Workstation → Server: ping 192.168.56.101

5. CLI Evidence – System Specifications

Ubuntu Server (192.168.56.101)

```

abdulazeer@Ubuntu:~$ uname -a
Linux Ubuntu 6.14.0-33-generic #33~24.04.1-Ubuntu SMP PREEMPT_DYNAMIC Fri Sep 19 17:02:30 UTC 2 x86_64 x86_64 x86_64 GNU/Linux
abdulazeer@Ubuntu:~$ free -h
              total        used        free      shared  buff/cache   available
Mem:           3.8Gi        1.0Gi        624Mi        32Mi         2.5Gi         2.8Gi
Swap:           0B           0B           0B
abdulazeer@Ubuntu:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs           392M  1.5M  391M   1% /run
/dev/sda2       46G   6.6G   37G  16% /
tmpfs           2.0G   0     2.0G   0% /dev/shm
tmpfs           5.0M   8.0K   5.0M   1% /run/lock
tmpfs           392M  116K  392M   1% /run/user/1000
/dev/sr0        6.0G   6.0G   0 100% /media/abdulazeer/Ubuntu 24.04.3 LTS amd64
abdulazeer@Ubuntu:~$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:80:0a:9c brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid_lft 85262sec preferred_lft 85262sec
    inet6 fd17:625c:f037:2:bc5:3a52:62a1:ad1e/64 scope global temporary dynamic
        valid_lft 86014sec preferred_lft 14014sec
    inet6 fd17:625c:f037:2:a00:27ff:fe80:a9c/64 scope global dynamic mngtmpaddr
        valid_lft 86014sec preferred_lft 14014sec
    inet6 fe80::a00:27ff:fe80:a9c/64 scope link
        valid_lft forever preferred_lft forever
abdulazeer@Ubuntu:~$ lsb_release -a

```

uname -a

Linux Ubuntu 6.14.0-33-generic #33~24.04.1-Ubuntu SMP PREEMPT_DYNAMIC Fri Sep 19 17:02:30 UTC 2024 x86_64 x86_64 x86_64 GNU/Linux

free -h

Mem: 3.8Gi used: 1.0Gi free: 624Mi swap: 0B

df -h

/dev/sda2 46G total, 6.6G used, 37G free (16%)

ip addr

inet 192.168.56.101/24 scope global dynamic enp0s3

lsb_release -a

Distributor ID: Ubuntu

Description: Ubuntu 24.04.3 LTS

Release: 24.04

Codename: noble

Linux Mint Workstation (192.168.56.102)

```
azeez@azeez-VirtualBox:~$ uname -a
Linux azeez-VirtualBox 6.14.0-29-generic #29~24.04.1-Ubuntu SMP PREEMPT_DYNAMIC Thu Aug 14 16:52:50 UTC 2 x86_64 x86_64 x86_64 GNU/Linux
azeez@azeez-VirtualBox:~$ free -h
              total        used        free      shared  buff/cache   available
Mem:           8.6Gi       1.5Gi       5.3Gi         25Mi       741Mi       5.8Gi
Swap:          2.0Gi           0B         2.0Gi
azeez@azeez-VirtualBox:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs            697M  1.2M  696M   1% /run
/dev/sda3        24G   9.1G   14G  40% /
tmpfs            3.5G   0   3.5G   0% /dev/shm
tmpfs            5.0M   8.0K   5.0M   1% /run/lock
/dev/sda2        512M   6.2M  506M   2% /boot/efi
tmpfs            697M  188K  697M   1% /run/user/1000
azeez@azeez-VirtualBox:~$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid lft forever preferred lft forever
    inet6 ::1/128 scope host noprefixroute
        valid lft forever preferred lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:d9:0e:a1 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute enp0s3
        valid lft 86166sec preferred lft 86166sec
    inet6 fd17:625c:f037:2:b1b0:2d60:b1f2:4a8e/64 scope global temporary dynamic
        valid lft 86168sec preferred lft 14168sec
    inet6 fd17:625c:f037:2:334:8069:3e72:9532/64 scope global dynamic mngtmpaddr noprefixroute
        valid lft 86168sec preferred lft 14168sec
    inet6 fe80::2374:24e9:d4e2:c654/64 scope link noprefixroute
        valid lft forever preferred lft forever
azeez@azeez-VirtualBox:~$ lsb_release -a
No LSB modules are available.
Distributor ID: LinuxMint
Description:    Linux Mint 22.2
Release:        22.2
Codename:       zara
azeez@azeez-VirtualBox:~$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid lft forever preferred lft forever
    inet6 ::1/128 scope host noprefixroute
```

uname -a

Linux azeez@VirtualBox 6.14.0-29-generic #29~24.04.1-Ubuntu SMP PREEMPT_DYNAMIC Thu Aug 14 16:52:50 UTC 2024 x86_64 x86_64 x86_64 GNU/Linux

free -h

Mem: 8.6Gi used: 1.5Gi free: 5.3Gi swap: 2.0Gi

df -h

/dev/sda3 24G total, 9.1G used, 14G free (40%)

ip addr

inet 192.168.56.102/24 scope global dynamic enp0s3

lsb_release -a

Distributor ID: LinuxMint

Description: Linux Mint 22.2

Release: 22.2

Codename: zara

