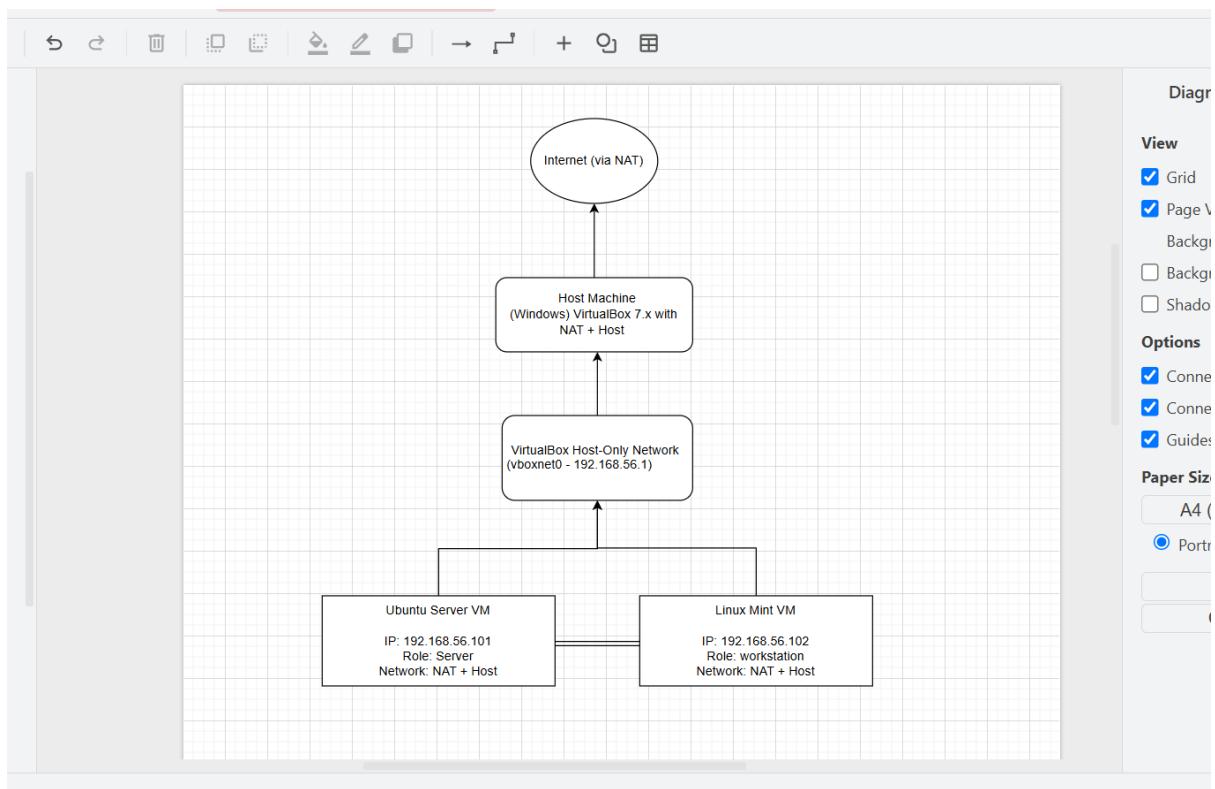


# Week 1 Journal – System Planning & Distribution Selection

**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)

```
abdulazeez@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
/Ubuntu
abdulazeez@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
abdulazeez@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/abdulazeez/Ubuntu 24.04.3 LTS amd64
abdulazeez@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:a9:c 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
    abdulazeez@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:       6.86i       1.06i       5.36i       25Mi     741Mi       5.86i
Swap:      2.06i          0B       2.06i
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:ab 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:b1f2:4a9e/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: 3.5Gi 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

