Linux

DAY 5 — SYSTEM LOAD & PERFORMANCE MONITORING

1. SYSTEM LOAD

System load = running processes + waiting for CPU.
If load > number of CPU cores → CPU bottleneck.

- System Load:

```
uptime
```

- echo "CPU Cores:"

```
nproc
```

2. CPU MONITORING

- Open TOP (real-time CPU monitor):

```
top
```

- Look for in top:

%id → idle (low = heavy CPU usage)

%wa → waiting for IO (high = disk bottleneck)

- Open HTOP (enhanced CPU monitor):

```
sudo apt install htop
htop
```

- Top CPU-consuming processes:

```
ps aux --sort=-%cpu | head
```

3. MEMORY MONITORING

- RAM Usage Summary:

```
free -h
```

Used = actively used memory

Available = usable memory without swapping

Swap usage = memory pressure indicator

4. DISK USAGE & I/O

- Disk usage per partition:

  df -h

- Directory sizes:

  du -sh *

- Disk I/O wait time (await, %util):

  sudo apt install sysstat

  iostat -xz 1

- Look for:

  %util > 80% → disk overloaded

  await > 20ms → slow disk / I/O bottleneck

5. NETWORK MONITORING

- Open ports + services:

  ss -tulnp

- Live network bandwidth:

  sudo apt install nload

  nload