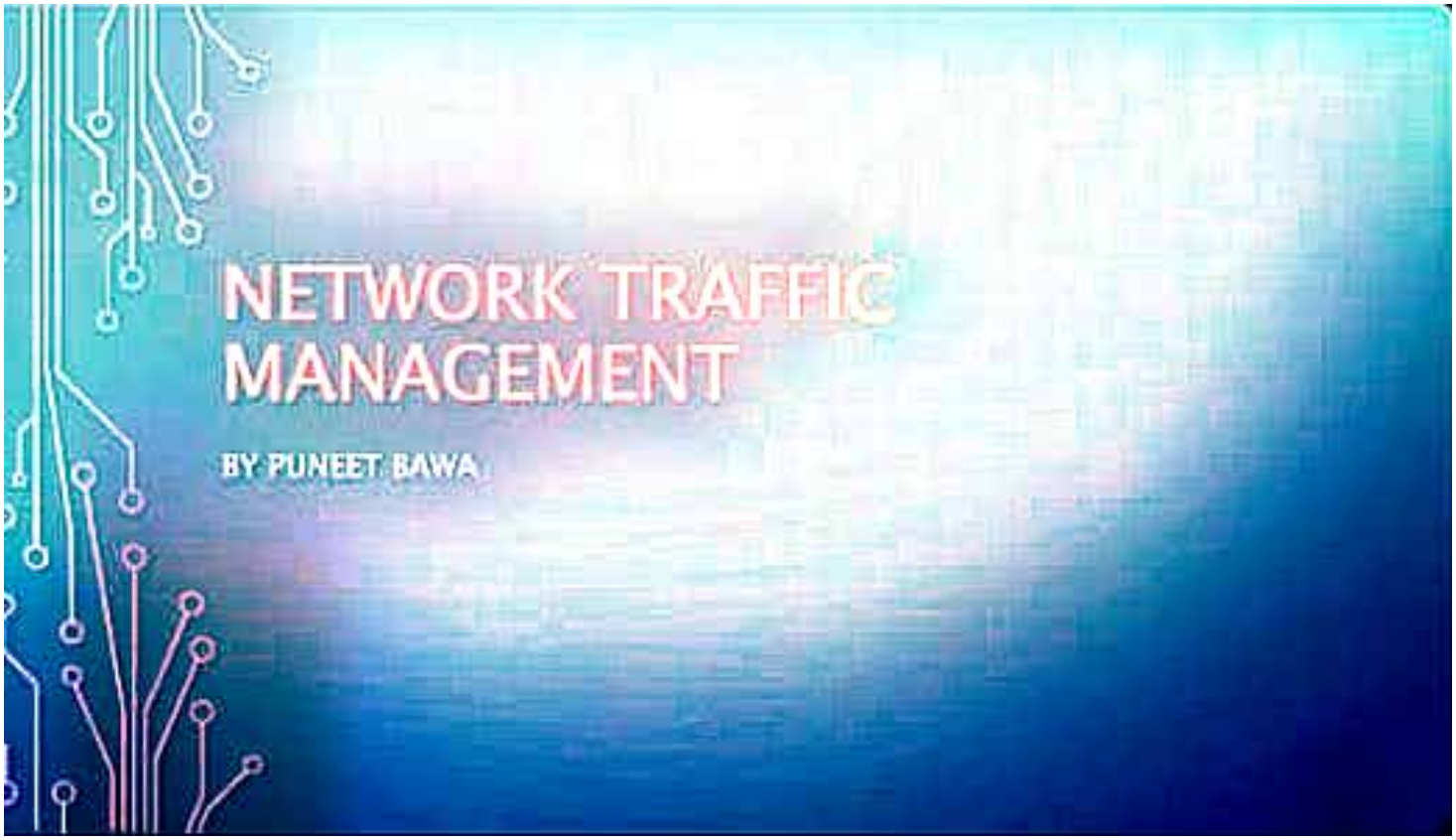
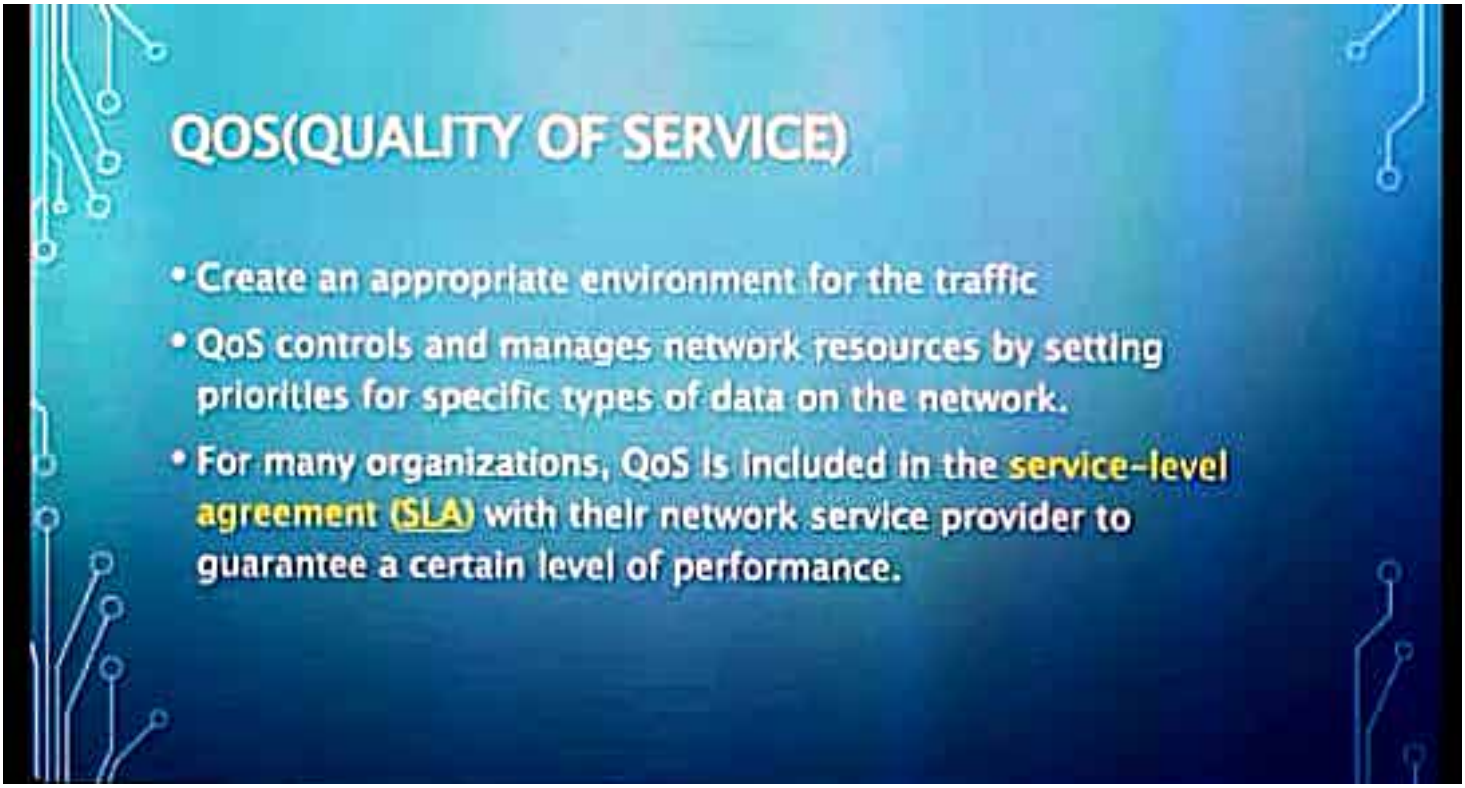

NETWORK TRAFFIC MANAGEMENT
BY PUNEET BAWA

INTRODUCTION

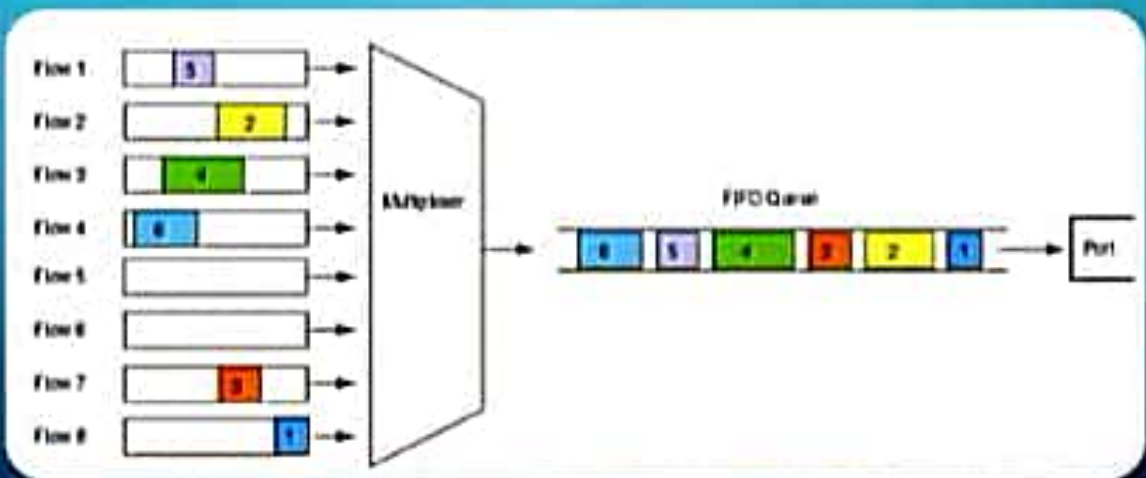
- The traffic is basically a flow of packets or data in the network
- The regulation of traffic into the point of networks to improve the service that network provides
- The traffic management aims of having fair or equitable allocation of network resources for adaptive applications
- For performance guarantee of non adaptive applications, the traffic management can be achieved by using certain algorithms
  - Leaky Bucket
  - Token Algorithms


QOS(QUALITY OF SERVICE)
• Create an appropriate environment for the traffic
• QoS controls and manages network resources by setting priorities for specific types of data on the network.
• For many organizations, QoS is included in the service-level agreement (SLA) with their network service provider to guarantee a certain level of performance.

QOS PARAMETERS

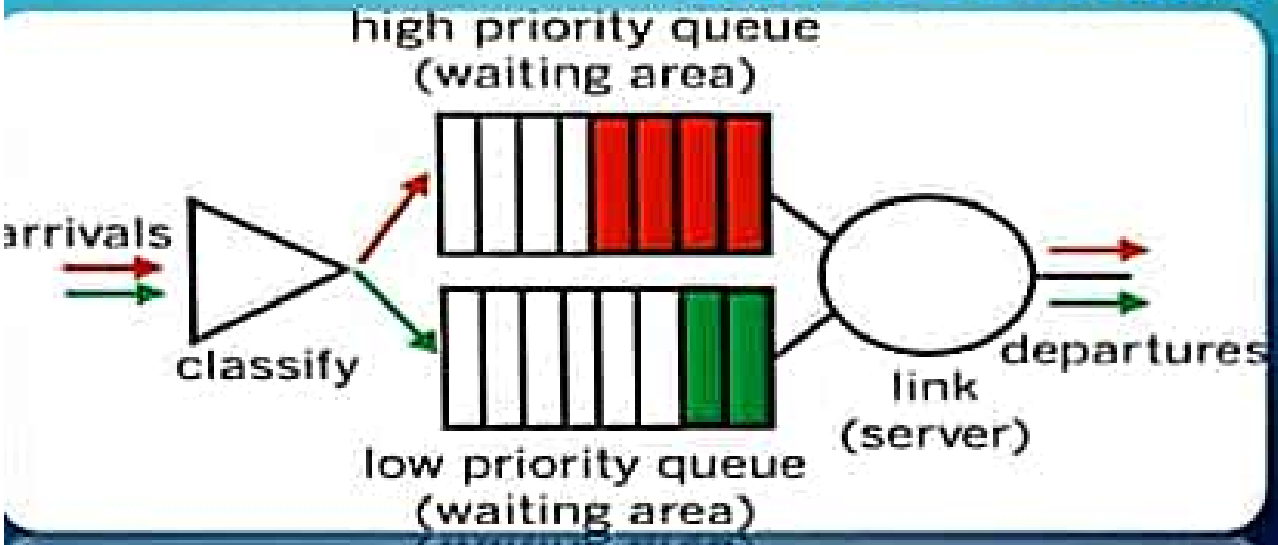
- **Packet Loss**: happens when network links become congested and routers and switches start dropping packets. Eg -voice/video call drop
- **Jitter**: Variation of delays in the call as a result of network congestion, time drifting and route changes. Eg- Quality of Video Call
- **Latency**: The time taken by packet to travel from source to destination. Eg- high latency leads to echo and overlapping voice/video call
- **Bandwidth**: The capacity of network to transmit the maximum amount of data from source to destination in a given amount of time. Eg- Setting Priorities on increased requirements
- **Mean Opinion Score(MOS)**: The metric to rate voice quality ranging from 0 to 5. Rating 5 being the best one.

FIFO QUEUING



PRIORITY QUEUING

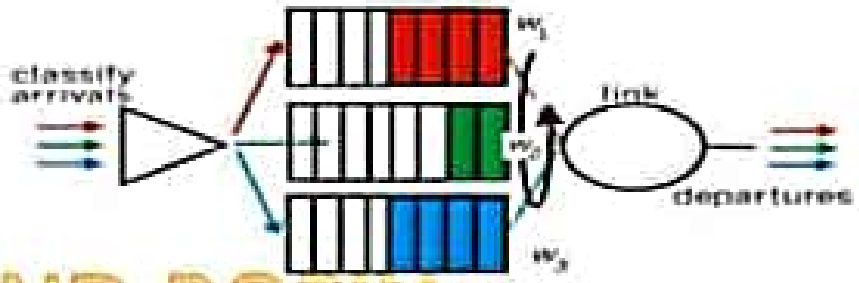
STARVATION?



WEIGHTED FAIR QUEUE

NO STARVATION

Weighted Fair Queuing (WFQ)



ROUND ROBIN

```
import time
from machine import Pin
led_jaune=Pin(23,Pin.OUT) #Sets ESP32 board pin D23 to output mode
led_rouge=Pin(22,Pin.OUT) # Sets ESP32 board pin D22 to output mode
led_verte=Pin(21,Pin.OUT) # Sets ESP32 board pin D21 to output mode

while True:
 led_jaune.value(1) #Turn on yellow LED
 led_rouge.value(0)
 led_verte.value(0)
 time.sleep(1) # wait 1s
 led_jaune.value(0)
 led_rouge.value(1) #Turn on red LED
 led_verte.value(0)
 time.sleep(3)
 led_jaune.value(0)
 led_rouge.value(0)
 led_verte.value(1) #Turn on green LED
 time.sleep(3)
```