QUALITY OF SERVICE

BY BICHITRA

WHAT IS QUALITY OF SERVICE ?

Quality of service is The ability to provide different Priority to different applications,users or data flows, or to guarantee a certain level of performance to a data flow.

CHARACTERISTICS

- *Reliability*
- *Delay*
- *Jitter*
- *Bandwidth*

- *Reliability : lack of reliability means losing a packet or ack.*
- *Delay: Different applications can tolerate delay in different degrees.*
- *Jitter: jitter is the variation in packets belonging to same flow.*
- *Bandwidth : different application need different bandwidth.*

TECHNIQUES TO IMPROVE THE QUALITY OF SERVICE

- *Scheduling –*
  - * *FIFO QUEING*
  - * *PRIORITY QUEING*
  - * *WEIGHTED FAIR QUEING*
- *Traffic shaping –*
  - * *LEAKY BUCKET*
  - * *TOKEN BUCKET*
- *RESOURSE RESERVATION*
- *ADMISSION CONTROL*

SCHEDULING

- *Packets from different Flow arrive at switch or router for processing*
- *A good scheduling technique treats the different flow in a fair and appropriate manner*

FIFO QUEING

- *Packet wait in a buffer until the node is rady to perform them*
- *If avg.arrival rate>avg. processing rate=> new packets will be discarded*

PRIORITY QUEING

- Packets are assigned to a priority class
- Each *class has its own queue*
- *Higher class packets are processed first.*
- *Problem : starvation*

WEIGHTED FAIR QUEING

- *Packets are still assigned to different classes and admitted to different queues*
- *The queues are weighted based on the priority*
- *Higher priority means higher weight*
- *If weight are 3,2,1 then 3 packets are processed from queue 1,2 from queue 2 and 1 from queue 1 in around Robin fashion*

TRAFFIC SHAPING

Is the mechanism to control the amount and the rate of the traffic sent to the network

LEAKY BUCKET

The rate at which water leaks from a bucket does not depend on the rate at which the water is input to the bucket

The input rate varies but the output remains constant, similarly, network can smooth out bursty traffic

TOKEN BUCKET

- Leaky bucket does not taken into a/c idle host,if a host is not sending for a while, its bucket becomes empty.
- If the host bursty data jeky bucket allows only avg.rare .
- Token bucket takes into a/c the idle time, with each clock tick the tokens are added to bucket, when the data needs to be send ,it collects token from bucke and then send the data packet consisting of data = no of token

RESOURCE RESERVATION

- *A flow of data needs resources such as buffer, bandwidth, cpu time, and so on.*
- *QoS can be improved if these resources are reserved beforehand.*

ADMISSION CONTROL

- *Routers or switches puts restrictions on the admission of packets from host.*
- *Before a router accepts the flow, it checks the flow for specifications in terms of bandwidth, buffer size, cpu speed etc.*

MODELS DEPLOYING QOS

- *Two models have been designed to provide QoS:*

  -> Integrated service model (IntServ)

  -> Differentiated Service Model (Diffserv)

Thank you