"QUALITY OF SERVICE NETWORK REPORT"

WHAT IS THE QUALITY OF SERVICE NETWORK MEAN ?

- ### *Qualityof service(QoS):*

Is a set of technologies that work on network to guarantee it's ability to dependably run high-priority applications and traffic under limited network capacity . It accomplish this by providing differentiated handling and capacity allocation to specific flows in network traffic

=>TYPES OF NETWORK TRAFFIC:

Band width is the capacity of network communication link to transmit large amount of data from one point to another in given time . It controls traffic flows on network to avoid the resulting network congestion that occurs .

2.*latency :(DELAY)*

It is the time that takes a packet to travel from it's sources therefore , latency must be close to Zero as possible .

3. Jitter :

Is the change of one –way delay in packet stream and the result of network congestion and packets are arriving late and out of sequence .

4. *packet loss :(irregular speed of packets)*

It represents the amount of data lost and can be represented as the % of lost packets as well therefore we get that packet loss happens when network links become congested and a result of packet loss .

=> *HOW THE QUALITY OF SERVICE (QoS) WORKS ?*

This works by marketing packets to identify service type.

QoS technologies provide capacity and handling allocation to specific flows in network traffic . This enables the network administrator to assign the order in which packets are handled and provide the appropriate amount of bandwidth(throughput) to each traffic flow.

Quality of service tools take the responsibility of prioritizing the packets to get the most amount of bandwidth in their network.

- ***WHY QoS IS IMPORTANT? :***

QoS is particularly is to guarantee the high performance of critical application that require high bandwidth .

QoS helps businesses prevent the delay of some sensitive applications by ensuring that they perform to the level that users require.

QoS is important as network performance requirements to adapt to the growing number of people using them .

=> APPLICATIONS ON QoS :

1.APPLICATION CLASSIFICATION AND DATA SORTING :

QoS classify different data types according to data types , classify the application trying to pass through the network .

FIRST TECHNIQUE:

     a. CLASSIFICATION TOOLS :

It assess the data type with every packet by using packet header

     b. DATA SORTING :

Enables devices on network to determine priority level . Packets with a high-priority will be transmitted over low priority .

2.CONGESTION MANGEMENT AND AVOIDANCE :

a. CONGESTION MANGEMENT:

Means that evaluation of marketing on packets and queuing them on the basis of detailed algorithm .

b. CONGESTION AVOIDANCE :

Helps monitor network traffic to pinpoint from becoming congested. When area is identified , therefore the congestion avoidance mechanism of QoS tools will drop packets with low-priority to ensure the high-priority packets are retained at particular time .

=> LET'S SUM BOTH OF THEM …!

  * congestion management and avoidance help prevent network from being overloaded by using packet disclosing policy .

- **QUALITY OF SERVICE REQUIREMENTS :**

There are two types of QoS requirement of video :

1. INTERACTIVE-VIDEO:

Interactive-video traffic ; excess videoconferencing traffic can be marked down by AF42 or AF43 .

Loss should be at least 1 % .

One-way delay should be at least 150 ms .

Jitter should be at least 30 ms .

2. STREAMING-VIDEO :

Loss should be at least 5% .

Delay should be at least 4 to 5 s .

There are no significant jitter requirements .

Streaming-video should be marked to DSCP CS4 .

=> coding using c# :

```csharp
public DomainParticipantTransportSource(IDomainParticipant participant, string senderTo
{
    _participant = participant;

    var bdt = new ByteDataTypeSupport();
    var result = bdt.RegisterType(participant, bdt.TypeName);
    if (result != ReturnCode.Ok)
        throw new Exception("Unable to register type: " + result);

    _publisher = _participant.CreatePublisher();
    _subscriber = _participant.CreateSubscriber();

    var senderTopicQos = new TopicQos();
    participant.GetDefaultTopicQos(ref senderTopicQos);

    var receiverTopicQos = new TopicQos();
    participant.GetDefaultTopicQos(ref receiverTopicQos);

    _senderTopic = participant.CreateTopic(senderTopic, bdt.TypeName, senderTopicQos);
    _receiverTopic = participant.CreateTopic(receiverTopic, bdt.TypeName, receiverTopic

    _dataWriter = (ByteDataWriter)_publisher.CreateDataWriter(_senderTopic);
    _dataToSendHandle = _dataWriter.RegisterInstance(_dataToSend);

    var dataReaderQos = new DataReaderQos();
    _subscriber.GetDefaultDataReaderQos(ref dataReaderQos);
    _dataReader = (ByteDataReader)_subscriber.CreateDataReader(_receiverTopic, dataRead
}
```

Reference :

https://www.techtarget.com/searchunifiedcommunications/
drfination/QoS-Quality-of-Service

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