Enterprise Infrastructure and Networks – IT-520-A

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1. Streaming the video systems are classified into three categories;

**UDP Streaming**: Here the server transmits the video at the rate that matches the client’s video consumption rate by clocking out the video chunks over UDP at a steady rate. It doesn’t have rate control restrictions like TCP.

**HTTP Streaming**: Here the video is simply stored in as a HTTP server as an ordinary file with a specific URL. When the user wants the video it establishes a TCP connection and then sends a HTTP GET request for that URL. And as a rely sender sends the video via HTTP response message as quickly as TCP congestion and flow control allows.

**Dynamic Adaptive HTTP Streaming**: Here the video is encoded into several different versions, with each version having a different bit rate and correspondingly different quality level. An depending upon the available bandwidth client selects chunks from higher or lower rate versions.

1. The three disadvantages of the UDP streaming are:

* Constant rate UDP can fail to provide the continuous play out because of the unpredictable and varying bandwidths. So as a result UDP can provide poor user experience with freezing or skipping frames.
* It requires a media control server, such as RTSP server to process client to server interactivity request and to track client state for each ongoing client session, which increases the overall costs and complexity of deploying a large scale video on demand system.
* Many firewalls are configured to block UDP traffic, preventing the users behind these firewalls from getting the video.

1. When a packet arrives after their scheduled play out times are discarded and considered lost, this is termed to be as **fixed play out delay** strategy. Here the receiver attempts to play out each chunk at qm secs after the chunk is generated. So, if a chunk is time stamped at the sender at time t, the receiver plays out the chunk at time t + q, assuming the chunk has arrived by that time.
2. **The RTP streams in different sessions are identified by a receiver by :**

* By using their different multicast addresses.
* RTP provides one to many and many to many multicast trees.

**The RTP streams from within the same session are identified by:**

* Each RTP stream that a sender is transmitting, the sender creates and transmits the source description packet in SSRC ( Synchronization source identifier).
* SSRC is a number that a source assigns randomly when the new stream is started.

1. **Role of SIP registrar**:

* Is mainly to track the records of the users and store them.
* The records contains the IP addresses that are currently used by the user.
* The SIP registrar of that domain tracks the users of that domain.
* It forwards the INVITE messages to the IP addresses that are currently used by the user.

**Difference in role of SIP registrar and home agent in Mobile IP**:

* SIP services provide only forwarding services, it doesn’t provide a proxy or tunneling services,
* Whereas home agent in the mobile IP provides a tunneling services between the home IP and the mobile address. So every connection going to the home address is transparently forwarded to the mobile address.