**Abdalrhman Abdalla Lab 9**

1. Streaming video systems can be classified into three categories. Name and briefly describe each of these categories.

**UDP streaming, HTTP streaming, and adaptive HTTP streaming**

1. In **UDP streaming**, the server transmits video at a rate that matches the client’s video consumption rate by clocking out the video chunks over UDP at a steady rate. UDP streaming typically uses a small client-side buffer, big enough to hold less than a second of video.
2. In **HTTP streaming**, the video is simply stored in an HTTP server as an ordinary file with a specific URL. When a user wants to see the video, the client establishes a TCP connection with the server and issues an HTTP GET request for that URL. The server then sends the video file, within an HTTP response message, as quickly as possible.
3. In **DASH**, the video is encoded into several different versions, with each version having a different bit rate. The client dynamically requests chunks of video segments of a few seconds in length from the different versions, When the amount of available bandwidth is high, the client naturally selects chunks from a high-rate version; and when the available bandwidth is low, it naturally selects from a low-rate version.
4. List three disadvantages of UDP streaming
5. Its unpredictable and varying amount of available bandwidth between server and client, constant-rate UDP streaming can fail to provide continuous playout.
6. It requires a media control server, such as an RTSP server, to process client-to-server interactivity requests and to track client state.
7. Many firewalls are configured to block UDP traffic, preventing the users behind these firewalls from receiving UDP video.

4. What is a packet that is received after its scheduled playout time considered lost?

A packet that arrives after its scheduled playout time cannot be played out. Therefore, from the perspective of the application, the packet has been lost.

4. How are different RTP streams in different sessions identified by a receiver? How are different streams from with the same session identified?

a. RTP streams in different sessions has different multicast addresses.

b. By the SSRC field

5. What is the role of a SIP registrar? How is the role of SIP registrar different from that of a home agent in Mobile IP?

The role of a SIP registrar is to keep track of the users and their corresponding IP addresses which they are currently using. Each SIP registrar keeps track of the users that belong to its domain. It also forwards INVITE messages (for users in its domain) to the IP address which the user is currently using. In this regard, its role is similar to that of an authoritative name server in DNS