Slide 4: Importance of Video Streaming applications (bussines, social) with an eye on the pandemic

Slide 9: HLS: content is divided into small manageable chunks called segments which allows more granular control. The protocol then uses playlist files usually in M3U8 format to provide information and delivers them along with specific information about the segements so that the player know exactly what he has to play. There is a Master Playlist which has refferences to different variant playlist where any variant playlist has the same information but at varying bitrates or resolutions. The client monitors the network state and the bandwidth of it's own network and selects the appropiate variant playlist to play from (segements are retrieved over HTTP or HTTPS). Security mechanisms such as encryption are supported. Using a segement based approach a risk for latency is of course introduced. Examples: Apple TV

Slide 10: DASH: similar to HLS content is diveded into segments, but instead of M3U8 files for storing the segments MPD files are used, then the mechanism is similar to HLS with continious requests being made to the server by the client, where he can choose the quality that he wants based on his own settings. Also DASH supports Common Encryption (CENC) and also DRM (Digital Rights Management) Integration. The fact the MPD file follo an internation standard platform-independent makes it easier to integrate within a software and making it, as a consequence more loved by the developers. Examples: YouTube, Netflix

Slide 11: RTSP: it works on a client-server architecture using stateless requests meaning each request from the server to the client is independent from any other and the server does not have to maintain information about the client state between the requests. It uses the Session Description Protocol (SDP) which describes the format, timing and other parameters of the media streams. It also has the following methods wich are used in RTSP communication: DESCRIBE (retrieves information about the stream, including format and encoding), SETUP (first step, which establishes the parameters for the stream, such as transport, protocol and ports), PLAY (initiates the playback of the media stream), PAUSE and TEARDOWN which control the pausing or the termination of the media stream session. Examples: Generally used for surveillance camers or others

Slide 14: YouTube uses DASH