Multi-source Video and (IP) TV

A discussion of draft-ietf-taps-transports-03

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Definitions

- Multi-source video:
  - Collaborative video creation
  - Virtual reality/augmented reality
  - Peer to peer
  - Synchronized viewing
  - Social TV
- Issues:
  - Timing/synchronization
  - Buffering events (impact of losses)
  - Privacy (group vs. individual)
  - Local policies/content blocking or distribution rules

What is my Video *Transport*?

- Video streaming vs. adaptive download
  - Streaming
    - Real time service
    - Akin to video-conferencing
  - Adaptive download
    - Non real-time
    - Akin to web page download
- RTP and HTTP considered transports?
  - They are and services are built above them
- We may want to consider adding them to the draft list (p. 19)

A New Definition of *Reliable Transport*

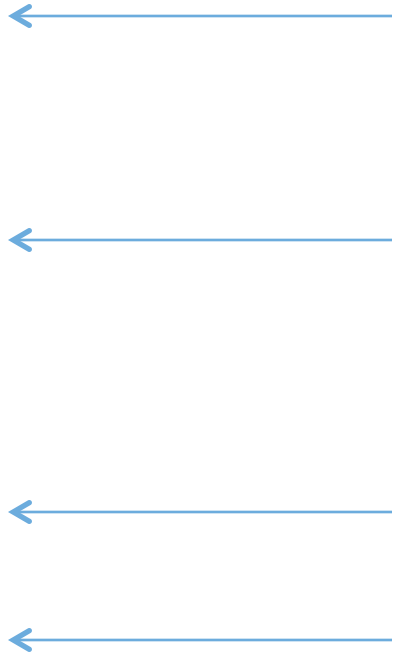
- TCP has been 'de facto' the reliable transport
  - “Eventually” the packets get to destination
  - Do they?
- UPD is not reliable
- But for a lot of video (and web) sessions neither are *reliable*:
  - The impact of losses or congestion on progressive download leads to “buffering events” – eventually the applications stop or are ended (by the users!)
  - And of course all security/privacy issues
- Move to UDP tunnels with *perks* (see QIC) or a better *transport*?
  - Can you make that dynamic?

The Case for the TAPS APIs

- As was discussed in the group an app may not know about TCP window sizes or ECN usage etc.
- But it may know that it requires from the transport
  - If not any transport will do!
- Expose the underlying transport mechanisms to the applications and allow queries:
  - See what IEEE 1905 does for MAC layer mechanisms

Features Table Review/Add-ons

Mechanism	UDP	UDP-L	DCCP	SCTP	TCP
Unicast	Yes	Yes	Yes	Yes	Yes
Mcast/IPv4Bcast	Yes(2)	Yes	No	No	No
Port Mux	Yes	Yes	Yes	Yes	Yes
Mode	Dgram	Dgram	Dgram	Dgram	Stream
Connected	No	No	Yes	Yes	Yes
Data bundling	No	No	No	Yes	Yes
Feature Nego	No	No	Yes	Yes	Yes
Options	No	No	Support	Support	Support
Data priority	*	*	*	Yes	No
Data bundling	No	No	No	Yes	Yes
Reliability	None	None	None	Select	Full
Ordered deliv	No	No	No	Stream	Yes
Corruption Tol.	No	Support	Support	No	No
Flow Control	No	No	Support	Yes	Yes
PMTU/PLPMTU	(1)	(1)	Yes	Yes	Yes
Cong Control	(1)	(1)	Yes	Yes	Yes
ECN Support	(1)	(1)	Yes	TBD	Yes
NAT support	Limited	Limited	Support	TBD	Support
Security	DTLS	DTLS	DTLS	DTLS	TLS, AO
UDP encaps	N/A	None	Yes	Yes	None
RTP support	Support	Support	Support	?	Support



Note (1): this feature requires support in an upper layer protocol.

Suggestions:

Add RTP and HTTP as potential *transport*

See which of these features is *API ready* (can be exposed/set)

Need more *service/application* categories related to timing for example - maybe in another table

Define a new *reliability category* (not sure how to call it) with same (1) hence provided by an upper layer protocol

Leave room for *future* transports

Future Steps?

- What is the WG suggesting?

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