Video Interest Group Meeting

July 19, 2018, Montreal, Canada

Copies of the presentations were distributed during and following the meeting.
- Video Interest Group @ IETF 102: Leslie Daigle
- Delegation of Video Session for Streaming: Sanjay Mishra
- ROUTE Introduction: Giri Mandyam
- SMPTE's Road to the Future: Thomas Bause Mason
- Streaming Video Alliance [Includes YANA]: Glenn Deen

The attendees list can be found at the end of this Report.

Status Review of this group – Leslie Daigle

The Video Interest Group is an ad hoc group of like-minded people/companies interested in video issues that do not have an obvious home at IETF.

Because this is an ad-hoc group we are not on the IETF agenda and have trouble finding a meeting time that does not conflict with other meetings of interest. The IETF has suggested that we could participate as an Industry Organization, which it is not, and which would incur costs for which there is no budget. There is no concept of an IG at IETF. It would be highly beneficial to be on the IETF official agenda to improve visibility and to obtain more advantageous meeting times.

Suggestions:
- Get on the agenda perhaps by establishing an official ad hoc list.
- Schedule the meeting during the week (other than the last day) or on Sunday (requires more control over timing).
- Rename the group – <u>Suggestions</u>?
- Request a new mailing list to replace the existing GGIE list.

Gap Analysis

Document specific areas needing standardization, or updates to existing standards, especially but not exclusively, IETF standards. Item deferred from the agenda, to save time – participants are urged to have a look at the presentation materials circulated and consider discussing next time.

Video Ecosystem Overview

Several slides from the industry ecosystem background work done by the W3C TV & Interest Group GGIE (Glass-to-Glass Ecosystem) activity were presented

to set the stage for the discussions. The slides include an overview of the video ecosystem as well as several use cases showing the actors and required actions.
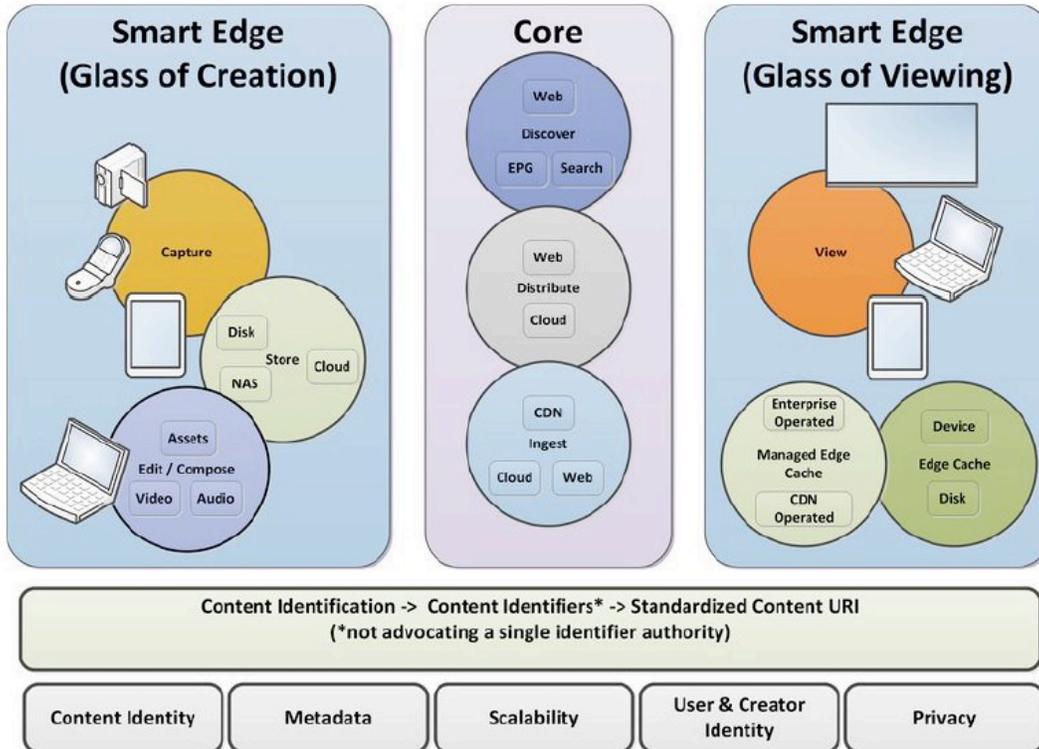
# Delegation of Video Session for Streaming – Sanjay Mishra

Streaming Video Alliance

- Currently, requests for video streaming between upstream and downstream CDNs require either sharing of private keys or, due to lack of standardization of HTTPS session delegation, issuing a complete set of new certificates.
    - o Standardization efforts for delegation of HTTPS
        - ▪ STAR – Short-Term, Automatically-Renewed certificates: May be applicable to SVA. Currently in draft form.
        - ▪ Sub-certificates: Requires changes to web browsers (out of scope at SVA)

- LURK – Limited Use of Remote Keys: Keyless approach: Allows sharing a certificate without private keys. Returns the decrypted master secret.

LURK for Video Streaming

Delegation of HTTPS Video Session
CDNI Use case
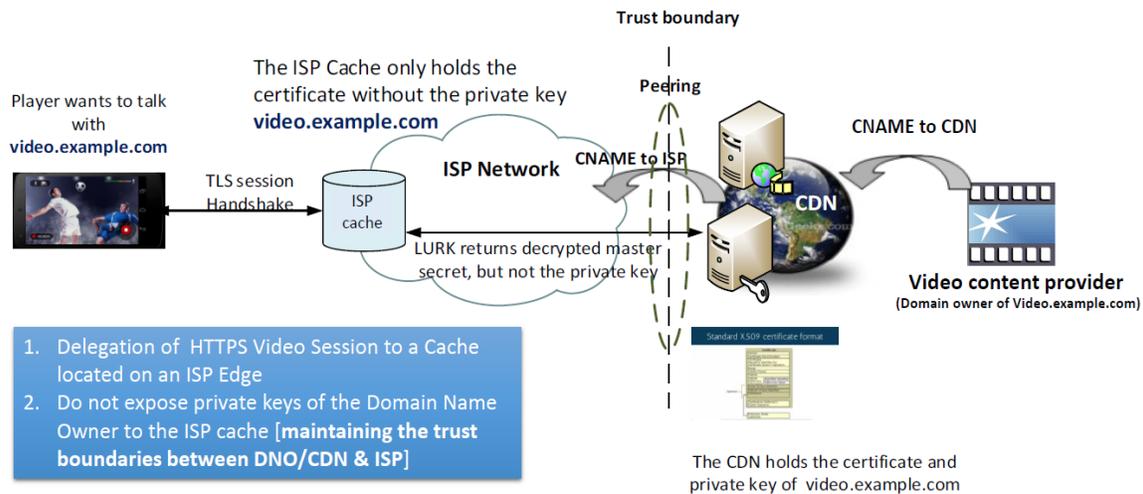
- Adds latency to establish a session but no additional latency thereafter due to persistent TLS session information.
  - If within a trusted environment there is no impact on latency.
- No additional key management infrastructure added by LURK request/response.
- LURK does not solve all Use Cases.

LURK Document Status/Q&A
- Held 2 BOFs but did not end in WG
  - Argentina BOF appeared to have large support.
    - Attendees brought up security and latency issues
  - Berlin: 2nd BOF.
    - Less enthusiasm than the Argentina BOF; competing approaches were discussed.
    - Didn't get to discuss the Charter.
- Similar problem to other video work at IETF – There is no natural home for the work.
- Currently responding to objections to creating a WG.
  - Worst case – remain independent.

There will be LURK work at the IETF Hack-a-Thon prior to IETF 103 in Bangkok.

ROUTE- Real-time Object delivery over Unidirectional Transport – Giri Mandyam

ROUTE is the first IP- based transport for next-gen OTA broadcast e.g. ATSC3.0. It is being deployed in primarily in the US with some deployment in Korea and China. ROUTE is designed to optimize the time to acquire and display – the channel change problem. When a user changes the channel, the content needs to be rapidly acquired and displayed.
- Leverages IETF Standards:
    o Layered Coding Transport (LCT).
    o Asynchronous Layered Coding (ALC).
    o File Delivery over Unidirectional Transport (FLUTE).
- Compatible with DASH, HLS.
- Synchronizes everything when it plays at the receiver regardless of delivery path: broadcast, broadband or hybrid.
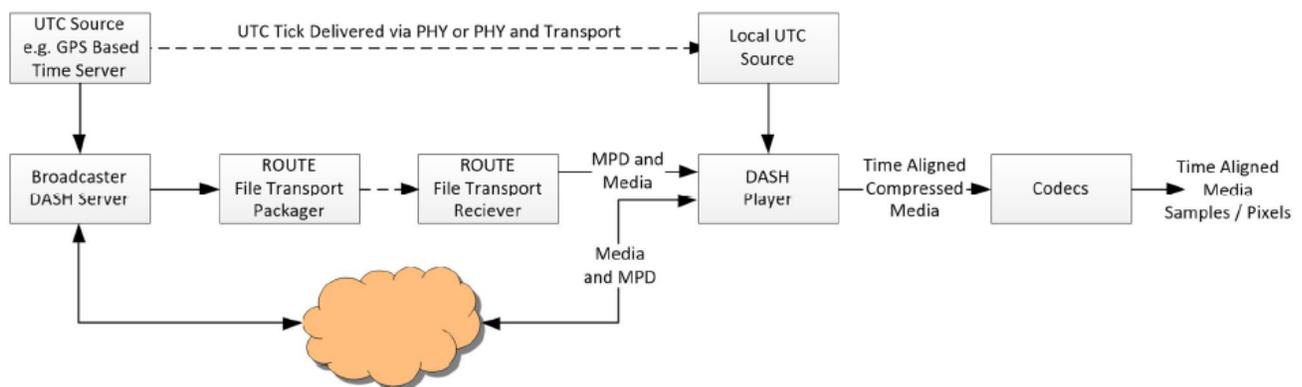
Relationship to other transports
- More efficient than QUIC: ~10% less overhead per packet.
- Supports compatibility with FLUTE.
- Enables AL-FEC across multiple objects for enhanced time diversity.
- Compatible with application-layer protocols such as HTTP.

Future Work
- Informational submission to IETF but looking for broader applicability (broadcast and unicast transports) than IETF.
- Compatible with TCP/UDP/QUIC.
- Leverage existing transport security: TLS, DTLS, QUIC
    o QUIC now handles unidirectional streams.

Question: How to get over the key distribution issues?
Answer: ROUTE relies more on the assumption that broadcasting is not secure.
- Common Encryption
- Signaling layer authentication
- No solution for the QUIC multicast problem
- In the US, most delivery is not broadcast. Secure content is delivered primarily by cable, satellite, OTT. There is also a problem with encrypting anything that is broadcast OTA.

SMPTE's Road to the Future – Thomas Bause Mason

SMPTE is trying to establish a channel to IETF which is why they are at this meeting. Of their 4 hot topics, Media over IP, including utilizing the cloud to move away from specialized hardware, was seen as the #1 topic I their survey with ~92% stating it is important.

The results also showed that despite their main focus, which is professional production including pre and post production, distribution was of interest to 33% of the respondents. And when asked what needs to be focused on over the next 12 months the #1 response (~62%) was professional media over managed IP networks. SMPTE is also looking to add members involved with software development.

SPMTE Projects of Interest
- SMPTE 32N Extensible Time Label (TLX): A time label to carry a PTP-derived time, together with appropriate identification and supplemental information, and with a mechanism to permit definition and register ancillary data fields.
    - o It was noted that the W3C Media and Entertainment IG has a Media Timed Event TF which may be of interest.
    https://github.com/w3c/me-media-timed-events
- ST 2021 (BXF): A messaging protocol used for information exchange including schedule, as-run logs, content metadata, and content transfer instructions between systems across broadcast and new-media operations.
- ST 2022: Describes how to send digital video over an IP network. Video formats supported include MPEG-2 and serial digital interface.
- ST 2059: Describes how to synchronize video equipment over an IP network.
- ST 2067 (IMF): The IMF is a file-based framework for the exchange and processing of multiple content versions (airline edits, special edition, languages) of the finished work (feature, episode, trailer, advertisement, etc.) destined for distribution channels worldwide.

SVA: Streaming Video Alliance – Glenn Deen

The Streaming Video Alliance provides a forum for collaboration to improve interoperability among operators, providers, and vendors to ensure a more consistent end-user experience and to promote further adoption of online video.

SVA Working Groups of Interest
- Live Streaming
    - Low latency delivery
    - Live ingest
- Networking and Protocols
    - Scalable delivery protocols
    - IPv4/6 Networking
- Open caching
    - Linkage with IETF CDNi
    - LTE-broadcast (MDMS) and Open Caching
    - Home caching
    - QoE/QoS metrics
    - URI signing
- Measurement/QoE

Next Meeting: Budapest: October 11, 12

YANA – You Are Not Alone

The purpose of YANA is to bring together people working on a variety of Internet-based video projects/standards/products to share ideas, find common ground and, if useful, make common cause.

The first YANA meeting was held ahead of IETF101. You can find the meeting report, including presentations, at http://www.yana0318.org

Next Meeting:
- YANA 2019: Looking to tag onto other events. YANA is exploring several venues:
    - North America: Potentially Jan/Feb
    - Europe: TBD

Next steps

It was suggested that multicast should be explored at a future Video Interest Group meeting.

Adjourn

Attendees:

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