WebCodecs
MoQ Media Format

draft-mzanaty-moq-loc-01

Mo Zanaty, Suhas Nandakumar, Peter Thatcher

IETF 117 – San Francisco – July 26, 2023

What is LOC? The ABCs…

Low-**O**verhead* **C**ontainer Media Format

- **A**lternative to CMAF
- **B**ased on WebCodecs
- **C**atalog format in JSON

*Minimal extra encapsulation and application overhead
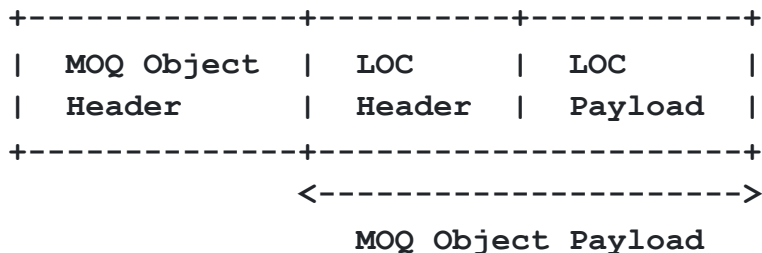 when interfacing with WebCodecs.

Motivation: Why not CMAF?

- CMAF overhead is >100 bytes per frame
    (can be much more depending on options)
- Prohibitive for audio, >100% overhead
- Complexity of nested header boxes
- Complexity of multi-frame packing options
    (chunks, fragments, segments)
- Requires unnecessary parsing and encapsulation / de-encapsulation of media stream to find frame boundaries.

Motivation: Why WebCodecs?

- Minimal overhead, no extra encapsulation
- EncodedAudioChunk / EncodedVideoChunk "internal data" is the raw elementary bitstream format of codecs without any encapsulation, so we use this directly as the LOC Payload.
- Referring to the WebCodecs Codec Registry avoids duplicating it in an identical IANA registry.
- Usable outside WebCodecs or a web browser.

LOC Format within MOQT Objects

```
+--------------+----------+-----------+
|  MOQ Object  |  LOC     |  LOC      |
|  Header      |  Header  |  Payload  |
+--------------+----------------------+
               <---------------------->
               MOQ Object Payload
```

- LOC Payload is the "internal data" of a WebCodecs EncodedAudioChunk / EncodedVideoChunk (frame).

- LOC Header is metadata which may migrate to the MOQ Object Header (open issue). IANA registry for this metadata.

Pending Updates from this week

Based on discussions this week:

(Monday session, Tuesday authors meeting)

- Rename to draft-zanaty-moq-webcodecs-format.
- Remove catalog section, move to a common catalog draft.
- Add application profile section, or separate draft, to encompass the combination of catalog, media format, content protection, and other app logic.

Open Issues

- Video Parameter Sets in-band with keyframes? Or in separate init/config blobs in catalog, track header, group header, etc.?

- Sequence in LOC Header or reuse MOQ Object Header?

- Timestamp in LOC Header or MOQ Object Header? Format?

- Support arbitrary content protection schemes, including Sframe.