



CARP update

<https://wilaw.github.io/carp/draft-law-moq-carp.html>

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What is CARP?



CARP is a media streaming format for use with MOQT.

It extends WARP to add CMAF support.

Why not just add CMAF to WARP directly?

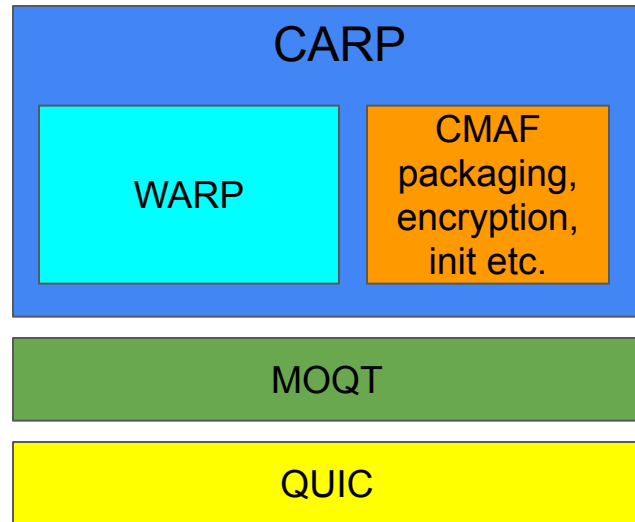
- It was prior WG decision to have WARP be independent of any ISO specifications.

Why do we need CMAF support?

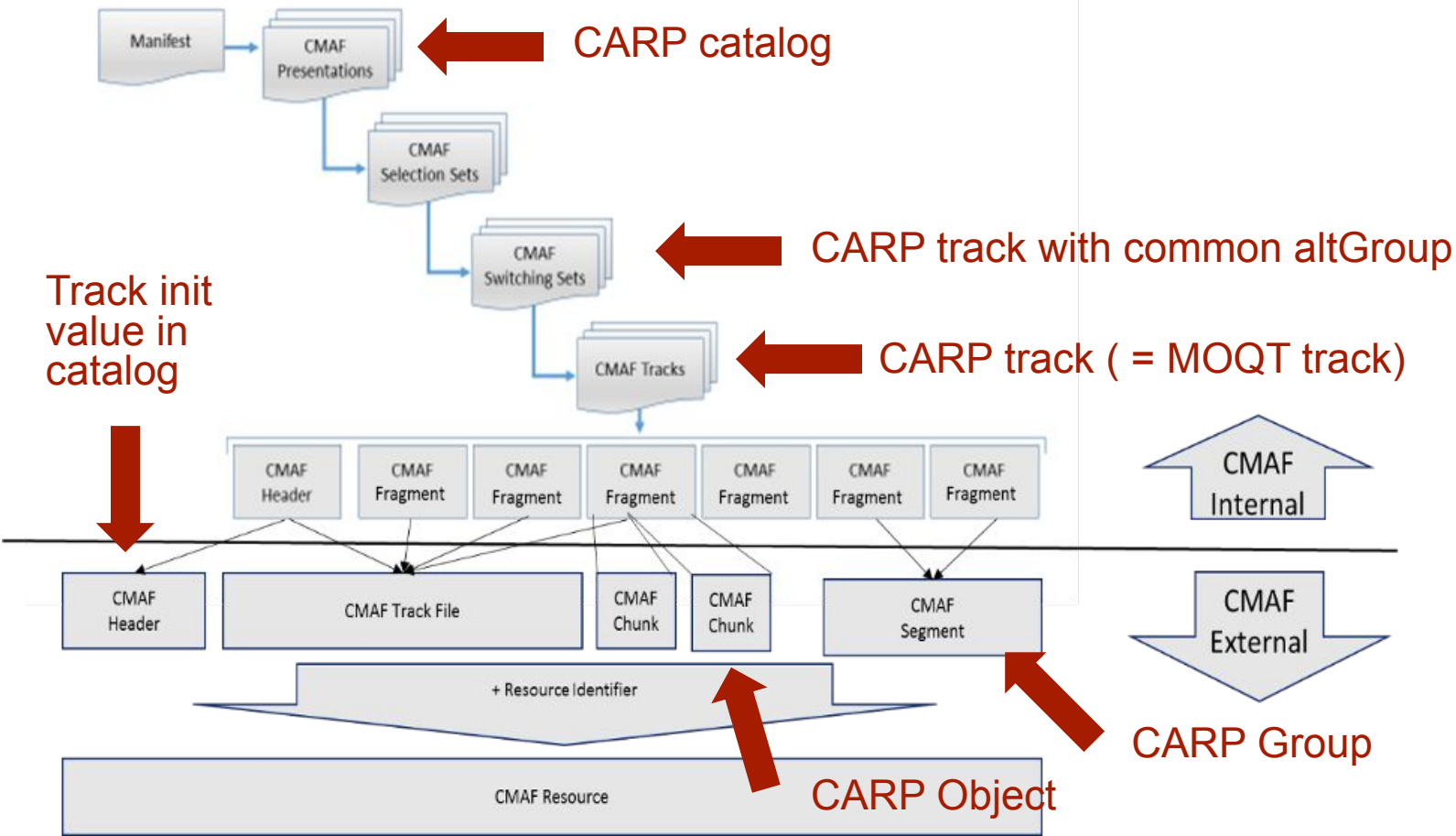
- CMAF is the basis for current industry HLS/DASH content and is a bridge to compatibility with all current encoders and packaging systems.

Why is it named after a non-sexy fish?

- I replaced the W of WARP with C for CMAF. :)
It's just a working name.



Mapping between CMAF and WARP





Merged #5: Refining CMAF box requirements for Object packaging

The payload of each Object is subject to the following requirements:

- MUST contain at least one Movie Fragment Box (moof) followed by a Media Data Box (mdat). This is **equivalent to requiring that each Object hold at least one CMAF Chunk**.
- The Media Fragment Box (moof) MUST contain a Movie Fragment Header Box (mfhd) and Track Box (trak) with a Track ID (track_ID) matching a Track Box in the initialization fragment.
- MAY contain multiple successive CMAF Chunks.
- MUST contain a single [ISOBMFF] track.
- MUST contain media content encoded in decode order.



Merged #5: Adding max Group/Object SAP types

Adds two new track fields to the catalog

Field	Name	Definition
Max Group SAP starting type	maxGrpSapStartingType	Section 3.5.2.1
Max Object SAP starting type	maxObjSapStartingType	Section 3.5.2.2

The two indications are helpful for a client to determine whether to request certain tracks at all and, if yes, how to switch between different alternative tracks when network conditions change. Allows compatibility with DASH attribute @startWithSAP and @subsegmentStartsWithSAP



Request for Implementation experience

CARP is mostly a theoretical application definition. We have had limited similar implementations:

- Mocklivemoq by Torbjorn
- Moqtail by Ali, Zafer & Deniz

It would be useful to get some additional implementation experience.

Can we set a simplified version of CARP (perhaps single audio and video track) as an interop test point?

Adoption

CMAF support is broad enough in the OTT industry that we should have CARP as a companion spec to WARP.

We therefore request adoption of CARP by the moq workgroup.



Thank you for your time.