MoQ Control Stream(s)

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Open Issues and High Level Design

Fix existing issues with Request ID (#1168)

Each Request/Response goes on a bidirectional stream

- Can be quickly cancelled without HoL blocking (#1343)

REQUEST_UPDATE (PR #1332) allows updates

When HoL blocking is helpful, put Messages on bidi stream

- ie: SUBSCRIBE_UPDATE on the SUBSCRIBE stream

Use the existing QUIC stream and data flow control

- Hopefully we can remove Request ID (#1247)

Proposal: Put 'Requests' on bidi Streams: SUBSCRIBE, PUBLISH, FETCH, SUBSCRIBE_NAMESPACE

Not new. WG previously discussed stream per subscription, shelved it until MoQ was more complete

No more Request IDs Control messages on bidi streams

No changes to Object transmission*
- PUBLISH_NAMESPACEs come on the response stream

Quickly close the Request with a RESET/STOP_SENDING

Update Requests with REQUEST_UPDATE (#1332)

*FETCH Objects could be on response stream

Proof of Concept - SUBSCRIBE_NAMESPACE

- Put SUBSCRIBE_NAMESPACE on its own stream (#1334)
  - NAMESPACEs (aka ANNOUNCEs) on response stream
  - #843 (and #1279) ANNOUNCE is inefficient in response to SUBSCRIBE_NAMESPACE
  - Fixes #1168 for SUBSCRIBE_NAMESPACE
  - Removes UNSUBSCRIBE_NAMESPACE
  - Allows the publisher to cancel (#1305)
  - More changes are possible in the future (listed on PR)

Request ID no longer limits REQUEST_UPDATEs

But there are limits

- Can Limit flow control
- Bulk read and process multiple REQUEST_UPDATEs
- Can RESET stream at the QUIC layer

Most importantly, this isolates Requests/Subscriptions from one another, which is a key part of flow control

What might we lose?

Auth token storage becomes more complex

- ie: might receive a SUBSCRIBE that references auth registered on a different SUBSCRIBE/etc
- HTTP/3’s QPACK deals with this, but adds complexity
- We previously decided we might split Auth alias into its own draft (#969), this is more motivation

HoL blocking between Subscriptions

- But ABR doesn’t need this, does anything else?

Lose “Reason Phrase” if REQUEST_ERROR is replaced by RESET_STREAM