

QMux

Formerly QUIC on Streams

draft-kazuho-quick-quick-on-streams

Multiplexing / API

Framing

TLS

Congestion Control

Loss Detection /
Recovery

UDP

QUIC

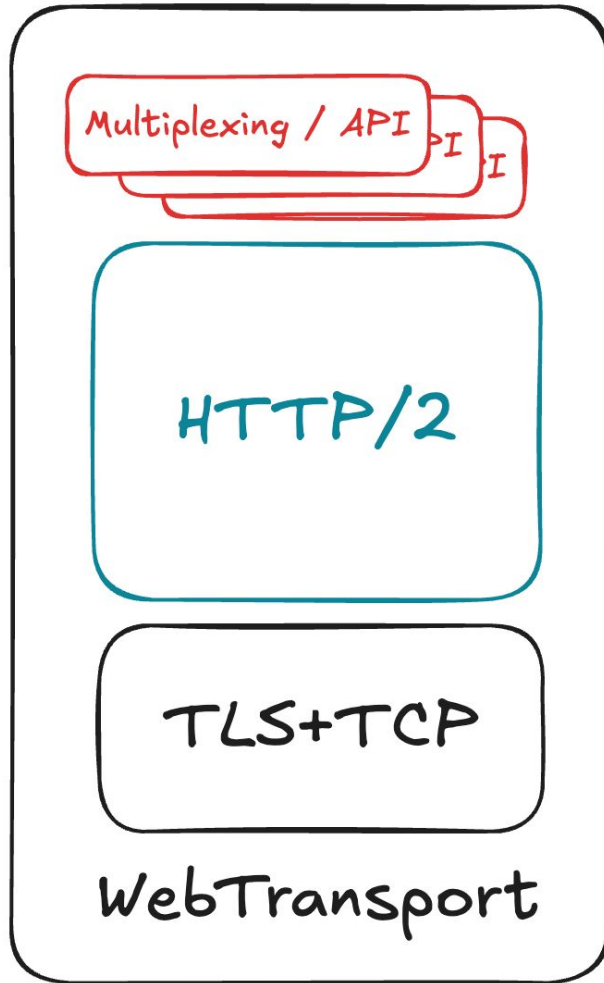
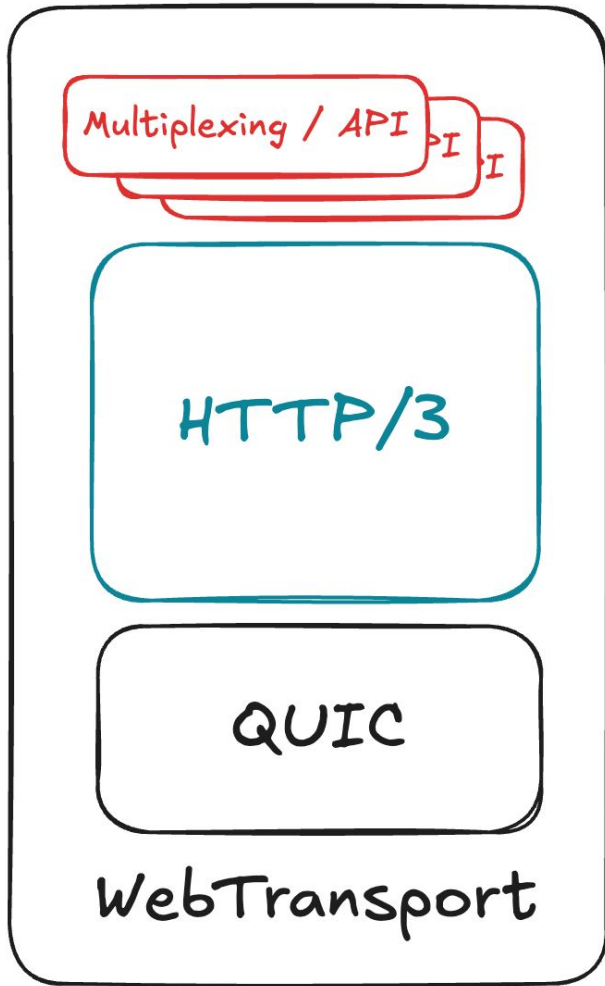
Multiplexing / API

I

I

HTTP

WebTransport



Multiplexing / API

Framing

Any reliable
bidirectional
channel

QMux

Why?

- QUIC's stream multiplexing abstraction is powerful and widely used
- It's the basis of new protocols (eg: MoQ) that want to be able to run over both UDP and not UDP. Having a standard prevents bespoke fallback.
- It's generally useful for applications and protocols that might *never* use QUIC (eg datacenter RPC)
- There's already a way to use QUIC's Multiplexing with TCP+TLS - it's called WebTransport over H2.
 - The dependency on HTTP is overkill outside of browsers.
 - WT/H2 would likely have used QMux if it existed
- At least 3 implementations of [Kazuho's draft](#) already exist

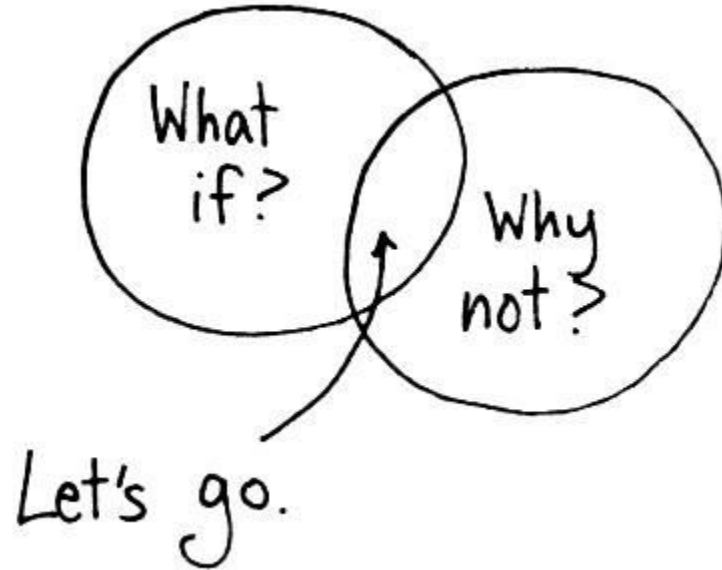
We're not talking about HTTP

Kazuho's [other draft](#) explained how to run HTTP/3 on QMux.

That is clearly an httpbis question

QMux is valuable without the HTTP use case, and should be considered independently

Can QUIC adopt this?



Discussion

When you come to the mic, please answer the following:

1. Do you want this work to move forward?
2. Do you think QUIC is the appropriate venue, even if charter modifications are necessary?
 - a. If not, what venue do you suggest?

Current Charter (part 1)

The QUIC WG originated the specifications describing version 1 of QUIC, a UDP-based, stream-multiplexing, encrypted transport protocol.

The WG acts as the focal point for any QUIC-related work in the IETF. It is chartered to pursue work in the areas detailed below:

The first area of work is maintenance and evolution of the existing QUIC specifications:

** Maintenance and evolution of the QUIC base specifications that describe its invariants, core transport mechanisms, security and privacy properties, loss detection and recovery, congestion control, version and extension negotiation, etc. This includes the specification of new versions of QUIC.*

** Maintenance and evolution of the existing QUIC extensions specified by the WG.*

WG adoption of work items falling into this first area of work needs to be strongly motivated by existing or ongoing production deployments of QUIC at scale, and needs to carefully consider its impact on the applications and higher-layer protocols (simply called "application protocols" in the rest of this charter) that have adopted QUIC as a transport.

Current Charter (part 2)

The second area of work is supporting the deployability of QUIC, which includes specifications and documents such as applicability and manageability statements, improved operation with load balancers, the specification of a logging format, and more.

The third area of work is the specification of new extensions to QUIC. The WG will primarily focus on extensions to the QUIC transport layer, i.e., extensions to QUIC that have broad applicability to multiple application protocols. The WG may also publish specifications to publicly document deployed proprietary extensions or to enable wider experimentation with proposed new protocol features.

Current Charter (part 3)

Specifications describing how new or existing application protocols use the QUIC transport layer, called application protocol mappings below, need not be specified in the QUIC WG, although they can. The QUIC WG will collaborate with other groups that define such application protocols that intend to use QUIC. New application protocol mappings might require QUIC extensions and it may be efficient to define these alongside the mapping specifications. Groups that define application protocols using QUIC, or extensions to QUIC in support of those protocols, are strongly requested to consult with the QUIC WG and seek early and ongoing review of and collaboration on proposals. This is intended to reduce the possibility of duplicate work and/or conflicts with other extensions.

The QUIC WG originated HTTP/3, the mapping of HTTP to QUIC, and the QPACK header compression scheme. These specifications are now maintained in the HTTP WG.

Defining new congestion control schemes is explicitly out of scope for the WG. However, new QUIC extensions that support development and experimentation with new congestion control schemes may fall under the third work area.

Would this fit into the first or second work area?

The first area of work is maintenance and evolution of the existing QUIC specifications:

** Maintenance and evolution of the QUIC base specifications that describe its invariants, core transport mechanisms, security and privacy properties, loss detection and recovery, congestion control, version and extension negotiation, etc. This includes the specification of new versions of QUIC.*

** Maintenance and evolution of the existing QUIC extensions specified by the WG.*

...

The second area of work is supporting the deployability of QUIC, which includes specifications and documents such as applicability and manageability statements, improved operation with load balancers, the specification of a logging format, and more.

If not in scope of charter, what would extension look like?

Some strawperson proposals:

1. “Adapting QUIC, or features of QUIC, to substrates other than UDP is in scope of protocol evolution.”
2. “Work that deals with compatibility of QUIC, or features of QUIC, in different deployment scenarios is in scope.”
3. “Adapting QUIC such that it can be used for multiplexing over a byte stream substrate.”
4. <Your idea here>