WEBTRANS WG
Virtual Interim

Thursday, May 20, 2021

9:30 - 11:00 AM Pacific Time

Mailing list: webtransport@ietf.org Jabber Room: webtrans@jabber.ietf.org
Video conference link: https://meet.google.com/eur-udvp-bsn
Meeting agenda:
https://datatracker.ietf.org/doc/agenda-interim-2021-webtrans-02-webtrans-01/
Meeting minutes and virtual bluesheets:
CodiMD - Collaborative markdown notes (ietf.org)

Note Well

This is a reminder of IETF policies in effect on various topics such as patents or code of conduct. It is only meant to point you in the right direction. Exceptions may apply. The IETF's patent policy and the definition of an IETF "contribution" and "participation" are set forth in BCP 79; please read it carefully.

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- Personal information that you provide to IETF will be handled in accordance with the IETF Privacy Statement.
- As a participant or attendee, you agree to work respectfully with other participants; please contact the ombudsteam (https://www.ietf.org/contact/ombudsteam/) if you have questions or concerns about this.

Definitive information is in the documents listed below and other IETF BCPs. For advice, please talk to WG chairs or ADs:

- BCP 9 (Internet Standards Process)
- BCP 25 (Working Group processes)
- BCP 25 (Anti-Harassment Procedures)
- BCP 54 (Code of Conduct)
- BCP 78 (Copyright)
- BCP 79 (Patents, Participation)
- https://www.ietf.org/privacy-policy/(Privacy Policy)

About this meeting

- Jabber Room: webtrans@jabber.ietf.org
- Secretariat: mtd@jabber.ietf.org
- WG Chairs: Bernard Aboba & David Schinazi
- Meeting URL: https://meet.google.com/eur-udvp-bsn
- Meeting agenda:
  https://datatracker.ietf.org/doc/agenda-interim-2021-webtrans-02-webtrans-01/trans
- Etherpad (and virtual bluesheets): CodiMD - Collaborative markdown notes (ietf.org)
- Jabber Scribe:
- Note takers:

Virtual Interim Meeting Tips

This session is being recorded

- **No registration required to attend.**
- **Fill out the virtual bluesheets here (Datatracker login required)**
- **Join the session Jabber room by clicking on the Jabber room icon: Upcoming Meetings (ietf.org)**
- **Please use headphones when speaking to avoid echo.**
- **Please state your full name before speaking.**
- **Poll mechanism will be used for hums.**
- **Type +q and -q in the Google Meet chat to get into and out of the speaker queue.**

Agenda

- Preliminaries, Chairs (15 minutes)
  - Note Well, Virtual Bluesheets
  - Jabber Scribe, Etherpad Note Takers
  - Speaking Queue Manager (David Schinazi)
  - Agenda Bash
  - W3C Update
- WebTransport over HTTP/3, Victor Vasiliev (30 minutes)
  - https://datatracker.ietf.org/doc/html/draft-ietf-webtrans-http3
- WebTransport using HTTP/2, Eric Kinnear (20 minutes)
  - https://datatracker.ietf.org/doc/html/draft-kinnear-webtransport-http2
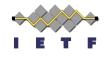- Hums, Wrap up and Summary, Chairs & ADs (25 minutes)

Update from W3C

- W3C WebTransport First Public Working Draft now published as of 4 May 2021, available at https://www.w3.org/TR/webtransport/
- List of requests for IETF to resolve in order to advance W3C API development:
  - Connection throttling to avoid DDOS attacks - should there be language in the RFC to permit and encourage throttling? W3C#230
  - Stats - clarification on Section 4.4 of IETF overview draft: "all protocols SHOULD provide the client with an estimate of the available bandwidth". Will this apply to pooled connections? Per stream or aggregate? Will a RTT measurement be available? W3C#206.
  - WebTransport and alt-svc. W3C#78 and IETF #47
- Google signalling intent to ship WebTransport in Chrome - more details provided by Victor in next section.

WebTransport over HTTP/3
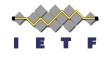## Victor Vasiliev (30 minutes)

https://datatracker.ietf.org/doc/html/draft-ietf-webtrans-http3

draft-01 is out!

Changes since draft-00:

- Support buffering of streams on client and server when the CONNECT request is pending
- Redefined server-initiated bidi streams to use same format as client-initiated ones
- Minor editorial fixes

Chrome Origin Trial

Chrome is shipping an origin trial of WebTransport over HTTP/3 based on draft-01.

- Only dedicated HTTP/3 connections are supported.
- Datagrams are implemented using a subset of draft-ietf-masque-h3-datagram-00
- Will update the protocol as standard evolves

Shipping a version of WebTransport

- If the origin trial is successful, Chrome will ship it.
- Since protocol can be upgraded through versioning in SETTINGS, this does not preclude us from changing things.
- This will, however, commit us to certain semantic aspects of the protocol.

Issue #39: waiting for settings

- Assume a server receives a request with `CONNECT/:protocol=webtransport` before SETTINGS.
- Should the server wait for SETTINGS?
  - Settings to wait for: DATAGRAM, ENABLE_WEBTRANSPORT
  - Useful for versioning.

Issue #40: RESET_STREAM error codes

- Proposal: reserve 256 error codes
  - Already changed to uint8 already done in W3C API
- Why so small?
  - Has to work across HTTP/2 and HTTP/3
- Problem: GREASE codepoints
  - Would have to come up with embedding that works those around
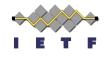
Issue #41: Session Error Codes

- Goal: provide a mechanism similar to what CONNECTION_CLOSE does in QUIC
- Options:
    - RESET_STREAM
        - Does not work end-to-end, no space for error message
    - Trailers
        - Would need to allow trailers for extended CONNECT

Issue #42: Status Code

- The spec currently requires `200` from server to form a session.
- Regular CONNECT requires any `2xx` code
- Proposal: switch to `2xx` for WebTransport

Issue #47: Alt-Svc

Many questions about interactions between Alt-Svc and WebTransport.

- Given that WebTransport API implies HTTP/3 support, how does Alt-Svc work?
- Many other details to figure out

Issue #48: unidirectional stream framing

Current format:
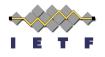
`Stream Type | Preface (Session ID) | Unframed`

Proposed:

`Stream Type | TV Frame`

WebTransport over HTTP/2
Eric Kinnear (20 minutes)

https://datatracker.ietf.org/docv/html/draft-kinnear-webtransport-http2
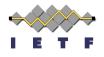
Falling back from QUIC/UDP

At IETF 110, there was general agreement that we want to have a fallback for cases where QUIC is not available

QUIC is not available for Chrome 5-10% of the time

Other web traffic falls back to HTTP/2 in these cases

Falling back from QUIC/UDP

What does WebTransport do? We have choices:

- Fail

- Require you to bring your own fallback (WebSockets?)

- **Fall back to running over HTTP/2**

WebTransport over HTTP/2

The WebTransport framework defines required and optional capabilities

We want to get similar things from HTTP/2 that we get from HTTP/3, where possible

All required capabilities are still present, some optional ones are not
e.g. datagrams still exist, but have a shockingly low loss rate

Principles

Principle 1: If you require an optional feature to make your use case work, that's okay.

Principle 2: You can always tell what you got.

Principle 3: Wherever possible, WebTransport over HTTP/2 should closely mirror the design of WebTransport over HTTP/3.

What If My Application Doesn't Need Fallback?

WebTransport constructor should allow the application to foresake HTTP/2 fallback (e.g. "Http3Transport or fail")

So if an application wants to "bring its own fallback" or not support fallback at all, it can

Server can support WebTransport over HTTP/3 only

Technical Approach

Attempting to mirror WebTransport over HTTP/3 as closely as possible

Two proposed extension frames:
WT_STREAM and WT_DATAGRAM

This is flexible. We need it to fulfill the framework requirements, and we want to mirror WebTransport over HTTP/3 where possible

WebTransport over HTTP/2

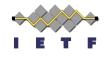Questions?

Hums, Wrap-up and Summary (25 minutes)

Bernard Aboba

David Schinazi

WebTransport over TCP

Chairs have heard interest in building a version of WebTransport that works on networks that block UDP

Chairs think the WG can work on such a protocol, with lower priority than WebTransport over HTTP/3

Question 0: Warmup

Let's make sure everyone knows how to hum. Which of these two flavors of ice cream do you prefer?

- 0A: Vanilla
- 0B: Chocolate

Question 1: WebTransport over TCP

Do you believe that the WebTransport WG should start work on a version of WebTransport that runs over TCP?

- 1A: Yes, we should build this
- 1B: No, we should not build this

Question 2: WebTransport over HTTP/2

Do you believe that the version of WebTransport over TCP should be over HTTP/2?

- 1A: Yes, use HTTP/2
- 1B: No, build a custom protocol over TLS/TCP

Question 3: Adopt draft-kinnear-webtransport-http2

Do you believe that the WebTransport WG should adopt draft-kinnear-webtransport-http2?

- 1A: Yes, adopt
- 1B: No, do not adopt

Thank you

Special thanks to:

The Secretariat, WG Participants & ADs