

WEBTRANS WG

IETF 110

Virtual Meeting

Monday, March 8, 2021

08:00 - 10:00 AM Pacific Time

Mailing list: webtransport@ietf.org

Jabber Room: [webtrans@jabber.ietf.org](jabber:webtrans@jabber.ietf.org)

MeetEcho link: [webtrans \(meetecho.com\)](https://meetecho.com/webtrans)

IETF 110 Meeting Tips

<https://www.ietf.org/how/meetings/110>

<https://datatracker.ietf.org/meeting/agenda>

This session is being recorded


- **IETF 110 registration and a datatracker login required to attend**
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- **Join the session Jabber room via IETF Datatracker Meeting agenda**
- **Please use headphones when speaking to avoid echo.**
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IETF 110 Meeting Tips

<https://www.ietf.org/how/meetings/110>

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- Enter the queue with  , leave with 
- When you are called on, you need to enable your audio to be heard.
- Audio is enabled by unmuting  and disabled by muting 
- Video can also be enabled, but it is separate from audio.
- Video is encouraged to help comprehension but not required.

Note Well



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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



- Agenda: <https://datatracker.ietf.org/doc/agenda-110-webtrans/>
- CodiMD (for notes): <https://codimd.ietf.org/notes-ietf-110-webtrans>
- Jabber Room: [webtrans@jabber.ietf.org](jabber:webtrans@jabber.ietf.org)
- Secretariat: mtd@jabber.ietf.org
- WG Chairs: Bernard Aboba & David Schinazi
- Jabber Scribe:
- Note takers:

Agenda



- Preliminaries, Chairs (10 minutes)
 - Note Well, Virtual Bluesheets
 - Jabber Scribe, Etherpad Note Takers
 - Speaking Queue Manager (David Schinazi)
 - Agenda Bash
- W3C WebTransport Update, Will Law, (10 minutes)
- WebTransport over HTTP/3, Victor Vasiliev (40 minutes)
 - <https://tools.ietf.org/html/draft-ietf-webtrans-http3>
- WebTransport using HTTP/2, Eric Kinnear (30 minutes)
 - <https://tools.ietf.org/html/draft-kinnear-webtransport-http2>
- Hums, Wrap up and Summary, Chairs & ADs (30 minutes)

W3C WebTransport Update

W3C WebTransport WG progress since last November 16

- Decisions & PRs
 - Following IETF single-transport decision, removal of quic-transport as an option while maintaining the WebTransport constructor.
 - Removal of mixins to concentrate on a concrete API around http3.
 - Mapping of WebTransport methods to QUIC protocol actions
 - Datagrams is now a duplex stream e.g. `transport.datagrams.readable`. Considering making similar change to `bi/unidirectionalStreams` for symmetry and stream-of-streams functionality.
 - Back-pressure on datagrams, app can set a time window for flushing stale data from underlying queue.
 - Fixed races, algorithms.
 - Added complete WebTransport example with modern JS (for `await`, piping)
 - Multiple other clean up/housekeeping items.

W3C Update (Cont'd)

- Current issues of debate
 - Make SendStream and ReceiveStream subclass of WriteableStream and ReadableStream
 - Pooling - constructor argument to WebTransport
 - Which stats can/should we provide?
 - Defining error codes
 - generic interface names
- Request from W3C - can IETF finalize the scheme to be used for a WebTransport connection? During W3C WG meeting on March 2nd, following individuals expressed preference for “**https**” - Bernard, David, Victor, Yutaka and Martin

WebTransport over HTTP/3 (40 minutes)

Presentation End: 09:00

Victor Vasiliev

<https://tools.ietf.org/html/draft-ietf-webtrans-http3>

Issue discussion

<https://github.com/ietf-wg-webtrans/draft-ietf-webtrans-http3/issues>

Issues blocking interop

Issue #23: server-initiated bidi streams

- Current syntax: session ID followed by the payload
- Not compatible with any other extensions using server-initiated bidirectional streams
- Proposal: make those use same syntax as client-initiated bidi streams

Issue #26: Type-Value frames

- WebTransport over HTTP/3 currently uses tag-value frame for indicating a stream is a WebTransport stream, without any length
- Should we add the length of zero?

Issue #38: URI scheme

We should pick one.

Two options are:

- Use `https:`
- Use a new scheme

Discussion in W3C was supportive of using `https:`

Other issues

Issue #10: stream IDs

- Developers want some form of IDs for ordering streams ([w3c/webtransport#124](https://www.w3c.org/webtransport/#124))
- We can't use QUIC stream IDs because:
 - Not consistent across proxies
 - Reveals information about other traffic on the same connection

Issue #31: RESET_STREAM

- If a peer processes a RESET_STREAM before first few bytes of the stream, it cannot map the RESET_STREAM to the transport.
- What should we do?
 - Do not guarantee reliability of stream resets
 - Use CONNECT stream to convey those

Issues #28 and #29: stream buffering

- If client receives a WebTransport-attached stream from a server before it receives 200 on a CONNECT stream, should it buffer it?
- If we require server to buffer streams, we can let the client open its streams one round-trip earlier

Issue #27: Draining WebTransport Sessions



- How should WebTransport handle GOAWAY frames?
- If a backend sends a GOAWAY to a reverse proxy, how should the proxy relay this to the client?

Issue #33: resetting streams when CONNECT stream closed

- Currently we require all streams to be reset once the CONNECT stream is closed
- We could lift that requirement, that could potentially let connections drain more gracefully

Issue #34: pooling support negotiation

- How does the server let the client know that pooling WebTransports is not supported?
- Option 1: client should know in advance if it is supported, and server can just reject pooled sessions.
- Option 2: PR#25.
- Option 3: MAX_WT_SESSION_ID

Datagram flows

- draft00 uses session ID (ID of the connect stream) to identify datagram flow
 - Easy 1:1 mapping
- draft-ietf-masque-h3-datagram uses distinct flow ID namespace
 - More flexibility at the cost of extra map
- Have opinions on this question? **Come to the MASQUE working group meeting tomorrow**

WebTransport using HTTP/2 (30 minutes)

Presentation End: 09:30

Eric Kinnear

<https://tools.ietf.org/html/draft-kinnear-webtransport-http2>

Falling back from QUIC/UDP

We know that there will be some networks where QUIC (more likely UDP, initially) is blocked

Other web traffic falls back to HTTP/2 for this

What does WebTransport do?

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

WebTransport as a framework defines required and optional capabilities

WebTransport over HTTP/2 looks just like over HTTP/3, but HTTP/2, which brings TLS/TCP

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

But I require X feature?

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

You can express this via the API when you go to create your WebTransport session

You can say “I'd rather have nothing if I can't have unreliable, unordered datagrams”

Probably best to provide your own alternative in these cases

X feature lets me do smarter things?

Principle 2: You can always tell what you got.

For most use cases, the expectation is that a fallback is better than nothing, but the application needs to know what features are currently available

You can adjust what you do based on which features are available

WebTransport over HTTP/2

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

Solve the problems once. One API.

For this reason, we've redone the HTTP/2 document to match almost exactly how HTTP/3 is currently written

Updates to Draft

Complete overhaul drawing heavily on text from the H3 draft

Two proposed extension frames:

WT_STREAM and WT_DATAGRAM

Optional header block in WT streams has been dropped for now

WebTransport over HTTP/2

Questions?

Adoption?

Hums, Wrap-up, and Summary

Session End: 10:00

Bernard Aboba

David Schinazi

Thank you

Special thanks to:

The Secretariat, WG Participants & ADs

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