WEBTRANS WG
IETF 119

Hybrid Meeting

Monday, March 18, 2024

15:30 - 17:00 Brisbane Time

Session III, M1

Mailing list: webtransport@ietf.org

MeetEcho: webtrans (ietf.org)

Notes: https://notes.ietf.org/notes-ietf-119-webtrans

This session is being recorded

IETF 119 Meeting Tips

In-person participants

- Make sure to sign into the session using Meetecho (usually the “Onsite tool” client) from the Datatracker agenda
- Use Meetecho to join the mic queue
- *Keep audio and video off if not using the onsite version*

Remote participants

- Make sure your audio and video are off unless you are chairing or presenting during a session
- Use of a headset is strongly recommended

This session is being recorded

IETF 119 Remote Meeting Tips

- 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.

Resources for IETF 119

- Information about IETF 119
  https://www.ietf.org/how/meetings/119
- Agenda
  https://datatracker.ietf.org/meeting/agenda
- If you need technical assistance, see the Reporting Issues page:
  http://www.ietf.org/how/meetings/issues/

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)

Note really well

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About this meeting

- Agenda: https://datatracker.ietf.org/doc/agenda-119-webtrans/
- Notes: https://notes.ietf.org/notes-ietf-119-webtrans
- WG Chairs: Bernard Aboba & David Schinazi
- Zulip Scribe: David Schinazi
- Note Takers: ?

Agenda

- Preliminaries, Chairs (15 minutes)
  - Note Well(s), Note Takers, Participation hints
  - Agenda Bash
  - Interop Runner
- W3C WebTransport Update, Will Law, (15 minutes)
- WebTransport over HTTP/2, Eric Kinnear (25 minutes)
  - https://datatracker.ietf.org/doc/html/draft-ietf-webtrans-http2
- WebTransport over HTTP/3, Victor Vasiliev (25 minutes)
  - https://datatracker.ietf.org/doc/html/draft-ietf-webtrans-http3
- Wrap up and Summary, Chairs & ADs (10 minutes)

Interop Runner

Marten Seemann's [QUIC Interop Runner](#) now supports WebTransport

W3C WebTransport Update (1 of 7)

W3C WebTransport WG progress since November 6th, 2023

- **Status:** Published a Working Draft - latest version Dec 20th, 2023
- **Charter** current charter was extended to 31 May 2024. We will renew charter to complete work and extend for at least one more year.
- **Timetable** for year
  - June, 2024: Candidate for Recommendation - requires stability in API
  - August 2024: Proposed Recommendation - requires two independent implementations per our charter.
  - September 2024: Call for Review of a Proposed Recommendation
  - November 2024: Publication by W3C as a Recommendation after AC review
- **Milestone** status
  - Candidate Recommendation (85% complete, 8 open (4 ready-for-PR), 49 closed)
- **Annual TPAC meeting** will be held 23-27 Sept in Anaheim. Requested meeting from 14:00 - 16:00 PST on Sept 24, 2024.

W3C WebTransport Update (2 of 7)

Major decisions and updates since last IETF report (Nov 6, 2023):

- **Add a waitUntilAvailable option to stream creation** #572 - defaults to false
  - If true, the promise returned by the `createUnidirectionalStream`or `createBidirectionalStream`call will not be settled until either the underlying connection has sufficient flow control credit to create the stream, or the connection reaches a state in which no further outgoing streams are possible.
  - If false, the promise will be rejected with a `QuotaExceededError`if no flow control window is available at the time of the call.
- **Add WebTransport.supportsReliableOnly boolean.** #575 - returns true if the user agent supports WebTransport sessions over exclusively reliable connections, otherwise false.
  - This can be used to feature detect HTTP/2 support.
- **Add expiredIncoming** #585 - added a new stat for the number of incoming datagrams that were dropped due to being older than incomingMaxAge before they were read from datagrams' readable.

W3C WebTransport Update (3 of 7)

Major decisions and updates since last IETF report (Nov 6, 2023):

- **Add anticipatedConcurrentIncoming[Bi/Uni]directionalStreams attributes & constructor arg #574**
  - Optionally lets an application specify the number of concurrently open streams it anticipates the server creating.
  - If not null, the user agent SHOULD attempt to reduce future round-trips by taking AnticipatedConcurrentIncomingUnidirectionalStreams into consideration in its negotiations with the server.

```
const wt = new WebTransport(url,{
          anticipatedConcurrentIncomingUnidirectionalStreams: 4000,
          anticipatedConcurrentIncomingBidirectionalStreams: 50,
          });

console.log(wt.anticipatedConcurrentIncomingUnidirectionalStreams); // 4000
console.log(wt.anticipatedConcurrentIncomingBidirectionalStreams);  // 50
wt.anticipatedConcurrentIncomingUnidirectionalStreams = 5000;
console.log(wt.anticipatedConcurrentIncomingUnidirectionalStreams); // 5000
```

W3C WebTransport Update (4 of 7)

Major decisions and updates since last IETF report (Nov 6, 2023):

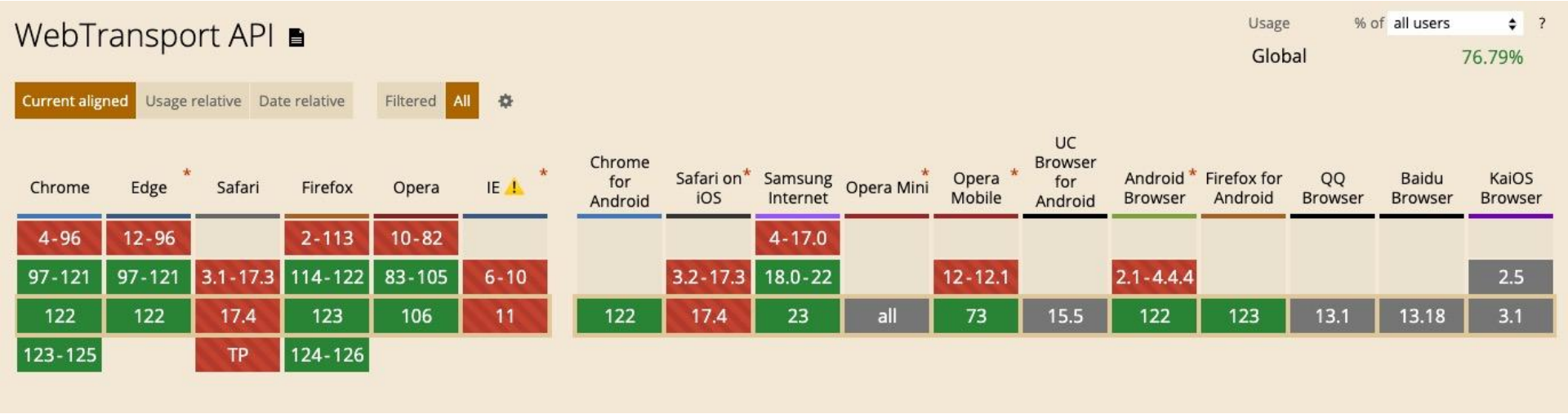
- **Default to allow the server to create >= 100 uni and >=100 bidi streams. #593** - guarantees that any user-agent will support the server creating at least 100 unidirectional and 100 bidirectional streams.

- **Add example for server certificate hashes**

```
const wt = new WebTransport(url, {
  serverCertificateHashes: [
    {
      algorithm: "sha-256",
      value: hashValue,
    }]
});
await wt.ready;
```

W3C WebTransport Update (5 of 7)

Browser support as of March 6 2024



Safari is coming along:

ID	Product	Comp	Assignee	Status	Resolution	Summary	Changed
63412	WebKit	JavaScri	oliver@apple.com	NEW	---	JSON parser has some inefficiencies	2024-02-03
255973	WebKit	Page Loa	webkit-unassigned@lists.web...	NEW	---	Implement BFCache interoperability for WebTransport	2023-05-02
264156	WebKit	CMake	webkit-unassigned@lists.web...	NEW	---	Build failure cause by bindings not being regenerated after settings are removed	2023-11-10
269144	WebKit	WPE WebK	webkit-unassigned@lists.web...	NEW	---	[WPE] git main of 2024-02-10 fails to build due to uninitialized variables in JSAudioWorkletNodeOptions.cpp	2024-02-10
269145	WebKit	WPE WebK	webkit-unassigned@lists.web...	NEW	---	[WPE] git main fails to build with -DENABLE_WEB_AUDIO=OFF	2024-02-10

5 bugs found.

W3C WebTransport Update (6 of 7)

Requests for IETF feedback.
We presented two issues at the webtrans interim meeting on Feb 22nd

Issue #411: expose a TLS Keying Material Exporter / unique value for the TLS session
Action: We note that a webtrans PR has now been opened #148 on this issue. Thanks!

Issue #580: Remove one dependency on "Data Recvd"
Action: Victor to open an issue.

Thank you for reacting to these. We have no further IETF dependencies at this time.

WebTransport over HTTP/2

Eric Kinnear

https://datatracker.ietf.org/doc/html/draft-ietf-webtransport-http2

Updates since IETF 118

- New draft version -08

New capsules from HTTP/3

- `CLOSE_WEBTRANSPORT_SESSION`
- `DRAIN_WEBTRANSPORT_SESSION`

Renaming capsules

- Rename `*_WEBTRANSPORT_SESSION`
- `WT_*_SESSION`

- `WT_CLOSE_SESSION`
- `WT_DRAIN_SESSION`

Starting a WebTransport Session

Issues: #135, #140, #141, #143

Starting a WebTransport Session

Before:

Both sides send MAX_SESSIONS > 0 in SETTINGS, plus Extended Connect and Datagram

Results:

Servers need to buffer incoming datagrams, bidirectional streams, since they don’t know what version/format to expect

Starting a WebTransport Session

When a new stream arrives, you have to parse far enough into it to determine:

- It is a WebTransport stream
- The WebTransport session ID, so that you can tell if you have already received the CONNECT request that establishes that session

If it hasn’t, or if you don’t have SETTINGS, you always needed to buffer it

Starting a WebTransport Session

Now:

- Client MUST wait for server settings
- Endpoints MUST send SETTINGS_H3_DATAGRAM
- Client no longer sends the WEBTRANSPORT_MAX_SESSIONS setting

What about future versions?

If a future version of WebTransport changes the syntax of the request, it'll need to change the Upgrade Token.

Similarly, changes to stream formats will require changes to the Unidirectional Stream Type and Bidirectional Stream Signal Value.

Starting a WebTransport Session

This means:

- Servers don’t need to wait for client SETTINGS
  - Can retroactively close session if required settings are missing
- Incoming sessions, and streams for those sessions, always know what version they are using
- Always needed some buffering of bidirectional streams in case the CONNECT hadn’t yet established the session

WebTransport Overview
WebTransport over HTTP/3

Victor Vasiliev

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

Overview: Data Recvd (#13)

Previously, we directly referenced Data Recvd since we need it in the API

Doesn’t work for HTTP

Rewrote as “all data committed”; see PR #14

Reliable Resets (#77)

- PR ready to take dependency on draft-ietf-quic-reliable-stream-reset
- Needs more implementation experience

Flow control (#85/#150)

Consensus from the interim:

- Add flow control via H/2-like capsules
- Make it optional (only required for pooling)

Details/PRs TBD

Open problem: HOLB?

Key exporters (#148)

Reopened per demonstrated web developer interest

Proposal ready (PR #148)

Ties exporters to WebTransport session IDs

Wrap-up, and Summary

Bernard Aboba
David Schinazi

Next steps

- Merge some PRs
- Write some Code
- Editorialize some Drafts
- WGLC all the Things
- Profit

Thank you

Special thanks to:

The Secretariat, WG Participants & ADs