

MOQT Updates Since IETF 125 (draft-17)

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IETF 126 in Vienna

Timeline

Draft-18 published May 12 → Current interop target

Draft-19 published July 6

This presentation covers both together - see the change log appendices for blow-by-blow coverage

Next interop target likely **draft-20** approximately September 14 (8 weeks from now, 4 weeks before Hybrid Interim)

We've been busy beavers

72 PRs landed (average 3.6 per week)

```
git diff draft-ietf-moq-transport-17 --stat
```

1 file changed, **1843 insertions(+)**, **707 deletions(-)**

Net +1000 lines (new features, security considerations, clarifications, IANA tables)

New Feature: Range Filters

PR [#1765](#) Closed an old feature request (#441), opened April 2024

Subscribers can now filter responses based on:

- Priority, Subgroup ID, Object ID or (integer) Property values

Can express all relevant operators ($\leq$, $\geq$)

Uses “Set ID” to create and/or combinations

Two modes for Property filters:

- On a subscription - matches against Object Properties (in the data plane)

- On a SUBSCRIBE_TRACKS - matches against Track Properties (in the control plane)
If there is no match, no subscription (e.g. PUBLISH) is sent

Changes the gap processing logic in FETCH when Subscription filters are used

moqt://

Defined how moqt URLs work

Client can include h3, moqt in QUIC ALPN

If server selects h3, attempt WebTransport and WT-Protocol negotiation

Defined a media type for MOQT session

This is the type of the **moqt session resource**, not actual media (e.g. tracks)

Fragment handling:

#<type>:<value>

Other specifications register MOQT fragment types, define the contents of `value`

Example MSF: `moqt://foo.example.com/app#msf:customer-livestream-123--catalog`

The fragment is handled by the application and not sent on the wire

Other control plane: Subscriptions

- Split SUBSCRIBE_NAMESPACE (discovery) and SUBSCRIBE_TRACKS (wildcard subscribe) into separate messages
SUBSCRIBE_TRACKS automatically exclude your own published tracks
- Remove GROUP_ORDER from PUBLISH_OK
Either set by the subscriber in SUBSCRIBE_TRACKS or unilaterally by the publisher in PUBLISH
- Allow multiple subscriptions to the same track
Alias can be reused; no Object deduplication: subscribers re-filter
- REQUEST_UPDATE concurrency limits, allow coalesced processing

Bidi Control Plane Cleanup

- Clarified FIN / RST / STOP_SENDING behavior for bidi request streams
- Removed Required Request ID as an ordering constraint
Targeting SWITCH_FROM (#1774) as the coordination mechanism
- Added a REDIRECT error response and allow GOAWAY (migration) of individual requests

Extensibility

→ Mandatory to understand Track Properties

Code point range indicates the property is MTI

Publishers e.g. fail a SUBSCRIBE rather than send unhandled

→ Reserved namespaces

. : reserved, MUST NOT be used

.session : handled entirely within MOQT - never passed to application

.<string> : requires IANA registration, passed to application

Data Plane Highlights

- First Object bit in SUBGROUP_HEADER
- Split DELIVERY_TIMEOUT into OBJECT_ and SUBGROUP_ variants

OBJECT_ → What we've always had

SUBGROUP_ → Starts on Subgroup FIN

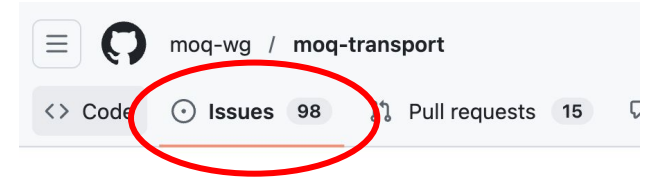
Either can be set as a Track Property, Object Property on the first object in a Subgroup, or by the subscriber as a request parameter.

- FILL_TIMEOUT Parameter
Applies to FETCH – budget for filling gaps. When exhausted → UNKNOWN Status
- Padding Streams / Datagrams
Can be used by sender to probe bandwidth

Editorial Highlights

- Significant additions to Security Considerations
- 0-RTT Guidance
- Rename Message Payload to Message Body for control messages
- Rename PUBLISH_BLOCKED to PUBLISH_SKIPPED

March 17: Current Issue Status



NotTransport	Parked	Has PR	Editorial	Needs PR	Needs Discussion	Triage
5 (-1)	16 (-15)	25 (+8)	33 (-3)	6 (-6)	8 (-6)	1 (-5)

↑
Close

↑
Review

↑
Write

↑
Write

↑
Opine

Total: 96 (-26)

The Dream - Issue 0 post 126

We were on our way

On May 12th, we had 69 open issues, over half editorial, several the remainder had open PRs or “Needs PR” label

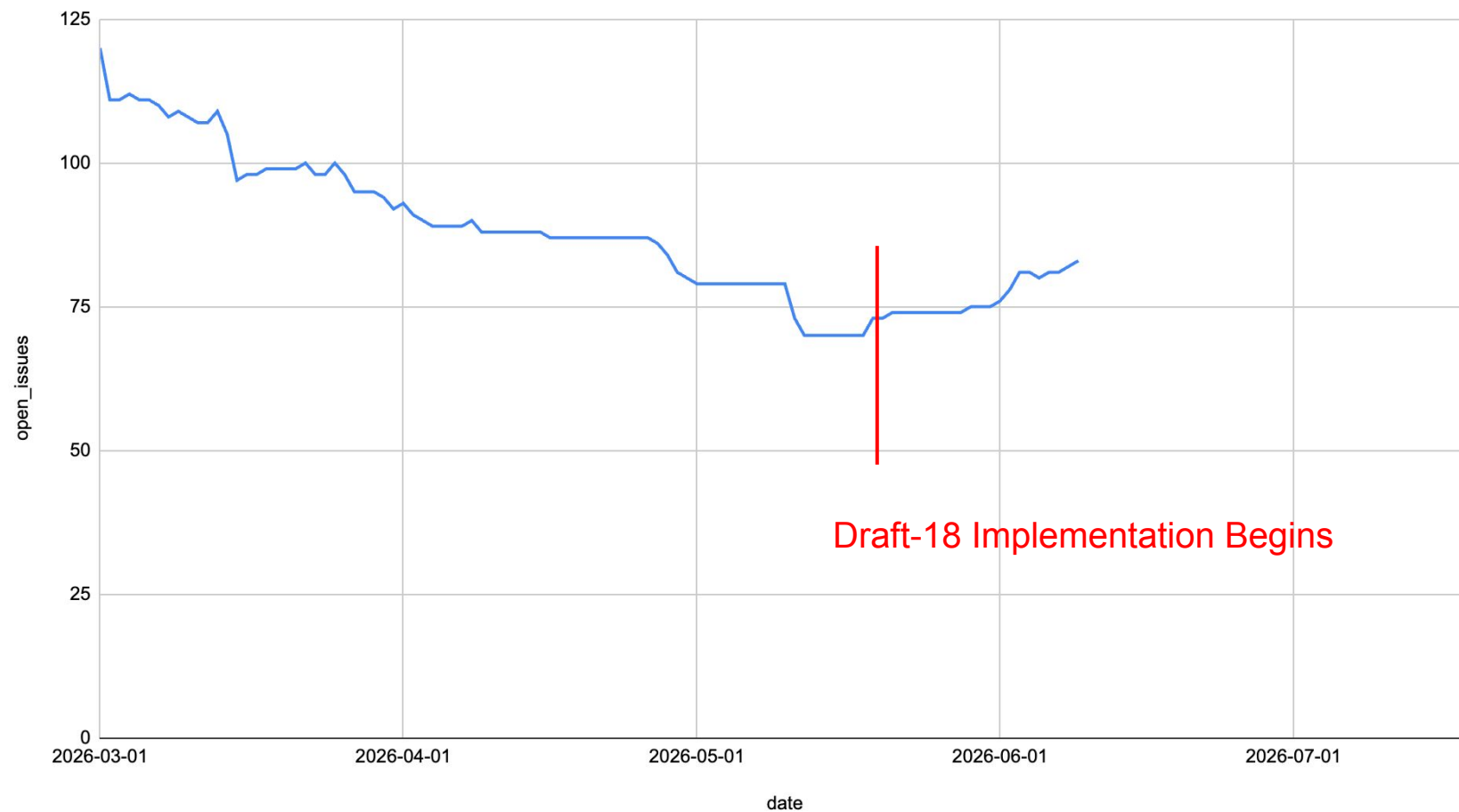
We dedicated virtual interims to our big rocks: SWITCH, SSTS, Filters, Joining FETCH Dissent

At our London interim, we discussed and made decisions on almost every outstanding issue

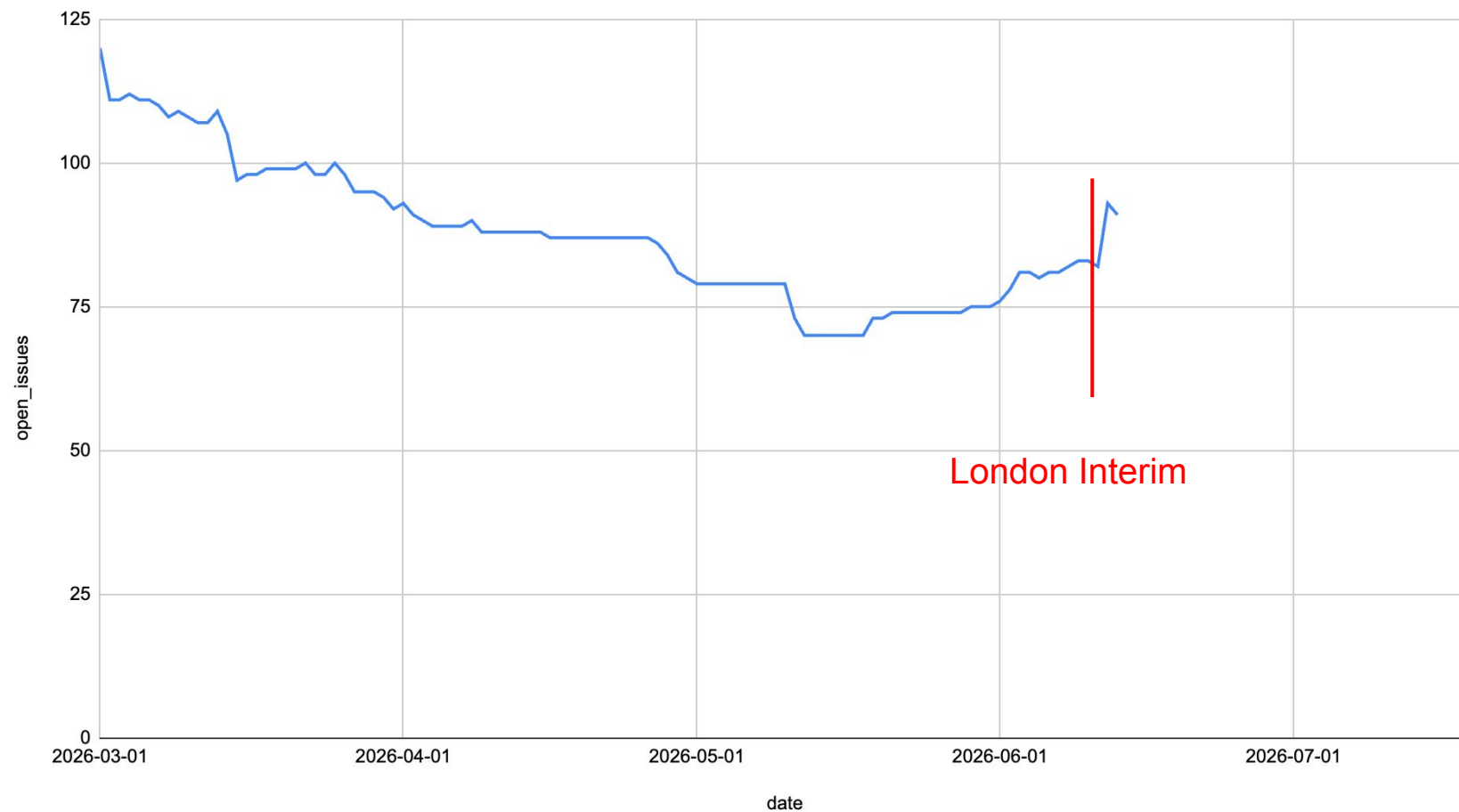
open_issues vs. date



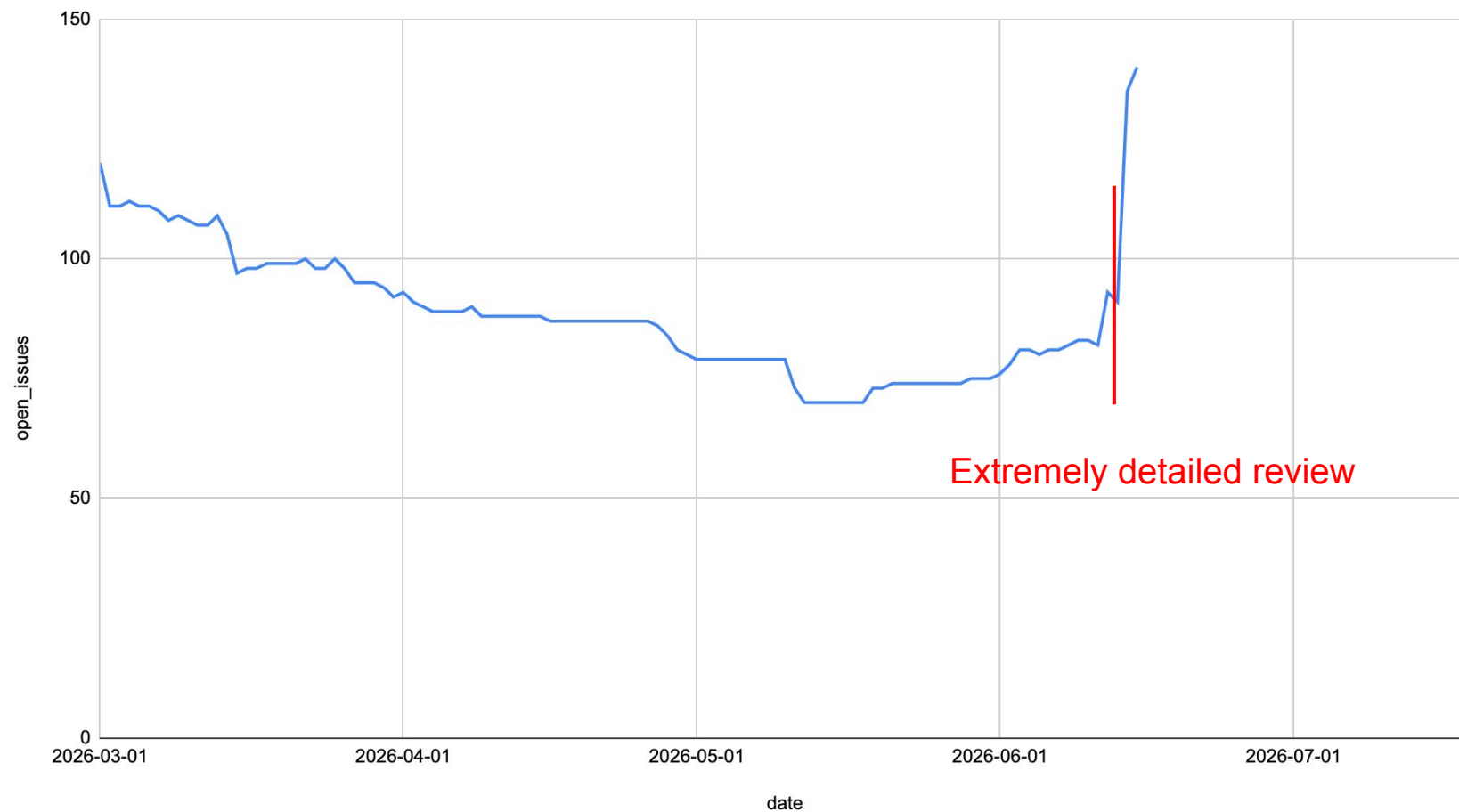
open_issues vs. date



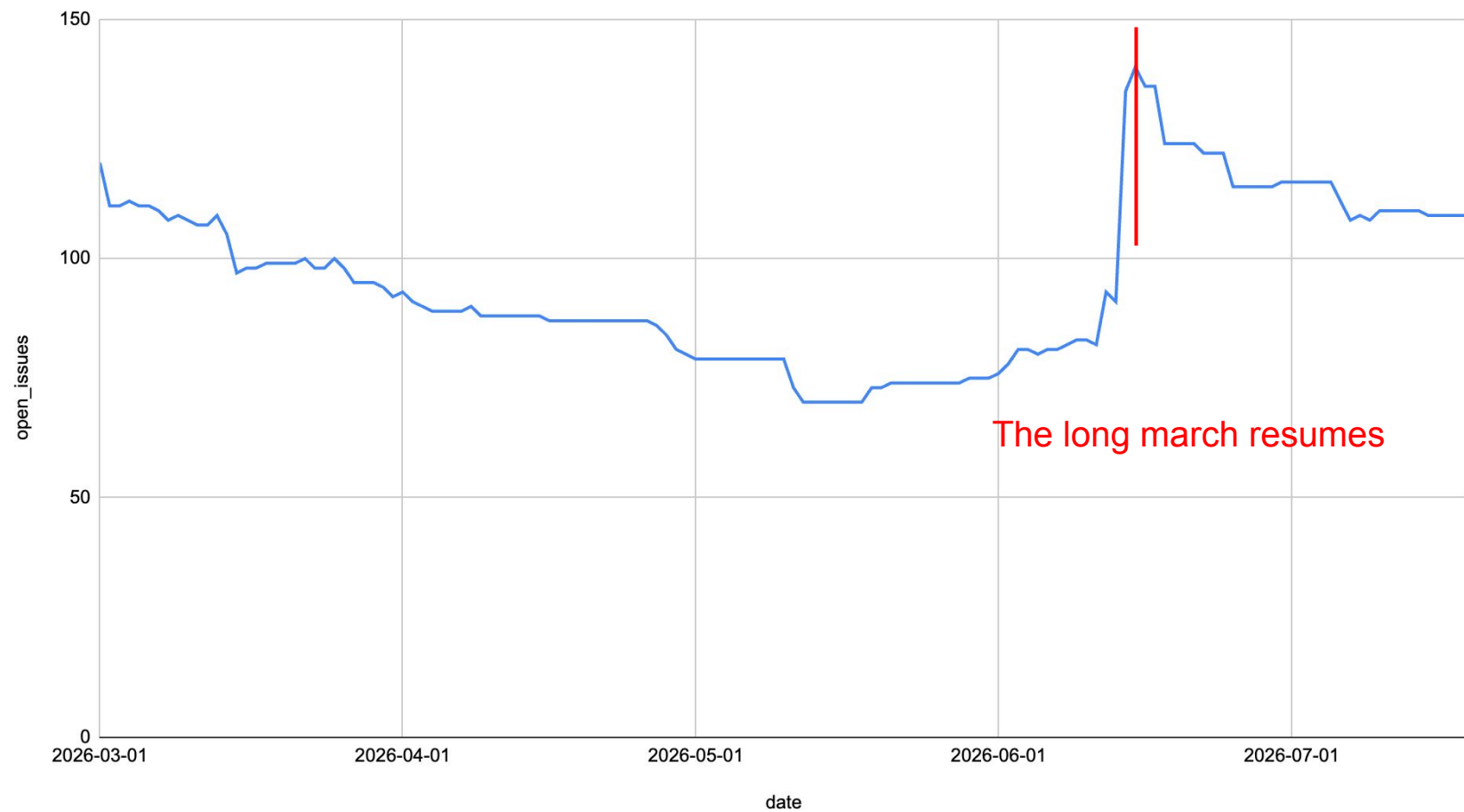
open_issues vs. date



open_issues vs. date



open_issues vs. date



July 20: Current Issue Status

Auth

6

← Design Team Formed

NotTransport	Parked	Has PR	Editorial	Needs PR	Needs Discussion	Triage
4 (-1)	5 (-11)	26 (+1)	47 (+14)	8 (+2)	12 (+4)	2 (+1)

↑
Close

↑
Review

↑
Write

↑
Write

↑
Opine

Total: 109 (+13)

We'll *never* finish unless something changes

So how will we get to WGLC?

Focus + Effort

Our attention is divided across many drafts: loc, msf/cmsf, cat4moq, privacy-pass, secure-objects

...and extensions: SSTS, Top-N, Tempo

...and applications / demos on top

We do need these pieces to inform transport requirements, but...

→ none of them matter until moq-transport is done; requires balance

Reviews / updates of PRs is too slow, async engagement on issues is poor

Request: increase your focus + effort on moq-transport for the next several months