QUIC update

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IETF QUIC

- Draft 29

- In Working Group Last Call 🎉

- Will be submitted to IESG next month

ATS

- ATS 9.0 will support QUIC draft 27 (experimental)

- Far from full feature support

  - Poor UDP packet handling

  - Logging, Stats, TS API are not fully available on QUIC sessions

  - Bunch of limitations and recommendations are ignored

  - Code is not production quality

  - 67 open issues (20% of all open issues)

Performance

- 8x slower than HTTP/2 🤦‍♂️

  - Perhaps because of bugs in our congestion controller

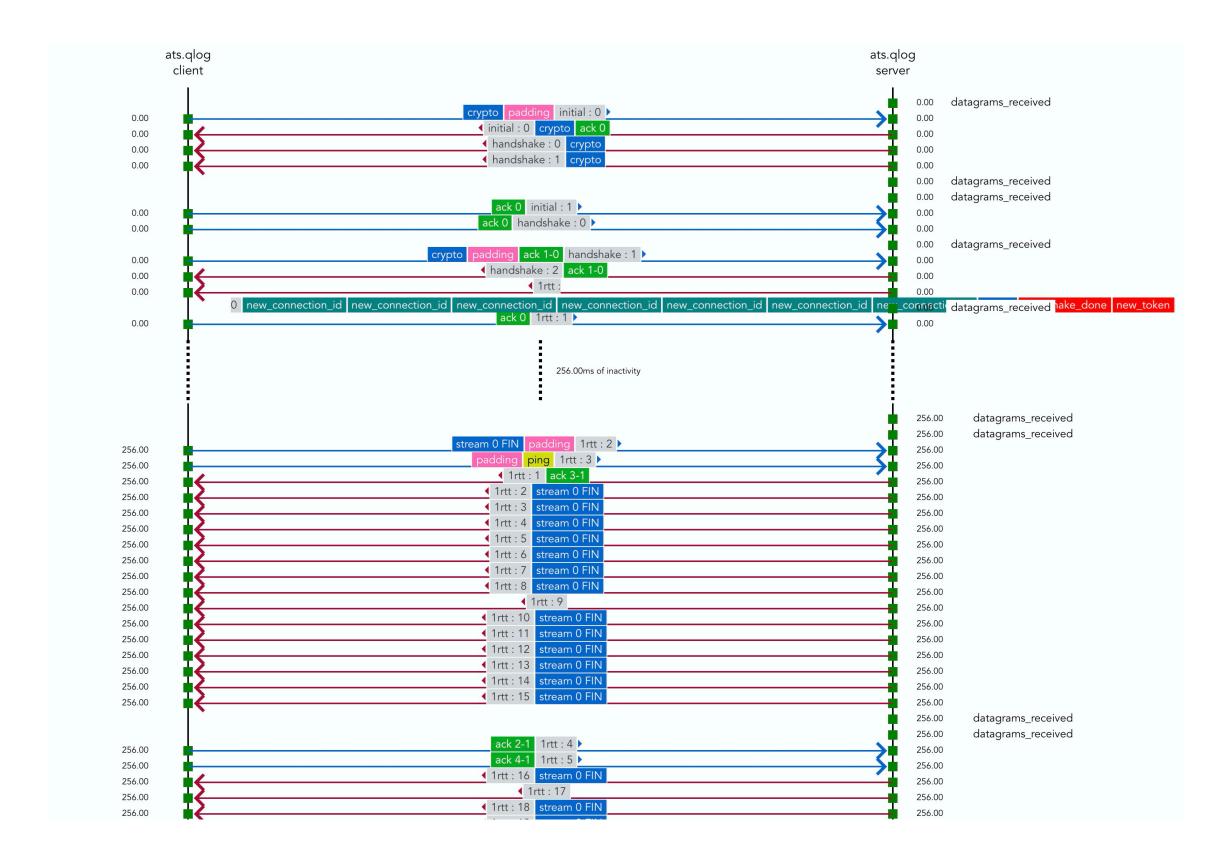- CPU & Memory usage are not measured yet

Debug

How to debug quic ?

- Wireshark ?

  - Advantage

    - No code changed

  - Disadvantage

    - No detail of QUIC state changed

    - Need master key

- QVIS ?

  - Advantage

    - More detail of QUIC metrics

    - Logging anything you want .

  - Disadvantage

    - Need code changed.

ATS QLOG

- https://github.com/apache/trafficserver/pull/6836

ATS Supported QLOG Events

- FrameReceived

- FramePacketized

- PacketSent

- PacketReceived

- PacketLost

- CongestionControllerMetricsUpdated

- CongestionStateUpdated

- ConnectionClosed

QLOG in ATS

- TODO

  - Support more events

  - Use more efficient JSON Encoder

  - More general callback implementation.

Why we are so slow?

- Only 2 people working on QUIC and HTTP/3

- Existing code is not easy to extend

	HTTP/2	QUIC + HTTP/3
Spec	151 pages	418 pages
Related modules	/porxy	/proxy /iocore/net /src/tscore /mgmt

Untouched area

- Settings and Stats

  - What should be separated / shared?

    - Setting for inactive_timeout

    - Stat for TLS handshake failure

- Logging

  - What should be logged?

    - Which IP addresses? (Client may use multiple IP addresses)

What you can do to help QUIC support

- Assume your code runs on QUIC and HTTP/3 sessions

👍
```
If (HTTP version is 1) {
    // Code for H1
} else {
    // Code for H2 and H3
}
```

👎
```
If (HTTP version is 2) {
    // Code for H2
} else {
    // Code for H1 and H3
}
```

- Avoid writing new code that only works for SSLNetVC

- Create an issue as todo

Questions?