

New Preferred Address

Marco Munizaga

New Preferred Address, a summary

- Clients can migrate to a new address at any point.
- In contrast, a server can only migrate to a new address once and the beginning.
- There's no way for a server to migrate to a new address later in the connection.
- In peer-to-peer environments server/client distinction is arbitrary.
- My proposal is to introduce a NEW_PREFERRED_ADDRESS frame that would allow a server to request that the client migrate to a new server address.
- Is treated the same as a connection migration due to the preferred address transport parameter.

Background: Preferred Address Transport Parameter

Allows servers to request that the client migrate to a new address at the beginning of the connection.

But this only works once and at the beginning.

Prior related discussions (2017)

■ IP Anycast with server IP+Port renegotiation (

<https://github.com/quicwg/base-drafts/issues/560#issuecomment-322100982>)

...
It's certainly possible to define a new frame type (call it MIGRATE) that acts much like the HTTP Alt-Svc frame. An endpoint that receives it might move to the new transport endpoint as soon as feasibly possible. ...

- Martin Thomson

...
I would also like to see a possibility to MIGRATE later in the connection, but that's a different issue.

...

- Christian Huitema

Prior related discussions (2017)

■ IP Anycast with server IP+Port renegotiation (

<https://github.com/quicwg/base-drafts/issues/560#issuecomment-322100982>)

...

This is definitely valuable.

In the short term, I'd expect most users to migrate at the end of the handshake. In the long term, there are other use cases, such as migrating from one server to another within a cluster for load balancing/etc.

- Ian Swett

Prior related discussions (2017/2018)

■ Connection migration symmetry (
<https://github.com/quicwg/base-drafts/issues/573>)

| It's believed #560 and Connection Migration(#1012) should be sufficient for the HTTP over QUIC goals of v1, tagging this as v2

- Ian Swett

| (... with the additional note that if those land and we manage to progress a PR sufficiently, nothing prohibits us from pulling this back.)

- Mike Bishop

Prior related discussions

Generally it seems there was interest in this, but also a strong desire to keep scope creep down. The sentiment seemed positive for supporting mid-connection server migration.

New Preferred Address

A small extension that piggy backs on existing preferred address logic defined in Section 9.6 of RFC 9000 to allow the server to request a migration to a new server address.

Draft (

<https://datatracker.ietf.org/doc/draft-munizaga-quic-new-preferred-address/>)



Frame

```
NEW_PREFERRED_ADDRESS Frame {  
    Type (i) = 0x1d5845e2,  
    Sequence Number (i),  
    IPv4 Address (32),  
    IPv4 Port (16),  
    IPv6 Address (128),  
    IPv6 Port (16),  
}
```

Alternatives

- Application Layer: Close the connection and ask the client to reconnect to the new address (possibly 0-RTT).
- Multipath extension for QUIC

Questions?

- Any new security considerations from allowing a dynamically chosen preferred address?
- Same security considerations as preferred address TP.
- Thundering herd.
- ?
- Is there interest in the room for this extension?
- Questions from the WG?