MASQUE CONNECT-UDP

draft-ietf-masque-connect-udp

IETF 110 – Virtual Prague – 2021-03

David Schinazi – dschinazi@google.com

The 5-second summary

CONNECT-UDP is like CONNECT, but for UDP!

When used in HTTP/3, it uses HTTP/3 Datagrams to avoid retransmissions

Hackathon Interop Report

server → / client ↓	quiche	Apple QUIC	Google	Ericsson
quiche	QHCDE	–	QHCD	
Apple QUIC	QHCDE	QHCDE	QHCDE	QHCDE
Google		–	QHCDE	QHCD
Ericsson		–	QH	QHCD

draft-ietf-masque-connect-udp – IETF 110 – Virtual – 2021-03

Issue [#23](#) – Do we need a SETTING?

According to HTTP Specs, methods are a fine extension point, we don't need a SETTING when defining a new method

However, some HTTP/2 and HTTP/3 servers (which do not support CONNECT) do not send response until they've received a FIN on the request stream

We have two options:
   1) do not add a SETTING
       cleaner but clients might run into timeouts with broken servers
   2) add a SETTING
       architecturally unpleasant, also causes CONNECT-UDP support to stick out

Issue #23 – Request target URI and scheme

The scheme does not convey any useful information here,
and it is not needed for the protocol to work

But, according to HTTP Semantics, all new methods MUST have a target URI

There was an exception for CONNECT but it doesn't help with a new method

Creating a new scheme would require significant work, for no clear benefit

Proposal: let's just use "https"

draft-ietf-masque-connect-udp – IETF 110 – Virtual – 2021-03

Issue [#37](#) – Negotiating flow IDs mid-stream

Currently flow IDs are negotiated in headers via the "Datagram-Flow-Id" header

In order to avoid over-allocation, we could allocate on-demand mid-stream

How do we convey this information?

Potential solution: HTTP/3 frames

Downside: intermediaries now need to parse every single HTTP/3 frame

Proposal: avoid complexity now and address this in a future extension

Issue #38 – Replace chunk types with flow IDs

The stream encoding is currently different from the datagram encoding

That implies additional implementation work

However, the stream encoding doesn't have to handle demultiplexing

Also, the stream encoding needs to work when datagrams are not supported

Proposal: leave chunk types as they are now

Issues [#14](#) and [#42](#) – Migration

When the MASQUE connection migrates, it resets its congestion controller

The target server is not aware of this

The target could send a full window which would then be dropped by the proxy

Proposal: add text mentioning that this can happen and suggest simple mitigations
e.g. proxy can change its target-facing port to signal the change

MASQUE CONNECT-UDP

draft-ietf-masque-connect-udp

IETF 110 – Virtual Prague – 2021-03

David Schinazi – dschinazi@google.com