MASQUE & HTTP

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What is MASQUE?

Multiplexed Application Substrate over QUIC Encryption

"MASQUE" name created in 2018 – no relation to life saving devices

A masque allows hiding your identity

Wait, is this related to HTTP?
What is MASQUE?

A way to proxy any Internet traffic over HTTP
A Brief Trip Down Memory Lane

HTTP was initially unencrypted

Bandwidth was expensive → Caching

→ Proxies Intermediaries came into existence

Clients started intentionally using intermediaries

Eventually SSL happened, HTTP now needed to proxy something non-HTTP

→ CONNECT method for TCP

20 years later: HTTP/3 uses QUIC. Oh right, UDP!
What is MASQUE?

A way to proxy any Internet traffic over HTTP

→ First: Proxying UDP in HTTP (RFC 9298)

In order to be efficient, can leverage QUIC DATAGRAM frame (RFC 9221)

Toss in a layer of abstraction for good measure: HTTP Datagrams (RFC 9297)

9297 also defines the Capsule Protocol for end-to-end control messages

→ Next: Proxying IP in HTTP (draft-ietf-masque-connect-ip)
What is it good for?

HTTP is a great choice for a proxying protocol

Well-maintained protocol and implementation

Allows reusing existing infrastructure, security posture, load balancers

Future-proof and extensible

MASQUE is well suited for existing and future deployments

Corporate VPN

Intra-cloud inter-VM communication
What next?  (1/2)

Extensions to CONNECT-UDP

"Listener" sockets – enables WebRTC – draft-schinazi-connect-udp-listen

QUIC-aware extension – draft-pauly-masque-quic-proxy

Extensions to HTTP Datagrams

Sequence numbers – draft-ihlar-masque-datagram-numbers

PMTUD – draft-schwartz-masque-h3-datagram-ping

Priorities – draft-pardue-masque-dgram-priority
What next?  (2/2)

Generic HTTP extensions that mainly benefit MASQUE scenarios (venue TBD)

- DNS Proxy Status – [draft-pauly-masque-dns-proxy-status](#)
- Access Descriptors – [draft-schwartz-masque-access-descriptions](#)
- Modern HTTP Proxies – [draft-schwartz-modern-http-proxies](#)
Get involved!

Meeting this week on Wednesday Session I – "Morning"

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github.com/ietf-wg-masque