Chunked Oblivious HTTP Messages

draft-ietf-chunked-ohttp-01

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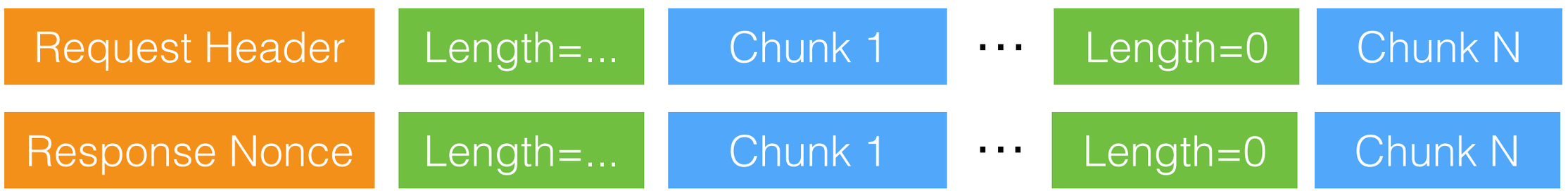
Chunked OHTTP

Chunked OHTTP allows encrypting and decrypting requests and responses in separate chunks



Allows the use of Binary HTTP's "indeterminate" mode

Takes advantage of HPKE's support for multiple messages

Still is a **single** HTTP request-and-response transaction

Updated in -01

Fixed Issue #9 around maximum number of chunks

- Response chunk counter must not exceed 2^Nn, since this would cause nonce reuse

Still need to fill in test vectors and protocol formal analysis

Incremental forwarding

Issue #19

Implementation and deployment testing found that most common CDN implementations made chunked OHTTP ineffective

- In practice, POSTs are often buffered and only forwarded by the intermediaries when the content is complete

Incremental forwarding

Issue #19

RFC 9110, Section 7.6:

An HTTP message can be parsed as a stream for incremental processing or forwarding downstream. However, senders and recipients ***cannot rely on incremental delivery of partial messages****, since some implementations will buffer or delay message forwarding for the sake of network efficiency, security checks, or content transformations.*

Incremental forwarding

Issue #19

Options

Deployment fix: Intermediaries that are used for chunked OHTTP will update to not buffer this content

Design fix: Replace POST with a new form of extended CONNECT (but this loses the advantages of making OHTTP easy to deploy with POST)

Negotiation fix: Allow clients and servers to agree about buffering for POST, etc

Incremental forwarding

Issue #19

Proposal for "negotiation fix" from Kazuho!

- New header field clients send in requests for which the content should be streamed instead of buffered

```
Request-Streaming = 1
```

Thoughts? Bikesheds?

Where should this work be done?

Next steps

Finish updates based on feedback at 119

- Max chunk sizes
- Configuration recommendations

Handle incremental forwarding

More implementations/testing

- Already multiple client/relay/server implementations being used