Binary HTTP Messages

draft-thomson-http-binary-message

IETF HTTP Interim, 2021-06

Oblivious HTTP protects entire HTTP messages

Binary encoding is

    Unambiguous and deterministic

    Easy to process

Protocol formats (and message/http) are

    Bound to protocols (compression, HTTP/1.1 HEAD responses)

    More complex

How?

Take the format in HTTP/2 and HTTP/3

Simplify

      No HPACK

      Fixed control data

      QUIC variable-length integers throughout

Extend (?)

      Fixed vs. indeterminate length

      Padding

Format

With Length Prefixes

Known-Length Message {

    Framing Indicator (i) = 0..1,   # request = 0, response = 1

    Known-Length Informational Response (..) ...,

    Control Data (..),

    Known-Length Field Section (..),

    Known-Length Content (..),

    Known-Length Field Section (..),

}

With Indeterminate Lengths

Indeterminate-Length Message {

    Framing Indicator (i) = 2..3,   # request = 2, response = 3

    Indeterminate-Length Informational Response (..) ...,

    Control Data (..),

    Indeterminate-Length Field Section (..),

    Indeterminate-Length Content (..) ...,

    Indeterminate-Length Field Section (..),

}

https://github.com/martinthomson/ohttp (bhttp crate)

```
GET /hello.txt HTTP/1.1
User-Agent: curl/7.16.3 libcurl/7.16.3 OpenSSL/0.9.7l zlib/1.2.3
Host: www.example.com
Accept-Language: en, mi
```

```
02034745 54056874 74707300 0a2f6865    ..GET.https../he
6c6c6f2e 7478740a 75736572 2d616765    llo.txt.user-age
6e743463 75726c2f 372e3136 2e33206c    nt4curl/7.16.3 l
69626375 726c2f37 2e31362e 33204f70    ibcurl/7.16.3 Op
656e5353 4c2f302e 392e376c 207a6c69    enSSL/0.9.7l zli
622f312e 322e3304 686f7374 0f777777    b/1.2.3.host.www
2e657861 6d706c65 2e636f6d 0f616363    .example.com.acc
6570742d 6c616e67 75616765 06656e2c    ept-language.en,
206d6900 0000                           mi...
```

Venue

Worth doing?

Here? ohttp WG?