FOSDEM, Brussels, January 30th 2016

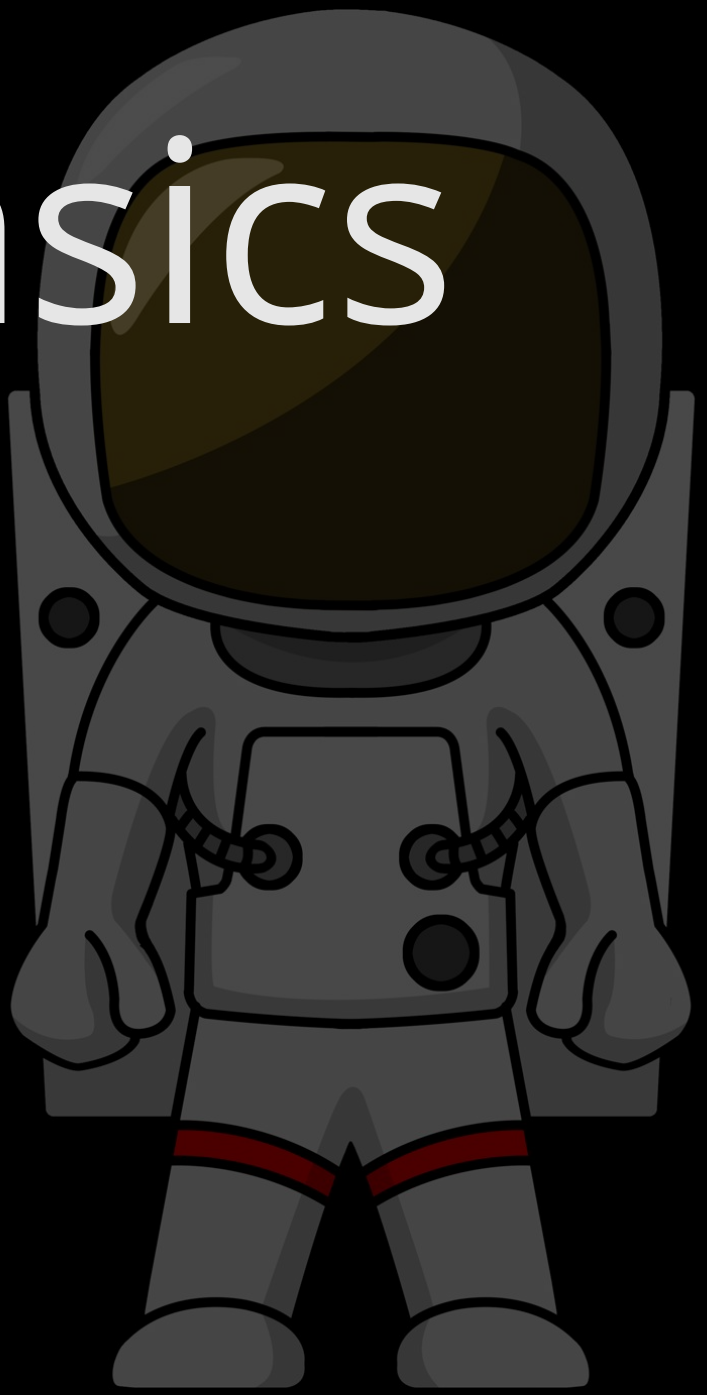
mozilla

HTTP/2 basics

Status

Deploy

Future



Daniel Stenberg

cURL

mozilla

Email: daniel@haxx.se
Twitter: @bagder
Web: daniel.haxx.se
Blog: daniel.haxx.se/blog


http2
about the protocol

Why HTTP/2

HTTP/1 ping-pong

... makes it latency sensitive

TCP connection fatigue

HTTP Pipelining failed

Deliver more data earlier!

Speed of light reminder

The world is still big
+ slower through fiber
+ never the shortest distance
+ buffer (bloat)
+ radio networks =

Several hundred milliseconds

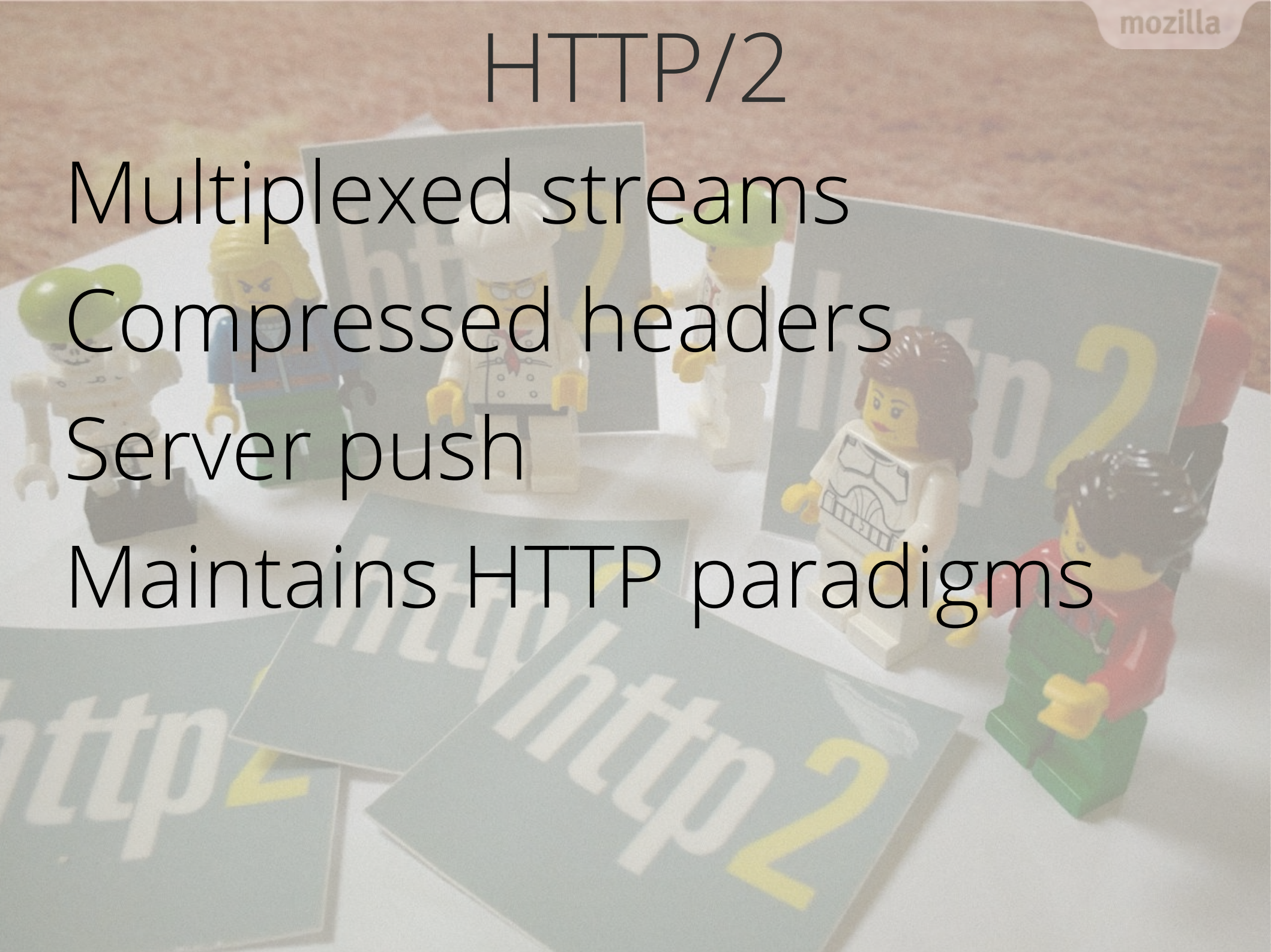
HTTP/2

Multiplexed streams

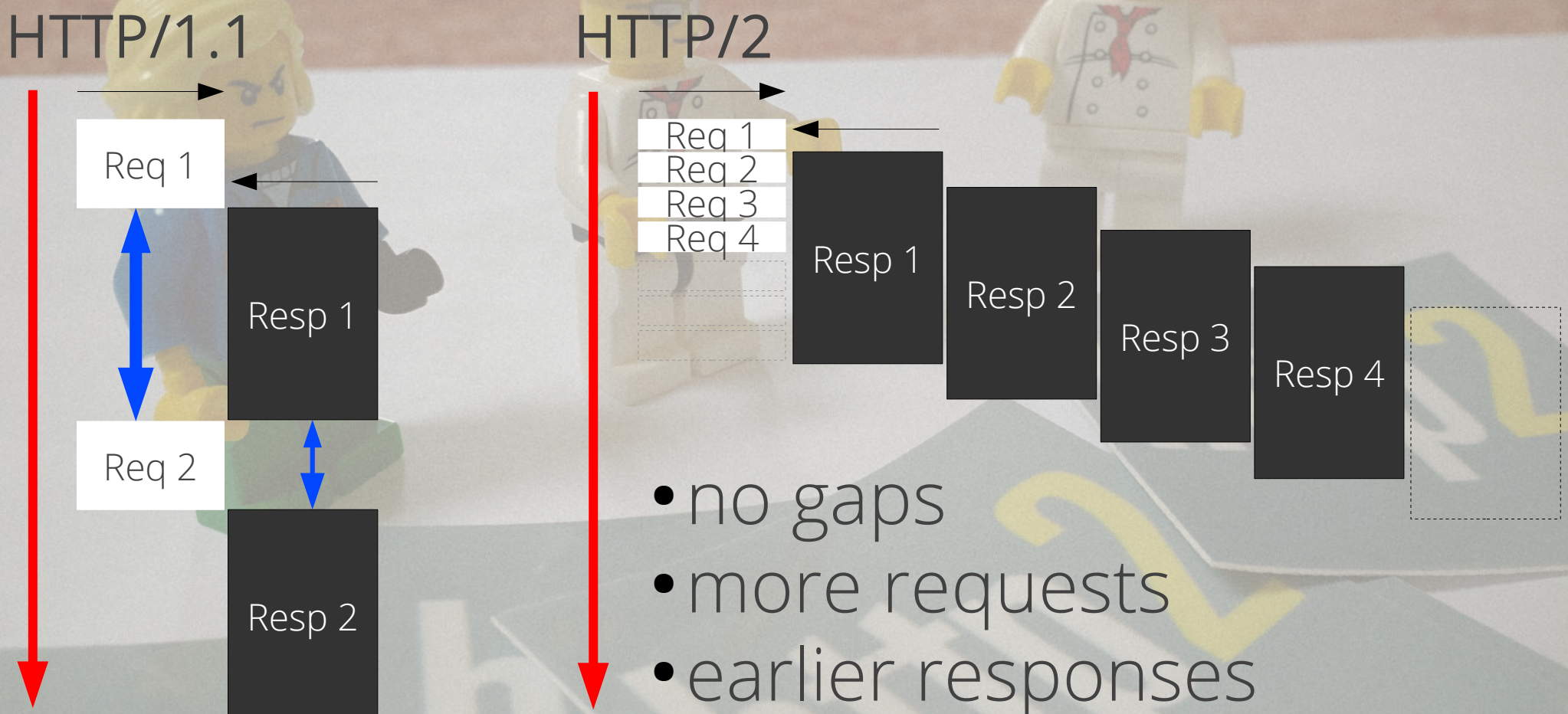
Compressed headers

Server push

Maintains HTTP paradigms

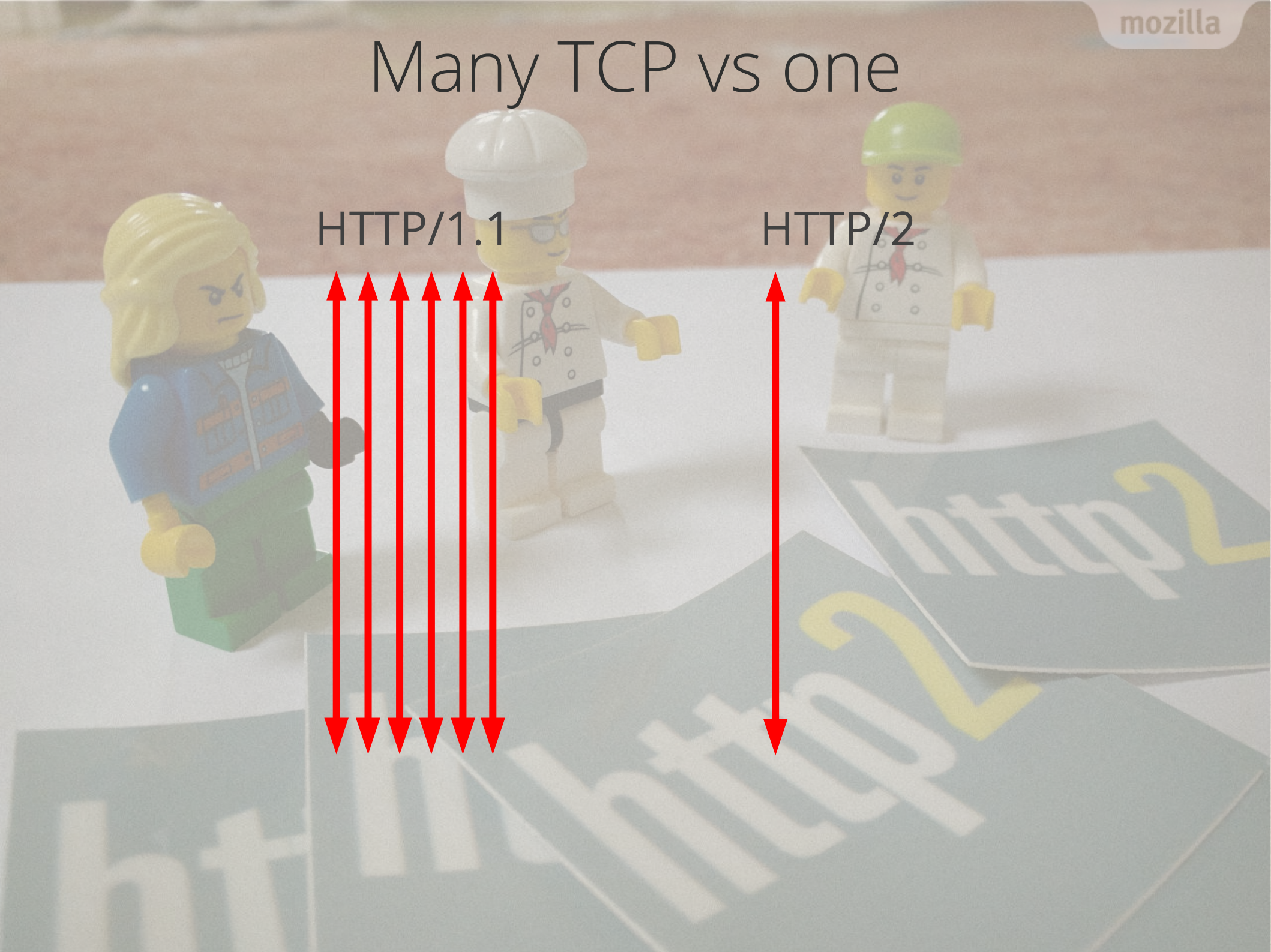


Multiplexed and compressed



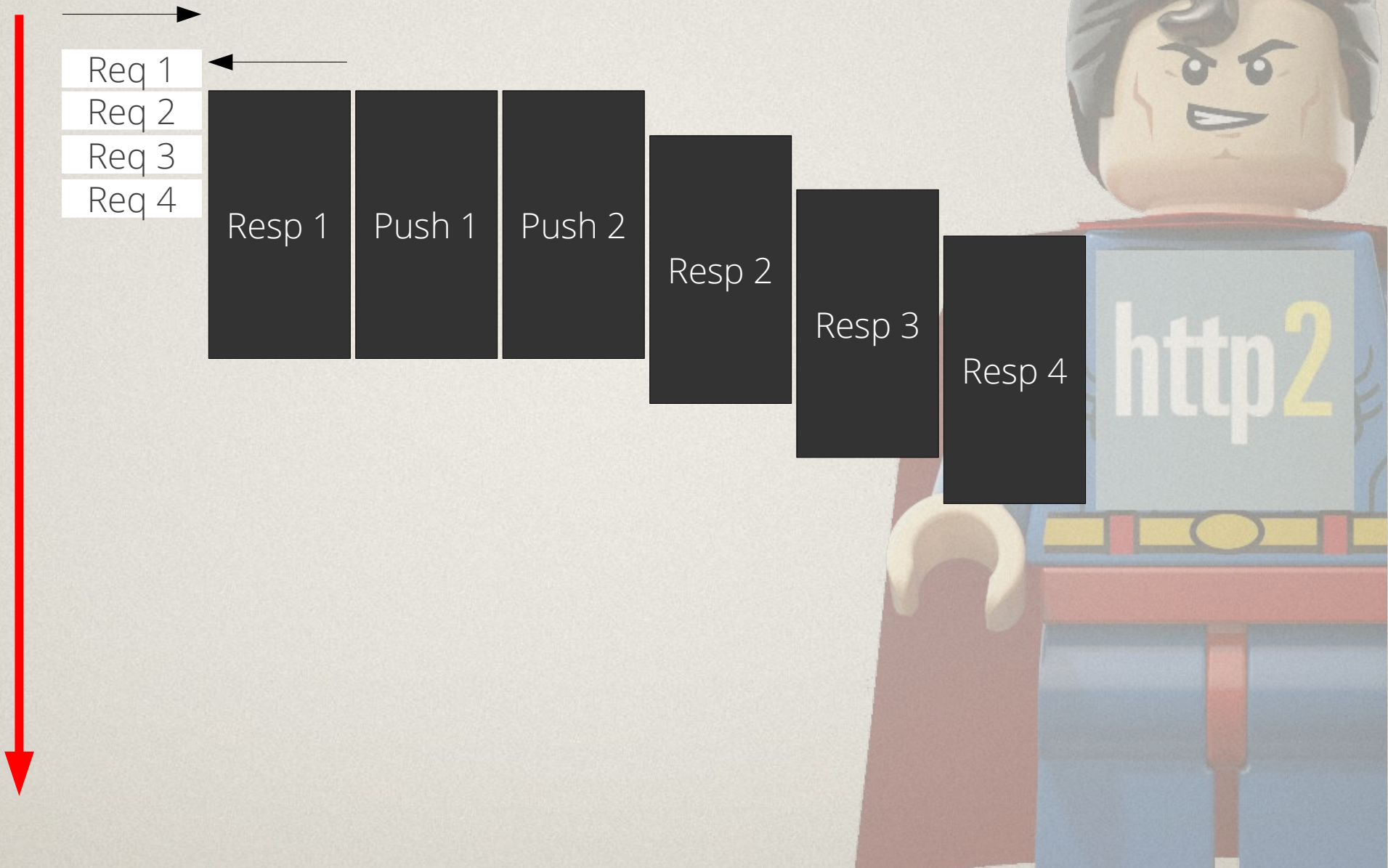
- no gaps
- more requests
- earlier responses

Many TCP vs one



Server push

HTTP/2



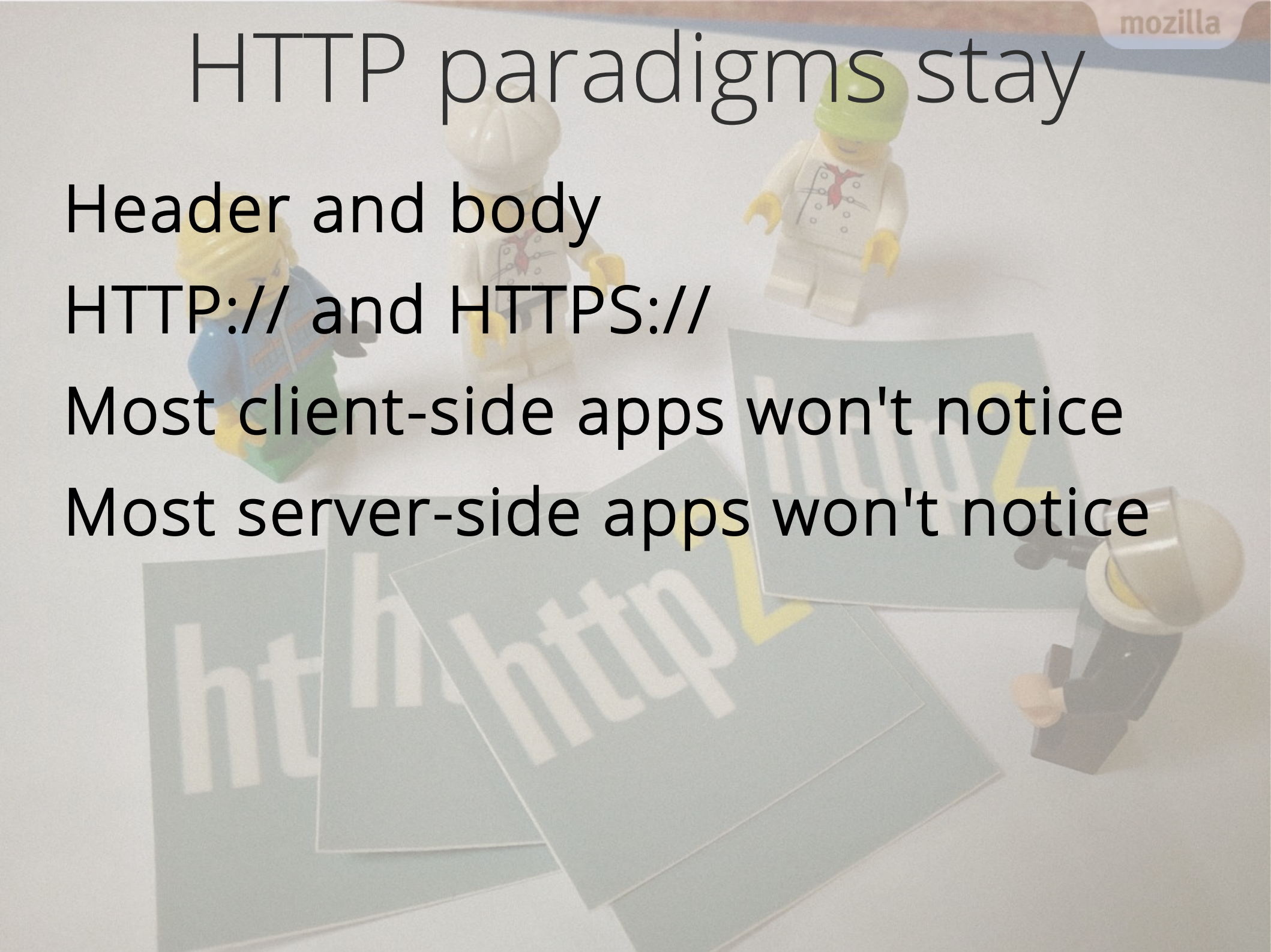
HTTP paradigms stay

Header and body

HTTP:// and HTTPS://

Most client-side apps won't notice

Most server-side apps won't notice




mozilla
http2
status

browsers

servers

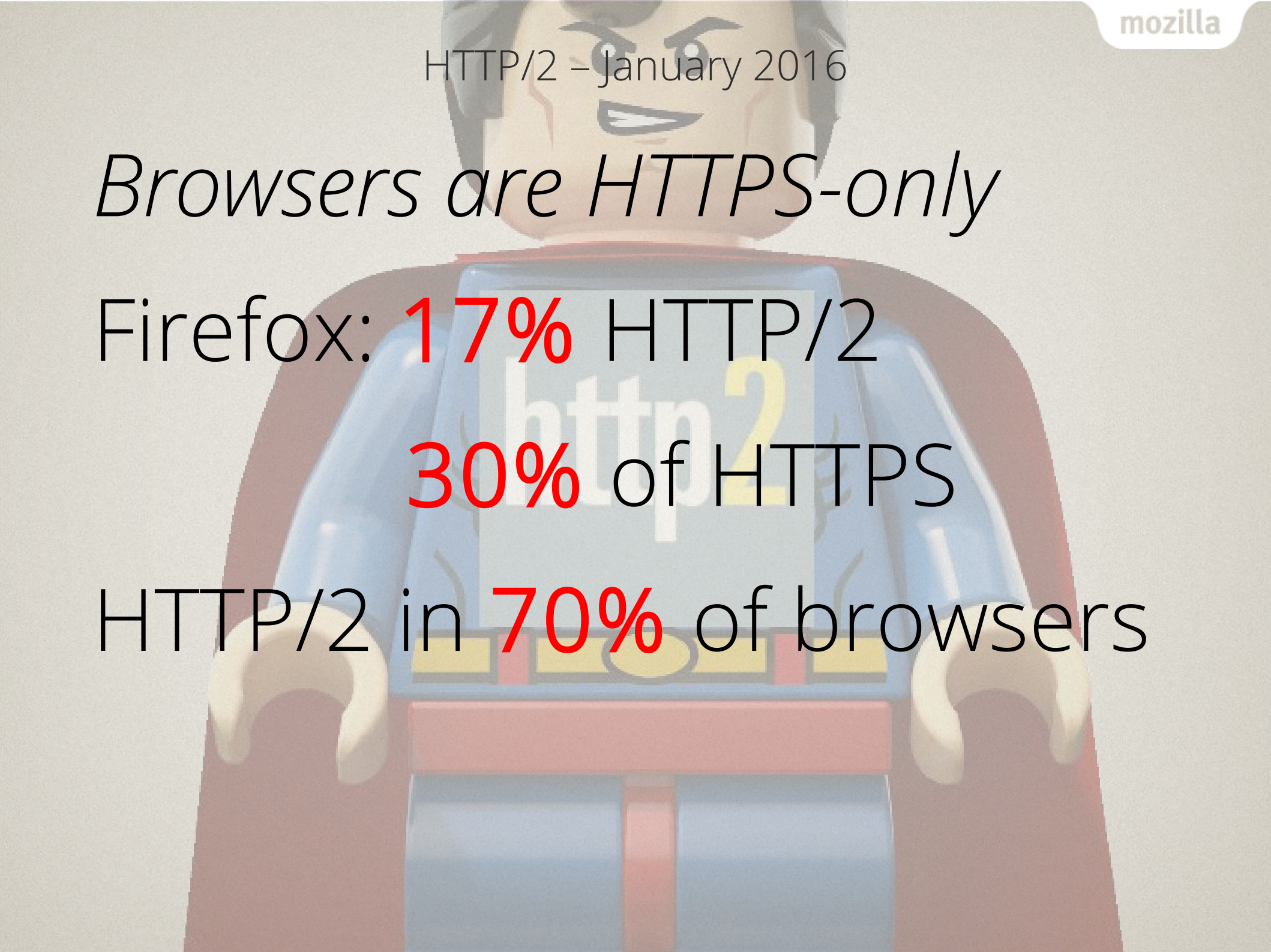
Google

NGINX

traffic server™

twitter™

HTTP/2 – January 2016



Browsers are HTTPS-only

Firefox: 17% HTTP/2

30% of HTTPS

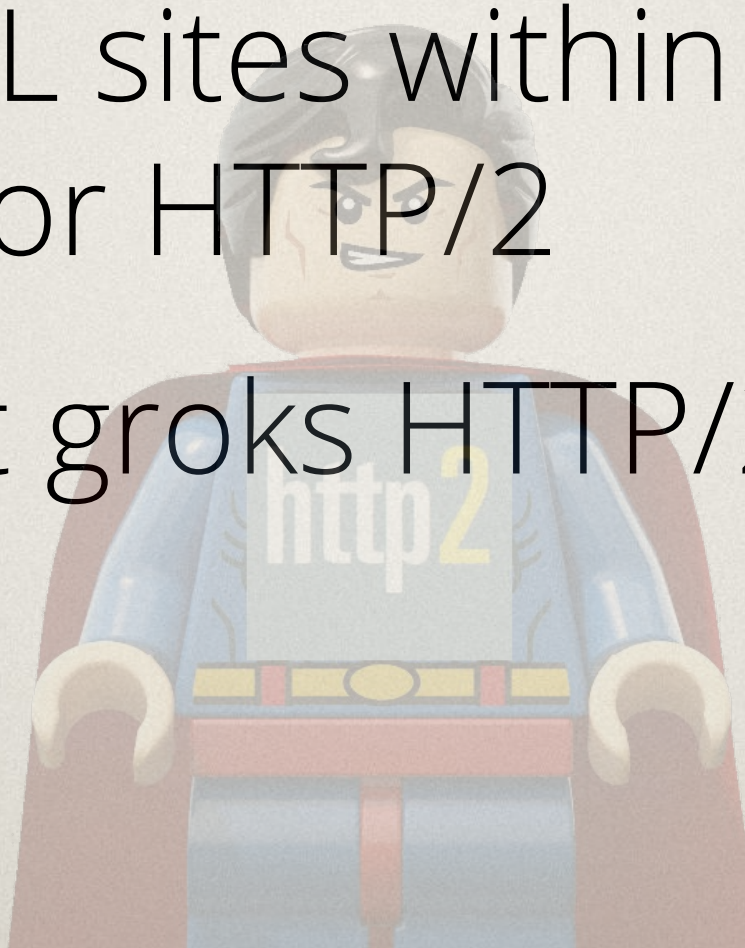
HTTP/2 in 70% of browsers

HTTP/2 for content – January 2016

51% of HTTPS contents over HTTP/2

29% of SSL sites within top-1000 use SPDY or HTTP/2

Googlebot groks HTTP/2 early 2016

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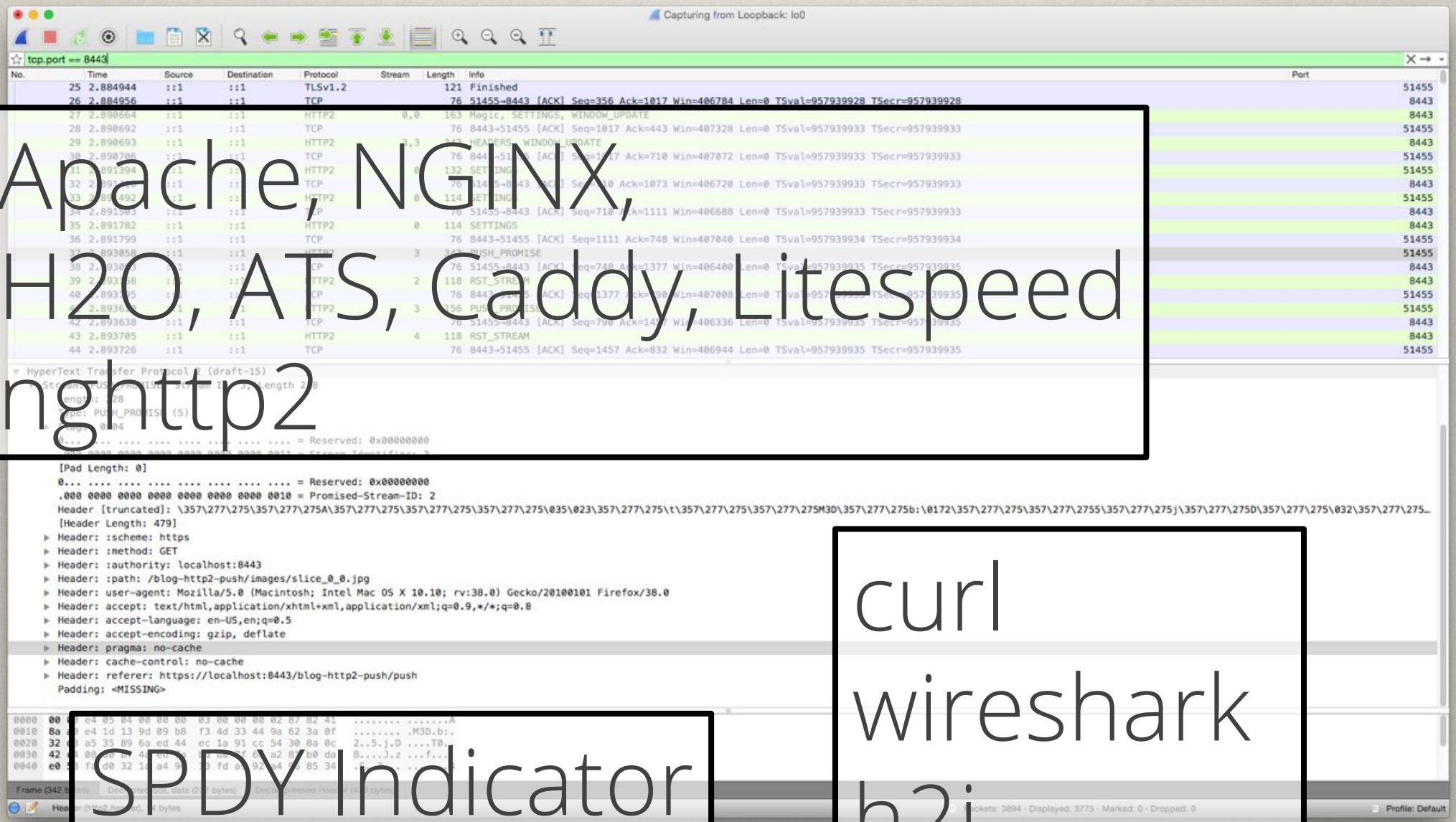
http2
deploy

Poking at it



Apache, NGINX, H2O, ATS, Caddy, Litespeed

nghttp2

SPDY Indicator

curl

wireshark

h2i

Challenges for you

h2 is straight-forward, but ...

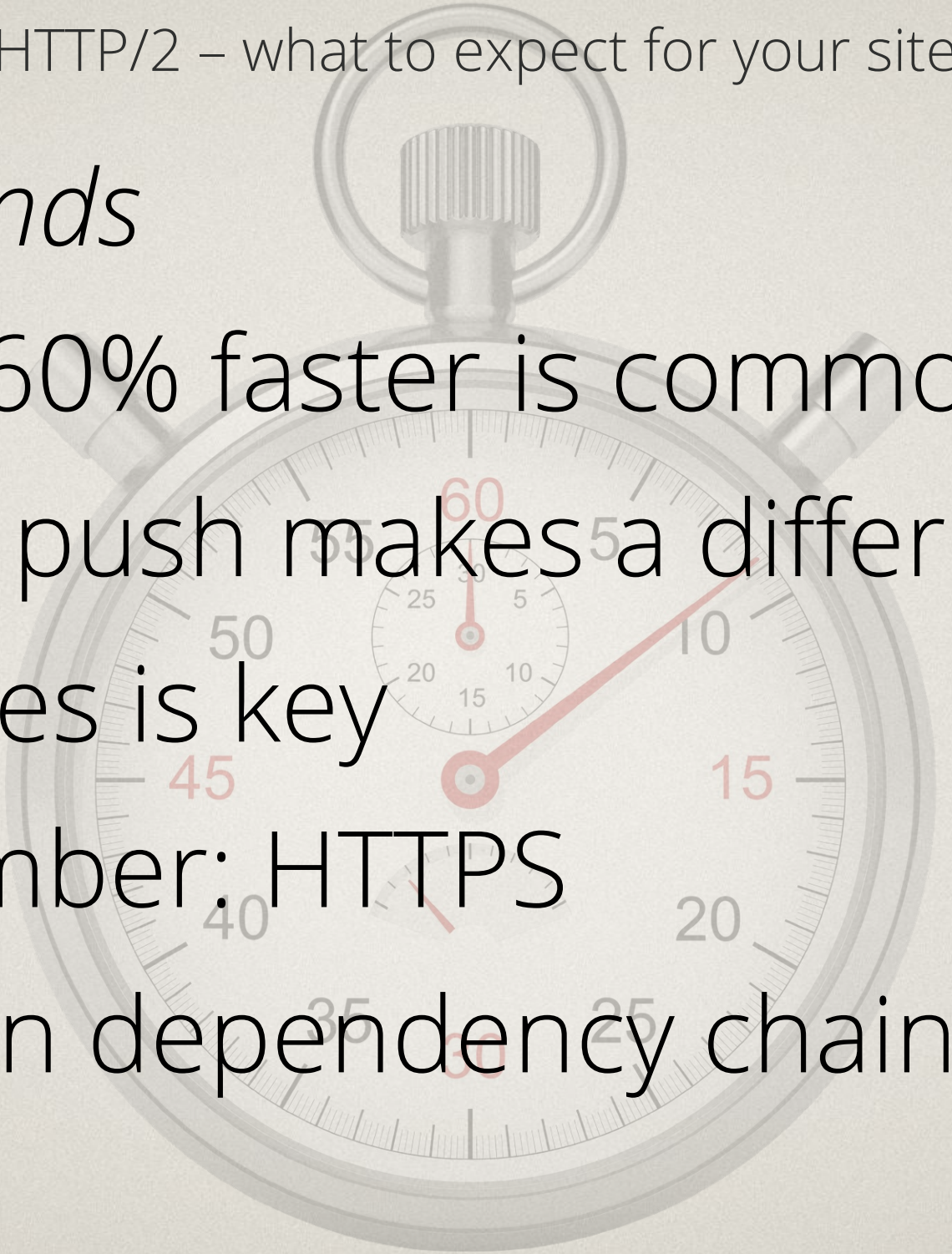
HTTPS!

OpenSSL / other TLS-lib versions and ALPN

Mixed content / ads

Certs and Let's Encrypt

Let’s Encrypt



It depends

20% - 60% faster is common

Server push makes a difference

Priorities is key

Remember: HTTPS

Shorten dependency chains!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the HTTP future

Improving what we have

- h2 server push improvements
- h2 extensions have not taken off
- h2 client certs?
- (slightly) improved cookies
- Guide to TCP when writing HTTP
- More HTTPS, blind caches?
- Better h2 tools, more h2 comparisons

mozilla

Beyond HTTP/2

Time to drop HTTP/1 legacies

HTTP/3 will happen faster

QUIC and the OSI model crash

Thank you!

Doing good is part of our code