



update

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2

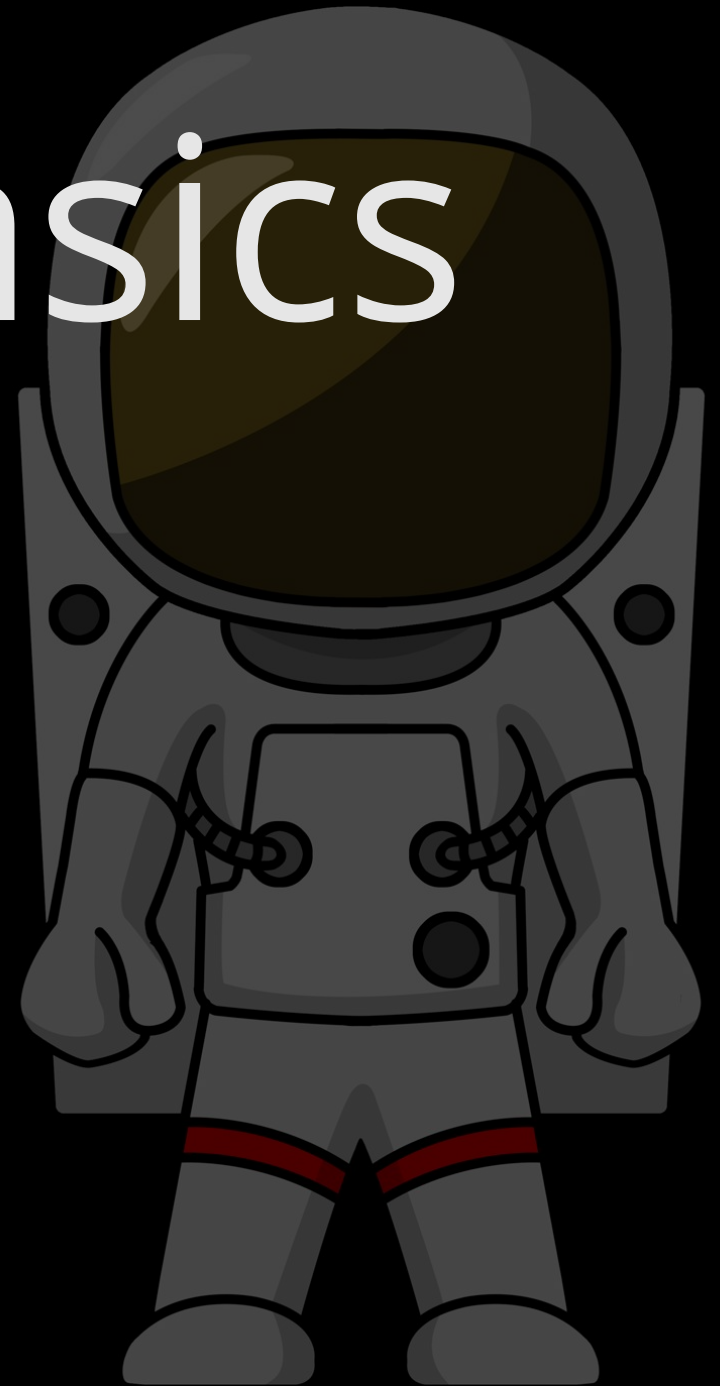
FOSDEM, Brussels, January 30th 2016

HTTP/2 basics

Status

Deploy

Future



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GURL



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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

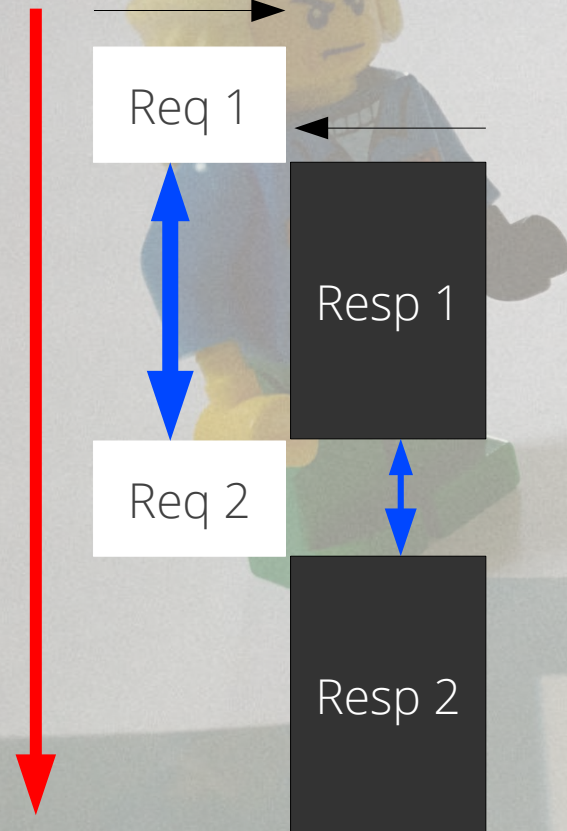
Server push

Maintains HTTP paradigms

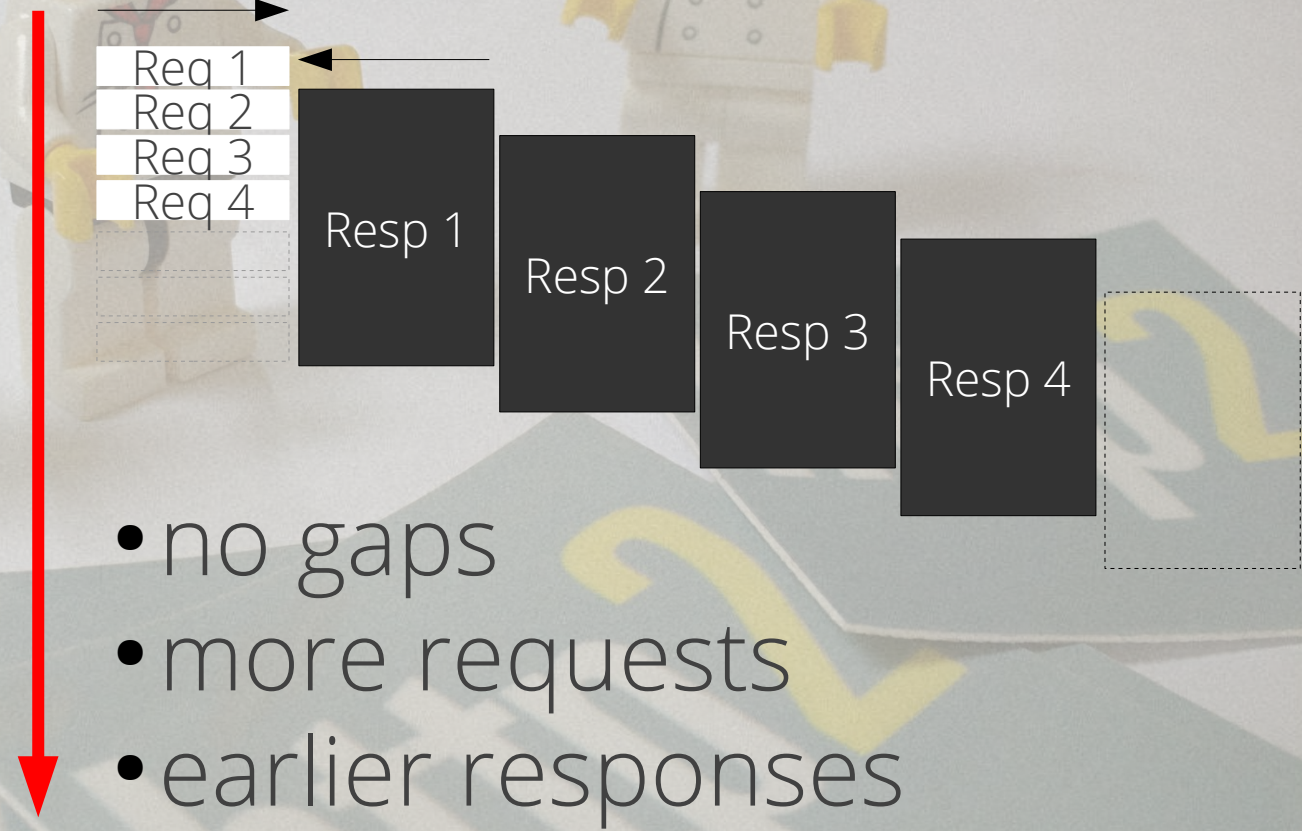


Multiplexed and compressed

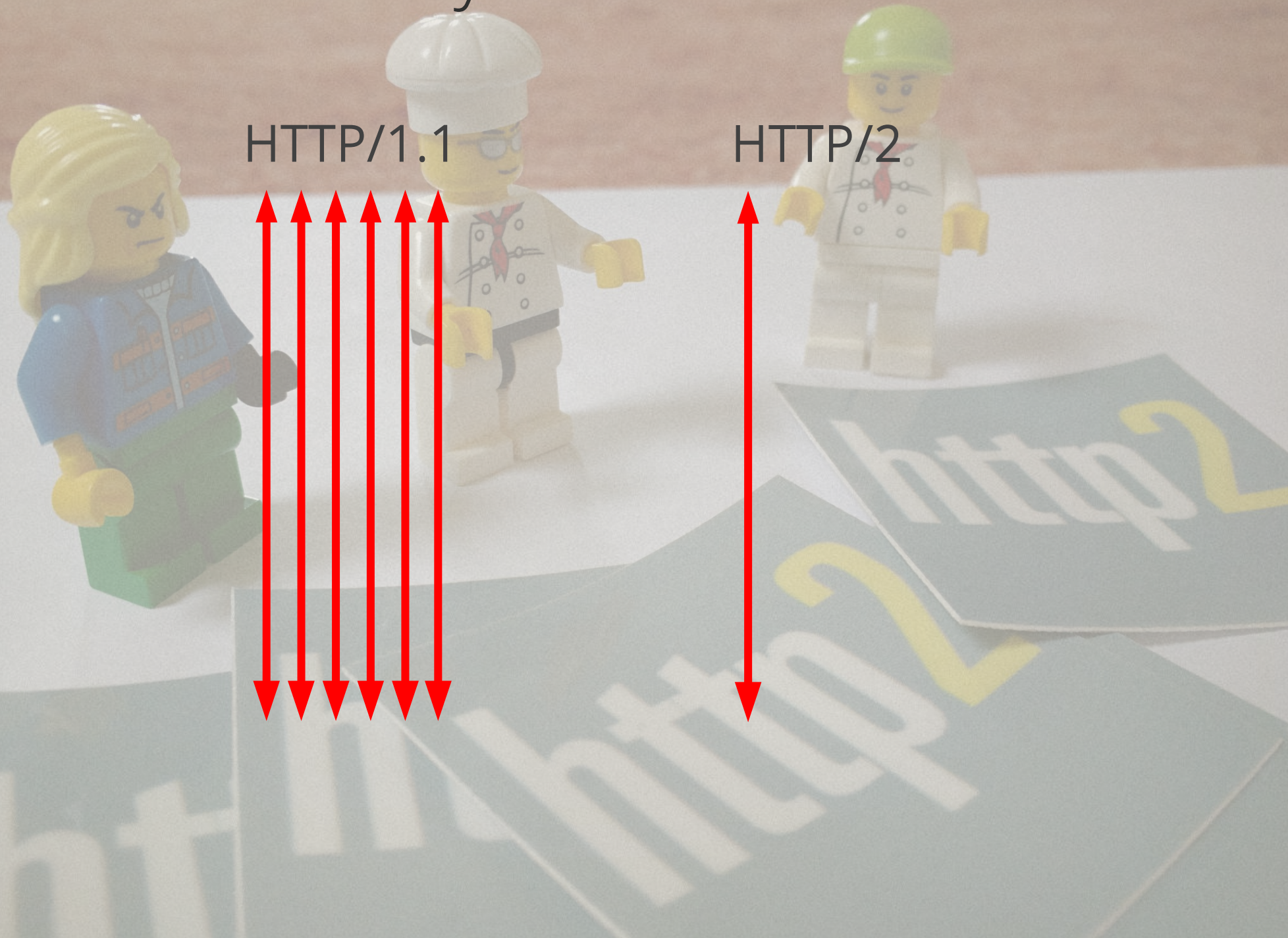
HTTP/1.1



HTTP/2

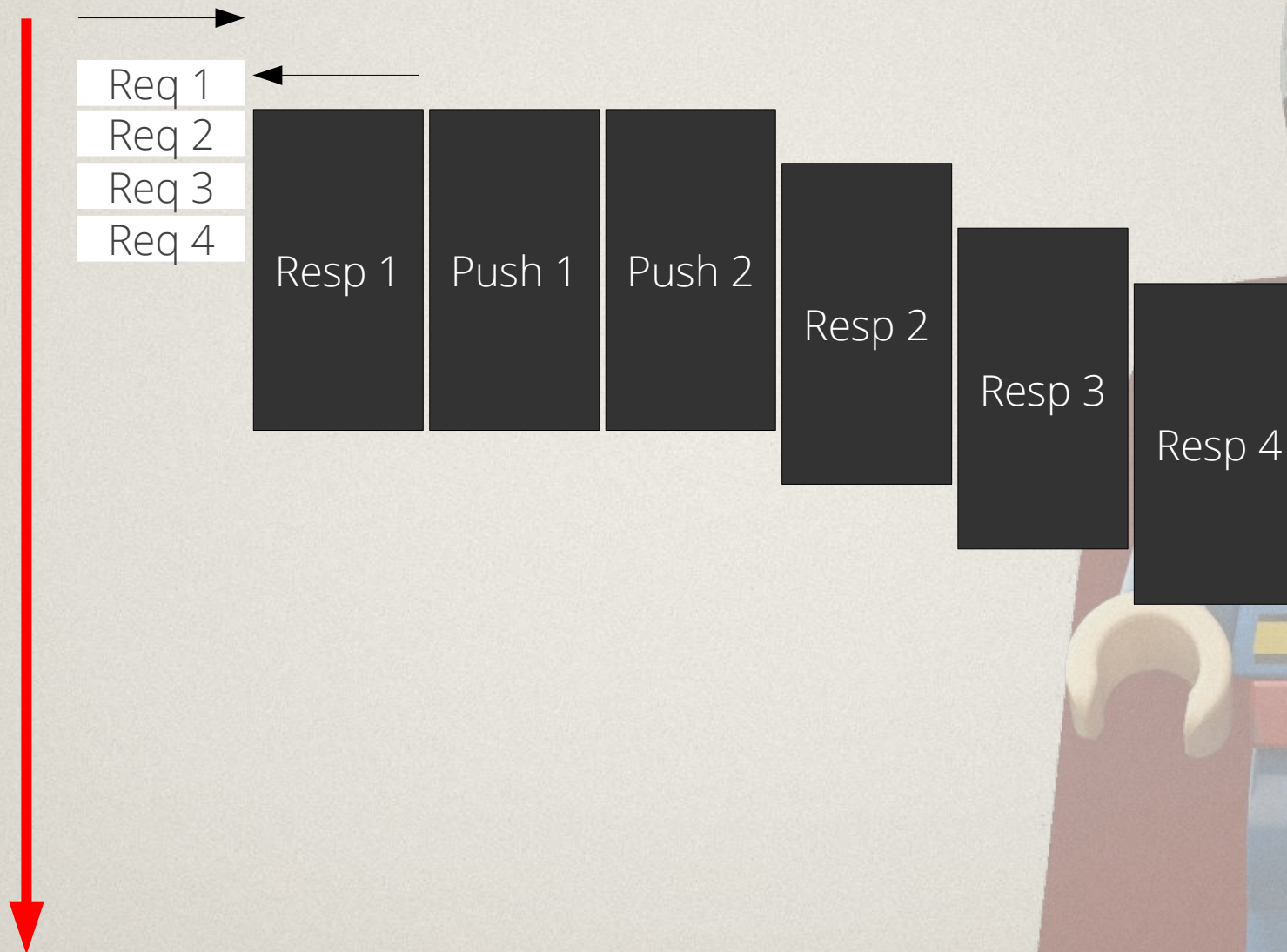


Many TCP vs one



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



status


browsers



servers

H2O

Google

NGINXtraffic  server™
The Traffic Server logo consists of three vertically stacked colored dots: red, yellow, and green.**twitter** CADDY
The Caddy logo features a stylized white 'C' on a black background.**LITE**  **SPEED**
The LightSpeed logo features a yellow lightning bolt.

HTTP/2 – January 2016

Browsers are HTTPS-only

Firefox: **17%** HTTP/2

30% of HTTPS

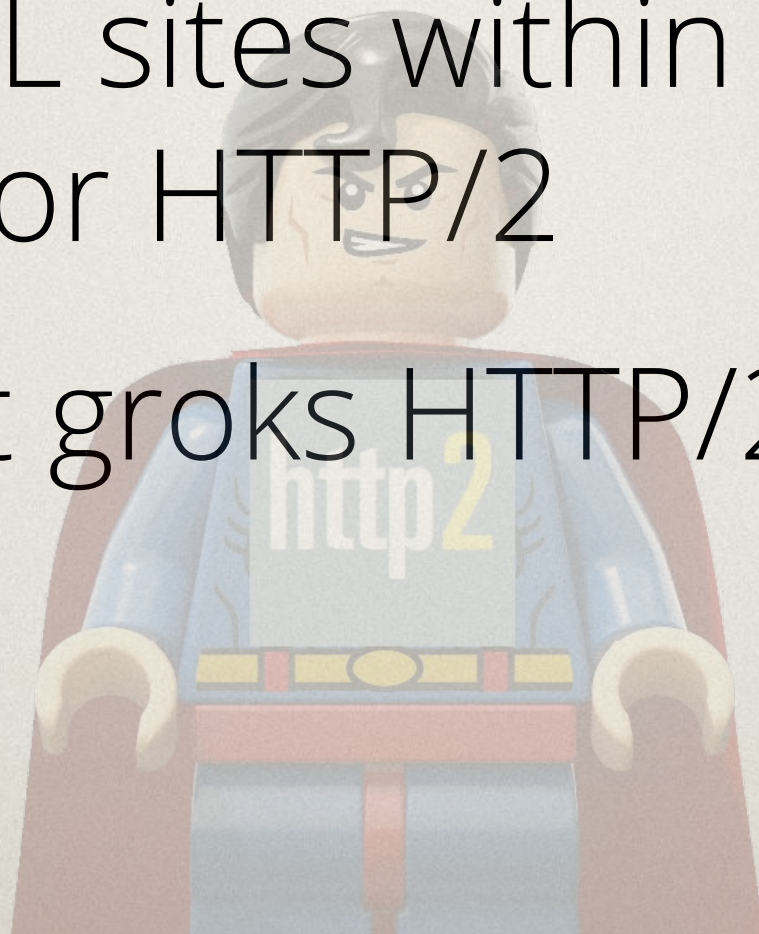
HTTP/2 in **70%** of browsers

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





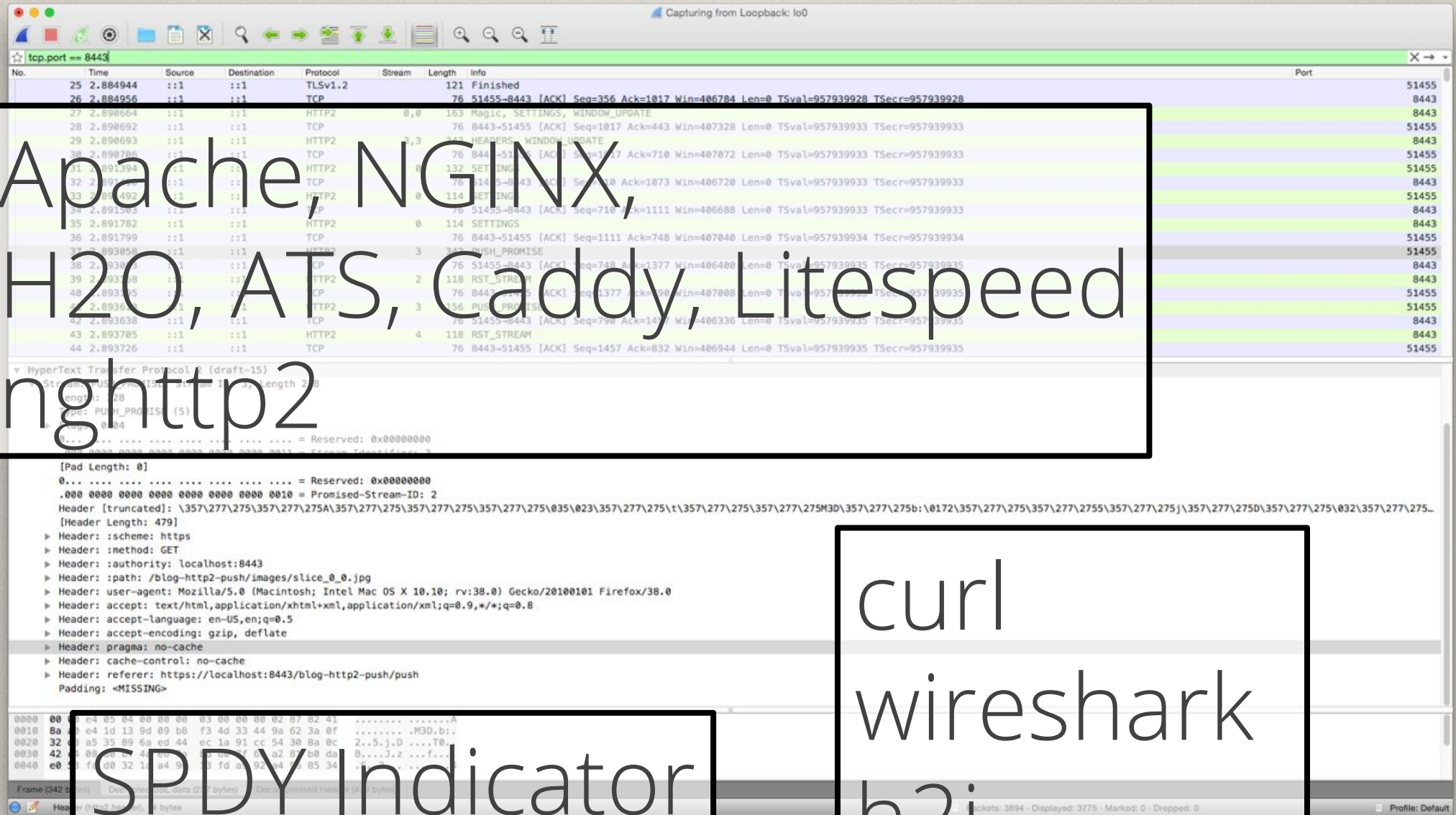
deploy

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

HTTP/2 – what to expect for your site

It depends

20% - 60% faster is common

Server push makes a difference

Priorities is key

Remember: HTTPS

Shorten dependency chains!

A vibrant, futuristic cityscape featuring a variety of architectural styles. On the left, a tall, slender, golden skyscraper stands prominently. In the center, a cluster of blue and silver towers with intricate designs reaches towards the sky. To the right, a large, white, angular structure with a complex, crystalline facade is visible. The city is interspersed with green parks and winding elevated highways. The sky is a mix of bright blue and dramatic, dark clouds, with a warm glow on the horizon suggesting sunrise or sunset. The overall atmosphere is one of advanced technology and urban innovation.

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

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