INSIDE 'MOAR TLS' How we think about encouraging external HTTPS adoption on the web

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MOVING THE WEB TO HTTPS IS IMPORTANT

Today's web has superpowers. HTTPS protects our data.

MOVING THE WEB TO HTTPS IS CHALLENGING

"Just get a cert" is not enough for large sites.

Multi-ecosystem changes can't happen overnight.

HTTPS support on Top 100 sites

	JAN 2016	
Supports HTTPS	39	
Defaults HTTPS	24	

HTTPS support on Top 100 sites

	JAN 2016	JAN 2017
Supports HTTPS	39	54
Defaults HTTPS	24	44

HOW DID WE GET HERE? What are **BROWSERS** doing?

WHAT'S LEFT TO DO? How can YOU help?

WHAT ARE BROWSERS DOING?

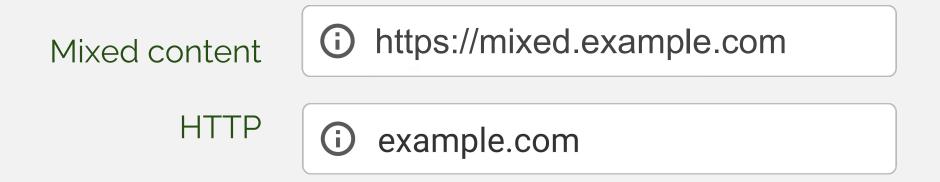
Removing hurdles preventing HTTPS adoption.

Creating meaningful change with gradual steps.

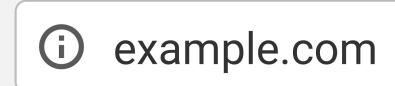
WHAT ARE BROWSERS DOING?

- **1. Changing browser UI**
- 2. Changing powerful feature support

Not so long ago... Mixed content in Chrome



Current treatment of HTTP pages in Chrome



Eventual treatment of HTTP pages in Chrome



Treatment of HTTP pages with password or credit card inputs in Chrome

before Chrome 56

i login.example.com

Chrome 56

(i) Not secure login.example.com

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Find Cocktails
Log in V Username * emilyschechter
Login not secure Learn more
emilyschechter
emilyschechter Emily's Bechtel Emily's checker
$q^{1}w^{2}e^{3}r^{4}t^{5}y^{6}u^{7}i^{8}o^{9}p^{0}$
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?123 , 🙂 . 🔿



LOG IN OR SIGN UP

Username or e-mail *

This connection is not secure. Logins entered here could be compromised.

ryan@feeley.com ryanfeeley@gmail.com

Create new account Request new password

Log in

WHAT ARE BROWSERS DOING?

- 1. Changing browser UI
- 2. Changing powerful feature support

REQUIRE SECURE CONTEXTS FOR POWERFUL NEW FEATURES.

- Service Worker
- Push notifications
- Credit card autofill
- HTTP/2

REQUIRE SECURE CONTEXTS FOR POWERFUL OLD FEATURES.

- Geolocation
- getUserMedia()
- Encrypted Media Extensions
- AppCache

HOW DID WE GET HERE? What are **BROWSERS** doing?

WHAT'S LEFT TO DO? How can YOU help?

LET'S CHANGE THE WAY WE TALK ABOUT HTTPS

There are **BUSINESS BENEFITS** to migrating.

Powerful features
Performance

3. Perceptions

1. Powerful features

2. Performance

3. Perceptions

FLIPKART.COM

- **70%** greater conversion rate
- 3x more time spent on site
- **40%** higher re-engagement rate
- **3x** lower data usage



1. Powerful features

2. Performance

3. Perceptions

TLS optimizations

- TLS false start
- TLS session resumption
- TLS/1.3

TLS-limited

perf improvements

- HTTP/2
- Service Workers
- Brotli compression

1. Powerful features

2. Performance

3. Perceptions

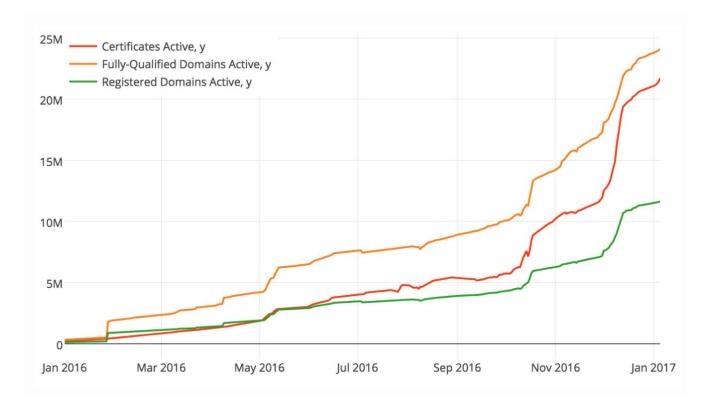
- 1. Powerful features
 - 2. Performance

3. Perceptions

- a. Certificate pricing
- b. Ad revenue

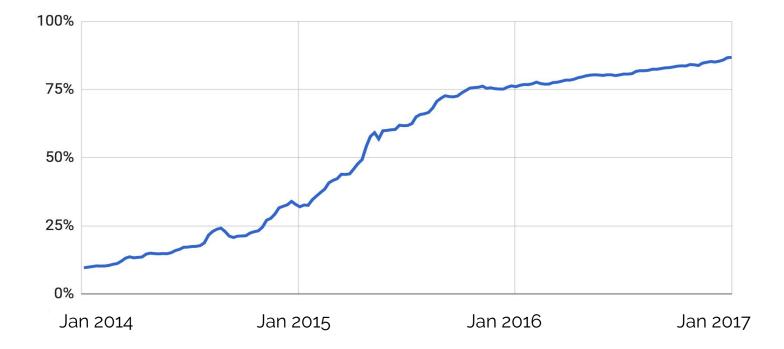
- 1. Powerful features
 - 2. Performance
 - 3. Perceptions
 - a. Certificate pricing
 - b. Ad revenue

Let's Encrypt 2016 Year in Review



- 1. Powerful features
 - 2. Performance
 - 3. Perceptions
 - a. Certificate pricing
 - b. Ad revenue

Requests to Google Ads servers over HTTPS



- **1. Powerful features**
 - 2. Performance
 - 3. Perceptions

ECOSYSTEM CHANGES ARE A TEAM EFFORT.

So spread the word and migrate to HTTPS.