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?

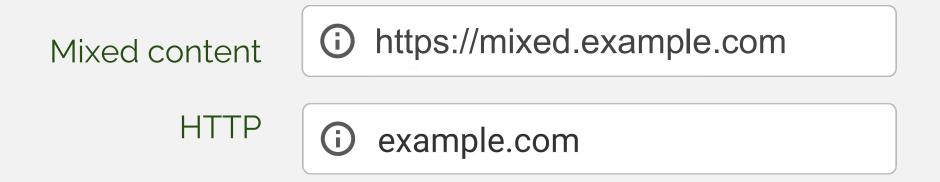
Removing hurdles preventing HTTPS adoption.

Creating meaningful change with gradual steps.

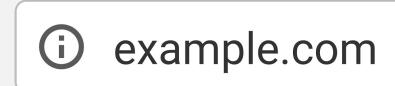
### WHAT ARE BROWSERS DOING?

- **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
$q^{1}w^{2}e^{3}r^{4}t^{5}y^{6}u^{7}i^{8}o^{9}p^{0}$
asd fghjkl
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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

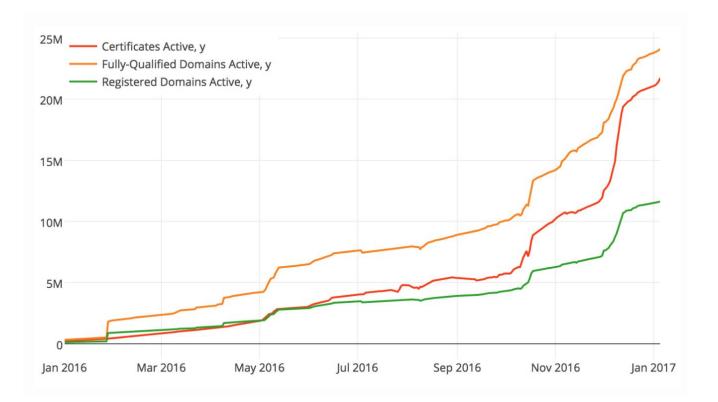
- 1. Powerful features
  - 2. Performance

#### 3. Perceptions

- a. Certificate pricing
- b. Ad revenue

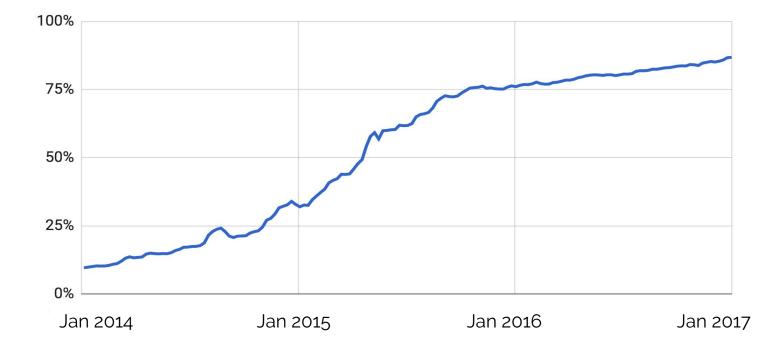
- 1. Powerful features
  - 2. Performance
  - 3. Perceptions
    - a. Certificate pricing
    - b. Ad revenue

#### 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.