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

Emily Schechter, Google
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.
<table>
<thead>
<tr>
<th>HTTPS support on Top 100 sites</th>
<th>JAN 2016</th>
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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

Mixed content  https://mixed.example.com
HTTP  example.com
Current treatment of HTTP pages in Chrome
Eventual treatment of HTTP pages in Chrome

⚠️ Not secure  example.com
Treatment of HTTP pages with password or credit card inputs in Chrome

before Chrome 56

Chrome 56
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
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LET’S CHANGE THE WAY WE TALK ABOUT HTTPS

There are BUSINESS BENEFITS to migrating.
HTTPS IS A BUSINESS CASE

1. Powerful features
2. Performance
3. Perceptions
HTTPS IS A BUSINESS CASE

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
HTTPS IS A BUSINESS CASE

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
HTTPS IS A BUSINESS CASE

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HTTPS IS A BUSINESS CASE

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2. Performance
3. Perceptions
   a. Certificate pricing
   b. Ad revenue
HTTPS IS A BUSINESS CASE

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Requests to Google Ads servers over HTTPS

g.co/https. Approximate # of requests that represents most of Google Advertising traffic
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ECOSYSTEM CHANGES ARE A TEAM EFFORT.

So spread the word and migrate to HTTPS.