



THE HITCHHIKER'S GUIDE TO BUILDING A PROGRESSIVE WEB APP

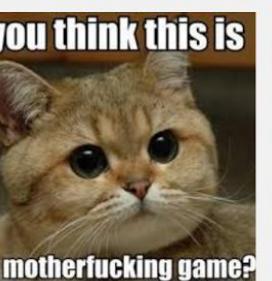
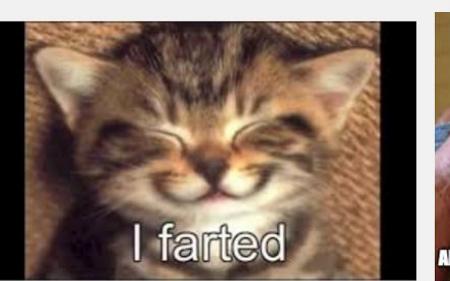
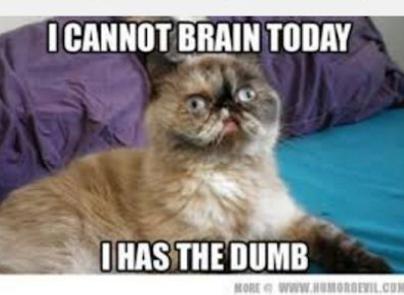


Chris Nguyen
[@uncompiled](https://twitter.com/uncompiled)

The Washington Post

[hilarious](#)[cute](#)[creepy](#)[seductive](#)[drunk](#)[dafuq](#)[happy](#)[girlfriend](#)[killer](#)[boss](#)[serious](#)[thank you](#)[miserable](#)[i miss you](#)[fancy](#)[good night](#)[friday](#)[monday](#)[tuesday](#)

>we



PROGRESSIVE WEB APPS

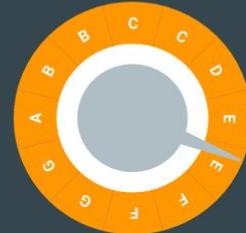
business demo event game news other reference shopping social tool



AliExpress

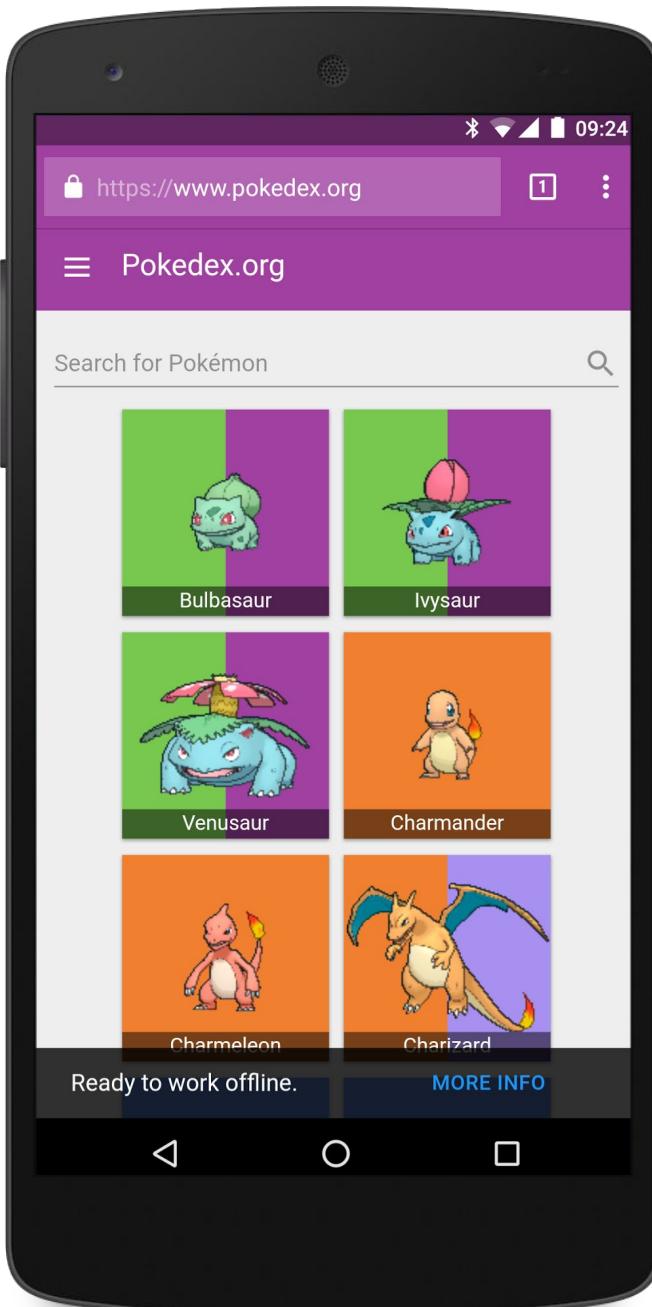


RioRun

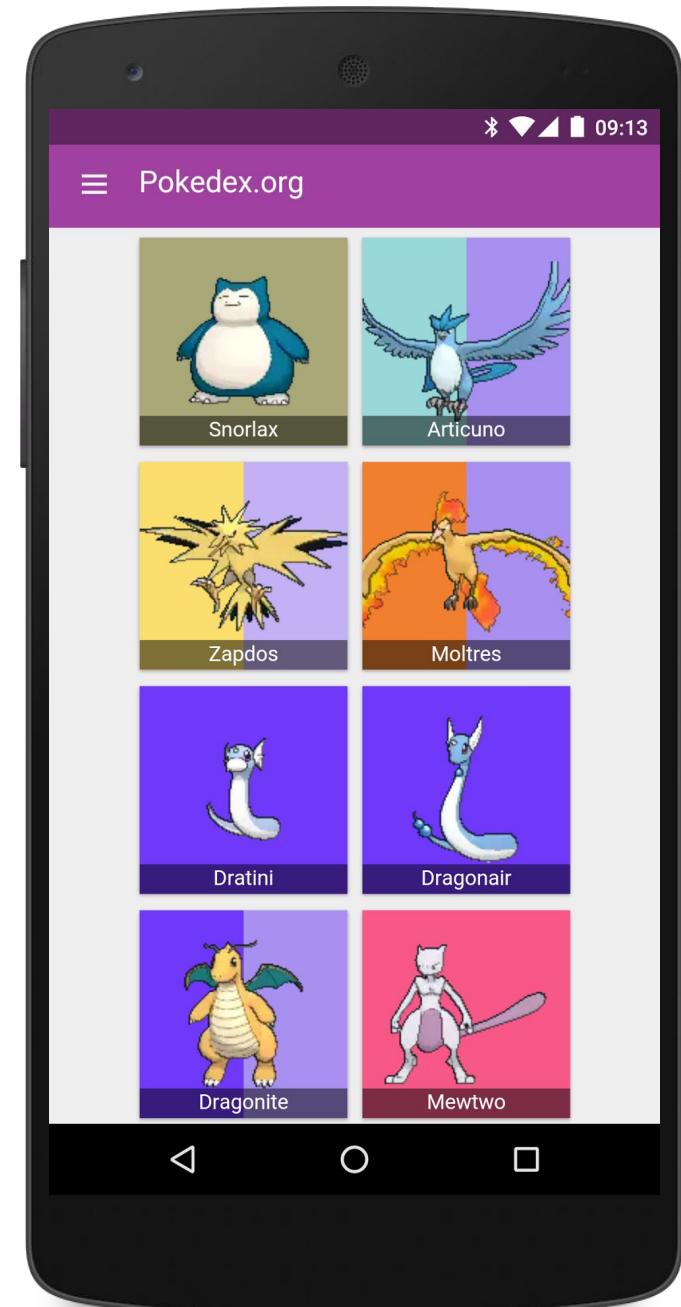
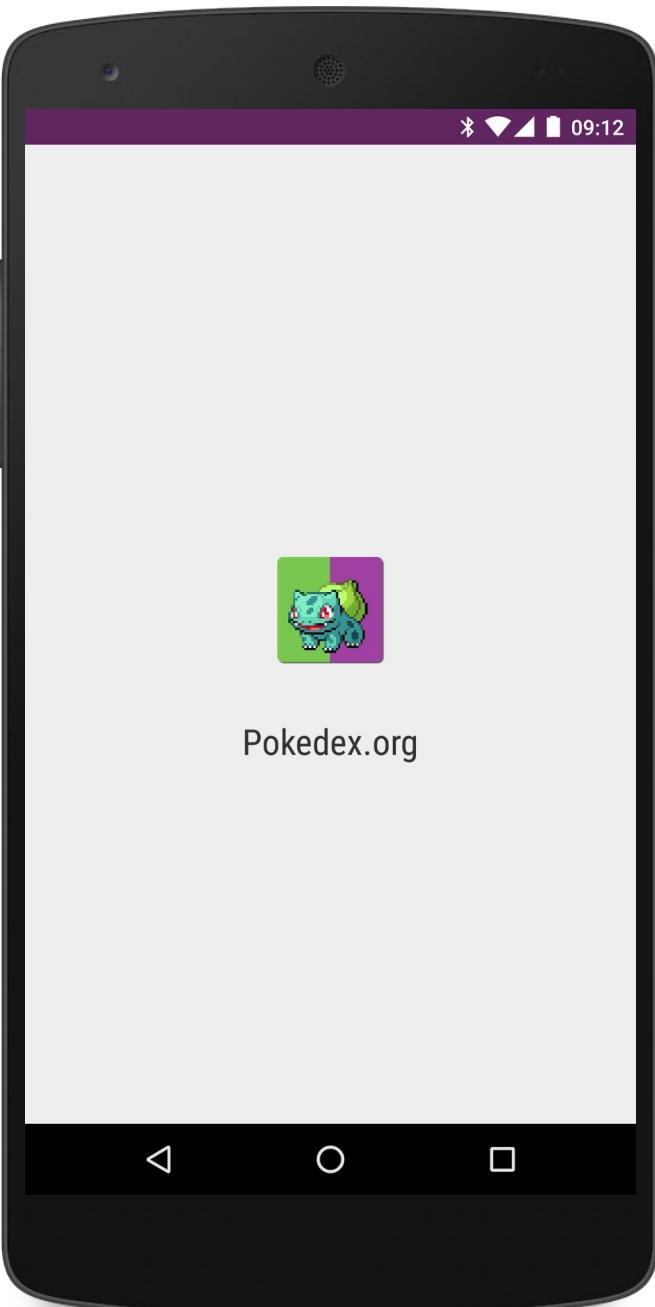
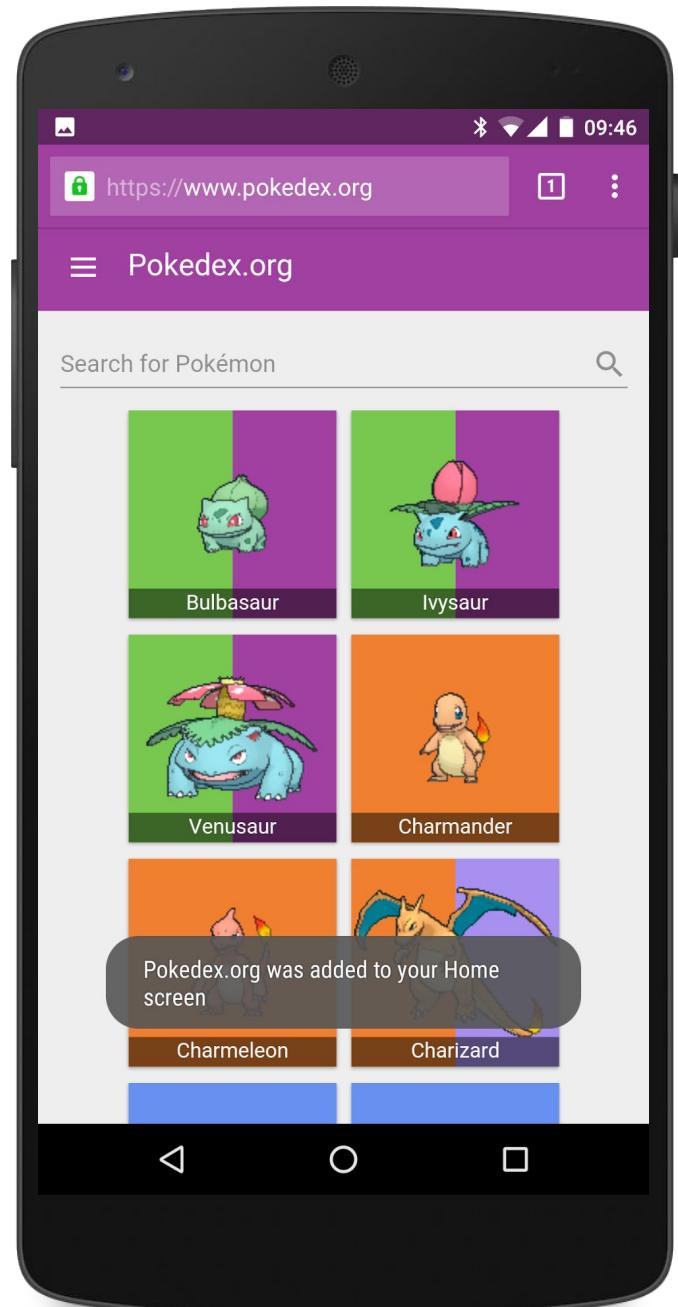


<https://pwa.rocks>

POKEDEX.ORG



SOURCE: <https://pokedex.org>



PROGRESSIVE WEB APPS

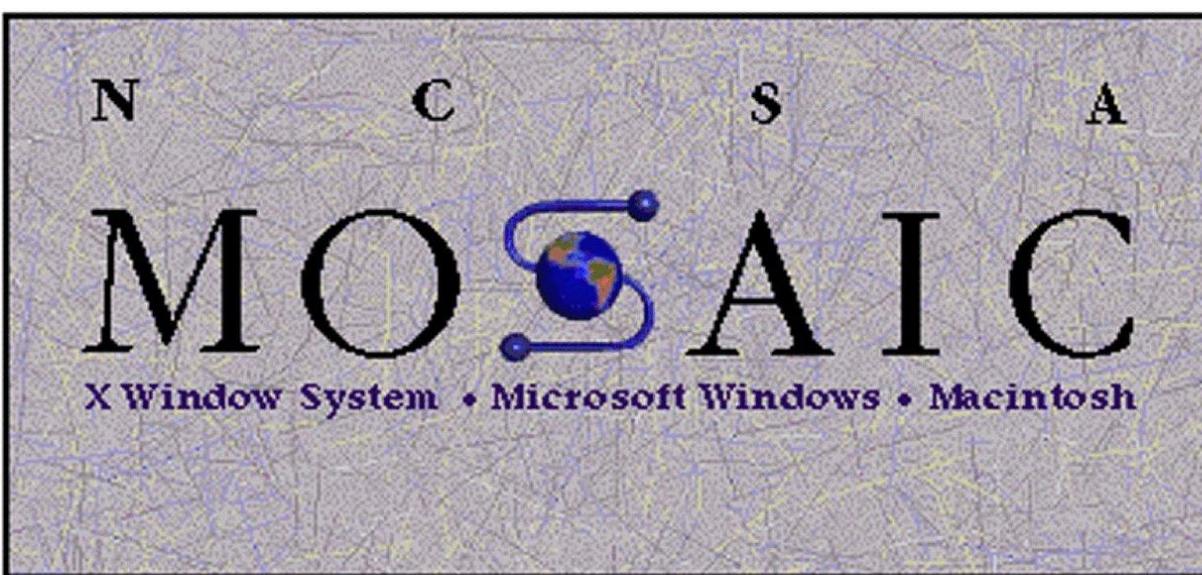
- **Progressive**
- **Responsive**
- **Linkable**
- **Fresh**
- **App-like**
- **Safe**
- **Discoverable**
- **Installable**
- **Re-engageable**
- **Connectivity independent**

PROGRESSIVE ENHANCEMENT

File Edit Source Manager View Navigate Tools Hotlists Help



X http://www.ncsa.uiuc.edu/SDG/Software/Mosaic/



Welcome to NCSA Mosaic, an Internet information browser and [World Wide Web](#) client. NCSA Mosaic was developed at the [National Center for Supercomputing Applications](#) at the [University of Illinois](#) in Urbana-Champaign. NCSA Mosaic software is [copyrighted](#) by The Board of Trustees of the University of Illinois (UI), and ownership remains with the UI.

Netscape.com - Netscape Browser

File Edit View Go Bookmarks Tools Help - X

45° Differ in Wis. Hunter Shootings search Ring Set for Oracle-PeopleSoft Prototype Feed Back Allowed + Customize

New Tab Netscape.com Screen Name Sign In

Netscape® network

What's New Weather Enter City or ZIP: Go

Mail Radio My Netscape Browser Netscape Internet Service

Search enhanced by Google™ Don't Miss... Go

Yellow Pages Find a Business Go

Hot Searches:

1. Samira
2. Holiday Shipping
3. Dick Ebersol
4. Greeting Cards
5. Christmas Graphics

Top Story | Deadly Attack: Suicide Bomber Rams U.S. Convoy

 Body of NBC Exec's Son Found Buried in plane wreckage, investigators think they found the body of 14-year-old Teddy Ebersol. AP

Need To Know

- The Top 5 Resume Lies
- Comedians & Cars They Love
- Vid Games Parents Should Ban
- Spoiler: 'Jeopardy' Streak Ends

Save \$100! Gateway 3200S Desktop Now Only \$399.99!

Love & Personals @ Netscape

Photo Personals from Match.com

I am a: Man seeking: Women between ages: and: ZIP Code: Search

- Top 5 Mistakes Online Singles Make Most
- Flirting After 40
- 7 Things Women Want to Hear

Find old friends from Elementary School **CLICK HERE**

Find the gang from High School **CLICK HERE**

Find your old College friends **CLICK HERE**

Find pals from the Military **CLICK HERE**

Today on Netscape

- The Hottest Housing Markets
- Cheating Rampant on Campus
- Think This Way, Live Longer?
- True Cost of Day at the Ballgame
- 1-Day Down Bedding Liquidation

Cool Site: Born Magazine

- This Food Makes Men Aggressive
- 14 Tips for Protecting Your Job
- Hidden Price of Giving Gift Cards
- See the Video of the Day

Downloads of the Day

- Download Netscape 7.2

Just For Fun

- Inke of the Day

Netscape Internet Service

Unlimited Internet access for \$9.95 a month

1 Month FREE Trial

Click Here for details

News

- 6 Americans Vanish in Afghanistan
- Drive-By Shooter Kills 7-Year-Old
- Teen Sentenced to Life Set Free
- Detroit Cops ID NBA Chair Tossers
- Smugglers Stash Opium in Camels

Market Update

DJ30	10470.73	-5.17
SP500	1177.83	-0.74
NASDAQ	2106.13	-0.74

Get Quote Stock Symbol Lookup My Portfolio Money

AOL.com - Welcome to AOL

File Edit View Favorites Tools Settings Help

AOL.com - Welcome to... CNN.com - Breaking Ne...

http://welcome.aol.com

All New Chevy Malibu. Tour It Now.

Make AOL Your Home Page | Get AOL Toolbar

Web Shopping Images Video News Local More Enhanced by Google

Hot Searches: Marie Osmond | Britney Gastineau | Garcelle Beauvais | Baseball Scores | More

In Lifestyle: Secret to Carving A Perfect Turkey

Do This for 15 Minutes Before You Pick Up a Knife: See How It's Done

Think Outside the (Jewelry) Box We Think She'll Love These Gifts ...

Things You Need to Know

- Danger of Sleeping With Light On
- Fix or Ditch Your Broken iPod?

Next in Marketplace: Auto Show Eye Candy

SNAG

Welcome

Get Free AOL® Mail

Mail 2 49° Weather AOL Radio with XM Games

New Lower Prices For Prints at AOL Pictures

JCPenney Every Day Matters™ get details free shipping throughout jcp.com on orders of \$49 or more

Can't Find It? AOL A to Z

Autos Finance Food Games Health & Diet Jobs Local

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Shopping Sports | Fantasy Television Travel NEW! Yellow Pages Mobile NEW!

Free Shipping over \$49 at jcp.com | Ad Feedback

Featured Offers

2008 Malibu Luxury Cars Blocking Pop-ups (1)

Help Sign Out AOL

Find in Buddy List ChattingChuck Set Away Family (5/14) AlexJWhite BaileyXJ CaseyPeete ChattingChuck ChrisAGill DevinJacks AlexJWhite BaileyXJ CaseyPeete ChattingChuck ChrisAGill DevinJacks Co-Workers (15/19) GabbyGrace00 InternetAnne ItsDarien LittleSally12 ItsDarien IM +/ Actions

IE6 needs YOUR help

These days we are inundated with bloated web browsers that overcomplicate our lives. However, there is one eminent exception: IE6. It has been around since 2001 and is still one of the most powerful and versatile browsers available.

This is why we want to achieve the following:

- ➊ Get everyone to use IE6
- ➋ Get IE6 ported to more platforms
- ➌ Get the W3C standard changed to fit IE6



SaveIE6.com was put together as an April Fool's joke by the [uptime monitoring service Pingdom](#). Due to the tremendous interest it has received we have decided to keep this site up and running. Thanks everyone for the great feedback and for enjoying the irony!

3,099

visitors have signed the petition to
save IE6, help us!

[Sign petition](#)



You have been misled by a vocal minority and are using chrome, which is clearly an inferior web browser to IE6. Please switch to IE6 and [sign our petition](#)

About

IE6 has been the victim of false and misleading accusations all over the web, such as complaints about its compatibility with web standards. This is simply the confused ramblings of a vocal minority. After all, how can IE6 be violating standards when it has essentially BEEN the standard for years?

The SaveIE6 campaign is all about showing the world the benefits of using the web browser IE6. There are currently too many browsers with too many unnecessary features. They are hard to use and render web sites badly and inconsistently. Contrast this with IE6's proven technology and well-documented behavior.

Please support the SaveIE6 campaign and help make the internet a better place!

Toby Tablerow, SaveIE6 founder

Petition buzz

Here are a few selected quotes from the petition page that we especially liked.

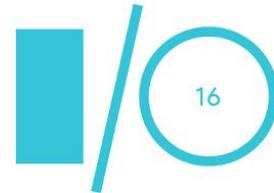
"It is really great at rendering websites that actually have content, instead of just bells and whistles!"

Angela Anuszewski

"I don't believe in re-inventing the wheel. Why does it have to exist other browsers when IE6 works for everyone? That's

Download IE6 customized for your needs now! Just answer the simple questions in our download wizard

[Download now](#)



Google I/O 2016

Mountain View, CA - May 18-20, 2016



POPULAR RECENT DURATION

Category ▾

60 min

Accelerated Mobile Pages Advanced Concepts

START

39 min

Accelerated Mobile Pages Foundations

START

39 min

Achieving Single Sign-on with AppAuth

START

29 min

Add Your Web App to a User's Home Screen

START

60 min

Adding Complications to your Android Wear Watch Face

START

60 min

Adding Complications to your Android Wear Watch Face

START

Android Dev Summit 2015 Big Android Barbecue 2015 Chrome Developers Summit 2015 TV Games Codelabs GCP Next Hadoop Summit Coding Challenges Google I/O 2016 MongoDB World Coding Challenges Polymer Summit Polytechnic Brazil Polytechnic PWA Dev Summit 2016 PWA Roadshow SpringOne Cloud Challenges Strata Coding Challenges SxSW Coding Challenges Ubiquitous Computing Dev Summit

[developers-logo.svg] [lockup_developers_light_color.svg]

Search _____

Codelabs

Event logo

Google I/O 2016

Mountain View, CA - May 18-20, 2016

Popular Recent Duration

Analytics Android Android Auto Android TV Android Wear Apps Cloud Firebase Geo Nest Search Unity Virtual Reality Web

[schedule.svg] 60 min

Accelerated Mobile Pages Advanced Concepts

Start Updated 6/16/2016

[schedule.svg] 39 min

Accelerated Mobile Pages Foundations

Start Updated 6/16/2016

[schedule.svg] 39 min

Achieving Single Sign-on with AppAuth

(NORMAL LINK) Use right-arrow or <return> to activate.

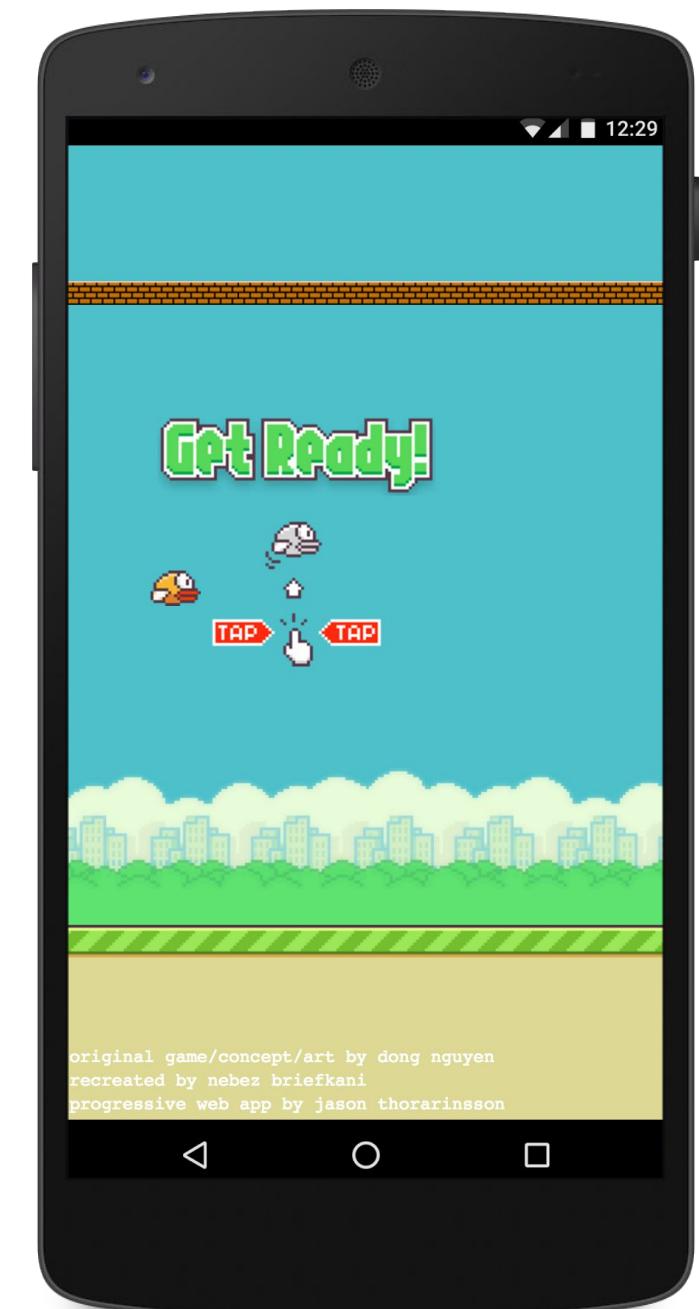
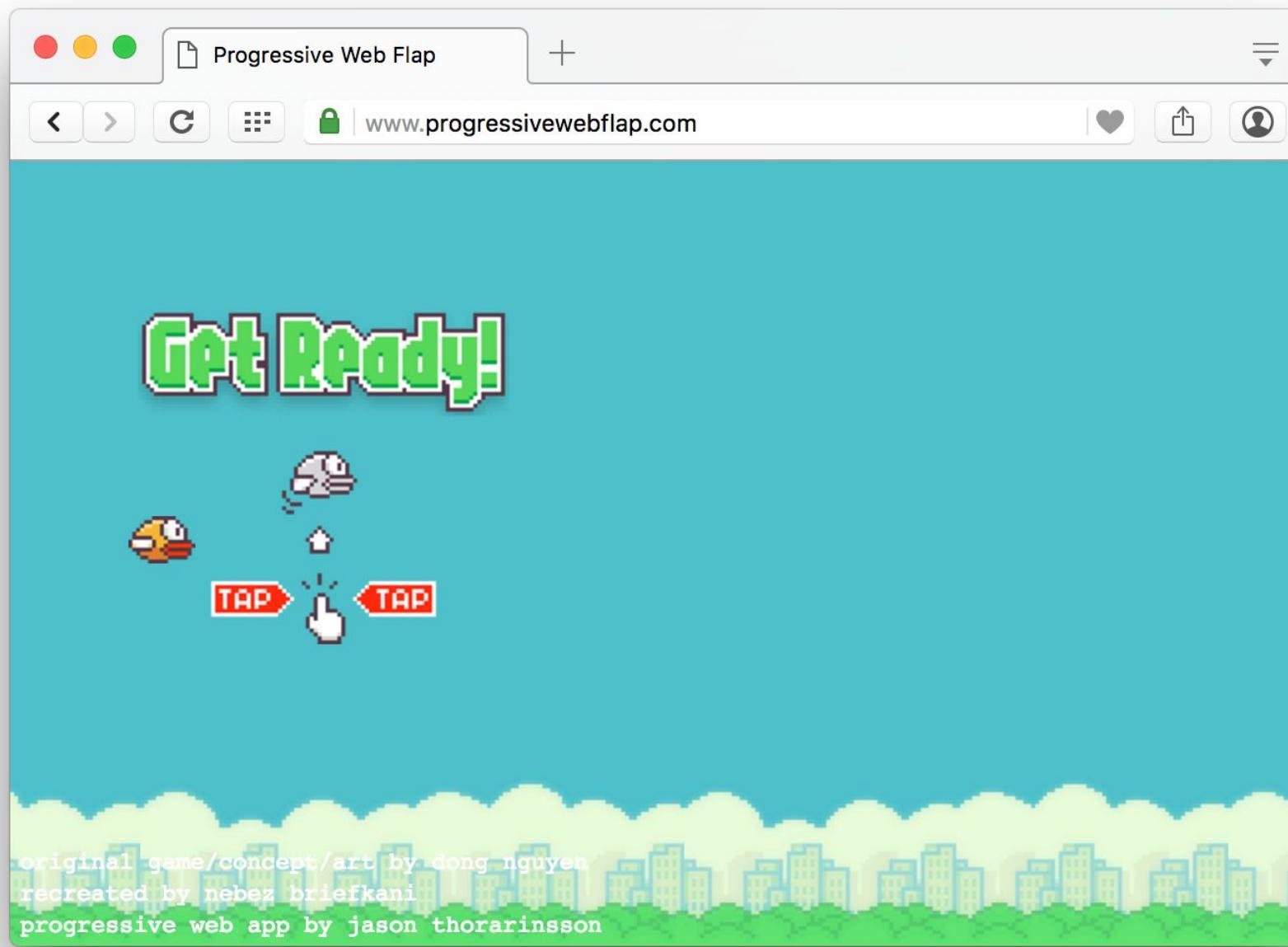
Arrow keys: Up and Down to move. Right to follow a link; Left to go back.

H)elp O)ptions P)rint G)o M)ain screen Q)uit /=search [delete]=history list

PROGRESSIVE WEB APPS

- ✓ **Progressive**
- **Responsive**
- **Linkable**
- **Fresh**
- **App-like**
- **Safe**
- **Discoverable**
- **Installable**
- **Re-engageable**
- **Connectivity independent**

RESPONSIVE WEB DESIGN

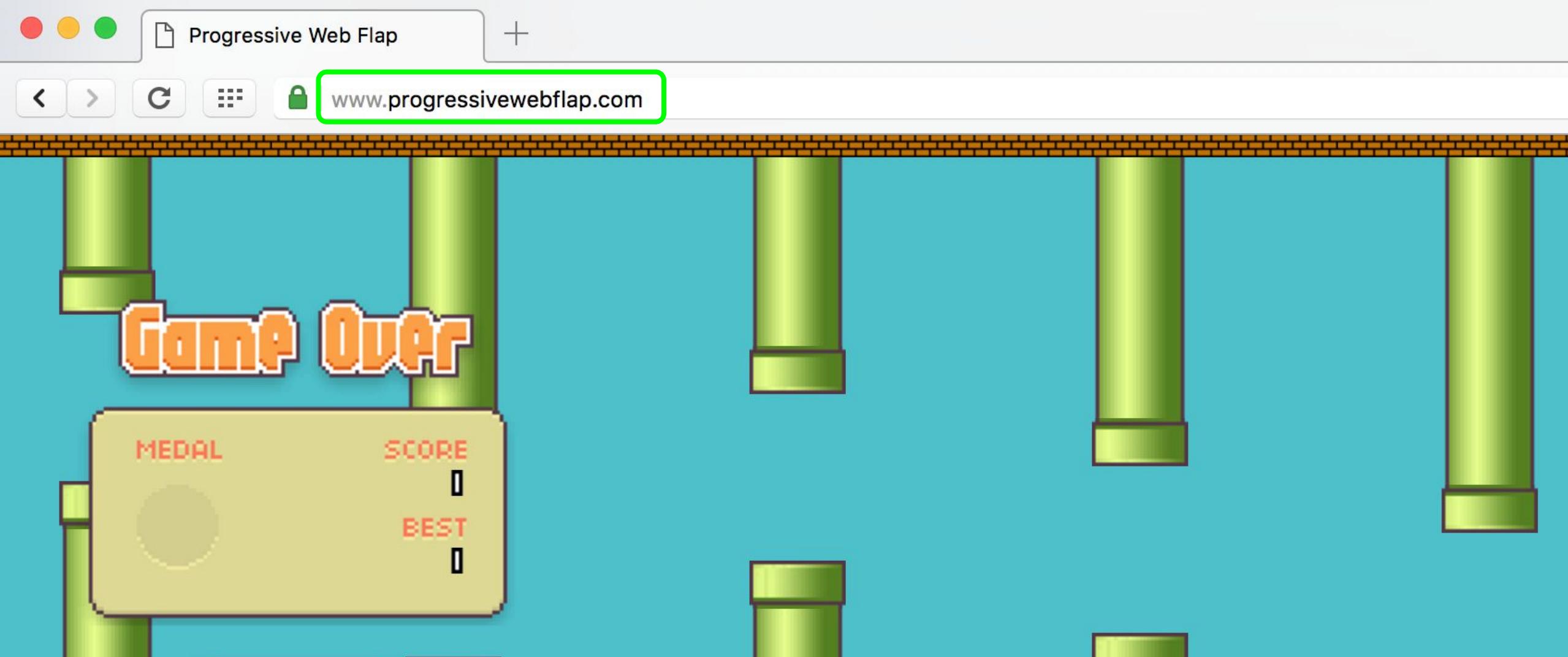


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LINKABLE

@slightlylate: "URLs are the web's superpower." #chromedevsummit



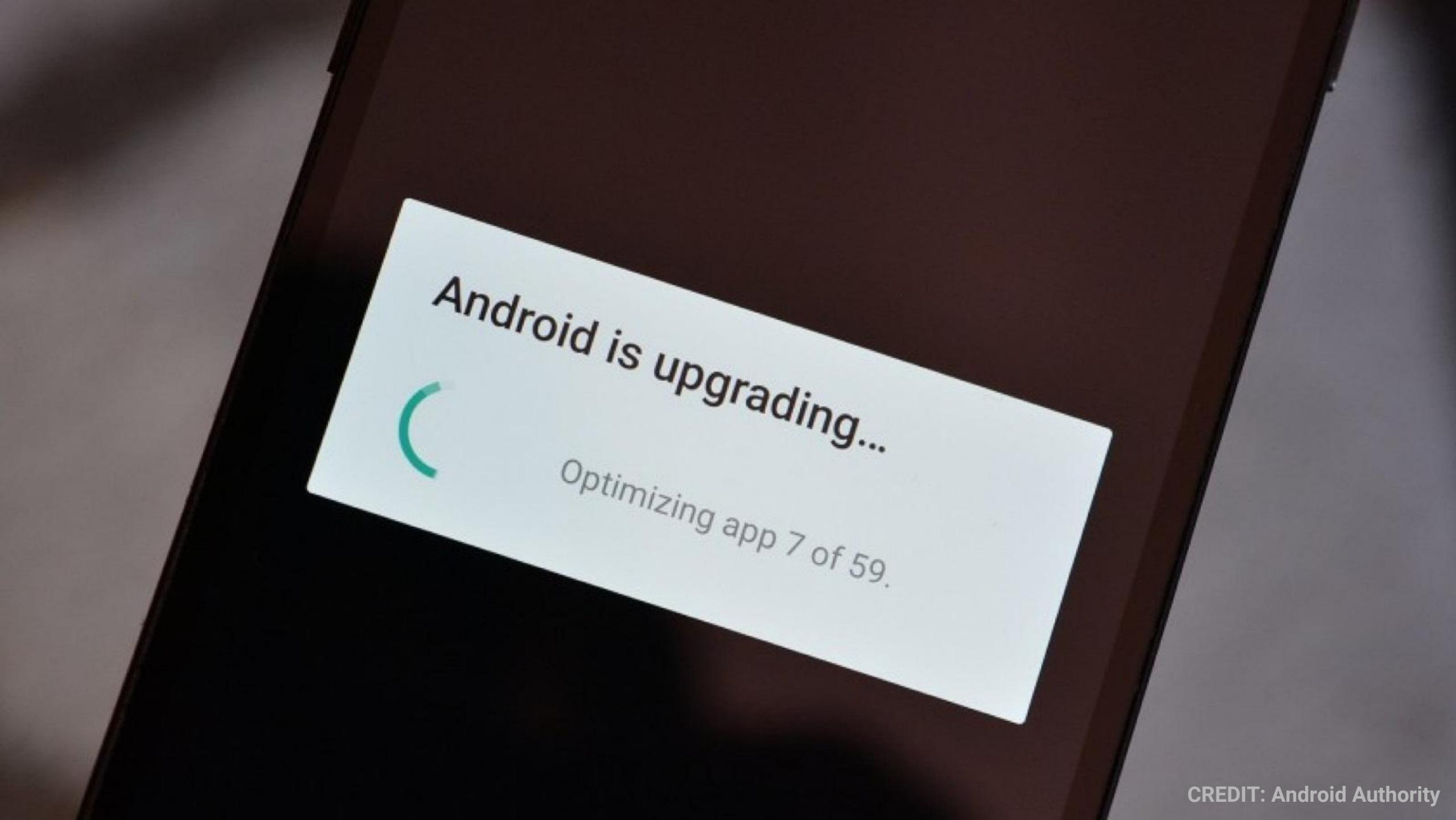
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FRESH



CREDIT: <http://www.slashfilm.com>



Android is upgrading...

Optimizing app 7 of 59.

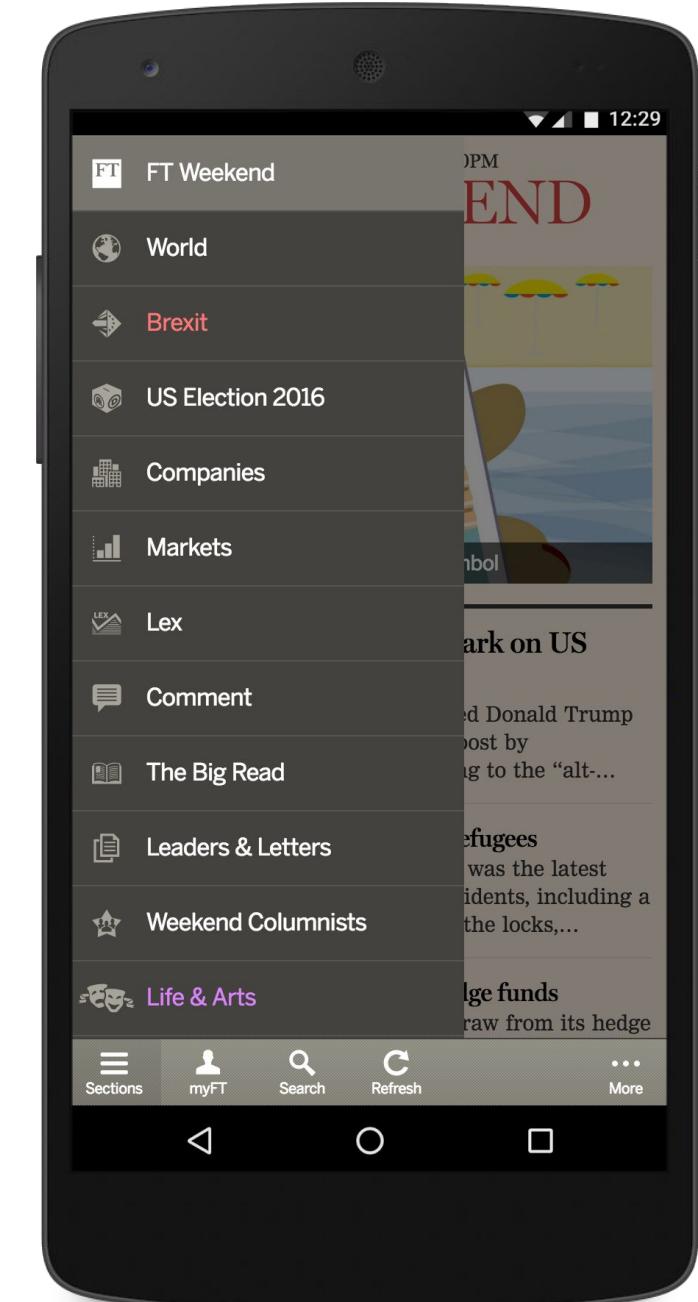
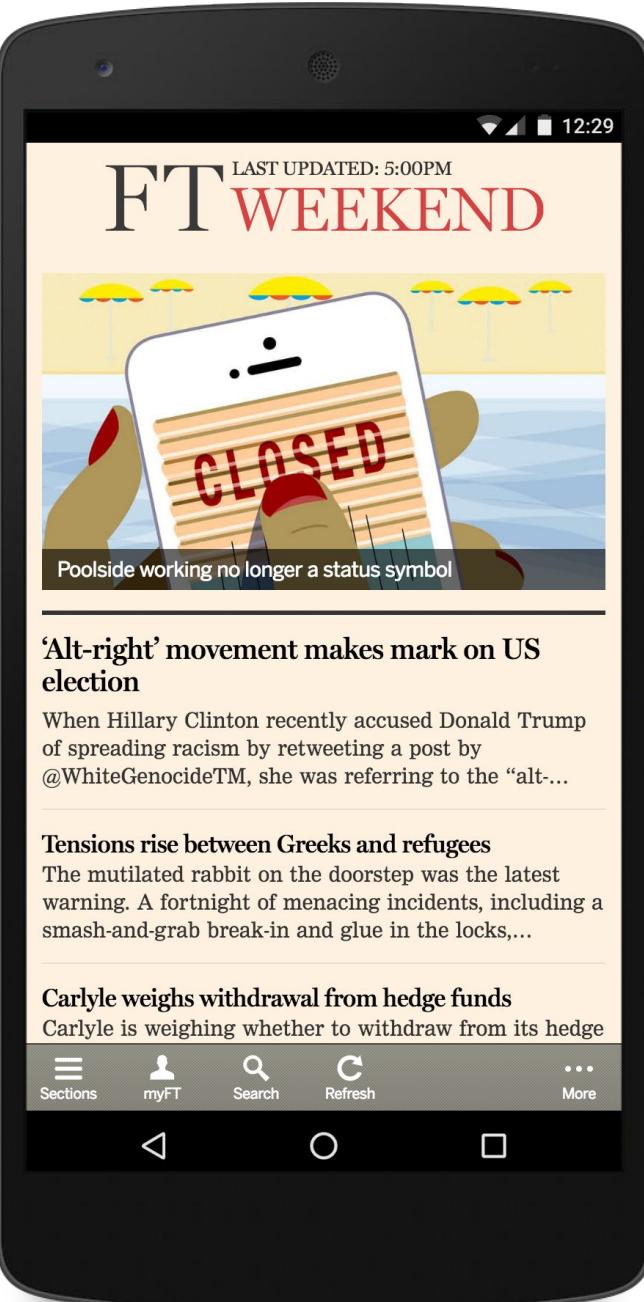
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APP-LIKE

APP-LIKE

- Familiar interface
- Fast screen transitions
- Smooth scrolling
- Feels native



SOURCE: <https://app.ft.com>



App shell

App Shell

Index

URL 1

URL 2



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SAFE

SAFE

- Must be served using HTTPS
- Prevents snooping or MITM attacks
- Privacy and security for users



Let's Encrypt is a new Certificate Authority:
It's free, automated, and open.

Get Started

FROM OUR BLOG

Aug 5, 2016

[Let's Encrypt Root to be Trusted by Mozilla](#)

The Let's Encrypt root key (ISRG Root X1) will be trusted by default in Firefox 50, which is scheduled to ship in Q4 2016.
[Read more](#)

Jul 26, 2016

[Full Support for IPv6](#)

MAJOR SPONSORS

White House OMB Memorandum 15-13

The HTTPS-Only Standard

Home

Why Everything?

Compliance Guide

Introduction to HTTPS

Certificates

HTTP Strict Transport Security

Server Name Indication

Technical Guidelines

Mixed Content

Migrating APIs

Resources

The HTTPS-Only Standard

The American people expect government websites to be secure and their interactions with those websites to be private.

This site contains a web-friendly version of the White House Office of Management and Budget memorandum [M-15-13](#), “**A Policy to Require Secure Connections across Federal Websites and Web Services**”, and provides technical guidance and best practices to assist in its implementation.

Goal

This Memorandum requires that all publicly accessible Federal websites and web services [\[1\]](#) only provide service through a secure connection. The strongest privacy and integrity protection currently available for public web connections is [Hypertext Transfer Protocol Secure \(HTTPS\)](#).

This Memorandum expands upon the material in prior Office of Management and Budget (OMB) guidance found in [M-05-04](#) and relates to material in [M-08-23](#). It provides guidance to agencies for making the transition to HTTPS and a deadline by which agencies must be in compliance.

White House OMB Memorandum 15-13

The HTTPS-Only Standard

Home

Why Everything?

Compliance Guide

Introduction to HTTPS

Certificates

HTTP Strict Transport Security

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SOURCE: <https://https.cio.gov>

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DISCOVERABLE

WEB APPLICATION MANIFEST

```
<link rel="manifest" href="/manifest.json">

{
  "name": "My Web Application",
  "short_name": "My App",
  "description": "A Simple Progressive Web App",
  "icons": [
    ...
    {
      "src": "launcher-icon-4x.png",
      "sizes": "192x192",
      "type": "image/png"
    }
  ],
  "start_url": "/index.html",
  "display": "standalone",
  "orientation": "portrait"
}
```

PROGRESSIVE WEB APPS

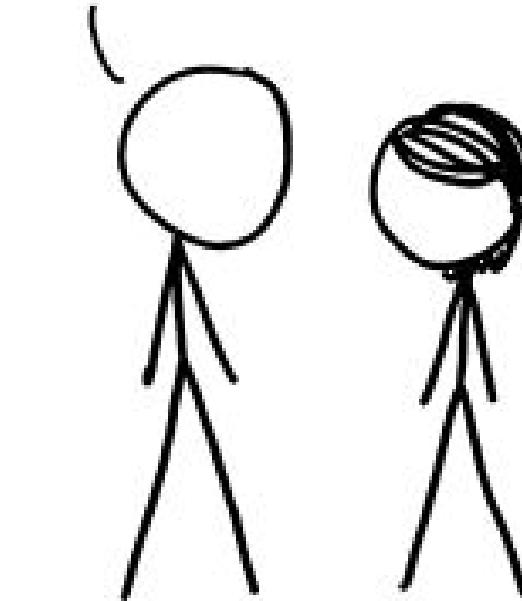
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INSTALLABLE

CREDIT: <https://xkcd.com/1367/>

INSTALLING THINGS HAS
GOTTEN SO FAST AND PAINLESS.
,

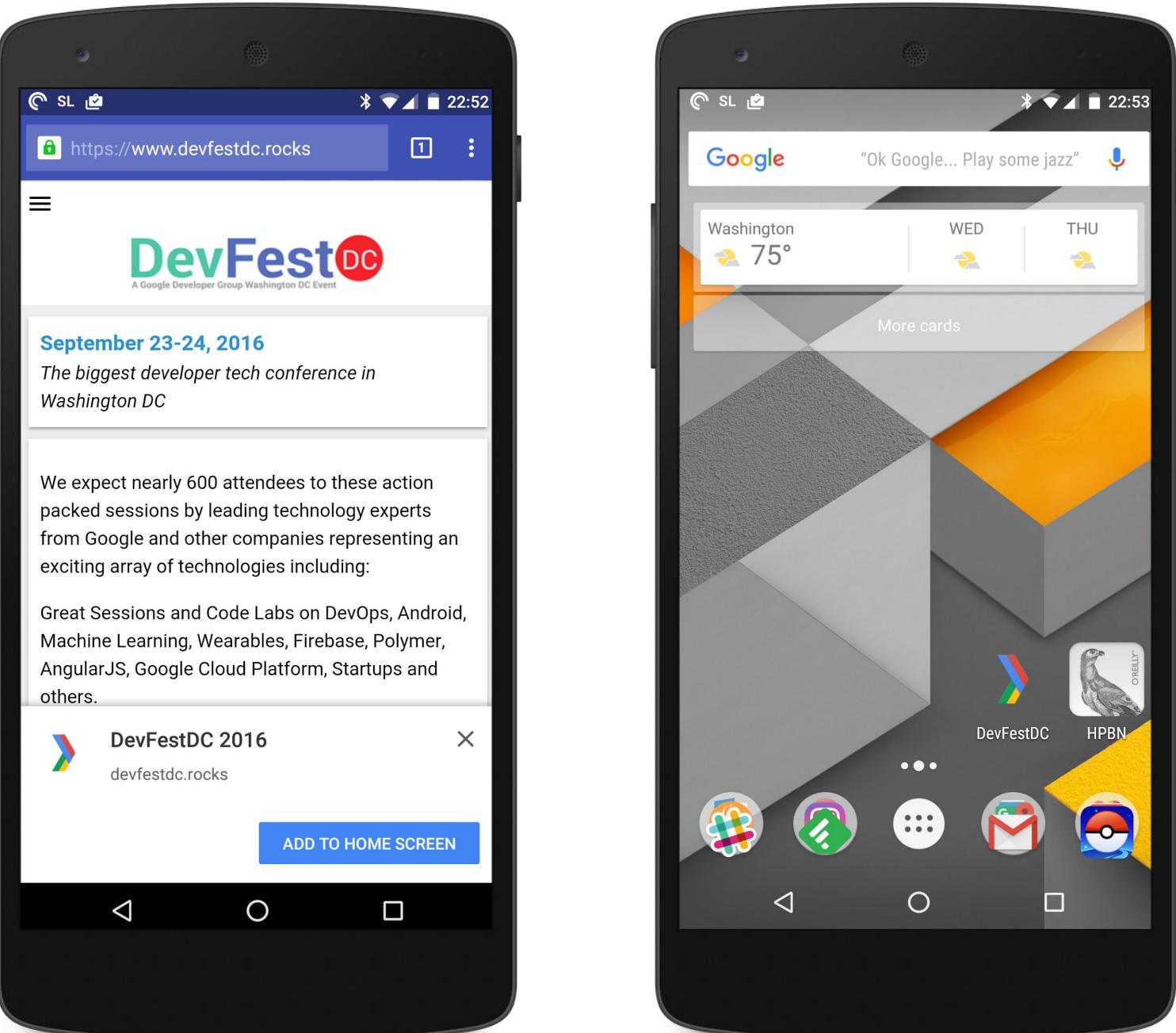
WHY NOT SKIP IT ENTIRELY,
AND MAKE A PHONE THAT HAS
EVERY APP "INSTALLED" ALREADY
AND JUST DOWNLOADS AND RUNS
THEM ON THE FLY?



I FELT PRETTY CLEVER UNTIL I
REALIZED I'D INVENTED WEBPAGES.

INSTALLABLE

- Multiple visits trigger prompt
- Low friction
- No app store



SOURCE: <https://www.devfestdc.rocks>

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RE-ENGAGEABLE

1.	Introduction
2.	Conformance
3.	Dependencies
4.	Concepts
4.1	Webapp
4.2	Push message
4.3	Push subscription
4.4	Push service
4.5	Permission
5.	Security and privacy considerations
6.	Push Framework
6.1	Example
6.2	Sequence diagram
6.3	Push service use
7.	Extensions to the ServiceWorkerRegistration interface
8.	PushManager interface
8.1	PushSubscriptionOptions Interface and Dictionary
9.	PushSubscription interface
9.1	PushEncryptionKeyName enumeration
10.	PushMessageData interface
11.	Events
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11.2	The pushsubscriptionchange event
12.	Enumerations
A.	Acknowledgements
B.	References

Push API

W3C Editor's Draft 18 August 2016

**This version:**

<https://w3c.github.io/push-api/>

Latest published version:

<https://www.w3.org/TR/push-api/>

Latest editor's draft:

<https://w3c.github.io/push-api/>

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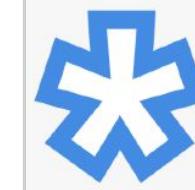
Abstract

The *Push API* enables sending of a [push message](#) to a [webapp](#) via a [push service](#). An [application server](#) can send a [push message](#) at any time, even when a [webapp](#) or [user agent](#) is inactive. The [push service](#) ensures reliable and efficient delivery to the [user agent](#). [Push messages](#) are delivered to a [Service Worker](#) that runs in the origin of the [webapp](#), which can use the information in the message to update local state or display a notification to the user.

This specification is designed for use with the [web push protocol](#), which describes how an [application server](#) or [user agent](#) interacts with a [push service](#).

Status of This Document

This section describes the status of this document at the time of its publication. Other documents may supersede this document. A list of current W3C publications and the latest revision of this technical report can be found in the W3C technical reports index at <https://www.w3.org/TR/>.



Received Payload

Push data: 'I am a push notification!'

gauntface.github.io



Enable Push Notifications

Add Payload Text

[SEND A PUSH VIA XHR](#)

CURL Command

Copy and paste the following CURL command into your terminal to send a push message to your browser.

```
curl "https://fcm.googleapis.com/fcm/send/dfq
NL0cq8tY:APA91bFT5a3v2Og0tpDLgByAhCIavXRNJVbR
gcftSD6r76mLmFwP5_MmdgsFtxZqTwC85LUD0G2pjwoub
elg-PadJgIDSAxTGFZf5ARSWTFul061Lz0tO5qZKwCBxJ
q1L4EOEWnY3FPF" --request POST --header "TTL:
60" --header "Content-Length: 0" --header "Au
thorization: Bearer eyJ0eXAiOiJKV1QiLCJhbGciO
```

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**CONNECTIVITY
INDEPENDENT**



MOBILE NETWORKS ARE UNRELIABLE

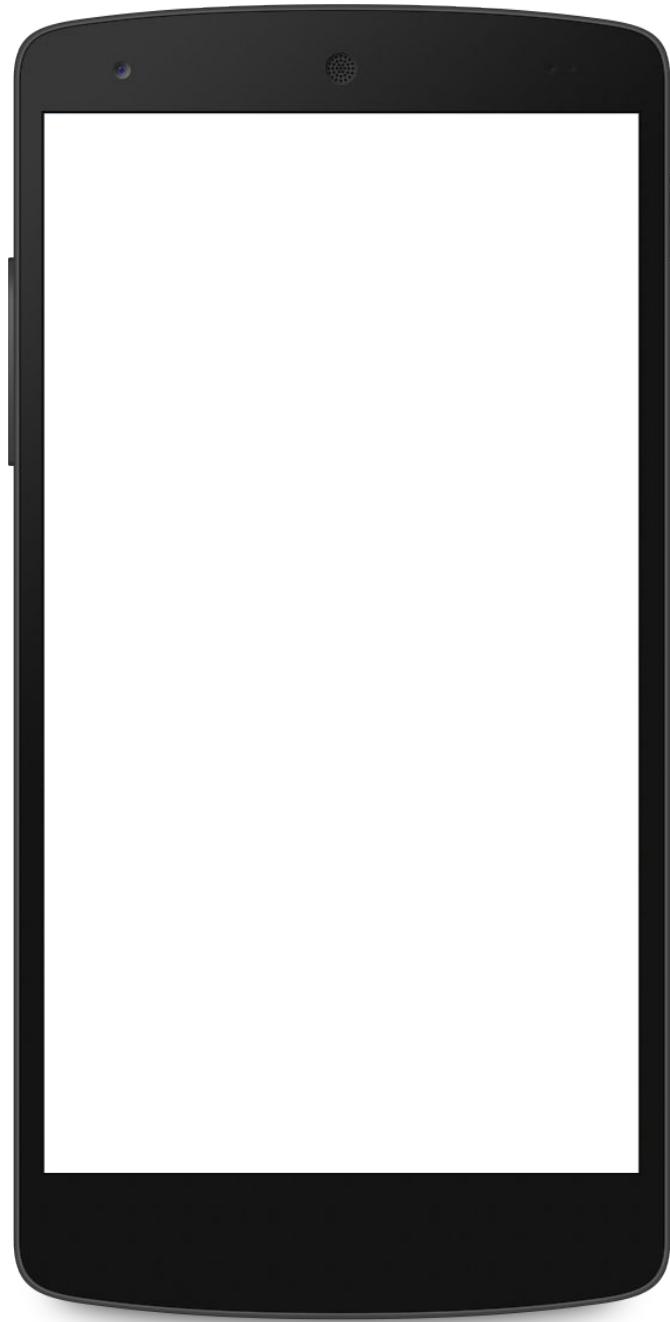
- LTE service isn't always LTE
- Mobile devices constantly transfer between antennas, 3G, LTE, and Wi-Fi
- Slow response is worse than fast connection failure

SOURCE: <https://hpbn.co>

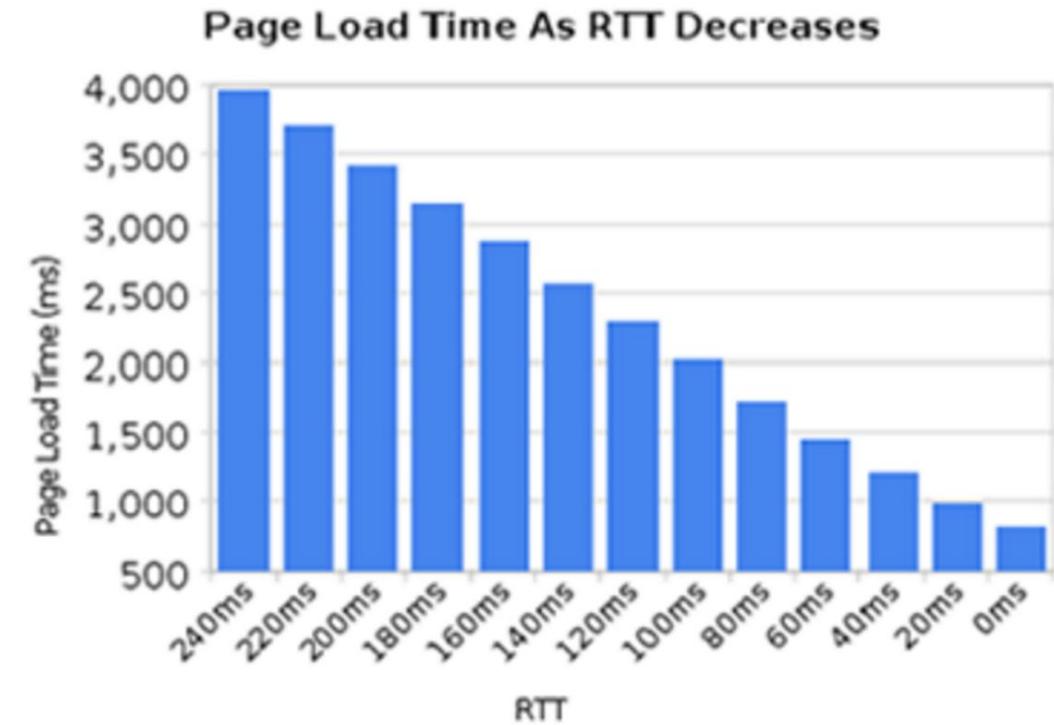
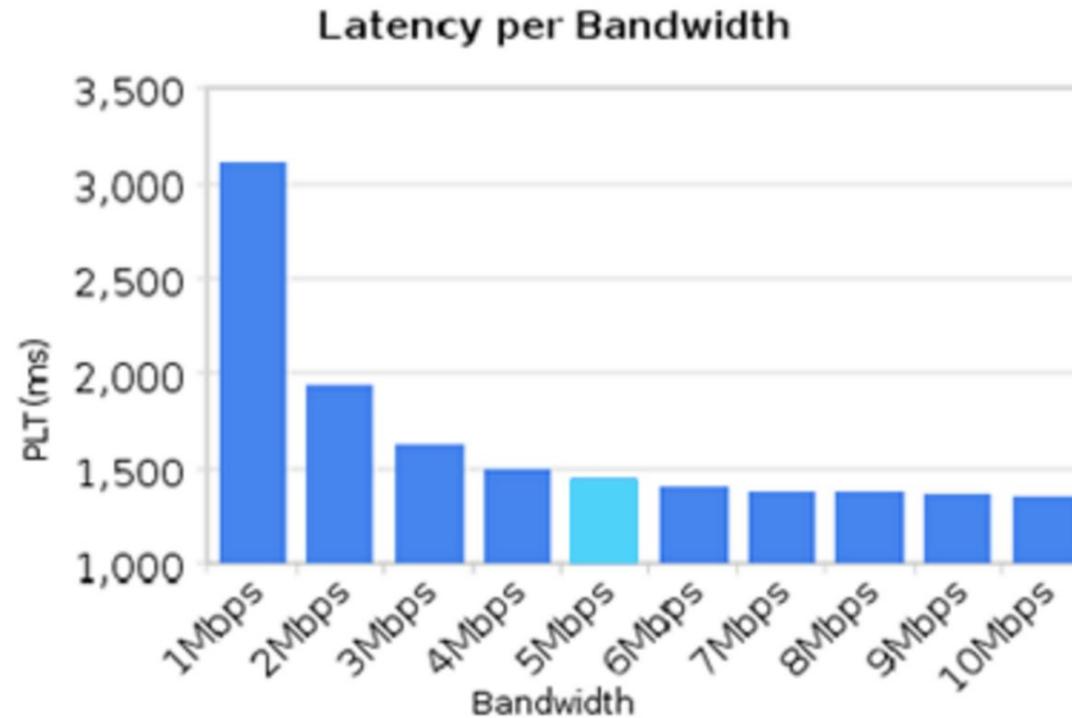


O'REILLY®

Ilya Grigorik



LATENCY: THE NEW WEB PERFORMANCE BOTTLENECK



MOBILE-FIRST WEB DEVELOPMENT

- **Responsive Web Design**
 - Addresses the mobile user interface
- **Service Worker API**
 - Addresses the mobile network
- **Design for slow mobile devices and slow networks**
 - It'll be ⚡ on high-end phones and fast networks

THE
REAL
WORLD

Sessions

Home > Sessions

Sessions

DevFestDC – 2016 – Friday Sep 23 & Sat Sep 24 @ 1680 Capital One Dr, McLean, VA

– TensorFlow - Codelabs - Bret McGowen - Google

2 hours of TensorFlow Code Labs.

+ Moonshot Sprint - Katy Kasmal - Google, Team Exponent

+ Kubernetes - Containers - Code Labs - Ray Tsang - Google

+ Google Machine Learning Session - Josh Gordon - Google

+ Game Development with Firebase and Javascript - Martin Omander - Google

+ Visualizing data in Elasticsearch: Search, Timeseries, and Graph Analysis in the Cloud - Dave Erickson - Elastic

+ Making Sense - Jared Sheehan - Capital One

+ What's Next For Openstack At Walmart - Andrew Mitry - Wal Mart

+ Doing Periodic Work: Another Android Headache - Mark Murphy - Commonsware

+ Say It with Video! - Annyce Davis - Off Grid Electric

+ I'm not sure I belong here - Jessica Bell: Deloitte Digital, Mark Brown: Department of Commerce, Lougenia Bailey: Excella Consulting



There is no Internet connection

You can try to diagnose the problem by taking the following steps:

Go to **Applications > System Preferences > Network > Assist me** to test your connection.

Try:

- Checking the network cables, modem, and router
- Reconnecting to Wi-Fi

ERR_INTERNET_DISCONNECTED

DETAILS

**DON'T
PANIC**

SERVICE WORKER

- Client-side programmable network proxy
- Registered against a domain & path
 - `www.devfestdc.org` != `images.devfestdc.org`
 - `www.devfestdc.org` != `www.devfestdc.org/js`
- Intercept network requests
- Gives developers control of network failure

OFFLINE SUPPORT (USING A SERVICE WORKER)

Service Workers

W3C Working Draft 25 June 2015

This version

<http://www.w3.org/TR/2015/WD-service-workers-20150625/>

Latest published version

<http://www.w3.org/TR/service-workers/>

Latest editor's draft

https://slightlyoff.github.io/ServiceWorker/spec/service_worker/

Previous version

<http://www.w3.org/TR/2015/WD-service-workers-20150205/>

Revision history

<https://github.com/slightlyoff/ServiceWorker/commits/master>

Participate

Discuss on public-webapps@w3.org ([Web Applications Working Group](#))

[File bugs](#)

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Abstract

This specification describes a method that enables applications to take advantage of persistent background processing, including hooks to enable bootstrapping of web applications while offline.

The core of this system is an event-driven [Web Worker](#), which responds to events dispatched from documents and other sources. A system for managing installation, versions, and upgrades is provided.

The service worker is a generic entry point for event-driven background processing in the Web Platform that is [extensible by other specifications](#).

Status of This Document

This section describes the status of this document at the time of its publication. Other documents may supersede this document. A list of current W3C publications and the latest revision of this technical report can be found in the [W3C technical reports index](#) at <http://www.w3.org/TR/>.

This document was published by the [Web Applications Working Group](#) as a Working Draft. If you wish to make comments regarding this document, please send them to public-webapps@w3.org ([subscribe](#), [archives](#)). All feedback is welcome.

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is SERVICEWORKER ready?

[Status](#) * [Spec](#) * [Intro](#) * [Resources](#) * [GitHub](#)

ServiceWorker enthusiasm

The first thing any implementation needs.



Chrome: Shipped.

Firefox: Shipped.

Samsung Internet: Shipped. Based on Chromium 44.2403 with some [additions and changes](#). (See "Service Worker" section.)

Safari: [Under consideration](#), Brief positive signals in [five year plan](#).

Edge: [In development](#).

Support does not include iOS versions of third-party browsers on that platform (see [Safari support](#)).

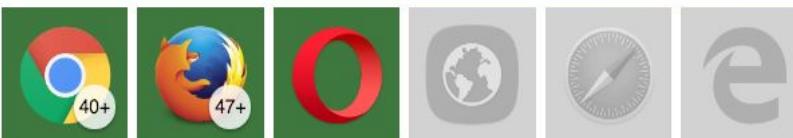
Promises

Not ServiceWorker-specific, but required by ServiceWorker. [Spec](#).



Debugging

State of debugging tools.



Chrome: You can debug service worker scripts as any other. "Application" panel in devtools has service worker & cache sections.

Firefox: Debuggable from the ["Workers" page](#) in `about:debugging`.

Firefox: [Web Console](#) can display console messages from Service Workers.

DEVFESTDC.ORG: INSTALL SERVICE WORKER

- Register a service worker for www.devfestdc.org
- Install at root scope (“/”) so it can handle the entire site

```
if('serviceWorker' in navigator) {  
  navigator.serviceWorker  
    .register('/sw.js')  
    .then(function() { console.log('Service Worker Registered'); });  
}
```

DEVFESTDC.ORG: CACHE ASSETS

- Inside “`/sw.js`”, cache all the assets
- Include all HTML, CSS, and JS required to load the site

```
self.addEventListener('install', function(event) {
  event.waitUntil(
    caches.open('devfestdc-static-v1').then(function(cache) {
      return cache.addAll(['/index.html', '/js/all.min.js', ... /* etc */ ]);
    });
  );
});
```

DEVFESTDC.ORG: RESPOND WITH CACHED ASSETS

- Inside “`/sw.js`”, add fetch event listener
- Respond to requests for static assets using cache

```
self.addEventListener('fetch', function(event) {
  event.respondWith(caches.open('devfestdc-static-v1').then(function(cache) {
    cache.match(event.request).then(function(response) {
      return response || fetch(event.request);
    });
  }));
});
```

Sessions

Home > Sessions

Sessions

DevFestDC – 2016 – Friday Sep 23 & Sat Sep 24 @ 1680 Capital One Dr, McLean, VA

– TensorFlow - Codelabs - Bret McGowen - Google

2 hours of TensorFlow Code Labs.

+ Moonshot Sprint - Katy Kasmal - Google, Team Exponent

+ Kubernetes - Containers - Code Labs - Ray Tsang - Google

+ Google Machine Learning Session - Josh Gordon - Google

+ Game Development with Firebase and Javascript - Martin Omander - Google

+ Visualizing data in Elasticsearch: Search, Timeseries, and Graph Analysis in the Cloud - Dave Erickson - Elastic

+ Making Sense - Jared Sheehan - Capital One

+ What's Next For Openstack At Walmart - Andrew Mitry - Wal Mart

+ Doing Periodic Work: Another Android Headache - Mark Murphy - Commonsware

+ Say It with Video! - Annyce Davis - Off Grid Electric

+ I'm not sure I belong here - Jessica Bell: Deloitte Digital, Mark Brown: Department of Commerce, Lougenia Bailey: Excella Consulting

YEAH! IT WORKED!
(BUT SHOULD WE DO IT?)

MANAGING CACHES

- Static assets (HTML/CSS/JSS) should be optimized for caching
- If we change “/schedule-day-2/”, we need to update the cache:
`caches.open('devfestdc-static-v1')`
- Hard to maintain

SW-PRECACHE

<https://github.com/GoogleChrome/sw-precache>



This repository

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▼

GoogleChrome / sw-precache

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A node module to generate service worker code that will precache specific resources so they work offline.

386 commits

7 branches

5 releases

19 contributors

Branch: master ▾

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jeffposnick committed with addyosmani README and sw-toolbox explainer updates (#158) ...

Latest commit b874940 3 days ago

[app-shell-demo](#) Use a thumbnail image 2 months ago

[demo](#) Properly read in runtimeCaching option from external config file (#110) 4 months ago

[lib](#) Linting cleanup. a month ago

[test](#) Linting cleanup. a month ago

[.eslintignore](#) Switching over to google linting rules 9 months ago

[.eslintrc](#) Switching over to google linting rules 9 months ago

[.gitignore](#) Updated to use paths under demo/ 2 years ago

[.travis.yml](#) Run Travis against node 0.12 and the latest stable release (#130) 3 months ago

[GettingStarted.md](#) User regexp literals instead of new RegExp 7 months ago

[LICENSE](#) Added accurate LICENSE info. 2 years ago

[README.md](#) README and sw-toolbox explainer updates (#158) 3 days ago

[cli.js](#) Add dynamicUrlToDependencies to CLI configuration (#154) 5 days ago

[gulpfile.js](#) README and sw-toolbox explainer updates (#158) 3 days ago

[package.json](#) 4.0.0! a month ago

[service-worker.tpl](#) Adds a dontCacheBustUrlsMatching option. 2 months ago

[sw-precache-and-sw-toolbox.md](#) README and sw-toolbox explainer updates (#158) 3 days ago

PRECACHE STATIC ASSETS

- **sw-precache** is a node module for generating a service worker that pre-caches resources at build time
- Can be integrated into **Gulp**, **Grunt**, **Webpack** or **CLI**-based build scripts
- Install: **npm install sw-precache --save-dev**

PRECACHE STATIC ASSETS

- Run `sw-precache` at build time
- Gulp task outputs “`/sw.js`”:

```
gulp.task('generate-service-worker', function(callback) {
  var swPrecache = require('sw-precache');
  swPrecache.write('build/sw.js'), {
    staticFileGlobs: [app/**/*.{js,html,css,png,jpg,gif,svg,eot,ttf,woff}']
  }, callback);
});
```

THE WAY TO PWA

AN INCREMENTAL APPROACH

WEB APPLICATION MANIFEST

```
<link rel="manifest" href="/manifest.json">
```

```
{
  "name": "DevFestDC 2016",
  "short_name": "DevFestDC",
  "icons": [
    ...
    {
      "src": "launcher-icon-4x.png",
      "sizes": "192x192",
      "type": "image/png"
    }
  ],
  "start_url": "index.html",
  "display": "standalone",
  "orientation": "portrait"
}
```

Application

Manifest

Service Workers

Clear storage

Storage

- Local Storage
- Session Storage
- IndexedDB
- Web SQL
- Cookies

Cache

- Cache Storage
- Application Cache

Frames

- top

App Manifest

<https://www.devfestdc.rocks/manifest.json>

Identity

Name DevFestDC 2016

Short name DevFestDC

Presentation

Start URL [L](#)

Theme color #3f51b5

Background color #fff

Orientation portrait

Display standalone

Icons

192x192
image/png

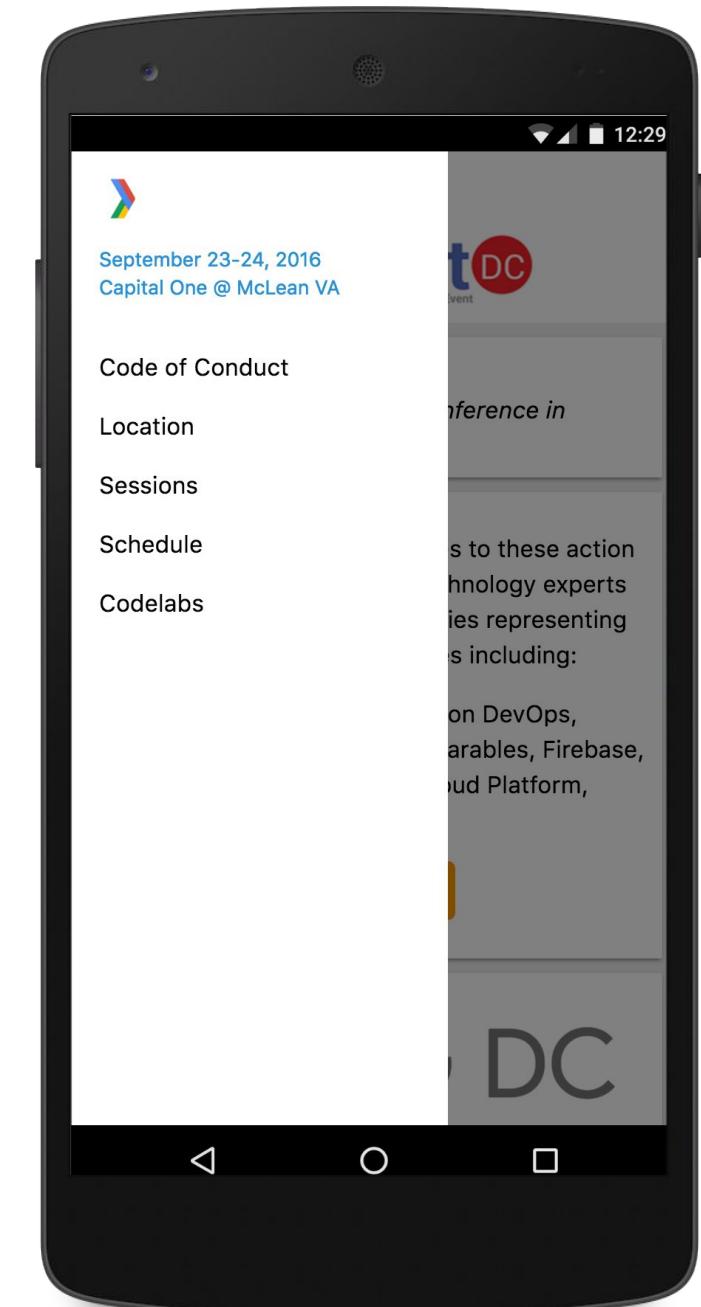


512x512
image/png



APP-SHELL ARCHITECTURE

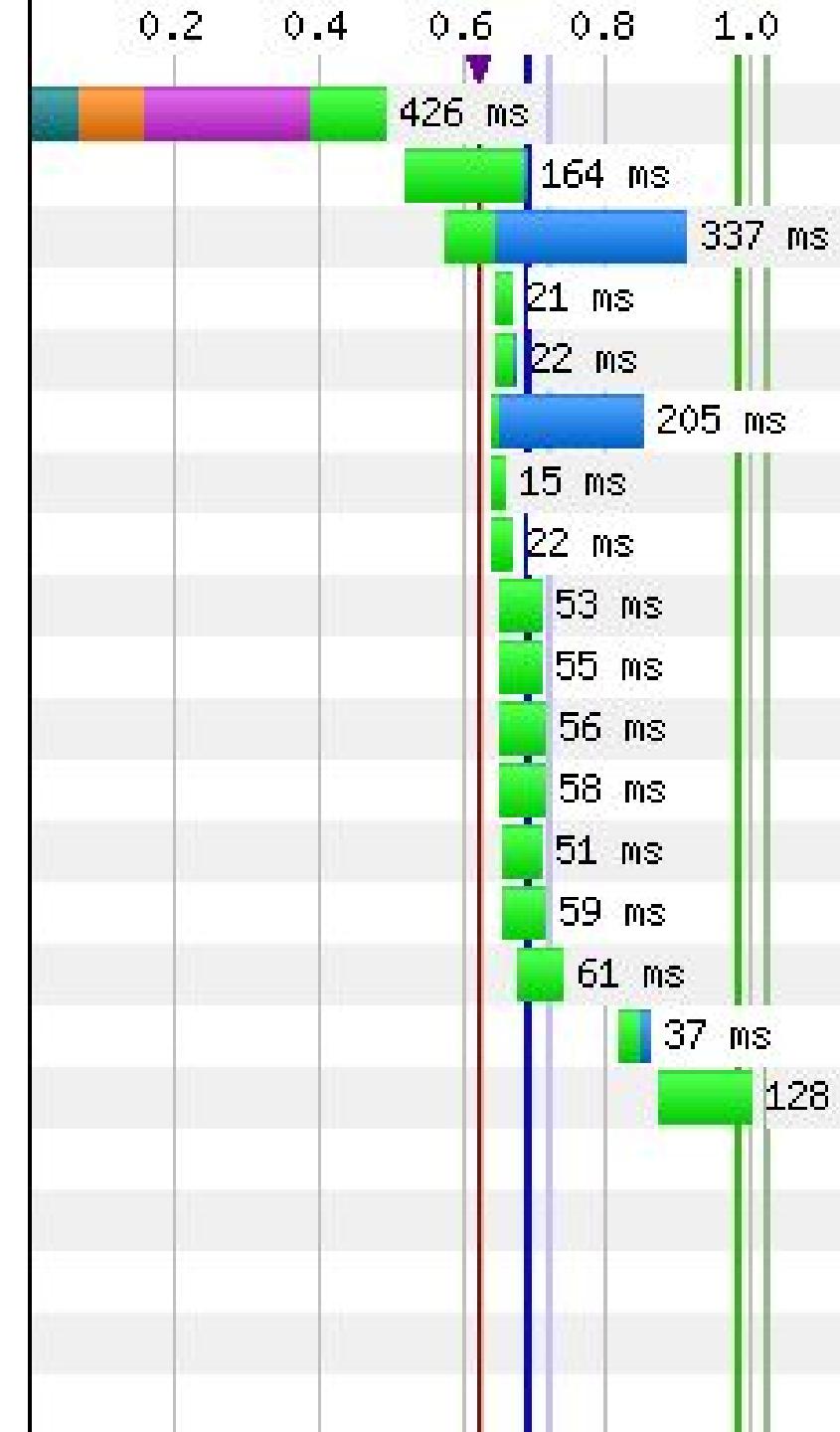
- App shell is the **minimal** HTML, CSS, and JavaScript required to render the user interface
- Its first load should be extremely quick, then immediately cached (**sw-precache**)



SOURCE: <https://www.devfestdc.rocks/>

PRPL PATTERN

- **Push critical resources for the initial route**
- **Render initial route (as fast as possible)**
- **Pre-cache remaining routes**
- **Lazy-load and create remaining routes on demand**



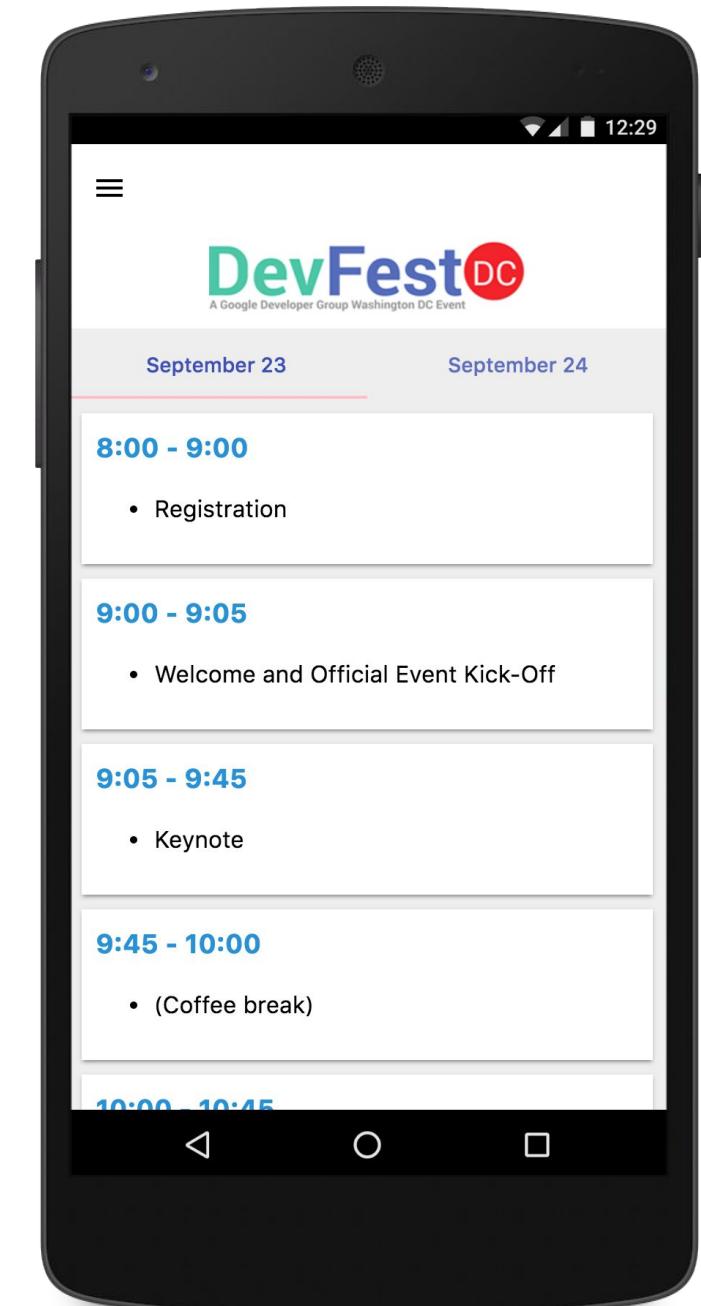
SOURCE: <https://www.polymer-project.org/1.0/toolbox/server>

SW-TOOLBOX

<https://github.com/GoogleChrome/sw-toolbox>

RUN-TIME CACHING

- **sw-toolbox** provides handlers for common caching patterns that are useful during run-time:
 - `toolbox.cacheFirst`
 - `toolbox.networkFirst`
 - `toolbox.fastest`
- **sw-precache** can configure and include **sw-toolbox**



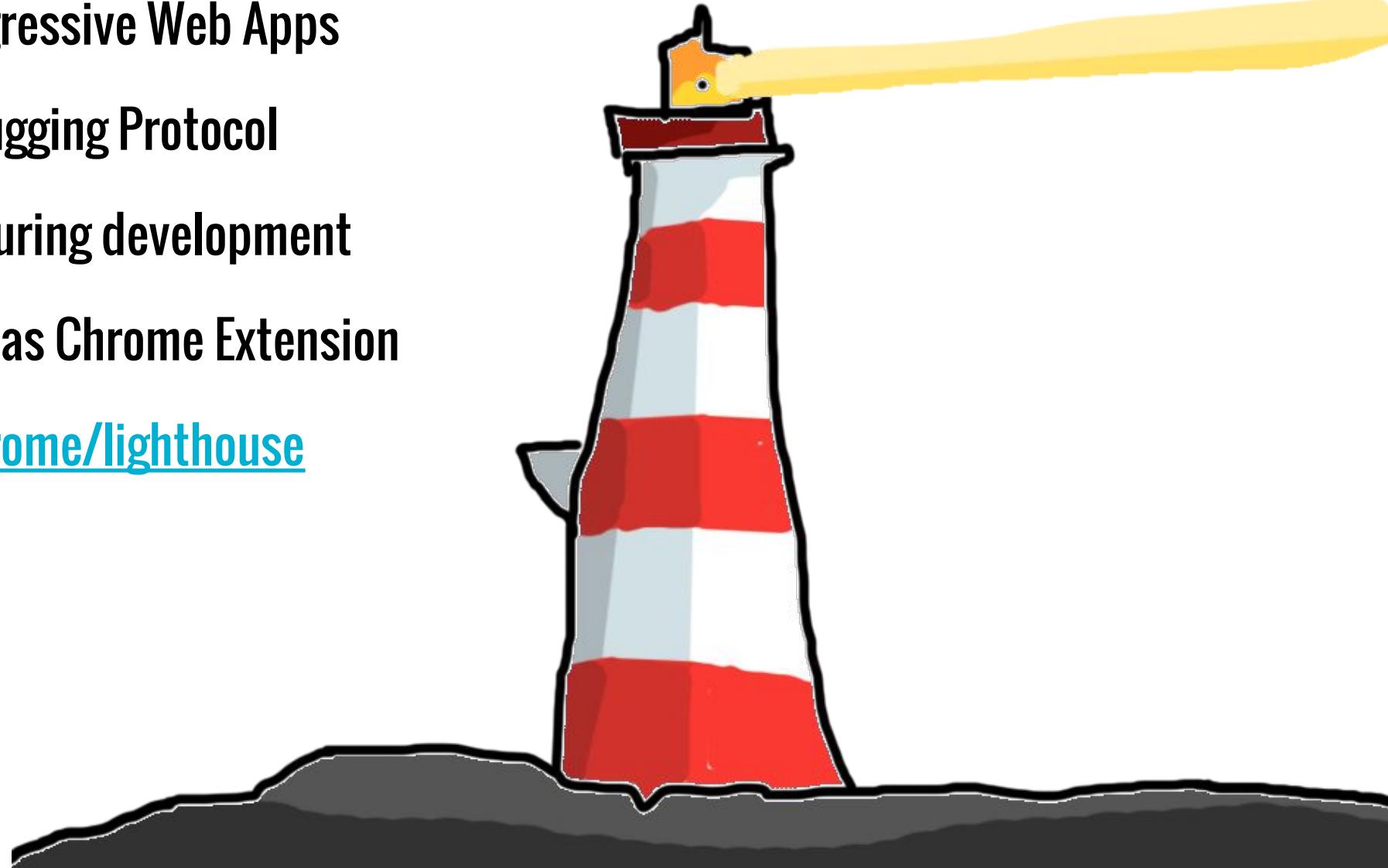
SOURCE: <https://github.com/GoogleChrome/sw-toolbox>

LIGHTHOUSE

<https://github.com/GoogleChrome/lighthouse>

AUDIT PROGRESS

- **lighthouse** audits Progressive Web Apps
- Uses the Chrome Debugging Protocol
- Helps find problems during development
- Available from npm or as Chrome Extension
- github.com/GoogleChrome/lighthouse





This repository

Search

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GoogleChrome / lighthouse

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auditing and performance metrics for Progressive Web Apps

861 commits

16 branches

3 releases

31 contributors

Branch: master ▾

[New pull request](#)[Create new file](#)[Upload files](#)[Find file](#)[Clone or download](#) ▾ **brendankenny** 1.1.3

Latest commit a5bbe23 a day ago

[lighthouse-cli](#) smoke test: clean up backgrounded processes. 5 days ago [lighthouse-core](#) Merge pull request #628 from GoogleChrome/launchromewarning 6 days ago [lighthouse-extension](#) 1.1.3 a day ago [typings](#) fix jsconfig for vscode. 20 days ago [.editorconfig](#) editorconfig 6 months ago [.eslintignore](#) eslint: no longer ignore all of lighthouse-extension (#613) 12 days ago [.eslintrc](#) eslint: no longer ignore all of lighthouse-extension (#613) 12 days ago [.gitignore](#) Save closure errors to a file (#494) 2 months ago [.travis.yml](#) travis: force install extension deps. a month ago [API-and-internals.md](#) headless docs: adjustments to pr #623 6 days ago [AUTHORS](#) authors file. 6 months ago [CONTRIBUTING.md](#) Adds tests. 8 months ago [LICENSE](#) Adds tests. 8 months ago [jsconfig.json](#) fix jsconfig for vscode. 20 days ago [package.json](#) 1.1.3 a day ago [readme.md](#) readme: updates about m52, etc. 8 days ago



Progressive Web App

Best Practices

Performance Metrics

Progressive Web App

96 / 100

These audits validate the aspects of a Progressive Web App.

App can load on offline/flaky connections

Ensuring your web app can respond when the network connection is unavailable or flaky is critical to providing your users a good experience. This is achieved through use of a [Service Worker](#).

- Has a registered Service Worker Yes
- URL responds with a 200 when offline Yes
- Cache contains start_url from manifest (alpha) Yes

Page load performance is fast

Users notice if sites and apps don't perform well. These top-level metrics capture the most important perceived performance concerns.

- First meaningful paint (target: 1,600ms) (712.8ms) 100
- Speed Index (target: 1,250) (760) 100
 - First Visual Change: 742ms*
 - Last Visual Change: 794ms*
- Estimated Input Latency (target: 50ms) (19.4ms) 100
 - 90% probability of input latency at 19.4ms or shorter.*
 - (50%: 16.0ms, 75%: 16.0ms, 90%: 19.4ms, 99%: 40.7ms, 100%: 46.1ms)*
- Time To Interactive (alpha) (target: 1,700) (785ms) 100
- Content scrolls at 60fps (Coming soon) ⌂⌂⌂
- Touch input gets a response in < 150ms (Coming soon) ⌂⌂⌂
- App is interactive without jank after the first meaningful paint (Coming soon) ⌂⌂⌂

Site is progressively enhanced

Progressive enhancement means that everyone can access the basic content and functionality of a page in any browser, and those without certain browser features may receive a reduced but not unfunctioning experience.

- Page contains some content when its scripts are not available Yes

PROGRESSIVE WEB APPS

- PWAs are still websites
- Progressively enhanced
- Connectivity independent
- Mobile-first & offline-first
- <https://www.devfestdc.rocks/>
- github.com/GoogleChrome/sw-toolbox
- github.com/GoogleChrome/sw-precache
- github.com/GoogleChrome/lighthouse



Chris Nguyen
[@uncompiled](https://twitter.com/uncompiled)

The Washington Post