

#WWDC18

What's New in Safari and WebKit

Session 234

Shloka Kini, Developer Publications
Jason Sandmeyer, Marketing Communications



Safari



WebKit

Agenda

Security

Performance

Rich experience

Security

Use WKWebView



Use WKWebView

UIWebView deprecated



Use WKWebView

UIWebView deprecated

Works on macOS and iOS



Use WKWebView

UIWebView deprecated

Works on macOS and iOS



Use WKWebView

UIWebView deprecated

Works on macOS and iOS

Runs in a separate process from your app



Extending Safari: History

Extending Safari: History

2010: Safari Extensions



Extending Safari: History

2010: Safari Extensions

2014: App Extensibility for macOS and iOS

Extending Safari: History

2010: Safari Extensions

2014: App Extensibility for macOS and iOS



Extending Safari: History

2010: Safari Extensions

2014: App Extensibility for macOS and iOS

2015: Content Blockers for macOS and iOS

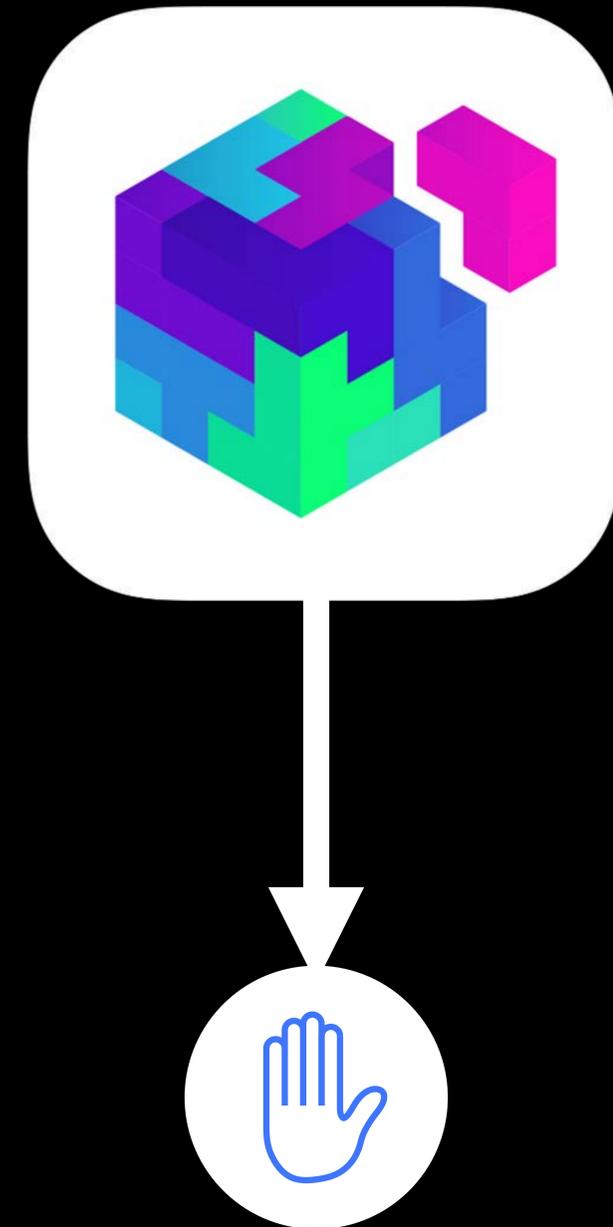


Extending Safari: History

2010: Safari Extensions

2014: App Extensibility for macOS and iOS

2015: Content Blockers for macOS and iOS



Extending Safari: History

2010: Safari Extensions

2014: App Extensibility for macOS and iOS

2015: Content Blockers for macOS and iOS

2016: Safari App Extensions for macOS

Extending Safari: History

2010: Safari Extensions

2014: App Extensibility for macOS and iOS

2015: Content Blockers for macOS and iOS

2016: Safari App Extensions for macOS



Legacy Safari Extensions

Legacy Safari Extensions

Safari 12 blocks support for .safariextz extensions outside of the Safari Extensions Gallery

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New submissions to the Safari Extensions Gallery will be accepted until the end of 2018

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Transition to a Safari App Extension or Content Blocker

Security

WKWebView

Safari Extensions

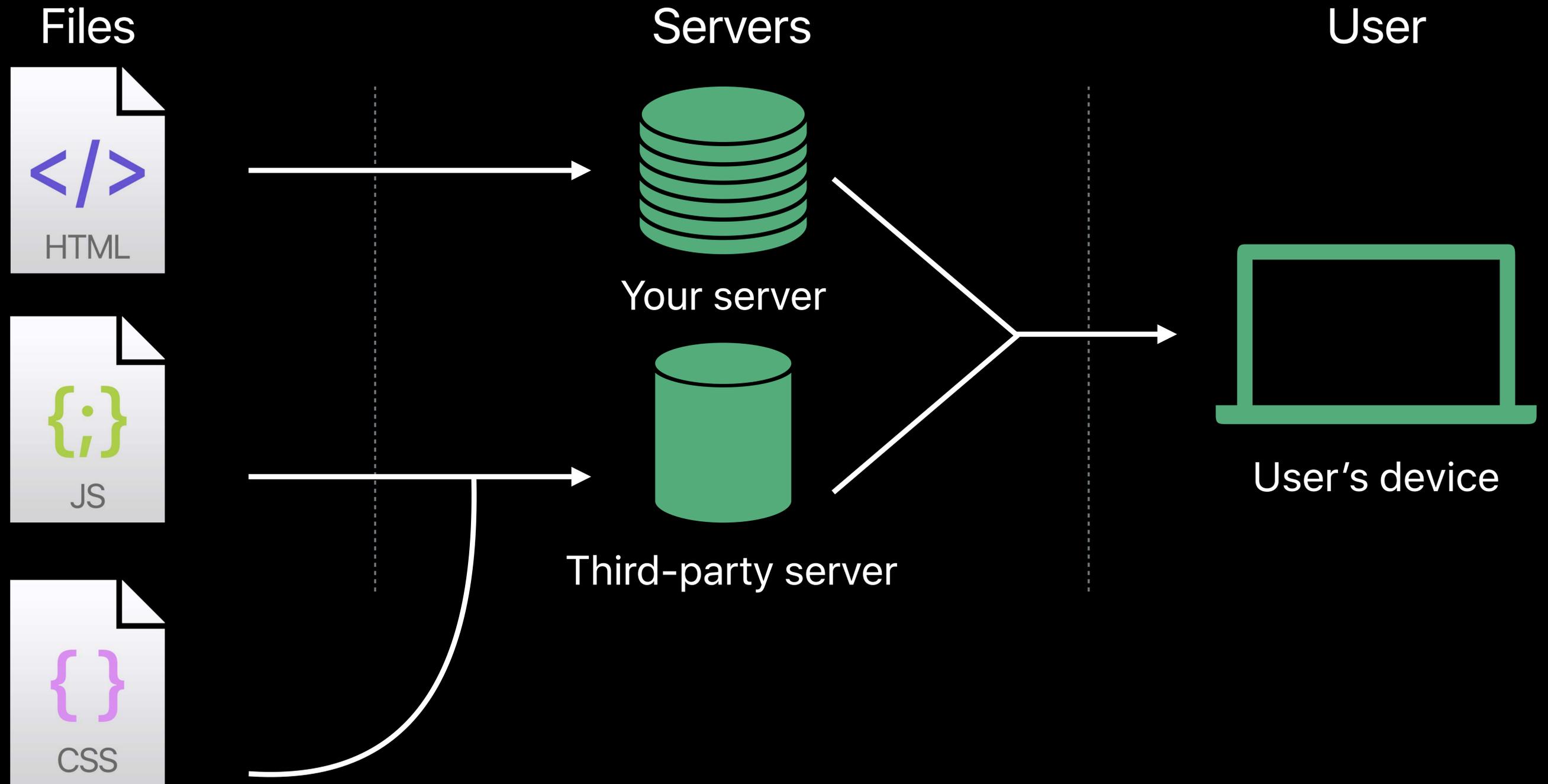
Subresource Integrity

Intelligent Tracking Prevention

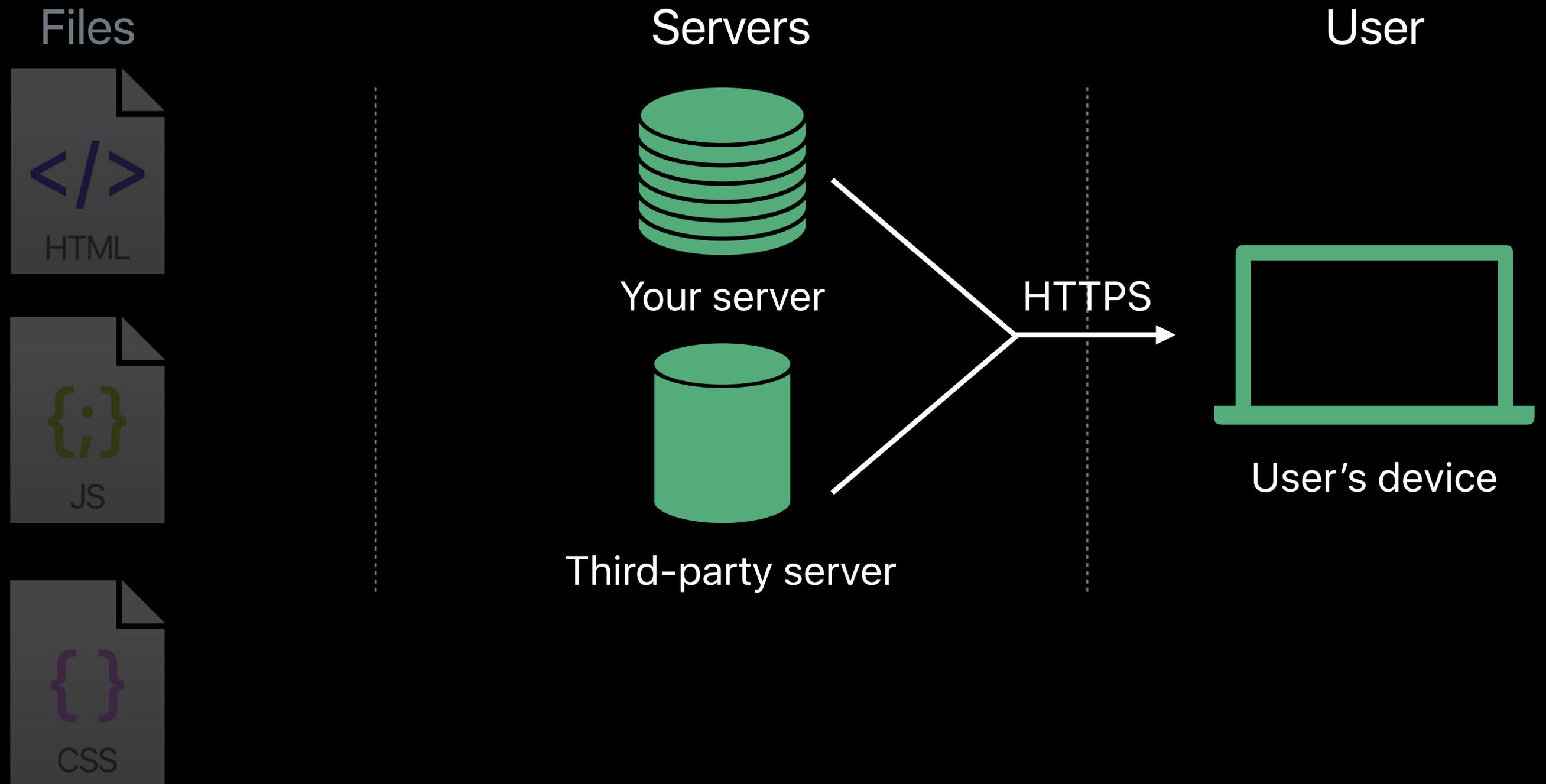
Automatic Strong Passwords

Security Code AutoFill

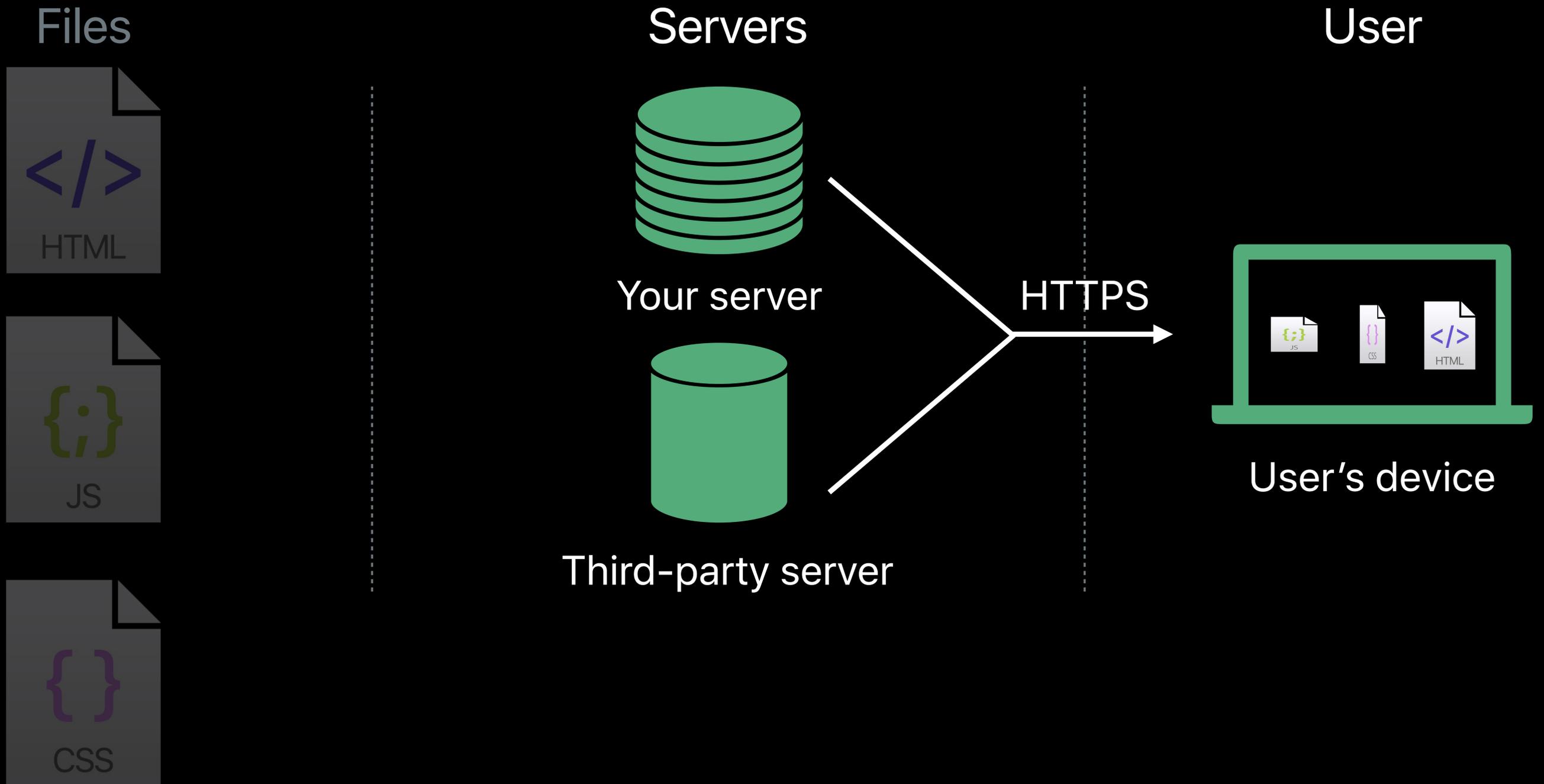
Subresource Integrity



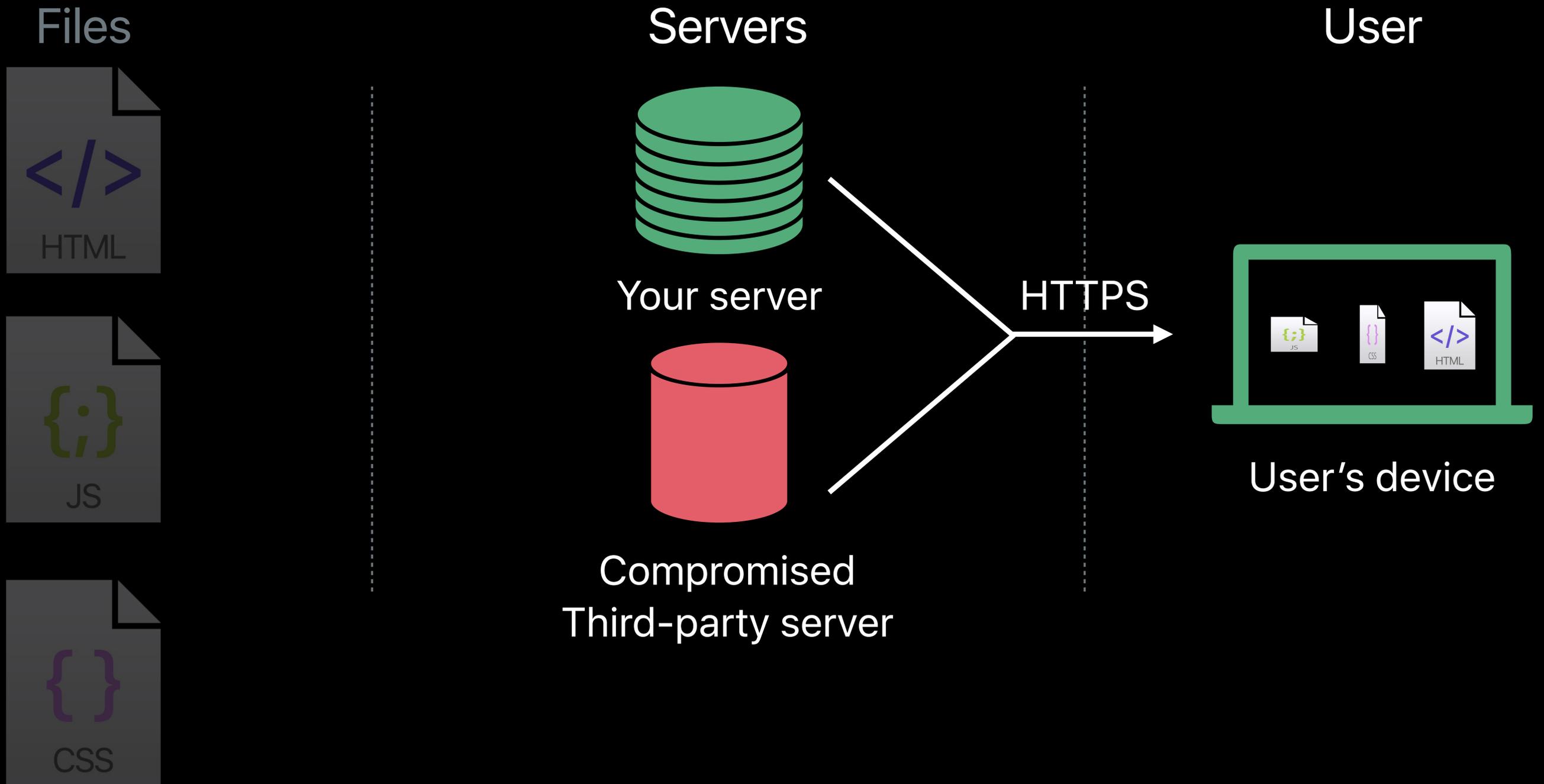
Subresource Integrity



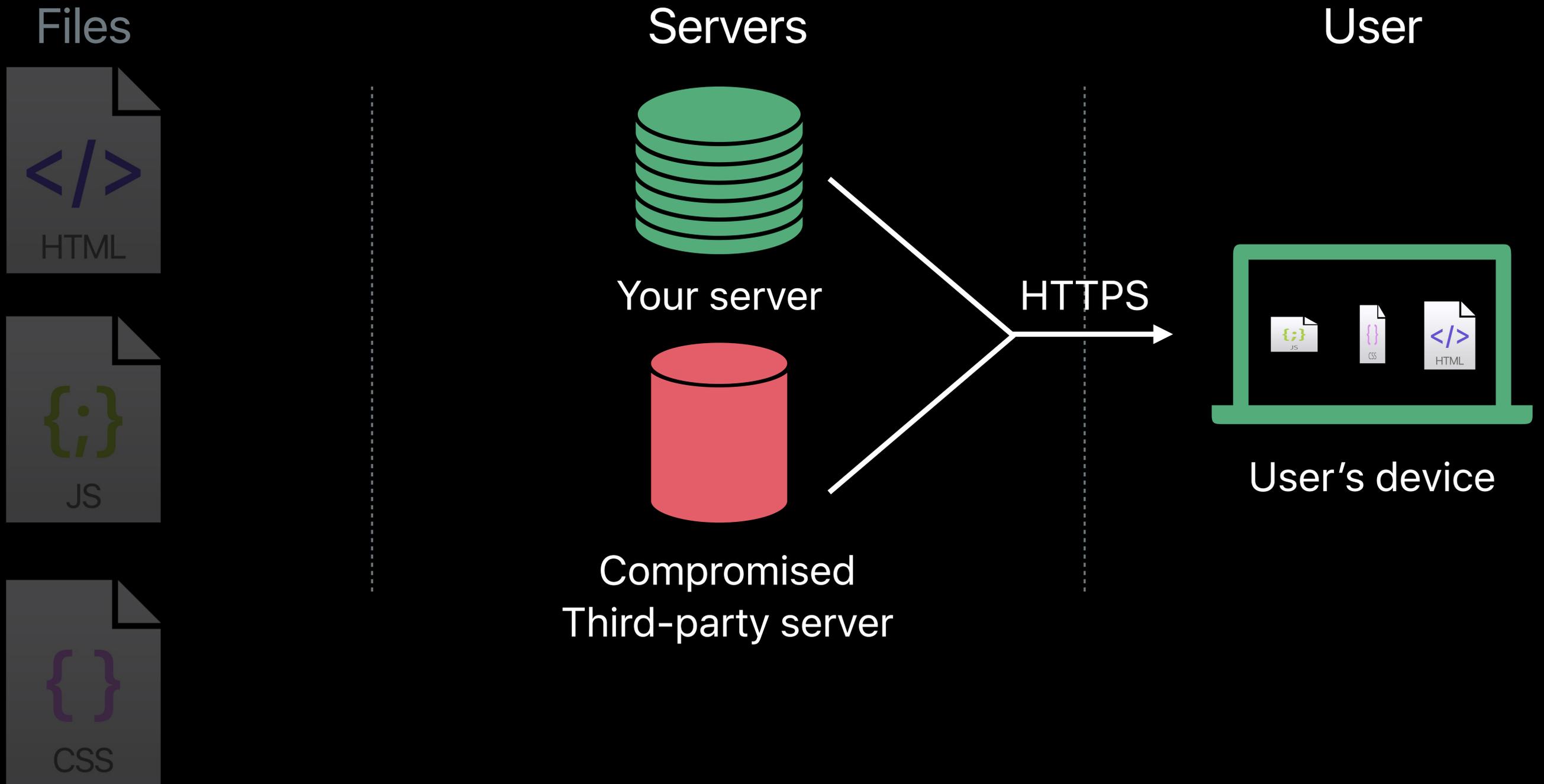
Subresource Integrity



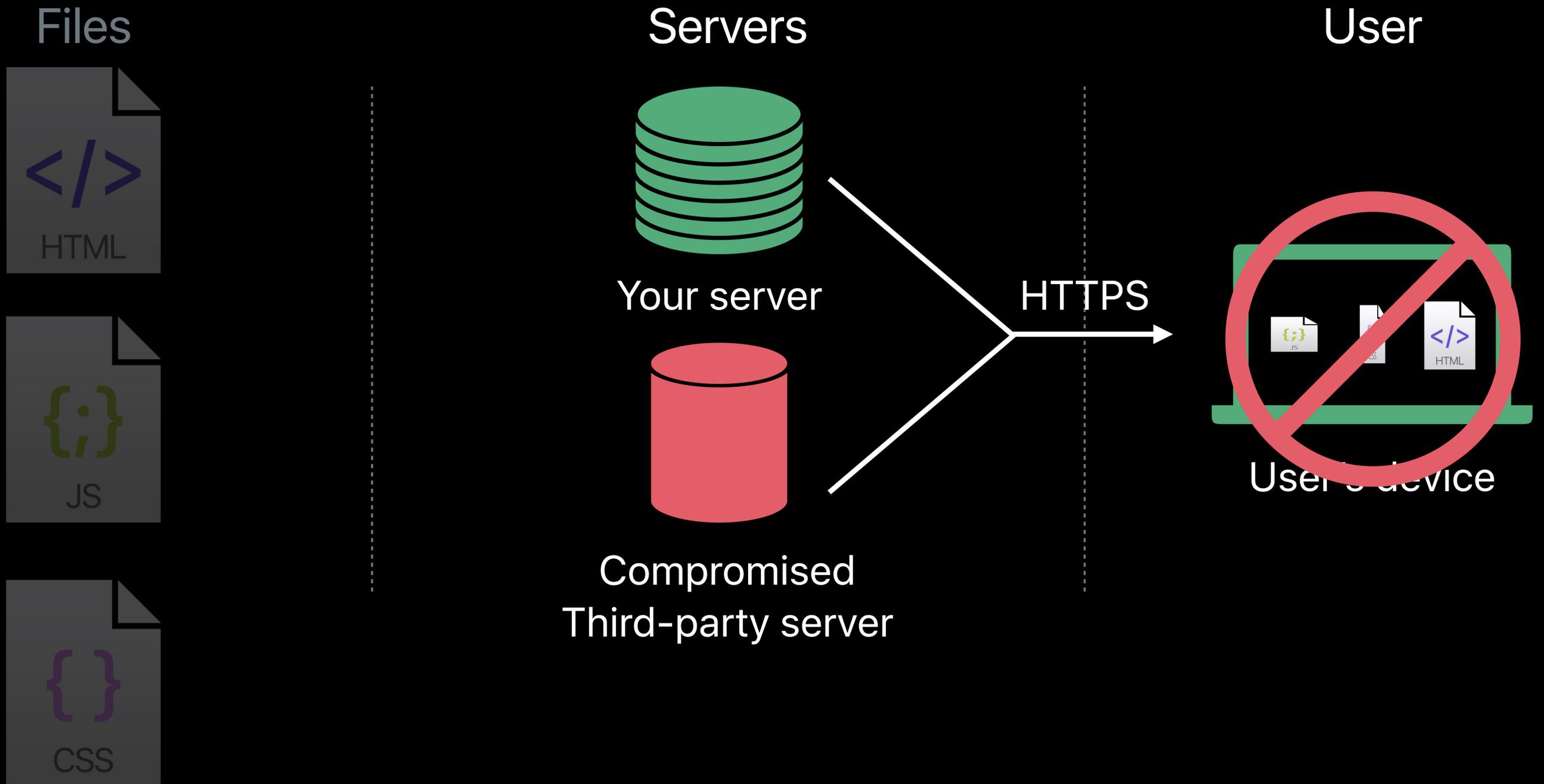
Subresource Integrity



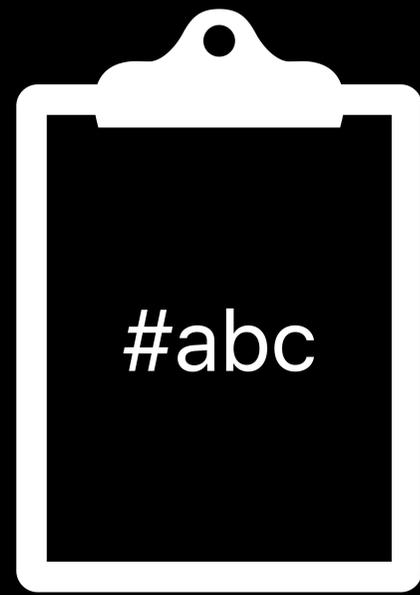
Subresource Integrity



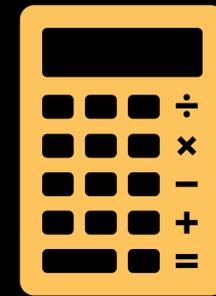
Subresource Integrity



Subresource Integrity



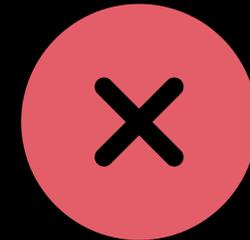
file + hash



→ #xyz

calculated hash

#abc = #xyz



Do the hashes match?

```
<script src="https://thirdparty.example/framework.js" integrity="sha384oqVuAfXRKa+R9GqQ8K/ux"
crossorigin="anonymous"></script>
```

Security

WKWebView

Safari Extensions

Subresource Integrity

Intelligent Tracking Prevention

Automatic Strong Passwords

Security Code AutoFill

Cookies can be used in a third-party context

Cookies are partitioned and not persisted in a third-party context

Existing cookies are purged and new cookies are blocked

0 days

1 day

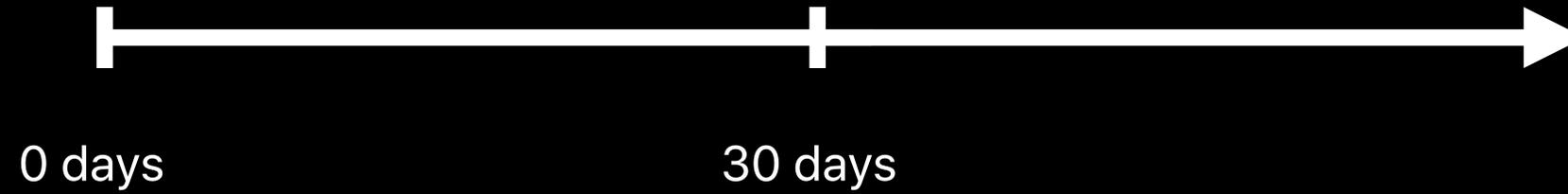
30 days

Days after the most recent interaction with the website



Cookies are partitioned
and not persisted in a
third-party context

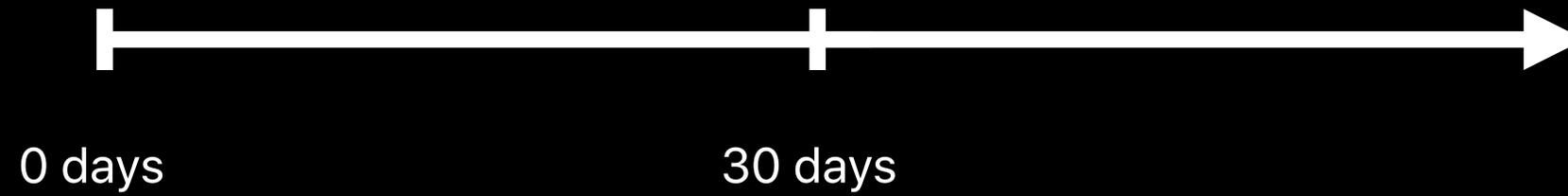
Existing cookies
are purged and
new cookies are blocked



Days after the most recent interaction with the website

Cookies are partitioned
and not persisted in a
third-party context

Existing cookies
are purged and
new cookies are blocked



Days after the most recent interaction with the website
Or successful use of the Storage Access API

Storage Access API

Intelligent Tracking Prevention

NEW

```
function makeRequestWithUserGesture() {  
  let promise = document.requestStorageAccess();  
  promise.then(function () {  
    // Storage access was granted.  
    // Check whether the user is logged in.  
    // If not, do a popup to log the user  
    // in.  
  }, function () {  
    // Storage access was denied.  
  });  
}
```



Do you want to allow "video.example" to use cookies and website data while browsing "news.example"?

This will allow "video.example" to track your activity.

Don't Allow

Allow

Security

WKWebView

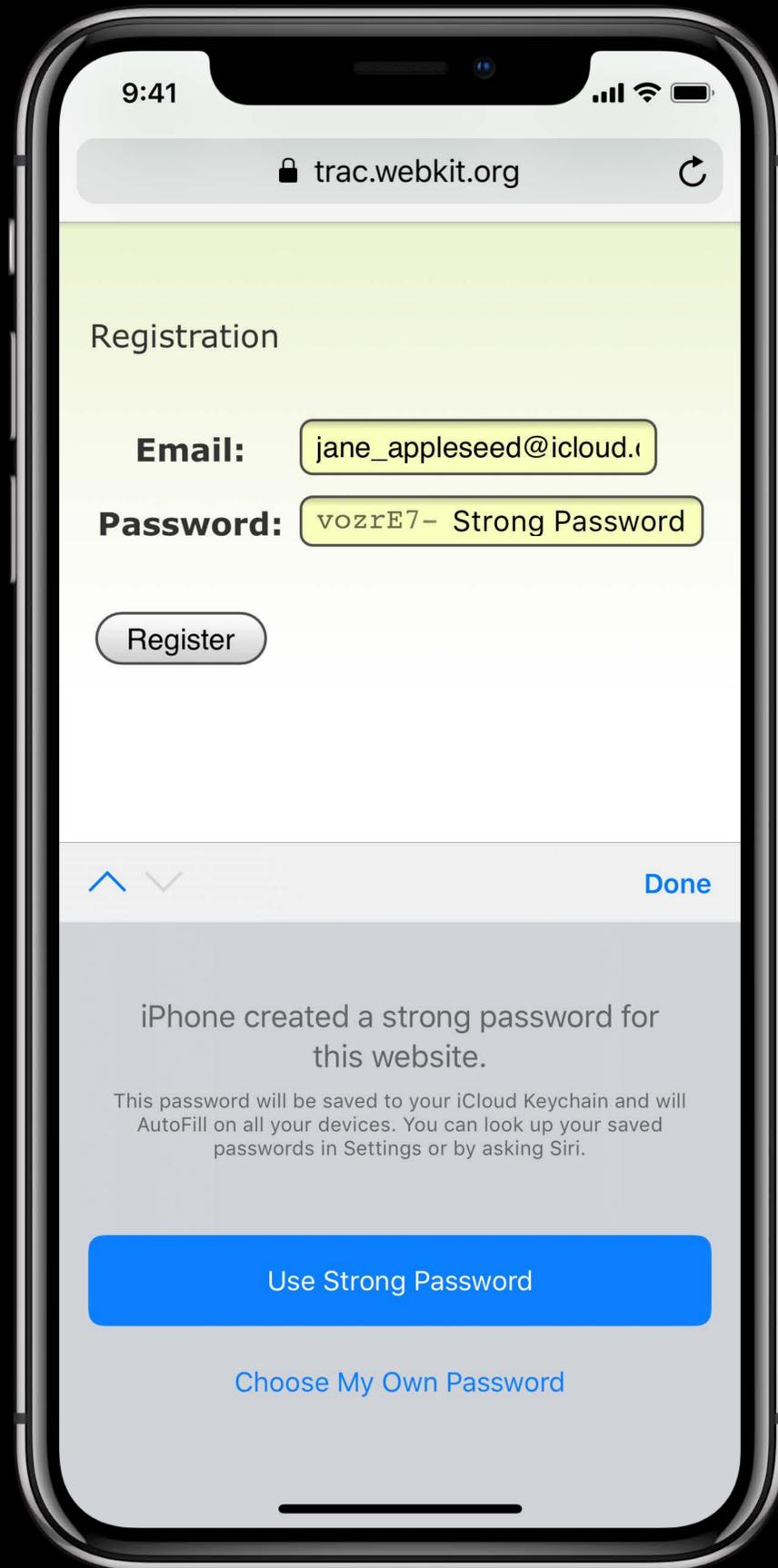
Safari Extensions

Subresource Integrity

Intelligent Tracking Prevention

Automatic Strong Passwords

Security Code AutoFill



NEW

AutoFill for Safari

NEW

Input Field

autocomplete =

Username

username

Sign Up password

new-password

Sign Up / Confirm password

new-password

Sign In password

current-password

Default Password Format

NEW

fregat-Svuzen-pqbie2

20 characters long

Contain upper-case, digits, hyphen, and lower-case

Use `passwordrules` attribute for custom password rules

Password rules validation tool

Security

NEW

WKWebView

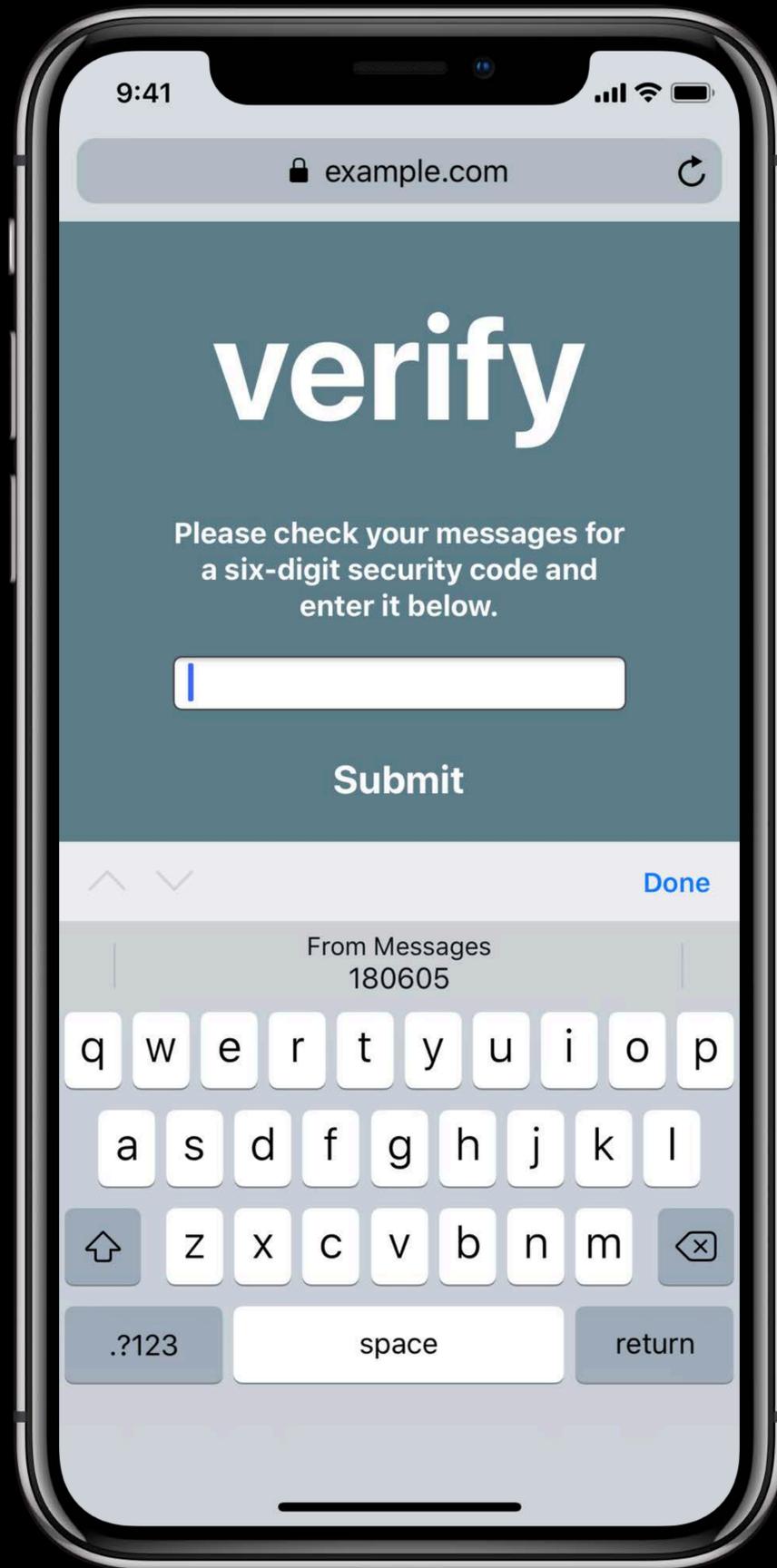
Safari Extensions

Subresource Integrity

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Automatic Strong Passwords

Security Code AutoFill



AutoFill for Safari

NEW

Input Field

autocomplete =

Username

username

Sign Up password

new-password

Sign Up / Confirm Password

new-password

Sign In password

current-password

AutoFill for Safari

NEW

Input Field

autocomplete =

Username

username

Sign Up password

new-password

Sign Up / Confirm Password

new-password

Sign In password

current-password

Security Code AutoFill

one-time-code

Security

WKWebView

Safari Extensions

Subresource Integrity

Intelligent Tracking Prevention

Automatic Strong Passwords

Security Code AutoFill

Performance

Performance

Font Collections

font-display Descriptor

Videos in Image Elements

Passive Event Listeners

Async Image Decoding

Beacon API

Font Collections

Similar Unicode fonts downloaded more quickly

NEW

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श्लोका किनि

श्लोका किनि

श्लोका किनि

Performance

Font Collections

`font-display` Descriptor

Videos in Image Elements

Passive Event Listeners

Async Image Decoding

Beacon API

NEW

Safari File Edit View History Bookmarks Help Tue 9:41 AM

The screenshot shows a MacBook Pro screen with a Safari browser window open. The browser's address bar is empty, and the page content is a dark blue gradient. A small inset image is displayed in the center, showing a yellow wheelbarrow in a barn. The desktop background is a scenic landscape with mountains, a river, and autumn foliage. The dock at the bottom contains various application icons including Safari, Spotlight, Launchpad, System Preferences, Mail, Calendar, Notes, Reminders, Photos, Messages, WhatsApp, Pages, Numbers, Keynote, Music, Books, App Store, System Preferences, and Trash.

MacBook Pro

NEW

Safari File Edit View History Bookmarks Help Tue 9:41 AM

Photography Portfolio

Welcome to my Site!

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.



MacBook Pro

font-display Descriptor

```
@font-face {  
  font-family: ExampleFont;  
  src: url(/path/to/fonts/myfont.woff) format('woff');  
  font-weight: 400;  
  font-style: normal;  
  font-display: fallback;  
}
```

Performance

Font Collections

font-display Descriptor

Videos in image elements

Passive Event Listeners

Async Image Decoding

Beacon API



Videos in Image Elements

MP4 with H.264 encoding

NEW

```

```

In CSS background image property:

```
<style>
  body {
    background-image: url("explosion.mp4");
  }
</style>
```



Videos in Image Elements

Fallback images

```
<picture>  
  <source srcset="explosion.mp4" type="video/mp4">  
    
</picture>
```

Performance

Font Collections

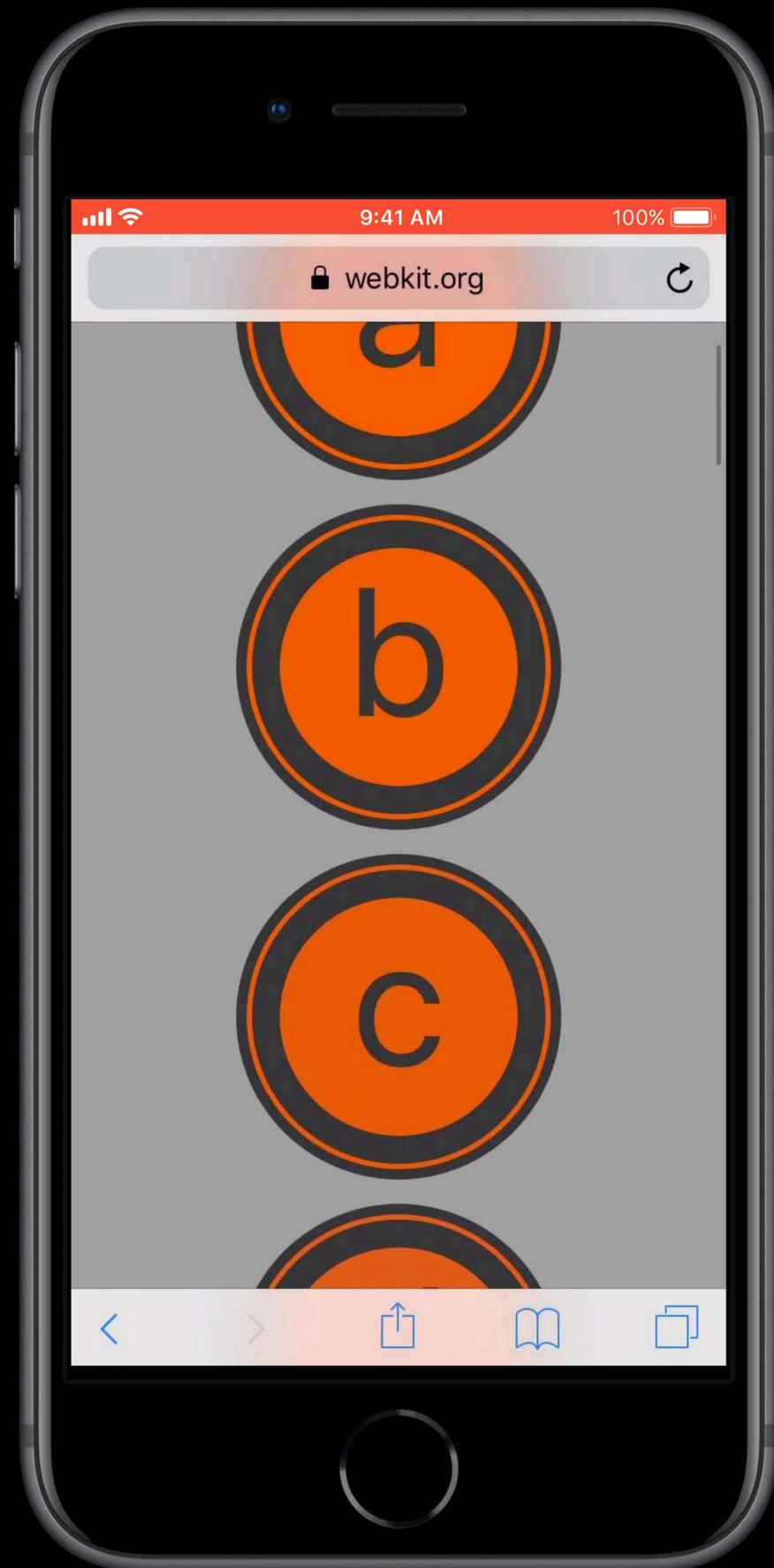
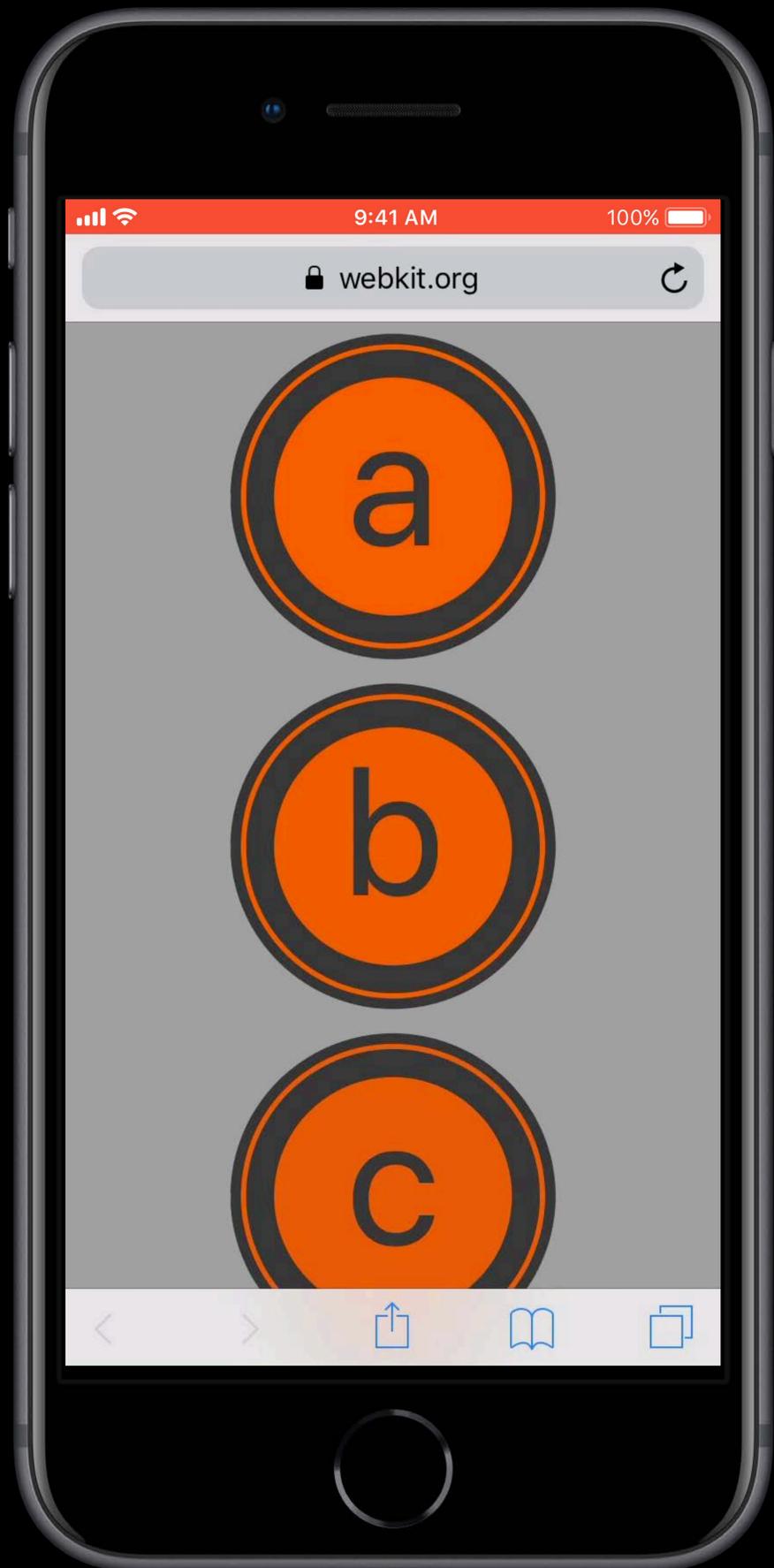
font-display Descriptor

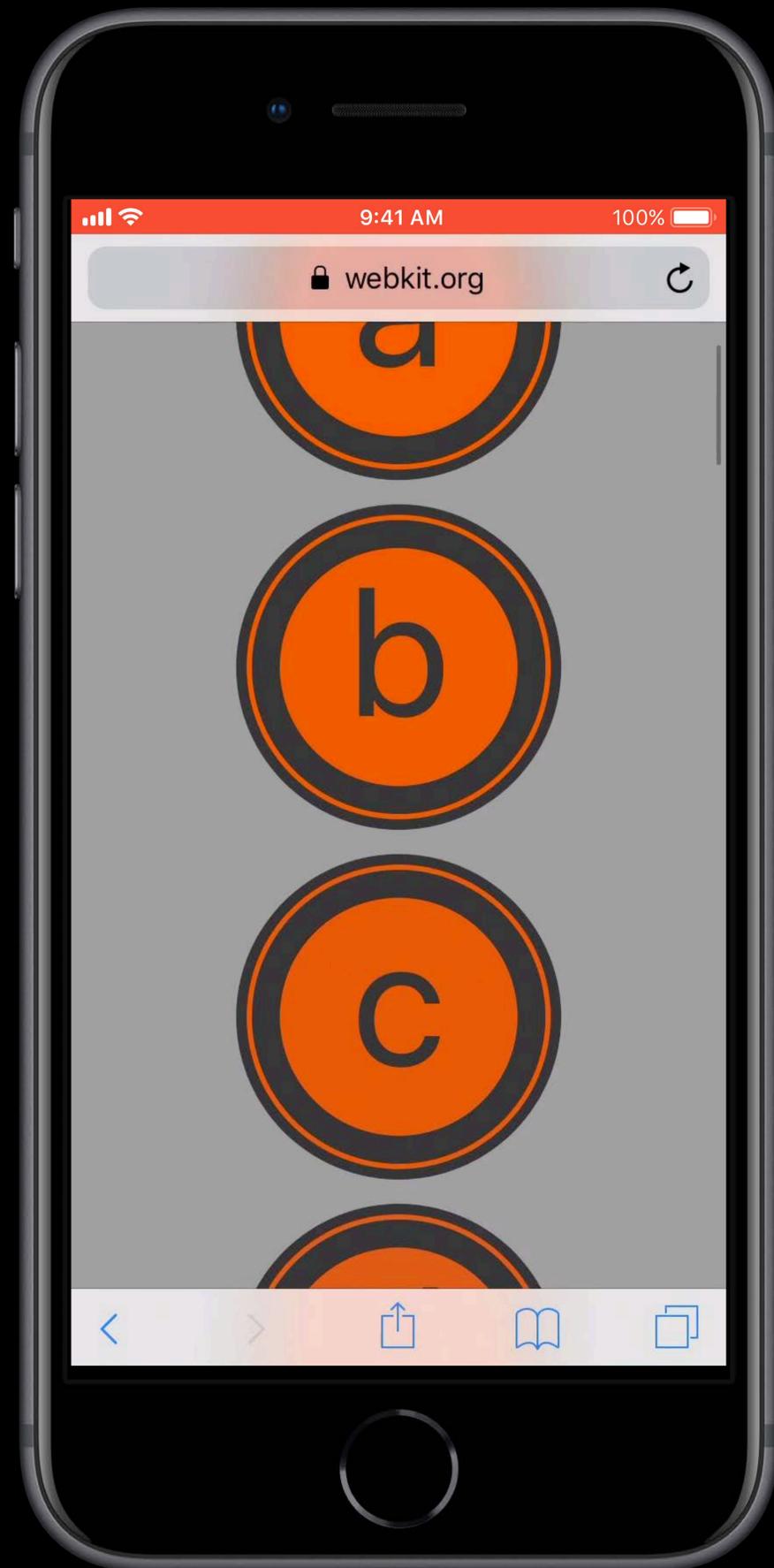
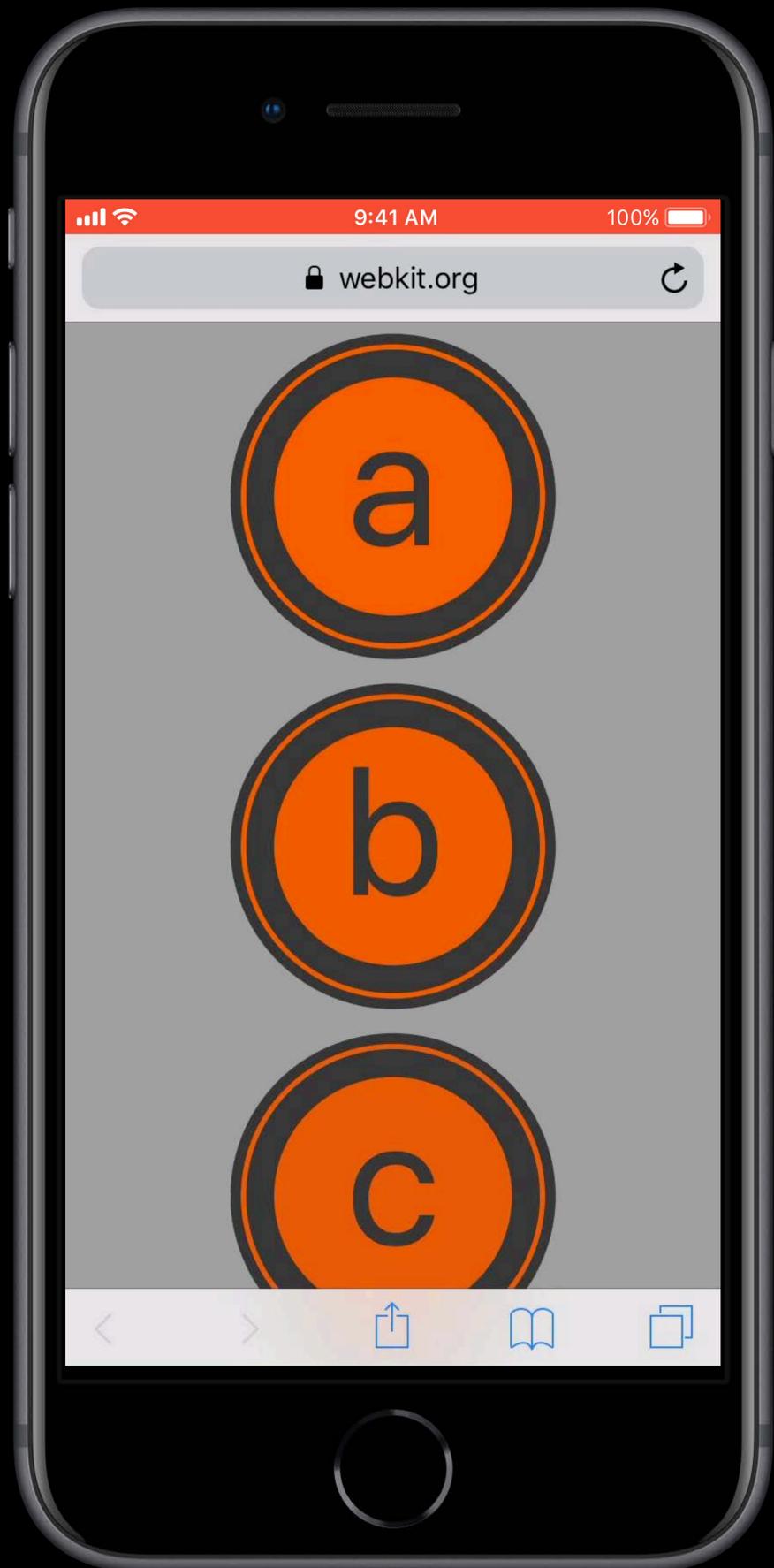
Videos in Image Elements

Passive event listeners

Async Image Decoding

Beacon API





Passive Event Listeners

NEW

Enabled on `document`, `window`, and `body` elements by default

Flag to always allow scrolling

No interruptions

```
document.addEventListener('touchstart', (e) => {  
  ...  
}, { passive: true })
```

Performance

Font collections

font-display descriptor

Videos in image elements

Passive event listeners

Async image decoding

Beacon API

Image Decoding

NEW

Synchronous

- Main thread is blocked
- User interactions prevented until all images are decoded

Asynchronous

- On separate thread
- Parallel decoding operations
- User interactions aren't blocked

Image Decoding

NEW

Synchronous

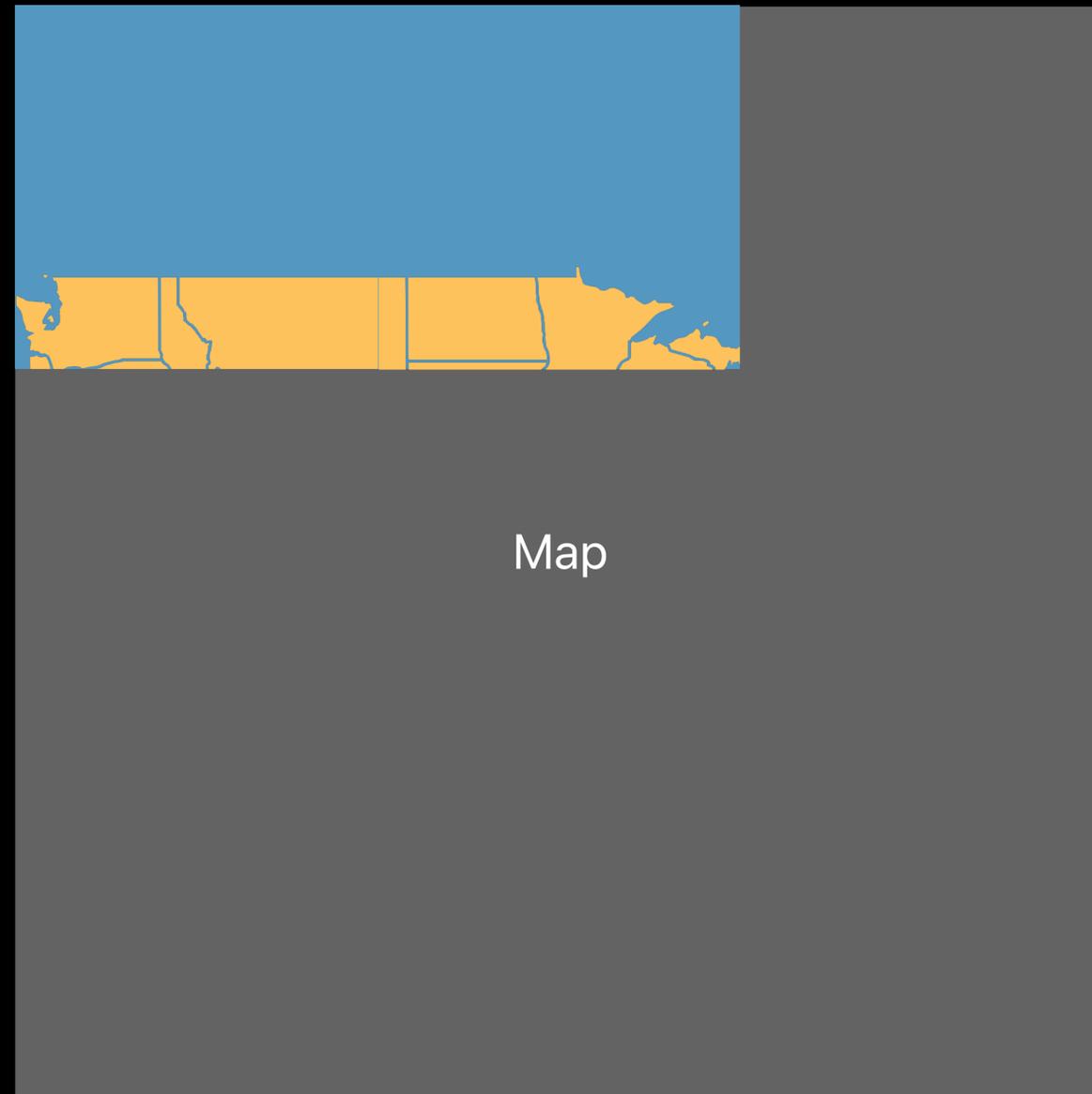
- Main thread is blocked
- User interactions prevented until all images are decoded

Asynchronous

- On separate thread
- Parallel decoding operations
- User interactions aren't blocked
- Default on first page load

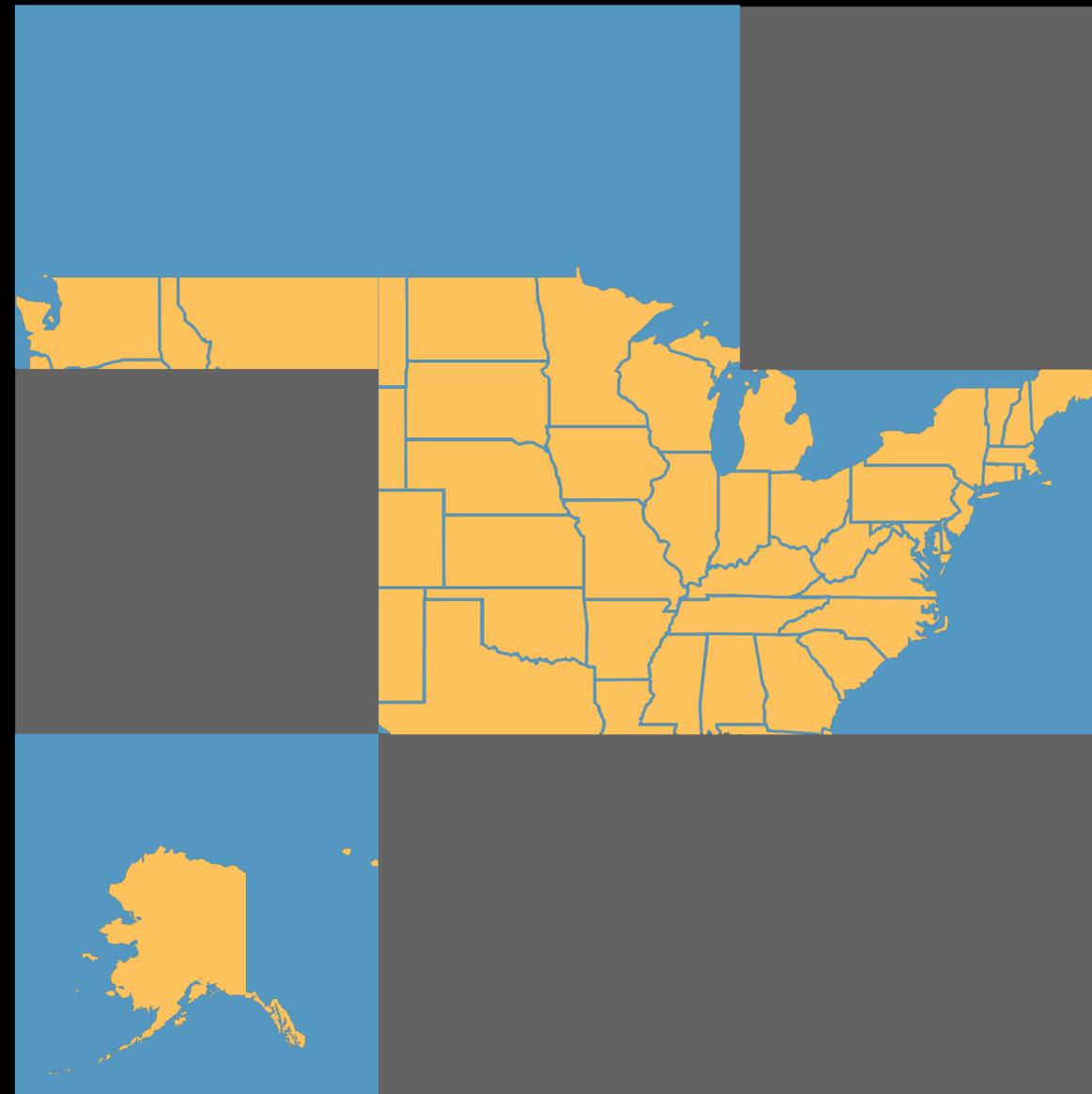
Async Image Decoding

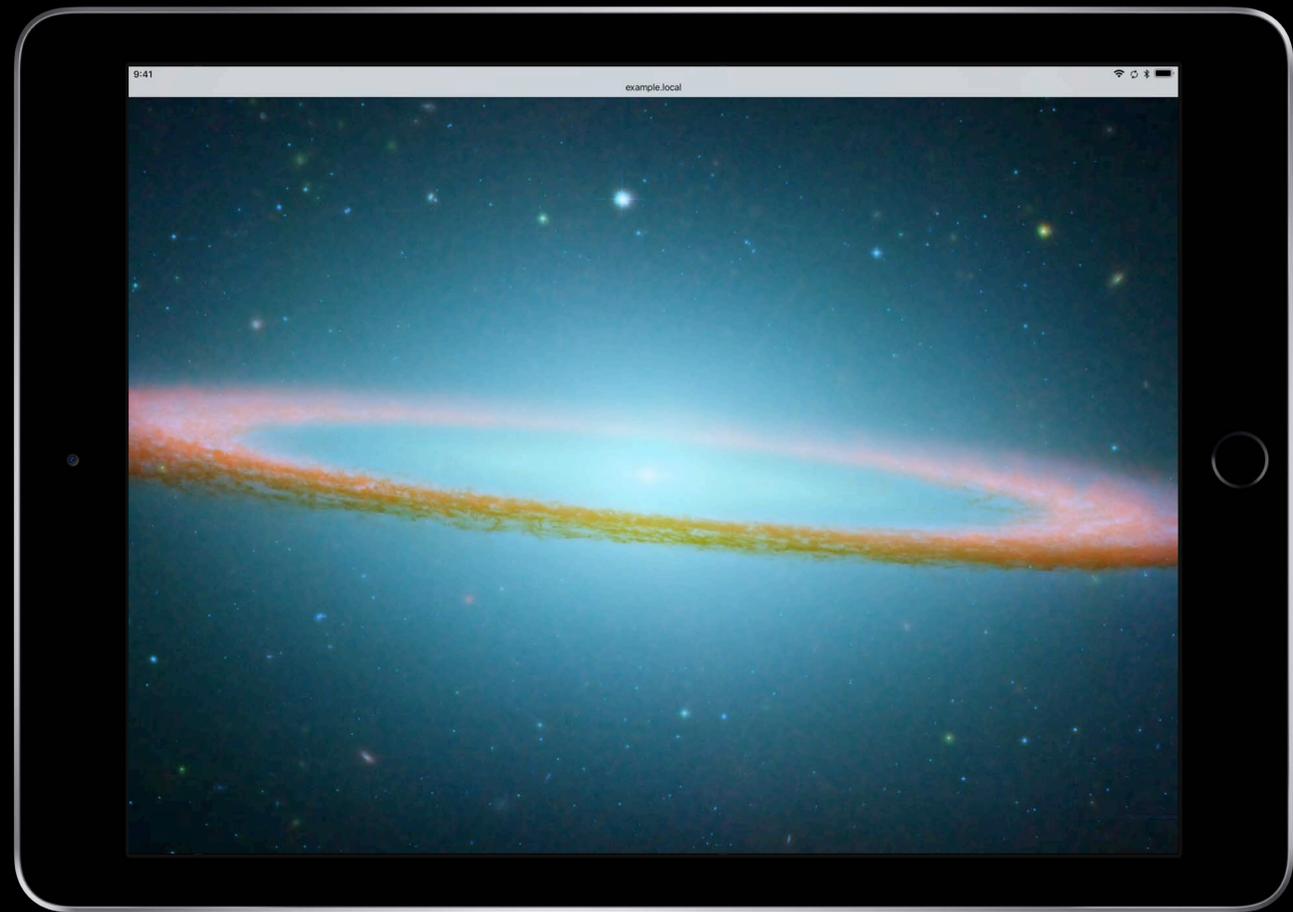
NEW

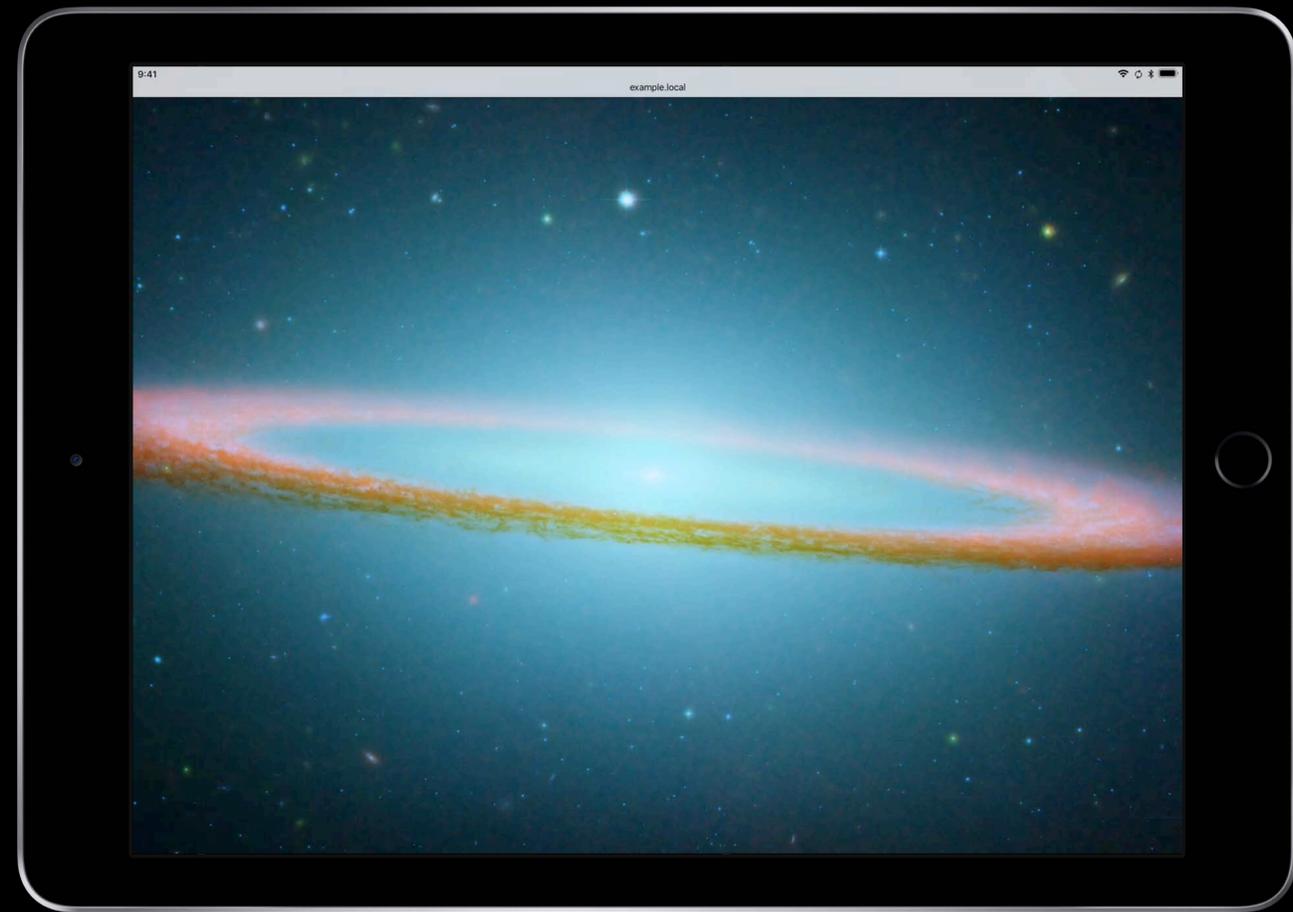


Async Image Decoding

NEW







Async Image Decoding

NEW

Markup: Add the `decoding` attribute to an element

JavaScript: Use `HTMLImageElement.decode()`

Performance

Font Collections

font-display Descriptor

Videos in Image Elements

Passive Event Listeners

Async Image Decoding

Beacon API

Beacon API

Asynchronous request on unload event

Sends data on unload without waiting for a response

Smooth browser navigation while waiting for response

Ensures delivery of data while Safari is running



Beacon API

Asynchronous request on unload event

Sends data on unload without waiting for a response

Smooth browser navigation while waiting for response

Ensures delivery of data while Safari is running



Demo

Jason Sandmeyer, Marketing Communications

HOW-TO'S • WOODWORKING

Building your first birdhouse.

As spring turns to summer, the fine feathered friends in your yard will appreciate a birdhouse. It's fun, easy, and a great way to dip your toe into the world of [woodworking](#)!



Prepare your materials

See the list of tools and materials below. Make sure you have everything you need! Measure according to the [blueprint](#). As long as the sides are even, feel free to make changes! Be creative!

Performance

Font collections

font-display descriptor

Videos in image elements

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Beacon API

Rich Experience

Rich Experience

Drag and drop

Payment Request API

Service Worker API

Fullscreen API on iPad

AR Quick Look + Safari

watchOS

Drag and Drop Improvements

Directory upload

Read and write support for MIME types (HTML, plaintext, and URLs)

iOS: `DataManager.getData` and `DataManager.setData`

iPad

9:41 AM

100%



192.168.0.6



My Online Grocery Store



Grocery Cart

My Online Grocery Store



Grocery Cart

Rich Experience

Drag and drop

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Service Worker API

Fullscreen API on iPad

AR Quick Look + Safari

watchOS

Payment Request API + Pay

NEW

Payment Request API + Pay

NEW

Support for Apple Pay using Payment Request API

Payment Request API + Pay

NEW

Support for Apple Pay using Payment Request API

Still need to support Apple Pay specifics

Payment Request API + Pay

NEW

Support for Apple Pay using Payment Request API

Still need to support Apple Pay specifics

Apple Pay JS features

- Granular error handling
- Cobranded card support
- Phonetic names

Rich Experience

Drag and drop

Payment Request API

Service Worker API

Fullscreen API on iPad

AR Quick Look + Safari

watchOS

Service Worker API

NEW

Great offline experience

- Cache interactions
- Intercept requests

Multiple tabs share one instance

Persistent store of resources



Rich Experience

Drag and drop

Payment Request API

Service Worker API

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AR Quick Look + Safari

watchOS

iPad

9:41 AM

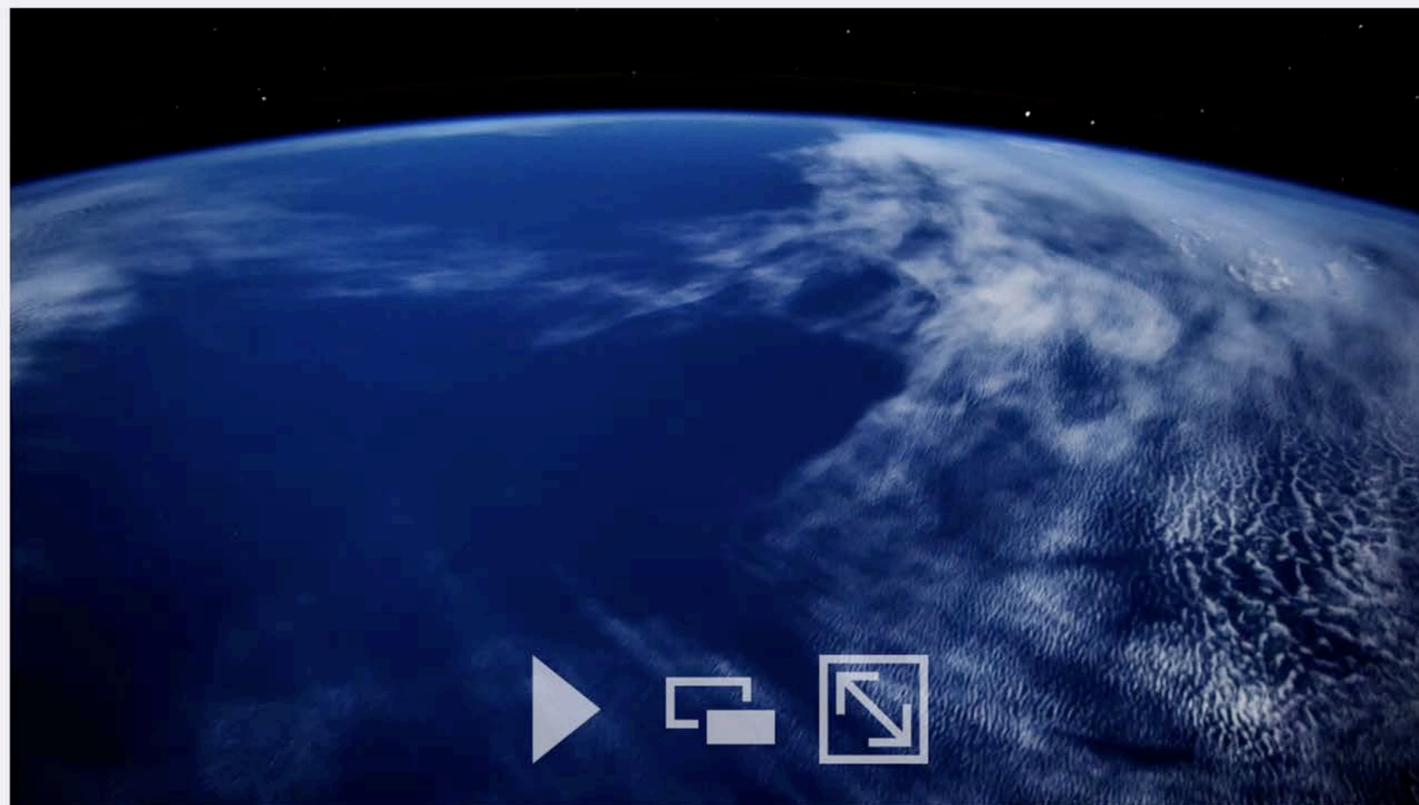
100%



example.local



MY EARTH BLOG



The Earth is our home. There's no place like home. Oh... what a world it is! Our Earth is a jewel shimmering in the sequined velvet black void. Play the video above in fullscreen mode and marvel

iPad

9:41 AM

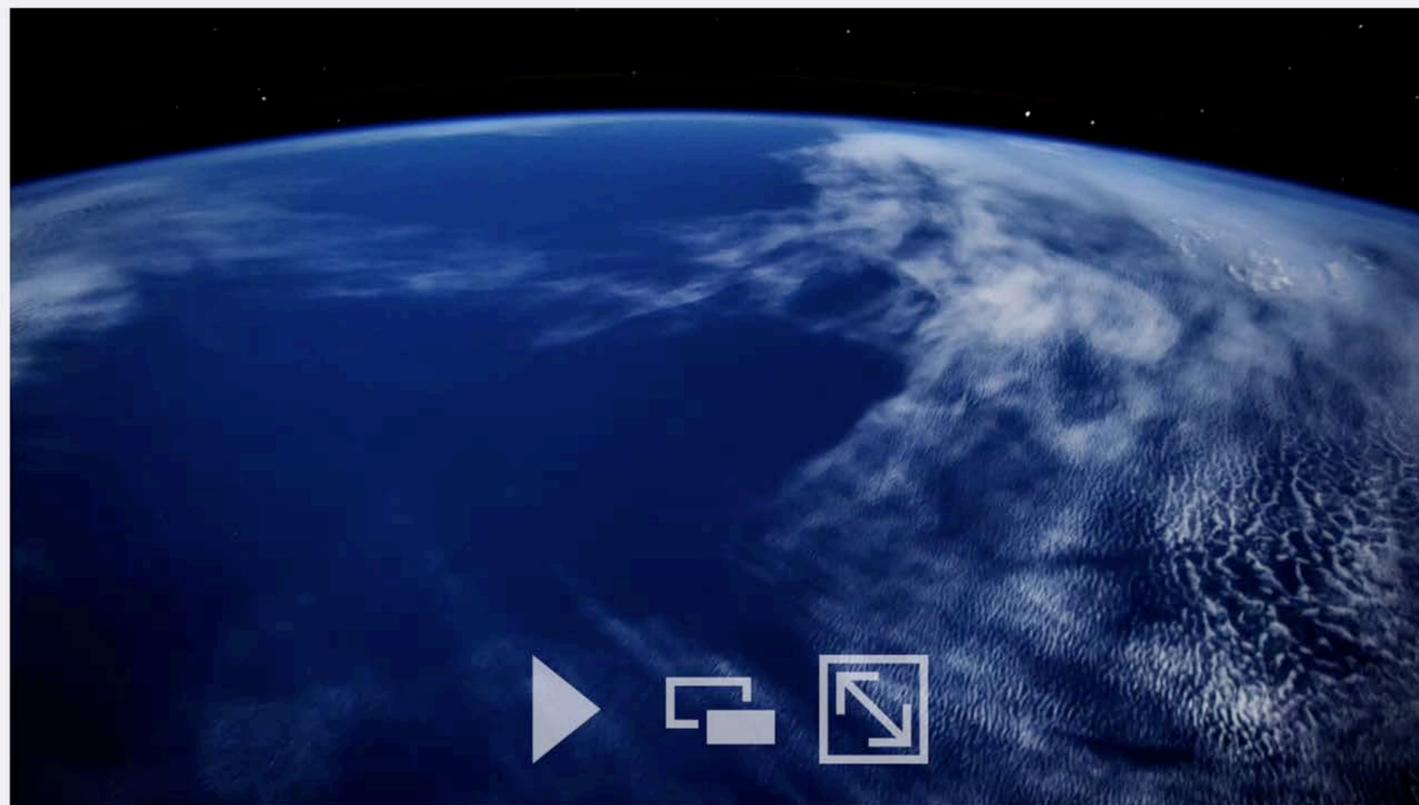
100%



example.local



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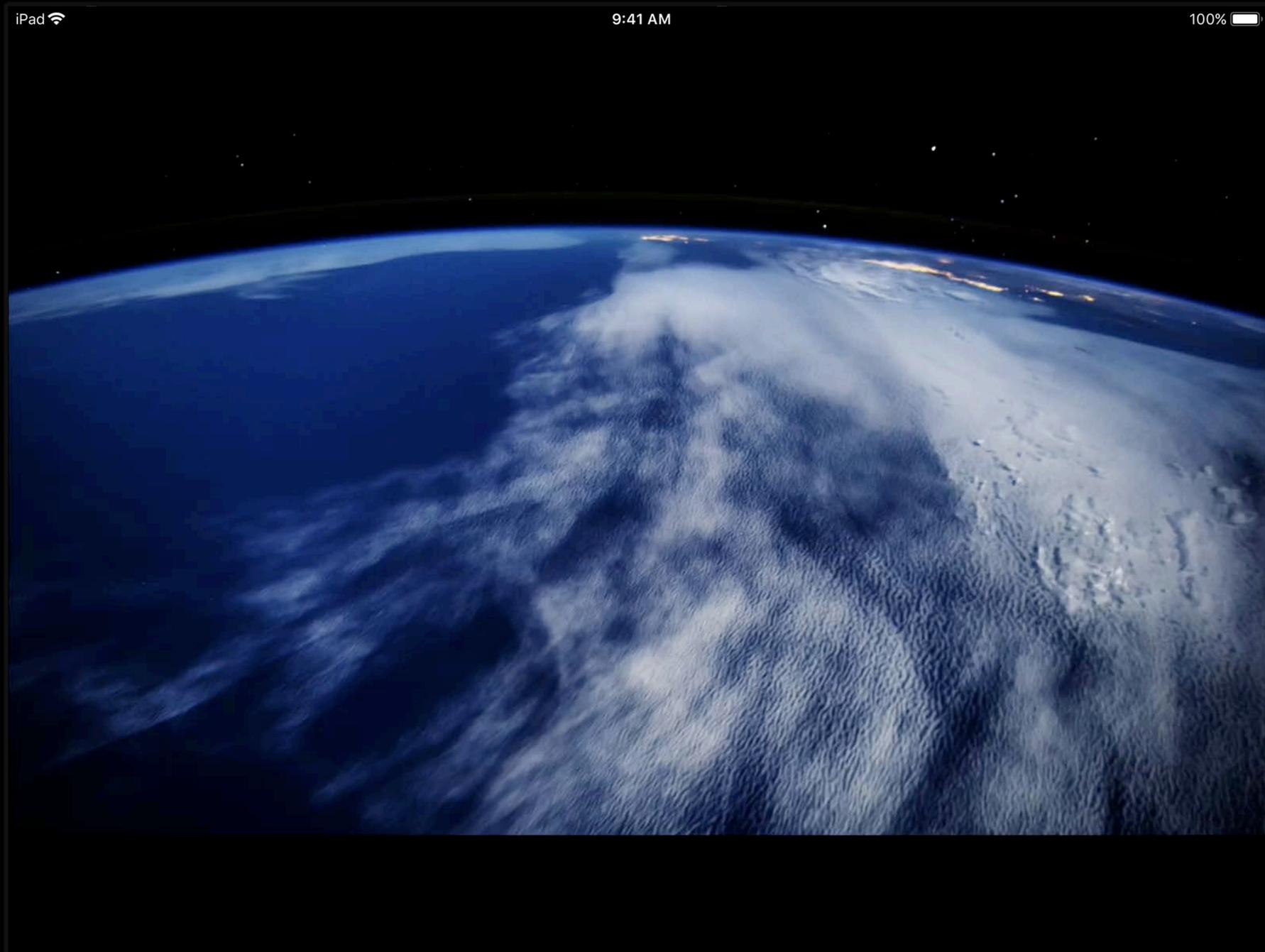
100%



iPad

9:41 AM

100%

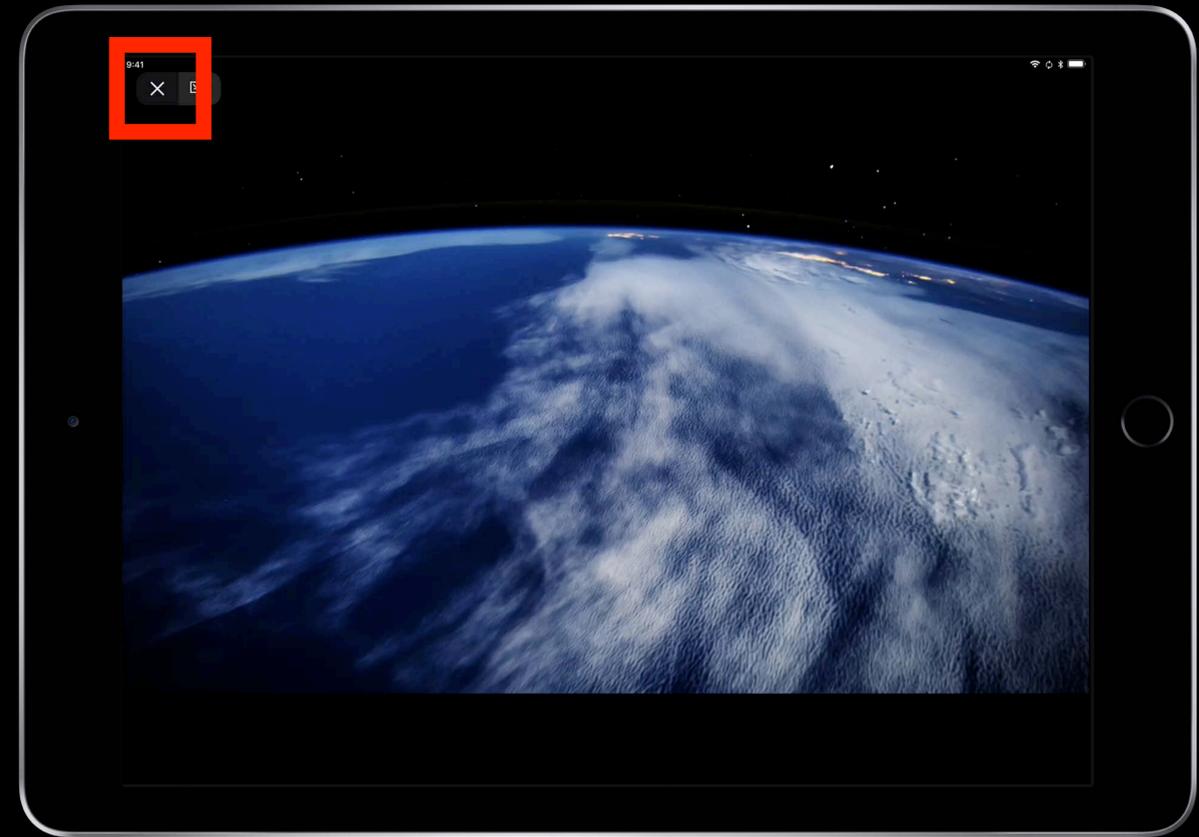


Fullscreen API for iPad

CSS Environment Variables

`fullscreen-inset-top`

`fullscreen-auto-hide-delay`

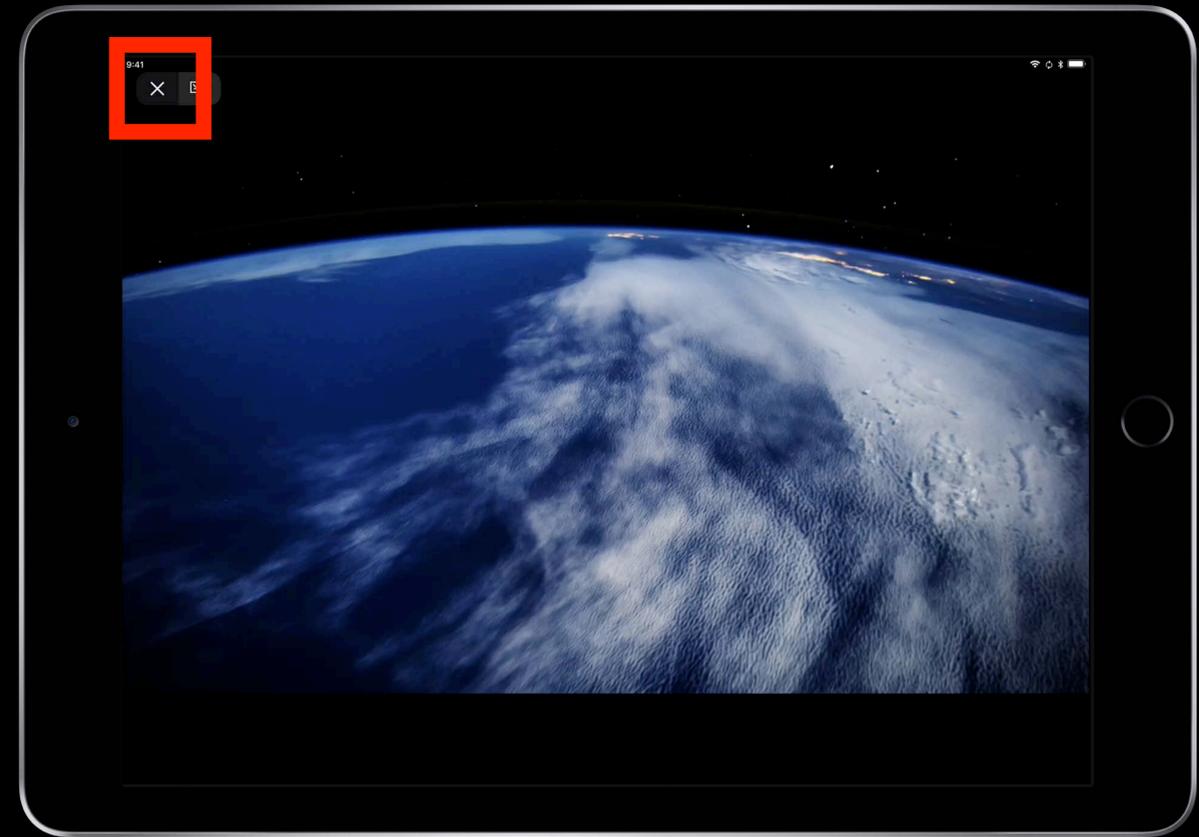


Fullscreen API for iPad

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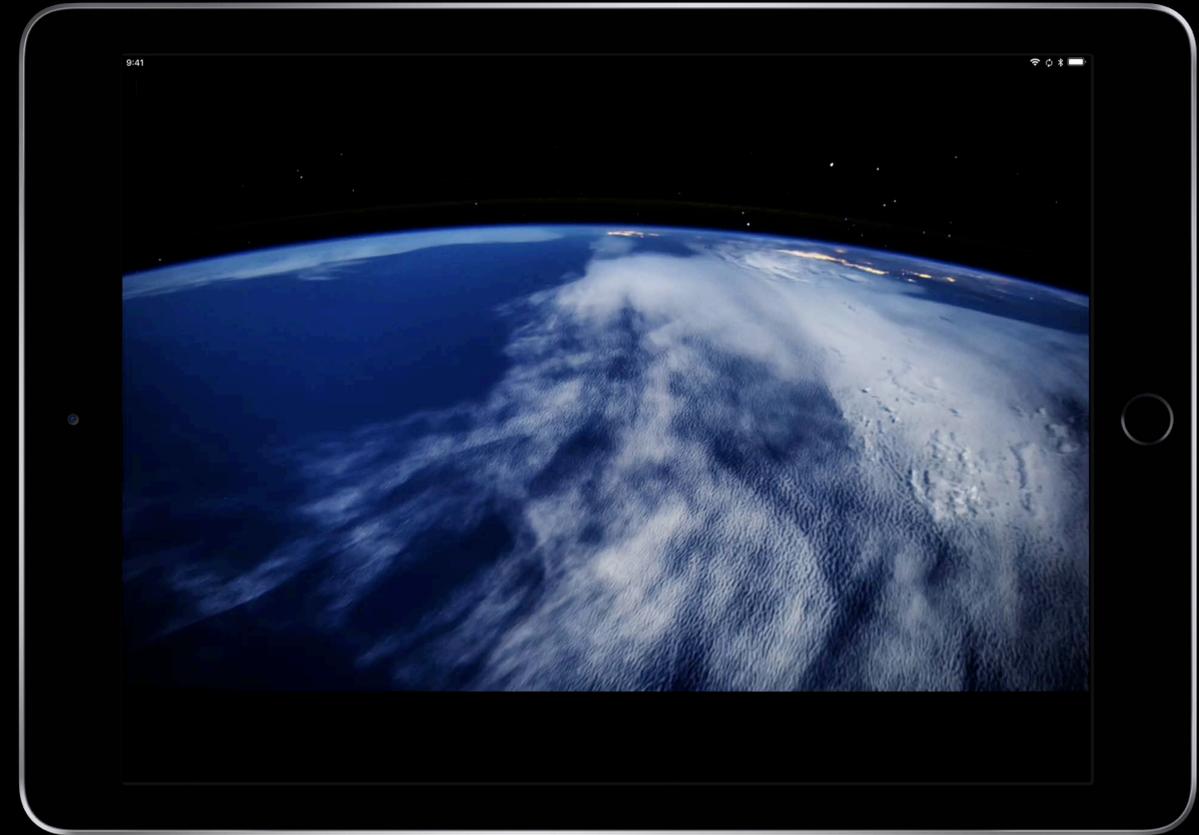


Fullscreen API for iPad

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Rich Experience

Drag and drop

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Fullscreen API on iPad

AR Quick Look + Safari

watchOS

AR Quick Look + Safari

```
<a rel="ar" href="myfile.usdz">  
    
</a>
```



AR Quick Look + Safari

```
<a rel="ar" href="myfile.usdz">  
    
</a>
```



Rich Experience

Drag and drop

Payment Request API

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watchOS



A fast, open source web browser engine.

WebKit is the [web browser engine](#) used by Safari, Mail, App Store, and many other apps on macOS, iOS, and Linux. [Get started contributing code](#), or [reporting bugs](#).

Web developers can [follow development](#), [check feature status](#), [download Safari Technology Preview](#) to try out the latest web technologies, and [report bugs](#).



Release Notes for Safari Technology Preview 56

Safari Technology Preview Release 56 is now available for download for macOS Sierra and macOS



Visualizing Layers in Web Inspector

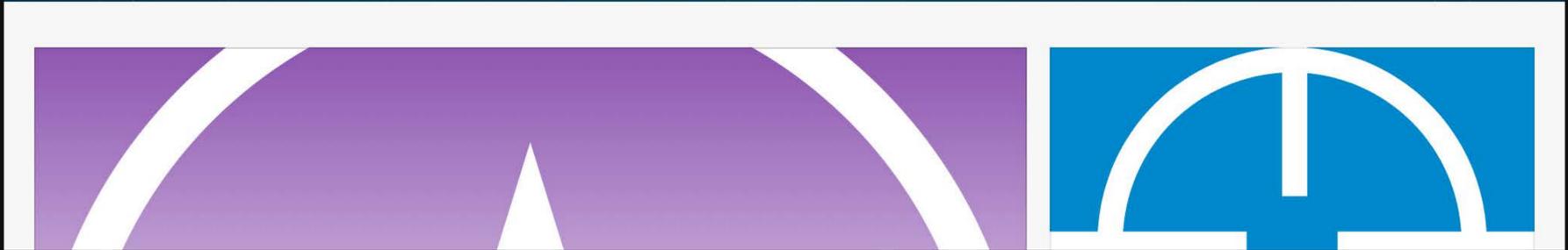
Recent releases of Safari Technology Preview contain a new experimental feature for Web



A fast, open source web browser engine.

WebKit is the [web browser engine](#) used by Safari, Mail, App Store, and many other apps on macOS, iOS, and Linux. [Get started contributing code](#), or [reporting bugs](#).

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9:41



webkit.org



WebKit



A fast, open source web browser engine.

WebKit is the [web browser engine](#) used by Safari, Mail, App Store, and many other apps on macOS, iOS, and Linux. [Get started contributing code](#), or [reporting bugs](#).

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Close

🔒 webkit.org

 **WebKit** ▾

A fast, open source
web browser engine.

WebKit is the [web browser engine](#) used by





Demo

Jason Sandmeyer, Marketing Communications

Rich Experience

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watchOS

More Information

<https://developer.apple.com/wwdc18/234>

 **WWDC18**