

Unsigned Bundles Sharing

For WPACK BoF, IETF 106
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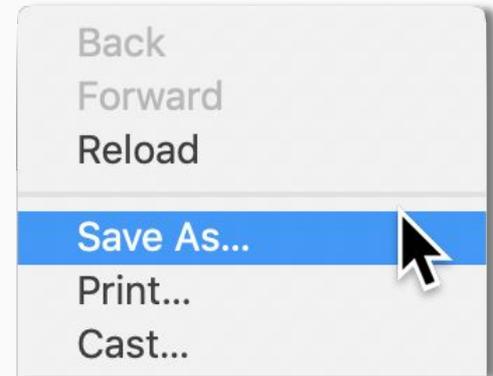


Unsigned Bundles

- Bundles without Signatures (literally)
 - They can represent a single or multiple pages that consist of various resources (HTML, JS, images, fonts, css, ...)
 - Users can browse around within the Bundle
- **While:** It is **not possible** to verify who published the content, or if the content is same as the original
 - Naturally: **no access to the origin** of the original content

Use Case: Save and Share

- Browsers can provide a “Save as Bundle” feature, so that users can casually download and share it with friends
 - Browser **automatically** generates a Bundle for the page, or
 - Sites can **craft** their own Bundle for better UX and provide <link> tag (so that Browser can discover)



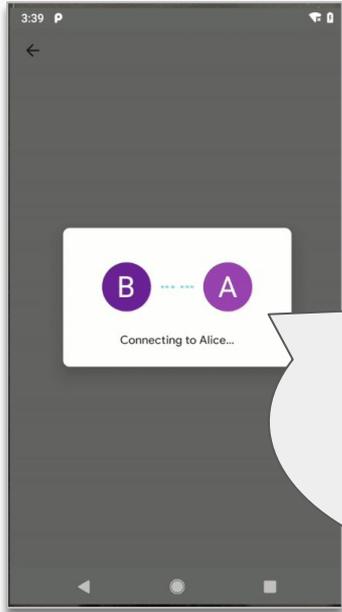
Hypothetical Scenario: Share and Play

I wanna play
it too...

This web
game is fun!

On an airplane, your friend has downloaded a Bundle of a nice web game. This totally **works offline**.

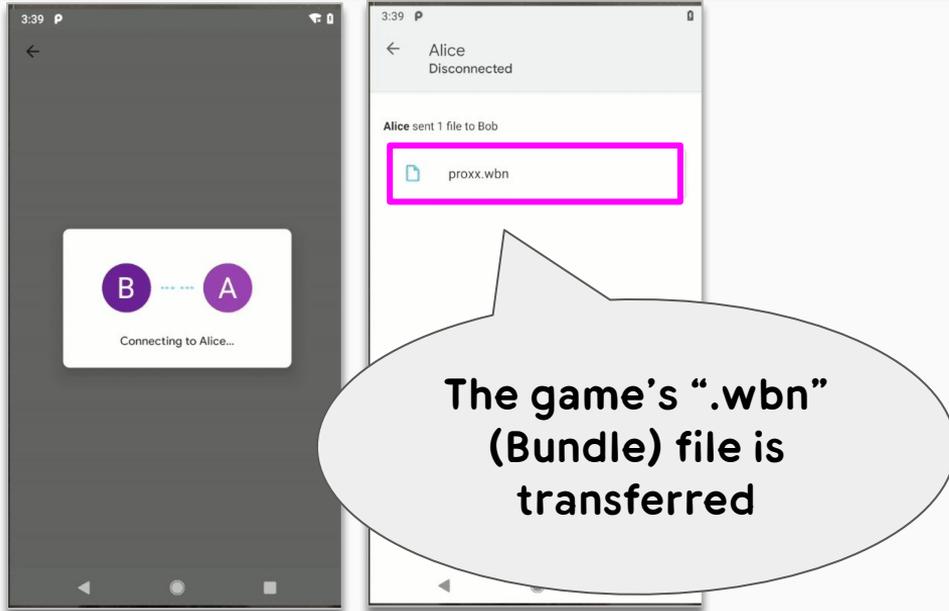
Hypothetical Scenario: Share and Play



Connecting using
p2p transfer app

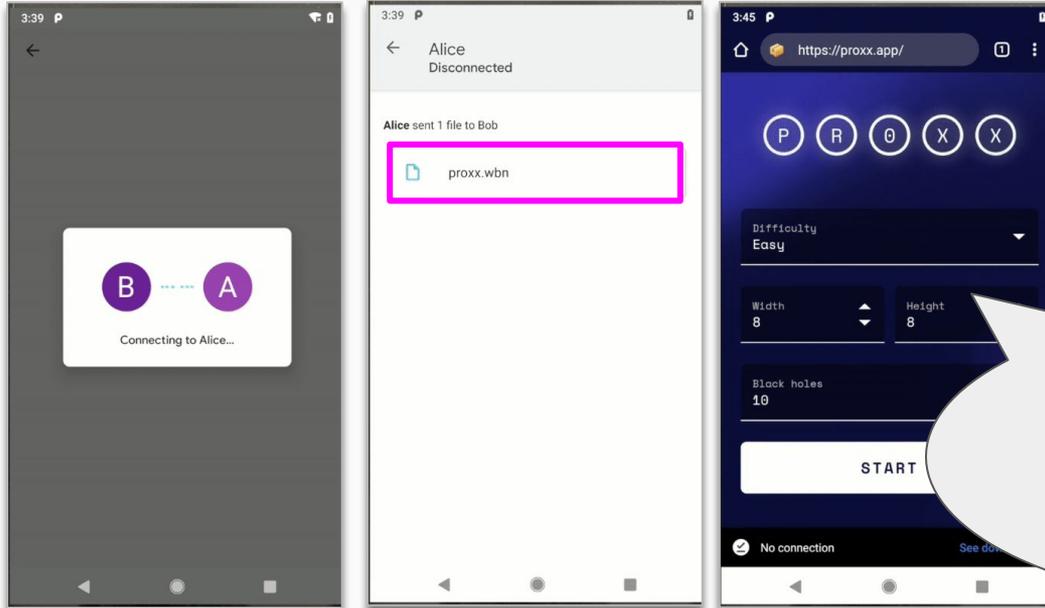
Not only works offline, but
it **can also be shared** with
you using a p2p file
transfer app

Hypothetical Scenario: Share and Play



Not only works offline, but it **can also be shared** with you using a p2p file transfer app

Hypothetical Scenario: Share and Play



Not only works offline, but
it **can also be shared** with
you using a p2p file

Opening the “.wbn”
file starts the game
page in the browser

Hypothetical Scenario: Share and Play

Note: This example scenario actually works with Chrome Canary 80+ (with a flag enabled)

Game Bundle file: bit.ly/proxx-wbn

Use Case: Casual Offline Browsing

- The downloaded Bundle can be also used by the user themselves for browsing the page later (**even offline**)
 - Regardless of connectivity, it **loads very fast** (as it loads from the local disk)

Is Offline still the issue today? -- Yes.

- Offline is just a variation of slow/flaky network
- **Even** in countries where fast network is common
 - WiFi (LiFi) and mobile coverage still sometimes flaky / spotty
 - Mobile carrier sometimes puts throttling when user's data reaches a limit (in Japan)

Is Offline still the issue today? -- Yes.

- **Latest (2019 Oct)** Internet Affordability report says:

“Billions of people around the world are
kept offline by the cost to connect.”

Source: <https://a4ai.org/affordability-report/report/2019/>

Creating Unsigned Bundles

Open source tools available on github

- **Go** command-line tools (reference implementation)
- **Node** module (“npm install wbn”)

Developers or users can package up their sites and provide a “**download Bundle**” link

Summary

- Unsigned Bundle can be used for casual save-and-share
- Bundled pages “just works” even while offline
- Developers can create Bundles for their sites

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Use Case: Bundled Subresource Loading

- Loading large number of subresources is usually costly, even with HTTP2 (due to cascading + per-resource cost)



Loading perf for “three.js” (334 modules) on fast 3G, H2
(Only for reference; preliminary data)

Note: perf-wise JS Bundlers can achieve the similar numbers.