WebAssembly

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Who am I?

- Just started in the blended program
- Software Engineering undergrad
- 2+ years experience in web development

THE parable GROUP

Small, brand new codebase that blurred the lines between client and server side web development

IFIXIT

Large legacy codebase for a heavy server side computation reliant site

01

02

03

04

What is WebAssembly (wasm)?

There is a need for client side computation

JavaScript is “finicky fast”

WebAssembly fills the gap

Example: AutoCAD

Is that all WebAssembly is?

No!

"Define a portable, size- and load-time-efficient binary format to serve as a compilation target which can be compiled to execute at native speed by taking advantage of common hardware capabilities available on a wide range of platforms, including mobile and IoT."

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What ‘actually’ is wasm?

```rust
use wasm_bindgen::prelude::*;

#[wasm_bindgen]
extern {
    // This is a js defined function
    pub fn alert(s: &str);
}

#[wasm_bindgen]
pub fn greet(name: &str) {
    alert(&format!("Hello, {}!", name));
}
```

```html
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <title>hello-wasm example</title>
  </head>
  <body>
    <script type="module">
      import init, {greet} from
                  "./pkg/hello_wasm.js";
      init()
        .then(() => {
          greet("WebAssembly")
        });
    </script>
  </body>
</html>
```

source

01

02

03

04

01
02
03
04

WebAssembly has the opportunity to not only revolutionize web development, but it may just be the future of computing at large.

EX: Shopify

Shopify & wasm outside the browser

Secure: Runs in a sandboxed stack-based environment

Fast: Near native performance

Flexible: Devs can utilize any language they are experienced in

Community: They like the spirit behind it

source

Where are the other use cases?

This is what I am interested in

Why are there such ‘few’ uses of wasm in practice?

Exploring the low adoption:

- ➔ What is keeping people from using wasm?
- ➔ What (if any) tooling do developers need?
- ➔ What shortcomings need to be addressed?
- ➔ Is there a solution or is it just a waiting game?

This is where I am at now

I believe in the goals and team behind wasm but am wondering why other developers have not utilized this technology yet

I want to explore the current landscape and try to figure out what is missing that I could contribute

Wasm is in very early stages (taking mvp approach)

➔ Documentation is either spec, source code or medium

Thesis approach ideas

Leaves me with possibilities of:

- ➔ Survey of landscape
  - ◆ Weaknesses
  - ◆ Promises
  - ◆ Current standing
- ➔ Development of ‘tool’
  - ◆ Very open ended
- ➔ Human experimentation

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03

04

Thank You