This presentation is in english

It’s neither web...

...nor assembly...

...it’s WebAssembly!

What is WebAssembly?

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WEBASSEMBLY

Who am I?

Software Developer at Anixe (working with Rust)

previously at PatchKit / UpSoft (C++, C#, a bit of Rust)

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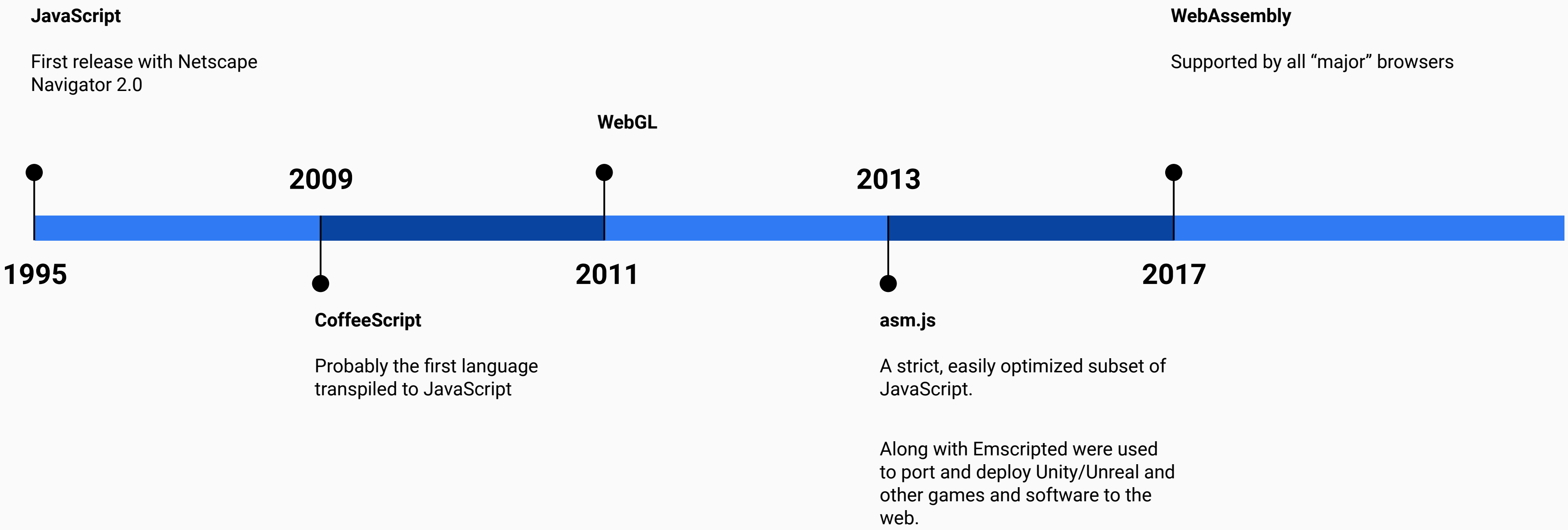
What is this presentation about?

1. Where did WASM come from?
2. What is WASM?
3. What can we use it for?
4. How is it connected to Rust?

Where did it come from?

A brief history of the interactive web



1995

JavaScript

First release with Netscape Navigator 2.0

2009

CoffeeScript

Probably the first language transpiled to JavaScript

2011

WebGL

2013

asm.js

A strict, easily optimized subset of JavaScript.

Along with Emscripted were used to port and deploy Unity/Unreal and other games and software to the web.

2017

WebAssembly

Supported by all “major” browsers

It is the current year - 2019

What WebAssembly **is not**

1. web
2. assembly
3. programming language
4. engine
5. virtual machine

What WebAssembly is

“is a binary instruction format for a stack-based virtual machine”

~ https://webassembly.org/

What does it look like?

C

```
int factorial(int n) {
  if (n == 0)
    return 1;
  else
    return n * factorial(n-1);
}
```

WAT

```
(module
  (import "math" "exp" (func $exp (param f64) (result f64)))
  (func (export "doubleExp") (param $0 f64) (result f64)
    (f64.mul
      (call $exp
        (get_local $0)
      )
      (f64.const 2)
    )
  )
)
```

Bytecode

```
20 00
50
04 7E
42 01
05
20 00
20 00
42 01
7D
10 00
7E
0B
```

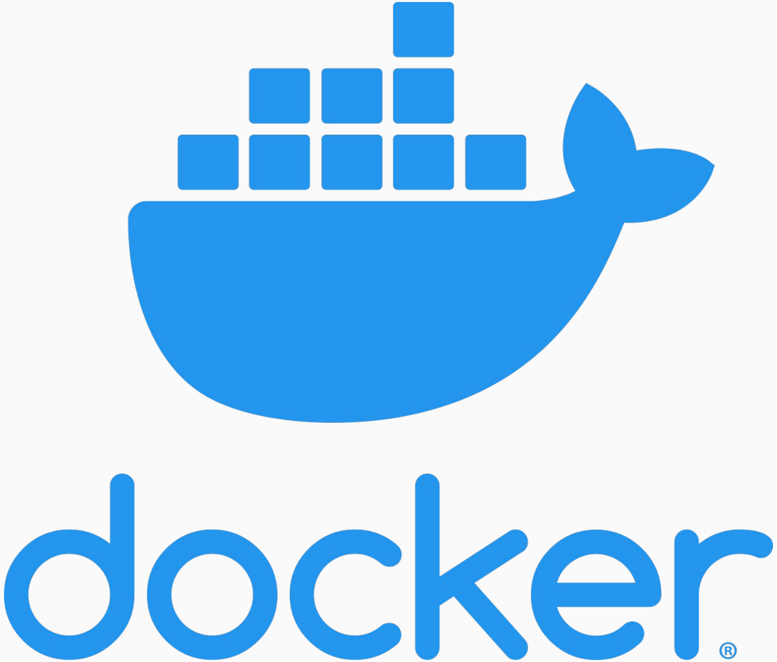
WASM is supposed to be...

1. Fast (-er than JS)
2. Safe (-er than C++/Rust)
3. Portable (*-er* than anything else)

It has escaped outside the browser!

WA
>SI

vs



But this is a Rust Meetup...

Same parent!

Rust makes it easy to work with WASM

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

// Import the `window.alert` function from the Web.
#[wasm_bindgen]
extern "C" {
    fn alert(s: &str);
}

// Export a `greet` function from Rust to JavaScript, that alerts a
// hello message.
#[wasm_bindgen]
pub fn greet(name: &str) {
    alert(&format!("Hello, {}!", name));
}
```

~fin~

A small announcement!