

Web Assembly

Sam Sartor

February 7, 2018

Mines Linux Users Group



Client Code

Introduction



JavaScript

On a dark and stormy night ...

The year is 1995. Netscape Communications Corporation is dying. In a frantic attempt to one-up Microsoft, the company decides to embed a scripting language into the Netscape browser.

They give **Brendan Eich** 10 days to make a prototype.

Eich dreams of Scheme. He wants his new language to be elegant, fast, and pure. **But it is too late.** The lawyers at Netscape have made a deal with Sun Microsystems.

It will be known as **JavaScript**.

The Result





Emscripten

We need C

- People start writing games in JavaScript
- Why can't we use the Unity game engine?
- It's written in C
- Browsers don't run C
- Browsers only run JavaScript
- What if we compiled C to JavaScript?



Introducing...



emscripten

It compiles things to JavaScript!

Why compile to JavaScript?

JavaScript was designed for...

- ✓ Crazy people
- Humans
- ✗ Computers

Why compile low-level → high-level?

Why don't we have *machine code for the web*?

```
80483b4: 55      push
80483b5: 89 e5    mov
80483b7: 83 e4    and
80483ba: 83 ec    sub
80483bd: c7 44    movl
80483c4: 00
80483c5: eb 11    jmp
80483c7: c7 04    movl
80483ce: e8 1d    call
80483d3: 83 44    addl
80483d8: 83 7c    cmpl
80483dd: 7e e8    jle
80483df: b8 00    mov
80483e4: c9      leave
80483e5: c3      ret
80483e6: 90      nop
80483e7: 90      nop
80483e8: 90      nop
80483e9: 90      nop
80483ea: 90      nop
```



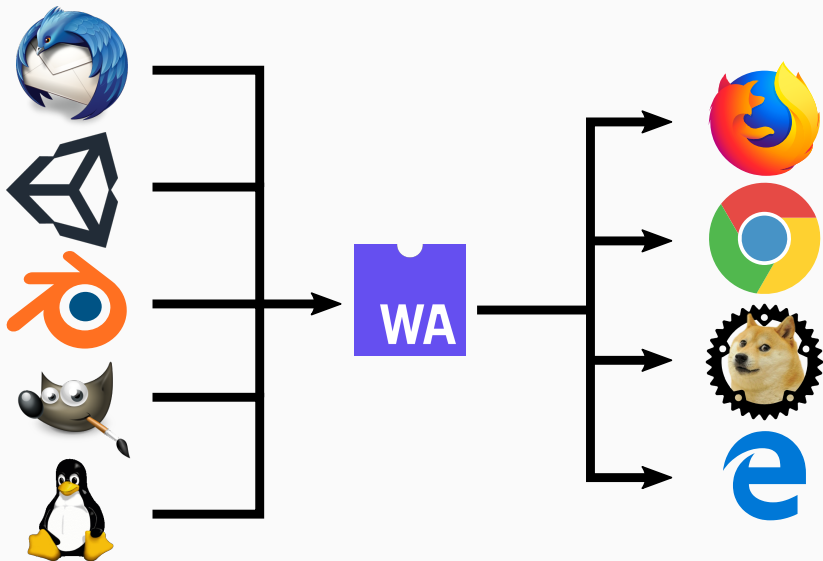
Web Assembly

Which Direction?



emscripten can compile your code to *Web Assembly*!

Software in the Browser





C/C++



Rust

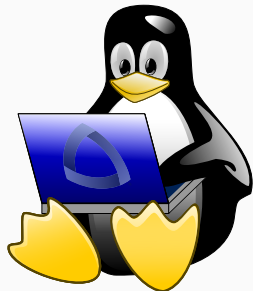


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Colorado School of Mines
Linux Users Group