The World of WASI

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Fastly
https://hachyderm.io/@sunfish

What is WASI?

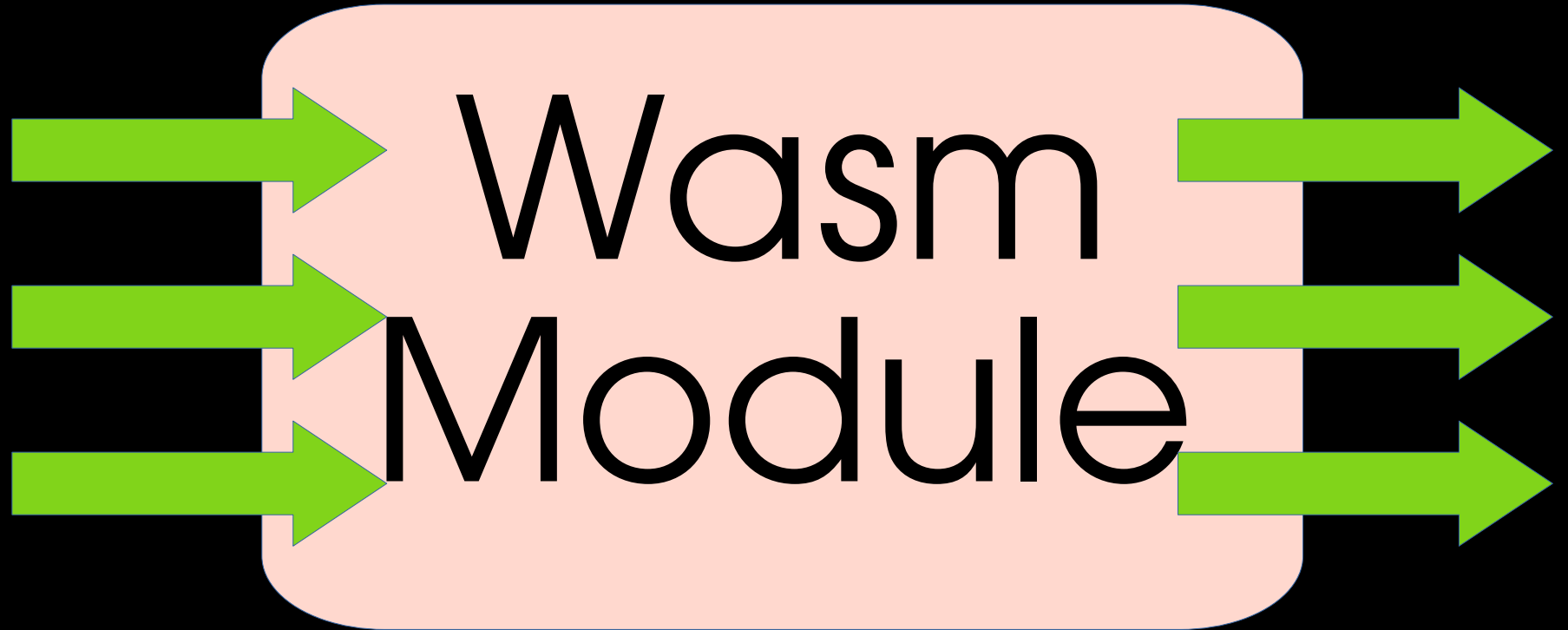# A Wasm Native API ecosystem

API Ecosystem

- A standards forum for APIs
  - The WASI Subgroup (SG)
    - In the Wasm Community Group (CG)
      - In the W3C

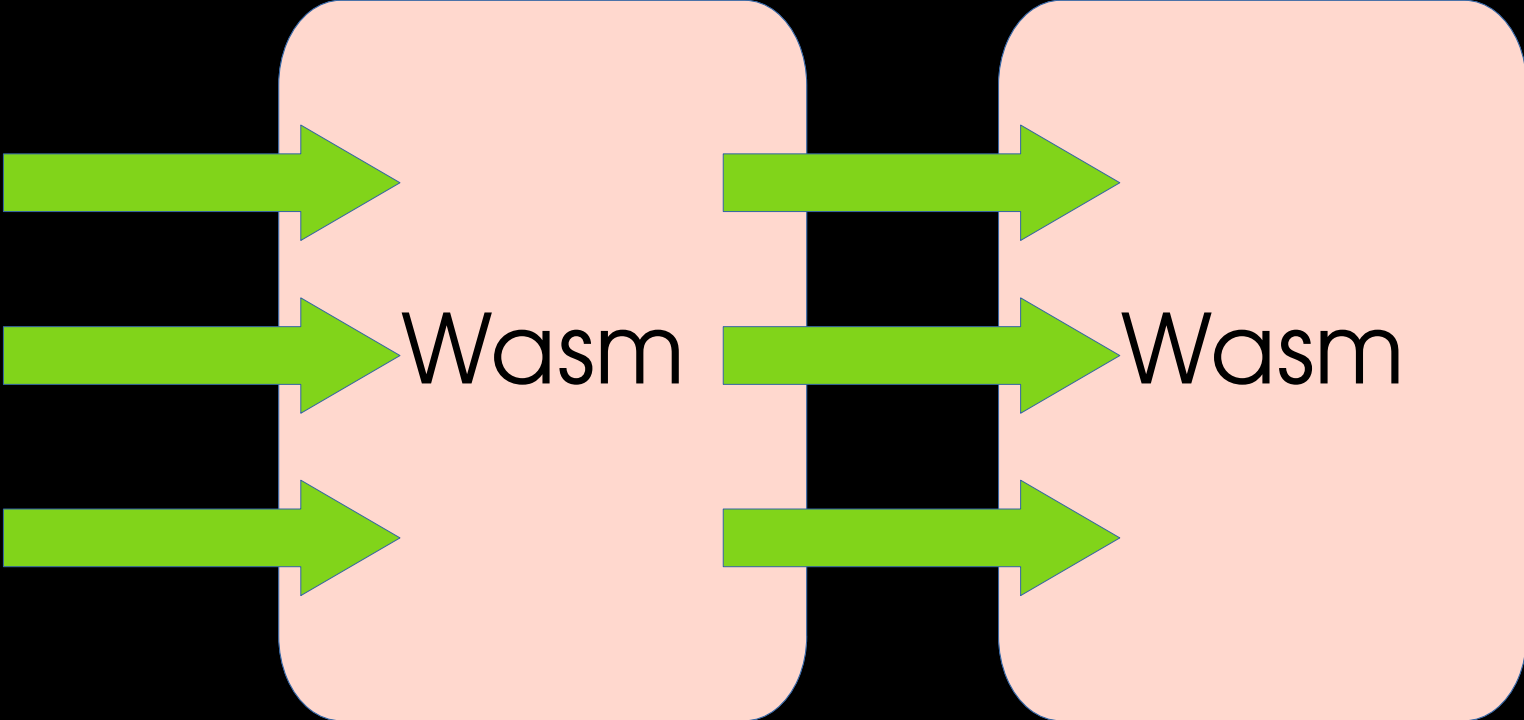- Vocabulary, conventions, and tools for APIs that aren't standards too
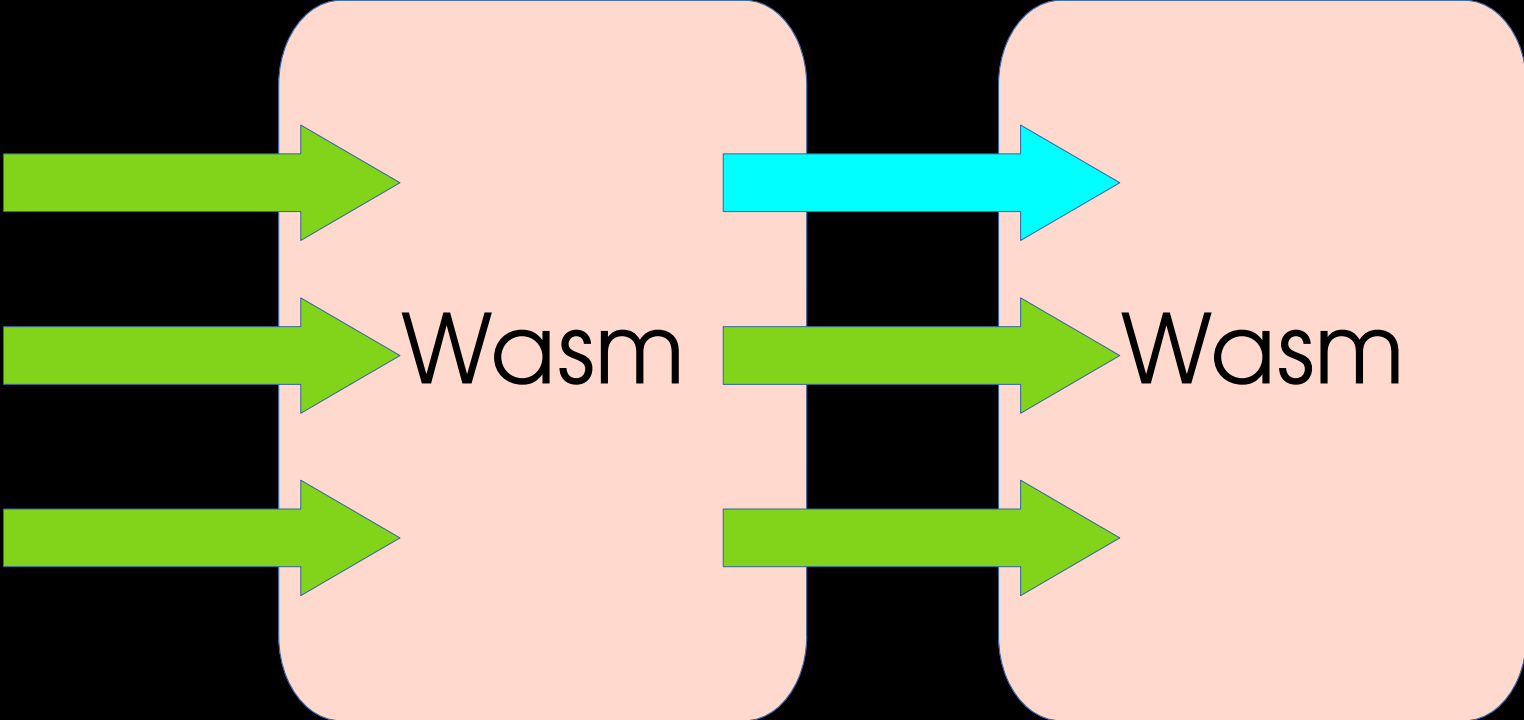
What do we want of our ecosystem?
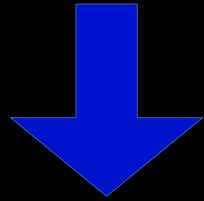
The Case of the Missing Wasm

ABIs

ABIs

- Error-prone
- No isolation
- Linking is hard
- Evolution is hard
- Even just adding new functions is hard
- Virtualization is hard
- Wasm GC is coming
- Memory64 is coming

Missing:
Linkable Wasm

Memory Views?

Protocols?

Everything Is a File?

The Component
Model

A tale of two design approaches

ABIs

- Pointers, layouts, lifetimes

- Baked into engines and toolchains

- Adding functions is hard

- Tunneled protocols look attractive

IDLs

- Build bindings and protocol generators

- Ergonomic API design

- Support more source languages, virtualization, composition, safety

- Adding functions is easy

Do engines have to implement *all* WASI interfaces?

⬇

Worlds

⬆

Do developers have to know which engines support which interfaces?

WASI Roadmap

- Preview1
  - POSIX-like, CloudABI-like
  - Directory capabilities, preopens
  - Adding documentation, tests, supporting existing users
- Preview2
  - Rebase on the Wit IDL and the Component Model
  - Add sockets
- Preview3
  - Integrated async
- WASI 1.0 and beyond

Demo time!

https://github.com/sunfishcode/world-of-wasi-demo

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