WebAssembly

The next frontier in cloud native?

Divya_Mohan02

👋 there!

- Technical Writer, SUSE
- SIG Docs co-chair for Kubernetes & LitmusChaos
- CNCF ambassador
- AWS Community Builder
- Author of the friday four newsletter

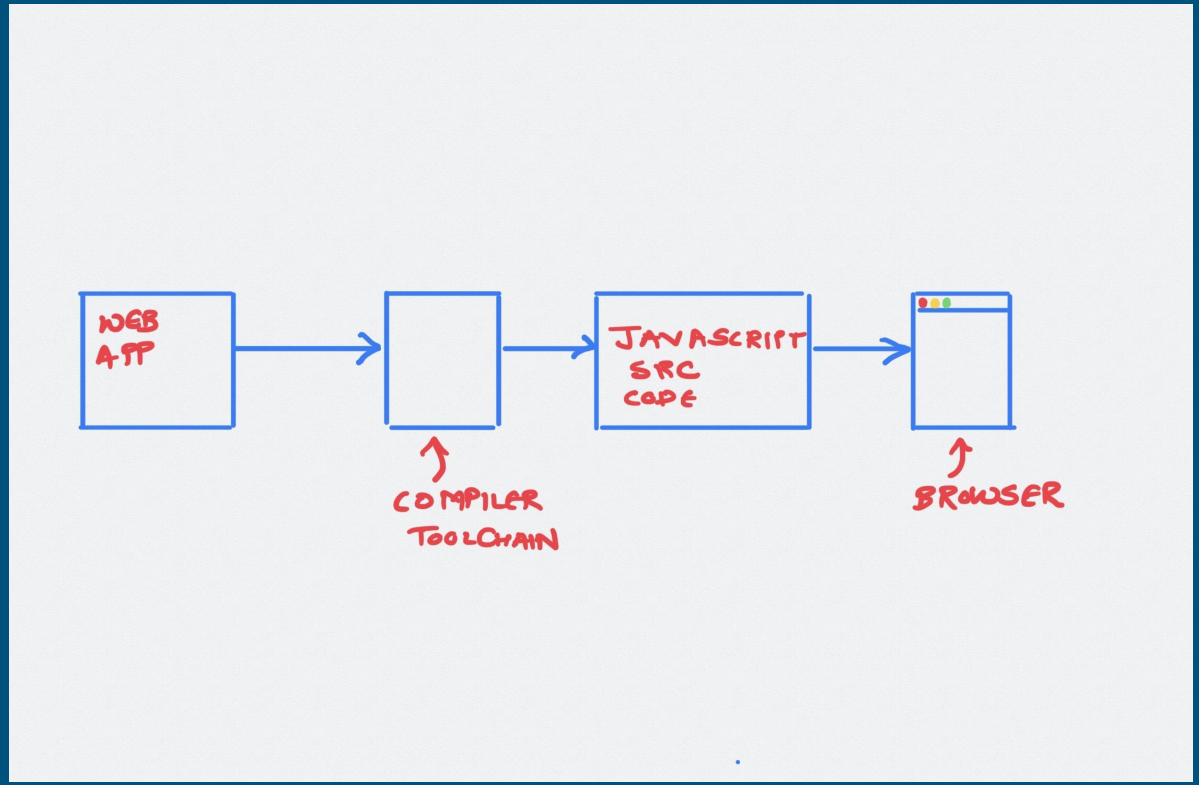
Divya_Mohan02

What on earth is WebAssembly?

Divya_Mohan02

Before WebAssembly

Divya_Mohan02



Divya_Mohan02

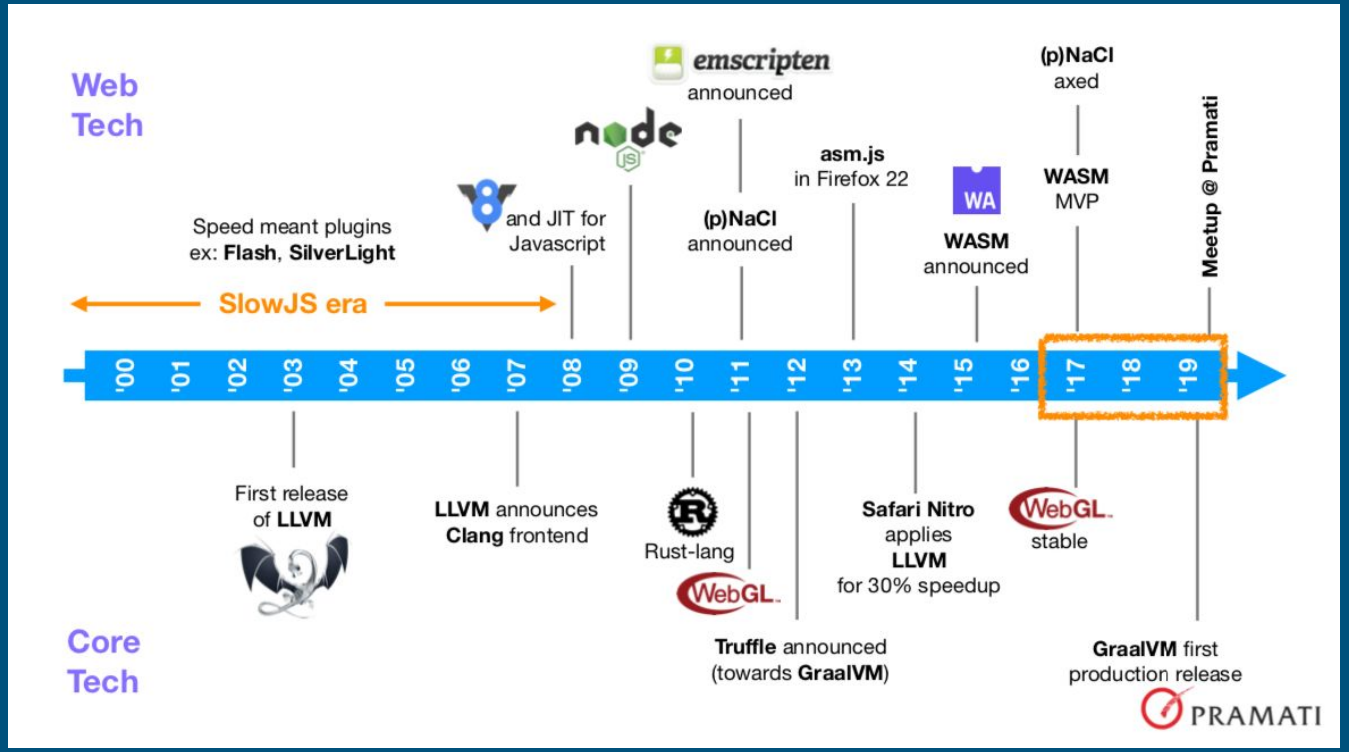
Cons?

- Gatekeeping
  - All web apps necessarily need to compile to JavaScript
- JavaScript was not “DESIGNED” to be a compilation target
  - Performance inconsistencies’
- Weakly typed
- Eventually faster

Divya_Mohan02

A brief history of WebAssembly

Divya_Mohan02



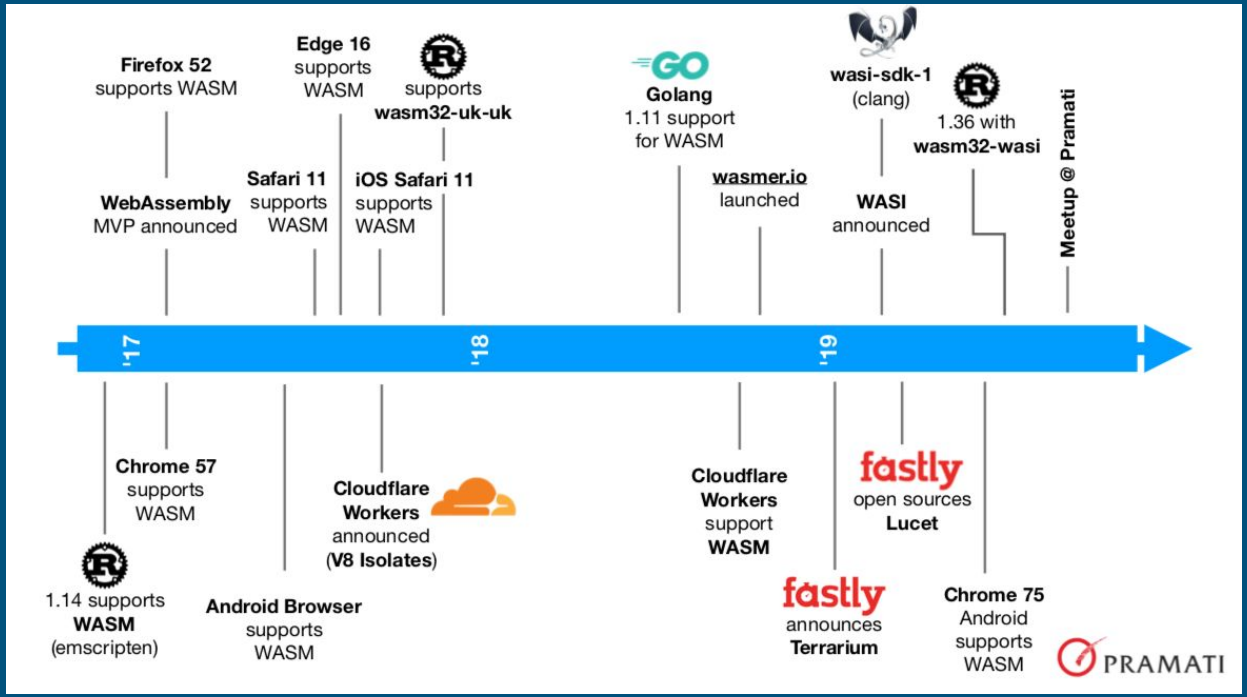
Source: http://sriku.org/blog/2019/08/24/talk-the-nuts-and-bolts-of-webassembly/

Divya_Mohan02

“WebAssembly (abbreviated *Wasm*) is a binary instruction format for a stack-based virtual machine. Wasm is designed as a portable compilation target for programming languages, enabling deployment on the web for client and server applications.”

Divya_Mohan02

Source: https://webassembly.org

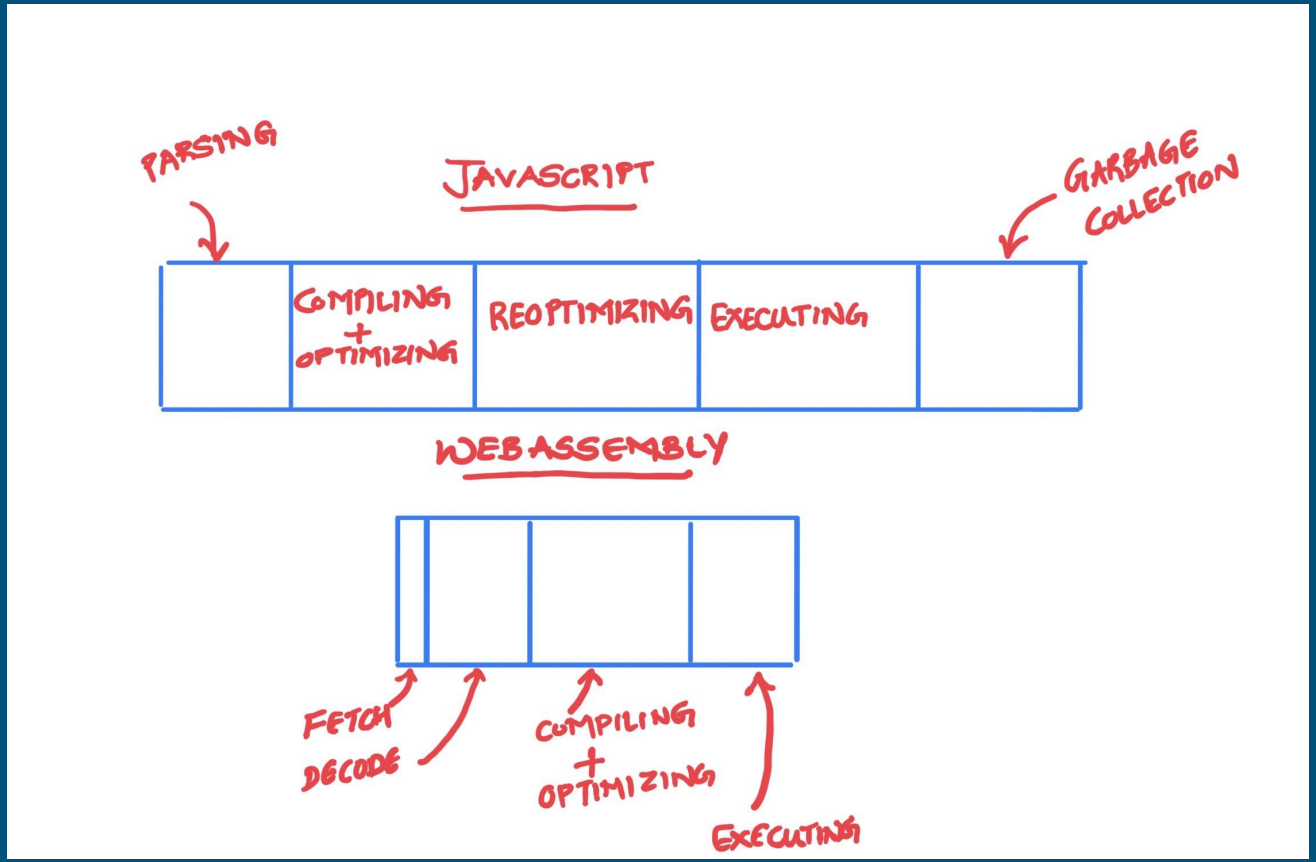


Source: http://sriku.org/blog/2019/08/24/talk-the-nuts-and-bolts-of-webassembly/

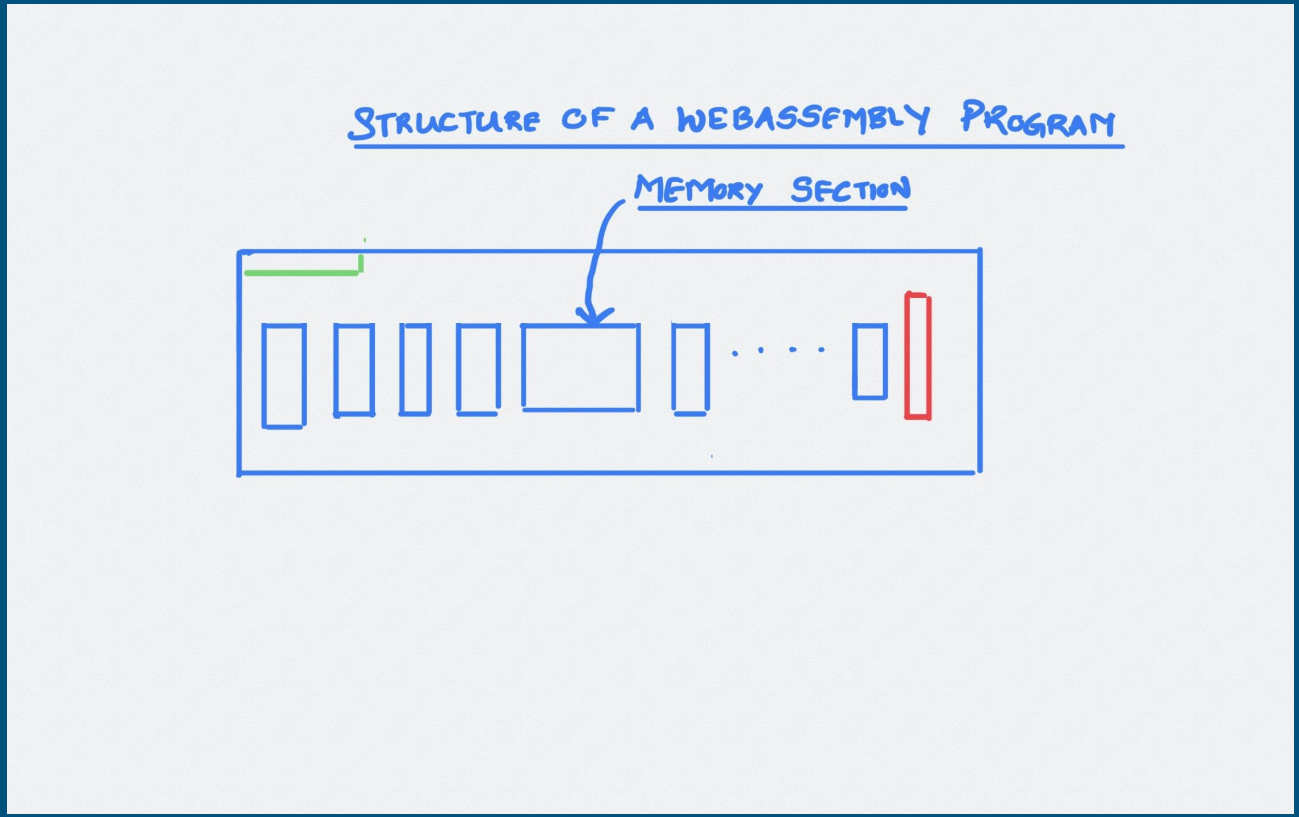
Divya_Mohan02

How is it different?

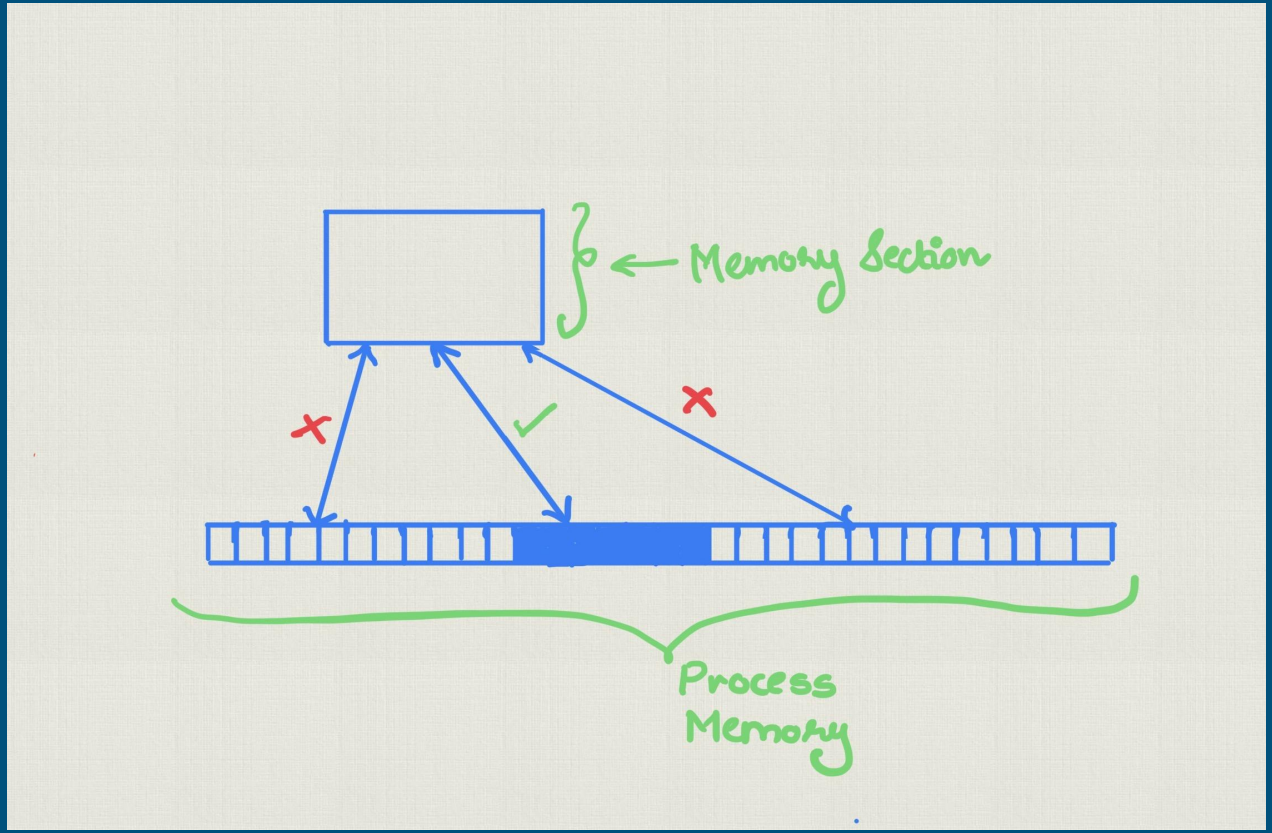
Divya_Mohan02



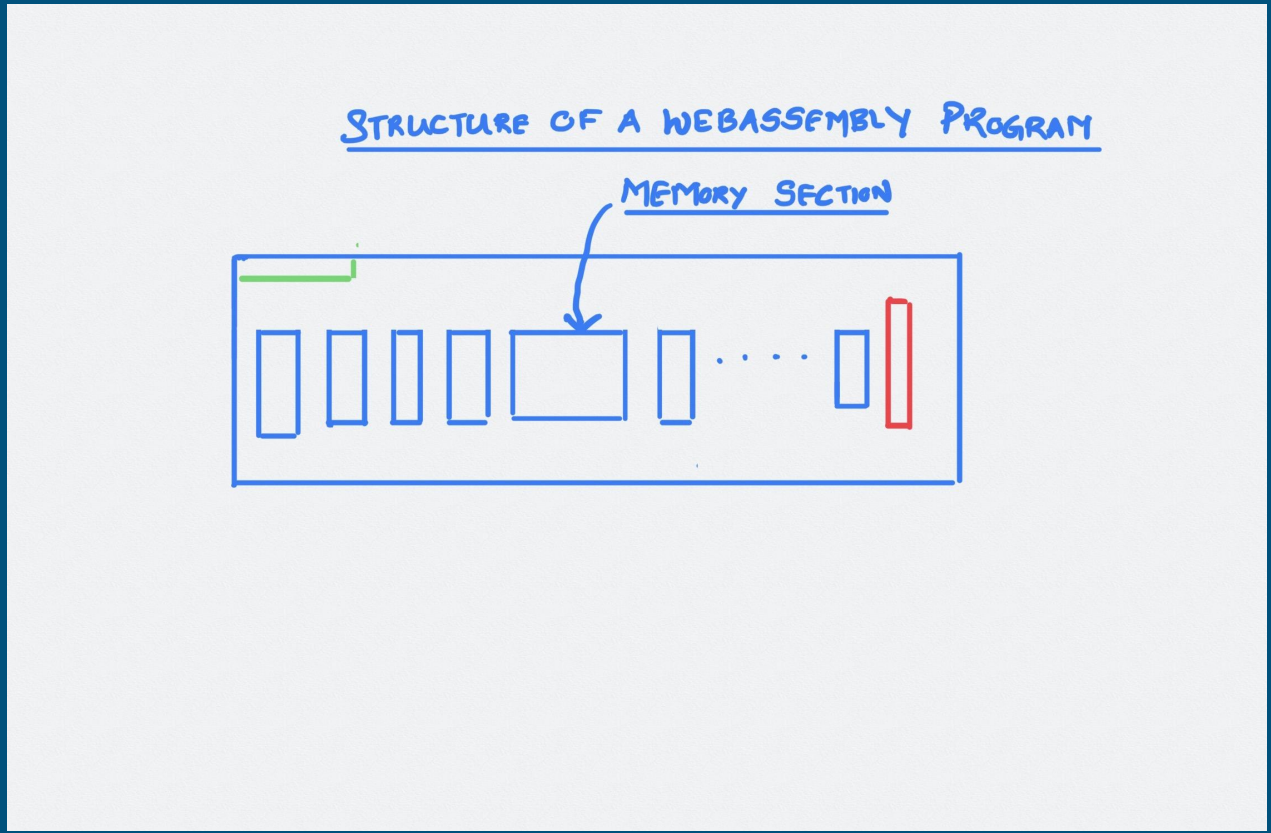
Divya_Mohan02



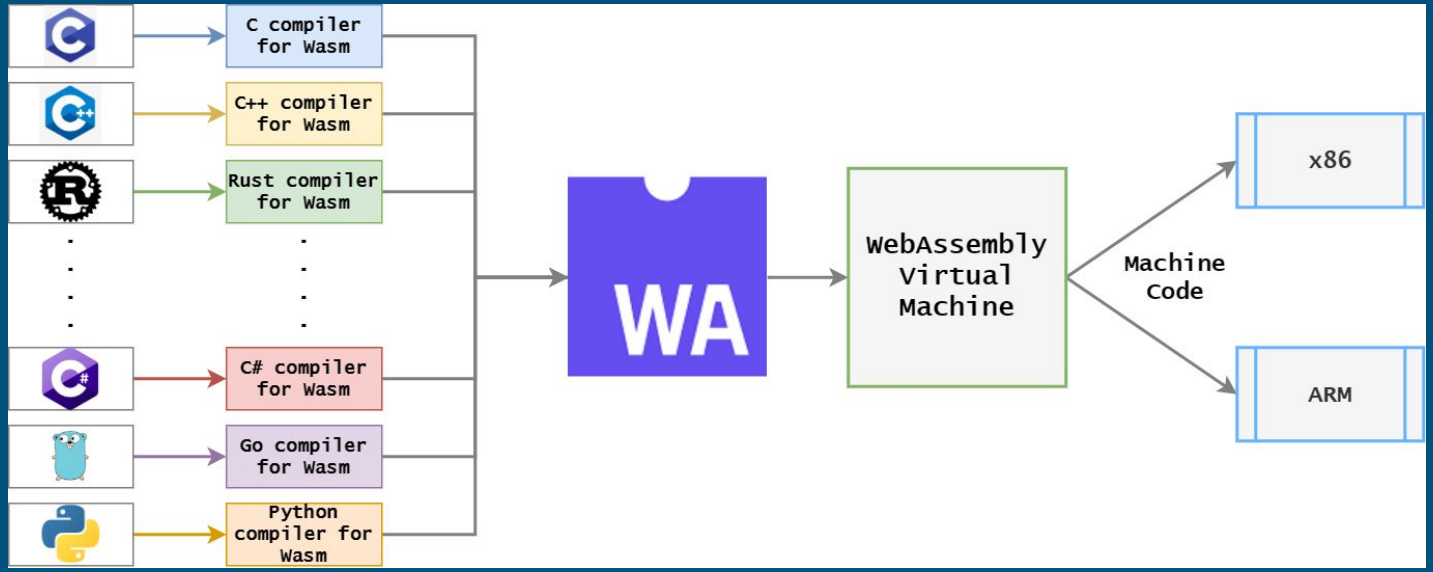
Divya_Mohan02



Divya_Mohan02



Divya_Mohan02

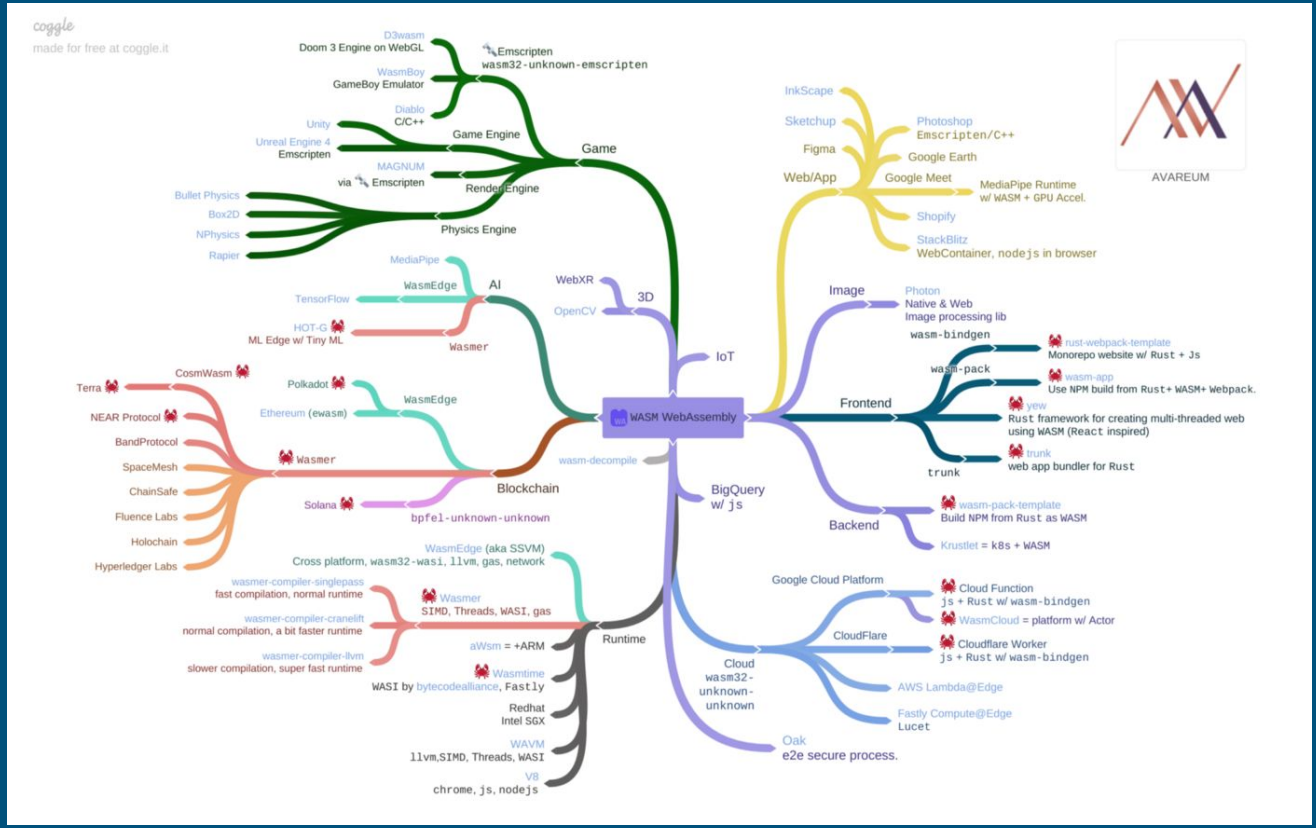


Source: http://sriku.org/blog/2019/08/24/talk-the-nuts-and-bolts-of-webassembly/

Divya_Mohan02

Where we are currently

Divya_Mohan02



Divya_Mohan02

The cloud native landscape...curren tly

Divya_Mohan02

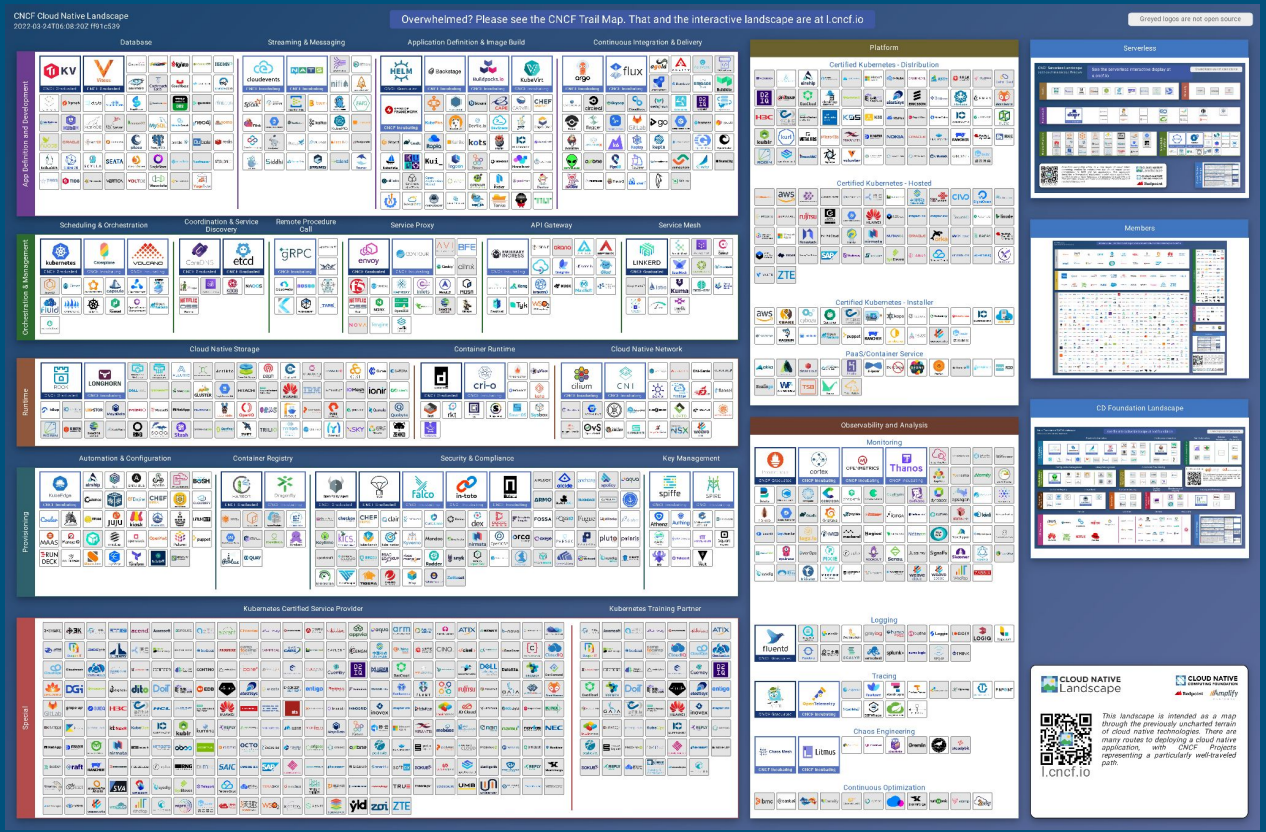
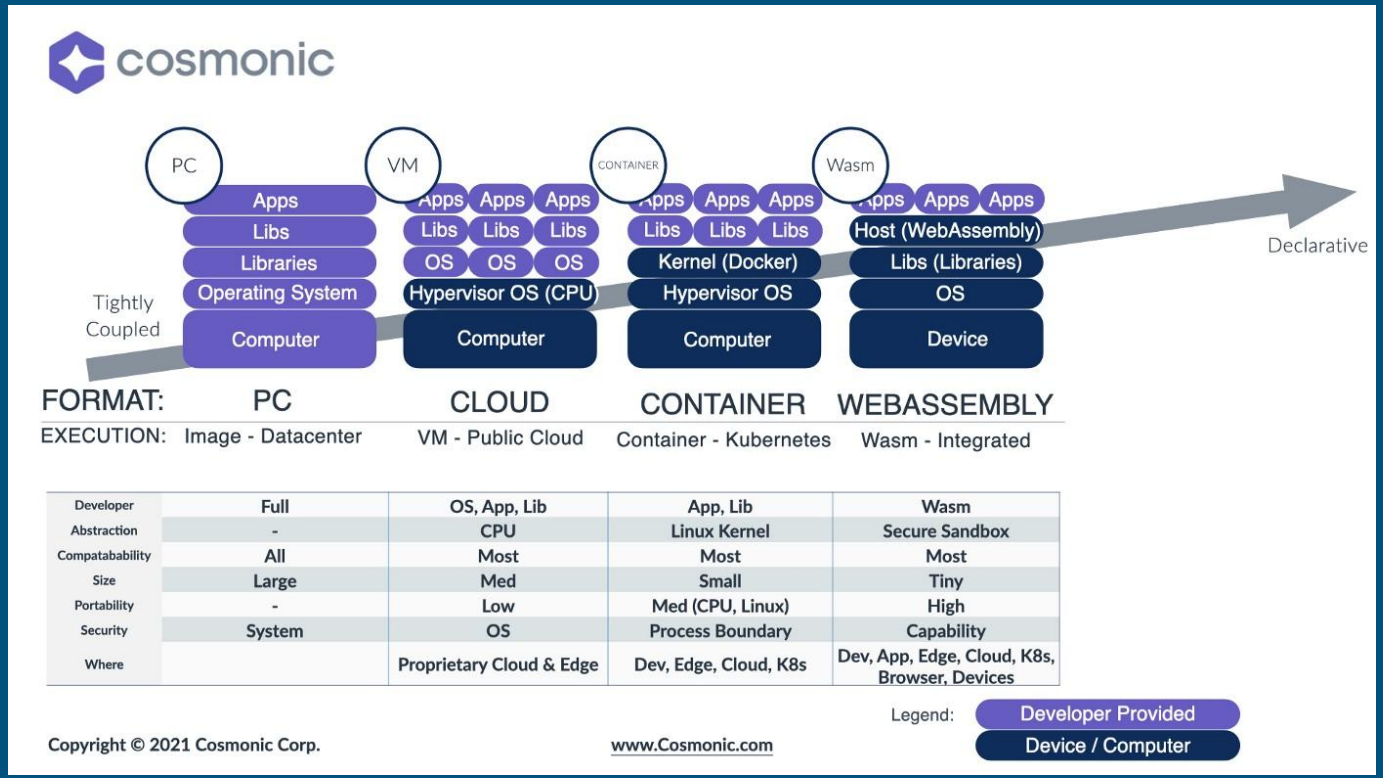


Image courtesy: https://landscape.cncf.io

Where does Wasm fit in?

Divya_Mohan02



Source: https://cosmonic.com/blog/kubecon-eu-2021-webassembly-keynote-cloud-native-and-wasm-better-together/

Cloud-native projects using/supporting Wasm

- Krustlet
- Kubewarden
- wasmCloud
- WasmEdge Runtime
- The crun project
- Dapr
- Envoy Proxy
- Second State virtual machine (SSVM)
- wasmer

…… and the list keeps getting bigger!

Divya_Mohan02

Solomon Hykes
@solomonstre
If WASM+WASI existed in 2008, we wouldn't have needed to created Docker. That's how important it is. Webassembly on the server is the future of computing. A standardized system interface was the missing link. Let's hope WASI is up to the task!
Lin Clark @linclark
WebAssembly running outside the web has a huge future. And that future gets one giant leap closer today with...
📢 Announcing WASI: A system interface for running WebAssembly outside the web (and inside it too)
hacks.mozilla.org/2019/03/standa...
2:09 AM · Mar 28, 2019
Read the full conversation on Twitter
2.1K
Reply
Share
Read 31 replies

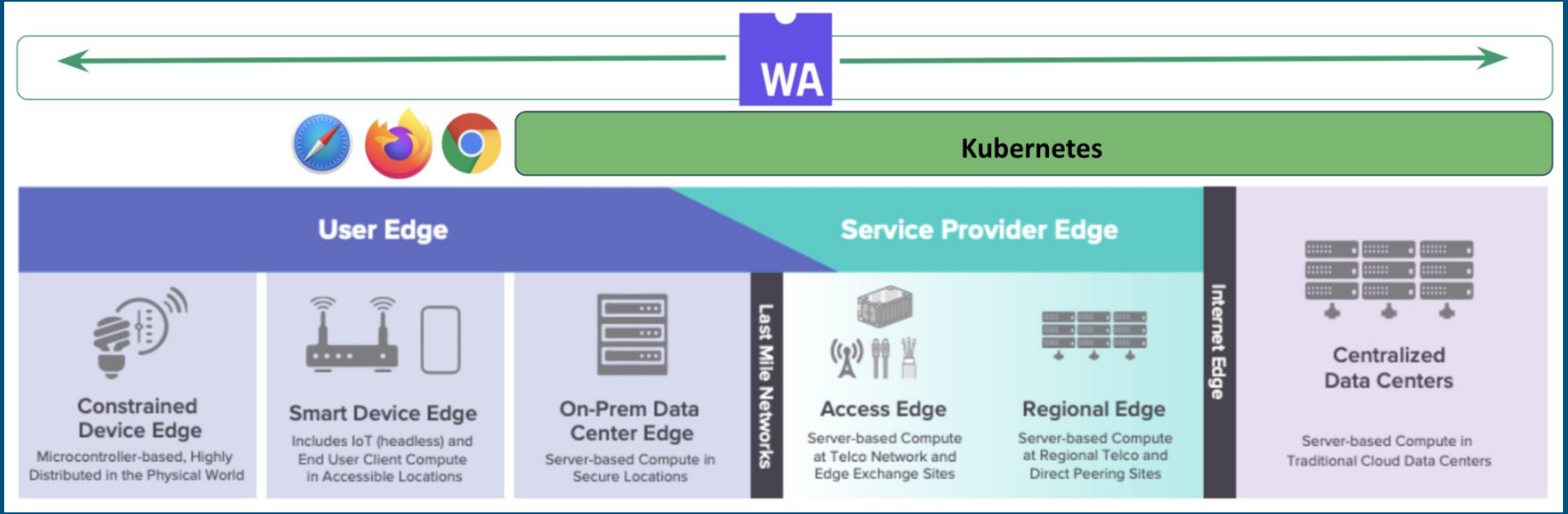
Where are we headed?

Divya_Mohan02

“By 2025 cloud-native platforms will serve as the foundation for more than 95% of new digital initiatives...”

Source: Gartner

Divya_Mohan02



Source: https://cosmonic.com/blog/wasm-cloud-native-trend-2021/

The future

- Wasm v2 working draft announced on 19th April, 2022
  - Standardization comprising phases from 1 (immature) up to 5 (standardized)
- Reimagining
  - Observability stacks
  - Edge & IoT
  - Databases
  - Security

Divya_Mohan02

Questions?

Divya_Mohan02

Thank you!

Divya_Mohan02