



wasmcloud



cosmonic

Observing The Future

Embracing OTEL in WebAssembly

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Agenda

What's in this talk:

- Observability in 2024
- WebAssembly—What & Why?
- WebAssembly 🤝 Observability
- DEMO

Observability in 2024

You instrument your code, OpenTelemetry-shaped signals flow.



Metrics



Tracing



Logging



Visualization



What is WebAssembly?



- Portable compilation target AKA Bytecode that runs everywhere (x86_64, ARM, ...etc)
- Runtime that embeds easily: `wasmtime`
- Extreme isolation: deny-by-default permissions
- Support across language ecosystems—browser and server

A Growing Ecosystem: Bring your favorite **\$LANGUAGE**

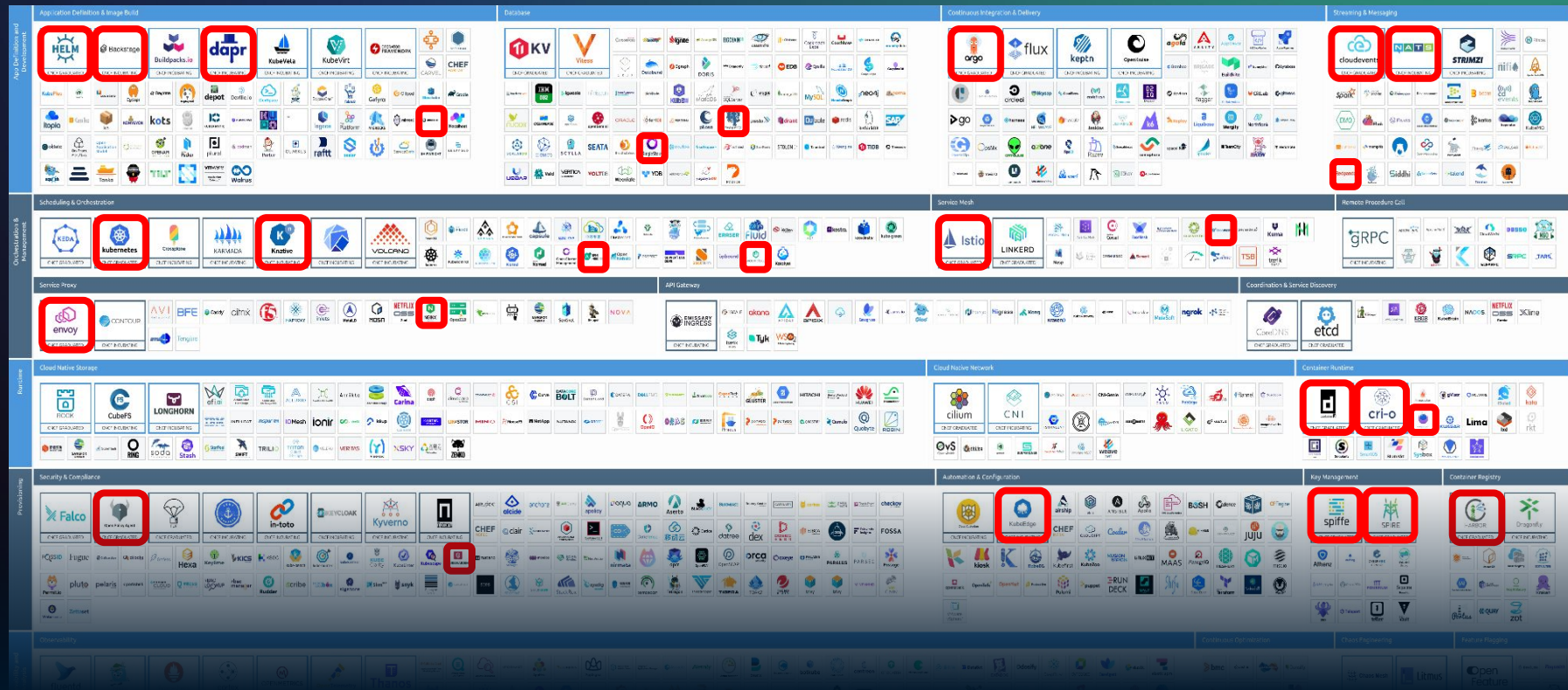


Why should your care?

You're going to see some Wasms...

WA

...In fact, it's already here



**You've compiled
\$LANGUAGE to Wasm.**

Now what?

```
fn add(a: i32, b: i32) -> i32 {  
    a + b  
}
```



your-code.wasm



oci:registry/your-code:0.1.1

(RHS Diagram: (existing) wasmCloud
w/ wasmtime inside)

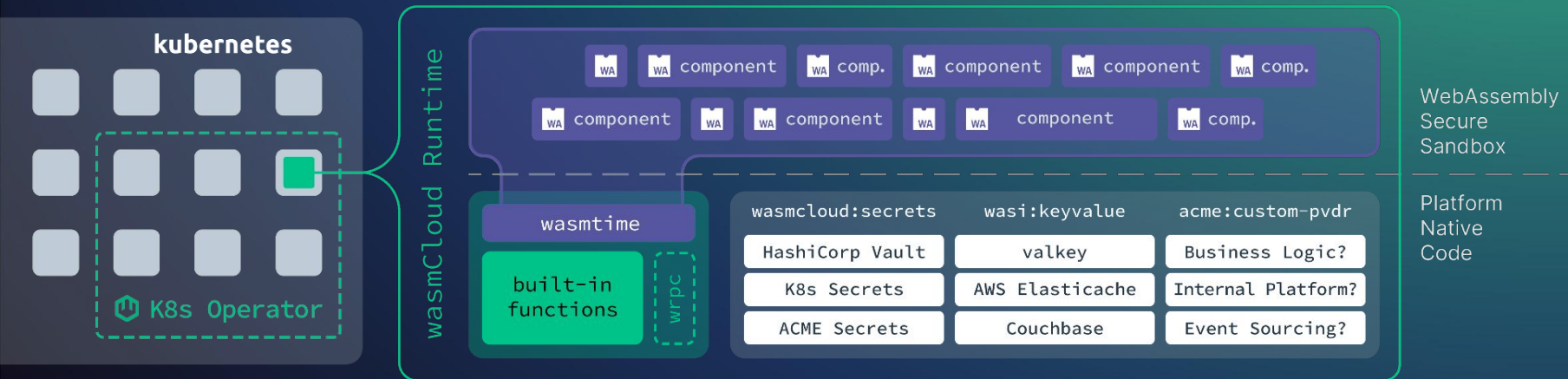
Darude: Patchstorm



**5000 teams
patching log4j**

**1 team
patching
the only
logging
component**

wasmCloud: WebAssembly for Platform Engineering



<1ms cold start

Runtime pluggable

Interface driven

Compile once, run anywhere

Your Laptop/k8s/Edge

Scale to Zero

High Density

Light (KB/MB, not GB)

WebAssembly & OTEL: Better Together

- **No migration step**

All your favorite OTEL libraries will compile to WebAssembly (Soon™)

- **Instruction level visibility**

WebAssembly Text Format is easier to understand than Assembly

- **Cross-language traces that “just work”**

WebAssembly-native instrumentation is architecture and language independent

DEMO

What just happened?

We built an instrumented Go (TinyGo) HTTP handler

We compiled our Go code to WebAssembly

The same O11y workflows worked without changes



It can't possibly be this easy, *right?*

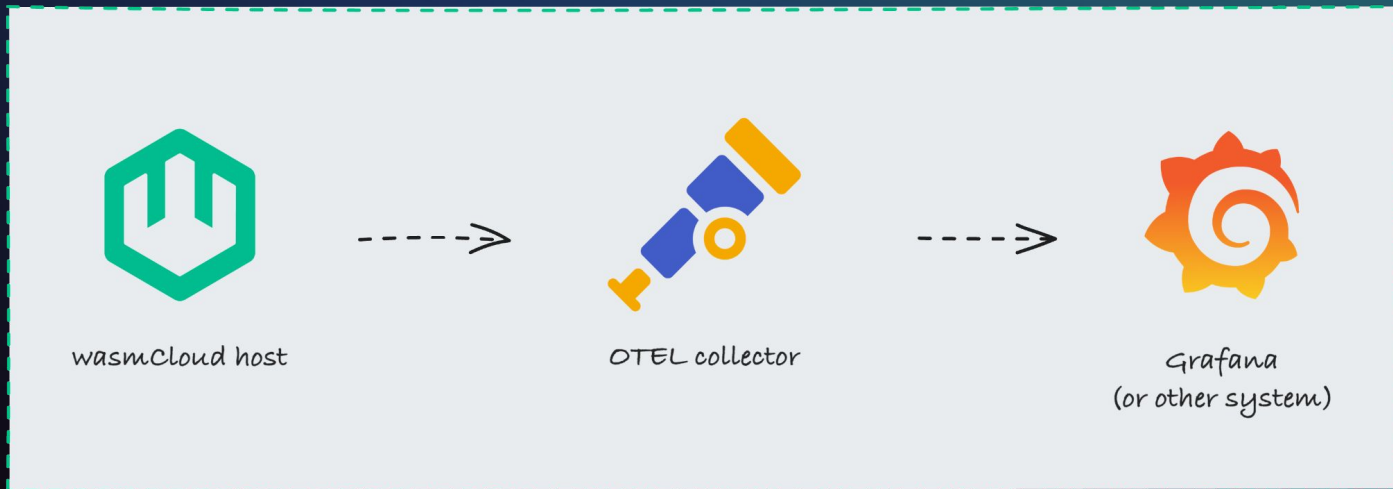
Thanks



wasmCloud Docs
Quick Start

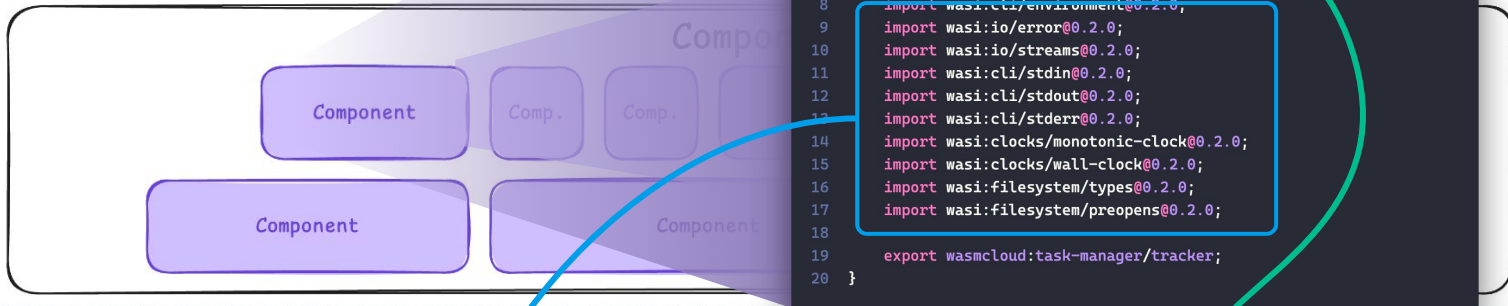
OpenTelemetry

- wasmCloud emits **traces, logs, and metrics** as OTEL signals.
- <https://github.com/wasmCloud/wasmCloud/blob/main/examples/docker/docker-compose-otel.yml>

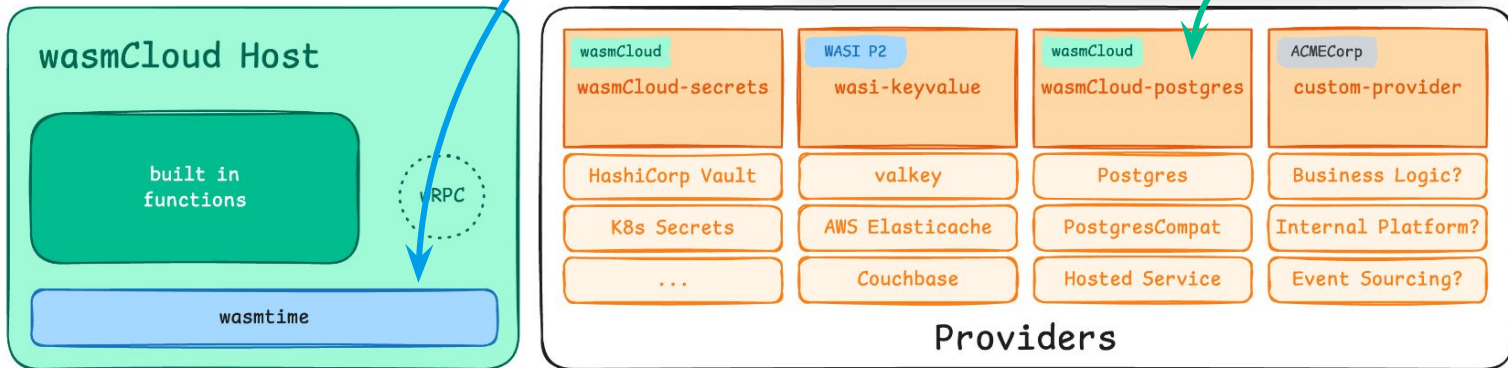


wasmlCloud is extendible

WebAssembly
Sandbox



Platform
Native
Code



wasmCloud is extendible @ runtime

