lunatic

Writing Rust the Erlang way

Bernard Kolobara, 19/7/2022

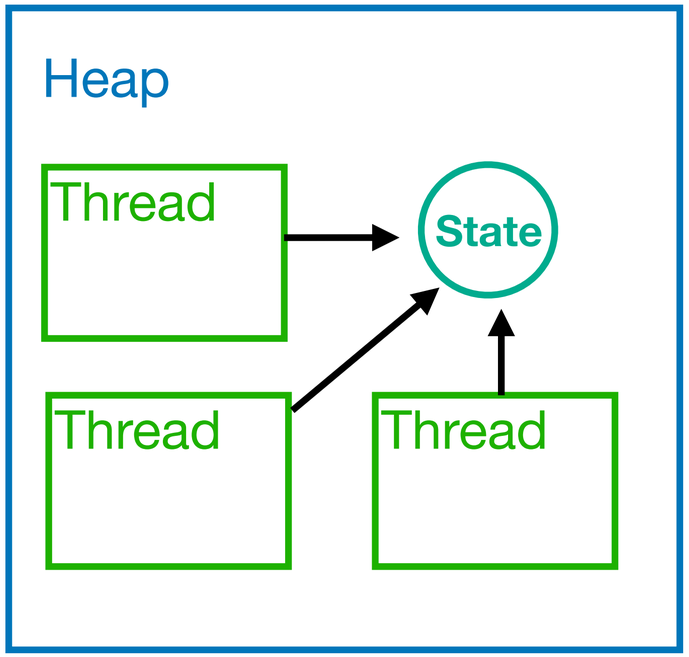
Agenda

1. Why Erlang?
2. How?
3. Demo app

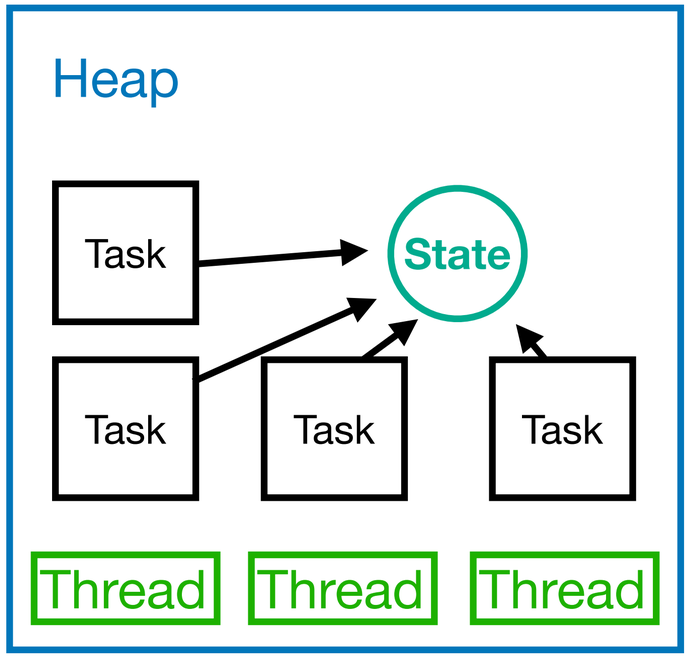
Why Erlang?

1. Concurrency model
2. Fault tolerance
3. Soft realtime

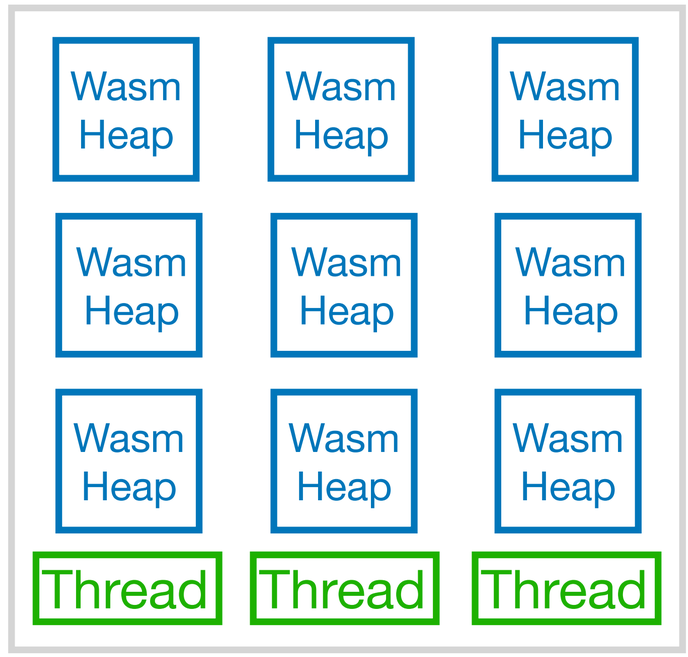
Rust



async Rust



lunatic Rust



Why Erlang?

1. Concurrency model
2. Fault tolerance
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The AXD301 has achieved a NINE nines reliability

Let’s put this in context: 5 nines is reckoned to be good (5.2 minutes of downtime/year). 7 nines almost unachievable … but we did 9.

Why is this? No shared state, plus a sophisticated error recovery model.

~ Joe Armstrong (co-designer of Erlang)


IT DEPARTMENT
HAVE YOU TRIED TURNING IT OFF AND ON AGAIN?
memegenerator.net

Why Erlang?

1. Concurrency model
2. Fault tolerance
3. Soft realtime

“Tasks must not perform computation heavy logic or they will prevent other tasks from executing.”

How?

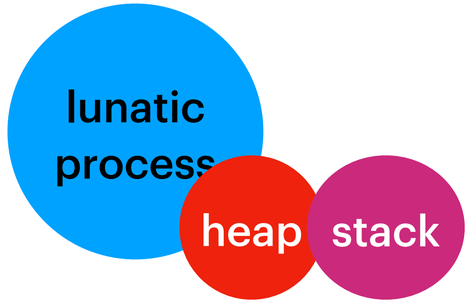
1. Compile the Rust app to WebAssembly
2. Spawn WebAssembly instances for each new process
3. Insert preemption points in-between WebAssembly instruction

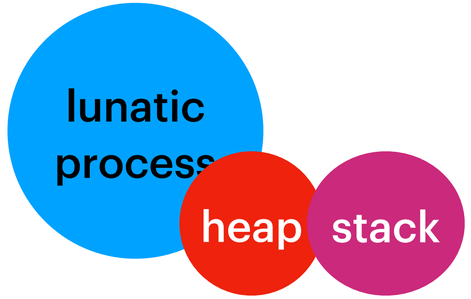
How?

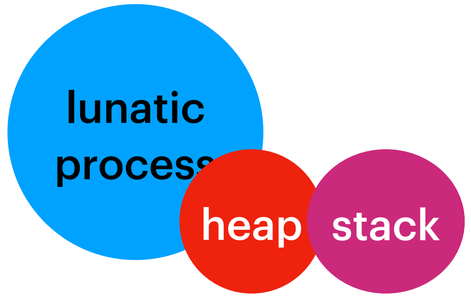
compile

WA

spawn







Demo