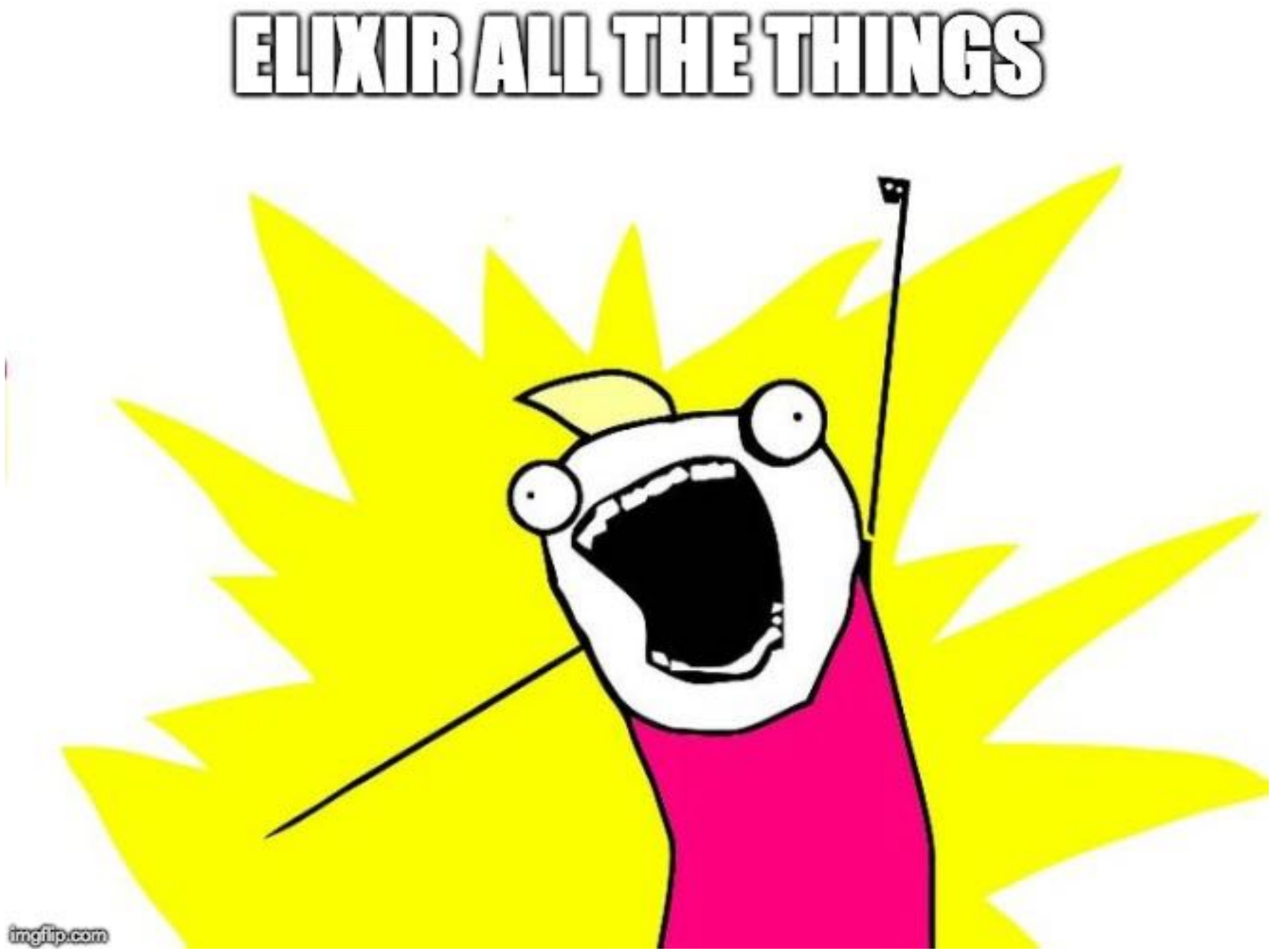

Elixir conf 2018 by Jono Stiansen


TELNYX
ElixirConf
TELNYX
ElixirConf
JONATHAN
ETJANSEN
ATTENDEE


ElixirConf
CHRIS
ElixirConf
JONATHAN
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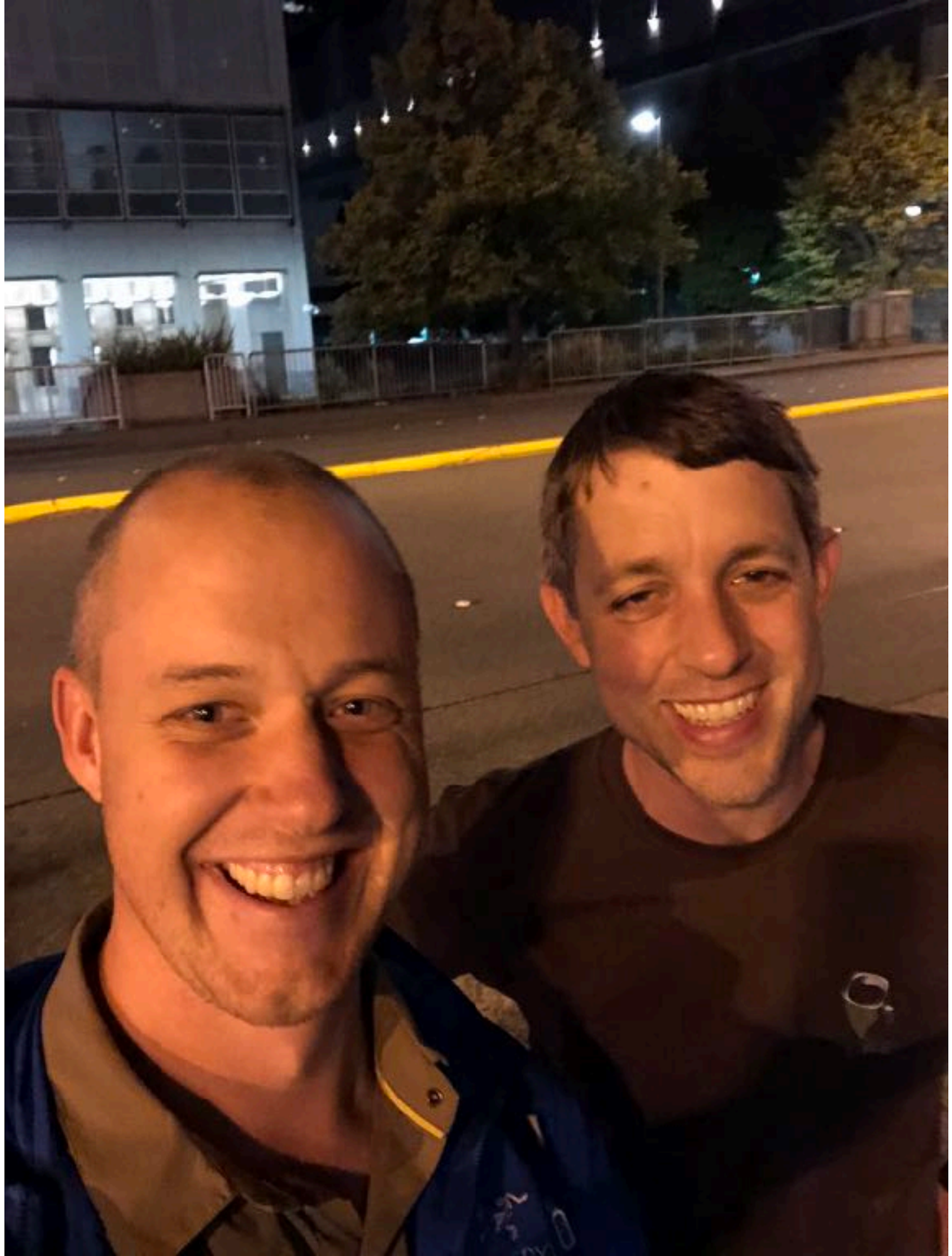


I'D SAY THINGS WERE DIVIDED INTO:

- Elixir in the Infrastructure
- Ecosystem Improvements
- How I did X with Elixir
- New perspectives - boldly going where no one has gone before… in elixir

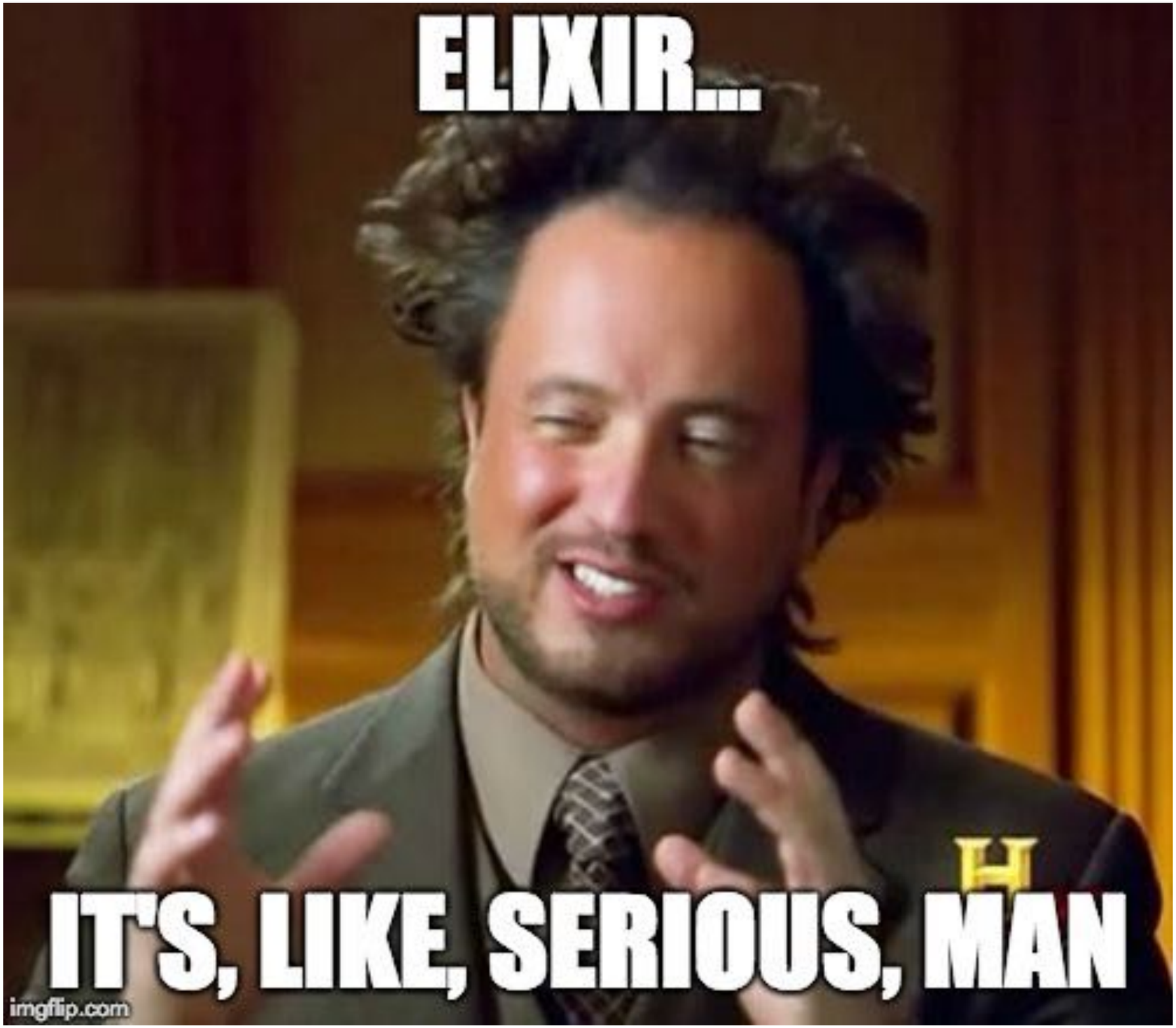
CHECK OUT:

- Elixir in the Infrastructure
  - Pager duty SLI monitoring in elixir
  - #5 from today
- Ecosystem Improvements
  - A few from our list (scenic/LiveView)
  - Jose' keynote
- How I did X with Elixir
  - Event sourcing + bidding app
  - GraphQL to make a game
  - Evolve your app over the years
- New perspectives - boldly going where no one has gone before… in elixir
  - Docker & OTP
  - Behaviour trees + advanced AI data-structures in Elixir
- Tips and tricks
  - 3 kernel functions you should use (especially for guard clauses)

CHECK OUT – CONT.

- Testing
  - Testing distributed systems with property based testing
    - GitHub repo for it
  - Property based testing - choosing the right properties
  - Toyota Production System - principles for sustainable testing - repo and slides
- Tips and tricks
  - 3 kernel functions you should use (especially for guard clauses)
  - Quick demo of how to make your own wind measuring with nerves
  - Breaking down your user model and behaviour systematically
  - Principles of UX design for Real time apps
  - Growing your elixir architecture and strengthening deployment (having multiple clusters+graphQL+ other stuff at Toyota connect)
  - Virtual DOM server rendering with Texas (he was part of Jose and Chris' arguments)

TOP 5 MOMENTS AND TAKEAWAYS



TOP 5 Takeaways!

5. MONITORING LEGACY ARCHITECTURE WITH ELIXIR

https://www.youtube.com/watch?v=kpcieBD5Vag

SSHEx

Simple SSH helpers for Elixir.

Library to unify helpers already used on several applications. It uses low level Erlang ssh library.

The only purpose of these helpers is to avoid repetitive patterns seen when working with SSH from Elixir. It doesn't mean to hide anything from the venerable code underneath. If there's an ugly crash from `:ssh` it will come back as `{:error, reason}` .

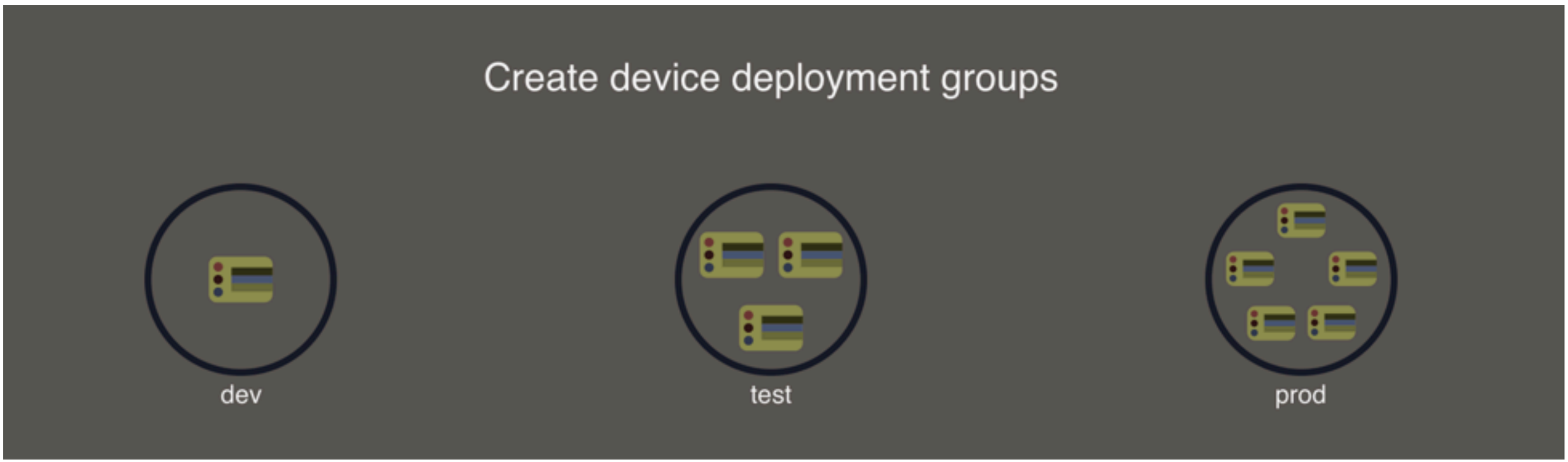
NOTABLE PARTS

- Used SSH and built in tools to monitor system resources
- Used dynamic supervisors and GenServers to start up new ssh processes
- Monitor them with Registry
- create functionality to supervise and restart them
- Create a way to notify other processes when ssh connection is ready
- Feeds them to Prometheus

4. NERVES HUB

https://github.com/nerves-hub

A BUNCH OF FANCY STUFFZZZ



https://www.youtube.com/watch?v=O9VhFJewv5w&index=41&list=PLqj39LCvnOWaxI87jVkxSdtjG8tlhl7U6

A BUNCH OF FANCY STUFFZZZ

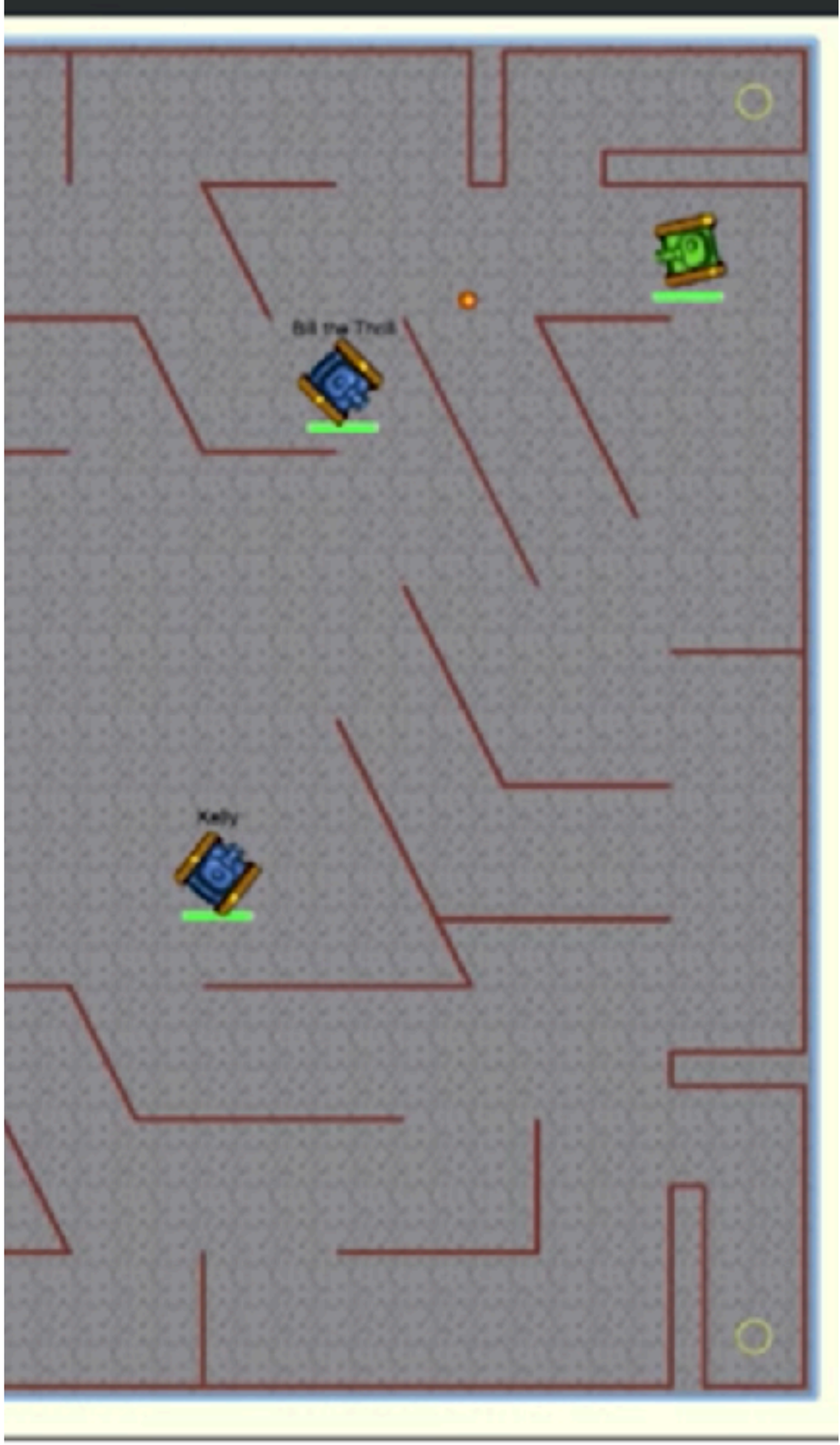
Nerves really is easy…

```
$ mix nerves_hub.firmware publish --deploy prod
```

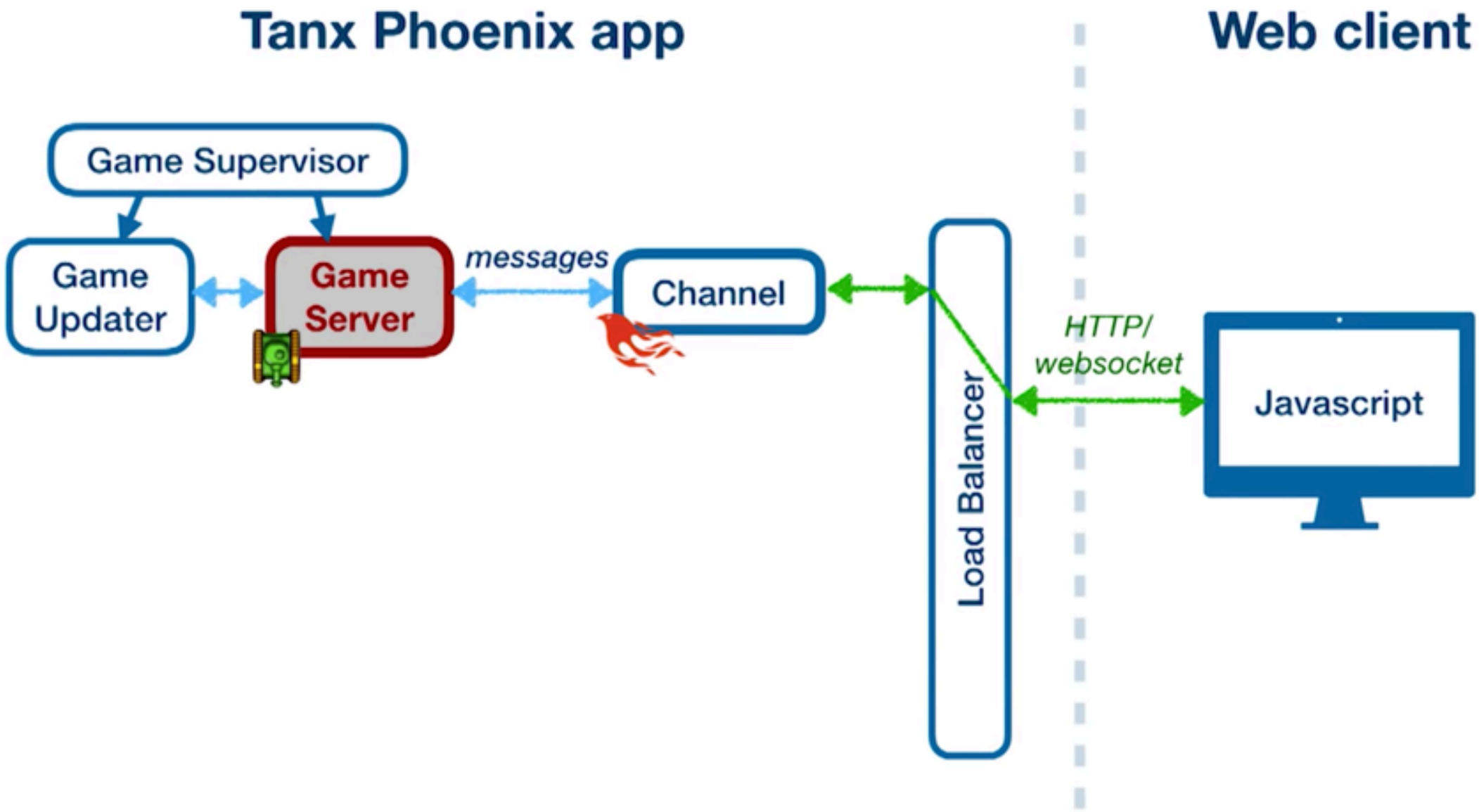
Publish firmware to deployment groups from Mix

3. DOCKER AND OTP – FRIEND OR FOE

cloud native or bare metal beam?



STATEFUL PROCESSES



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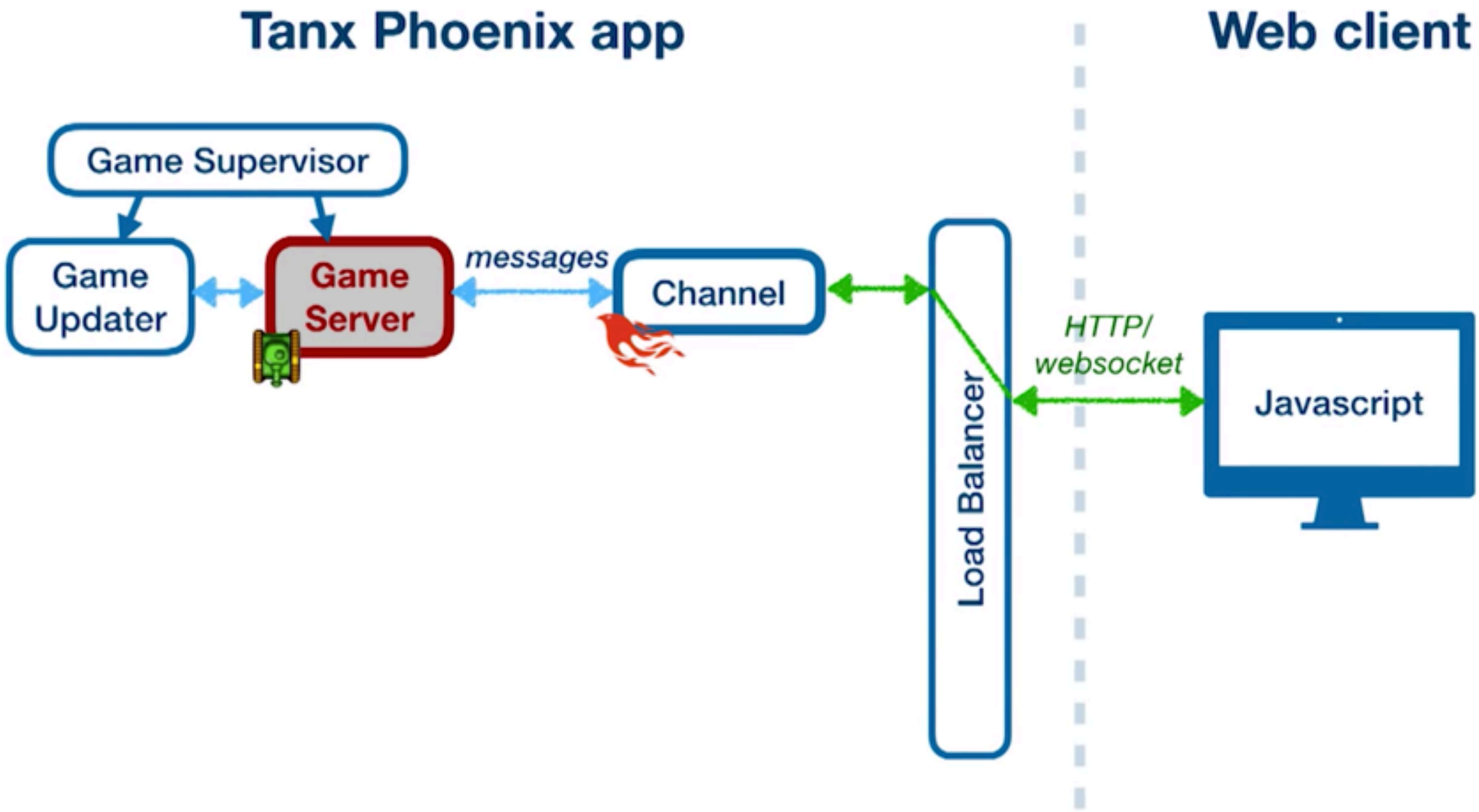
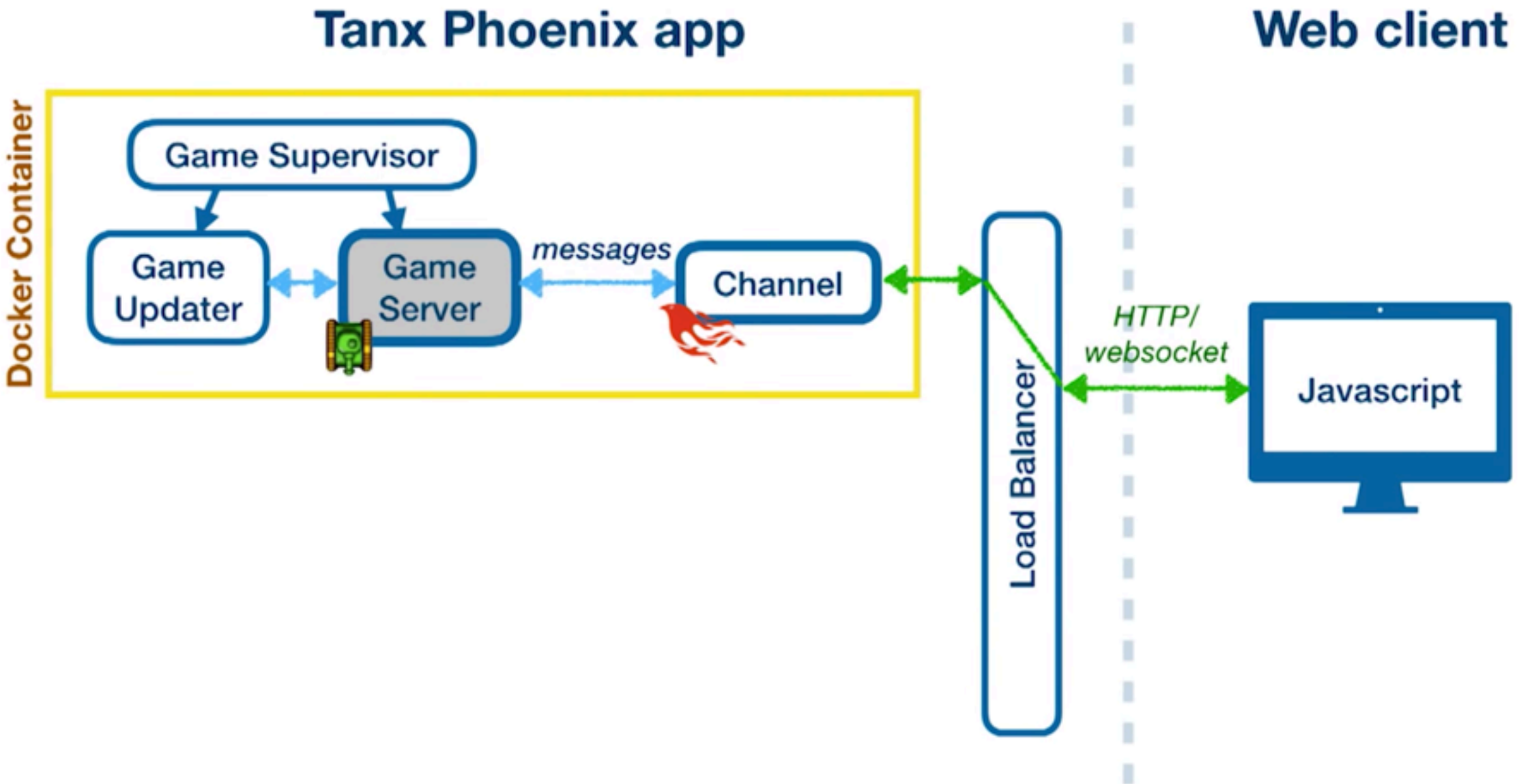


What's the problem?

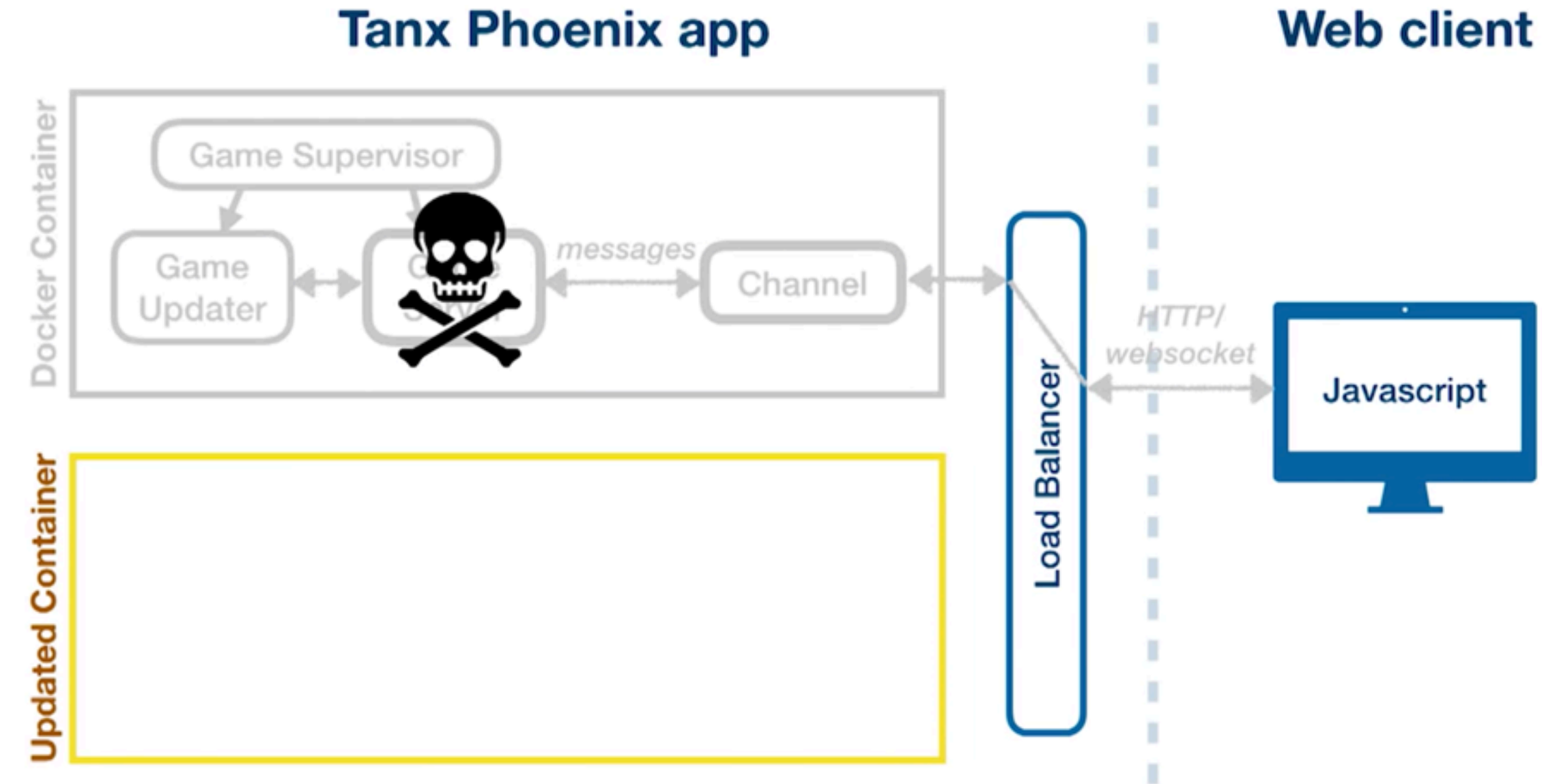
STATEFUL PROCESSES

Deployment



STATEFUL PROCESSES

Deployment



STATEFUL PROCESSES *Embrace the melting pot*

- Different model
  - transient vs long living
- Hot upgrades vs blue green deploy with containers
- stateless containers vs stateful processe

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  - Hot upgrades vs blue green deploy with containers
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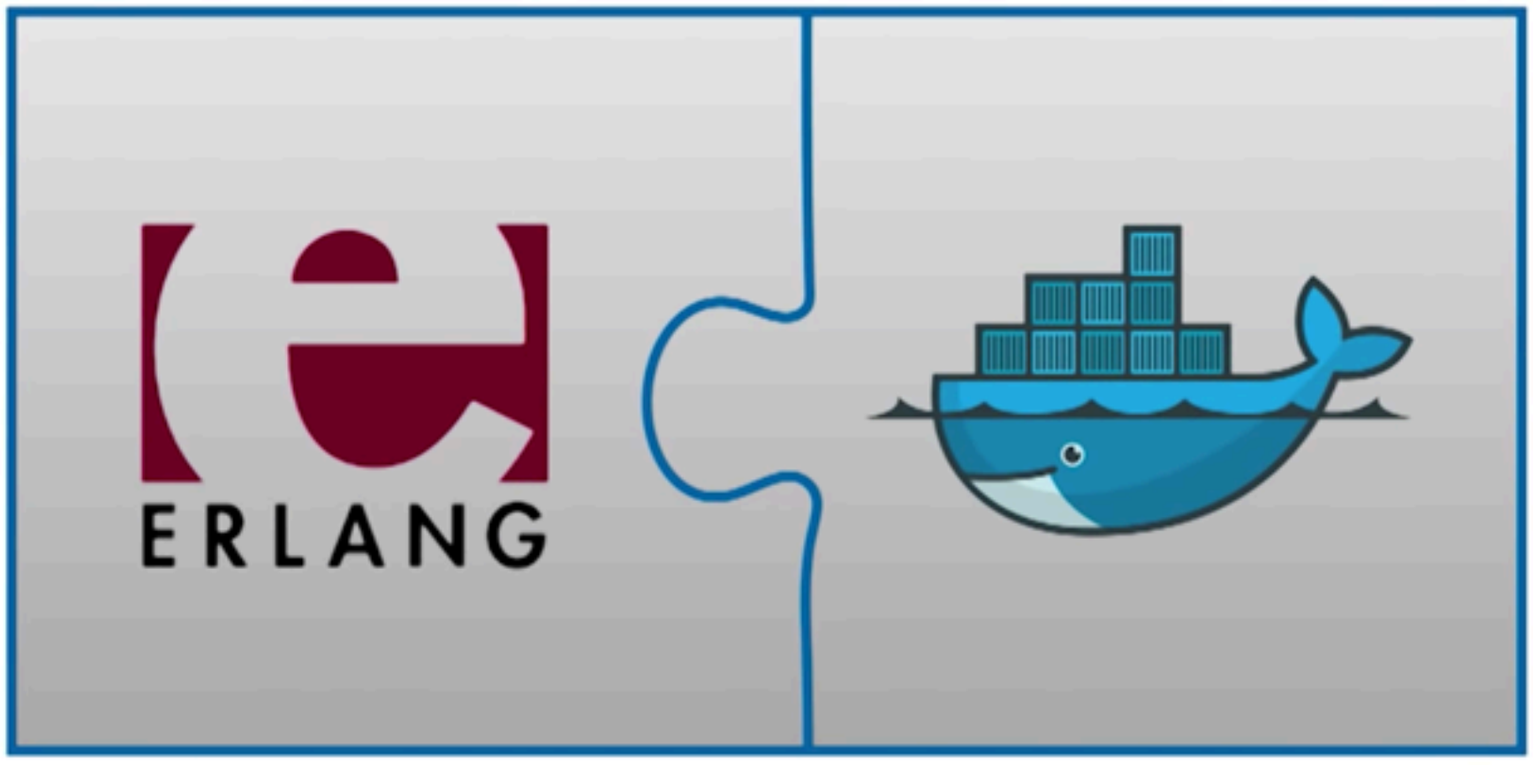


TWO GOOD THINGS TOGETHER = GOOD?

SUMMARY OF SOLUTIONS

Connect Erlang cluster — **LibCluster**

Move/restart processes — **Horde Supervisor**

Hand off process state — **CRDT**

Maintain communication — **Horde Registry**

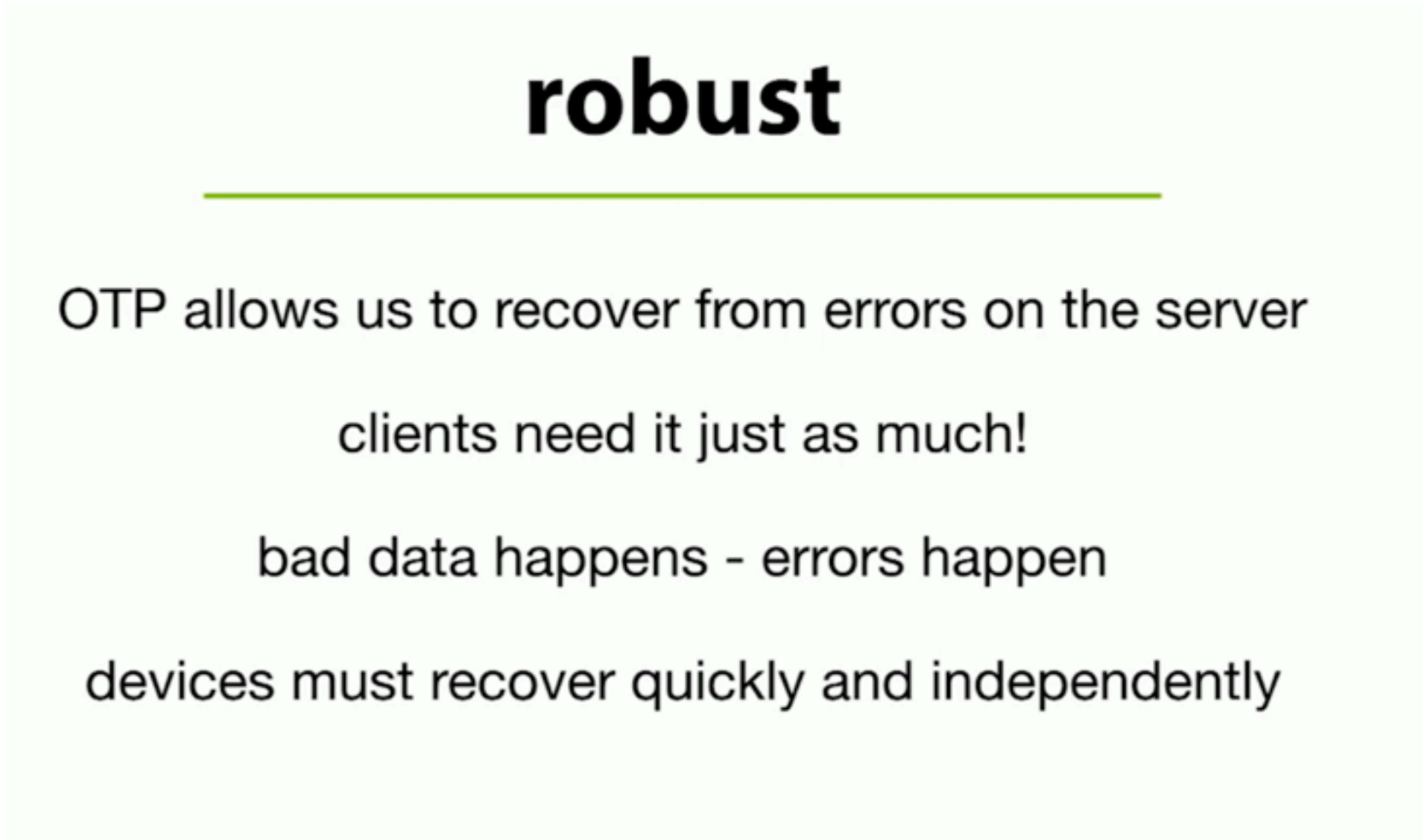
https://www.youtube.com/watch?v=nLApFANtkHs

http://daniel-azuma.com/elixirconf2018

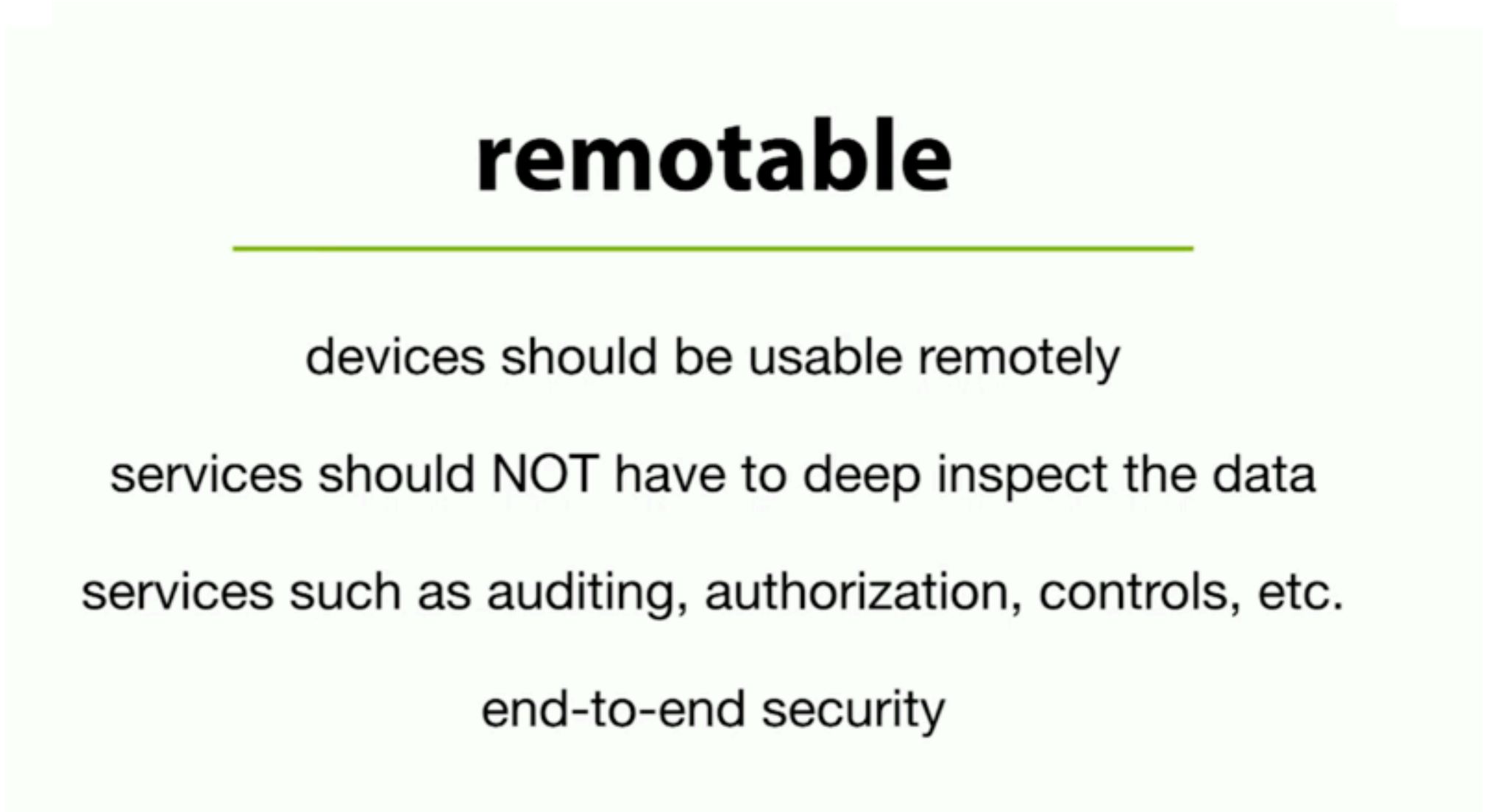
2. SCENIC

small. fast. simple.

VIDEO


robust
OTP allows us to recover from errors on the server
clients need it just as much!
bad data happens - errors happen
devices must recover quickly and independently

VIDEO


remotable
devices should be usable remotely
services should NOT have to deep inspect the data
services such as auditing, authorization, controls, etc.
end-to-end security

VIDEO

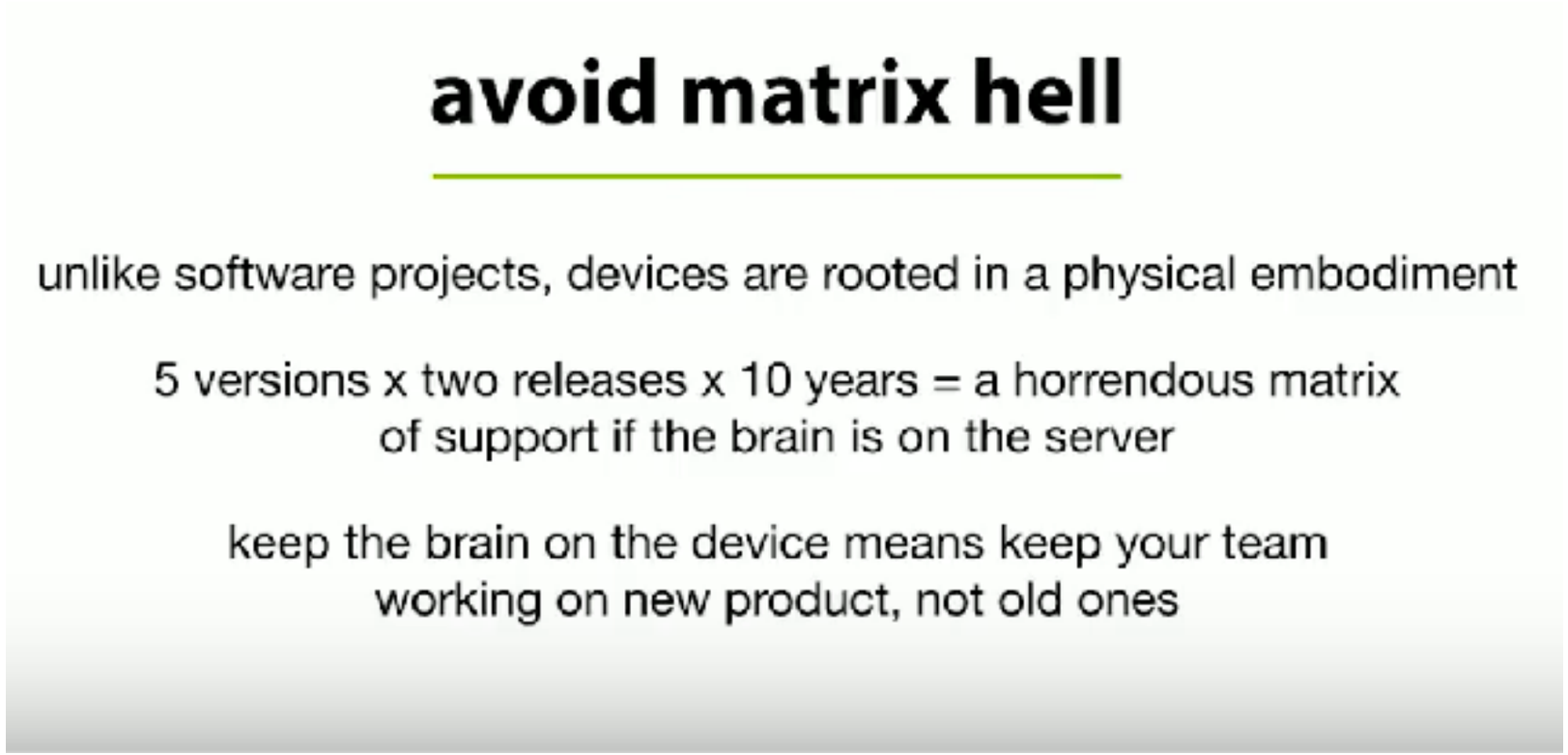

approachable
analogous to web development, but NOT web development
easy to create interesting UI

VIDEO


Secure
keep things simple
no open ports required
static asset hashing

AN INTERESTING POINT –

Don't trust anything where you don't control the brain… further



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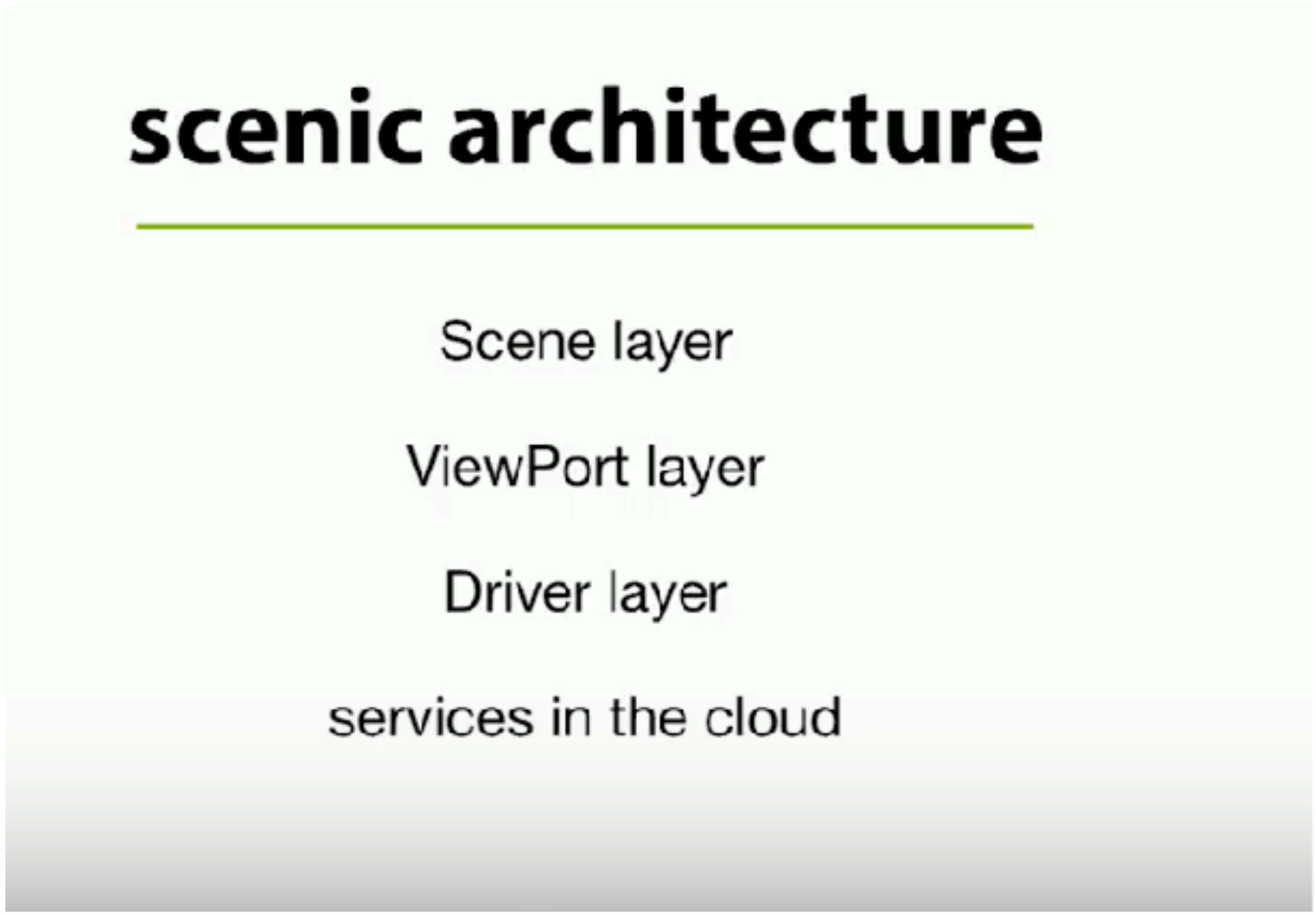

BASIC COMPONENTS – SUPERVISED

https://youtu.be/1QNxLNMq3Uw?t=21m34s

VECTOR BASED GRAPHICS

https://youtu.be/1QNxLNMq3Uw?t=28m42s

VECTOR BASED GRAPHICS

1. FOOD AND BEER

1. LIVEVIEW

“You want to punch me in the face?” - Jose

Live View Demo

https://youtu.be/Z2DU0qLfPIY?t=38m35s