

The Magic of Elixir

Devworld 2024

Who Am I?

- Amsterdam-based
- Senior Software Engineer at CodeSandbox
- Encountered Elixir by accident
- Crafter and cat person

- @sannekalkman



73%

Want to work with Elixir again
Only Rust scores higher

82%

Would want to use Phoenix again.

The most loved web framework.

Elixir in a Very Small Nutshell

- *Why not* Elixir?
- BEAM / OTP - concurrency & fault tolerance
- Phoenix LiveView
- Elixir at CodeSandbox

Why not Elixir?

- Not always the fastest option
- Ecosystem size
- A language for seniors only?
- Hard to find developers?

Pattern Matching

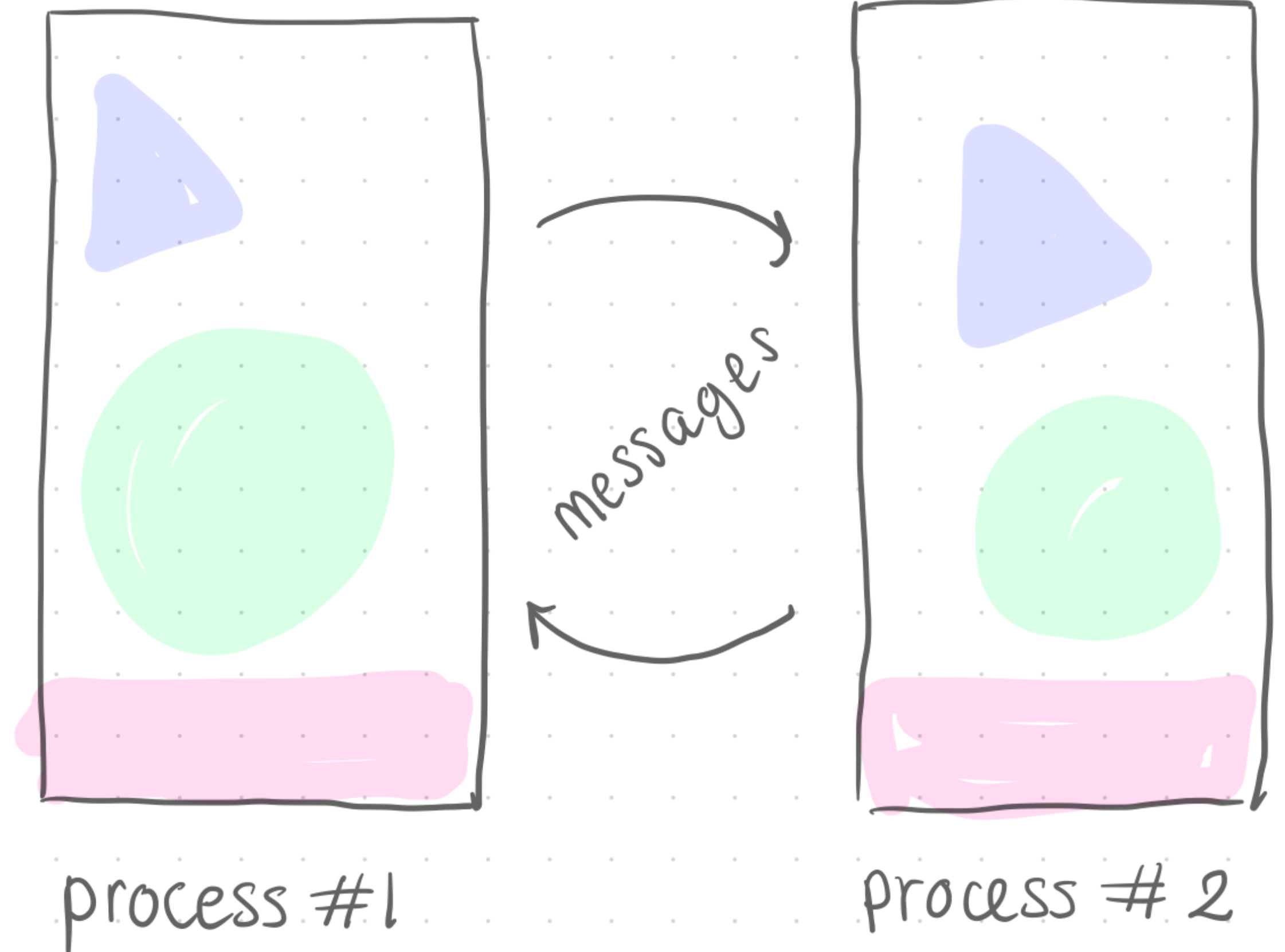
```
def meow({:cat, name}), do: "#{name} says Meow!"  
def meow({:dog, _}), do: "Dogs can't meow!"  
def meow(_), do: "I don't know what that is"
```

```
animal = {:cat, "Parm"}  
meow(animal)  
# "Parm says Meow!"
```

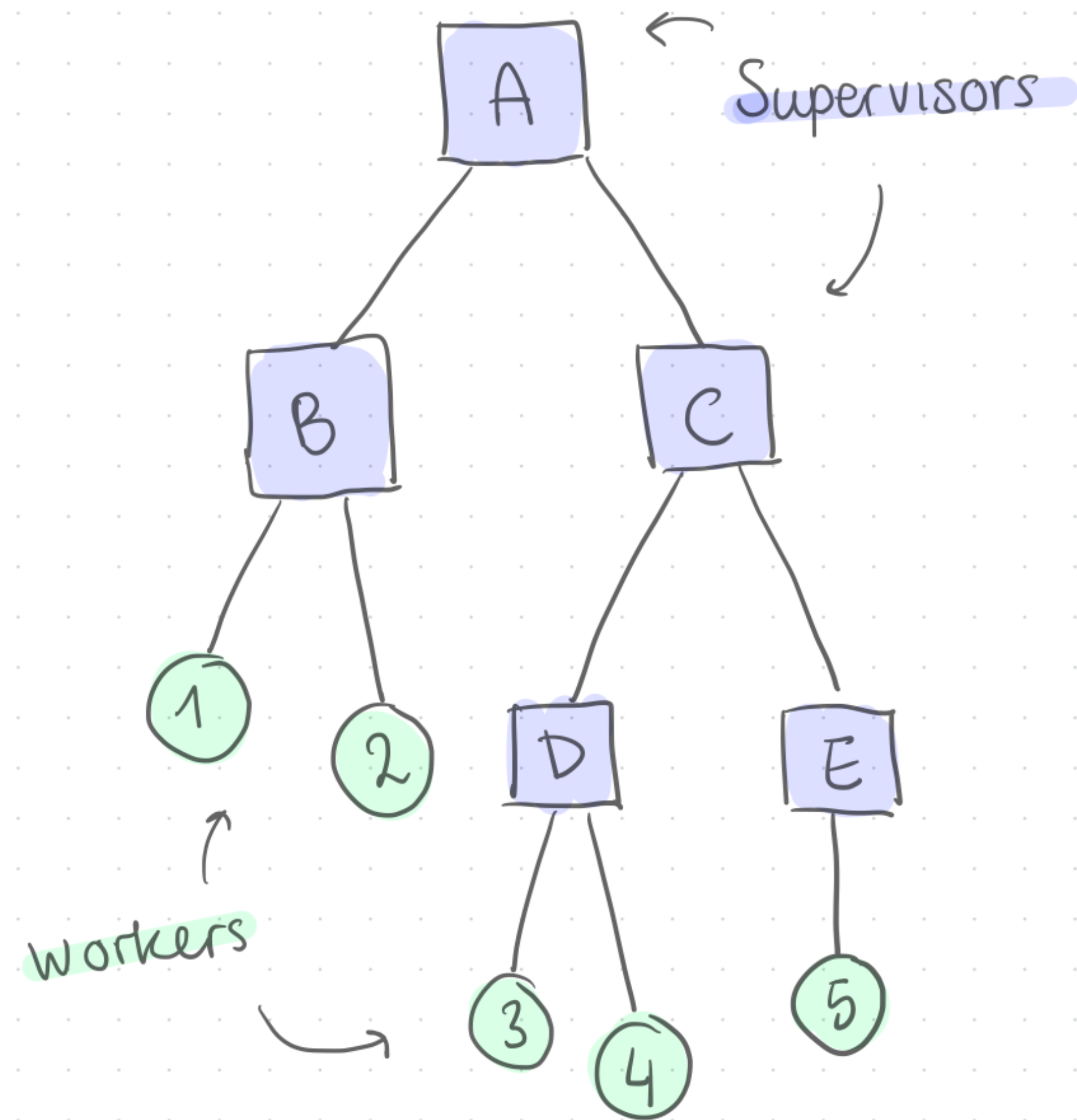
BEAM & OTP

Everything is a Process

- Lightweight
- Isolated
- Messages

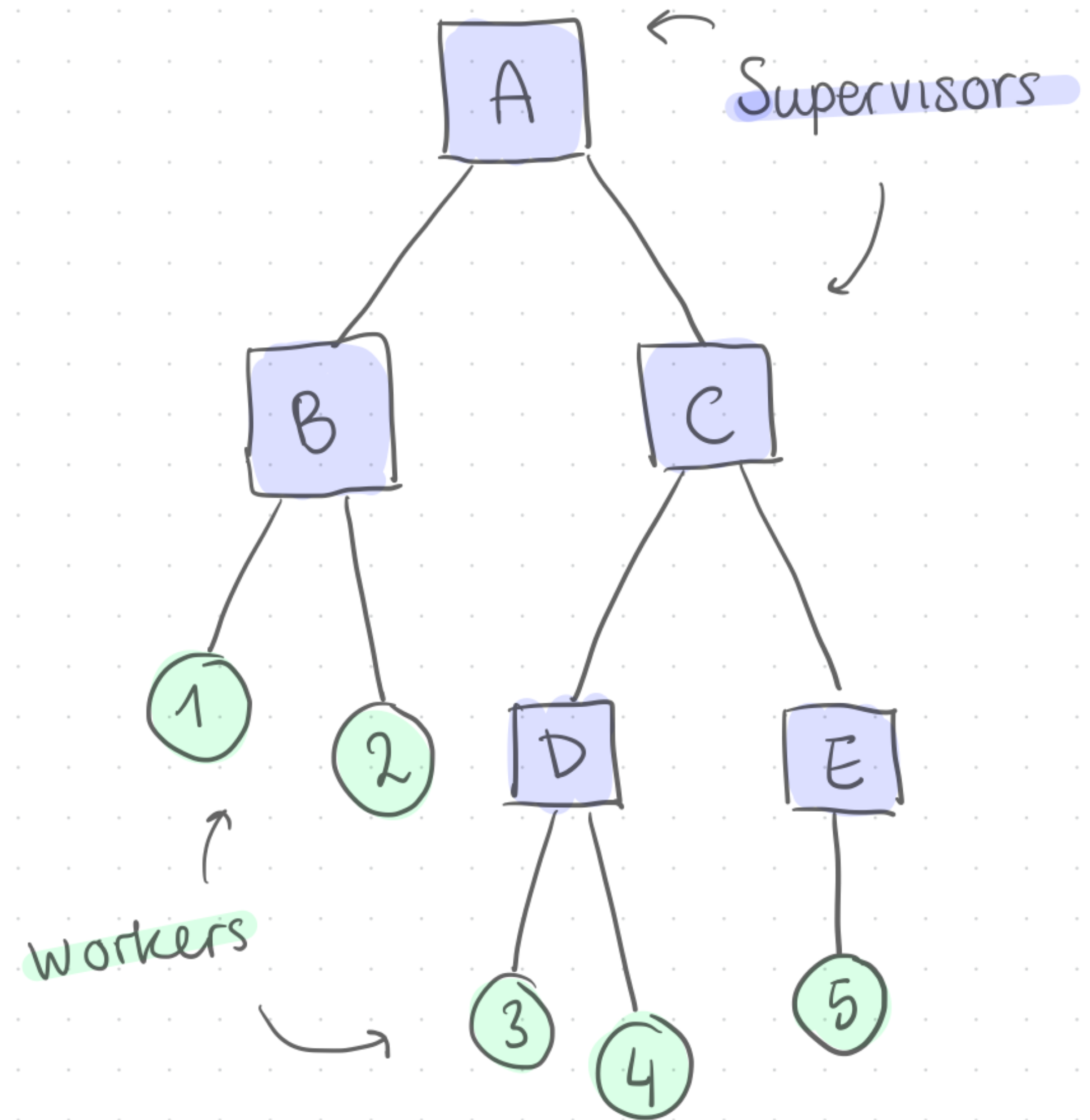


“Let it Crash”



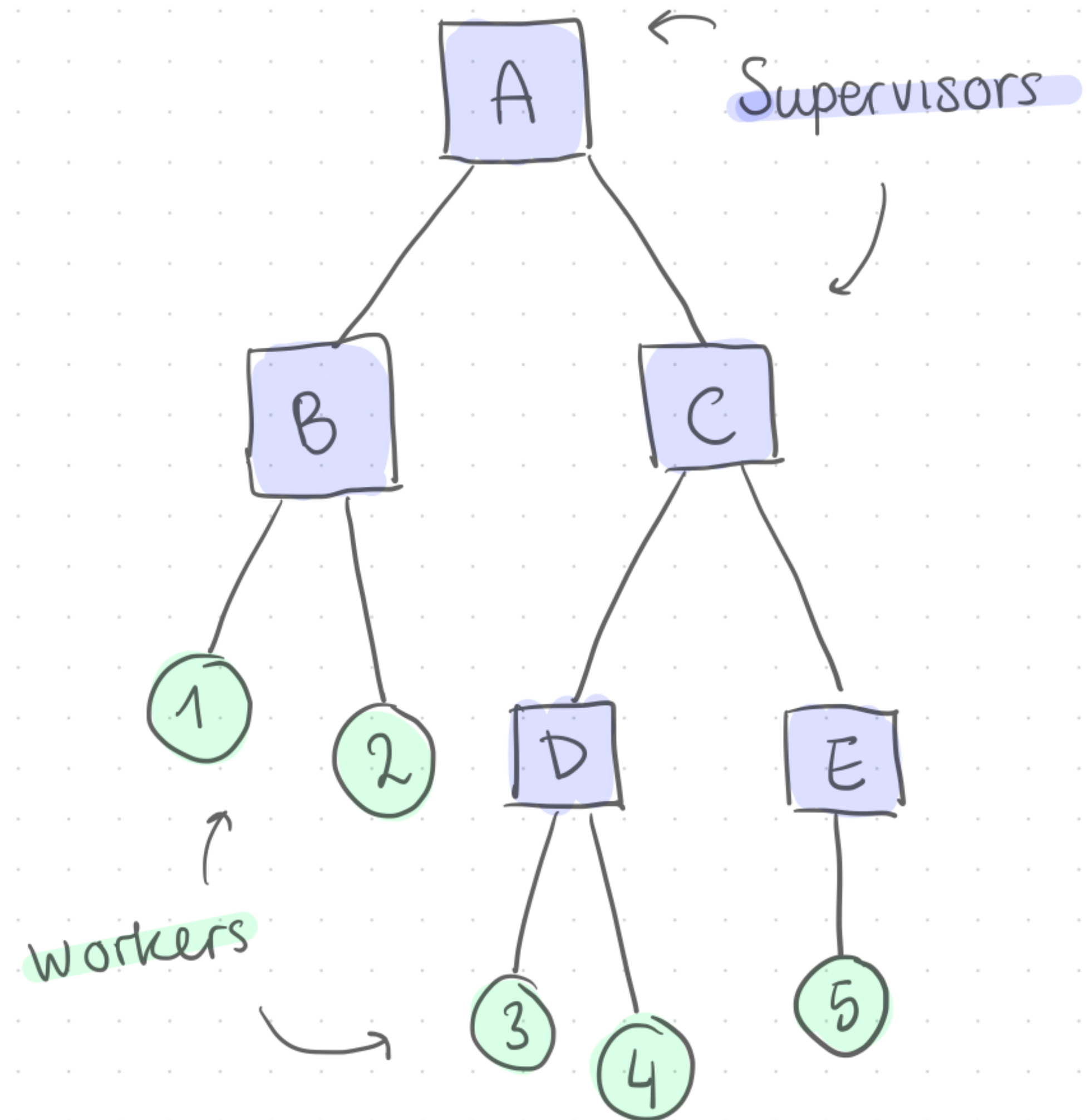
Supervision Trees

- Workers
- Supervisors
 - Starting
 - Stopping
 - Monitoring



Supervision Trees

- Isolating failures
 - Restarts
- Isolating slowness
 - Other workers go on





Phoenix Framework

Phoenix LiveView

- No JavaScript
- Each LiveView is a process
 - Receives a message
 - Does *something*
 - State changes
 - The changed portions of the page get re-rendered

Support Portal LiveView at CodeSandbox

- Separate endpoint
- Using the same core functions
- Vastly reduced the support load on the engineering team.

The screenshot displays the 'Users' tab in the CodeSandbox support portal. At the top, there are navigation links for 'Users', 'Teams', and 'Organizations'. Below this is a search bar labeled 'Search Teams' containing the team ID '04669c5e-ed7e-41d8-b6dc-7e32b622b304'. The main content area is titled 'My awesome team' and is divided into several sections: 'Team', 'Usage', 'Subscription', and 'Feature Flags'. The 'Team' section lists the team's ID, name, and creation date. The 'Usage' section shows metrics for members, browser sandboxes, and credits. The 'Subscription' section indicates the team's status and trial eligibility. A 'CDE Beta...' button is located in the bottom right corner.

Users Teams Organizations

Search Teams
04669c5e-ed7e-41d8-b6dc-7e32b622b304

My awesome team

— Team —

ID 04669c5e-ed7e-41d8-b6dc-7e32b622b304

NAME My awesome team

CREATED 5 January 2022 at 16:12 UTC

— Usage —

MEMBERS 3 / 5

BROWSER SANDBOXES 1 / 20

CREDITS 2 / 400

— Subscription —

STATUS No Subscription

TRIAL ELIGIBLE? No

CDE Beta...

— Feature Flags —

Workspace Management

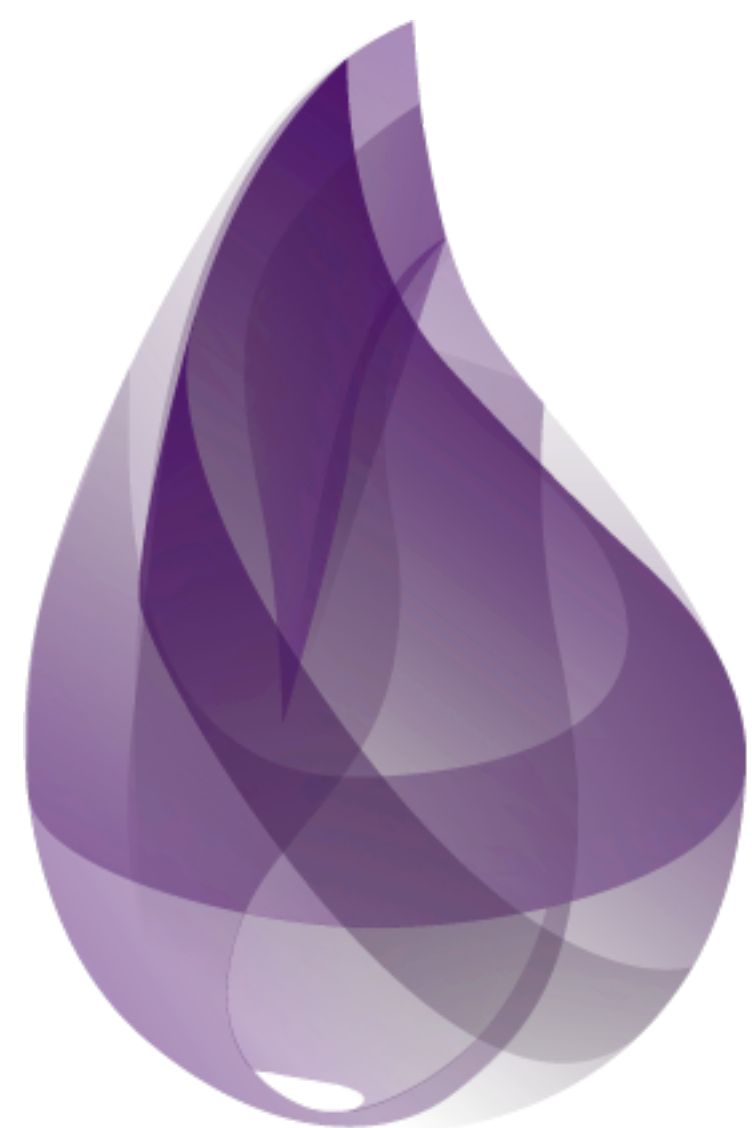
Members / Subscriptions / Permissions

React

- Complex mutations
- Hard to adapt to changes
- Settings available anywhere

LiveView

- No API contract
- Better performance control
- Faster iteration
- Features in one place
- Only stable features via API



elixir

Want to learn more?

- The Soul of Erlang and Elixir - Saša Jurić
- Elixir in Action - Saša Jurić
- Programming Phoenix LiveView - Bruce Tate & Sophie DeBenedetto
- elixir-lang.org
- Erlang: The Movie
- Learn You Some Erlang - Fred Hebert