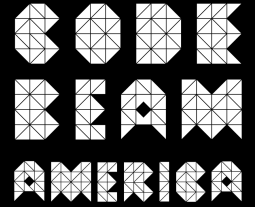# Elixir as a One-Person Stack for Building a Software Startup

Tyler A. Young

@TylerAYoung
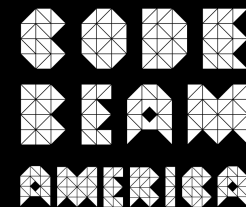
The One-Person Framework

WANTED: FULL-STACK DEVELOPER

1. HTML
2. CSS
3. Tailwind
4. A frontend language (JavaScript/TypeScript)
5. A backend language (Ruby, Python, Go, etc.)
6. A frontend framework (React, Vue, etc.)
7. A frontend state management framework (Redux, Jotai, Vuex, etc.)
8. A backend framework
9. REST
10. GraphQL
11. A background job system
12. A SQL database
13. A NoSQL database
14. An in-memory cache like Redis
15. A service crash recovery system (PM2, Upstart, etc.)
16. A message queue (RabbitMQ, Redis, etc.)
17. A web server (Nginx, Apache)
18. Docker
19. Kubernetes
20. A cloud platform (AWS, GCP, Azure)
21. Serverless
22. Microservices
23. Scaling services

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   (JavaScript/T... ...ystem
5. A backend lan...
   (Ruby, Python...
6. A frontend fra... ...ne)
7. A frontend sta...
   framework (R...
8. A backend fra... ...P, Azure)
9. REST
10. GraphQL
11. A backgroun...
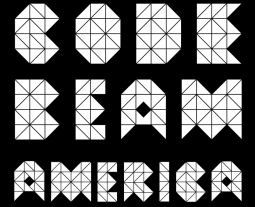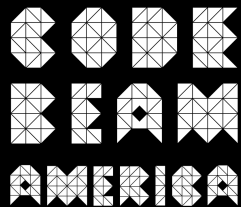
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SOMETHING HAS TO GIVE!

Hi, I'm Tyler

- Elixir since 2019

- Massive multiplayer game
  server (X-Plane)

- Real-time IoT
  command-and-control
  (Generac Grid Services)

- Collaborative mapmaking
  (Felt)

- Now: Bootstrapping a website
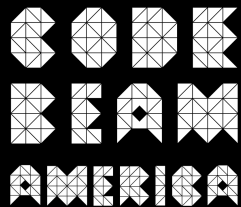 monitoring SaaS (SleepEasy)

Elixir: Pragmatic functional programming

- Effortless concurrency

- Immutability

- Fault tolerance

- Expressive pattern matching

- Rich standard library

- Actually helpful docs 🤯

- Great community 🥰

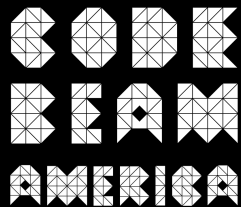Saša Jurić's "The Soul of Erlang and Elixir"

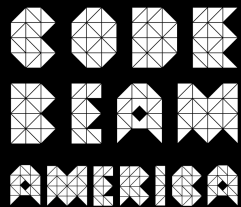# Drastically simplifying the web stack

CODE
BEAM
AMERICA

Removing layers of the stack with LiveView

- Frontend language

- SPA framework

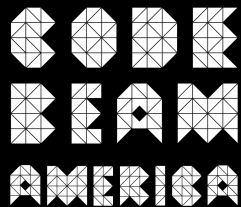- SPA state management framework

- REST API

- GraphQL API

Building more of the stack into the platform

- Fault-tolerance (supervision trees)

- In-memory caching (ETS)

- Message queues (Phoenix PubSub)

- Concurrency (Task, GenServer)

Building more of the stack in tools you know

- Vertical scaling

- FLAME for serverless-like scaling

- Oban for background jobs (built on your existing database)
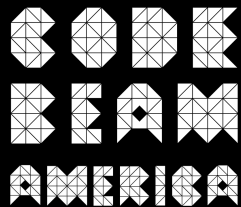
- Testing LiveView

Deployments, simplified

- Render

- Gigalixir
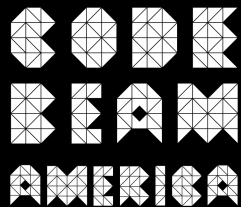
- Fly.io

- Dokku

23 → 8

1. Elixir (including supervision trees for fault tolerance, concurrency primitives like Task, and ETS for caching)
2. Phoenix (including LiveView and PubSub)
3. Oban for robust background jobs
4. Postgres
5. The PaaS of your choice
6. HTML
7. CSS
8. Tailwind

Other accelerators
in the ecosystem

`open-api-generator`

- Immense customization over default OpenAPI specs

- Bridges the gap between custom, from-scratch libraries and crummy generated wrappers

- Sample: github.com/aj-foster/open-api-github

Petal Pro framework

- $300 gets you:

  - Nicely designed component library (with dark mode)

  - Layouts & menus

  - Users (with avatars) & organizations

  - User impersonation

  - Admin dashboards

  - Stripe subscriptions
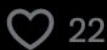
Maintainability over time

Gary Bernhardt
@garybernhardt

It's one of my most dreaded days: quarterly gem upgrade day. I'm trying to Rails by only one minor version (7.0.x to 7.1.x). The app now raises `FrozenError`... from inside Rails itself. Some things never change.

5:22 PM · Jan 19, 2024 · **6,293** Views

2   1   22   2

Maintainability over time

Tyler A. Young 🛼🧑🏻‍💻 #BuildingInPublic @TylerAYoung · Jan 19

What version of Elixir are you using in production right now?

1.15 or newer	82.1%
1.13 or 1.14	15.5%
1.11 or 1.12	0.5%
1.10 or earlier	1.9%

207 votes · Final results

💬 10   🔁 2   ♥ 2   📊 2.7K

Maintainability over time

Tyler A. Young ☕️👩🏻‍💻 **#BuildingInPublic** @TylerAYoung · Jan 20 ⋯

Okay, followup: what version of Phoenix are you using in production right now?

1.7.x	**78.5%**
1.6.x	16.8%
1.5.x	1.9%
1.4.x or earlier	2.8%

107 votes · Final results

💬 4   🔁 1   ♡ 1   ‖i‖ 925   🔖   ⬆️

Thank you!

Need Elixir development or consulting?
Reach out!

@TylerAYoung

TylerAYoung.com