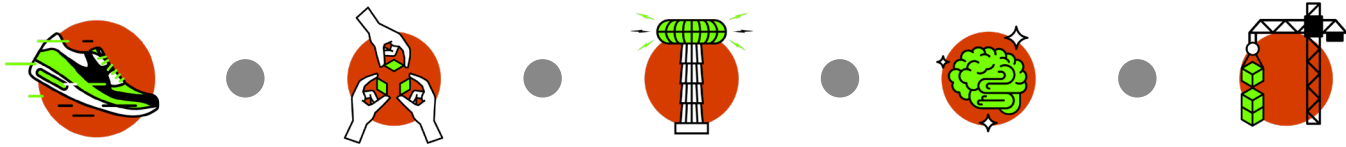


Scaling a Distributed System with Elixir & Elm



The Client



Environment: Real-time energy balancing platform

Size: 55 employees

Location: Vancouver, BC CAN | Denver, CO

enbala.com

Engagement: 3 years scaling systems, team and process in the right way



“ Test Double wasn’t just in a rush to fill open seats. Instead, they worked with us as a business partner to ensure optimal technical and cultural fit.

–Jeff MacAuley
former COO at Enbala

The Mission

Tech: Elixir/Phoenix, Erlang, Elm, C, Cypress/JS, Absinthe/GraphQL, PostgreSQL, Ruby, AWS, DataDog APM

Impact Areas: Custom Software Development, Test Driven Development, Team Building

We helped Enbala build out and scale their Concerto platform into a distributed, well-tested, fault-tolerant umbrella application. Enbala’s platform and the engagement were unique in both complexity and scale of real-time processing.

The mission focused on flexible methods to scale optimization and control systems. Not just any systems. Concerto processed gigabytes of data per second with multiple computations factored from thousands of assets on the electrical grid.

Test Double consultants paired with Enbala’s team to uncover efficiencies, rapidly advance features and continuously improve the system with an eye towards reliability and resiliency.

All so Enbala could do what they do best: manage distributed energy resources and develop a cleaner, more efficient power grid to create a sustainable and balanced energy future.

Make the scary stuff boring

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Scaling a Distributed System with Elixir & Elm

The Fix

How Many Developers: 20+ consultants over three years

Steps to the Fix: Sustainable pace, tight integration & mentoring relationship

The Concerto platform continuously shifts and adjusts flexibly across a vast network of electrical grid assets and responds instantly through continuous feedback loops on massive amounts of data. The tech engine manages challenges of intermittency, variability and unpredictability.

That gets pretty complicated, pretty quickly. We collaborated with Enbala's developer team to refactor, improve and expand capabilities on Concerto so they could deliver more of what their customers want in a maintainable way.



Great Software

- **Rapidly released features** in a complex codebase
- Refactored the system to make performance **more observable**, highly available and multi-node distributed with **smarter data structures**
- Developed a framework for reusable, extensible and **customizable rich data visualizations**, plus reduced rework costs
- Automated regression testing and end-to-end testing with Cypress for **increased speed and ease of maintenance**



Great Teams

- Encouraged culture of **more productive processes** and trust for **better-balanced teams**
- Helped product owners increase predictability with improved technical knowledge to aid **smarter decision making** and prioritization
- **Boosted team growth and mentored junior developers** on Elm, Elixir, Javascript and TDD
- Led by example with healthy communication strategies to **identify process problems, remove blockers and propose solutions**
- Repurposed time for open forum tech discussions to make **better use of time** so developers can independently run with things

The Results

Enbala is leading the way in defining cleaner, more sustainable power grids. We were a critical partner in making that happen by solving complex technical challenges. We helped build a great team with pairing, coaching and process improvement. In the end, Enbala achieved a market leadership position, got acquired and now has an even larger impact.



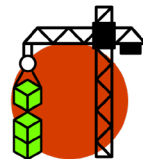
Lowered overhead, more efficient systems, reduced rework



Intentional planning, improved workflows, & increased predictability



Improved quality of life: culture of team growth & engineering excellence



Achieved massive scale, successful acquisition by industry leader

Let's Talk

Scaling a Distributed System with Elixir & Elm

testdouble®
Case Study

The Team

Kyle Adams
Agent 0033

Jason Allen
Agent 0059

Raelyn Bangel
Agent 0026

Amber Conville
Agent 0011

Jeremy Fairbank
Agent 0029

Todd Kaufman
Agent 0001

Josh Klina
Agent 0070

Adam Lukens
Agent 0021

Eric Newbury
Agent 0063

Justin Searls
Agent 0002

Luke Barbuto
Special Agent

Josh Branchaud
Special Agent

Randy Coulman
Special Agent

Matt Jones
Special Agent

Dorian Karter
Special Agent

Jed Schneider
Special Agent

Herman Singh
Special Agent

Jason Stiebs
Special Agent

Mark Windholtz
Special Agent

Jake Worth
Special Agent

Brent Yoder
Special Agent

Let's Talk

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