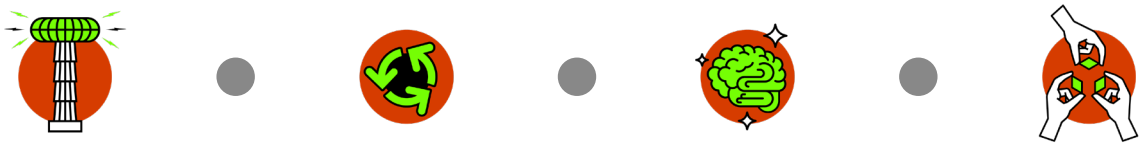
testdouble®

Case Study

Powering Real-Time Simulations using Foundational Codebase Development with a Functional Core



The Client

CPower

Environment: Demand-side energy management
Size: 150+ employees
Location: Baltimore, MD
cpowerenergymanagement.com
Engagement: 2 Months focused on foundational work

> Matt Jones is a rock star. He has taken it upon himself to resolve several thorny issues. Just this morning he spiked out some code that made my request for the team to get a round-trip of a use case done super obvious about how to proceed. Bravo.
>
> **–Mike Ratliff**
> VP of Utility Solutions at CPower

The Mission

Tools & Tech: Elixir and real-time factor situations
Impact Areas: Rapidly run real-time simulations and complex time-bound scenarios

CPower was balancing priority work on developing a real-time simulation system while also staffing up an engineering team. It doesn't get much more complex than real-time, demand-side energy management.

Delivering a sophisticated set of services that includes Demand Response (DR), Demand Management (DM) and controlling Distributed Energy Resources (DER) is a a complex challenge.

Measurement, monitoring, and reporting at scale are all required. The problems are made only more difficult when faced with an evolving environment (e.g. solar energy panels) and a rapid growth in the number of devices that need to be supported.

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The Fix

Steps to the Fix: Quick-turn development to rapidly run complex real-time simulations & time-bound scenarios

VP of Utility Solutions Mike Ratliff was already familiar with Test Double from previous work at clients Enbala, Cars.com and Comverge. When he needed to move forward with development, from prototypes to fully functioning simulations built on Elixir, he knew who to call.

Great Software

- Developed a system for both real-time simulation and “speculative” time-accelerated scenarios
- Took prototypes through to core functionality withn a new codebase in a functional style
- Applied best practices on tooling, testing and stories to build the right thing and do it well

Great Teams

- Instituted practice of architectural decision records to provide context long-term on why decisions were made early on in development of the new system
- Provided onboarding and pairing with new team of engineers to catch them up on discussions and nuances of the codebase
- Shared ideas around next areas to explore and encouraged meaningful discussions on code review

The Results

Test Double delivered functionality on a critical prototype so the VP could focus on staffing up a team of new engineers. Our consultants also led onboarding efforts for new team members, transferred codebase knowledge, and identified potential next steps to further the work.

Simulation software development with time-dependent behavior and reproducible randomness

Onboarded new engineering team to get them up to speed quickly

Introduced architectural decision records for lasting impact on maintainable code

The Team

Matt Jones
Agent 0098