

Mark Erikson

Senior Principal Software Engineer

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SUMMARY

I'm best known as the **primary maintainer for the Redux family of JavaScript libraries** (Redux, React-Redux, Redux Toolkit), and I am extremely active in the React/Redux community. I spend much of my time answering questions and explaining concepts through conversations, chats, presentations, reviews, and written documentation. I am recognized by the community as a world-class expert on the React and Redux JS libraries and the modern JS ecosystem. I have written well over 250K words of official Redux documentation, React/Redux tutorials and articles, and answers to questions on how to use React and Redux effectively. I have spoken at multiple conferences and taught several workshops on using JS, TS, React, and Redux.

In addition to my OSS work, I am a staff-level software engineer with 13+ years of experience. I specialize in front-end web app development, but I have experience solving problems across the full stack. I've done desktop dev with multiple languages and GUI toolkits, end-to-end web dev from JS MVC to server web framework to DB backend, low-level C algorithm optimization, mobile dev, and more. I have extremely strong information gathering and research skills, which help me quickly find and analyze tools I need to get my job done.

WORK EXPERIENCE

Northrop Grumman *Software Engineer* 2008 – present

Engineering Metrics Repository Lead 2020-present

Led a team developing an internal project statistics dashboard.

As team lead:

- Planned quarterly roadmaps and bi-weekly sprint stories
 - Worked with managers and stakeholders to gather requirements, design features, and prioritize requested features vs maintenance tasks.
 - Trained and mentored junior developers

As developer:

- Architected and implemented a phased migration of a 100K SLOC classic AngularJS 1.x + Express codebase to a modern React / Redux / TypeScript / Next.js client, while maintaining full app functionality and delivering new features over time
 - Migrated over 30K SLOC of plain JS business logic and client code to TypeScript
 - Maintained build tooling and infrastructure to support the ongoing codebase migration (CRA, Webpack, Next, Jest, and more)
 - Designed and implemented code foundation and abstractions for a spreadsheet-style data entry UI

BACN Project 2009-2019

Developed a series of mission planning and geospatial visualization / situational awareness applications based around terrain line-of-sight calculation and live geodata display on 3D globes.

BACN UI Infrastructure Lead 2019

Co-led a "UI and Infrastructure Services" team that supported BACN software feature teams in rewriting the BIB and LNCS clients in React and Redux, including project setup, implementing core foundation functionality, defining codebase conventions, and training back-end Java/C++ developers in modern web technologies.

BACN Information Broker / "BIB" (JavaScript, Cesium.js, React, Redux, Python, C)

2013-2019

- 2013: Joined a team of 12 in a clean-slate rewrite of an existing geospatial visualization web app. Using lessons from Kontour, helped build a set of Python and Java services with JSON APIs, and a smart browser client using Cesium as a 3D globe display. Later led an effort to refactor the original jQuery client codebase to use Backbone.js for improved architecture and maintainability, then trained and directed the rest of the team in client-side development techniques.
- 2014: Designed and implemented a major upgrade to the LOS calculation algorithm used by both Kontour and BIB, enhancing it to allow full 3D antenna-pattern-based RF+LOS calculations, and optimizing calculation performance of the radio frequency range and LOS calculation algorithms
- 2015: Implemented multiple new features for system data visualization using Backbone
- 2016: Rebuilt the Kontour web client from scratch using React and Redux to modernize the codebase
- 2017-18: Architected and directed development of a Python “server push” service that used Crossbar/WAMP and backend data diffing to replace an existing polling-based implementation for real-time data updates, shrinking bandwidth requirements by over 80%. Began migrating the existing Backbone client to React+Redux. Rewrote the full history of our Git repository to remove unwanted files and apply consistent JS syntax/formatting across the entire repo commit history. Generated multiple new image and terrain datasets using publicly available datasets and customized versions of geospatial data processing tools.

Kontour (Java, Play 1.x, GWT, SmartGWT, Google Earth, Cesium.js, Python)

2011-2012

Sole architect and developer of a web-based LOS calculation application built around Google Earth / Cesium.js for 3D visualization, with design input from the LOS algorithm author. Progressively moved some functionality into standalone Python web services as development continued, allowing reuse of system abilities in other applications.

BACN Line-Of-Sight Tool / "BLT" (C, C++)

2009

Assisted initial development of a plugin for the FalconView mission planning application that would display calculated LOS. Continued with solo development, adding UI features and enhancing the C LOS algorithm with multithreading.

Open Source

Redux Maintainer

- Primary maintainer for Redux, React-Redux, Redux Toolkit, and Reselect
- Creator of Redux Toolkit
- Wrote React-Redux v7 and v8, and directed development of v6 and the v7.1 hooks API
- Author of the "Redux Essentials" and "Redux Fundamentals" docs tutorials, Redux Style Guide best practices page, Redux FAQ page, and usage guides on "Structuring Reducers", "Deriving Data with Selectors", and "Writing Logic with Thunks"

Blogger, Speaker, and Teacher

- Author of numerous technical blog posts primarily focused on React, Redux, JS, and TS:
 - Extensive technical deep dives: "A Mostly Complete Guide to React Rendering Behavior", "Why React Context is Not a State Management Tool (and Why It Doesn't Replace Redux)", "The History and Implementation of React-Redux"
 - Redux usage and philosophy: "The Tao of Redux: Implementation and Intent / Practice and Philosophy", "Thoughts on Thunks, Sagas, Abstraction, and Reusability"
 - Topic overviews: "How Web Apps Work" series, "Using Git for Version Control Effectively"
 - Migration recaps: "Rewriting Git Repo History", "Migrating a MEAN AngularJS app to React, Next, and TS"
- Conference speaker:
 - 2017: React Boston – "You Might Need Redux (and Its Ecosystem)"
 - 2018: Reactathon – "Redux Fundamentals"
 - 2019: Reactathon Keynote – "The State of Redux", ReactNext – "A Deep Dive into React-Redux", React Boston – "Hooks, HOCs, and Tradeoffs"

EDUCATION Bachelor of Computer Science

Cedarville University, Cedarville, OH

2000 – 2004