



## james cleveland : full stack / react native / devops

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I'm an experienced polyglot engineer with a huge breadth and depth of knowledge and understanding, working in multiple languages across a wide range of commercial frontend, backend, devops, and embedded contexts. I live for problem solving and optimising, and thrive in the challenges of the London tech startup scene.

Communicating complex technical solutions and to stakeholders and fellow engineers in a way that they can relate to is also key to my approach, as if people can't understand what's happening, the most apt solution is unlikely to be reached.

I've recently bolstered my skillset in the areas of infrastructure, platform and CI/CD and IaC (devops), but as a natural creative, what drives me is a job where I wake up every day and go to work and build something interesting. It is imperative that what I do has a positive impact on the world in some way.

### CORE SKILLS

#### TYPESCRIPT

I love keeping up to date with bleeding edge patterns and technologies. I started using React and Redux when they were in infancy and have now veered towards MobX State Tree. I use TypeScript because having typed code is much more reliable and maintainable whilst enjoying the benefits of the latest ECMAScript features, such as generators, async/await and sane block scoping, in addition to the hugely powerful TypeScript generics. I've built a huge variety of services using Node.JS and often Koa (or Express). I usually test using Mocha, Enzyme and Chai, but have also coded tests for use with Selenium. My bundler of choice is Vite, but have in the past used CRA, Webpack, Parcel, Snowpack, and Rollup.

#### DEVOPS

I advocate for and have managed migrating products to a GitOps based workflow. I've managed clusters of applications and multiple developments using tools like Kubernetes, Terraform, AWS, Azure, GCP, Ansible, Docker and Mesos and have years of experience managing and deploying complex Linux system and network builds as an administrator. I also have a wealth of experience building CI/CD pipelines with tools like Concourse, GitHub Actions, BitBucket Pipelines, and CircleCI.

#### ARCHITECTURE

I'm always involved in planning the architecture of a system I'm building, whether that's analysing data and goals to create well thought out, efficient database schema, thinking about how to manage high volumes of traffic with scalable queue based systems, or deciding when a monolith needs to be broken into services, adopt a fully microservice based architecture, or simply refactored to enforce clear boundaries and separation of concerns within a codebase. There's no one-size-fits-all approach to this and everything should be analysed and discussed to figure out the best course of action.

#### DATABASES

Whilst starting from a traditional RDBMS SQL (Postgres, MySQL, MariaDB and AWS Aurora) background many years ago, it's important to analyse which database system is fit for purpose, so I've also extensively used NoSQL tools such as Redis, MongoDB, and Couchbase.

#### PROBLEM SOLVING

Whenever there's a technical emergency or others simply can't figure something out, due to the breadth of my knowledge and ability to think fast and methodically, I'm often the go-to person to fix things.

## AWS

I enjoy using AWS CDK and Terraform to be able to provision my own resources and architecture (aka Infrastructure as Code). I have worked with and architected services in a range of AWS technologies to build backends, including DynamoDB, Lambda, API Gateway, S3, ELB, CloudFront, Cognito, CloudFormation, CDK, SES, SQS, EFS, EBS, CloudWatch, ECS, EC2, AMIs, RDS, Lambda@Edge, IAM, Route53, OAI, and various others.

I have built infra from scratch using AWS, but have also managed existing projects, helping companies migrate them to CloudFormation/CDK.

## MOBILE APPS

I mainly develop apps in React Native, however, I write native modules when requirements dictate. I use Swift, Kotlin, and Java to do this. I have used RN for 5+ years and have a good knowledge of the ecosystem.

## GOALS

I'm looking to work with companies where I take ownership of projects and am involved in architecture and building software from start to finish. I would like to grow as a developer and experiment with different technology and stacks. I find I work better in a more start-up environment where each role is less well-defined and there is scope for taking on projects and languages that one might not be so familiar with. I also have some level of commercial awareness and like to analyse business problems in a similar way to software problems.

## RECENT WORK

### ENGINEERBETTER/CONTAINER SOLUTIONS - SENIOR CLOUD NATIVE ENGINEER (2022-2024)

I wanted to broaden my skillset so I started working with a small, elite devops/infrastructure consultancy who specialise in helping companies transform their infrastructure and processes to an approach that embraces software development practices such as continuous deployment, IaC and cloud native applications, and help them write their software itself to work in a cloud native manner - making the most out of cloud PaaS such as AWS, Azure and GCP. I also gained experience writing Kubernetes controllers in Go, building complex CI pipelines using Concourse, GitHub Actions and GitLab pipelines. As a company helped transform hugely complex projects at enterprise level to become more manageable, scaleable, and reproducible, eschewing strictly GitOps based workflows for reproducibility and resilience to drift. I also worked on projects that involved implementing Cloud Security Posture Management in various different manners, including visiting the Microsoft office in Paddington in order to (successfully) convince them to add features and scope to their Azure Policy tool such that various checks could be implemented. When not engaged with clients, I contributed to projects such as Kubernetes External Secrets Operator and the now defunct Compliance Framework (an Open Source CSPM auditing tool).

### SUPERBIKE FACTORY - LEAD DEVELOPER (FREELANCE 2021)

An old manager reached out to me because his current company needed an internal Android app built quickly and for reasonable cost, and I was the only person he trusted to get it done (and done well). The app was part of a system for bike delivery drivers to view their jobs, upload notes and photos, do training (quizzes and videos), and in the last stage of the project actually pay the customer. I enjoyed this project for two reasons - it was well defined, and I was building the entire app and infrastructure. Knowing his existing management system was using AWS, I opted to use CDK, Lambda, DynamoDB, and API Gateway for the backend and assist him in building integrations with his existing services. The frontend is built using React Native, MobX State Tree, and very small parts of AWS Amplify. It was nice having free reign of a completely green-field project again and getting to make something that is fast, efficient, and reasonably low-cost. Another fun part of this was creating a hugely well integrated BitBucket Pipeline which both deploys the infrastructure, uses the CloudFront outputs for this, and then builds a working copy of the app using those outputs - everything is completely dynamic and the minimal amount of configuration needed is done using the environment. I also did some auditing of their existing code and made it more secure in various places.

## **MAGIC MEDIA WORKS (ROXi) - LEAD DEVELOPER 2020-2022**

At ROXi I built several key projects from scratch and also worked on the core product - the "Companion App" which, built in React Native, uniquely used an approach I came up with for low latency LAN communication using a websocket server running on the phone. This was due to the constraints of now being able to use any sort of daemons on the TV app (as it had to run within a browser context). I implemented this using both Java and Swift WebSocket libraries for the respective mobile platforms, and had to do some work to make them thread safe on iOS (using GCD). The other major projects I built were some internal curation tools using MobX State Tree, Tailwind, and Vite, and a statically generated eCommerce and account servicing website using the relatively new Astro framework (based on Vite).

## **SAPIEN INTERACTIVE - LEAD FRONTEND DEVELOPER (FREELANCE 2020)**

A very new startup and a reboot of an earlier project I worked on, I was recruited by an old business partner to build the application for an app using React Native, MobX State Tree and Firebase. MST is interesting because it uses observables to achieve extremely high-performance whilst using mutable style updates and "flows" to manage side-effects, all with minimal boilerplate. Whilst I was initially sceptical due to having a preference for more explicit, functional style immutability that is used in redux, I approached it with an open mind and once I figured out MobX's observables and re-factored the codebase away from class components and into modern functional components wrapped by mobx-react observers and using hooks, I realised that the simplicity and elegance of the library were worth it.

## **ZOPA FINANCIAL SERVICES - SENIOR FRONTEND DEVELOPER - 2018-20**

Jumping into the world of finance and Fintech, at Zopa I was leading the development of the credit-card part of their app, built in React Native and using redux as a data layer. I learned a huge amount about react native and was lucky enough that the developers there were into keeping a well maintained, up-to-date codebase that leveraged useful new tech, such as hooks, as soon as was feasible and appropriate. We also had a heavy emphasis on well-reviewed, well-tested code using detox and @testing-library/react-native. I also had a strong connection to the analysts and backend developers (even fixing a few of their bugs!) and learned about financial products and requirements in depth in order to be more effective as an engineer.

## **ON THE DOT - SENIOR FRONTEND DEVELOPER - 2017-18**

I joined On The Dot (previously known as LastMileLink Technologies) in July 2017. I was a developer in the team responsible for the development of the front-end UI, mainly their allocation UI, which was responsible for controllers allocating deliveries and bookings to couriers. I was also part responsible for refactoring the entire codebase to use modern practices and patterns such as redux, redux-observable (for side-effects), and React 16. At this company I also started taking responsibility for several backend projects, and took ownership of the authentication framework (based on Auth0), authorization system (based on AWS Lambda and JWT), and various other services involving user management and automated API aggregation (using Swagger, AWS API Gateway, and Apigee).

## **SMARTFOCUS - LEAD FRONTEND DEVELOPER - 2015-17**

Joining in March 2015, I was a Lead Software Engineer in the innovation and front-end teams at the London based marketing technology company SmartFocus, and built and rebuilt a vast amount of their frontend code and internal services.

In this role, I mainly worked with JavaScript/ECMAScript, React, Redux and Node.JS. I architected and built the mainstay three of their current and future products and mentored other engineers, creating patterns and practises that are widely commended within the technical team.

If there was a problem that needed solving or input required, for instance database architecture, general architecture, or being involved with the UX and general product design process, I was quickly able to tap into my skills and learn whatever else is necessary to solve a problem or improve a solution.

## LESS RECENT WORK

### LEAD FRONTEND DEVELOPER, BOOTBAG (2014-15)

I worked prototyping and building the frontend for a startup using ReactJS.

### TECHNICAL DIRECTOR, LINKS CREATIVE (2013-15)

I worked as Technical Director for a small Brighton based agency. Mainly using Django, AngularJS, jQuery and PHP, I took projects from ideas in clients' heads to fully developed products.

### WEB DEVELOPER, FREELANCE (2010-13)

When I moved to Brighton I dropped myself into the deep end and rapidly learned to network, project manage, and rely on rapidly improving my technical skills to meet demand.

### WEB DEVELOPER, PRIMROSE LONDON (2009-10)

I furthered my knowledge of PHP and systems administration, integrated Linux servers with Active Directory, and set-up version control using Git.

## OTHER SKILLS/TECH

### TYPESCRIPT/JAVASCRIPT

TypeScript, Generics, async/await, Node, React Native (+ Swift/Kotlin/Java), React, Redux, MobX State Tree, Flux, Immer, ReasonML, RxJS, Redux Saga, Webpack, Vite, Snowpack, ImmutableJS, GraphQL, Websockets, Socket.IO, ZeroMQ, Oao, Lerna

### PYTHON

Typing, Django, Flask, Twisted, Cython, Jinja2, Celery, pypy, pip (I am the original reason pip now uses validated HTTPS certificates!)

### DEVOPS

Docker, AWS, DynamoDB, Lambda, API Gateway, S3, ELB, VPC, Security Groups, AMIs, CloudFront, Cognito, CloudFormation, CDK, SES, SQS, CloudWatch, ECS, Fargate, EC2, EFS, RDS, Lambda@Edge, IAM, Route53, OAI, Apigee, CircleCI, Docker, Concourse, Mesos, Marathon, BitBucket Pipelines, Github Actions, Kubernetes, GitOps, Traefik, Unikernels, NanoVM, GitOPS

### DATA

PostgreSQL, MySQL, Couchbase, MSSQL, MongoDB, Redis, Memcached, GraphQL, CouchDB

### FRONTEND

Tailwind, CSS, Bootstrap, SASS, LESS, Foundation, HTML5, XML

### MISC

Git, SVN, BDD, TDD, Vagrant, Nginx, Apache, Agile, JIRA, Trello, C++, C, x86 ASM, C#, Qt, C30

## ABOUT ME

I don't see programming and computers as simply a job, but part of who I am. I think the world is going through very interesting times and it will be passionate programmers and thinkers that will play an important part in shaping it. My current hobbies are photography (events, portrait, street, travel), and I'm an avid cyclist (mainly fixed, but also gravel). When I lived in Brighton I often helped out with putting on shows and DJing club nights. I enjoy going out with friends and finding new bands or other weird and wonderful things to do. I am a keen follower of current affairs, especially from a technical standpoint, and think a lot about the world and am interested by new developments politically and scientifically.