

Matt Bessey (he/him)

I'm a Bristol, UK based Principal Engineer and Software Architect with **10+** years of industry experience. I have a generalist technical skill set with deep and broad knowledge of frontend, backend, and cloud infrastructure. I have extensive experience providing technical leadership, building internal tooling to accelerate my peers, and delivering valuable features to users. I excel at reasoning about large systems spanning these disciplines, then deep-diving into specific technical problems within them.

I'm a friendly extrovert with strong written and spoken communication skills, comfortable collaborating with technical and non-technical stakeholders alike.

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EXPERIENCE

Principal Engineer, Immersive Labs Bristol, UK (2019 — 2024)

At [Immersive Labs](#), a B2B SaaS platform helping enterprise customers enhance their cybersecurity expertise through hands-on gamified **Labs** (*in-browser networked remote desktops*), I lead the architecture team. My responsibilities have included:

- Performing technical due diligence of potential acquisitions, with one successful.
- Defining the long-term strategy of the engineering department, to further engineering excellence, especially around reliability, velocity, and scalability.
- Establishing and leading the SRE and Developer Experience guilds and being a major contributor to the Test Automation and Performance guilds.
- Founding and leading the Platform Engineering team responsible for ensuring the reliability and scalability of the entire platform, as well as improving DX for all engineers.
- Leading the Capacity & Performance team, composed of backend / infra / quality engineering. We ensure that as the company onboards enterprise customers 100x the size of previous customers, our platform remains stable and performant.
- Providing architectural guidance to product teams in a consultant capacity.

In my time at the company:

- Annual active users increased **9x**
- Annual Labs completed increased **7x**
- Engineering department headcount increased from 20 to **65**
- Engineering releases per month increased from <100 to **250** (tracked from 2021)
- Engineering change failure rate decreased from 20% to **7%** (tracked from 2021)
- I reviewed **1,300+** PRs from colleagues

Specific projects of note, which I have been a major contributor to:

- Led a project to enable load testing our Labs product, with browser-based load testing. This approach made it possible to load test a system too complex to load test with traditional (headless) tooling. We were also able to reuse our existing E2E test framework, reducing maintenance costs.
- Built a framework to quickly synthesise realistic data for large enterprise customers. This allows the business to know what areas of the platform will need investment before large customers are onboarded.
- Led a project to provide users of a recently acquired product a seamless SSO authentication experience to our platform. I identified an OSS microservice which allowed us to rapidly extend our existing login system with standards based SSO capabilities. Significantly reduced effort and risk vs. migrating to a 3rd party hosted identity provider or building a custom authentication solution.
- Established and popularised an RFC process to ensure a fair and scalable way of making system impacting technical decisions across the engineering organisation.

- Designed and built a code-review-based interview exercise for senior backend engineers. I built a small but realistic production application, and a PR against it, with flaws of varying severity. This enables candidates to demonstrate skills relevant to the role they applied for.
- Designed and led the build of a cross-region *partial* data replication system, to support customer data sovereignty while maintaining a single global CMS for cybersecurity content.
- 2x'd our Rails monolith's RPS per process in a quarter, through identifying suboptimal Kubernetes configuration, and coordinating optimisation across teams.
- Significantly reduced developer toil by establishing platform-wide conventions for development environment setup / update. Regardless of the service you're working on, running one command will reliably provision a working development environment.
- Bootstrapped the company's ELT data pipeline. I ran a proof-of-concept trial comparing several vendors, and assessing the performance of each with respect to the data analysts' needs. Our Data team has since grown 5x and the core of the data stack (Snowflake, dbt, Looker, CI) remains 3+ years on.
- Introduced Domain Driven Design patterns to gradually refactor our Rails monolith into highly-cohesive loosely-coupled components. Decoupling within the monolith comes without the operational overheads associated with a microservices architecture. This has allowed ~20 engineers to contribute and release changes to the monolith 8+ times a day, with minimal coordination needed.
- Worked in a cross-functional team to improve the reliability of our Labs orchestration system. In the wake of a major outage, I led the roll out of extensive observability and monitoring tooling improvements, to identify precisely what went wrong, establish SLOs, and enable the team to make necessary changes to meet them.
- Established best design practices for an early stage GraphQL API, drawing from past experience to develop a performant, secure, stable, and user friendly API. Today this API is used for nearly all requests both internally and from customers.
- Reduced the complexity of our authentication system by migrating from a custom LocalStorage + JWT system to Rails out-the-box encrypted session cookies. This was originally motivated by XSS vulnerability concerns, so I was able to improve security without adding complexity.

Senior Software Engineer, Caring.com San Mateo, California (2013 — 2019)

[Caring.com](https://www.caring.com) is a B2C lead generation site that helps consumers find appropriate senior care for their family's specific needs from a comprehensive directory of facilities across the US. Leads are acquired via SEO and online ads, then converted over the phone by specialist call centre staff. My contributions include:

- Worked with a lead engineer to replace a call centre SaaS product with an in-house Twilio powered Rails application. The application was developed and launched in under 6 months, was far more stable than the product it replaced, and was still used largely unchanged 4+ years later by ~100 sales staff across the world.
- Designed and maintained our core Rails monolith's GraphQL API. It received ~850k requests per day and was the primary API for the consumer facing website and call centre tooling.
- Instrumented the monolith with APM software to identify and rectify performance pitfalls from memory over-allocation, N+1 SQL queries, and sequential I/O.
- Developed an Airbnb style interactive map based search UI, using server-side rendered React to allow for rich interactivity without impacting SEO or initial page load time.

EDUCATION

University of Bristol, **Computer Science BSc with 1st class honours** (2010 — 13)

The programme was primarily practical and took a "bottom up" approach. Highlights:

- 1st year: Computer Architecture. Programming paradigms via C, Java, and Haskell.
- 2nd year: Databases, Concurrency, Data Structures & Algorithms, Signal Processing.
- 3rd year: Cryptography, Machine Learning, High Performance Computing.

SKILLS

Systems design
Scaling applications
Scaling systems
Technical PM

Developer experience
SRE / observability
Majestic monolith design
Domain driven design

Data engineering
Design /

TECH (A-Z)

Expert

Datadog
Docker
Git
GraphQL
JavaScript
Kubernetes (aka YAML 😊)
MySQL
Ruby
Ruby on Rails
Sidekiq
RSpec

Good

AWS (EC2, RDS, EKS, S3, CF, SQS)
Looker / LookML
Python
React
Redis
Redux
Sass
Terraform
Twilio
TypeScript

Past / Limited

C / C++
C#
dbt
Elixir
Haskell
Java
OIDC / OAuth2
Snowflake

PROJECTS

[graphql-fiber-test](#)

Proof-of-concept that inspired the implementation of GraphQL Ruby's [GraphQL::Dataloader](#)

[brillo](#)

ActiveRecord based developer database scrubber and loader gem

[vscode-rufo](#)

VS Code extension to provide support for rufo, a Ruby formatter

OSS PR CONTRIBUTIONS

[rmosolgo/graphql-ruby](#)
[krisleech/wisper-activejob](#)

[palkan/anyway_config](#)
[xuong/graphql-schema_comparator](#)