

Jack Price-Burns

Email

jackpriceburns@outlook.com

GitHub

<https://github.com/jackpriceburns/>

Personal Website

<https://jpb.dev/>

About Me

I've always had an interest in programming, developing my skills from mid-high school to present. I was able to pursue my interests further in computer science at college. In my final year, I was tasked with innovating and developing a project by myself. I chose to write in PHP using the Laravel framework to create a website that allowed students and teachers to log on and complete / set homework respectively. Despite this being an independent project, I have always enjoyed working with others and communicating and collaborating in groups. A good example of this was when I was younger; my friends and I played on a Minecraft server that I hosted and managed. The server was public, anyone could join, so knowledge of scalability was necessary. Hosting the server helped me in my current career as it was running CentOS 6 and I learnt at a young age to use SSH and SFTP which helped significantly when I carried on to set up LAMP servers for personal development.

In my spare time, I'm an enthusiastic photographer/videographer. I love travelling, making travel videos and taking pictures of landscapes. I originally got into photography with only one goal, to take a picture which I can set as my desktop wallpaper and be proud to show it off. I've been taking pictures for over 5 years now, I have achieved my initial goal and I am very proud of some of the pictures I have taken. More recently I've taken an interest in Microsoft Flight simulator and whenever I go on holiday I like to try flying the route myself first. I am also trying to learn Piano in my spare time. I haven't been learning for long, but I am pleased with my progress thus far.

References are available upon request.

Senior Software Engineer Jan 2024 - Present

Jelly - Full-time

At Jelly, I played a crucial role in a lean team, working alongside one other Senior Engineer, the founder, and the co-founder, both of whom were non-technical. I was responsible for all engineering aspects, from frontend and backend development to security, DevOps, SRE, solutions architecture, design, project management, and QA. Our tech stack primarily consisted of a TypeScript GraphQL API, a React PWA frontend, and a set of Lambda functions written in TypeScript and GoLang for websockets and event-driven actions.

In my role, I tackled a significant overhaul of the codebase, addressing substantial security issues, updating dependencies, and replacing in-line styles to enhance maintainability. I focused on reducing AWS costs and improving the developer experience, which enabled faster feature deployments and a more seamless workflow.

I introduced websocket functionality for real-time frontend updates. Rather than relying on third-party services like Pusher, we prioritised cost-effectiveness by building a custom solution with AWS API Gateway and GoLang. Additionally, I implemented an advanced permissioning system, empowering users with customizable create/read/update/delete roles for data management, thereby resolving security gaps and strengthening user access control.

On the frontend, I conducted a full-scale revamp, incorporating TailwindCSS and developing a new component library in line with our Figma designs. This overhaul included a complete redesign of the signup and onboarding flow and other core app areas. I also led integrations with major POS providers, Epos Now and Square, managing each integration end-to-end—from initial research and infrastructure setup to a user-friendly frontend that enabled seamless self-service integration.

Throughout my time at Jelly, I consistently championed improvements, advocating for product quality and challenging the status quo to ensure we delivered the best possible experience. My proactive approach fostered positive changes and strengthened our product.

Senior Software Engineer April 2023 - Dec 2023

albelli-Photobox Group (APG) - Full-time

I joined APG right after a large merger and was quickly put on the team responsible for bringing together the backend systems. Shortly after I joined, I was made Team Lead of the orchestration team. Our main job was to manage a key GraphQL application called Orchestration. We used TypeScript and Apollo GraphQL for this, and it ran on AWS Lambda. We also used CloudFront and Redis for caching.

As the Team Lead, I led the creation of a new Orchestration which used newly created group backend services. This was a big project that used GraphQL federation which had not been used in the company before. We have built six different subgraphs so far, each responsible for a specific concern like content or shipping info for example. We connected these subgraphs initially using Apollo Gateway, then changed to Apollo Router which we run as a container on

References are available upon request.

ECS. The subgraphs were all TypeScript and ran on AWS Lambda like the original orchestration. This new setup was more organised and easier to manage.

During my time at APG, I was also on-call for a bunch of days during the peak period. APG sells printed photo products like custom calendars and photo books. Black Friday and the whole lead up till Christmas is very very busy. During this time, I was frequently helping out with any issues as they occurred. I don't have any problem jumping into legacy / unfamiliar code and fixing issues.

Software Engineer Dec 2022 - March 2023

Aviva - Full-time

During my time at Aviva, the tech stack was GoLang / AWS / Lambda / API Gateway / DynamoDB / EventBridge / SQS / CDK / React. Nearly every Microservice was composed of an API Gateway, DynamoDB and Lambda. The front end was React. There were a lot of microservices all of which were deployed using the AWS CDK. This was my first exposure to GoLang in a professional environment and I was able to jump straight in and get going with ease. I had also not used the AWS CDK before but I also picked this up easily and I made several significant infrastructure changes.

During my time at Aviva, the kind of infrastructure we used was notoriously difficult to debug due to the fact a single request could see a large number of microservices and any one of these could fail. I used a combination of Amazon X-ray and CloudWatch log insights to identify and fix several different API failures.

Full Stack Engineer Jan 2021 - Dec 2022

iTech Media - Full-time

AWS

At iTech Media, everything I worked on was green-field, and there were plenty of opportunities to flex my skills in AWS. I was solely responsible for creating and managing the infrastructure for my pillar (collection of teams with a similar focus/vertical). I set up Infrastructure as Code using CloudFormation as standard for all of our projects. We automated everything through a combination of Bitbucket Pipelines & GitHub Actions.

The entire stack is in Docker containers, so we leveraged ECS to host our containers and ECR for the container registry. The rest of the company used EKS (Kubernetes), but we pioneered the move towards Infrastructure as Code using CloudFormation and ECS.

My squad and pillar were the first in the company to become self-sufficient in DevOps / SRE. As we were branching away from help and supervision from the SRE team, we wanted to set the gold standard in the company. For example: as mentioned, everything was IaC as standard. All of our infrastructure in AWS ran in a 3-tier network architecture. AWS SecretsManager

References are available upon request.

generated database passwords and provided them to the application without anyone ever seeing them. We leveraged GuardDuty and CloudTrail to monitor for abnormal account activity.

Development

In my squad, the stack was SvelteKit, Tailwind, TypeScript and CloudFlare Workers. SvelteKit has both frontend and backend code running in the same codebase. I spent most of my time working on the backend code which was essentially Node. Later we decided to convert the project to use TypeScript, this was a fairly painless process. I hadn't used TypeScript before, but my background in strongly typed languages made it very easy to pick up and I was using generics in no time.

I spent a lot of my time writing code for the CloudFlare Worker. This provided at-edge performance for a number of different things, including: localised content, connecting to internal APIs, logging and alerting, error handling and much more.

In the last 9 months, I moved into the data team. Our goal is to create an API from multiple data sources but add the ability for historical data which the sources didn't support. Our project was split into 3 services, import, ingest and deliver. All services were written in TypeScript and were running on Lambda functions. We utilised queuing with AWS SQS, PostgreSQL as a database in combination with DynamoDB where appropriate. We also used AWS SAM for deploying most of this project.

Backend/Devops Engineer Dec 2019 - Dec 2020 (1 y)

Muzz - Full-time

At Muzz, I worked as a Backend/DevOps Engineer primarily coding in PHP, alongside NodeJS. When I joined, Muzz had a user base of 4+ million users, scaling, managing and deploying infrastructure on that level was a massive jump from my prior employment. Some of the tables in MySQL had billions of rows, managing that data quickly and efficiently is a very complex challenge, especially with an ever-growing user base. This place was a very fast-paced start-up environment, where we had to balance the importance of quantity with quality (a big difference from my previous place, HAL).

When I first joined Muzz there was an internal moderation system which was used by the staff to moderate users on the app. I was able to take ownership of this internal tool, and using my previous experience, I completely refactored this. In 2 months it was rebuilt in Vue and I had converted the NodeJS backend into solely PHP to align with the rest of our stack. I also introduced fresh UX and UI which was much needed and more consistent with the brand. These changes brought significant performance improvements to the application but also the staff using the tool.

References are available upon request.

Skills

AWS

I have the AWS Solutions Architect Associate certification along with 7+ years of commercial experience managing 24/7 mission critical infrastructure on AWS supporting a user base of 4+ million users and scaling to meet demand requirements.

I have a vast range in knowledge of AWS services from using EC2 to creating full CloudFormation and Terraform stacks in production. I have replaced and built entire CI/CD pipelines using CodePipeline, CodeBuild and CodeDeploy offering zero downtime deployments to a cluster of over 30 servers. I have experience setting up caching layers using CloudFront, ElastiCache (redis and memcached) and persistent storage layers using S3, RDS, EFS, Neptune, RedShift and DynamoDB.

I've rearchitected applications to use AWS Lambda, API Gateway and DynamoDB. I've used AWS Inspector, AWS WAF and GuardDuty to identify and fix security issues in production. I have also pioneered the move to use Cognito for a centralised user management system to facilitate the move towards a more distributed architecture. I've even made an Alexa app.

I've architected, built, load tested and deployed from the ground up infrastructure solutions that have gone into production and have been successful with little/no input or help from other team members.

Node / TypeScript / Deno / Bun

I have 6+ years experience writing backend applications with Node and TypeScript. Working in a variety of different environments (Lambda functions, docker containers, CloudFlare workers). I've written microservices, express apps, websocket apps, event handlers and more. I have experience dealing with complicated typing issues in TypeScript and having to deal with streaming large amounts of data with Node. I've also experimented with Deno and Bun.

GraphQL / Federation

I have experience working with GraphQL and also using federation. I have built and maintained several subgraphs from scratch and also set up and deployed Apollo Router to federate these subgraphs together.

HTML

Yes.

References are available upon request.

MySQL / PostgreSQL / Aurora / DynamoDB

I have lots of experience with database solutions. I have identified and fixed problematic SQL queries to improve database performance in production. As mentioned above I've had to optimise and write SQL queries for a database terabytes big with tables over a billion rows, needless to say I know what an index is. I also have experience with single table design with DynamoDB.

PHP / Laravel

3+ years of experience using the Laravel framework for a bespoke SAAS product. Experience using queues, mailing, events, web sockets, service containers, Eloquent, packages and much more. I also have experience creating packages for Laravel that utilise language packs, migrations and notifications.

Vue / Svelte / React / SvelteKit / Next.js / CSS

I have 6+ years commercial experience with a combination of Vue, Svelte and React frontend frameworks making full scale frontend SAAS applications. I'm familiar with Vuex and Redux for state management solutions. I have also set up and actively worked on SvelteKit and Next.js applications. I have also used many CSS frameworks throughout this time including Bootstrap, Bulma, Tailwind and more.

WebSockets

I have used web sockets for making live UI interfaces, real-time messages, graphs, notifications and more. I have experience using Pusher as well as setting up a websockets server to scale to support tens of thousands of concurrent connections.

GitHub - Git Flow

I use Git and GitHub / BitBucket on a daily basis in a git flow environment. Using feature and hotfix branches. I use a combination of GitKraken, the Git CLI and source control tools built into my IDE.

REST API

I have both created and used REST API's in many languages and frameworks. Vue, Svelte, Laravel, Node, API Gateway and Go to name a few. I have also created and maintained API Gateway and implemented JWT authentication. I've spent a huge amount of time researching JWT, security best practices, and the best way to implement them. Security is one of my favourite topics.

References are available upon request.

Education

Sir Isaac Newton Sixth Form, Norwich — **A levels** 2015 - 2017

- Computer Science - B
- Maths - C
- Physics - C

Aylsham High School, Aylsham — **GCSE** 2010 - 2015

- Maths - A*
- Physics - A
- Chemistry - A
- Computing - A
- ICT GCSE - B
- Resistant Materials - B
- English - C
- Biology - C