Michael Boulton

Email: michaelboulton@gmail.com
References available upon request
https://www.linkedin.com/in/michael-b-2678b9196/

Key Skills

- Python, Go, Shell, C
- Docker/Kubernetes/Linux
- CI/CD pipelines, Bazel/other build systems
- Infrastructure/Cloud - GCP (mostly), AWS and Azure

Experience

Forgerock - Senior Staff Software Engineer
December 2019 - November 2022

Worked as part of a worldwide team to provide a SaaS offering of the core Forgerock IAM platform on Kubernetes, with an emphasis on security and zero-downtime upgrades. Used terraform, Kustomize, and other custom deployment tools to deploy these components and supporting infrastructure, along with integrations with a variety of other services such as NoSQL databases and Pub/Sub queues.

Created new microservices for the platform, involving the whole lifecycle from planning and designing new features, threat modelling, writing code for the service, and unit and integration tests all the way to deployment and setting up monitoring and alerting for each new component.

Debugged issues and constantly worked to improve the visibility into and reliability of production environments as part of an on-call rota.

Spearheaded a project to reduce our build times and create reproducible builds using Bazel in both our team's multi-language monorepo, as well as working with other teams in the company working towards the same goal. Wrote custom rules for our own unique needs, and created the infrastructure-as-code to deploy a remote caching and execution system.

BJSS - Technical Tester
October 2018 - October 2019

Created configuration-as-code pipelines in Azure Devops and Atlassian Bamboo (as well as a custom Kotlin DSL wrapper for the official Java-based Bamboo libraries) to create Docker containers for, and deploy web apps to AWS and Azure, as well as using Terraform to deploy the supporting infrastructure. Created a Gradle plugin to enable easy security scanning of code and dependencies as part of the testing process.

Wrote API and UI tests for these applications, and the relevant integrations with test reporting platforms. Created a platform assurance toolkit to verify expected behaviour and state of infrastructure in Azure.

Zoetrope Labs - Senior Software Engineer
January 2016 - July 2018

Worked on a variety of projects related to embedded devices as part of an IoT consultancy, including Raspberry Pi based devices, writing and hardening a Yocto Linux distribution for a custom gateway device, and a cloud-agnostic Django-based IoT platform which used MQTT to communicate with devices. Other projects included a custom OpenID connect provider, and various embedded device daemons such as a streaming media player and a WiFi connection controller. These projects used both NoSQL and SQL databases.

Designed and optimised CI/CD pipelines for quick feedback and reproducible builds for developers on the team, as well as creating Docker images and other deployment artefacts. Provisioned and operated both managed and self-deployed Kubernetes clusters on AWS and GCP, wrote Helm charts to deploy workloads, and created local development environments based on docker-compose and minikube.

Designed and implemented a custom HTTP/MQTT integration testing library and Pytest plugin, Tavern. This has since been open sourced on Github, which I personally maintain, and has a large active user base.

University of Bristol - Research associate
July 2013 - December 2015

Ported and evaluated performance of HPC mini-apps to a number of existing and new programming languages to run on emerging computing architectures, including GPGPUs. Debugged and optimised the performance of code over tens of thousands of nodes and accelerators.

Wrote and contributed to scientific papers, and presented findings of research at academic conferences.

—

Education

University of Bristol - MEng in Computer Science and Electronics (1st class)
Graduated 2013