Joseph Innes
Software Engineer

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Passionate about building performant & elegant computing solutions that scale. Believes that simplicity is an underrated engineering principle. I'm currently enjoying systems programming in Zig.

Personal Project

Dave
Apr 2024 – Dec 2024

Design & Implementation

Dave is a distributed hash table, based on Kademlia, written in Go. A p2p network application that allows nodes to read and write data without a value transaction. A writer pays in CPU cycles and electricity, while a reader pays in network participation. Data is replicated to a set of "closest" peers. Replicas are periodically re-evaluated.

- Secured by proof-of-work and ed25519 signatures
- Efficient memory management; buffer pooling, ring buffers and a heap
- Concurrent programming patterns such as; worker pools, atomic operations, and sharding

Work Experience

Swissinfo
Oct 2018 – Apr 2024

Software Engineer
- Accelerated product development by driving adoption of Go within the team
- Designed & led development of a solution to manage and deliver videos to millions of viewers worldwide, saving the organisation $250,000 as they were quoted for an outsourced solution.
- Built a logging solution over UDP. This solution handles millions of logs per hour, offering real-time observability across all micro-services
- Handled DevOps for the team, using Terraform to manage infrastructure across multiple environments
- Secured internal applications by integrating parent corporation's IdP (Azure AD) using SAML for SSO
- Built a CI/CD pipeline using Terraform, GitHub Actions and bash scripts, streamlining the team's release process

9 Group
May 2017 – Jul 2018

Full-stack Developer
- Led development of a web app that consolidated legacy internal applications, which improved employee productivity
- Gained understanding of design considerations for efficient handling of large datasets
- Wrote and peer-reviewed business-critical software that handled millions of records daily, ensuring reliable billing for customers

GE Aviation Systems
Sep 2011 – Aug 2014

Higher Engineering Apprentice

Designed & developed embedded avionics systems for civil & military aircraft.
- Employed as part of an extremely competitive under-graduate scheme
- Gained experience in team-leadership and project management
- Learned how to write high quality technical documentation
- Completed NVQ Level 4 in Engineering Leadership

Education

University of the West of England
Sep 2011 – Jun 2014

FdSc Aerospace Computer Systems

Study sponsored by GE Aviation Systems. Modules included; analytical methods (mathematics), digital systems design, VHDL, software design, and embedded microprocessor systems.