

# Mark Gascoyne

Polyglot Full Stack Software Engineer

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## Summary

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Lead Software Engineer with 16+ years building production systems in Golang, Python, and TypeScript. Specialist in distributed systems, platform engineering, and cloud-native architecture with deep expertise designing and implementing backend services, Kubernetes operators, and scalable infrastructure software. Proven ability to lead teams, mentor engineers, and drive technical strategy across telecoms, energy, and fintech sectors.

Most recently at Vitrifi (telecoms/network), I architected distributed systems for multi-region network infrastructure. Key achievements include designing and implementing a CRDT-based datastore for network state synchronisation achieving eventual consistency without consensus protocols, improving system availability through conflict-free replication across multiple regions, building 5+ production-grade Kubernetes operators, and establishing GitOps infrastructure serving as single source of truth for production deployments.

Technical expertise spans: Platform Engineering, SRE practices, Kubernetes, Golang, Python, TypeScript/React, multi-cloud (AWS/Azure/GCP/OCI), Infrastructure as Code (Terraform), GitOps (ArgoCD/Flux), distributed systems (CRDT, eventual consistency, state synchronisation), cryptographic systems, and observability (Prometheus/Grafana).

Technical background spans full-stack software engineering from backend services (Golang, Python) through infrastructure (Kubernetes, cloud platforms) to frontend (TypeScript/React). Have architected and delivered complete production systems including multi-tenant SaaS platforms, demonstrating end-to-end capability from distributed backend services through to user-facing applications.

I drive technical strategy, mentor cross-functional teams, and deliver production-ready systems at scale. I excel in building reliable, scalable cloud-native infrastructure and thrive in environments where I can leverage my expertise to solve complex technical challenges.

## Skills

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### DevOps & Orchestration

Kubernetes | Helm | Flux | ArgoCD | Skaffold | Kustomize | Docker | Linux | Terraform | Argo | K3S

### Programming Languages

Golang | TypeScript | .Net | CSharp | VB.Net | Scala | Node.js | Java | Bash | Python

### Tools & Frameworks

GitHub | Git | Circle CI | Z Wave | Modbus | TFS | MVC | Spring | Confluence | GitLab | BitBucket | Jira

### Web & Frontend Development

Vue.js | React | Swagger | Rest | Signalr | JQuery | Knockout | Backbone.js | Highcharts | Soap

### Databases & Messaging

SQL Server | Cassandra | Entity Framework | Redis | Microsoft SSAS | SQL Server Integration Services | Apache Kafka | NATS | Supabase | PostgreSQL

### Cloud Platforms

Google Cloud | Azure | AWS | Confluent Cloud | Civo | Oracle Cloud Infrastructure

### Monitoring & Observability

Prometheus | Grafana | Thanos | Loki

## Experience

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### Vitrifi

Remote

#### Network Systems (Lead Software Engineer)

Jun 2023 - Dec 2025

I lead the design and implementation of scalable software architectures while contributing hands-on to critical software development. I review code submissions from team members to ensure adherence to coding standards and quality. I also manage project timelines and collaborate with product managers to align technical and business objectives.

#### Achievements

- Designed and implemented distributed CRDT-based datastore system for multi-region network state synchronisation using Golang, achieving eventual consistency through conflict-free replication without requiring consensus protocols, with automatic membership

tracking across decentralised nodes.

- Architected and developed 5+ production-grade Kubernetes operators using Golang for network service lifecycle management.
- Built GitOps infrastructure using ArgoCD and Kustomize serving as single source of truth for all production deployments, eliminating configuration drift.
- Established platform engineering capabilities enabling development teams to self-service infrastructure through GitOps workflows.
- Pioneered SRE practices including observability, monitoring, and automated incident response procedures.
- Led technical strategy and mentored team members on Kubernetes, Golang, and distributed systems best practices.

#### Skills

aws | oci | golang | kustomize | argocd | k3s | kubernetes | docker | gitlab | bash | terraform | python

## Vitrifi

Remote

### GitOps Consultant (Software Engineer)

Dec 2022 - Jun 2023

I implemented GitOps strategies for the organization and contributed to the development of custom tools designed to integrate with GitLab CI. I also adapted and extended an existing library of internal tools to fit the unique requirements of the business, enhancing deployment automation and efficiency.

#### Achievements

- Implemented GitOps across multiple environments, automating deployment pipelines using GitLab CI.
- Developed and customized tooling to streamline GitOps workflows, including writing new tools from scratch to meet specific business needs.
- Enhanced deployment reliability and scalability by integrating custom tools with existing infrastructure.

#### Skills

aws | golang | kustomize | argocd | flux | k3s | kubernetes | docker | gitlab | bash | terraform

## Vitrifi

Remote

### Senior Go Developer

Jun 2022 - Dec 2022

I developed CI/CD pipelines with Gitlab CI and a CNE Kubernetes operator.

#### Achievements

- Successfully delivered CI/CD pipelines and CNE Kubernetes operator.

#### Skills

aws | golang | kustomize | argocd | flux | k3s | kubernetes | docker | gitlab | bash | terraform

## Dae.mn/ Kultralab

Remote

### Senior Software Engineer

Jun 2021 - Jun 2022

I delivered infrastructure as code and declarative infrastructure maintained using GitOps, and delivered CI/CD pipelines. I refined the backlog, gathered requirements, and developed the supporting services.

#### Achievements

- Successfully delivered infrastructure as code and CI/CD pipelines.

#### Skills

aws | postgresql | golang | skaffold | kustomize | flux | kubernetes | terraform | k3s | react | graphql | docker | bitbucket | jira | confluence | bash | terraform

## Ve Global

Remote

### Software Consultant

Jul 2020 - Jun 2021

I restructured Ve's infrastructure and technology to save costs and create a more manageable environment. I introduced and set up local development using Kustomize/Skaffold/Minikube, and rolled out GitOps to improve deployment pipelines. I also trained developers to develop best-in-class microservices.

#### Achievements

- Successfully restructured infrastructure and technology.
- Implemented GitOps to improve deployment pipelines.

- Trained developers on best practices for microservices.

#### Skills

azure | kubernetes | skaffold | kustomize | vuejs | kafka | confluent-cloud | golang | docker | flux | bash

### Thermeon Worldwide Ltd

Remote

#### Software Engineer

Jan 2018 - Jul 2020

I worked closely with both the development and infrastructure teams, which are spread all over the world. I engineered microservices written in Golang and delivered them via the Google Kubernetes Engine. I introduced operations via pull requests to deliver continuous deployment, maintaining stability.

#### Achievements

- Undertook the company's first leap into Kubernetes.
- Worked with all teams to introduce an agile way of working.
- Developed and delivered a single sign-on solution hosted in Kubernetes and written in Golang.
- Developed and delivered a PCI-compliant cryptographic encryption microservice in Golang, implementing secure data handling and encryption algorithms for payment card data protection.
- Introduced GitOps using Weaveworks and various other Kubernetes technologies (cert-manager, external-dns, sealed-secrets).
- Produced a Horizontal Pod Autoscaler for Kubernetes that uses pod readiness rather than metrics for scaling.
- Developed a client-facing website for booking rentals.

#### Skills

github | circle-ci | kubernetes | golang | helm | flux | vuejs | google-cloud | docker | linux | cassandra | swagger | rest | bash

### Utilitywise PLC

Chesterfield, UK

#### Senior Software Engineer

Apr 2015 - Jan 2018

Delivered control and automation systems for the Wiselife IoT product, enabling smart home device management and energy monitoring.

#### Achievements

- Engineered IoT control systems integrating Z-Wave and Modbus protocols for home automation and energy management.
- Built data ingestion pipelines and analytics services processing smart meter and IoT device data.
- Developed real-time monitoring dashboards enabling customers to track energy consumption patterns.

#### Skills

entity-framework | sql-server | z-wave | modbus | cassandra | scala | dotnet | entity-framework | nodejs | docker | linux | tfs | signalR | redis | git | azure | aws

### t-mac Technologies Ltd

Chesterfield, UK

#### Software Engineer

Apr 2012 - Apr 2015

Developed monitoring, controls, and analysis software for the energy sector in a fully agile environment. Delivered bespoke software solutions for major UK energy companies.

#### Achievements

- Designed and developed customised energy dashboards for major energy providers, enabling real-time consumption monitoring and analytics.
- Built the t-mac energy analytics platform providing energy consumption insights and optimization recommendations for commercial clients.
- Engineered data ingestion and processing services handling smart meter data streams and energy usage analytics.

#### Skills

csharp | mvc | java | spring | jquery | entity-framework | knockout | backbone | highcharts | ssas

### EnServe Group Limited

Leeds, UK

#### Software Engineer

Sep 2010 - Apr 2012

I worked under the direction of Richard Marr (Senior Lead Developer) on the development and maintenance of Job Track Enterprise (JTE) for H2O Water Services Ltd and Thames Water / Veolia Water. I was fully involved in the maintenance and ongoing development of the JTE

system for H2O, including the Smartclient application, website, web services, mobile devices database, and SSIS packages. I was also fully involved in the development of the JTE system for Thames Water in the run-up to live deployment, including all of the above elements plus integration with the IBM Websphere messaging system for near real-time integration with the Insight TMA system. Additionally, I interpreted new requirements for both JTE systems in consultation with internal and external stakeholders.

#### Achievements

- Developed and maintained the JTE system for H2O and Thames Water.
- Integrated the JTE system with IBM Websphere for near real-time data processing.

#### Skills

soap | csharp | sql-server | vbdotnet | ssis

### Cse-Healthcare Systems Ltd

Eckington, UK

#### Student Software Engineer

Jun 2008 - Sep 2009

I maintained product specialist's demo laptop builds of RiO and developed and maintained internal tools used by all areas of CSE-healthcare systems. I worked as part of the live service team investigating software issues, issuing hot fixes and releases, and as part of the testing team, testing software modules, identifying code paths, and creating testing plans. I also designed and created the replacement correspondence reference system, which is used company-wide, and a testing automation framework that automated web pages from the user point of view.

#### Achievements

- Designed and created a testing automation framework that was flexible, reusable, and well-documented.

#### Skills

csharp | sql-server | ssis

### Education

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#### Sheffield Hallam University

#### BSc(Hons) Software Engineering

2006-2010

### Interests

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I possess a diverse array of skills and interests that keep me engaged and constantly learning. Here are just a few of my passions:

Family Adventures: I cherish quality time with my family, especially when it involves taking my son on camping and hiking excursions.

Overlanding Enthusiast: I love exploring off-grid and hard-to-reach places in my 4x4, discovering new terrains and enjoying the thrill of adventure.

DIY Electronics and Home Automation: I'm passionate about creating innovative solutions through DIY electronics and home automation projects, always looking for ways to enhance our living space.

3D Printing and Design: I engage in 3D printing and CAD/CAM design, combining creativity and technology to bring unique ideas to life.