JACOB COLVIN

Site Reliability & Platform Engineer

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ABOUT

I enjoy writing software and creating platforms that make my and other developers' lives easier. I am passionate about open source software and observability, and thrive on simplifying the complexities that arrive with distributed architectures. In my free time, I am an avid homelabber, gamer, audiophile, and mechanical keyboard collector. Below are some areas of interest and expertise:

Development:

Go / Golang | Python | FastAPI | C# | TypeScript / JavaScript | React | Vue | Jsonnet | Terraform | Ansible | pprof / Profiling | OpenTelemetry | PowerShell | Bash | Make

Operations:

Kubernetes - AKS, k3s | Helm | Azure | Docker | Crossplane | FluxCD | ArgoCD | GitHub Actions | Cloud Foundry | Databricks | Postgres | Prometheus | Thanos | Grafana | Jaeger | Fluentd | Telegraf | Datadog

EXPERIENCE

Senior Site Reliability Engineer

84.51° / Kroger

Remote / Cincinnati, Ohio | April 2021 – Current

- Led development of multiple Prometheus exporters using Go, utilizing Redis for caching, distributed workers with pub/sub and leader election, CEL for custom rule evaluation, Cue and custom tooling for validation, and Go text templating.
- Developed Python library to centralize instrumentation for metrics (OpenMetrics), tracing (OTEL), logging, and profiling (pprof), with support for the FastAPI framework, Databricks notebooks, and more.
- Rolled out Datadog as a unified logging platform for both Azure and on-premises systems, using Terraform for configuration and Fluentd for log parsing and forwarding.
- Deployed and supported enterprise observability services/tooling, both on-premises (Ansible) and in Azure Kubernetes (Flux), including Grafana, Prometheus, Thanos, Fluentd, Telegraf, and Jaeger.
- Contributed small fixes to Grafana, Thanos, Jaeger, and other upstream repos.

Versatilist / Site Reliability Engineer

84.51° / Kroger

Cincinnati, Ohio | December 2019 – April 2021

- Created and administered multiple Azure environments using Terraform in Azure DevOps, which included solutions such as Databricks, Datafactory, Key Vaults, Storage Accounts, Postgres Databases, and more.
- Assisted a multitude of development/data teams with observability, cloud, CI/CD, and fulfilled other ad-hoc requests as needed.
- Enhanced our Prometheus ecosystem by adding high-availability and long-term storage via Thanos, thus allowing consumers of Prometheus to track SLOs and KPIs over years instead of days.

IT Intern / Co-op

84.51° / Kroger

Cincinnati, Ohio | May 2016 – December 2019

- Designed a C# API layer over several legacy systems, and a SPA using TypeScript with React, to assist with support, data automation, and tech deprecation.
- Created a C# Prometheus exporter for SonarQube data, along with corresponding dashboards, rules and alerts, to allow security team to gather KPIs.
- Automated Red Hat Linux VM deployment through ServiceNow, via interactions with Satellite, vCenter, SolarWinds and Ansible.
- Designed a custom web framework using PowerShell and Bootstrap for executing administrative tasks and aggregating events and metrics from many distinct products.
- Created and documented Automic workflows with Bash and SAS ODS.
- Automated many miscellaneous tasks using PowerShell, VBA, Bash and PL/SQL in Bash.
- Interfaced with BOSH and Hadoop to design custom Pivotal Cloud Foundry (PCF) monitoring solution.

KEY PROJECTS

OmegaGraf

jacobcolvin.com/OmegaGraf

- An open-source project that seeks to completely automate vCenter monitoring, by orchestrating a small ecosystem of containers, including Telegraf, Prometheus, and Grafana.
- Paper: https://scholar.uc.edu/concern/student_works/jw827c971
- Technologies: Docker, C# / .NET Core, TypeScript, React

Homelab

MacroPower/homelab

- Infrastructure-as-code for my homelab / personal cloud. Defines multi-cluster k3s-on-MicroOS, spanning across bare metal and multiple Hetzner cloud environments.
- Technologies: k3s, Linkerd, ArgoCD, Helm, Jsonnet, Terraform

Prometheus Video Renderer

MacroPower/prometheus_video_renderer

- Just for fun, completely impractical tool that allows you to encode media as Prometheus metrics.
- Featured on the Grafana blog: https://grafana.com/blog/2021/07/30/how-to-use-grafana-and-prometheus-to-rickroll-your-friends-or-enemies
- Technologies: Go, Jsonnet

Analytics Panel Plugin

MacroPower/macropower-analytics-panel

- Grafana panel that injects JavaScript which reports user session information to a backend Go server, which exposes Prometheus metrics.
- Over 800k downloads, featured by Giant Swarm: https://www.giantswarm.io/blog/grafana-ception-or-how-we-do-grafana-analytics-giant-swarm
- Technologies: TypeScript, React, Go

Wakatime Exporter

MacroPower/wakatime_exporter

- Prometheus exporter and Grafana dashboards for Wakatime coding statistics.
- Over 100k downloads
- Technologies: Go

EDUCATION

B.S. Information Technology

University of Cincinnati - CECH

Aug 2015 – April 2020

- Cybersecurity specialization
- Summa Cum Laude

CODING TIME

Past Year