Kowalak, Pawel

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PROFILE

I'm a backend engineer passionate about building distributed systems that enhance customer experiences. My journey began as a Linux ops and networking expert, laying a solid DevOps foundation before I fully embraced programming. I've pushed dynamic languages like Perl and Python to their limits and eventually discovered Go—a turning point that deepened my love for strong typing and microservices architectures.

After years of successful consulting projects, I redirected my focus to creating systems that truly make a difference. I believe the energy we invest should lead to products that are both innovative and genuinely useful.

Throughout my career, I've worn many hats—from sysadmin and software engineer to team lead and tech recruiter—but engineering remains my true passion. I thrive on building impactful systems that change lives.

EXPERIENCE

Senior Software Engineer at RAD Security (Apr 2022 — present)

Implementing many services and planning architecture for Kubernetes and cloud security platform. Three example projects I was leading from architecture to implementation and building end to end from k8s events stream to UI:

- Image scanning: admission controller calculating and uploading SBOMs, scheduling scans using grype, showing vulnerabilities for currently running containers, proposing "better" images. Also, agentless scanning of ECR and GCR registries based on IAM trust relationship.
- Audit logs AI analyzer: fetching EKS audit logs (via Firehose to S3), importing into OLAP (ClickHouse), answering questions written in natural language (eg. "what are the most common user agents?") using LangChain SQL agent + OpenAI API. For this project I've built whole data pipeline based on Kafka. EKS audit logs ended up in S3 bucket specific to a customer (tenant separation) and was later loaded into ClickHouse. Other DBs can be connected later on (eg. data lake solutions) based on S3 buckets and Kafka.
- Reconciliation processing: missing one delete event in k8s world can have a big impact in the event sourcing project, eg. staled objects or alerts that will never

- disappear. This project was about developing one main reconciliation loop along with few smaller ones to make sure that current state of the system is up to date.
- Response Center, an integration point between signals generated by our platform and customers' points of interest (Slack, Jira, PD, etc.). Consuming data from Kafka topics, transforming, sending, auditing (why integration failed, retries, etc.)

Technology stack: Go, AWS, Kubernetes, PostgreSQL, Kafka, ClickHouse, LangChain, Grafana, Prometheus, Datadog, Terraform.

Senior System Engineer at News UK Tech (Apr 2021 — Mar 2022)

Implementing various features for paywall backend in Go.

Technology stack: Go, AWS, Docker, Kubernetes, Harness, Circle Cl, MySQL, Newrelic.

Senior System Engineer at Form3 (Sep 2018 — Mar 2021)

Planning and implementing infrastructure as a code for fintech stack:

- Highly available Consul cluster with zero-downtime upgrades
- DDoS protection solution with possibility to switch between two external providers (AWS and Cloudflare)
- Egress filtering and DNS tunneling protection
- Kubernetes cluster mesh (Cilium) between two data centers (bare metal) and one EKS, utilizing three k8s clusters as one

Technology stack: Go, AWS, Docker, Kubernetes, Terraform, Consul, Vault, Postgres, CockroachDB, Redis. Monitoring based on Prometheus and Grafana, tracing on Zipkin. Responsible for architecture, infrastructure, implementation, automation and

monitoring. Implemented egress proxy in Go that handles all outgoing traffic to Internet through Squid cluster with domains filtering. Building Kubernetes clusters on top of Cloudstack on top of Digital Rebar.

Senior Go Developer at Ingrid (Sep 2016 — Aug 2018)

Designing and implementing multi-tenant shipping systems that are used by big merchants. From shipping option selection through printing labels, scanning packages, to booking and tracking. Chaining deliveries through various carriers.

Technology stack: Go, Google Cloud, Docker, Kubernetes, microservices communicating via gRPC, HTTP + JSON gateway for external access, MySQL, Redis, Datastore. Monitoring based on Prometheus and Grafana, tracing on Uber Jaeger.

Responsible for architecture, infrastructure, implementation, automation and monitoring. Also building the team and recruiting new talents.

Senior System Engineer at Siili (Feb 2013 — Aug 2016)

Monitoring dashboard tool for CSOs (2015 – 2016)

Project lead, Go developer. Collecting events from various systems about security threats in clients' networks and visualizing it on a dashboard. Multi-tenant system.

Technology stack: Go, Apache Kafka, Zookeeper, PostgresSQL, InfluxDB, OpenStack, Ansible. Microservices pushing data from integration points through Kafka to other microservices storing data in InfluxDB, then pushing to active clients through websockets.

Installation Managers tool for KONE (2014 – 2016)

- Project lead, Go developer of backend system for mobile and web application for elevators / escalators installators. Parsing data from SAP HR system and exposing it via REST API.
- Go, Gorilla, PostgreSQL, Redis. Single click deployments on AWS EC2 instances behind ELB. Shared REST API for AngularJS frontend and Android app.
- Infrastructure monitoring using collectd, CloudWatch, Librato and own monitoring Go libs.
- Discussing scope and handling requirement changes directly with client.

Devops for HBO Nordic (2013)

 Infrastructure improvements, automatic deployments of Liferay portal using Glu, Puppet. Apache AJP tunning, logs collecting using Splunk / Graylog, monitoring using Zabbix.

Senior System Engineer at Intive (Apr 2008 — Feb 2013)

Content enabled storage system for F-Secure (2011-2013)

- One of lead Python developers of big, scalable, high performance storage backend with RESTful API for US mobile network operator. Scalability aim for 20M of users.
- Core technology: Python, nginx, uWSGI, WebOb, PostgreSQL, memcached, FUSE, Helix Streaming Server. Also using Jenkins, nosetests and git hooks to run over 1k automated tests after every commit. One button deployments to integration/testing environments using vCenter and Poni framework. PostgreSQL clustering and auto-failover. High availability automated testing.

IPTV system for Espol (2010-2011)

- Designing architecture (hardware and software) for IPTV system: demultiplexing high bandwidth video stream; multicast and unicast streaming, UDP networking; diskless Linux servers; REST based API for backoffice and internal communication; scrambling key frames in TS video stream.
- Implementing RTP, RTSP, SDP protocols from scratch using Python and Twisted framework for asynchronous communication; parsing Transport Stream headers; calculating bitrate; implementing buffers containing video frames for multiple clients.

Dialog MVNO, T-Mobile MNO, Play Mobile MNO (2008-2010)

- Refactoring MNP system used for MSSIDN porting between mobile operators.
 Perl, Python.
- Designing and implementing buffering and archiving system for CDR billing and data. Python, Paramiko.

Sysadmin / Developer at Huuuge (2005 — 2008)

Internal projects

- Sysadmin work: Linux servers, configuring and maintenance of SMTP, HTTP, Samba, IMAP, POP3 services, network maintenance.
- Development of internal time / issues / builds tracking system using Python / Django and MySQL.

SKILLS

- Versatile & Adaptive Quickly learn and work with new technologies, adapting to any project's needs.
- Dependable & Autonomous Can work independently and take ownership of complex problems while ensuring high-quality results.
- Problem-Solving Mindset Analytical thinker who thrives on tackling complex challenges.
- Effective Collaboration Experienced in working with cross-functional teams, mentoring, and knowledge-sharing.
- System Design & Architecture Ability to design scalable, maintainable, and efficient systems. Specializing in Go, but also experienced with Python.
- AI Using all goodies like Copilot, ChatGPT, Claude, but also experience with agent systems (Langchain and self-made), OpenAI APIs, local LLMs (Ollama).
- Cloud & Infrastructure Experience with AWS, GCP, Azure, containerization (Docker, Kubernetes), and infrastructure as code (Terraform, Ansible).
- Deep Technical Expertise Strong background in distributed systems, networking and Linux internals.
- Security Best Practices Secure coding, authentication/authorization (OAuth, OIDC), compliance requirements, building security products.
- Observability & Performance Logging, monitoring (Prometheus, time series DBs), tracing, and debugging distributed systems.
- Data & Storage Understanding of databases (Postgres, MySQL, ClickHouse), caching strategies, and event-driven architectures (Kafka, NATS, SQS).
- Automation & CI/CD Building robust pipelines, testing strategies, and release automation.

ACHIEVEMENTS

 Led a critical fintech project, designing and implementing egress traffic filtering with zero downtime.

- Built and led a team of 8 engineers for a Swedish startup, scaling from 5 to 100+ microservices in under 12 months while maintaining high-quality delivery.
- Secured multiple contract wins, including a successful bid for Telefonia Dialog's MNP (Mobile Number Portability) and BM (Billing Data Archiving) systems.
- 1st place in Hackfest 2008 24-hour marathon building a web application from scratch.

EDUCATION

Technical University of Szczecin, Poland (2002 – 2010, not graduated)

Specialization: Engineering of Information Systems Security

LANGUAGES

Polish: native.English: fluent.

PERSONAL INTERESTS

• Mountain biking / snowboarding / adventure races / landscape photography.