

# Serhii Ponomarenko

Senior Go Engineer | Distributed Systems | Microservice Architecture | Real-time Solutions
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## Summary

Owning product features from high-concurrency Go services down to Kubernetes conifgs. I use Kafka, Redis, PostgreSQL, and ClickHouse as my top-notch toolset.

My focus is set on establishing Go backend services, scaling cloud-native apps, tuning performance at multiple levels of infrastructure layers: caching, queueing, batching & more - I am ready to do everything to ensure the system is ready to take the high-volume traffic heat and able to serve features that just work.

Going through my experience is like a journey of taking various technical challenges and converting them into value: developing & maintaining Kubernetes network traffic monitoring app, scaling real-time document editing backend systems, integrating LLM APIs for AI agents, setting up app-level auth & access control security.

Give me a ping, and I will give you a plan for getting things done!

## Experience

**Kubeshark (kubeshark.com)** Palo Alto, California, United States · Remote
Senior Golang + React (Typescript) Engineer Dec 2023 - Present

**Cloud-Native Systems / Microservice Architecture (Go / AWS S3 / GCP Cloud Storage):**

Took part in the functionality for archiving and upload/sync of local traffic captures from K8s worker nodes to cloud storage, specifically AWS S3 and Google Cloud Storage.
I have owned the development of Cloud Explorer - I took part in creating Go functionality to manage cloud archives, proper initiation and maintenance of connections to AWS S3 buckets & GCP Cloud Storage via Go worker pool, implementing a file-explorer-like UI to provide a seamless user experience.

**AI Chat + MCP server (Go / AI / MCP / AWS Lambda):**

I developed the backend API gateway and UI integration for an LLM-powered chat feature focused on K8s traffic filtering hints, suggestions, and accepting user input for analysis to track network anomalies.
I established AWS Lambda / API Gateway to create a dedicated LLM-oriented microservice node, connected the LLM service node to our Go API with further implementation of frontend-facing APIs to connect the chat UI.
I suggested introducing the MCP server API to Kubeshark and created the 1st (alpha) revision of the prototype Kubeshark MCP server. The team has decided to implement the production-level feature soon. Today, the MCP server plays a key role by allowing users to connect Kubeshark to any leading AI like ChatGPT, Claude.

**SSO + Enterprise Security (Go / OIDC / SAML / RBAC):**

I introduced the auth layer through the SAML 2.0 standard, where Kubeshark is a SAML Service Provider - I owned the feature end-to-end.
The key components I implemented are the verification of SAML assertions, validating SAML request/responses, and mapping custom user attributes. OIDC integration has been implemented too by establishing the secure exchange of auth codes, ID tokens validation, and checking signature keys from external IdPs.
I have also established a granular control over SAML/OIDC auth setups via K8s helm values.

**NDA (Live Collaborative Document Editing)** US (Remote)
Golang (Typescript) Engineer (BE-heavy) Sep 2022 - Dec 2023 · 1 yr 4 mos

The main challenge I faced: to ensure offline edits and realtime cursor moves are saved, ordered & reflected across all live user document sessions.

**The way I established collaborative editing (Go / CRDT / Automerge / ProseMirror):**

Automerge (CRDT) library for conflict-free changes: it encapsulates state-syncing mechanisms to ensure the correct order of edit actions. ProseMirror rich-text editor: out-the-box compatible solution that just works together with Automerge.

**My contributions to the high-performance editing services (Go / Redis / Kafka / PostgreSQL):**

Fast Hot Path - sub-15ms typing latency:active & frequent volatile document changes go to Redis cache. Redis Pub/Sub for live edits broadcasting: a user receives instant visual feedback of other live user edits.

Durable Cold Path - Batch-flush document edits to PostgreSQL.
Async document edit requests: each raw edit is posted to Kafka message queue.

**How I handled the high volume of incoming requests (Go / ClickHouse / AWS S3 / AWS SQS / Kubernetes):**

Auto-scaled Go queue consumer groups: scaling at Kubernetes cluster-level (using K8s deployments) to spawn enough Kafka-consumer workers to process all queued edits.

Historical queries on-demand under 200ms: pushing edit streams to ClickHouse analytics DB.

Active memory reduction: a fraction of total CRDT history state is stored in memory, the rest is stashed in AWS S3 using background Go stashing service.

Clean-up service: AWS SQS-backed service drops TTL-expired logs & snapshots.

**GlobalLogic (www.globallogic.com)** Kharkiv, Ukraine (On-site)
Back-end PHP/Node.js Engineer Sep 2021 - Aug 2022 · 1 yr
Integrated & updated API endpoints covering profile, dashboard, feed & payment domains.

**Mend (mend.com)** United States (Remote)
Back-end PHP/Node.js Engineer Apr 2021 - Sep 2021 · 6 mos
Designed voice-prompt based application for Alexa voice assistant to deliver better user experience with appointments. Implemented audience-targeted & advertisement impression features.

**MotherLink (motherlink.io)** Tallinn, Harjumaa, Estonia · Remote
Full-stack PHP/JS Engineer Jul 2018 - Apr 2021 · 2 yrs 10 mos
Implemented numerous features and business requirements for the the link building platform operating in the content marketing and off-page SEO sectors, connecting thousands of link providers & customers.

## Projects

**MyWireguard** Sep 2023 - Present
Deploy a Wireguard VPN to your cloud provider in minutes and create VPN clients within seconds - right from your terminal.

**Content-Security-Policy API** Sep 2023 - Present
User-friendly API to build your Content-Security-Policy HTTP header. Designed to simplify the process of creating and managing CSP headers in Go applications.

## Education

**National Technical University "Kharkiv Polytechnic Institute"**
Master of Science - MS
Computer Software Engineering
Kharkiv, Ukraine • Oct 2020 – Aug 2022

**National Technical University "Kharkiv Polytechnic Institute"**
Bachelor of Science - BS
Computer Software Engineering
Kharkiv, Ukraine • 2016 – 2020

## Skills

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| Go | System Design | Architecture Patterns | Agentic AI development |
| LLM API integration | Claude Code | React / Redux | gRPC |
| AMQP | GraphQL | Apollo GraphQL | OAuth2 |
| OIDC / SAML 2.0 | RBAC | Billing (Stripe) | Apache Kafka |
| AWS SQS | RabbitMQ | PostgreSQL | Supabase |
| ClickHouse | Redpanda | MongoDB | Redis |
| ElasticSearch | OpenSearch | Nginx | CI/CD |
| Github Actions | Gitlab CI | Jenkins | Workflow Automation |
| Zapier | N8n | AWS | GCP |
| Azure | Kubernetes | Grafana | Prometheus |
| OpenTelemetry | Datadog | Sentry | New Relic |