

Peter Asanov

SENIOR SOFTWARE ENGINEER

Amsterdam, Netherlands

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About

High-impact professional with 20 years' experience, spent over a decade building enterprise-grade distributed systems for real-time interactive and mission-critical applications, navigating complex problems and delivering elegant solutions.

Education

B.Sc. in Computer Science and Engineering

Novosibirsk, Russia

NOVOSIBIRSK STATE TECHNICAL UNIVERSITY (NSTU)

2002 - 2007

Skills

Systems Design scalability, HA/fault tolerance, CAP trade-offs, event driven architectures, caching, sharding, load balancing, state management and storage, microservices

Languages

go gin, fiber, echo, zap/slog, gomock

python click, typer, paho(mqtt), celery, LLM deployment, numpy, scikit-learn, seaborn, Django, FastAPI, uvicorn, pyo3/maturin, numba, nuitka

c++23 boost, flatbuffers, cap'n'proto, seastar(scylladb), cmake, meson

JVM Java, Kotlin, Groovy, Spring / Boot, Hibernate, NIO

SCM, CI/CD, IaC GitHub / Enterprise / Actions, GitLab, Terraform, Azure Templates, Cloud Formation, Pulumi, NixOps, nixidy, terranix, CMake/ninja, meson, bazel, maven, gradle

Cloud Native

compute Azure VM, AKS, EKS, ECS, EC2, GCE, GKE

serverless Azure Functions, AWS Lambda, GCF, CloudFlare workers

storage/query ABS, ASD, CosmosDB, S3, RDS, DynamoDB, GCS, CloudSQL

IAM/IdPs AAD(enterprise), RBAC (Azure), IAM, KMS (AWS & GCP), Amazon Cognito, Auth0

build pipelines DevOps Pipelines, CodePipeline, CodeBuild, Ops agent, GCO

observability Azure Monitor / App Insights, AWS CloudWatch, Prometheus, Grafana LGTM, OTLP, Elasticsearch, Jaeger, Zipkin

Security

OWASP top 10 / secure-by-design principles, PoLP, RBAC, data segregation, secure access, continuous vuln scanning / alerting (grype, clair, trivy, SonarQube), intrusion detection / active perimeter / endpoint security (google santa, AIDE)

Databases PostgreSQL, Cassandra, MongoDB, QuestDB and more, including Cloud Native options

Data processing FLiP (Flink + NiFi + Pulsar), Kafka Streaming, Airflow

Trivial frontends Typescript, React / Router, Vite, Tailwind CSS, Axios

Project Highlights

Low-Latency Matching Engine Prototype

HOBBY PROJECT (PARTIALLY SPONSORED)

Aug 2023 – Dec 2023

Designed and build PoC of HFT matching engine using C++23, SIMD intrinsics, and Go for management APIs with strong focus on ultra-low latency and customization

Tools: C++23, Go, Cap'n Proto, SIMD intrinsics

Feature flags transpiler

Haarlem, The Netherlands

HVR SOFTWARE

2018 - 2019

- Scratch-rewrote advanced feature flags transpiler for DSL with pattern matching and multiple inheritance of entities, reducing its runtime for an order of magnitude (5 sec vs 60-70 sec) which resulted in measurable gains for R&D team and saving of build infra costs, as the tool was at the hot path of tens of CI/CD pipelines running 24x7
- Extended the functionality, making it possible to use the mentioned DSL as a single source of truth for documentation generation purposes.

Tools: Python

Font rendering engine

NEW CLOUD TECHNOLOGIES

2014 - 2017

High performance font rendering engine for scalable document layouts featuring

- subpixel positioning
- multi-level cache
- multi-platform support

The work required deep dive into freetype and Qt internals. It was eventually shipped as part of My Office app suite for Tizen (mobile embedded Linux from Samsung), on millions of Tizen devices in South Asia

Tools: c++14, boost, freetype, Qt, various native rendering backends

Work Experience

Senior Software Engineer

Netherlands

FREELANCE / CONTRACTING

2022 -

Contractor / freelancer working on multiple projects:

- Deliverect, full cycle restaurant business automation PaaS: integrated extra dimensions to Ordering facility (Python, Eve, celery, GKE)
- Ahold Delhaize (Albert Hijn): online data ingestion platform for internal compliance project, related to R&D efficiency and performance (Go, AKS, Strimzi operator (Kafka), GitOps (ArgoCD), Terraform)
- Private customer: online data ingestion of Taxi terminals data for compliance project to prevent fraud from a driver side (Go, AKS, Kafka, Postgres)
- LEGO: building internal IAM / IdP functionality (Azure Functions, Azure SAML identity provider, Python)
- Private customer: cloud based video conversion service (c++20, cmake, ninja, go, grpc-gateway, ffmpeg, nix, terraform(terrannix), EKS, Cloudwatch)
- Private customer: custom video calls service (c++23, cmake, ninja, asio, libdatachannel (WebRTC stack), nix, ansible)

Core Software Engineer

Haarlem, Netherlands

AIMMS B.V.

Nov 2019 – Sep 2021

- Centric role in large cloud platform migration project (from AWS to Azure with substantial scratch-rewrite in modern c++, from former Java/Scala)
- Scratch-written Modern c++ framework and related micro-service template featuring protobuf DSL as API first class citizen, popularizing its use also for REST APIs to avoid buggy (back then) OpenAPI generators
- Ensured scalability under variable loads, minimizing downtime via parallel migration.
- Bootstrapped Azure landing zone (custom bootstrap for Terraform state and RBAC)

Tools: ECS, EC2, CloudWatch, Go, Python, Java, Scala, c++17, conan, cmake, ninja, grpc-gateway, go, AKS, Azure Application Insights, Terraform

Senior Software Engineer

Haarlem, Netherlands

HVR SOFTWARE (ACQUIRED BY FIVETRAN)

Jan 2018 – Oct 2019

Worked on high performance online data replication system, also called HVR (features and bugfixing)

- Reversed Oracle histogram data to build custom sharding functionality
- Rewrote a Python transpiler, cutting execution from 65 seconds to 5 seconds, speeding up CI/CD.
- Built a Go REST service for cloud integration.

Tools: C99, Python, Go, multiple RDBMS and Big Data stacks (integration), Oracle (histrogram internals), Airflow

Software Engineer

Eindhoven, The Netherlands

MAPSCAPE B.V.

2017

Worked on Mapscape NDS (navigation data standard) compiler:

- implemented parts of NDS compiler backend related to parsing raw map data
- introduced parallelism in parsing raw map data, significantly speeding it up

Tools: c++ 11 / 14 / boost / gtest / sqlite / shell / python / Airflow

Senior Software Engineer

St. Petersburg, Russia

NEW CLOUD TECHNOLOGIES

2014 - 2017

My Office project: on-prem office solution featuring collaboration engine"

- work on core functionality (features and bugfixing)
- scratch-written `freetype` based cross-platform font rendering engine with subpixel positioning and antialiasing support
- Work on spreadsheets for Samsung Tizen (embedded linux)

Tools: c++14, cmake, emscripten, Objective C, Qt, SWIG and more

Senior Software Engineer

St. Petersburg, Russia

AIS

2014

Building bank (transaction facility) for crypto mining pool basic exchange functionality:

- scratch-written c++11 / asio framework and a few microservices (and their ownership)
- multi-stage fault tolerant transactions
- operating mission critical distributed system and managing risks of direct loss via using append-only fault-tolerant custom storage, two-factor transactions, impenitent circuit breaking, proper alerting, extensive testing
- zero-to-one release the thing into production as joint effort of 3 engineers exercising high degree of code ownership (on subsystem level)

Tools: c++11, Core Java, Groovy, Ruby(Chef)

Previous work history

AVAILABLE UPON REQUEST

2005 - 2014

Interests

Low-latency / high performance systems, platform development, reproducible builds, reverse engineering, offsec