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Summary

With over 15 years of experience in programming, operating, testing SaaS software and storage systems, I'm keen to exploit my knowledge further, exploring new paths, as I always do.

WORK EXPERIENCE

Santevet | Online Bookings
France - remote 🇫🇷
23 - till present

Key Responsibilities

- Devops – enforce software robustness of a phoenix online bookings SaaS
  - Fix several critical bugs like this one found in the commanded dependency
  - fix aws instances size, wrong linux settings
  - Solving some front bugs
- **Bring observability** :
  - add high resolution metrics (user metrics)
  - add monitoring with Prometheus / PromQL
  - build salient Grafana dashboards
- Stripe: add a card payment method to Santevet products, migrate our stripe api
- Implement a garbage collector for CQRS SQL data

Github

- Commanded (CQRS/ES): fix an OOM bug present for years in the commanded dependency;
- Prometheus high resolution metrics : create a small memory footprint prometheus counter able to track different activities for all users, used intensively by our analytics

Environment

- AWS - Postgres - Phoenix - CQRS/ES - EventStore - Commanded - ElasticSearch - Stripe API - PromQL - Broadway - Rust

Motorola Solutions
Glostrup, Denmark - on-site 🇩🇰
21 - 22

Key Responsibilities

- Devops for a cloud based telecom product that connects Land Mobile Radio systems over the internet;
- **Reliable software programming - kubernetes devops**
- Software: write new kubernetes microservices (service-level requirement, ..), associated tests and deployed the services in all regions;
  The role included tasks like writing / running the deployment pipelines, the CI/CD integration, templates, helm chart, monitoring, logging and observability
- SRE tasks : successfully implement **a SLA measurement** microservice, join on-call rotation, run post-mortem, improve reliability

Environment

- Kubernetes - Helm - Docker - Elixir - Elk - Azure Pipelines - Telemetry - PagerDuty - Prometheus - Continuous Integration - Rabbitmq - Grafana - Redis - Phoenix - GraphQL.

Kuantic | Lead
Sofia-Antipolis, France
18 - 21

Key Responsibilities

- Fleet Management SaaS – Technical interface for Stellantis
- Architectural tasks:
  - modernizing the software development and deployment process
  - backend code refactoring
  - **reshape the fleet management API into a more general data broker API** (concepts + software)
- Reliability: improve the stack reliability and extensibility with the help of a MQ
- Big-data: Transform a fleet trafic into a data broker business model: mapReduce pipelines, configurable customers queues, third-party export pipelines
- Tooling: add tools like Elastic Search and elixir dashboards
- Troubleshoot some issues
- Performance: improve overall performance with some caching
- Side project: develop and maintain a SaaS based on Phoenix / LiveView

Github

- A local key-value cache;
- A nif cache for openstreetmap.

Environment

- NoSQL · MapReduce · Erlang · Distributed Systems · RabbitMQ · Broadway · Elixir · SQL · Docker · Kubernetes · Phoenix · Elastic Search

Scaleway | R&D
Paris, France
13 - 17

Key Responsibilities

- Distributed Cloud Storage – R&D – Devops
  - from scaleway requirements, define the distributed and fault tolerant architecture
  - Implement a flexible, lightweight protocol layer (nbd) in erlang (where it shines), allowing for example to move geographically a customer storage while in use
  - *live release upgrade, app profiling, riak LRU cache, blocks dependency graph, users volume live relocation, riak node crash recovery, data flow performance analysis, commodity computing, webmachine rest api*
- **AI fraud detection system**
  - in charge of the fraud decision engine design (server usage abuses)
  - build the features and python workflow (SQLAlchemy, Rest API)
  - The AI fraud detection is used in production and is fully automated for the support team, probably the first AI agent deployed in the company
  - *scikit-learn, python, SQLAlchemy, postgresql*
- Online SAS san servers as IOT (POC) for live snapshots and statistics data collection
  topics: qemu-nbd, iot
- Erlang distributed testing of aws s3 storage backend
  topics: basho_bench, tsung

Github

- a spatio-temporal logger.

Environment

- Scikit-Learn · PostgreSQL · NoSQL · Storage Area Network (SAN) · Machine Learning · Erlang · Python - SQLAlchemy - Distributed Systems · Quickcheck · Docker · Qemu · Linux Kernel

Meetic, +500 people
Paris, France
10 - 13

Key Responsibilities

- Distributed chat system – main backend developer
- Maintainer of the messaging stack (Erlang/Ejabberd **+200K simultaneous users**)
- Architect and code new requirements for the Meetic chat system
- Add the xmpp protocol bosh extension to the backend
- Package, benchmark, R&D work in erlang:
  - develop a riak-jabberd roster (contacts)
  - develop a game framework as a cluster extension for Ejabberd to support simultaneously ten of thousands of human interactions stored in Riak
  - a realtime 3D supertracker to monitor fraudulent chat messages
  - benchmark RabbitMQ for messages logging
- Side project: rewrite in Erlang a C++ biological follicular/ovarian growth simulator I build (INRA, ATT/C++ coroutines), my first project in Erlang ❤️
- Side projects: open-source a real-time extension for erlang, allowing to schedule hard real-time messages, illustrated with two n2o projects:
  - an erlang multi players midi sequencer
  - an interactive physics simulator

Github

- a real-time extension for erlang, allowing to schedule hard real-time messages (C / libasound library / NIF).

Consultant embedded software
Paris, France
02 - 10

- **Embedded programming – Philips / LG / Sagem mobiles**
  - based on the 18Crypt profile, architect of the NXP mobileTV CAS feature (conditional access); this multi sites project involved people from the Netherlands, India and Ireland (S3)
  - feature leader of Puma phone media manager, specify & code the real-time requirements (apollo, js)
  - develop a new video player automaton in C for Sagem Mobile
  - build a host based verification system tool to ensure the middleware correctness, this tool uses logic programming techniques on a host to drive the tests on the embedded system
  - android devices: build a verification tool to test low level Android java hooks (thread, java fields / methods, state machines)
- **Embedded programming – IPTV STB**

- add multi-threading (EMM/ECM and Tuner) for the Philips STB DLI (Device Layer Interface); develop a porting layer for PVR services based on ST40 crypto security
- as a field engineer at BYTEL for the BBOX IPTV Product, investigates Technicolor stb middleware
- rewrite in Erlang my massively parallel C++ coroutines simulator of biological processes (based on Cox Renewal Theory statistics model)

- **DVB-H Mobile TV – Orange**
  - participates to the development of next generation SIM & KDA conditional access for Orange DVB-H mobiles
  - semi-formal testing of the sim software using logic programming techniques
  - customize VLC to decode the rtp h264 ismacryp stream
- **Project leader (2 patents) – Viaccess mobile drm system**
  - architecture of a poc : server - DVB-H mobile - card , mp4 encryption schemes, licence packaging
  - participate to the development of some parts of the project : sim, oma v2 mp4 packager, symbian software
  - manage the relationships with major smart card suppliers, video software vendors and third-party software companies

CP8 Transac
Louveciennes, France
July 97 - June 02

- **Project leader of CP8 first javacard (3 patents including 2 US)**
  - did the coordination between INRIA, the mask and the CP8 R&D teams. This project included a virtual machine simulator along other tools like secure loader or bytecode optimization programs and benchmarks suite software
  - R&D: wrote many javabytecode optimizations and javacard demos like **a mastermind solver** for benchmark
  - replace old proprietary VB tools with the http interface access (one patent) for smartcards
  - technical consultancy for a French bank (Caisse d'Epargne, B0' application)
- **Secure protocols for e-commerce, Carte Bleue**
  - port the french banking protocol (B0') for javacard
  - add **multi-threading programming for the SimToolkit** (3 patents filled)
  - proof of concept of a sms-based E-purse transaction system (Proton smartcard and server)
  - open-source the prolog PC/SC interface, used to run semi formal tests in logic programming

EDUCATION

Groupe Ecoles Centrales
Centrale Méditerranée, France

- Graduated in Computer Engineering
  Minor: Industrial IT and embedded systems
- Competitive classes preparing to the best engineering schools ("Les grandes Ecoles")

Computer Skills

Systems :	SaaS, kubernetes / docker, azure pipelines CI/CD, low latency Erlang/OTP, elixir ecosystem, phoenix, tailwind-css, github actions, riak (nosql), linux kernel (bloc storage), graphQL, sqlite, postgresql, SQLAlchemy, tsung, redis, C++ Coroutines.
Observability - Prediction :	PromQL - Grafana - Scikit-Learn - High resolution metrics counters.
Programming languages :	erlang / elixir, C/C++, Python, JavaScript prototype, java-bytecode, SQL, ...
Methodology :	jira, git, github, CI/CD, OTP, Rational Unified Process (RUP, UML), Microsoft Project.
Protocols :	nbd, aws, xmpp, iptv, TR-069, mpeg-4 streaming (RFC 3984), ISMACryp 1.0, Etsi-Tetra.
Embedded :	Linux, Nucleus, RTKI, VME, JavaCard, Android.
Smart Cards :	EMV, SIM Card, B0' Banking Application, E-Purse, OpenPlatform.

Projects

Prometheus :	Create a small memory footprint telemetry_metrics_prometheus_core counter able to track millions of different counters.
LiveView based SaaS :	Develop and maintain a SaaS based on Phoenix / LiveView / live SVG.
SuperIs :	A multi volumes, files tokenizer, indexer and search engine.
Caching systems :	Small libraries on top of a NOSQL database.
Spatio-temporal logger :	A tiny library to debug concurrency in distributed systems, both in time and space.
Hardware clock :	ALSA hardware based clock (NIF) for real-time message processing.
Ejabberd Game framework :	Framework for multi players games on top of Riak and Ejabberd.