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With over 15 years of experience in programming SaaS applications and storage systems, I'm keen to exploit my knowledge further in building, testing, operate concurrent, energy efficient, scalable SaaS systems.

WORK EXPERIENCE

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

Key Responsibilities

- Reliability: enforce software robustness of the Online Bookings SaaS :
  - Fix several critical bugs like this one found in commanded dependency
  - fix aws instances size, wrong linux settings
  - Solving some front bugs
- Bring Observability :
  - add high resolution 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 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 🇩🇰
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 : implement a SLR 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 development and deployment process
  - backend code refactoring
  - **turns our service into a Data Broker (concepts + software)**
- Reliability: improve the reliability and extensibility of the stack with for example, MQ
- Big-data: Transform the business model of fleet trafic into a data broker: 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 his/her storage is currently 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
  - 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
  - *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, experiment new ideas in erlang;
  - develop a jabberd roster (contact) cloud storage (Riak);
  - 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 traffic;
  - 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 / 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 - Philips 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 Inria 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: lot of javabytecode optimizations;
  - 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 of the french banking protocol (B0') in javacard;
  - add multi-threading 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.