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France

Objective: **With more than 15 years experience starting designing middlewares for smartcards to large scale systems, I'm keen to exploit my knowledge further in building, testing, operate concurrent, energy efficient systems.**

WORK EXPERIENCE

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

Key Responsibilities

- Reliability: enforce software robustness of Santevet Online Booking;
- Fix several critical bugs like this one found in our dependencies, fix wrong linux settings, aws instances size, etc...) to achieve a better reliability;
- Observability: add metrics / monitoring with prometheus / promQL / grafana;
- Stripe: add a card payment method to Santevet products, migrate our stripe api;
- work on implementing a garbage collector for our CQRS data;
- Solving front bugs;

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 millions of different counters, 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 - devops (kubernetes);
- Software: write new kubernetes microservices (service-level agreement, ..) and deployed them in all regions;
  The role included tasks like writing / running the deployment pipelines, the CI/CD integration, templates, helm chart, monitoring, logging;
- SRE tasks : implement a SLA measurement microservice, doing on-calls, running 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 - Technical interface for Stellantis (customer #1);
- Development process: full refactoring of the backend stack, modernizing the erlang development process and deployments, adding Elixir to our backend;
- Reliability: improve the reliability and extensibility of the stack with for example, MQ;
- Big-data: inject our vehicles traffic in elixir pipelines for data analysis (MapReduce, SQL backend), 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

Online SAS | R&D

Paris, France

13 - 17

Key Responsibilities

- Distributed cloud storage - R&D - Devops
- Architecture: define the basis for a fault tolerant storage (e.g. where nodes may crash);
- Implement a flexible, lightweight protocol layer (nbd) in erlang (where it shines), allowing for example to move geographically a customer storage while his storage is currently in use
  topics: live release upgrade, app profiling, riak LRU cache, blocks dependency graph, users volume live relocation, riak node crash recovery, data flow performance analysis, webmachine rest api;
- Implement a fraud detection system based on **emergent machine learning / AI** technologies. Made the technical decisions (scikit versus legacy), build the features and python workflow (SQLAlchemy, Rest API);
  This AI fraud detection is used in production and is fully automated.
  topics: 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;
- adding the js 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 supports 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 for a biological processus

(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 :	kubernetes / helm / docker, azure pipelines, 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.
Superls :	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.