

Senior Software Engineer Programming artist

Education

- M.Sc Semantics Proofs and Languages (DEA SPP), with honors.
Université Paris 7 (Jussieu) France, 2004.
Master Thesis at the [INRIA Rocquencourt](#) in the [Moscova](#) team.
- M.Eng [École Polytechnique](#) (Diplôme d'ingénieur).
Palaiseau (Paris area), France, 2003.
Generalist scientific education (physics, economy, mathematics, computer science, ...).

Experience

[Intersec](#) — *French telco software company, focused on high-performance solutions for carriers (messaging, geolocalisation, loyalty solutions...).*

Chief Scientist (Nov. 2010 — ...)

- Technical manager of the software department (25 people), with a specific focus on solutions architecture/design, code quality, and the team technical level (training, technology watch/scouting).

Chief Software Architect (Jul. 2009 — Nov. 2010)

- Initiated the R&D industrialization (up to 12 people) to scale up from the start-up model.
- Officially in charge of creating and maintaining the core technologies to build upon.
- Responsible for building and maintaining a lean and efficient production environment: code review, coding rules, code source management workflow, ...

Senior Software engineer (2007 — Jul. 2009)

- Technical product leader (3 people) for the messaging gateway (record breaking software, more than 80k msgs/s on middle end servers, industry standard is 5-10k).
- Strong focus on building the Intersec core technologies.
- Focused and very productive Engineer (more than 25% of the global production, of 10 engineers).

Software engineer (aug. 2005 — 2007)

- First Intersec employee, co-founder.
- High performance, asynchronous/event-driven programming.
- Laid out the core notions and rules of how to achieve the “Intersec performance”.

[Debian](#) — developer (2005 — ...)

- Member of the release team for the lenny release (february 2009).
- Maintainer and co-maintainer at various dates of: KDE, lighttpd, vim, glibc, nsd3, ...

[Git](#) — contributor (2008 — 2010)

- Internal handling of strings, command line UI unification (a major flaw of git at the time).

Realizations

Responsible for all the Intersec frameworks (quality, design, implementation). My realizations span across several domains, from hard-to-misuse API to core frameworks, including:

- In-house event loop (similar to the libevent/libev), with reduced amount of allocation (none in cruising speed);
- real-time memory allocators to accommodate with telco protocol stacks needs;
- In-house serializer, deserializer and RPC service (à la google protobuf, achieving 300k+ RPCs/s at 20-30% CPU). Type-safe implementation thanks to compiler and preprocessor tricks. Major speed boost for our product development agility;
- In-house HTTP stack (asynchronous, RFC compliant, c10k capable), very scalable (20k+ TPS per connection for REST services), integrated with the serialization library to provide seamless integration of XML/Json services in our products;
- Designed and contributed to the development of an in-memory non relational database (eventually consistent, using zookeeper for synchronization, ...). Core building block of the loyalty management product line (50% of Intersec revenues in 2011), giving Intersec a crucial technological advantage over the competition using relational databases;
- Job-based scheduling/parallelism (like Intel TBB or Cilk), to equip Intersec with hard-to misuse APIs for concurrent programming. The API was modeled after Apple GCD API;
- Custom Clang modification to rewrite C with blocks (Apple extension) in standard C99. This dramatically reduced the bug rate of some parts of the Intersec code;
- ...

Technical Profile

- More than 7 years of experience in software engineering, system programming.
- C expert (10+ years of programming), several years of experience with OCaml, C++, python and javascript. Familiar with several other languages (java, perl, D, ...).
- Strong interest for system programming, OS-level design of scalable system interfaces;
- Strong interest and theoretical background (PhD on distributed languages started in '04 and stopped to join Intersec) on languages, compilation, especially in distributed environments (Jocaml, join calculus, pi-calculus...).
- Strong interest in and good understanding of the toolchains (libc, compilers, linker).
- Active in the “opensource community”, with an interest in alternative servers (nginx, lighttpd, nsd, unbound...) and the toolchains.
- Wide technical culture, tracking emerging technologies on a daily basis, able to assimilate them and transcribe them (many Intersec core technologies were only a few years old when I implemented or used them, especially in the synchronization field).

Miscellaneous

Research publication

“Acute: high-level programming language design for distributed computation.”

Peter Sewell, James J. Leifer, Keith Wansbrough, Francesco Zappa Nardelli, Mair Allen-Williams, Pierre Habouzit, Viktor Vafeiadis. ICFP 2005: 15-26

Talks

Packaging with git, FOSDEM'08.

Hobbies

Avid reader, skiing, climbing (bouldering, rock and artificial).