Mathieu Lacage mathieu.lacage@cutebugs.net

Software Engineer

I build Secure Backend Software and Infrastructure

Technical Experience

Security

- Deployed an SSO for identification across all internal applications, including SSH.
- HCVault to manage secrets, and, encryptions keys

Infrastructure

- Scaled from one server to 200+ VMs and servers via Ansible.
- Zero-downtime scale up of our single database/single table to partionned databases per customer, 250 tables, 1TB.

Development

- Web applications with Python for transactional use-cases, websocket event streaming, and asynchronous jobs.
- System-level C and C++ software for virtualization and simulation.

Alcmeon, 2011 – 2023, CTO, co-founder

As CTO, I focused on finding practical ways to

- Improve the confidentiality without impairing the availability of customer data via at-rest encryption, centralized access control and development tools.
- Scale our code and infrastructure to 50% YoY volume growth with 1000% YoY peak volume growth.
- Minimize the size and complexity of our codebase.

As co-founder, I invested my efforts in

- product design to ensure we build features that work in production
- making sure we deliver high quality customer support
- presales to design the right product for prospects

INRIA, 2005 – 2011, Software Lead ns-3

Built ns-3, an open-source network simulator now used in hundreds of research publications every year.

- Designed and implemented core APIs: object model, network packets, event scheduler
- Implemented models for UDP/IP/ICMP, MAC/PHY Wi-Fi network protocols
- Integrated unmodified real-world network protocol implementations via a virtualization framework optimized for simulation environments.

But also:

- Recruited, and managed local development team (5).
- Relocated to University of Washington for 10 months to initiate collaboration with US team-mates.
- Evangelized use of ns-3 within other research institutes through presentations and seminars.
- Published as main author (4) and co-author (3) papers on the design of ns-3 and some of its models.

INRIA, 2003 – 2005, Software Engineer

Designed and built software for network research teams:

- Yans, a C++ event-driven simulator,
- NEPI, a python tool used to describe, deploy, and control networking experiments on hundreds of hosts distributed all over the planet.

Provided software mentoring to research projects involved in bio-reactor chemical reaction control and medical image analysis.

Sigma-Designs, 2001 – 2003, Software Engineer

Implemented DVD navigation control software for the video decompression chips that were developped by Sigma-Designs and sold to OEMs to build consumer DVD players.

Education

2006 – 2010	Ph.D. at University of Nice, *Experimentation Tools for Networking Research*, under supervision from Walid Dabbous
1998 – 2001	Engineer at Telecom ParisTech (ENST), Software Engineering, Networking, Micro-Electronics