

Martin Rosselle

4TH JULY 1974

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OBJECTIVE and INTERESTS

I'm a freelancer specialized in back-end development, cloud infrastructure setup (architecting + ops), container orchestration with Kubernetes (including OpenShift/OKD).

I have a lot of experience in cloud computing, particularly in cloud native on AWS.

I try not to get stuck in paradigms be it language/framework/tooling; one of my missions was a mix of Python, .NET C# (ASP.NET MVC/Web API), MySQL (Aurora), node.js, to name a few. The 'holy grail' and 'one solution fits all' does not exist.

What keeps me busy...

- Cloud computing on AWS: micro-services (Lambda) and server-less (low budget) architectures using a multitude of technologies and programming languages
- Latest Kubernetes innovations
- Backend and front-end web development: though my expertise lies in ASP.NET MVC/ Web API development I recently took a lot of interest in Elixir (Phoenix) and try to keep up a bit with latest evolution of dotnet (core).
- Micro-services and containerization: Docker, OpenShift, Kubernetes
- Distributed programming using Elixir (OTP Erlang)
- Playing with Raspberry Pi, ESP32s, Arduino's, electronics, ...
- Functional programming (learning a bit of Haskell sometimes in my free time), some modern C++, C#.
- ...



Programming Skills

Python
Elixir
C#
C/C++

Multithreading
Network programming
(TCP/IP sockets)
Cryptography / PKI

.NET (Core)
ASP.NET MVC
ASP.NET Web API
on Win32 and
Windows CE
COM/DCOM

Linux (Ubuntu/Debian)
Centos 7
Linux Kernel Driver
development
Raspberry PI (hobby)
Kali (penetration
testing tools)

MS SQL Server
MySQL

WCF/SOAP
WS-Security
WS-Trust
WS-* WS-
SecureConversation
SAML2.0 protocol
SAML tokens
OpenSSL

REST (using MS
WebAPI)
Elixir Phoenix

EDUCATION

Industrial engineer electronics (master) - graduated in 1998
Kiho, Gent

The study focused on digital electronics and software engineering.

EXPERIENCE (+20 years)

AWS Consultant

April 2022 – now

Swift

- **Single point of contact for everything AWS related at Swift HQ (La Hulpe)**
- **Working in close collaboration with the US department (Center of Cloud Enablement aka CCOE) for landing zone improvements, testing functionality, IAM, ...**
- Development of a solution (Terraform, Lambda python boto3...) for short lived private certificates using AWS ACM and ACM PCA and AWS Lambda
- Development of a blueprint setup (Packer, Terraform, AWS CodePipeline) for a whole bunch of similar applications that needed to be moved to AWS (lift and shift)
- Coaching of employees with zero/beginners AWS knowledge

AWS Technical Architect

July 2021 – April 2022

Luminus

- **validating designs** of the different BUs/projects, for example:
 - private api gateway /lambda authorizer / ECS design
 - api gateway / lambda designs
- **integrations of spokes** into hub/spoke model
- **designing and setting up** centralized AWS network firewall
- designing centralized ingress solution
- setup (proof of concepts) MSK EKS
- setup AWS MSK
- ...

Software Application Engineer

July 2018 – July 2021

Ibanity - Isabel Group

- **OpenShift** management
- **Ansible** management (AWX)
- **Linux** management
- **AWS infra** management using Terraform
- Monitoring: **Prometheus, Grafana, ...**
- **Pfsense**
- **Elasticsearch** stack (7.x)
- Other DevOps work using **Gitlab** CI/CD), Jenkins builds, ...)
- On-call (day and night) duty for all our infrastructure
- ...

OAuth2.0
OData

Bash
SQL
XML/XSLT/XSD

Design skills

Object Oriented
Development/Design

Domain Driven Design

Functional Design
patterns (functors,
applicatives, monads)

OOP Design Patterns
A bit of UML

Cloud knowledge
Amazon Web Services
(AWS)
OpenShift (K8s)

Other product knowledge

Docker
Pfsense
Nginx
Kong
HAProxy
ADFS
Shibboleth
Apache web server
Windows server
2012R2
IIS
Fiddler
Wireshark
TcpDump

Languages

Dutch = native
English ++++
French +
German –

Personality

Social
Persevering
Curious to learn new
technology.
Confident
Stress resistant

Senior Software developer

December 2016 – June 2018

Kapsch International Zaventem

- OpenID Connect and OAuth authorization infrastructure and middleware software development using IdentityServer3 and related identity libraries.
- Security architect/Cloud architect/Developer
- API gateway solution using NGINX as the reverse proxy, ELK stack and docker tools.
- Product migration to AWS using Elastic Beanstalk IIS and Docker platforms:
 - IaC with CloudFormation
 - VPC design and setup including subnets, domain services, NAT gateways, remote desktop gateway for operational management, ... High availability solutions using Elastic Beanstalk (EB) applications and environments, IAM management
 - SSM
 - DevOps: automated infrastructure setup with CloudFormation (including the EB applications)
- PKI related tasks

Senior Software developer

March 2016 – December 2016

Twipe Mobile Solutions Leuven (Digital news publishing)

Cloud (AWS) implementation for a Google sponsored project/platform (Google DNI) in cooperation with media concern Mediahuis (Flemish newspapers: Nieuwsblad, ...)

The project/platform is pioneers work, involving editorial insights, predictive modeling and analytics. I'm the main back-end developer developing the core of the platform. The platform can be seen as "Google Analytics" for digital publishing.

Technologies under my responsibility (DevOps):

- Serverless cloud computing (S3 + AWS Lambda in Python)
- Event stream processing (AWS Kinesis + Lambda + S3)
- Data aggregation and calculations (MySQL)
- REST API development in .NET/C# and deployment on AWS Elastic Beanstalk
- Identity management using AWS Cognito
- And some other stuff I probably forgot...
- Docker containers on AWS ECS

Software architect/developer

December 2011 – February 2016

Euroclear, Brussels/Braine L'alleud

As part of the distributed frameworks team, I designed (in close collaboration with the security analyst) and developed a security token service (STS) with support for WS-Federation and SAML2 protocols. I authored also various pieces of supporting libraries to interact with this service including an optimized WCF/SOAP binding (using KerberosOverTransport, IssuedTokenOverTransport and WS-SecureConversation) and a .NET IIS module that implements the SAML Web SSO profile (to be used by for example ASP.NET applications) and integrates with reverse proxies (Apache). I architected solutions for session distribution/session fragmentation challenges (security session correlations), federation with external partners (Swift) and cloud service providers like Salesforce. I integrated authentication methods like RSA SecurID into the STS, did customizations to ADFS for integration with reverse proxies, integrated HSM infrastructure for secure storage of PKI key material...

I provided also guidelines to the application development department for securing ASP.NET MVC applications against OWASP top 10 vulnerabilities and provided frameworks for ASP.NET MVC and WCF access control (role based).

I was product owner of IIS (Internet information server) which included security hardening.

I did most of the integration into the infrastructure and provided operational support.

In the end I managed a small team to improve and add features to the security infrastructure we had designed.

Summary in keywords:

- SOAP/WCF
- SAML and SAML protocol
- Authored SAML .NET IIS module
- WS-Federation, WS-Trust, WS-Security, WS-SecureConversation
- Authored custom Security token service (STS) and R-STC (brokering)
- .NET/C# (Windows identity foundation, aka WIF, WCF, MVC, Web API, ...)
- PKI / OpenSSL / HSM integration (nCIPHER)
- .NET cryptography
- ADFS
- AD, AD LDS, LDAP
- Shibboleth (apache mod_shib)
- Apache / IIS
- REST security (OAuth2 and other)
- Identity propagation
- Federated authentication mechanism
- High availability and scalability solutions (load balancing and clustering)
- Security session distribution / sharing
- Security session correlation
- State management and caching

- Replay detection
- OWASP top 10 hardening
- Multi factor authentication
- OTP, TOTP
- Defense in depth, multi-layer defense strategies
- Segregation of duties
- Least privilege
- ...

Software architect/developer

January 2011 – November 2011

Giesecke & Devrient, Zaventem

Assessment of their processes which resulted in a new workflow based on Windows Workflow with XAML.

Moved from Ieper to Leuven region in 2011 – started Consultancy for U2U Consult, somewhere along the road Euroclear gave me a permanent position.

Software developer

April 2009 – January 2011

Xtralis Belgium, Harelbeke (www.xtralis.com)

H264 video security management platform implementation (.NET/C#/C++)

Software Engineer, Punch Graphix (now Xeikon)

2007 – 2009

Punch Graphix Prepress Belgium, Ieper (Punchgraphix)

Worked on the new UV Setter Series 400 & 800 CTcP machines. I was responsible for the integration of the old UV Setter Series 6/7 imager (from BasysPrint Germany) into a Windows CE based platform. The hardware was developed in house and uses the CAN bus to drive the different peripherals (i.e. the moving parts of the CTcP machine). I also wrote the complete automation part in C++ on Windows CE 5.0 / 6.0. The 8 series are a whole group of machines (+16 types, with modular automation for loading and unloading plates). I also helped on the GUI part (C# Compact Framework .NET)

Software Engineer Contractor at Cisco/Scientific Atlanta, Belgium

2004 – 2007

Cisco (Scientific Atlanta), Kortrijk (cisco)

Worked on the Rosa/Copernicus cable network monitoring platform. Created drivers (plugins) for the platform using SNMP and COM/DCOM on a Win32 platform (coding mainly in C++/MFC and Python scripting).

More info on Rosa management software [here](#).

Worked on the transrater part of the Digital Content Manager, a device for multiplexing and transrating DVB (MPEG) signals. This development was done on a PPC platform running a 2.6 Linux kernel. Development was mainly done in C/C++. My task was to glue the muxing with

the transrating according to available (constant or variable) bandwidth. Test scripts mainly in Python and Bash.

More info on the Digital Content Manager [here](#).

Software Engineer Contractor, Televic

2003– 2004 Televic, Izegem ([Televic](#))

Worked in the nurse call division on the Axio system. More specific, I implemented the backend (ms sql server engine) using OLE DB/ADO in Borland C++ and developed the Nurse User Interface for the nurse call dispatching. The user interface was developed in .NET 1.0/C#, at that time a very young framework! The Axio system is peer to peer network of modules (rooms) that can broadcast nurse calls or broadcast other patient information. The nurse call GUI I developed made an overview of the calls and made some basic system configurations “nurse” friendly.

More info on the Axio system [here](#).

Software Engineer Contractor, StrobbeGraphics

2001 - 2003

StrobbeGraphics (now Punchgraphix), Ieper

Helped maintaining, bug fixing and developing new automation parts of the (at that time) new Polaris CTP machine. This development was mainly in C on a Philips OS 10 RTOS. These Polaris CTP machines were made for Agfa.

For some history on these machines, look [here](#).

Software Engineer, Service Engineer, Skyline Communications

1999 – 2001

Skyline Communications, Izegem

Installed and programmed cable network monitoring devices based on SNMP.

Software Engineer, dZine

1998 – 1999

dZine, Kortrijk, www.dzine.be

Created a prototype music server for uploading/downloading mpeg 1 layer 2 audio to custom made music players on a peer-to-peer tcp/ip network. This audio was kept in a MS SQL Server database. We were pioneers... This device never reached the market because of the rise of mpeg 1 layer 3 (mp3).

ACTIVITIES

Occasional Chess Club player in Leuven, reading, biking, electronics, walking, cooking, learning about new computer languages, mathematics