**Barry Robinson**

# Senior Software Engineer

# Alert Logic, Remote

# Cyber Security

## Contact:

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## Education:

B.s.c - Information Systems Analysis and Design

Kingston University - 1991 to 1995

## Skills:

C 17 / C++ 11/14/17/20, Erlang, Erlang Native interface Functions (NIF), Make, Java 8 / 11, Maven, petalinux and buildroot, Lex & Yacc, real-time systems, packet processing at layer 2/3/4, HTML, WebLogic application server, J2EE, TDD, Mokito, Junit, JRunner, Protect mode development on Windows, Kernel device driver development Linux, windows services, FPGA integration, Netronome MicroC on the Agilio CX, DPDK18.05 multi-core development / architecture.

## Overview:

I have worked on large, highly scalable software projects written from the ground up in C/C++ and on higher-level business applications in Java / Java EE. I have managed and mentored teams of up to six engineers and worked as a senior consultant for a successful company engaging with large multinational organisations. I learn new technologies quickly and always look for new challenges.

## Work experience:

# Senior Software Engineer / Team lead / Technical lead

# Alert Logic

October 2021 – present

## Job description:

As a member of the parsing team, I am responsible for designing, developing, and maintaining components implemented in Erlang and C++ 11 using the Native Implemented Functions (NIF) interface. The parser is a high-performance component that offloads message parsing from an Erlang-based system to a C++ component as a shared library deployed on Amazon EC2 infrastructure and loaded on demand by the system.   
  
System development and testing are done using DTrace and XCode Instruments. Compilation uses Erlang 24, make, and c++17. Local validation tools are hosted in Docker and run on Amazon Linux.

## Achievements:

* Increased overall performance of the library by around 15%.
* Developed a translation system for a tree-based rule approach.
* Added Google Test framework for component-level test-driven development, which was excluded by the Erlang common test framework.
* Currently redesigning parsing engine architecture.

# Senior Software Engineer / Product Lead

# Genesis Technical Systems

July 2018 – October 2021

## Job description:

Product lead, responsible for project planning, delivery, and architecture, working in an Agile team to deliver products in a mixed hardware and software environment.

Also developed a Network Function Virtualisation (NFV) tool for managing and deploying Genesis equipment using OpenDaylight, a java-centric container architecture based on Apache Karaf. The project is a mixture of java 11 development for server-side systems and embedded C/C++ development for embedded controller architecture.

Design and development of the Access Service Manager (ASM) platform, a telecoms TR101 accesses node at the Central Office for a product range that aggregates and extends reach in xDSL networks from the DSLAM. I designed and developed the control system for the FPGA engine and the network interface device driver for packet routing to and from the physical interfaces.

This included IGMP group participation, DHCP negotiation, and rate limiting through QoS.

Support and implement functionality in existing prototype products built in DPDK 18.05 and on the Netronome Agilio CX in MicroC for deployment in technical trials.

Work with FPGA and hardware design engineers to develop bespoke system boards and software for FPG engine on the Xilinx ZCU106 running on a Zynq Ultrascale+ Quad-core ARM A53 processor.

Design, implement and modify components such as Command Line Interface (CLI) and Operations Administration and maintenance (OAM) systems build using Yang models to define MIBs and management capabilities accessed through Netconf and SNMP.

Develop an architecture to provide a fully realisable CORD node deployable in AT&T’s Airship environment.

Responsible for designing and developing a high availability element management system, GEMS2 (Genesis Element Management System Version 2), in Java 11, employing distributed message queues.

## Achievements:

* Implemented embedded Layer 2 packet generation and processing components on a Netronome Agilio CX in MicroC, a C99/80 target-specific real-time subset of the C language compiler for the Netronome Agilio CX SmartNIC hardware platform.
* Developed a QoS system for a product based on DPDK 18.05 used as a TR101 node and improved overall packet processing efficiency in PMD.
* Planned, managed, and contributed to the development of an FPGA based embedded system for a TR101 access node, ASM-10.
* Researched and developed a strategy for integration into CORD and AT&T Airship, for Genesis products.

**Skills:** C/C++, Java 8 / 11, Maven, eclipse, visual studio, P4, Netronome MicroC / SoC System Architecture, DPDK 18.05, Layer 2/3 packet processing (UDP/IGMP/ARP/PPPoE), xDSL, u-boot, Xilinx board bring up, Xilinx ZCU106 development board bring up with petalinux and buildroot.

# Freelance developer, consultant, mentor, and trainer

2001 to 2018

Worked as a freelance developer, trainer, and mentor working in Java, J2EE, C/C++, and assembler, as well as product integration and testing for a range of clients from blue chip companies to local small businesses providing both technical tuitions, mentoring and consultancy as well as business research and development and business process re-engineering.

During this time, I undertook work for BEA (WebLogic/J2EE training as an external consultant), BAA, DEL, and OtherMedia (business consultancy / BPR).

I also ran a successful photography business in my spare time.

# Senior Consultant

# Valtech UK Ltd

January 2000 to December 2002 approximately.

## Job Description:

Development of internal and external B2B e commerce solutions, systems and full development life cycle training, mentoring, including sales support through presales consultancy and development of whiteboard architectures.

## Main Accomplishments:

* Trained newly hired employees using a "boot camp" originally developed for the initial intake at Riversoft. I repurposed the concept to reduce expenditure by Valtech on newly hired consultants, sourcing intelligent graduate candidates, and training them to the high
* technical standards required by the company to deliver the best possible solutions to clients.
* This strategy allowed us to reduce overall hire spend for the year through reduced wages demanded by seasoned professionals with the experience to command high salaries.
* Mentored internal and external employees in the development large multiuser system with a combination of Rapid Iterative Prototyping and Object-Oriented Designed Methodologies [UML] to deliver scalable, multiuser, multi-threaded systems deployed with J2EE and other distributed component technologies.
* Developed Java/J2EE B2B solutions for both internal and external client and stakeholders.
* Led a team to examine and propose solutions for ongoing attacks to the company's internal network, and external servers. At the time Valtech held sensitive information for multiple banking and financial institutions worldwide, as well as proprietary internal data. The team produced a report that formed part of that year's business strategy and was subsequently published as part of the general business plan for Valtech UK.
* Provided presales consultant to evaluate customer system requirements, and formulate whiteboard architectures for potentially viable systems solutions to secure high value contracts.
* Developed architectures for several systems that were later implemented for blue chip clients.
* Delivered training and mentoring in the use of development methodologies and programming languages and technologies including Rapid Iterative Prototyping using
* Object Oriented Design & Development, Unified Modelling Language, J2EE, both in house and on customer sites.
* Was instrumental in identifying and exiting from a non-profitable contract that would have locked the company into a long term, and potentially damaging contract, to provide backup consultancy services to a second party consultancy group.
* Developed the information systems architectures for blue chip clients.

# Research Engineer

# RiverSoft Plc

June 1996 to December 2000

## Job Description:

To prototype front and back-end components of the Riversoft Open River network

management system, evaluating and hiring new staff, implementing, and managing the company network, implementing source code and quality control.

## Main Accomplishments:

* Implemented the initial GUI prototype to demonstrate the effectiveness of the
* Open River network management server to potential investors, thereby securing funding to facilitate grow of the company.
* Implemented, configured, and managed a simple but high-capacity network based around a Linux server, and multi-platform machines to fulfil the development and administration requirements of a growing organisation. This task was later handed over in full to a more qualified and experienced Sys-Admin.
* Developed and documented coding standards and practices, including code documentation standards, monthly and weekly reviews and walk-through and assessments, along with source code control and revision systems based around RCS to ensure code transparency and quality.
* Developed a multi-threaded, cross platform architecture to deliver a scalable GUI message-based infrastructure to allow end users the opportunity to develop custom "Widgets" through a C++ API framework.
* Developed a boot camp program to hire graduates and doctorate researchers in mathematics and computer science, then train and mentor them in structured development
* techniques to deliver the highest quality product on time and within budget.
* Managed and lead a team of six programmers responsible for development and design of the Human User Interface to the existing network management server, including Window,
* Java, and web based front ends.
* Put in place on going procedures to continually evaluate skills gaps, identify training requirements and opportunities in order to focus resources on the right people at the right time to maintain parity with best practice in the industry.

# Software Engineer

# Micromuse Plc

1995 to 1996

## Job Description:

To develop, maintain, support, and debug components for the Netcool Omnibus network management system built around the Sybase API, on windows, Sun OS, HP UX, and Linux using a variety of tools and techniques and programming languages and APIs.

## Main Accomplishments:

* Developed probe and gateway service and demons for Netcool Omnibus to capture, export, and import data to and from external systems and devices such hardware network components, databases, help-desk ticketing systems such as Remedy.
* Developed GUIs and GUI components on Windows 95, NT, HP UX, and Solaris using a range of technologies and tools including Visual C++, MFC, GCC, G++, as well as flex and bison for parsers and configuration data.
* Developed and debugged server-side systems in C and C++ using GDB, GCC, VI along with Sybase and Oracle API's, TCP/IP socket layer and UDP protocols.
* Created the architecture for, and implemented, the first fully functional security protocols for the Netcool Omnibus server
* 1st line emergency technical support to remote and local clients.
* Introduced and implemented OODD practices, Source code control, and revision control systems using RCS to ensure dependable code quality, and non-destructive editing.
* Helped to develop what is now key components of the IBM Tivoli management Framework.

## Personal Statement:

At RiverSoft (and more recently in Genesis) I was the first employee through the door in the morning, and the last one to leave at night. My faith and hard work in the company was rewarded with 175,000 shares which were given to me personally by two of its senior board members, and personal friends [Sir Campbell Frasier - Chairman of Dunlop 1971, Head of the CBI 1981, and Sir Trevor Robinson CBE - Trevor Robinson & Co].

I have a lifetime fascination with the way in which science shapes technology, and how technology shapes our world. From climate change to quantum computing and its impact on applications such as cryptography, cyber security, and AI.