

Stephen Early – C++ Software Developer

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Profile / Summary:

An experienced **C++ Software Developer**, an expert at designing software for the Investment Banking sector particularly within Market Risk and VaR calculations – typically delivering cost effective software solutions that analyse and reduce business risk. Key strengths include: developing a wide range of market risk applications based on the unix operating systems to satisfy compliance and industry regulators; refactoring legacy code to improve performance and provide additional enhancement; meeting with product owners and business analysts to gather technical requirements, prioritise current issues and provide solutions within fixed deadlines; and mentoring junior developers to share knowledge and improve competencies.

Key Skills:

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| <ul style="list-style-type: none">▪ C++ Software Development▪ Market Risk & Value at Risk (VaR)▪ Multi-Threading Unix Applications▪ Market Data Processing▪ Refactoring Legacy Code▪ Foreign Exchange (FX)▪ Mentoring Junior Developers▪ Object Oriented Analysis & Design | <ul style="list-style-type: none">▪ Systems Analysis▪ Requirements Capture▪ Assess Risk & Improve Business Processes▪ Tick Data Processing Systems▪ Share Price Movement Applications▪ Fidessa Trading Platform▪ Real-Time Design▪ Air Traffic Control Systems |
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Career Highlights:

- Deutsche Bank's VaR (Value at Risk) application took excessive time storing calculation results, which put regulatory reporting deadlines at risk. Engaged as Software Developer to speed up results storage phase. Profiled representative workloads; identified bottlenecks in generic code that could be optimised for specific use cases; and identified / selected options for reducing execution time by a factor of 10. Successfully improved runtime by several minutes and reduced risk of missing regulatory reporting deadlines.
- DB Market Risk Development Team spent disproportionate time analysing significant changes in VaR, or why runs had failed. As Software Developer created debugging tool for bespoke scripting language that managed execution of each VaR run. Analysed scripting language interpretation process; implemented mechanism for adding breakpoints into script; provided solid framework for developers to extend; proposed future list of improvements; and trained development team. Successfully reduced developer resources needed for root cause analysis.
- After DB's VaR application was migrated to Red Hat, the identical code took 2 minutes longer to execute. Selected as Software Developer to analyse slowdown and determine solutions. Traced root cause to implementation differences of certain mathematical functions; researched known issues with maths libraries and noted concerns over specific linux implementation; discarded unnecessary precision which eliminated differential; and performed additional refactoring. Successfully resolved concerns over migration roadmap and project back on track.

Career History / Experience:

Company: Deutsche Bank, City
Position: C++ Software Developer (Market Risk)
Dates: April 2014 to March 2018

Deutsche Bank AG is a German investment bank and financial services company.

- Hired to improve the performance and throughput of the Market Risk VaR calculation engine (EDGE application) that uses a mixture of Monte Carlo and Historic simulation methodologies, whilst maintaining functionality and BAU.
- Supported EDGE with porting it from Suse to Red Hat, and further performance enhancements.
- Reported to the EDGE Development Manager and worked autonomously in Development Team.
- Supported new Portfolio Analyser (PA) project, a component of the Market Risk suite, and designed elements around the SAS product line, with infrastructure provided by C++ and java.

Key Achievements:

- Re-wrote persistence layer, from a flexible but generic implementation, to a more highly optimised one that delivered 10 times the throughput, for that processing stage.
- Converted hot spots in the code to use the vectorisation capabilities of the hardware to deliver a 4 times speedup to some of the computationally intense parts of the processing.
- Designed and implemented a debugger for the bespoke runtime interpreted language.
- Developed and implemented the interface between EDGE and PA, using the SAS Event Stream Processing application (ESP).
- Developed a bespoke API that allowed the dynamic construction, and configuration, of various business patterns implemented as co-operating groups of low level ESP components. This insulated PA developers from needing to understand the finer points of the ESP product.
- Reviewed code and gave technical advice to members of the offshore development team.
- Provided support during various testing phases, and during release to production.

Company: BNP Paribas, Marylebone
Position: C++ Software Developer (FX)
Dates: August 2013 to February 2014

BNP Paribas is a French international banking group with a presence in 75 countries. It was formed through the merger of Banque Nationale de Paris and Paribas in 2000

- Hired to support the FXT, Foreign Exchange deal management system (covering Spots, Forwards and Swaps), deals were entered manually (via a GUI application), or via various importer processes. A number of exporter processes were also maintained, so interested parties were notified when a deal had been processed.
- Reported to the FXT Team Leader and member of the FXT development team, implementing bug fixes and performing technical testing of issues resolved by other colleagues.
- Developed software on Visual C++ with Oracle and Sybase databases, and maintained FXT in four major financial centres world-wide.
- Refactoring message handling code in numerous components to give more consistent interface.

Key Achievements:

- Upgraded 1 existing data exporter component to multi-threaded operation, increasing throughput.

Company: Royal Bank of Scotland
Position: C++ Software Developer (Market Risk)
Dates: 11/2009 to 03/2013

The Royal Bank of Scotland commonly abbreviated as RBS, is one of the retail banking subsidiaries of The Royal Bank of Scotland Group plc, together with NatWest and Ulster Bank.

- Provided business critical improvements to the universal Market Risk calculation engine (UniVaR which was based on a multi-threaded C++ application, originally ran on Solaris 10 and interfaced to a Sybase database and a FAME time-series database.
- Reported to Market Risk Development Manager and acted as Technical Team Leader for C++ developers, having overall responsibility for quality of C++ code for unix based components and main calculation engine.
- Interviewed and mentored new starts to the C++ team, based in London and India.
- Gathered requirements from business users and prepared functional specifications / estimates.
- Advised and recommended alternative implementation strategies.
- Supported business users with acceptance testing and deployment of new functionality, often called upon to investigate and explain unexpected VaR results.
- Rolled out improvements to the Scenario and Stress Testing functionality.
- Provided fault diagnosis and rectification for the Market Risk IT Production Support team.
- Created numerous configuration and monitoring utilities to assist common problems.

Key Achievements:

- Rolled out major and minor code releases into production, with particular emphasis on performance and resilience, as the client base and traffic had multiplied over 3 years.
- Designed and implemented the Stressed VaR calculation which was a new regulatory addition to daily Capital Charge Calculation.

- Reduced overall memory footprint by introducing shared memory for storing large data structures needed by multiple processes.
- Designed and implemented a number of enhancements which allowed Market Data team to safely trial a number of proposed changes to reference data, in a production environment, without impacting other production users.

Company: Deutsche Bank, City
Position: C++ Software Developer (Market Risk Group)
Dates: September 2008 to November 2009

- Hired to provide maintenance and enhancements to the corporate Market Risk calculation engine (EDGE), working with a single-threaded C++ application, running on Suse Linux and interfacing to a Sybase database and a FAME time-series database.
- Redesigned main application in 2009 to support staged migration to multi-threaded service-oriented architecture.
- Reported to the EDGE Development Manager and member of the Methodology team.
- Collaborated with members of the Quant team to optimise performance of the in-house library that supported non-normal statistical distributions.
- Provided proofing and tuning of Quant Team Developments.
- Replaced numerous bespoke classes and objects with open source equivalents such as STL and boost, as part of the re-architecting process.
- Converted several of the adapter classes that connected the internal XML structures with the database, to use new SOAP services rather than Oracle client interface.

Key Achievements:

- Over a period of time, an approximate 5x speedup was achieved.

Early Career:

Contract:

- 06/2006 to 09/2008: Royal Bank of Scotland: C++ Software Developer (Market Risk)
- 11/2004 to 04/2006: Credit Suisse: C++ Software Developer (Tick Processing)
- 11/2003 to 10/2004: Personal Development
- 09/2003 to 10/2003: Royal Blue Financial: C++ Software Developer (Trading Systems)
- 11/2002 to 08/2003: Personal Development
- 09/2003 to 10/2003: Royal Blue Financial: C++ Software Developer (Trading Systems)
- 10/1998 to 09/2000: British Airways/ICL: C++ Software Developer (Crew Rostering)
- 05/1997 to 10/1998: EDS Defence: C++ Software Developer (Naval Command & Control)
- 10/1995 to 05/1997: Lockheed Martin UK: C Developer (Air Traffic Control)
- 07/1993 to 09/1995: National Air Traffic Services: IBM Assembler (Flight Data Processing)
- 12/1992 to 06/1993: General Dynamics UK: C Developer (Naval Command & Control)
- 06/1992 to 12/1992: British Telecom Research Labs: C++ Software Developer (Telecoms)
- 05/1991 to 03/1992: Joint Venture with Netsolve: C++ Software Developer (Email Application)
- 01/1990 to 05/1991: Ferranti Naval Systems: Coral 66 Developer (Naval Command & Control)

Permanent:

- 03/1983 to 12/1989: SD-Scicon (now EDS): Software Developer
- 09/1979 to 02/1983: Plessey Company (now Bae): S250 Assembler (Ptarmigan)

Education:

- 1976 to 1979: Imperial College, London University: BSc (2nd Class Hons) in Physics

Certification & Training:

- 3 Day Using Select Component Factory at Select Business Solutions
- 1-Week Technical Workshop on The MQ Series of Products At IBM, South Bank
- 4-Month Course on Air Traffic Control Systems at National Air Traffic Services (NATS)

- Conversion Course to SSADM V4.0
- Certificate of Proficiency in SSADM V3.0
- 1-Week Course on Structured Analysis Structured Design (Yourdon)
- 1-Week Course On 8051 Architecture at Intel, Swindon
- 6-Month Course at Control Data Institute, Southampton, Sponsored by Plessey

Other Skills:

- Languages: C++, Tcl, C, SQL, Ada, JOVIAL (US DOD Language), Coral 66 (MOD language)
- Methodologies: Universal Modelling Language (UML), Yourdon, OOD (Object Oriented Design), Agile, Waterfall
- Operating Systems / Software Products: Unix & Linux (Red Hat, Suse, Solaris, HP-UX, AIX), Visual Studio 2010, SAS Event Stream Processing; *fidessa* trading system, Reuters SFC class library, CDE, Motif & X-Windows, Rogue Wave/STL/Boost Class Libraries, Oracle, Sybase, Purify, VAX/VMS
- Hardware: Intel based servers, Sun Workstations and Servers, HP-UX Workstations & Servers, IBM RISC 6000 Workstation, IBM Mainframe, VAX & microVAX clusters, Ferranti computers

Memberships:

- Member of the British Computer Society, registered as a Chartered Engineer
- Member of the Association of C and C++ Users (ACCU)
- Member of Institute of Physics, registered as a Chartered Physicist
 - 2002: Attended ACCU spring conference at Oxford
 - 2001: Attended ACCU spring conference at Oxford
 - 2000: Attended Oracle iDevelop '2000' conference at Birmingham
 - 2000: Attended ACCU spring conference at Oxford
 - 1999: Attended Sun Developer conference at London
 - 1999: Attended ACCU spring conference at Oxford
 - 1997: Attended inaugural C and C++ European Developers Forum at Oxford

Personal Details:

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- Private Pilot's License

Recommendations: