Name:	Dr Peter Lappo BSc, MSc, PhD, CITP
Current Position:	Associate ConsultingWhere Ltd
Key skills:	Architectural Design Project Management Business and Data Analysis Domain experience: Algorithmic Trading; Corporate Bond Trading; Interest Rate Derivatives; Credit Derivatives; Equity Trading; Futures/Forwards; FX Pricing; Risk Management; DFD; Low Latency Trading; Development: Java; Oracle/MySql; Cassandra; Scala; Akka; Scrum/Kanban; HTML/CSS; Javascript; AngularJS; Ionic; Objective C; Mobile Web; Responsive; R; C/C++; Python; Spark; UNIX; Docker; DevOps; Gradle; Play;

Profile

Peter is a hands-on solutions architect and developer with 25 years of experience designing and developing software systems with the last 18 years spent developing financial systems; usually low latency high performance trading systems. He has worked with very large organisations such as UBS, JP Morgan, Nomura, Man Investments and RBS but has also worked with start-ups, such as a fintech start-up called Peer Dealer or Pollards Et Filles an investment manager in emerging markets. Prior to moving to financial services he developed real-time software for the telecoms and simulation industries. When working for Systematic Methods Research Peter collaborated with GeoGreenWeb to producing a GIS enabled iPhone app called MyStop that alerts a user when they are nearing their train stop.

At Peer Dealer, a foreign exchange trading start-up focused on the retail market, Peter was the chief architect, principal analyst and main developer and he turned around a failed project to produce a credible mobile first prototype and business model. In the process he specified a big data database, Cassandra, to store transactions and tick market data in a fault tolerant manner. At Pollards Et Filles he is the CTO responsible for defining strategy, training and mentoring and of course leading development.

In other roles in the finance industry Peter has had a wide variety of experience designing and developing trading systems at UBS, JP Morgan, Bear Stearns, Man Investment and RBS. Along the way he has gained experience in risk management, equities trading, fixed income, foreign exchange, forwards, swaps, and futures. At Man Investments he delivered a prize-wining low latency co-located high frequency trading platform within an aggressive six-month period.

Peter’s primary technology background is open source with an emphasis on JVM languages such as Java and Scala. But he has a wide range of technology experience such as R and Python for statistical analysis; Objective-C for IOS mobile apps; Javascript and Anglular JS for mobile and responsive apps; big data technologies such as Cassandra, Spark and Solr for storing and analysing big data.

Peter has been an agile advocate since 2000 and has presented papers at agile conferences. His most recent presentation was to an audience in Guyana in association with Pollard Et Filles. Peter was awarded a PhD from Leeds University in Computer Optimisation and completed a Finance MSc at Reading University with distinction.

Professional Experience

Mar 2014 – Jul 2015 **Chief Technical Architect, Peer Dealer, FX trading Start-Up, London (Contract)**

Peer Dealer is a peer-to-peer FX trading start-up that allows users to trade with each other at potentially zero spread. Peter's role at Peer Dealer was multi-faceted, consisting of developing code, designing a scalable architecture, developing the business model, and of course writing automated tests. The server was fronted by a HTTPS Nginx server behind which was a Play Framework server serving a JSON API. The Play server used Akka actors and Cassandra to achieve a scalable thread safe programming model programmed in Scala but with some legacy Java code. Two clients were developed, a responsive web app and an Ionic AnglularJS mobile client.

Skills: Scala, Java, Cassandra, Scrum, Play Framework, Javascript, HTML5, CSS3, Boostrap, Akka, FX, Spark, BDD/TDD, Cucumber, Kanban, AngularJS

Remotely managing two other developers later in the project (Peter worked alone for nearly a year) who added user sign up and authentication via SMS; Facebook or Google sign-up, accounting, liquidity provider bridge; Anglularjs / Ionic Android and iPhone client.

Achievements

- Developing the unique trading model behind Peer Dealer that allows users to trade with each other and eliminate the middleman and make a profit for the company;
- Choosing scalable, fault tolerant and cost effect cloud based technology (Scala / Akka / Cassandra / Docker / Play Framework / Nginx) on a root servers;
- Developing the regulatory trading model for the Peer Dealer platform for BaFin the German financial regulator;
- Defining the system architecture to ensure high performance, scalability and fault tolerance in the future;
- Developing an order book server that implements the trading model and allows users to trade with each other using market, limit, stop and peg orders with stop loss and take profit functionality;
- Developing a FIX market feed for trading, currency conversions and historical price data storage;
- Defining and developing the position management model;

- Defining and developing the risk management model;
- Defining the interface to the accounting and liquidity provider and supervising its development;
- Defining and developing the REST API for web clients;
- Developing a fully functional responsive HTML5/CCS3 web app for trading and position management (eventually superseded by an Anglularjs mobile client);

Jan 2013, ongoing **Chief Technical Officer (CTO)**
Pollard Et Filles, London/Guyana

Peter is the CTO at a frontier market investment fund that uses quantitative methods to trade in the Caribbean and South American markets. The fund uses local Guyanese staff to provide valuable quality local jobs.

Skills: Remote Team Management with Trello, MySQL, Javascript, Python, git, Scrum, Equity and FX Prices, Risk Management

Working 2-3 hours per week, Peter's responsibilities as CTO are:

- Choosing appropriate and cost effect cloud based technology;
- Attending investor meetings and helping with marketing;
- Managing and training a remote team in Guyana;
- Analysing and defining system requirements;
- Ensuring a clean separation between development and production and ensuring a high quality outcome in production;
- Developing a platform for loading closing equity and forex prices into a MySql database with bash, Javascript, SQL, and Python;
- Developing a trade and risk management platform to alert managers to stop losses and provided a daily snapshot of the fund value;
- Developing a platform to remotely deploy applications from Jenkins using Gradle;

Jul 2011 – Dec 2013 **Senior Algorithm Developer**
RBS M&IB, London (Contract)

Peter was helping RBS enhance and stabilise a business critical **low latency FX spot and forwards pricing platform** serving downstream ecommerce clients 2 x 5 with real-time rates, fixing and closing rates in three centres across the globe. This involved:

- Developing core algorithms for pricing across tiered FX / Forwards rates and spreads
- Lead engineer on a performance testing framework which is instrumental in ensuring latency can be improved and more importantly does not regress;
- Java performance and memory optimisation;
- Re-engineering and breaking the system into unit testable components;

- Diagnosing issues in complex multi-threaded code and complex client interfaces;
- Kanban style scrum is used for project management and coordination in a test first manner;

Skills: Java, Spring, FX, Forwards, Swaps, Crosses, Oracle, Scrum, R, Python, TDD

The server platform is written in core Java with an Oracle database, while the performance framework used Java, R and Python to produce performance graphs.

Jul 2011 – Jan 2012 **Mobile App Consultant**
Geogreenweb, London

This was a part time project involved developing a native Objective C location based iPhone app that wakes you up when you arrive at your destination. Including:-

- UX (User Experience) Design and marketing;
- Objective C development;
- Sourcing train station location data;
- Backend server for world wide location services;
- Prototyping with jquery.mobile and phonegap;

Skills: Objective C, Git, iOS iPhone, jquery mobile

Jun 2008 - Jul 2011 **Senior Algorithm Developer**
Man Investments, London

At AHL Man Investments Peter was involved with several projects. Including:
Lead engineer on the implementation of a tick database using One Tick for research and trading which involved:

- Ensuring the system met the business needs;
- Schema design;
- Performance optimisation;
- Sourcing data from a variety of places such as internal trading data, Reuters, Bloomberg and CME.

Lead technology engineer (and technology award winner) on a high frequency low latency trading platform using servers collocated in Chicago and written in Java achieving sub-millisecond tick to trade performance. This involved:

- Running proof of concepts and choosing infrastructure vendors;
- Architectural and software design of the trading framework to ensure algorithms could be back-tested;
- Development in a test first iterative manner, including coaching in TDD;
- Design of a framework to allow multiple asynchronous algorithms to execute on multiple instruments with rigorous risk position risk management.

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- Design of a framework to allow multiple asynchronous algorithms to execute on multiple instruments with rigorous risk position risk management.

Design of a FX streaming trading platform using a similar technology stack to the high frequency platform. This system has a positive impact on slippage for the main AHL trend following system by avoiding the market impact of RFQs. The first phase of this system went live early in 2011 ahead of schedule. This involved:

- Evaluating product vendors such as Smart Trade and Aegis Software (an in house solution written in Java was chosen in the end as it gave us greater control over the project with minimal extra cost).
- Designing an architecture and data structures using streaming rates.
- Setting up network infrastructure to cope with the extra bandwidth.
- Negotiating with banks to improve their wire protocols to reduce the bandwidth on forward prices.
- Developing the software to meet business needs using agile processes to enable execution of streaming prices with three counterparties.

Skills: Java, Spring, Maven, Algorithmic Trading, Linux, Python, R, One Tick, FIX Protocol, FX, Futures, Quickfixj, Subversion, Oracle

Aug 2007 – Jun 2008 **Principal European Algorithm Developer**
Bear Strearns, London

Peter was responsible for developing and supporting the entire sell side algorithmic trading system for European equity exchanges as follows:-

- Developing the next generation VWAP / TWAP.
- Specifying and developing a slicer algorithm.
- Specifying and developing a market on close algorithm.
- Developing a desktop alerting service.
- Developing post trade reports

- Supporting FIX engines and VWAP, TWAP, Implementation Shortfall, Participation Rate, Conditional IS and Pairs (statistical arbitrage or long short) and Slicer algorithms in production and UAT.

Skills: Java, FIX, Algorithmic Trading, Unix, Ant, TTConnect, JUnit, Sell Side

Jun 2005 – Aug 2007 **Project Manager/Team Leader/Analyst Developer**
JP Morgan, London

In February 2007 Peter moved into a new team that will be implementing the **logic engine for the next generation OTC trading platform** for fixed income, CDS and interest rate derivative OTC markets. The team will be implementing algorithmic trading for fixed income markets. Peter helped define the architecture.

Prior to this Peter worked as part of the Jets team performing **analysis, estimation, planning, design, and development** on a variety of projects in **fixed income, interest rate derivatives and credit derivatives OTC trading system**. Projects included:-

- Development of CDS fees calculator that uses Bloomberg server C API built as a SOAP Web Services (C++).
- Development of front office trading applications written in Java for US and Europe desks using MarketView gateways:-
    - Market Axess corporate bonds
    - TradeWeb Index CDS.
    - TradeWeb bonds
    - Interest rate swaps trading on both Bloomberg and Tradeweb
    - Bloomberg hedge trades with corporate bonds being traded

Skills: Java, C++, JUnit, JDBC, Swing, Ant, Sockets, Sybase, Agile Development, Unix, ION Market View Web Services, Bloomberg Server API

Mar 2003 – Apr 2005 **Analyst Developer**
UBS, London

Peter performed analysis, planning, design, and development of a variety of FIX based Direct Market Access (DMA) trading systems and components for equity and exchange traded derivatives. Projects included:-

- Algorithmic / strategy trading on defining the control parameters.
- Member of working group to develop a standard company wide messaging protocol to cover all message flows in equities front, middle and back office processing including algorithmic trading (FIX, FPML).
- Re-engineering of a pan European trade routing and translation gateway for equity markets
- Pan European Tom Bat trading system gateway server using sockets and Corba
- Odd lots gateway for the Nordic markets.
- Automated functional test framework including a simulated equities market.

Skills: Equity Trading, Java, JMS, JUnit, C++, JDBC, Swing, Ant, Agile Development, Unix, FIX

Other experience

Nov 2002-Feb 2003
Analyst Developer / Project Manager Dresdner Kleinwort Wasserstein, London

Skills: Java, JMS, C++, Linux, Solaris, Windows 2000, CxxUnit, Spiritwave, CVS
Conversion of DRKW's C++ messaging system to use JMS (Java Messaging Service) from ETX.

Jul 2002-Nov 2002
Analyst Developer / Project Manager (Consultant): APS Berk, Eastbourne

Development of a swing workflow application to track samples through various stages of quality assurance testing.
Skills: Java ,Swing, SQL

May 2000-Oct 2002
Java and Database (Contract): Barclays, Reigate

Web based invoice factoring system
Skills: Java , SQL

Feb 2000-May 2000
Chief Technical Officer (Contract): Manage.com, London

Network management tools for ecommerce
Skills: Java, Network Management, Sales, Consultancy

Oct 1997-Feb 2000
Team Leader / C++ Java Analyst Designer (Contract): Nomura International, London

Development of a securities reference database for position keeping, corporate actions and risk management system.
Skills: C++, Java, SQL

May 1997-Oct 1997
C++ Analyst Designer (Contract): Computer Share, London

Order management system for London Stock exchange for UBS.
Skills: C/C++, Real-time stock exchange trading systems, Oracle, GL, Reuters, SETS, FIX

Dec 1996-Apr 1997 C++ Analyst Designer (Contract): GPT, Nottingham: Network Management

Aug 1996-Nov 1996 Project Manager / Analyst Designer (Contract): Raima UK: 4GL/database

Dec 1995-Jul 1996 Project Manager / Analyst Designer (Contract): BT: Text to Speech

Jun 1992-Nov 1995 Project Manager / Analyst Designer (Contract): GPT, Nottingham: Network Management

Feb 1992-May 1992 Project Manager / Analyst Designer (Contract): Singer Link Miles Ltd, West Sussex : Simulation

Aug 1990-Feb 1992 European Technical Manager (Contract): ALC, Bergen, Norway: Naval Systems

Mar 1983-Aug 1990 Software Engineering Group Leader (Permanent): Singer Link-Miles, West Sussex : Simulation

Qualifications

PhD, Computer Optimisation: Leeds University
Finance ISIB MSc (Distinction): Reading University
BSc (Hons 2.1) Food Science: Leeds University
Sun Certified Programmer JDK 1.4 (84%)
BrainBench C++ aptitude test (74%)

Courses

Coursera Functional Programming Principles in Scala (progfun-005)
DS201: Cassandra Core Concepts
DS320: DataStax Enterprise Analytics with Spark

Memberships

Member of the British Computing Society (MBCS)
BCS Sussex Branch Chair 2004-2008
Member of the Professional Contractor's Group
Chartered IT Professional (CIPT)

Outside interests

Singing
Cycling

CV updated: 29 September 2015