# Curriculum Vitae – Dominic Morris

Senior Technology Director - CTO, CIO, SVP

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Nationality: British Citizen Availability: negotiable

**Management and Leadership:** Highlights

* Board-level operational experience: founder and CTO
* Hands-on technical programme management and stakeholder engagement
* Empowering and building high-performance technical teams
* Business development & fundraising

**Capital Markets:** 15+ years’ experience

* Live pricing, exchange & broker connectivity architectures and infrastructures
* Static data and corporate action automation
* Front-office analysis & development
* Currency options, equity cash and derivatives, energy derivatives
* Real time risk, position and market data management
* Trade processing and order management

## Commercial Experience

**TradeHero** ~ Founder, Board Director & Chief Technology Officer

*August 2012*– *current* [www.tradehero.mobi](http://www.tradehero.mobi)

[www.nrf.gov.sg](http://www.nrf.gov.sg) / [www.tnfventures.com](http://www.tnfventures.com) / [www.kpcb.com](http://www.kpcb.com) / [www.ipvcap.com](http://www.ipvcap.com)

**TradeHero** is a gamified and mobile-optimized investment community and platform. Powered by patented technology, it allows users to trade across 28 global exchanges in 36 currencies, to find and follow top-rated traders and to learn the mechanics and specifics of investing in the global markets. It operates on a cloud-based platform (SQL Server, Azure Table Storage (NoSql-based non-relational store), C# WebAPI, Redis, HDInsight Hadoop) serving heterogeneous clients: iOS Objective C & Swift, Android and web.

* **Technology and platform growth:** from 3 to 35+ staff in Shanghai and Singapore - concept-stage to 4m+ registered installs across 95+ countries: 535% YTD growth 2014-15.
* **Product management**: designed and built core product to achieve ~40/20/10% at 1, 7 and 30 day cohort retentions – considered to be world-class retentions for mobile gaming sector.
* **Technical scale**: built out data centers in mainland China and HK, supporting ~100k Daily Active Users (DAU), and 900k MAU.
* **Technology-driven viral marketing**: built WeChat and Facebook viral campaigns with cost reductions in user acquisition (CPA) falling from US$2+ to $0.23.
* **Strategic leadership**: championed at board-level, then designed, pitched and sold live-trading and account acquisition interface (“TH LIVE”) for select broker-partners.
* **Investor relations**: worked with and supported co-founder and CEO to execute fundraising from seed stage, series A and series B.
* **Intellectual property:** built out the firm’s patent portfolio including national-phase WIPO filings in China and US.
* **Business and revenue development**: developed key partner relationships through MOU, SOW and implementation phases, bringing in **~US$2.5m** revenue over 2014-15;
* Stock Exchange of Singapore (SGX) – multiple sponsorships and competitions for Singapore and other APAC users, relationship spanning 2+ years;
* Macquarie Group – repeat multi-year engagements in Singapore, Thailand & Malaysia, centered around retail engagement with structured warrants;
* Kenanga Investment Bank - #1 Malaysian retail broker; pitched and closed to their Retail Equities CEO TH LIVE.
* Ayondo Markets – advanced stages of joint-venture cooperation including legal consultation and strategy planning on structuring of HK/mainland China vehicle to allow mainland Chinese residents access to overseas CFDs via TH LIVE.
* Oanda Corporation – competitions, and account acquisition for global FX CFD broker;
* UBS – white-label offering for UBS staff;
* Seeking Alpha, Motley Fool – content sharing partnerships;
* Others including Bursa Malaysia, Stock Exchange of Thailand (SET), Phillip Capital, DBS Vickers, OCBC Securities (Singapore), eToro (global CFDs) Batavia Prosperindo Sekuritas (Indonesia), Qilu Securities & Haitong (China) and CIMB Securities & Maybank Kimg Eng (Malaysia).

Backed by Singapore National Research Foundation (NRF) and TNF Ventures of Singapore, TradeHero launched in January of 2013 where it attained the #1 App Store spot for Finance in some 66 countries, has been ranked top 10 in 92 countries and was voted top 10 ASEAN tech startup by Inside Investor, amongst many other accolades. In July of 2013, TradeHero closed a USD $10m Series A investment with Kleiner Perkins Caufield Byers (KPCB) – their first ever in a Singapore-based technology firm – and IPV Capital of China. This was at the time the largest fin-tech startup investment into a Singapore company.

The technology function in the company was grown organically to comprise some 35 staff, or 80% of the company headcount. I was responsible for allocation and planning of this team’s USD 2.5m annual run rate, for the talent acquisition to support the staffing growth, and for bootstrapping both of the company’s development centers - in Singapore and Shanghai, and I led hands-on coding of the early phases of the C# API layer and data model.

The engineering team was under my programme management direction since inception and included a wide range of skill sets from financial markets veterans through to mid-level staff and interns. Key challenges included live-pricing exchange connectivity for warrants, equities and FX; multi-portfolio and multi-currency aggregation and analysis; design and implementation of corporate action handlers; static and EOD data feeds across disparate global exchanges. A multitude of scalability, growth and operational challenges inherent in early stage and fast growth environments were successfully overcome – these included in-place live migration of position-keeping tables from relational data stores to non-relational solutions (Azure Table Storage) and refactoring of core services to map-reduce Hadoop distributed architecture.

The company was selected for inclusion in Microsoft’s Beijing-based China Accelerator class of 2014 and we worked as early-adopters with Microsoft on, amongst others, the scalability and performance learnings arising from running SQL Server on virtualized hardware.

### Standard Chartered Bank ~ eCommerce Head of Quality & Release

*January 2012 – August 2012*

As part of the bank’s eCommerce delivery team, I ran the Quality Assurance and Release Management teams as part of Financial Markets Solutions Delivery (FMSD). I was responsible for the design and implementation of best practices across the release and quality disciplines, as well as for the aggressive hiring and built-out of the groups operational capabilities: 40+ roles technical resourced within a very short timeframe.

Executing this role within eCommerce was challenging and stretching; extremely demanding business requirements drove a very rapid pace of development on a relatively new and external client-facing platform. My teams’ outputs were directly responsible for the accurate and effective management of reputational and market risk as the platform’s business capabilities were iterated over rapid timescales.

I left this role to take up a unique opportunity in an early-stage technology startup.

### Citi ~ Equities Risk Technology Global Release Manager

*October 2008 – December 2011*

My role within the equities technology group was to oversee and lead the development, testing and deployment policies and practices for the firm’s global front-office equities risk platforms. Key accountabilities included synchronized and multiple region rollouts to all the major global trading regions, continual review, leadership and innovation in strategy and execution within this function.

My initial focus was on coordinating and streamlining development lifecycle and deployment processes of the real time risk services, trade capture and order processing of the equity derivatives & hybrids/exotics businesses. As part of this, significant and measurable increases in quality and decreases in cost were attained across the global development group.

My primary responsibility was for the coordinated output and rollout of business-facing functionality from the global development group, encompassing North America, EMEA and Asia-Pacific regions and totaling in excess of 200 development staff. The group’s applications and code base were mature (18+ years), expansive (C++, C#, .NET 1.1, 2, 3 and 3.5) and business critical (deployed globally on the firm’s front-office equities desks). The role required low-level technical understanding of a wide variety of platforms, detailed and specific industry knowledge of the equities business and a pragmatic and delivery-oriented business aptitude. Daily interactions were across the breadth of the business, from developers and quantitative analysts to heads of desks and global group managing directors. Liaising directly with development managers from all three regions, I reported on a daily basis to the managing director of the global equities technology function. I led a convergence of purpose and mission across the stakeholders and contributors from key areas: quantitative analysis, production support, infrastructure, development, test and senior management. Standout technical and strategic deliveries included 64-bit migration planning and execution for the entire solution portfolio and virtualization of the global engineering, QA and UAT hardware estates.

Business deliveries were transformed from an unreliable quarterly or ad-hoc basis, to a timetabled monthly cycle, delivering at or beyond a measurable and specific quality metrics. I was responsible for developing standardized control and regression testing of the application suite, and I introduced and drove the implementation of unified issue and defect tracking, build and source-control systems across seven countries and fragmented delivery teams. During my time with the firm, I led and built out the global test and release teams to encompass a number of key functions: development, QA and UAT environment management through virtualization and automation, global release programme management and automated regression testing.

After having been based in London for around two years, I relocated to Singapore to lead the region’s increasing contribution to the global equities business and to bolster the firm’s broader efforts around change and innovation. As part of this I have actively positioned the equities technology group to act as key customer in the firm’s board-sponsored Efficiency Process Group: working directly with the CIO for capital markets has given me direct engagement and input into the firm’s cultural transformation program across disparate areas: I personally sponsored and drove improvement items in the firm’s communications, resourcing and infrastructure strategies, positioning equities technology to be a front-line beneficiary of these process reengineering efforts. Implementation of these and other initiatives across markets technology stands to positively impact some 3,500 staff. Of particular personal pride was presenting to this population at the CIO’s request and alongside the global head of the equities technology.

### Microsoft Consulting Services (MCS) ~ Consultant (SDET)

*September 2005 – September 2008*<http://btvision.bt.com/>

British Telecom selected Microsoft TV IPTV Edition as their software platform for TV over broadband in June 2005. The Microsoft Consulting Services (MCS) delivery team, which I was part of throughout the three year engagement and in which I performed the integration team release management role, successfully developed, delivered, maintained and transitioned the solution to the customer over the course of the program. This represented the single most strategically important project within MCS, being the first commercial European rollout of Microsoft’s IPTV Edition platform and accounting for a significant proportion of MCS target revenue over the period.

The IPTV Edition platform comprises a broad service-orientated architecture Microsoft technology base: secure web services communicating on commodity hardware running the full range of Windows platforms: .NET 1.1, 2.0, 3.0, 2003 Server, CE 5.0, IIS 6.0, SQL Server 2000 and 2005 and Terminal Servers. The project encompassed the integration of IPTV Edition with seven BT operational systems: Service Scheduling, Siebel CRM, Credit Management, MIS, Fault & Repair and Telecoms & Network Management.

My role within the delivery team was to ensure the technical quality of the solution and release and customer management. Within MCS I worked with and reported directly to senior stakeholders, primarily the Program Manager and I was also responsible for a considerable degree of customer management, working directly with BT’s Release Management team to coordinate major releases and transitions. This included on-site customer management and technical leadership during key phase transitions in the program.

This was also a hands-on technical role, in which I had responsibility for a team of 8 SDETS and their development and test methodology. Key deliverables included automated dynamic test-case generation via test-domain modelling, proprietary test framework development and security and penetration analysis & testing in adherence with Microsoft's 3D security practices. The team produced ~5,500 static build verification, functional, boundary, integration and end-to-end test cases for execution under NUnit, Visual Studio Team Suite (MSTest) and internal test framework tools. The primary development platform was .NET 1.1, 2.0, 3.0 and 3.5; the development methodology was Agile/Scrum with customer deliveries and quality-gates met every five weeks.

The full UK deployment of IPTV for BT consists of several hundred production servers; major milestones included the successful in-place migration of the live platform from IPTV 1.1 to IPTV 1.1 SP2, quick fix engineering to support peak subscriber growth rates of several tens of thousands of consumers per week and knowledge transition to BT’s chosen partners for ongoing development and maintenance.

### RBS Financial Markets ~ Software Architect & Developer, Currency Options

*February 2005 – September 2005*

I joined Royal Bank of Scotland’s development team to assist in the production of a complete replacement for the bank’s current currency options trading platform. Their currency options business was formed after the merge of the vanilla and exotic desks: SystemX was designed as a strategic technical platform to better support the consolidated business by providing integrated risk management and more rapid market-event reaction capability. The overall project aim was to support a doubling the business’ volumes and revenues through a more scalable and modern trading platform. Some key business benefits that were realized included:

* A new cash model, providing a consistent way of representing entities such as brokerage, premiums, and cash deals.
* A unified storage and eventing model for trades, preserving groupings, strategies and hedges.
* Ad-hoc intra-day reporting and faster end-of-day batch processing through computation parallelism.

The system design was based around a distributed service-orientated architecture: a key design goal was the production of loosely coupled and well encapsulated components. This was successfully achieved through rigorous use of MVC design patterns and test-driven development. Heavy use was made of remoting, reflection and dynamic type-loading in order to produce stateless and scalable components. Implementation was through .NET 1.1, C# and Oracle 10g.

I had specific responsibility for the design and execution of a new batch processing framework which replaced the existing serial end-of-day batch. The new processing environment delivered a fault-tolerant, exotics-scalable and distributed model for the parallel execution of heterogeneous job-types. This further served to provide ad-hoc intra-day reporting functionality to downstream consumers. Although primarily driven by Middle Office requirements, other areas of the business which directly benefited from this new intra-day reporting functionality included Finance, Risk and Settlement.

In addition I was heavily involved with the design and production of a replacement for the bank’s intra-day real-time messaging middleware. Front and Middle Office events required notifications to be published via the bank’s standardized messaging platform (Argon) in order to facilitate full deal management of both vanilla and exotic FX and interest-rate products.

Due to the scale and scope of the project, the team sizes were necessarily large: some thirty developers in multiple streams managed by around half a dozen stream leads. A key factor in the successful delivery was heavy use of agile programming practices: continuous integration via NAnt and Cruise Control, automated testing via NUnit, NCover and NMock, and standards enforcement via NDoc and FXCop and peer review.

### Deutsche Bank ~ Software Architect & Developer, Exotic Equity Derivatives

*October 2004 – February 2005*

Deutsche Bank required the rapid development of a real-time risk management platform for use in the front-office by their global equity-derivative exotics traders.

The system was designed in order to improve upon a large number of highly-customized and complicated Excel spreadsheets, and to replace them with a single high-performance client-side risk aggregation engine coupled to a **WinForms** front-end providing rich graphical visualization tools and high-performance views on large datasets. The technology used was **.NET**, inter-operating with pre-existing **Java**, **TIBCO JMS**, **SOAP** and **WebLogic JMS** systems.

The system’s main data feeds were the static deal data, pricing and risk data from a distributed exotics pricing system: this 24x7 server-farm consisted of (at last count) ~800 CPUs, pricing ~150 deals per second and producing output for end-of-day, intra-day, price-shock and projections for all of the bank’s exotic deals. Because the pricing models could not be performed (or aggregated) in real-time by the server-farm, the aim of the development was to rebase the delta cash risk metric using cross-gamma data and taking into account live FX and underlying spot prices.

The system architecture consisted of a Windows Service-class aggregation engine which provided (through .**NET Remoting**) data-retrieval, real-time risk rebasing and aggregation services. Two clients of this component were developed: Excel (through a managed implementation of the **IRtdServer** COM interface), and a custom **WinForms** front-end.

The aggregation engine subscribed to Reuters market-data events through the **Reuters SSL COM API**, and subscribed to the pricing-farm’s events over a **WebLogic JMS / TIBCO JMS / TIBCO EMS** bridge system. From these two feeds, it then computed aggregated live risk metrics.

The custom risk-management front-end provided real-time visualization of volatility surfaces (using managed **DirectX 9**), high-performance disconnected virtual datagrids (.NET Remoting and client-side caching) and Excel interoperation via drag-and-drop. The Excel drag-and-drop pasted real-time data into Excel (using the **RTD()** function and a managed IRtdServer COM component.) This allowed traders to get the best of both worlds: the full flexibility of Excel combined with the rich user-experience of a customized front-end.

In addition to my main responsibility of developing this system, I was also asked to develop a managed **Excel XLA** and **XLL** Framework Toolkit. The aim of this work was to allow .NET developers to attribute managed code, and for that code to be exposed to Excel via UDFs and menus. This was accomplished using custom attributes and reflection coupled with code-generation targeting an existing C++ template-driven codebase and extending it with machine-generated mixed-mode MC++. The net result of this was to allow developers without any C or C++ experience to develop Excel add-ins at a fraction of the time (and with far less development risk) than it would take even an experienced developer to create the same functionality using C++. At the time of writing, this framework was in use in the bank by at least three other development teams around the world.

### Barclays Capital ~ Software Analyst & Developer, front-office Commodities

*March 2004 – October 2004*

My role within Barclays Capital consisted of the rapid development of a variety of front-office trading systems, for use on the bank's European and US energy trading desks.

A key project deliverable with which I was tasked was the Strategy Position Viewer application. This managed WinForms application formed part of the bank's larger Strategy Trading project, which encompassed Order Management, Trade Booking and External Pricing achieved the automation of Openlink and multiple trade feed gateways servicing brokers and exchanges such as Spectron, ICAP and the LME. Additionally, synthetic arbitrage gateways contributed to the Position Viewer’s data output, giving traders a real-time view of product positions. The application was fully configurable to an individual trader’s requirements, supporting views of intra-day positions through to positions several years in the future, and supporting the UK Power, Gas and Continental Power markets.

Along with the consolidated position of a given product, the Position Viewer allowed traders to view the position’s constituent trades: External, Internal, Reallocation and Liquidation trade-types were graphically differentiated and custom client-side sorting by Counterparty, Strategy and Instrument along with power-market specific views such as EFA shape, were also implemented.

The application consisted of a mixed-mode **MC++** wrapper for the **Talarian** bus transport, **SQL Server** and **Sybase** trade-stores and a **C# WinForms** client layer coupled with managed custom-draw MC++ visual components.

The rest of the development team for the Position Viewer consisted two server developers, a second client-side developer and a UAT team of six traders. Interaction with, and rapid response to traders’ requests formed a significant part of the role, particularly during UAT phases.

I was also involved with a high-priority project to support the firm’s rapidly growing energy-trading business within the United States: a Feed Processing System was developed and required active maintenance and modification in response to changing third-party data feeds. Several hundred separate data feeds were polled by the FPS, and consolidated data from disparate sources such as HTML, XML and CSV into a unified, high-volume (~70GB, ~500m rows) time-curve database model.

### Microsoft ~ Software Developer, 3rd-Line Technical Support

*November 2003 – March 2004*

Microsoft required an addition to their existing team in order to support and further develop their existing global Customer and Partner Experience (CPE) program. This is a key strategic project within Microsoft and our team’s business-users spanned across all of Microsoft’s continental divisions, encompassing some 25,000 end-users.

My role within the team consisted of supporting existing users by rapidly responding to customer change-requests: this involved the development of new functionality as well as the application of hot-fixes to production systems in order to correct business-critical faults.

The CPE program was built on core Microsoft production technologies: **Windows Server 2003**, **Content Management Server**, **NET Framework 1.1**, **C#**, **ASP.NET**, **SQL Server 2000** and **IIS 6**. My technical and development duties within the team encompassed all of these development areas.

### Huntleigh Healthcare ~ BA & Senior Developer *Jul 2001 – Nov 2003*

### X Telecom Ltd. ~ Software Consultant *May 2003 – Jul 2003*

### Mehdi and Ward ~ Software Architect *Jun 2001 – Jul 2001*

### InterclubNet ~ Technical Author / Software Developer *Apr 2001 – Jun 2001*

### Primark (Thomson Financial) ~ Software Developer *Dec 2000 – Apr 2001*

### IdeaShed ~ Software Architect / Developer *Feb 2000 – Dec 2000*

### Racal Telecom ~ Software Architect *Mar 1999 – Jul 1999*

### IT Associates ~ Software Designer / Developer *Feb 1999 – Mar 1999*

### Northern & Shell ~ Software Designer/ Developer *Nov 1998 – Dec 1998*

### Kimberly-Clark ~ Software Developer *Jul 1998 – Oct 1998*

### Carland ~ Business Analyst / Software Developer *Apr 1998 – Jul 1998*

### Aspen Field Marketing ~ Software Developer *Dec 1997 – Mar 1998*

### Wayne Kerr (sic.) Electronics ~ Software Developer *Oct 1997 – Dec 1997*

### COM DEV (Europe) ~ Technical Author *Jun 1997 – Sep 1997*

## Technical, Education & Interests

* C: 21 years’ experience, C++: 17 years.
* C# & VB (Beta 1, 2, RC1, RTM, 1.0, 1.1, 2.0, 3.0, 3.5, 4.0, 5.0): 12 years.
* .NET CLR: 12 years.
* Microsoft TSQL: 13 years, Oracle PL/SQL: 12 years.
* XML, DOM, SAX, Java JDK, JavaScript, ASP, VBScript, DHMTML: 11 years.
* Bilingual English/French, basic Indonesian/Malay
* Conditional offer Kings College, Cambridge (Natural Sciences/Philosophy)
* GCSE: 7 As, 3 Bs / A Level: A, B, C
* Hobbies: Chess, fitness, history of ideas.

## Early Career Commercial Experience

### Micro-Ed (MS-DOS) software for schools (own product)

Summer 1992: began writing MS-DOS version in Turbo C (Borland).

Autumn 1993: began marketing MS-DOS version.

Jan 1995: version 5.00 completed with Visual Basic 4.00.

### NextBase (now Microsoft)

Summer 1992: one week work experience working with software developers. C programming in a Windows environment.

### Electronic Data Systems (EDS)

June 1991: two weeks work experience. C programming for engineering applications, including C programming for PCX graphic file viewer.

### Computer Shopper

Nov 1990 and Jan 1991: prizes won in Programmers' Challenge (age 13), written in C.

### Personal Computer World

Dec 1990: program published, written in C.

### Computer Park

Residential holiday for computer enthusiasts (1990-93) - Met and worked with programmers from NextBase (now Microsoft.)