

Nicholas Furness

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References available on request.

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Profile

Drove the design and development of a number of showcase, mission-critical systems for private enterprise and government. A deep understanding and extensive experience of software architecture, of software development, and of system runtime dynamics allows me to play a critical role in any team involved in the creation and troubleshooting of complex systems.

I am looking for a position that allows me to work on intuitive and customer-centric software, whilst moving towards team-leadership roles under the right mentorship.

Project Highlights

Designed and built a broad range of solutions from small, interactive and innovative handheld systems, through to enterprise mission-critical systems covering large, complex and distributed data stores.

This is a shortlist of the more innovative systems I have been involved with:

Web-based map editing and production for UK Government (Atos Origin: 2004-2008).

One of the first and most customized ArcGIS Server installations, providing map editing, map production, and spatial web services to the UK Government's Rural Payments Agency. Worked closely with the client, on-site in London and remotely from New York to specify, design, implement, maintain and document the system.

- Introduced 10x performance improvement in map production
- 2x improvement in nightly data replication performance
- 5x improvement in data reliability
- Reducing system deployment times from 4 hours to 20 minutes.

Interactive desktop-based spatial route design system for New York's West Nile virus containment program (Linkspoint: 2002-2003).

Gathered requirements, designed and built an interactive graphical route-management system to allow city contractors to manage the targeted manual deployment of insecticide across the entirety of New York and generate reports for the Department of Health.

- At no point in the client's workflow were they required to understand geospatial systems: If you could read a map, you could work the system.
- Instantaneous reporting of inspection results and treatments in tabular and graphical form.

Wireless handheld map delivery and inspection reporting application for New York's Department of Buildings field teams in the wake of 9/11 (Linkspoint: 2001).

Designed and implemented a system to send maps wirelessly to field devices for Department of Buildings inspectors to locate damaged buildings around ground zero. Inspections were returned wirelessly and integrated with the DOB's legacy systems on the fly. This solution was developed in a matter of days and allowed almost real-time monitoring of progress by the Department of Buildings.

Electrical Outage Management product, PowerOn (Smallworld: 1998).

I was loaned to Smallworld to help develop the first release of PowerOn, which connected CRM with Facilities Management and Fleet Location systems to arrange efficient repairs by ensuring the right equipment reached the most likely failure points as quickly as possible.

TabletPC based disconnected graphical editing system, combining user-defined schemas and wireless spatial data merging within MS Access (Linkspoint: 2003).

Gathered requirements, designed and acted as technical lead on a graphical entry system for Tablet PCs, allowing in-field disconnected graphical annotation of centralized architectural restoration data.

Custom designed and built blogging system (Personal: 2000-2004).

I have had a personal website since 1997. In 2000, I extended my C# knowledge by designing and building an ASP.Net and SQL Server blogging engine served from home, later augmented to cater for photo libraries. This included the concept of polygonal tags tied to user profiles (now a feature of Facebook, Flickr and others) as well as by emotion, clothing, location and event. In the end my website changed focus and I switched to Blogger, then Tumblr.

Technical Skills

Languages: C#, ASP.Net, JavaScript, VB6, Ruby on Rails, HTML, CSS, XML, XSL, COM+, Smallworld Magik, Objective C.
GIS: ESRI (ArcGIS Server, ArcGIS Desktop, ArcObjects, SDE), GE Smallworld, PowerOn Outage Management.
Databases: Oracle, Oracle Spatial, Microsoft SQL Server, SQL/XML, Smallworld VMDS, Microsoft Access.
OS: Windows NT/2000/XP/2003 Server, UNIX (Solaris and HPUX), Mac OS X.

Education

B.A. and M.A. in Computer Science, University of Cambridge.

Personal

I was born in Slovenia and raised in Cambridge, England. I have worked in Melbourne, Sydney, Denver, Cambridge, London and New York, where I currently live with my wife. I am bilingual in English and Slovenian and hold a Green Card and both British and Slovenian passports.

I started programming in BASIC at the age of 8 using Commodore 64s and BBC Micros before progressing to the Acorn Archimedes, experimenting with 3D graphics and User Interface design in ARM Assembly (Acorn later spun off their CPU team to form what is today ARM). With the exception of Modula 3 and ML, which were university courses, all languages and systems I've learnt have been self-taught.

I'm currently teaching myself Ruby on Rails (with my first commercial project nearing completion), and learning Mac and iPhone development as well as Web Application Security. I'm also teaching myself about visual interpretation both in photography and movies, and am working on a collection of illustrated children's books aimed at adults, the first of which is entitled "This Is Not For You".

Detailed Experience

I have worked for a broad range of companies since graduating in 1995, including some of the foremost geospatial systems integration firms in America, Australia and the UK. I have worked for a company that grew from 75 people to 450 people, for a small and fast-moving startup of 15 in New York, and for an international firm employing over 50,000 people worldwide.

Atos Origin Ltd. London and New York, 2004-2008

Team Lead/Lead Engineer, GIS and .Net consultant

Designed, implemented and maintained a ground-breaking and advanced ArcGIS Server web application for the UK government's Department of Environment, Farming and Rural Affairs (DEFRA).

Provided expertise in geospatial applications, the ESRI software suite, Microsoft .Net, C#, ASP.Net and JavaScript web development, Oracle Spatial, spatial data distribution, spatial data quality and performance, and enterprise applications. Handled production support and maintenance activities.

I worked closely with the client throughout the duration of the project, both on-site in London and remotely from New York to specify, design, implement, maintain and document the system. Introduced 10x performance improvement in map production, 2x improvement in nightly data replication performance and 5x improvement in data reliability as well as reducing system deployment times from 4 hours to 20 minutes.

This was one of the first major ArcGIS Server projects worldwide and is still one of the largest and most complex, allowing web-based geospatial analysis and editing. Development (in C# and ASP.Net front end across two tiers, and with ESRI SDE and Oracle running on Solaris) involved working closely with ESRI in the UK and the US from the initial ArcGIS Server beta release onwards, and also with Microsoft. A great deal of our work drove modifications in ESRI's and Oracle's products, and (indirectly through ESRI) improvements in the interaction between Microsoft's .Net and DCOM runtimes.

The software supports hundreds of concurrent users in regional offices nationwide and has been live since 2005 with full coverage of England's land-ownership information, incorporating approximately 60 supplemental spatial datasets as well as Ordnance Survey and Aerial photography raster background data. Remote additions and updates to the land-ownership spatial data are integrated nightly from a separate government agency using Oracle Advanced Replication and a custom multi-stage validation process involving both Oracle and ESRI spatial data validation.

A lengthy and complex datacenter move and restructuring took place in 2008 during which I was relied upon to ensure that planning for the move and documentation were complete, estimates accurate, and to perform and test installations.

Linkspoint Inc, New York, 2001-2004

Team Lead/Geospatial Lead Architect and Engineer

Linkspoint was a small company with excellent New York City government connections that led to some unusual opportunities for groundbreaking geospatial applications. We often worked closely with Hunter College's GIS laboratory (responsible for creating NYCMAP, a detailed city-wide set of maps), themselves doing some interesting research in the field of spatial data. Working in such a small group required presales exposure, including technical presentations and prototype development.

Designed and developed a range of innovative and award-winning systems to help New York City's infrastructure recover after the 2001 attacks and to help the city manage its West Nile Virus problem:

- **2001: PocketPC wireless mapping and data input solution for Department of Buildings field inspectors:**
Using GE Smallworld's SIAS internet gateway to generate maps on request, buildings inspectors could identify damaged properties by map location and file inspection reports over the air (working closely with IBM to interface to the Department of Buildings' existing IBM Lotus Domino database over ODBC). The city re-activated a recently bankrupted wireless network for this project, and the solution was planned, designed and implemented in a matter of days to get the inspectors up and running. The Department of Buildings found that the solution, which ran on machines donated by and operating from Hunter College's GIS research laboratories (CARSI) drastically improved their turnaround for collating and analyzing building assessments, offering near real-time reporting for the first time.
- **2002: Routing and larvicide management system for Department of Health:**
Gathered requirements, designed and built a route-management system using ESRI's ArcMap and ArcObjects to allow city contractors to manage the targeted manual deployment of insecticide across the entirety of New York's catch basins (drains) and to generate reports for the Department of Health. At no point in the client's workflow were they required to understand geospatial systems: If you could read a map, you could work the system. Graphical routes were translated into drain-by-drain directions, which were synchronized wirelessly to PocketPC field devices. A custom application on these devices tracked inspection results and treatments for each drain to synchronize back to the geographical database and provide daily reports and maps of inspection results and larvicide treatments to the Department of Health.
- **2003: Distributed TabletPC based annotation system for architectural conservation:**
Disconnected graphic editing and centralized wireless merging and versioning of graphical data using Microsoft Access databases on TabletPC field devices. Field edits synchronized with a central server when within Wi-Fi range for AutoCAD editing and reporting using existing client systems. The system was written in VB6 and C++ and supported custom schemas. When synchronizing, a Tablet PC would take a checkout of a subset of the graphical data and project, and updated data was synchronized and merged back at the end of the day.
- **2004: Award-winning PIPES project for Department of Buildings:**
Designed and implemented a SQL/XML solution to integrate and synchronize existing Department of Buildings database systems and Metrix CRM to our custom PocketPC field application for plumbing inspections. Metrix CRM data was extracted to a Microsoft SQL Server database according to scheduled inspection requirements from which extracts to SQL Server CE were in turn used to drive a custom plumbing inspection application on PocketPC devices. Devices were synchronized wirelessly each morning and results retrieved wireless at the end of each day, synchronizing back to the SQL Server repository.

Smallworld Systems, Denver, 1999-2000

Helped to develop GE Smallworld's new outage-management solution, PowerOn. PowerOn became a leading product in the outage-management market operating as a mission-critical enterprise application for many utility companies worldwide. Recently identified by Gartner as still the industry leader.

Convergent Group Corp and SchumbergerSema, Denver, 1996-2001

Development of enterprise GIS systems for large gas, electricity and telecommunications clients, and for local government using both ESRI and GE Smallworld GIS products. Created spatial schemas and software that formed core elements of Convergent Group's reusable Utility GIS component library, working with Microsoft on-site on very early C# and .Net releases.

Arc Systems and EDS, Melbourne, Sydney and Denver, 1996-1997

Bell South facilities management, network modeling and map production system: an Oracle and C based telecommunications solution using GDS's GIS platform. Started in Australia and completed in Denver.

GDS Ltd, Cambridge and Denver, 1995-1997

Tasked with creating in-house version of C++ Standard Template Library (already freely available, supported, tested and optimized). Eventually sent to Australia to work on Bell South project with sibling company Arc Systems (now SPATIALinfo).