

Daniel McAdam

Solution Architect
Tech Lead

Senior Software Engineer
.net C# SQL Specialist

Full British national, basic DBS check
Also full Irish national with EU passport
No location commitments, available to work throughout the UK & Europe
Full, clean driving licence
Excellent written and verbal communication skills
enquiries@whirlawrock.com

Key Skills

Leading Technical Teams : 10+ **Systems Integration : 10+** **Healthcare (FHIR): 3+**
Systems Architecture : 5+ **.net (mostly C#) : 10+** **Platform Dev : 10+**
Solution Architecture : 5+ **Desktop Application Dev : 10+** **SQL Server : 10+**

: Approx years of commercial experience. I have worked with many technologies, please ask if your requirement is missing.

Comfortable with new situations, emphasis on fluid intelligence and ability to acquire crystallised knowledge of new subject domains at pace.

Well suited to working on complex problems.

Work Interests

Making a genuine & positive contribution to the world by building good quality software infrastructure and leading by example.

Architecture that includes the development system. Integration of pragmatic systems design, development methodology and application lifecycle management; Make your own luck by designing everything for success. Software design for the long-term, technical & human elements.

Ongoing interest in developing the art of leading technical teams; Needs, skills acquisition & flow. Everyone acts from good intentions. Team challenges are, almost, always goal alignment and interface (communication) issues.

Pragmatic application of agile. Interest in and appreciation for the history and principles of the original gang of four.

Software craftsmanship.

Employment Summary

Worked full time for my entire career, approx 20 years, as a software engineer, tech lead, development manager, solution & enterprise architect in permanent positions and short-term contracts. I have served a range of industries including healthcare, logistics, finance, construction, retail, and call centre operations.

Education

Manchester Metropolitan University
- BSc Information Systems

Lurgan College
- GCSE: 9 passes, A level: 3 passes

Work History

Vaultex UK November 2023 – March 2024

Solution Architect, Permanent

Replacement IVR – Solution Architect: The Vaultex IVR allows customers to place orders for bulk cash delivery over the phone. A new system was required due to imminent end of support for the legacy system and new integration requirements. Worked with BAs and stakeholders to refine the requirements (functional and non-functional), produced a high level solution design, and worked with the supplier to ensure smooth delivery. This was a Salesforce specific IVR integration.

Third Party Transaction Processing System – Solution Architect: Some customers (e.g. those in Northern Ireland) have their cash requirements fulfilled by a third party. Vaultex still provides settlement and some other back office functions for those transactions. Vaultex's primary 'ERP-like' system was being replaced and the new COTS system did not provide this functionality; A bespoke in-house development was required. Spent significant time with BAs and stakeholders to refine the requirements (functional and non-functional), and produced a high level solution design. Although the technology aspects were relatively straightforward, the business requirements were complex. Technologies involved in the solution included AZ Functions, AZ SQL, AZ Storage Queues, Salesforce Apex & IBM Connect:Direct.

Aire Logic February 2020 – March 2023

Healthcare Technology Consultant, Permanent

See appendix for additional projects.

Ongoing Architecture Support, Greater Manchester Digital Platform – Solution Architect & Team Rep: The Greater Manchester edition of the NHS LHCRE program (local health and care record exemplar). This was a proof of concept demonstrating the potential benefits (& weaknesses) of providing health and social care specific platform-as-a-service at a regional level.

FHIR Health Record Repository: Designed and implemented a FHIR repository on AWS using HAPI FHIR, Postgres, Elastic & Cognito SSO. Proof of concept ran on Fargate, finally moving to a small Kubernetes cluster for production. In conjunction with this I designed and built a DICOM audit event to FHIR audit event message translator. This was made in .net core using C#.

Following this the customer requested a contract extension to have me available to provide ongoing architectural and technical support & coordination to the other suppliers for the duration of the program. This involved a mixture of discussing appropriate enterprise integration patterns & providing (mostly FHIR related) technical support.

Outsourced Data Collection, Greater Manchester Combined Authority – Tech Lead & Team Rep: Primary customer contact & tech lead from inception, I was responsible for approx 80% of the design and approx 50% of the dev-work for approx 2½ years.

Data is collected from care homes, GPs, pharmacies, dentists, morgues, community nurses, etc, etc on the current state of their services. This data is used to drive city hall decision-making. The outsourced to Aire Logic portion of the system provides automated comms in the form of target-specific emails and SMS; Data entry forms with conditional logic, target specific partial prefill, and some data processing; Finally delivering the data to a GMCA Azure SQL db & to blob storage for consumption by Snowflake. The bulk of the UI and processing were provided by Air Logic's Forms product and a custom Azure Function App.

Data Ingest, Prep & Presentation, Inc RPA, Leeds City Council – Tech Lead & Team Rep: Initial bid writer, primary customer contact & tech lead, I was responsible for 100% of the design and approx 90% of the dev-work over approx 2 years.

End-to-end delivery for LCC health protection team. Initially an emergency development to meet the teams' new White Hall reporting requirements during early covid, later expanded to support several other reporting requirements. The system ingests spreadsheets & form submissions from a number of sources, processes the data, stores it in Elastic, and presents it in Kibana. Some complex visualisations are implemented in Canvas, using the Painless language to perform multi-index aggregations.

Example of RPA (robotic process automation). The robot was a custom .net service which implemented, among other things, some basic fuzzy logic to account for customer-required unconstrained number entry in spreadsheets.

Workflow Digitisation, Oldham Council – Enterprise Architect & Solution Architect: Involved from project inception, helped the customer choose a problem that was solvable with their available budget, performed initial business analysis, created the solution architecture and deployment plan, and finally guided the dev team through the early stages of development.

Digitising and automating the existing mostly manual, mostly paper-based secondary-care patient discharge system for hospitals in the Northern Care Alliance. The solution was heavily based on Aire Logic Forms, with some additional React UI, an Azure App Service API, AzureAD integration & HL7v2 integration over TCP/MLLP.

Bet365 October 2018 – February 2019

Software Engineer, Contract

API Data Feed Proxy-Capture-Replay Service: This acted as a proxy between internal systems and third-party APIs recording the conversation, allowing the system to replay events for examination in the event of (for example) a contested bet. I was the sole developer, performing the complete design & build. The service was made with .net Core / C# and included a Razor based UI for configuring incoming feeds, downstream targets & replay scenarios.

Third-Party Data Stream Integration: Integration that received and processed american football results data from a third party (Swish Analytics). Another .net Core service received from AWS SQS, performing some processing and translation before passing the data to an akka actor over TCP where it was used to resolve open bets.

Personal Note: I met many wonderful people & the company certainly treats its Manchester staff like royalty. However, the weight of knowing that I was profiting from the misfortune of others quickly became too much to bear. Never again.

BJSS January 2018 – September 2018

Software Engineer, Permanent

Legacy Retail-Customer Stock Trading System Update, Lloyds Banking Group - Software Engineer: Designed and built a new audit data management system. This accepts audit data from multiple web farms, filters non-GDPR compliant data in flight and handles long term storage & curation according to FCA guidelines. Exposed as a REST API created in .net core with C#, storage provided by an existing MS SQL Server. Also designed and built a queue-based load levelling service, proprietary protocol over TCP, also in .net core / C#. This was to resolve growing performance and reliability issues, allowing the life of a Cobol trade execution system (Broadridge Tarot) to be further extended.

Dataset Preparation, NHS Digital - BI Developer: Brief assignment leveraging my legacy knowledge of MS Analysis Services. This involved basic analysis of the structure of new datasets, designing Cubes to represent the them & associated extract-transform-load processes in SSIS.

Career Break

MESM Ltd (Now part of Avantor) June 2015 – March 2016

Software Engineer, Contract

MESM sell and lease medical equipment and provide ongoing maintenance, calibration and technical support. The primary market is the clinical trials industry.

Logistics Integration: End-to-end implementation of a DHL XML API integration with the Epicor ERP system. This was a .net/WCF/MVC/Hangfire/Postgres-based solution that provides long-term proof of delivery storage in AWS S3. Shipment tracking & proof of delivery capture were implemented as self-contained, re-entrant tasks, running on a Hangfire-based distributed system. Epicor UI was extended by providing MVC-generated views displayed in a browser control in the Epicor client; standard jQuery/Bootstrap frontend. I was the only person working on this, acting as BA, architect, dev & test as required.

Infrastructure Architecture: Designed some basic hybrid cloud facilities, implemented by a third party contractor; Backup to S3, secondary Active Directory server on EC2, hot standby ERP in EC2 using basic SQL log shipping, email archive using Piler open-source mail archive system.

TeamHGS Ltd November 2014 – May 2015

Application Development Manager, Contract

HGS provide outsourced call centre services.

Implemented a distributed task scheduler based on Hangfire, Seq and PostgreSQL to provide very reliable batch processing to support tasks such as B2B comms, automated DB maintenance, etc, with centralised management, telemetry and secure config.

Replaced the settlement system for a premium 'pay by card at the start of the call' campaign. Improved call matching and settlement retry management resulted in an ongoing 7% increase in campaign income.

Developed a small outbound call CRM. SQL Server cluster troubleshooting. Implemented Git version control. Drastic reduction in issue backlog.

Conquest Ltd (Now part of Access Group) December 2009 – October 2014

Technical Manager, Permanent

See appendix for additional detail.

Conquest supply estimating systems to approximately 70% of main contract construction companies in the UK. The Conquest estimating system is used to derive a bill of materials, plant, and labour with cost estimates required to turn a set of architectural drawings into a reality; This is *the* key process in construction pre-contract negotiations and bidding.

Technical manager and lead software engineer, responsible for all product development, infrastructure and managing a team of developers. There were two key focuses: ongoing development of a substantial desktop application which served the majority of existing customers & a from-scratch SaaS development on AWS.

I feel that this role was a key role in my career. This was when I solidified my knowledge of cloud/platform dev, reliability engineering, low latency dev, leadership, and others.

EMaC June 2009 – September 2009*Technical Consultant, Contract*

Short-term contract at the invitation of a former colleague.

General consultancy around business & technical planning, staff requirements, third-party service provision, compliance, and specific system design requirements for trading in Europe.

Ascribe (Now part of Emis Health) October 2007 – May 2009*Tech Lead, Permanent*

See appendix for additional projects.

Ascribe was a leading supplier of secondary care health information systems in the UK and Asia. The company had grown through acquisition and has a suite of 19 products, each with different origins, underlying technology and look & feel.

I was part of the Group Development Team, a small department charged with unifying the product suite. This was approached by providing several cross-cutting components to be used across the product suite, unifying security & identity, patient data & drug data.

American Golf May 2004 – October 2007*Software Development Manager & Head Of Ecommerce, Permanent*

See appendix for additional projects.

Managed a small team of developers creating a range of software and systems to support the general operation of the business. Online LFL sales increased by 122% during my first 12 months as head of ecommerce. Being one of the first non-book fulfilment partners for Amazon UK, and having a good relationship with their Luxemburg dev team, gave me early adopter access to a new thing called AWS.

Also built the company's first data warehouse (data lake) using MS SQL Server, SSIS, Analysis Services and a custom ActiveX UI. The knowledge stuck, see BJSS.

Self-employed October 2002 – April 2004

Working in conjunction with Cedilla Systems Limited, a Manchester-based IT consultancy, to develop an off-the-shelf intranet solution for small to medium-sized businesses.

Interests

Reasonably developed personal interest in creating Bitcoin / pair trading automation tools.

I have an ongoing interest in personal health, both physical & mental; Reading about it and doing the work: Lifting heavy weights, climbing steep hills, cold showers, controlled diet, fasting, etc, etc. The work most definitely works :)

Recently started to attempt to unpack some of the work of Carl Gustav Jung. The latest chapter in a long standing interest in the nature of consciousness and 'theories of everything'.

Appendix

**Supplementary material,
please feel free to skip**

Aire Logic Additional Projects

Solid Research Project, Northern Care Alliance – Solution Architect: Solution architect for Aire Logic's portion of the work, embedded forms UI & FHIR integration.

Research and small PoC around Tim Berners-Lee's latest idea for personal data storage, Solid Pods. Patient-controlled storage with MS Teams as the clinician interface, demonstrating a multidisciplinary team use case.

Specialised Bed Search Engine, Internally Sponsored Project for an NHS Clinical Entrepreneur – Tech Lead & Team Rep: Lead a small team through the design and build of a specialised search engine used to locate available beds for patients with complex needs.

The solution included a .net core API, elastic storage, React UI & some Aire Logic Forms.

Acting CTO for approx six months.

Shared Care Record System, Northern Care Alliance – Integration Architect: Consultancy piece to investigate & design a shared health care record repository & UI based on FHIR. Output was a set of fairly standard architecture documents covering the motivation for the project, functional & non-functional requirements, details of implementation options, some system synchronisation processes with associated FHIR profiles & mapping detail.

Conquest Additional Detail

Conquest supply estimating systems to approximately 70% of main contract construction companies in the UK. The Conquest estimating system is used to derive a bill of materials, plant and labour with cost estimates required to turn a set of architectural drawings into a reality; This is *the key* process in pre-construction contract negotiations and bidding.

Technical manager and lead software engineer, responsible for all product development, infrastructure and managing a small team of developers.

The primary product was a substantial .net desktop application. Primary technologies included: C#, winforms, WPF, Linq-To-SQL, Infragistics, Aspose, Flexcell, unmanaged C, GDI+, SQL Server, SQLCE and InstallShield. The product could be deployed in either single user, or in a variety of multi-user network configurations. Updates were distributed and applied automatically, the application downloads content from an AWS S3/Cloudfront distribution. Network environments could be supplemented with WCF or Rest services to allow integration with third party supply chain management systems.

Development work was mostly performed in Visual Studio (2008, then 2010, latest 2013), with Git, NuGet, MSBuild and Jenkins providing version control, continuous integration and automated deployment. Front end web development and email template work was done in Coda 2 in combination with Litmus/Alkaline.

Issue and feature request tracking and project management (basic kanban) were managed with Jira through BitBucket.

From early 2011 through to mid 2014 lead the design, development and implementation of a new online enquiries system. This allows contractors to automatically produce the majority of the documentation required to produce invitations to tender for subcontractors. Additional documents (e.g. architects drawings, electrical & plumbing specifications, etc) could then be added to the project, trade specific packages of documents generated and invitations to tender distributed by email. Receiving subcontractors accessed their package through a secure portal, where they can download it as a single zip. Main contractors can track messages sent, whether they have been viewed, which documents have been downloaded by who, who has indicated their intention to submit a bid, track who is late with their submission and send reminders, etc.

Main contractors interacted with the system exclusively through a module in their estimating system. This consisted of a Winforms UI which communicated with an AWS hosted WCF service. The application component was designed to be multi-threaded from the start providing a continuously responsive UI and the ability to stack up long running tasks while continuing with other work.

Operational data was stored in a SQL Server RDS instance, files in S3. The WCF service handed off long running tasks (document creation and transformation, zip file creation, bulk mail dispatch, etc) to auto-scaled batch services via SQS.

Subcontractors interacted with the system exclusively via a fairly standard ASP.net website.

Ascribe Projects

Federated Security – Senior Developer: A single sign on system for the entire product suite. COTS SSO products were not generally available at the time. Senior dev in a team of 5, I primarily developed ancillary components in .net/c#.

- SQL Server 2008, C#, Linq to Entities, WCF, Silverlight 2, SAML

Patient Master Index – Senior Developer: A single patient record, patient search facility, etc to be shared by all Ascribe systems. Prior to this each system maintained its own patient records making interoperability (e.g. between bed management and pharmacy) impossible. Senior dev in a team of 5, I primarily developed ancillary components in .net/c#.

- SQL 2008, C#, Linq to Entities, WCF, Silverlight 2

Drug Definition Distribution System – Team Lead:

Context: Many Ascribe systems include a British Context: National Formulary database (or equivalent in other countries) with a significant amount of additional data to support drug interaction checking and patient specific prescribing risk analysis.

Each system had a unique, manual update facility and it was becoming infeasible for Ascribe's pharmacists to manage updates to all of its customer systems.

Requirement: Build something that allows the in house pharmacists to update drug definitions once and distribute them to all customers automatically.

Outcome: I lead a small team to design and build a management and distribution system to improve the process. The system provided the pharmacy team with a single location to setup and update drug definitions and automatically distribute the appropriate data to each customer system.

- SQL Server 2008, C#, WCF, Linq to SQL, Windows Services, ASP.net, Winforms

Clinical Viewer – Team Lead:

Context: A customer required a new 'reporting' system to view patient test results.

Outcome: I saw an opportunity for a new Ascribe product, something we now call a Theograph. The clinical viewer provides a graphical overview of a patient's drug administration data and their test result data. A clinician can view a patient's entire history on a timeline and zoom into a specific period, viewing the effect of previous treatments.

The system combines data from a number of Ascribe systems and has provision for links with third party systems.

I lead a team of three senior developers during the build.

- SQL Server 2008, C#, Linq to SQL, WCF, ASP.net, Silverlight 2, Infragistics Silverlight 2 UI components

American Golf Projects

EDI – Team Lead:

Context: Electronic Data Interchange, an old data exchange format commonly used by retailers and suppliers for digitally exchanging purchase order and invoice documents. A requirement at the time for doing business with some larger suppliers (e.g. Nike, Adidas, Taylormade, etc).

Requirement: Make EDI work with our new ERP system.

Outcome: Built and deployed an in-house solution which automated the delivery of purchase orders to select suppliers.

Based on MS .net and MS SQL server, the system is multithreaded, fault tolerant and supports a variety of supplier requirements for file formats and delivery mechanisms. Support for file formats and delivery mechanisms is handled using a plug-in architecture, allowing for changes and additions to be made without any pause in processing.

The system provides detailed logging of events and can email support staff in the event of an issue. If a problem arises with a particular order the system will also email the creator of that order.

The system has an easy to use management application which allows staff to monitor the status of any particular order and re-process orders which have failed.

Suppliers who do not have the facilities to accept electronic orders are supported by means of a website where they can download orders in a variety of formats, and confirm receipt of their orders.

- SQL Server 2005, .net (C#) – Multithreaded Windows service, Winforms, .net remoting, ASP.net, FTP, SMTP & HTTP transport protocols, EDI, CSV, XML, XLS & PDF file formats

Data Warehouse & BI – Team Lead:

Context: American Golf had a lot of historic transaction data, from stores and the website. This was not being utilised for anything. I pushed the potential benefits of (what we now call) big data, initially through demonstrations of analysis services and pivot tables.

Requirement: There was no stated business need.

Outcome: The business quickly saw the power of the system, and within a year it became the key driver of purchasing, marketing and merchandising decisions. Eventually a new team was recruited specifically to work with the data and provide understandable and actionable insights to the rest of the business.

Tableau, PowerBI, etc did not exist at that time. I designed and built a bespoke pivot table based application to access the data.

- SQL Server 2000 Analysis Services, inc. MDX, .net (C#) winforms, inc. MS PivotTable

SMS Management Reporting – Team Lead:

Requirement: Send a daily text message to senior staff with end of day sales vs targets, both daily and week to date, with breakdowns appropriate to the recipient (e.g. regional breakdown for regional managers).

Outcome: Deployed a windows service which communicates with the ERP database, produces the required reports and delivers them via an SMS gateway. Easy now, but at the time it was implemented SMS gateways were quite rudimentary. Reliable delivery was challenging.

- .net (C#) windows service, SQL, SMS Gateway

Warehouse Label Printing – Team Lead:

Context: AG print millions of barcode/price labels in their central distribution centre, using Avery industrial label printers. A new ERP system lacked the required functionality to produce these.

Requirement: Create something that allows staff to produce bulk labels with minimal data entry.

Outcome: Created a winforms application which allows a warehouse worker to scan the barcode on a pick list (or any other printable document that has a list of product codes and a document identifier) and quickly print all the required labels.

- .net (C#) winforms, PCL over IP

Club Card Web Services – Team Lead:

Context: The American Golf Clubcard scheme is managed by a third party data marketing company. Data entry, CRM, paper mailing and analysis are all handled externally.

Requirement: Expose a daily transaction feed to the external supplier.

Outcome: Data was made available through a secure web-service and an application specific reverse proxy. Rest before we had rest 😊 Many years of successful operation, with all of the business benefits that come from a deep understanding of customer spending patterns.

- SQL Server 2000 Relational Engine, SQL Server 2000 DTS, .net (C#) XML Web Services

Marketing Mail Distribution System – Team Lead:

Context: American Golf distributes marketing emails to approximately 120,000 customers each week.

Requirement: Replace existing supplier with something cheaper and more flexible.

Outcome: The new system facilitated a significant growth of visits to and sales through the company's website. Increased flexibility allowed for new store-specific regional emails to help drive footfall.

Additional: The replacement was an inhouse development. I designed the system and performed approx 20% of the development work, coaching a junior dev through the rest.

The system consists of two components; a management application and a windows service which distributes the messages.

- SQL Server 2000, .net (C#) winforms, .net (C#) Windows service.

Year In Industry Work

Liverpool School of Tropical Medicine HAPAC Project June 2001 to September 2001

Context: Worked at the projects' Nairobi based office designing an information system to collect and collate data on clients who made use of the projects HIV counselling and testing service. I was also involved in standardising HIV counselling and testing client data collection forms for national use across Kenya.

Requirement: Devise a way to generate accurate statistics describing 'barriers to prevention' [of certain diseases], in a population without unique personal identifiers.

Outcome: Designed a system of paper forms, encoded vouchers and associated software. The system was successfully rolled out across Kenya and provided significant insights into prevalence of certain diseases and people's attitudes towards the disease and potential care options.

- MS Access, Visual Basic 6, ODBC, ADO, ActiveX DLL, MS Office automation (Word and Excel), SQL

Howells Associates Ltd October 2001 to September 2002

Held the role of senior systems developer on the company's project team creating bespoke executive share option management systems for FTSE 250 companies.

Clients which I was involved with included AVIVA (formerly CGNU), Granada Television, Safeway, Dixons Retail Group, Trinity Mirror Group and BOC.

- MS Access, Visual Basic 6, Visual Basic.net, MS SQL Server (7 & 2000), MS Office Automation (Word and Excel)

Temp & Part Time 'Paying For University' Work

ISIS Jewellery Ltd September 1999 to May 2001

Designed, coded and implemented the company's till and stock control system.

- Visual Basic 6, MS Access

British Telecom April 1999 to September 1999

Time was equally split between technical support and developing a database to track the contents of the Information Services department equipment store rooms.

- MS Access

Great Ormond Street Hospital February 1999 to March 1999

This brief contract centred on the maintenance of a IT training course booking system.

- MS Access

ParcelForce September 1998 to December 1998

Designed a database to record customer complaints. I believe this was PFs first digital complaint record system .

- MS Access

Early Career, Evening & Weekend Project

Clear Cut Finance March 2006 to October 2006

Context: Short term, part time contract to build a case management system for a small debt management company, a friend's new business.

Requirement: End-to-end delivery of a bespoke debt management cms, all roles, minimal budget.

Outcome: Working system, used by a team of approx 15 agents for 3 years allowing the business to grow with minimal startup costs.

Core features include:

- Lead import from multiple sources
- Lead allocation
- Sales process support / client file creation; Client details, income & expenditure worksheet, creditor worksheet
- Creation of all paperwork; Client sign up pack, statements, creditor letters, cheques, etc

- Client & creditor payment management
- Basic reporting
- Role based security

The server component runs in a managed hosting environment. Data is stored in SQL Server 2005, with ASP.NET 1.1 XML web services providing the business logic and client communications.

The client component is a winforms application, using Infragistics NetAdvantage Suite components for the UI. The client application stores no data locally. All communication with the server is via XML over SSL, allowing secure access to the complete system from any location with an internet connection.

- SQL Server 2005, .net (C#) winforms, inc. Infragistics NetAdvantage, .net (C#) XML web-services
-