Garth J Lancaster

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Enterprise & Solution Architecture	•	EDI Integration & Middleware	•	MicroServices & RESTful APIs

Professional Overview

Enterprise & Solutions Architect/Engineer, specializing in:

- EDI Messaging & Integration (B2B, B2G, EAI),
- MicroServices/RESTful Interfaces
- DevOps CI/CD

in the Insurance and Financial (Transactional Banking, Risk Management) market spaces.

Strengths include superior analysis, design & exceptional problem solving skills. Excellent interpersonal communication skills, strong work ethic and thriving on challenges. Known for being a motivating manager, able to influence, coach and empower team members.

Functional Accomplishments in brief

- Solved AWS EC2 Instance issues including VPN Inbound, Internet Outbound, SMB/cifs Linux to Azure File Storage

- Set up GitHub Repo & Azure modelling & documentation to support move to 'ReleaseFlow' methodology

- Implemented DevOps CI/CD with Jenkins, GitLab, Gherkin/Cucumber/Ruby for new microservice based WebServicesAPI product to decrease test/release cycle times & demonstrate product robustness.

- Implemented multiple 'levels' of Ruby/Cucumber testing, from low-level REST(ful) regression/integration API to high level Integration/Business Trade testing.

- Implemented cloud-based (Azure) deploy for Razor Core system & Config using SSH & a custom/in-house Python environment management tool.

- Assisted in design of Microservice based WebServicesAPI & produced high quality WebServicesAPI & ETL documentation for installation & client RFI/demonstrations.

- Implemented custom Ruby/C# software to produce & analyse 'snapshot' regression differences

- Designed & installed IoT resources (Electricity (Mains consumption & Solar production), Gas, Water, Wood) & Weather monitoring system

- Implemented a customized guest reports system written in C# WinForms using REST, MySQL, iTextSharp, with significant number-crunching & analysis for resources consumption vs sustainability.

- Architected & implemented c++ AS2805/ISO8583 switch to route real-time HICAPS/ECAPOS claims, allowing seamless migration to a new platform/system.

- Led multi-disciplinary team of up to 30 (Comprising Management, Audit/Compliance, Security, Infrastructure, Development) on successful EDI Interface transition for B2B Interfaces from Mainframe to Unix and multiple new business onboarding projects.

Career Summary

Synesis Information Systems / A National Law Firm	Expert Witness ('dirty' Expert)	July 2021 (Contract)
Synesis Information Systems	Software Engineer	February 2021 – March 2021 (Contract)
Synesis Information Systems	Consultant (REST / API Integration)	November 2020 (Contract)
Synesis Information Systems / A National Law Firm	Expert Witness	September 2020 (Contract)
Elfware Automation	DevOps Engineer	March 2020 (Contract)
Razor-Risk Technologies	DevOps & QA Engineer	March 2017 - February 2020
Hamlet Research	Founder and Director of Enterprise Architecture & Infrastructure	May 2013 – March 2016
Experts Direct	Expert Witness (3 matters, Acting Intermittently)	May 2015 - *2019*
Herbert Smith Freehills	Expert Witness (Intellectual Property Matter, Acting Intermittently)	January 2013 -February 2014
BUPA	Technical Consultant IT/AS Middleware Group	November 2010 – December 2013
MBF (BUPA)	EDI/Gateway Manager	July 2004 – November 2010
	Production Support Manager	July 2000 – July 2004
	Data Warehouse Programmer	July 1998 – July 2000

Career History

Synesis Information Systems   **February 2021 to March 2021**

Software Engineer

- Built a C/C++ Industrial Sensor based services orientated system using [z|0]mq, SQLite3, CMake to run on an Embedded Linux Platform
- Refined Requirements/Specifications as more detail from 3rd party/Partner became available (Agile approach)
- Started cross-compile testing in WSL2, Docker
- Outlined testing strategy for complex analysis/modelling

Synesis Information Systems   **November 2020**

Consultant (REST / API Integration)

- Consulting Services – REST API's & Integration between Property & Services Management Systems
- Built Product Development Roadmap to match growth strategy
- Provided assistance with Tender Proposal (Technology slides)

A National Law Firm & Synesis Information System Systems   September 2020

Expert Witness

- Provided analysis of evidence
- Prepared Expert response in IP case according to brief from instructing solicitors

elfware https://www.elfware.com/   **March 2020**

DevOps Engineer

- Completed ZeroTier VPN Installation/Configuration and on-boarding of staff to provide secure access to AWS VPC/EC2 Instance(s)

- Traced & rectified issue with internet egress for AWS EC2 instance, primarily for patching, security scanning

- Documented particular external Client (PC/Laptop) VPN Install/Setup usage with Fortinet VPN Client

- Set up an AWS site-to-site VPN between Elfware and Client

- Set up SMB/cifs share from AWS EC2 Linux instance to Azure File Storage

- Set up Azure DNS Zone to manage DNS domain/entries for Cloud based Server instances

- Set up Azure Active Directory, InTune/Company Portal for Office365 Distribution && documented on boarding on Confluence page

- Setup a Github repository and modelled 'Release Flow' https://docs.microsoft.com/en-us/azure/devops/learn/devops-at-microsoft/release-flow , outlining & documenting
  - Branch naming conventions
  - Branch Protection(s)
  - Commit naming conventions mapping to JIRAs
  - Developer vs Release Manager usage/workflows

- Outlined & documented an Azure DevOps pipeline sequence for a release build process
  - Using Release Flow GitHub repository
  - Storing build artefact (Universal Package) in Azure File Store
  - Managed Infrastructure issues

- General support of staff equipment inc Windows PC Microsoft Windows 10 Home update to Windows 10 Professional

Razor-Risk Technologies https://razor-risk.com/   **March 2017 to February 2020**

DevOps/QA Engineer : March 2017 - March 2020

- Maintained & enhanced Jenkins/SVN regression tool in Powershell/Excel for C++ Core Product
- Performed general 'defect verification/replication' and then fix QA/Release processes for all Razor Clients : Treasury Corporation of Victoria (TCV), KPEI, ANZ Bank, Landesbank Baden-Württemberg (LBBW)
- Implemented Jenkins 'headless' build for C# ETL Tools [Build/Automate]
- Solved technical build issue with Ruby/Sinatra MicroServices API Product vs SSH & Ruby 'EventMachine' GEM to allow https://
- Implemented Gherkin/Cucumber/Ruby regression & integration tests for Ruby/Sinatra REST Microservices Product
- Implemented Cucumber/Ruby 'business language' integration tests for Razor Core
- Implemented Azure Cloud based services for Demonstration machines (London & Sydney) & 'Pre Client' Test Machine
- Implemented automated deployment of Core Product & Configuration to Test Machines in Azure using Jenkins, SSH
- Implemented Node/React WebGUI Build and Deploy
- Implemented in-house GEM Server for Ruby Builds on CentOS7
- Configured & maintained internal Gitlab server CentOS7
- Built & implemented automated Build & Regression GitLab Pipelines (WebServicesAPI/Ruby)
- Performed Integration / Architectural / Security design & implementation for WebServicesAPI at LBBW using JWT
- Implemented Gauge / Maven / Java / Selenium regression tests for Node/React WebGUI using 'Page Object Model'
- Demonstrated the use of Docker, Chef, Wix as tools to reduce test time cycles & cleanliness, manage deployments, manage Product installation
- Performed dedicated customer integration/support
    - TCV (Melbourne) : Onsite Go Live support, where I identified and helped rectify audit/sequence/control issues
    - LBBW (Stuttgart, Germany) : Onsite & Remote for LBBW Integration & Release Support
    - KPEI (Indonesia) : WebServicesAPI documentation & demonstration as part of Sydney run training course for KPEI.
- Produced world standard documentation – for example :
    - WebServicesAPI Architectural / Installation / Integration / API Documentation
    - Documentation including WebServicesAPI for presentations including Bayern-LB, LBBW, Bank of England
    - ETL Documentation for presentations, particularly the architectural product view.
- C# Programming
    - ETL Product – produced xsd mappings & 'core functions' for a broad range of instruments within all asset classes: Interest Rates, Inflation products, FX, Equities, Credit Derivatives
    - In-house utilities – particularly where the needs exceeds the capabilities of DOS scripting, for example file & date processing, filtering -> event management.
    - Winforms JIRA based Release Notes Builder
- Ruby Programming
    - Assisted in design of Microservice based WebServicesAPI
    - 'Snapshot' database comparison tool(s) to analyse potential regressions between base and release software candidates.
    - WebServicesAPI defect fix/support as back-up for primary programmer.
- Kotlin/Java Programming
    - In-housing/Development in and support of Workflow Service including GitLab build pipeline
- Administered (& Used) Atlassian Confluence, JIRA, BitBucket

Hamlet Research : http://hamletresearch.net/   **May 2013 To March 2016**

Founder and Director of Enterprise Architecture & Infrastructure

Hamlet Research:

- was the precursor/prototype for the now successful 'My Green Butler' [https://mygreenbutler.com/] responsible/sustainable tourism programme.

- provided the research data for the founder of My Green Butler to complete a PhD at Griffith University 'Innovation for Sustainable Tourist Accommodation' – covering influencing guest practice and behavior to achieve pro-environmental results at tourist accommodation using smart systems and persuasive technologies.

- Implemented an IoT system to capture measurements from sensors for weather data, renewable & non-renewable energy resources, utilizing a 3rd party weather station, industrial sensors & recording equipment, C#, MySQL, TopShelf, Quartz.Net, RESTSharp to a custom Ruby/Sinatra data aggregation service.

- Implemented a Ubiquiti based property-wide Wifi network on Hamlet Research 'Test site/property' for customer & private data.

- Created a unique guest report system (C# WinForms, iTextSharp, RESTSharp) which is now mirrored in My Green Butler's Web Front-End

- With Hamlet partners, I am the co-author of **eight pending patents**. Details supplied upon request.

- Re-modelled & prototyped of our data capture system using 'MicroServices' – in C#, with Quartz.Net, TopShelf, RabbitMQ, NancyFx, MySQL

- Remodeled/designed the infrastructure for our 'Freemium' product using AWS cloud services including EC2, Route 53, SNS, RDS/MySQL, S3

BUPA Australia (Formerly Medical Benefits Fund)   1988-2013

Technical Consultant IT/AS Middleware Group (Nov 2010 – Dec 2013)

- Responsible for technical consulting, design, implementation, data security implementation (including PCIDSS), interfaces improvement/migration/consolidation. A large part of time was spent at a Systems/Solutions Architect level, working with Risk/Audit/Security staff to ensure systems met various industry compliance standards. A lot of my integrations (particularly external) required a knowledge of OWASP methodologies.

- Interfaces Lead on a long running (24+ months) sequence of projects in collaboration and negotiation with internal teams and external 3rd parties (HICAPS, CSC (Formerly IBA), Westpac Banking Corporation, Australia Post, Decipha), successfully analysed, designed and implemented transitions for all BUPA's 3rd party interfaces during :-

  - The relocation of the 'remnants' of MBF's Data Centre from Sydney to Melbourne Data Centre

  - The implementation of a BCP/DR solution at Melbourne Data Centre

  - Split BUPA's Systems into Production and Non Production, moving Production systems to a new Data Centre, Non Production to a 'second hall' at a Melbourne Data Centre, and relocated their head office to Melbourne City

  These transitions achieved new desired 'target states', and no loss of functionality/processing ability for the business before, during and after the transitions.

– Implemented DR/BCP capable Westpac WIBS managed file transfer system, with file rationalisation, web monitoring and alerts, tested against CIS-CAT & signed off by an external security consultant with CISA, PCI QSA, PCIP, ISO27001 credentials

– Implemented DR/BCP capable PCIDSS Compliant file transfer solution using Control-M, Control-M/AFT, on hardened RHEL 5 System tested against CIS-CAT & signed off by internal & external security consultants with CISA, PCI QSA, PCIP, ISO27001, OSCP, CISSP, SSCP credentials

– Investigated OpenText Document Management System implementation, and built a proof of concept data export system from OpenText into an Oracle Apex based system, for PCIDSS masking.

– Designed and wrote geospatial search for BUPA find-a-provider program on iOS (Objective-C), implemented LDAP Authentication for data build tools, migrated mobile source repository to GitHub, designed and built GitHub backup to LAN procedures, build documentation and standards on managing mobile development intellectual property using GitHub.

– Interfaces Lead consultant/designer/implementer on conversion from MBF's system to BUPA's BOSS system for CPOS/Westpac/Australia Post/Many Hospital/Medical claims providers) – c++, C# On Win32

– Implemented batch mail processing system in C#, using MS Exchange Web Services, C# Interop/c++ DLL over Commercial PGP SDK

– Interfaced BUPA's Sungard based workflow system to BUPA's scanning/document management partner (Decipha, a division of Australia Post). Produced superior end-to-end process flow and fault management documentation for providing a clearer and quicker path to resolution of issues in the real-time environment, including a detailed analysis and plan on how to provide for future robustness including BCP for the system.

– Implemented systems to 3rd Party data providers using JBOSS/Weblogic/Tomcat based components & PKI

– Architected and Implemented multiple file transfer system based on Connect:Direct, in between Mainframe, Unix & Windows Hosts

EDI/Gateway Manager (Jul 2004 – Nov 2010)

- Managed 4-5 staff, responsible for the implementation of MBF Strategy on B2B integration, enabling robust, automated and secure information/transaction flow between MBF and our external business partners – the increase in automated transactions providing cost benefits by lowering the cost of processing claims and transactions

– Retrained and mentored ex Mainframe Systems & Application programming staff (COBOL) in modern c++ and later c# programming skills – allowing MBF to retain valuable investment in IP and business knowledge.

– Using c++, WUSTL Adaptive Communications Environment (ACE), TIBCO BusinessWorks, Tibco EMS Messaging, designed & wrote HICAPS/CSC (Formerly IBA) Realtime AS2805/ISO 8583 Interface & Switching service layer enabling MBF to move from SNA -> TCP/IP communications and from a mainframe based system to a 3rd party system running on a unix platform (Perot 'Diamond'). Provided dynamic real-time failover between front end channels and back end systems. The first successful demonstration of an 'agile' systems build to MBF management.

– Successfully managed the integration & on-boarding of interfaces when MBF acquired the SGIO/SGIC/NRMA health business from NRMA, including Westpac transactional banking, 'Claims at point of service' systems with HICAPS, CSC (formerly IBA), Australia Post & BPAY, allowing a seamless business acquisition and continued service to an expanded customer base.

– Working with MBF's 'Strategy and Architecture' group, Perot System's IT architects & engineers, and Westpac Banking Corporation, combined with a knowledge of AS 2805/ISO 8583 protocols, successfully designed and implemented EFTPOS processing when MBF migrated from the Mainframe screen scraped approach to Perot's Diamond system.

Production Support Manager (Jul 2000 – Jul 2004)

– Responsible for a crew of 8-12 operators, ensuring production jobs were optimally scheduled and processed on Fujitsu Mainframes, on production, BCP/DR and 24x7 domains, the liaison between operations and programming/support staff, and engineering services

– Built business case and plan achieving the replacement of HDS & Dell disk storage with an EMC Symmetrix/Brocade Fabric storage system, reducing the cost per MB of disk, decreasing the onboarding time for new storage requests, and increasing the reliability and potential for growth

– With EMC as a partners, led MBF into VMWare technology to decrease physical server footprint – also enabling us to be more flexible between data centres, for BCP & High Availability

– Managed large scale SAN infrastructure, Data-Centre relocations, 'future' proofing MBF & BUPA's critical services.

– Designed and implemented automated Department of Human Services (then Medicare Australia) Interfaces for Simplified Billing, Two-Way Processing and 30% Rebate. This required a substantial knowledge of EDIFACT based transaction processing, using MEDRUC/REMADV/CONTRL transactions – c++ on Win32

– Designed and implemented an automated Australia Post interface, reducing both the cost of processing claims and the time taken to process claims providing another lower cost (than cheque processing) payment channel for customers c++ (and then C#) on Win32

– Performed the Proof of Concept Design and Implementation between MBF and Medicare Australia (now Department of Human Services) for the ECLIPSE system integration. The resulting design and lessons learnt was successfully used in the implementation of a robust, fault tolerant system, handling 24x7 transactions to/from Medicare Australia (Java)

– Integrated Neller Preceda Payroll System running on AS/400 platform into MBF General Ledger System

Data Warehouse Programmer (Jul 1998 - Jul 2000)

– Responsible for building the processes and tools to provide timely monthly modelling data to MBF Management

– Used SunPro C++ on Solaris platform to extract data from Mainframe, build Data 'Cubes' for Informix Metacube ROLAP tool
– Extended Cube builds to update Informix SE tracking database so dimensions & cubes could self verify/prove accuracy

- Developed automated build and deploy system in bash for Data Warehouse ETL processing
- Developed custom dashboard and SMTP alert system to handle any ETL/Cube Build issues

Special Projects

Herbert Smith Freehills : Q1-Q3 2012. 'Dirty Expert' (c++ Software Development). Review of intellectual property, court notes & reports, in a major intellectual property action. Technical assistant to Primary Expert witness in tool preparation and methodology for the analysis of c++ source-code from multiple software code repositories.

Rymac Solutions : 2002. Implemented Woolworths EANCOM MIGs on Interdata Zipper Translator as a POC

Interdata LLC (San Diego, USA) : 10/52 in 2001. Implementation of Zipper EDI mapping engine on AS/400 turned into project rescue at an Interdata client (Costco) in San Diego, implementing EDIFACT EDI on Sterling VAN between Costco and Mexico using c++, 'Zipper'

Recent Courses

- IDesign Architect's Master Class   June 2014
- Attended Software Design & Development Conference 2017 https://sddconf.com/ focusing on Microservices, Domain-Driven Design
- Certified Business Analysis Professional (CBAP) BABOK Guide V2.0 Aligned   In progress
- IT Strategy Essentials   In progress
    - Business and IT Strategy Alignment
    - Creating an IT Strategy Plan
    - Implementing an IT Strategy

Technical Skills

Programming Languages & Technologies
C, C++, C#, COBOL, Java, Perl, MFC, Winforms, Objective-C (iOS), COM, STL, Oracle, MySQL, Informix RDBMS, Imformix MetaCube, Cognos Powerplay, SQLite, McObject, XML, JSON, PGP, PKI, REST, RabbitMQ, NancyFx, BOOST, STL, [Z|0]MQ, Docker
EDI/Interfacing/Messaging
TIBCO BusinessWorks, EMS, Rendezvous
AS2805 (ISO8583) in EFTPOS and Claims At Point Of Origin (CPOS) Systems /Networks, EDIFACT (inc EANCOM as used by Woolworths), X12
WUSTL ACE, IBM MQ Series, MSMQ, Tomcat, JBOSS & Weblogic Application Servers
Interdata Zipper, ECXPert & Mercator, MS Biztalk (Basic working knowledge)
Enterprise File Systems/Data Movement
CA XCOM, Sterling Connect:Direct, Globalscape & Tumbleweed,
SCP, FTP, SMTP (Groupwise and MS Exchange), Soap, WEBDAV, IMAP, POP, HTTP
Advanced Knowledge of Westpac (inc EFTPOS, Credit Card Gateway), NAB DirectConnect,AMEX, Visa Banking and formats, MCA (now DHS) ECLIPSE
Operating Systems
Windows (32/64 bit), Solaris/SunOS 5.8-5.10, Linux (32/64 bit)
Apple iOS, Fujitsu Mainframe (XSP), AS/400, Novell
Security
PCIDSS, OWASP, CIS-Cat Penetration Testing, PGP, GPG, PKI, SafeNet Hardware Encryption Cards, SSL

Articles/Material Published

Compiling and Integrating Crypto++ into the Microsoft Visual C++ Environment
CodeProject May 2011
Authors Jeffrey Walton, Garth Lancaster

A Custom Event Layer for the ACE Reactor Framework
ACCU April 2007 (Volume 19 Issue 2)
Authors Matthew Wilson, Garth Lancaster

Professional Memberships

ACCU
Codeproject

Personal Interests

- Cycling – created BUPA Lunchtime Ride team, mentoring to increase their on-road/safety skills & fitness - Defacto interpreter/cycle guide on many organised cycling trips in Europe.

- Basic French/Italian/German language skills

- Mentor on Codeproject site/forum (MVP 2017), on c#, microservices, architecture and design, security

- Frequent Blood Donor – platelets, plasma, whole blood