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Personal Summary

You may be curious to read a summary or outline of my work, which is a large part of who I am, and it may also be of interest to you. So read on...

I am a bilingual UNIX Consultant with over 15 years of experience managing and specialising in High Performance Networked Systems in small/large-scale environments using advanced IBM AIX & SUN Solaris System administration. My theoretical and practical AIX experience now extends into the world of Virtualization and micro-partitioning for Logical Partitions.

For those people who know the work of a System Administrator these key responsibilities included configuration, installation, upgrade, performance, security, general operations and troubleshooting for the operating system, related software, hardware and networks in a multi-protocol, multi-vendor environment.

There is no doubt that this has also given me sound knowledge in networking technologies and protocols, and UNIX Security Concepts and it may interest you to know that I have also become fluent in Korn shell scripting (my favourite). It has also made me a strong problem-solver and a team player that is confident and challenged, providing guidance and direction.

It may interest you more to know that as a UNIX System Administrator I am currently supporting industries in the telecommunication and banking sectors, with experience as well as in the logistics, petrochemical fields, computing and electrical industries, mostly dealing with Oracle & Sybase databases and tuning the system to suit their capacity needs.

Please do contact Richard if you are interested in extending your infrastructure to enhance your applications by using an Operating System to operate as it should do and for people to realize their full potential as resources.

Skills and Experience

- Troubleshooting application ensuring BAU surveillance at 2nd and 3rd level on hundreds of hosts under Aix 5p and SunOS 5.9 with a view to pro-actively maintain operability^{1,2,3} for businesses, using nmon, Nagios (under Linux), patrol in order to fix memory leaks, security issues, networks glitches and make recommendations
- Carried out Project Management using techniques such as MS-Project, Scamper, DOIT, Gantt, PMI, Pareto et al for ad hoc Teams⁴ of Technicians, DBA's, and other System Administrators forming UNIX User's Groups.
- Data replication between external disks arrays using a variety of techniques dcopy, dd or disk mirroring using EMC Timefinder or BCV splitting⁵ and hooking onto a secondary host
- Ensured regular DR successes using mksysb on tape, NIM or via VI/O servers using alternate rootvg and making logical device onto a different virtual hosts.
- Many, many hours Fault Finding and Hardware Replacement
 1. adding adapter cards for I/O and Ethernet
 2. Carried out pSeries Hardware interventions (IBM lead) replacing Flexible Service Processor, memory, CPU⁶, COD, CuOD
 3. Rebuilds, hot replacements of SSA disks in RAID's with no downtime on mission critical EPOS systems
 4. Wiring and re-wiring, tie-wraps, patch cabling, labelling
- Proficiency in hardening security routines⁷ using Korn scripts, ssh, sudo, Tamos, tripwire
- Risk assessment⁸, project plan and change request controls for the eventual upgrade and in passing road tested and updated documentation for NIM interventions
- Administered and Configured HMC (under Linux) Aix LPAR, NTP, Focal Point monitoring using GUI or shell, via ssh
- End-to-end configured SAN configuration DS8100 mostly creating Fixed Block Volumes for new and existing extent pool, prior to presenting new LUM to VI/O Servers and subsequent virtual hosts (LPAR): LVM creation and expansion of File Systems
- Dynamic LPAR reconfiguration of CPU's from LPAR's within Managed Hosts
- Korn shell scripting under SCCS, CVS to maintain the principal of coherent versioning for many, many client hosts.
- Hundreds of pages of Fully formatted indexed manuals, guides and reports on System Commissioning, Configuration & Upgrades
- Mentoring Junior UNIX System Administrators, Oracle DBA, and Siebel Application Administrators as it is important to coach upwards and across.
- Configured and updated Nagios for scores of hosts
- Project work includes NetView accessing all TSM commands, configured using SMIT; wrote mobile Robots protocols and a triggered FTP system using language "C".
- Acquired for Government contracts Basic Security clearance (expiry date 22/08/2010), CTC & SC and for Banks FSA vetted (2009).
- Cleared to work under FSA regulations and deal with Money Laundering whilst applying Good Customer Care values

¹ Mitigating the 5 month BAU risk that Cegetel were taking with a S80 running only on 11 CPU's

² Covering BAU & by quickly stepping into the shoes of my new Team Leader with Phones4U who took a deserved 5 week break

³ Tactical use of data from Nigel Griffiths monitor to high-light problematic processes to further pin-down enquires and provide solutions

⁴ IGS (Paris), A&L (Leicester), Fujitsu (Swansea), P4U (Newcastle), Gist (Faversham), Euroclear (Brussels)

⁵ Or even software mirroring using Aix LVM

⁶ have a preference for contingency and using Dynamic LPAR functionality

⁷ Applied a documented solution of user reference for Management that tied into sudo with added shell scripts that verified and altered remote hosts, with the principle to ensure reproducible under a single chkpt script with pre-ordained but customized flags

⁸ Belief here is that the issues be analysed, supplying solutions and also making recommendation based on identified impact and risks to the business should be conducted before reporting this to the business to make their decisions

Career History (continued)**Career History****What else can I offer?**

Well I recently revamped my theoretical and practical AIX experience to extend into the world of Virtualisation and micro-partitioning for Logical Partitions. If you know what this means it means you and Richard should be talking; and if you don't, it means you may want to later and in the meantime you are staying with the legacy tools.

What follows is my list of kit and a roll of graduate and professional certificates that I have managed to achieve and in reverse chronological order a record of the last 5 years contract work I have been engaged to do ranging from 3 months to 18 months spread over France, UK, Belgium and Holland. What happened in the previous 11 years (not included in this CV) I have split into 3 major chunks as I operated from Portugal with a session in the UK prior to immigrating to Canada for the second time. Before that I lived in France and before that I was married.

Nov 2010 - Dec 2010 **Unix Engineer (Security), Barclays** Knutsford, England

This Global blue chip organisation hired me as a strong Unix Engineer who has a background/experience in the compliance/IT security field. Analysed their Unix estate (UNIX-AIX, HACMP, Server Cluster et SAN) and was able to define security requirements and operational procedures to ensure network integrity, physical protection and authorised access to the network and applications. More specifically was able to identify the current state of hosts with respect to critical updates published by IBM. Implemented the appropriate tools and methods to protect their systems and information.

As well as define security requirements and operational procedures to ensure compliance with security framework.

- Carried out test scripting on a development hosts running both AIX 5.3 and 6.1, using SCCS and dsh
- Used CSM hosts to launch requests and gather information in a CSV format
- Analysed the use of Blade Logic to initially carry out the request and format the output using BSARA (Cognos) backend.
- 15 page Reporting document to define ST gains and LT objectives
- analysed 623 AIX hosts across 15 CSM hosts to determine patch-level and report using Pivot Table on compliance *vis à vis* IBM critical patch Fix Central.

Feb 2010 - Aug 2010 **Senior AIX/UNIX Administrator, Atradius.** Cardiff, Wales

3 +3 months consulting as a French bilingual AIX System Administrator responsible for a Migration Project Gathering, Analysing and Inditing the Technical Systems & Business Application Requirements, including the Technology Intelligence, for a complex, resource intensive Web Portal Application Server/Database Server Client-Server model of an extract-transform-load (ETL) Services (CautionNet) with associated File Servers and Print Server for an International Trade Credit Insurance and Risk Management Corporation, in order to consolidate the Technical Systems Support and Infrastructure into the UK and Ireland HQ in Cardiff Bay whilst leaving the Application Development and Support in Paris.

- Gathered Technical Requirements on the AIX/Linux/Windows Infrastructure and analysed and presented the data in the form of Pivotal Tables within Excel.
- Using Stakeholder Management coordinated the Migration by identifying who the stakeholders are, work out their power, influence & interest and win their support by managing their expectations.
- Analyses, developed and wrote System Guide for Linux File Servers using Samba; likewise for a series of Servers running Jetform [*sic* Adobe] Central version 5.2 & 5.6 configured to print to Geode Print Servers
- Configured Centreon CLAPI version 1.1. Centreon CLAPI, aka Centreon Command Line API allows you to drive Centreon with command lines. In order to implement the first step of management of Nagios with command lines.
- Produced a database of 30 host monograms with network attributes that enabled x6 detailed architectural schema that over-layered the Business Applications Arena to ground Infrastructure (SAN-H/W-O/S-S/W-Service-Application) using MS-Visio.
- Produced a 350-page indexed Guide to System with worksheets, diagrams (MS-Visio) that explain the mechanism and configuration to install, maintain, configure, troubleshoot and monitor a combination of bespoke code that enables a PC end-user to communicate via a Web-Portal and a Oracle (BEA) Web Logic Application onto a Oracle Database Server with a Jetform backend
- Writing appraisals and reviewing current literature, making recommendations using map-maps, content based objective outlines and descriptions designed to meet with expectations

Jan 2009 - Jul 2009 **Research Assistant, BSi_ Ltd.** Birmingham, UK

3 months researching NHS case studies, technical writing base studies for use in dissertations as part of NHS Diploma studies leading to Adult Nursing qualification. .

- Researching case studies, care plans, evidence based health care and solution with specific reference to latest technology and research
- Writing appraisals and reviewing current literature, making recommendations using map-maps, content based objective outlines and descriptions designed to meet with expectations

Jul 2008 - Jan 2009 **Senior AIX/UNIX Administrator, Alliance & Leicester** Leicester, UK

6+ months engagement on a project to roll-out 15 Oracle Forms/Oracle Server Client/Server projects running on 64 IBM p-570 LPAR's just prior to Santandar taking over the bank. Core Banking Support both low level System Engineering and trouble-shooting Virtualisation scenario, dealing with Hardware and DLPAR issues as well as classic AIX System Administration and Security scripting – constraint not to have any down-time because of Joint Barclays, Alliance, Lloyds Faster Payment. Peer review of documentation. Classic AIX administration for WAS hosts connected to NetApp SAN's.

- Formed a UNIX Users group and guided contractors and junior staff in skill-sets and mutual exchange of interesting information
- Apply security hardening for 15 application privileged users, using SCCS with delivery via an ad hoc version of CSM.
- Upgraded client/server AIX O/S & SPSS application versions directly into Production without Contingency, maintaining a SAS Application running on the same host. Risk assessment, project plan and change request controls for the eventual upgrade and in passing road tested and updated documentation for NIM interventions.

Career History (continued)

- Analysed the park of Managed Servers, writing scripts to extract Focal Point movements to pro-actively monitor without the need for "Call Home".
- Organized & carried out the re-connection of the Flexible Service Processors on 5 Managed Systems affecting a total of 25 hosts including 10 Virtual I/O (VIOS) LPAR's across a split site, here and at Liverpool, having first replaced a memory unit of one of the Managed Systems.

Nov 2007 - Jul 2008

Senior AIX/UNIX Administrator, Phones4U Newcastle-under-Lyme, UK

9 months project to roll-out 15 Oracle Forms/Oracle Server Client/Server projects running on 8 IBM p-570. Supported legacy hosts upon which BAU maintained all cash registration running on x2 legacy H70 with 250 Gb on SSA external disks under AIX 4.3.1. On call support for all 17 machines as well as been implicated in giving UNIX mentoring and counselling to UAT teams bedding in Application solutions as the deadline for go-live approaches in a Java, Siebel, Oracle forms, Oracle Data Server http Web Server, Payroll system solution running under 25 virtualised LPAR hosts. All procedures handled through ITIL.

- After an initial 3 week handover and business application learning curve, took over full responsibility (Team of 2) of the UNIX infrastructure and operating system including on-call and after hours working, system whilst the Line Manager took sick leave for 5 weeks prior to the Christmas period
- Developed the company's understanding of the use of LPAR's by producing guides to Client/Server relationships and the impact & Benefits potentials of Dynamic LPAR, as well as producing the scripting and the tactic How to's...manuals.
- Worked closely with the analyst responsible for forecasting by proving him automatically with nmon data in a timely fashion and using on his recommendations to provide preventative maintenance fixes in timely fashion and Development debugging.
- Changed the existing mksysb system writing to NFS mounted NIM File System to a 2 step local mksysb followed by copying over to NIM via rsync.
- TSM configuration and BAU checking of overnight safeguards. Used TSM often to create clones of Oracle Database Tables for Pre-Production Test and Verification
- Set-up maintained and employed the NIM server to distributed different versions of Java while the off-shore development team pipe-cleaned and made last minute adjustments to their Software.
- Regularly expanded a 125 Gb extend pools to initiate IBM Total Storage DS8100 enterprise disk storage system using `dscli` command set, creating new Fixed Block Volume before added volume group to LUN and present them to dedicated LPAR's of VI/O servers (VIOS) several times on an ad-hoc basis to ensure the roll-out's punctual needs – DBA's were operational within 2 hours!
- Configured over 8 Live and 12 dark-site p-570L CEC's on an on-going and regular basis.
- DLPAR de-allocation / allocation of Memory and CPU for upgrading UAT hosts at critical moments of the programme, as well as post-Production host re-allocation of CPU/memory resources due to design shortfall.
- Trouble-shooting an AIX 5.3 host with Siebel Front End processes core issues, ensuring processes and resources were apt before closing down on the system virtual memory and I/O variables. Rewrote IBM apache server RC script and ensure Oracle intermediate start-up / shutdown upon IPL.
- As part of my performance bonus revamped and configured the entire estate image on a Nagios 2.6 Server upgraded from 1.2. Was Linux System Administrator for both Nagios monitoring Servers running standard Fedora Core 6 Linux
- Regularly replaced failed disks in SSA arrays, eventually rebuilding the RAID10.
- Upgraded x15 hosts with packages such as JDK 5 64 bit bundles as well as BOS packages from NIM Servers.

Aug 2007 - Nov 2007

Senior AIX/UNIX Administrator, Fujitsu

Swansea, Wales

Engaged for 3 months on a government contract to upgrade AIX from 5.1 to 5.3. Responsible for carrying out Operational Acceptance Testing, Proof of Concept and documentation. AIX 5.3L system administration for 5 LPAR's including safeguards for LPAR, HMC Critical data and IOS using Fujitsu bespoke ITIL based procedures and best practise. Helped redesign their POC strategy running on a 9131-52A using Virtual I/O (VIOS) to allocate resources and micro-partition CPU's. Korn shell scripting for System tasks. Security clearance granted.

- Took charge of a team of 4 technicians being trained on AIX pSeries prior to their deployment onto the client site. Handed over techniques and guided them in shell scripting, HMC commands, pSeries LPAR building, safeguard strategies
- Changed the existing mksysb system writing to NFS mounted NIM File System to a 2 step local mksysb followed by copying over to NIM via rsync.
- Devised a script solution to hot copy All Subversion code under SCCS locally and rsync to a fallback host using ssh.
- Safeguard and restoration of Virtual I/O (VIOS) using backupios and Critical Data (HMC profiles) to DVD/RAM
- Debugged a duplicate IP issue on an ether channel configuration for a Pre-Production host.
- Installed LPAR's to run as a Oracle Server and a IBM Information Server software (ex-Ascental) or IIS and the determination of the Transformation Rules to enable data from one register under Oracle 9.1 to another running Oracle 10.2.

Jan 2007 - Apr 2007

Senior AIX/UNIX Administrator, Vanderlande

T5, Heathrow, UK

Engaged for 3 months (+) on this mega £8 billion contract to build Terminal 5 for BAA, Heathrow and the new Baggage Handling System. Directly responsible for 2nd/3rd O/S line support during the Proof of Concept (POC) trials.

AIX 5L system administration for 7 Oracle instances as well as for several Simulation programmes across four 550 pSeries LPAR, with HACMP failover to four more remote machines – 2 Solaris machines were present in the park, as well as EMC (Symmetrix) SAN providing UNIX support for 3 Oracle DBA's as well as carrying out System Consultancy on Capacity Performance, HACMP re-design and well as hundreds of System Administration housekeeping tasks whilst 46 Engineers carried out integration as well as FAT, UAT and PAT activities. Helped redesign their Safeguard Netbackup strategy. Korn shell scripting for Oracle DBA's and other System tasks.

- Together with a young Oracle DBA ensured that the Systems were ready for dual Testing changed the existing mksysb system writing to NFS mounted NIM File System to a 2 step local mksysb followed by copying over to NIM via rsync.
- Set up an appropriate FS to collect data with back-end to tidy up older data files
- Fail over and fallback HACMP several times due to a Memory Leak, bringing down the Servers at a time when no kernel memory was available
- Configured NTP on pSeries LPAR's and HMC, as well as security issues.
- Troubleshooting and reconfigured Veritas Netbackup schedules having identified lacunae and hardening the Safeguard policy.

Career History (continued)

- Consultancy given on the use of micro-partitioning to produce a 2nd limited HACMP clustered host to enable the primary host to have a maximum share of resources and memory.
- Failover strategy given in a series of meetings and Reports (25 pages)
- 80 pages of Reporting on nmon, memory leaks, security issues, networks glitches.
- 4338 lines of Korn scripting using SCCS

Sep 2006 - Dec 2006

AIX System Administrator, Cap-Gemini

London, UK

System Administrator (French speaking) hired on a standby contract, for 3 months, collaborating with the Infrastructure Team on a Global Service Centre solution for a French client. My activities were concerned with a Disaster Recovery solution across 2 sites in England, involving 8 pSeries 595 and 570's. Most of the LPAR profiles were configured for SAP instances with dual-live fail-over using HACMP. Some configurations used Virtual I/O Servers (VIOS) with no micro-partitioning, and these were ostensibly used for System Tools.

- In this period I carried day-to-day problem resolution, incident trouble-shooting for the French-speaking professionals with some on-going project work for the AIX O/S & SAN in English.
- Configuring 30 Time Finder/Clones for an EMC Symmetrix SAN, over 5 LPAR profiles to prepare the way for seamless Safeguard using Tina.
- Initialised a project to de-commission a Cisco Fabric Switch for a CISCO Multilayer Director Switch to include an Analysis of the situation and the proposed move with a PMI review, a Guide with the Technical Specification included, a Manual containing How-To's and a scheduled Task List defining area of responsibility and Target Dates.
- Organised, initialised and configured the addition of 0.1 & 0.2 Tb of external disk space to 2 separate clusters to become pre-Production machines.
- Creating over 150 lines of Korn shell script to enable root system administration instruction perform across >40 LPAR hosts.

Jun 2006 - Aug 2006

AIX System Administrator, Gist

Faversham, UK

Engaged as a Consultant in a 3 month(+) contract as a temporary replacement for a 2nd level System Administration/Consultant engaged in Managed Operations & Projects between Development Solutions and Production running on 8 RS6000/570 LPAR's with Virtual I/O Servers (VIOS) and Aix 5.3 and 18 legacy hosts like [IBM,7044-270](#) using Aix 4.3. Responsible for the day-to-day problem resolution, incident trouble-shooting with some on-going project work for the AIX O/S, System Application Administration for Red Prairie, Oracle & Samba and HMC firmware connectivity & Micro-partitioning whilst assisting level 3 Engineers and training up level 1 Engineers.

- Project Managed and conducted the Porting of an FCL Application from Aix 4.3.2 to Aix 5.3 as well as organising the FAT and UAT procedures in order to verify the Migration of the data.
- Creating over 3200 lines of Korn shell scripts to enable Aix system administration instruction sets perform & driven by menus, invoking sudo to ensure root access to Level I support Technicians.
- Trouble-shooting Application such as Cognos, Red Prairie as well giving level II support to the Oracle DBA. Configured sudo, samba
- Created a scp driven spooler that transferred certain scripts to certain hosts using a mechanism similar to that of CSM and dsh.
- 120 pages of Guide to Architecture and Manual for System Administration in Word 2002, as well as 15 Reports on SysAdm issues relevant to pSeries

Feb 2006 - May 2006

AIX System Administrator, ING

Amsterdam, Netherlands

3 + 1 month (+) contract as a 3rd level AIX System Administration/Consultant engaged in Managed Operations & Projects between Development Solutions and Production running on 4 RS6000/570 LPAR's with Virtual I/O Servers (VIOS) running under Aix 5.3. Responsible for the day-to-day problem resolution, incident trouble-shooting and on-going project work for the AIX O/S, System Application Administration for Websphere, Oracle & TSM and HMC firmware connectivity & Micro-partitioning.

- Recovered from a Virtual I/O failure leading to a need to shutdown the entire CEC with 12 LPAR's and 2 Virtual I/O servers, synchronising mirrors & fsck the LPAR's, paying particular attention to the technical order of WebSphere/Oracle Server pairings and associated HACMP clusters with another CEC.
- Build 3 new (1 Acceptance Testing & 2 Production) LPAR's using micro-partitioning, with the O/S installation conducted via alt_rootvg_copy
- Performance Testing a Development Project subjective time differential whilst applying different LPAR CPU profiles. Debugging a DLPAR scenario leaving the Sandbox out of the CSM Managed Hosts scenario.
- Troubling network mbuf issues on a Production system.
- Managed Power Down of a Central Electronics Complex (rs6000-570) and associated tasks of orderly shutdown/start-up of 9 LPAR hosts to replace a sysplanar CPU working in parallel with the IBM engineer.
- Wrote many scripts designed to capture and data cleanse Java error logs: later as a Team of 3 ported over an in-house bespoke solution comprising of thousands of lines of WebSphere scripts onto another project.
- Multiple mkysb images across NFS using dsh on CSM Server
- Assigning virtual Disk i/o, aggregate virtual communication and micro-CPU distribution to 5 hosts
- Assisted with the recovery of middle-ware volume group data loss and subsequent re-build of MQ-series, WebSphere
- Monitored, identifies and applied the solution to memory issues affecting Java in a live Production environment
- 65 pages of Guide to Architecture and Manual for System Administration in Word 2000 and Wiki

Diplomata

- 1987 M.Sc. in Industrial Information Technology,
CESI, Evry, France
C, Pascal & dBase Programming; design & project management; finance & strategy; automatic & robotics systems
- 1976 P.G.C.E. (Science & Mathematics, Education),
Birmingham University
- 1972 B.Sc. in Chemistry, Specialised in Polymer Science,
Aston University

Professional Membership

- 2009 Associate Member
British institute for Learning & Development

Extra-Professional Training

- 2011 NLP Coaching Diploma Frank Daniels associates, Crick, UK
- 2010 Entrepreneurial Management – Management Studies
Combined Honours module
Newman University College, Birmingham
- 2009 Training Applied Performance (TAP)
Certified (BILD associate) Learning Foundation, Coventry.
- 2009 Parents & Anger Management HPS, Birmingham
- 2005 [AU54GB](#) HACMP 5.x System Administration I: Planning and Implementation,
- 2004 [AU70BGB](#) pSeries Logical Partitioning (LPAR) for AIX 5.2
AnIX Group, Yate, Bristol
- 2003 UNIX Administrator Certified Professional (Aix & Solaris 8)
1992 <http://www.brainbench.com/transcript.jsp?pid=25150>
- Advanced Programming in C,
Learning Tree International, Clichy
- 1991 AIX TCP/IP Communications, IBM, Sudbury

Interests

Fluent in French, some Portuguese, Greek & Dutch.
Aikido, Classical Guitar, computers, chess & sailing

References Available on request

Computer Experience

- Computers Sequent NUMA-Q, IBM RISC p5-595, 570, 550, 9117, [650 7038-6M2](#), S80, H70, 7026-H50, 7025-F50 SUN v240, Sparc [SF15K](#), SF6800, Enterprise 4500, 420R, 250, S2000, Fujitsu GPUS clone, Power5 HMC's at V5 R1
- O/S DYNIX ptx 4.4.6, 1.3.0, AIX 5.3, 5.2, 4.3.3.25, SunOS 5.9, 5.8, 5.7, 5.3.1, UNIX V 3.2.2, SCO 3.2r5.0.5 HP-UX 10.0.9.0, Digital UNIX 4.0b, 3.2g, Red Hat Linux 5.1
- Networks DNS, Ethernet, TCP/IP, sftp, NFS, NIS, ISBN, sshd, dsh
- Languages C, Pascal, Bourne & [Korn](#) shell.
- Software GNUemacs, vi, LATEX, Turbo Pascal & C, WebSphere Application Server (WAS) 5.1, WebSphere for MQ (WMQ) 5.3, Reflections CSM 1., eXclaim!, Verdex ADA, TeleUSE, Lotus Notes 3.0a, MS Word 97, 6.1, Excel 97, ALIAS, pCADAM, CATIA, CAEDS, AES, DCS2, Triton 6.1, UDMS, EMS, Mæstro II v3.0 & v4.0, CA Unicenter, Asset Centre 3.6, Aix NetView, HP OpenView, Service Desk 4.5
- Utilities [SE2.5.0.2](#), [VERITAS Volume Manager™](#), [sudo](#), rsync, samba, SMIT, SCCS, sar, X-windows, vi, MS-Project 3.0a, Exceed, Netscape 5.1, Opera 9.01, [Swish Flash™](#), Solstice NetWorker (Legato) 6.1.3, [Symantec Enterprise Security Manager™](#), [Solstice DiskSuite 4.2.1](#), Veritas Netbackup, Nagios
- PLC [DS8000](#), M48 SAN Fabric Switch Director, [IBM 2105-F20](#) (Shark) PB15, GE (series 1), SMS, Tellabs HDT, 3575 Tape Library, [ADIC Scalar 100](#), [StorEDGE A5200](#) & A1000
- Methods NLP, AMS, Grafcet, Gemma
- Clearance BC, SC (expiry date 22/10/2012), CTC, FSA vetted.