 **Graham Cann**

Macclesfield

Cheshire

Mobile 0757 7560010

E-mail Graham.Cann@MoorIT.biz

www.linkedin.com/in/GrahamCann4aws4san4nas

**SUMMARY**

* **SC Security Clearance, Certification: AWS Solutions Architect Associate, SNIA Certified SAN Storage Engineer. SCSE**
* **Skills:** AWS Certified , Terraform, Chef, Jenkins, Docker, Openshift & Kubernetes , Helm, Docker, Rancher, Artifactory, SaaS products AQUA, Vault, Consul, Jenkins Pipelines, Conjur, Black Duck, Sonatype Lifecycle (CLM), Checkmarx, Cloud-Formation, Code-Pipeline, Cloud-9,VPC, IAM, S3, EBS, ELB, EC2, ECR, Storage specialist , Replication. Programmer scripting in : Scala, Spark, Python 3, PERL, VB, SAS, Minikube, Vagrant. Manager and team Leader with Project management skills. , Microsoft Project , Extensive troubleshooting and problem determination skills, Familiar with ITIL change & problem management processes., Technical Documentation , Design of AWS, Training and mentoring team members, supplier management, Datacentre management, Outsourcing & Offshore Resourcing and management.
* **Training:** AWS Certified Architect Associate , AWS SysOps Administrator, AWS Developer, AWS Lambda, Scaling Docker on AWS , Kubernetes using Docker , Automation with Terraform , Big Data with Spark Streaming and Scala.

**Introduction**

I am an experienced Dev-Ops engineer and I have the following certifications: AWS Solutions Architect Associate and SNIA Certified Storage Engineer. I have setup AWS cloud-formation templates and modified stacks. I have designed and created Terraform scripts to create entire AWS application environments. I am experienced with Rancher V2 and Kubernetes running on AWS. Also I have experience with AWS security and vulnerability checking products such as Sonatype Lifecycle, Black Duck and AQUA docker Image scanning. I have created Terraform scripts that created an AWS Kubernetes environment running Rancher. I have also created Jenkins pipelines to deliver application into a dynamic environment. I have designed security for confidential data being placed into the cloud utilizing cloud HSM’s , key management and rotation using CMK’s. I have worked with Openshift using the V3 specific S2i features to deploy extremely large images. I am familiar with Docker and repositories such as Git, Nexus, Azure Devops and orchestration products such as Jenkins and Teamcity. I have also created Live and Development AWS environments for CI/CD processes. I have also analyzed data from streaming feeds using Scala and spark to process real time data. Controlled the release and integrity of Scala and python code using GIT , staged and committed code changes. I have managed teams at LCH Clearnet and TNT as a hands on team leader and storage specialist. I am also competent in designing and deploying SAN, NAS and AWS Cloud infrastructures I have worked with a number of Blue Chip financial organizations including Deutsche Bank, Lloyds, TNT, LCH Clearnet, HDS, HSBC , Barclays Bank , AIB ( Allied Irish Bank) , Aviva , EDS , Atos-Origin and EMC. I am familiar with the stringent requirements of change and problem management ( ITIL). I am an experienced programmer coding in a number of programming languages including: Perl, Python, Visual Basic, SAS. I have coded scripts a number of automation requirements which increased productivity and reduced errors. I have instigated and run a number of projects including capacity reporting, equipment upgrades, software upgrades, data migrations and new infrastructure requirements.

**Career History**

**2018-Janurary – August: Contract: JET2 Airline**

The contract involved setting up a cloud environment for the Development, Non Functional Test & Staging environments on a Rancher Kubernetes platform. I created Terraform scripts that created the AWS instances , security groups , load balancers , target groups , subnets , route tables etc. The Terraform code then uses a template to add IP addresses and start up RKE (rancher Kubernetes Environment) which creates the Kubernetes environment on the aws instances. I instigated an upgrade program to upgrade Rancher, Docker, Kubernetes and Rancher OS on the current environments as the versions in use were becoming out of support. I upgraded the Rancher environment creating an upgrade plan for release management detailing the upgrade path and backout plans. Successfully upgraded the rancher OS environment , and then upgraded the rancher v2.0.8 to a helm chart version v2.2.3 for the current on premises environment. Created POC environments for Conjur and Vault secrets management products and reported on the best product for the JET2 applications. Supported the live airline search applications implementing releases and simplifying the process by converting it into a Jenkins pipeline. Also supported application test team helping them with Dockerfile queries and deployment processes into an Azure repo. Created a patching process with bash scripts to allow operations to cordon and drain the live Rancher environment nodes in order to apply patches to the hyper-V virtualization layer. Set up a test environment for a security scanning application called AQUA which checks for software vulnerabilities and enforces deployment rules. Designed a Jenkins pipeline that connects to AQUA to check image status and alerts. If the image shows as alerting in AQUA the deployment is halted. Deployed Hashi-Corps Consul onto AWS , created Rancher storage groups and PV volumes. Created a process for adding PV (persistent Storage Volumes) to AWS / Rancher , including attaching EBS volumes and associating the correct path. The task management process is via the Azure Devops product which is similar to Jira / Kanban boards. Created a Jenkins pipeline running Python to collect data from AQUA and unit test results and add the results to the pull request , allowing release management to check on release status. Added a template to the Azue Devops git repos to enforce approver rules and trace back to tasks. Setup a Jenkins pipeline to run AWS CLI commands to setup Route53 entries for new applications being deployed. This is part of a dynamic test environment that can be used to spin up an application in a Kubernetes namespace which will be deleted after use. I have provided assistance in the design of the AWS cloud environment to provide a secure environment with encryption and key management when required. I designed and setup the Bastion environment using a CIS level 1 hardened Bastion server , in an auto scaling group providing resilience , with a service plan that applies patches in the early hours of Sunday morning as most users are UK based. I also created initial scripts that load scripts in from s3 that setup user names and public keys. The public keys are stored in Vault as a secondary security measure. All network traffic is restricted to JET2 firewall addresses and I am in the process of setting up a VPN to attach to the VPC.

**2018-September – December: Contract: ZAIZI Consultancy London**

Using Cloudformation to create code pipelines that create an entire environment. Created Lambda functions to alter the input to a code pipeline. Coded Cloudformation templates to create RDS database instances and modify Database parameter groups. Generated AMI’s for ECS instances incorporating encryption and SYSDIG monitoring components. Added bootstrap scripts in order to mount file systems and update configuration files for the ECS docker containers. Installed SYSDIG performance monitor and setup performance alerting and notifications via Pagerduty. Coded Codebuild steps that validated the application configuration as part of the code pipeline. Created Cloudformation scripts that created VPN peering connections between multiple VPC and a management VPC used for monitoring and the main Bastion server used for SSH connections to the service applications. Built docker images for the application environment pushing these to ECR for use in ECS containers. All Cloudformation scripts are in GIT repositories for version control. Setup AWS Cognito to provide authentication for application access. Created CF code to create S3 buckets and security policies to allow the ALB’s to log data into S3 buckets. Created cloudwatch triggers to run pipelines overnight. Coded CF scripts to setup Cloudtrail. Troubleshooting performance and application problems. The remit was to re-creat the entire environment , production, pre-production, UAT and Integration from CF scripts in order to provide resilience if the environment was compromised. Updates to each environment are via CodePipeline triggered by updating the source.

**2018-May – August: Contract: Greensill Capital AWS Architect / Terraform Engineer**

Created the terraform scripts to setup a Rancher Kubernetes high availability environment running on AWS EC2 instances. I created Terraform scripts to create the following AWS infrastructure : Three subnets one in each availability zone , a route table including an internet gateway and virtual gateway, three EC2 instances one attached to each subnet , a security group with ingress for all ports in the same security group , added the external IP addresses for the newly created instances to access the cluster, an Application load balancer and listeners , Target group added the created instances, Route 53 A record for access to the application, Altered the version of Docker on the instances via remote exec , used a TF template to create a YAML RKE file used to setup the kubernetes environment , inserted the IP addresses of the newly created instances , created a self signed certificate and private key via Terraform converted them to Base64 and inserted them into the RKE YAML file. Setup a Jenkins pipeline that would run the above terraform scripts , first a terraform init to setup the environment , a user input step to provide the AWS access keys , the terraform step to create the environment , then the RKE step to execute the built YAML file that would create the Kubernetes and Rancher environment. The Terraform AWS environment was created using a Variables section so that a new environment could easily be setup. Created a Jenkins pipeline to deploy a standard set of applications (Prometheus , Rabbit-MQ , syslog ) onto a cluster in the environment. The setup process was documented with diagrams of the infrastructure , how to run the setup , trouble shooting commands and web document links. I also created a guide and Jenkins pipeline to create the Rancher V2 environment running on Docker and Minikube , which is kubernetes for a PC/laptop so that developers can run and develop applications before deploying them into the main Development environment. I also setup a windows server AWS instance and installed Gatling a performance test tool and used this to measure the throughput of data into the Rancher environment for a test application. Version control of the terraform scripts was by git utilizing a bitbucket repository. Feature branches were created from Jira stories . The documentation was stored in confluence. Liaised with rancher support and troubleshot numerous issues to provide a stable Rancher environment.

**2018-January – March: Contract: The Met Office AWS Architect / Engineer**

I was brought into a newly formed AWS cloud team to provide expertise on Dev/Ops tools and AWS design and security management. Initially I interviewed teams using the AWS cloud to forma a basis for best practices. I then created a report on the Dev/Ops tool set used by teams and created a standard set of tools to be used for new application. I also recommended the inclusion of SaaS tools Checkmarx and Black Duck vulnerability scanning software in order to improve code security. The idea is to reduce the number of Dev/Ops tools in use and provide secure deployment of code into productions environments. I have setup code pipelines within Jenkins and AWS code pipeline, setup serverless lambda functions, created Python scripts utilizing AWS cloud9 and aided in the setup of automated ECS environments for Docker containers. Created cloud-formation templates to setup ECS environment. Discussed the requirements for a pipeline with the development team and built a Jenkins pipelines triggered from GitHub to build and deliver an application into ECS. Setup a development pipeline to deliver an application into the Fargate environment to test deployments into this new environment. Constructed cloudformation templates to setup AWS environments for developers creating VPC’s,ELB’s,ECS clusters,ECR repo’s,S3 buckets,IAM policies.

**2017-November – December: Contract: Deutsche Bank London Openshift Engineer**

I created a design document with a phased approach to move the dev/ops environment from a semi manual process to a fully automated environment. Using Ansible to control a fully integrated environment with plugins for service-now change control and Cyberark for security the end resulted in a deployment into the selected Openshift environment.

I worked with the Deutsche Bank team in Carey USA to provide a solution to deploying large images quickly. Using Openshift V3 to create (S2i) Source to image code to deliver an environment for an IBM filenet service with installation files on a PV (Persistent Volume) reducing the image size from 16GB to 2GB. This allowed fast deployment of user tailored images for testing. I created a builder image which attached a PV volume and downloaded the zipped install files for Filenet and Websphere. Created a Dockerfile to add the relevant accounts and directories and load the assemble script. The assemble S2i script then runs the install for Filenet on a base image with the majority of the files on the PV volume. This reduced the size of the image to a more manageable level.

**2017-June – October 2017 Contract Barclays Bank Knutsford AWS Security Engineer**

I created a security design for moving data from a Cloudera Hadoop cluster to and AWS EMR Hadoop cluster. The environment is to be used to process data classified as confidential and therefore requires data encryption and secure key management outside of KMS. The current version of KMS does not meet the banks standards for key protection. The design utilizes cloud HSM modules to store the keys for the data encryption. The data is encrypted with a daily key which is itself encrypted by a master key held within an Cloud HSM. The daily key limits any data exposure to a single day if the key is broken. The credentials to access the HSM are held within another onsite HSM on Barclays premises. The AWS environment is within a non shared VPC , using chef scripts to generate EC2 images with encryption via Vormetric EBS encryption software. Access is controlled by a bastion server in line with NCSC (National Cyber Security Centre) guidelines.

I also created a design for the implementation of the Sonatype lifecycle application which checks for open-source code vulnerabilities. I conducted a number of meeting with the supplier to determine the optimum configuration and operating environment for the product. I also arranged a product demonstration for the team I was working with and training courses for the future product administrators. The design document encompassed two designs. The primary design was for an onsite VMWare solution for fast setup. The second design was for an AWS cloud design covering the implementation, disaster recovery and high availability using EC2 instances ELB load balancers, EBS storage for reporting, snapshots for backup and recovery, multi-availability zone configuration. I was working with the project manager and the Sonatype technical support team to provide a secure and expandable environment. I also worked with applications teams to add Checkmarx into code pipelines run via Jenkins. I also instigated a program of training for development teams to introduce both products and ensure they were used within IDE’s (Eclipse and Inteli-J) and introduced as standard into pipeline code.

**2017-January – February 2017 Contract Barclaycard Knutsford Openshift Engineer**

The role involved setting up an Apaas (Application as a service) using Openshift and Kubernetes to run Jenkins code pipelines. The pipeline is defined by a series of Groovy code segments that can be called to allocate the resources required. I documented the installation process for a local virtualbox environment used for local Openshift/Jenkins testing. Aided permanent staff with the setup of Openshift and Jenkins pipeline problems. Installed Openshift plugins for email and http notifications and setup a local environment to test the notification process. Streamlined the environment removing in stream passwords and keys and moving sensitive data into secrets. Consolidated groovy steps code removing extraneous code and adding comments. Using GIT/Bitbucket for version control local and remote repositories forking and cloning repositories also Docker containers and registries. Using code and applications stored in Nexus. Created documents regarding the setup of the environment in Confluence. Tracked work item using JIRA board tickets. Familiar with Vagrant and Terraform products for creating environments.

MoorIT: I have also used the AWS ECR container services to deploy Docker images within a cluster backed by EC2 container instances. I am conversant with the AWS CLI for deploying EC2 instances , setting up ECR clusters and services. I have used Docker and Docker compose to create containers for Rails/Ruby,postgress,redis,mysql,nginx.

**2015-July – December 2016 Contract Lloyds Bank Leeds Consultant**

MoorIT: I continued to enhance my AWS skills from TNT and studied for the AWS certified solutions architect exam which I passed at the beginning of September 2016. I have setup ELB servers to load balance across availability zones so that additional instances were activated when the CPU reached a threshold value. I have also setup Route 53 to balance workloads over multiple regions. I have setup S3 buckets and loaded data into the bucket for mounting on an EC2 instance for data transfer. I am familiar with setting up IAM to control access to resources. Also I have created VPC’s created route tables attached Internet gateways , setup a NAT instance to create a DMZ zone so that data base instances are isolated from the web facing applications. I have created the routing tables and routes so that only traffic from the internal IP of the app server is routed to the database server. Setup CloudWatch to monitor EC2 instances performance and created billing alarm notifications. Also I am conversant with Docker to containerize applications and register the image.

I have used CHEF and Terraform to configure Linux EC2 instances installing apache and html pages. I have also used GIT to control program updates and modification for Perl , Python and Scala updates. I am familiar with the Chef client running on a windows work station connected to an EC2 AMI with preinstalled chef. Programmed data analysis for streamed data feeds using Scala and Spark.

Created a Perl program to semi-automate the process of moving a series of server chassis from one data centre to a secondary data centre. The program first generated a command to list of the contents of the storage array and via the HI-command CLI loaded the information into a list structure which would be used to lookup the required LUN information. Data from a spreadsheet saved in CSV format created from each server on the chassis is used to lookup the required LUN information. The program then creates all the commands to allocate and replicate the data. The script automated the process of allocating and setting up true-copy pairs for thousands of LDEVs which reduced the time to complete the migrations. Conducted the migration of the pre-production servers data to a secondary data centre using True-Copy and HUR. This involved Windows , LINUX & AIX servers which were being relocated.

I also created an EXCEL VB macro which automated the process of connecting servers to the SAN storage. The VB macro read an input spreadsheet from the server teams and created the Alias and Zoning commands that could be executed from a putty session on the SAN switches. The VB macro reduce the complexity of creating the 16 commands used to connect a server cluster to the SAN storage.

One other migration method considered was to use HDS NDM. I created a test plan for the NDM (Non-Disruptive Migration) product to cover the implementation process. Setup and executed the Perl migration scripts migrating individual servers as part of an AIX VIOS setup to prove the process. Wrote a guide on how to run the scripts to migrate hosts between arrays and how to edit the control files to exclude LDEV’s not required.. Also working on a second storage migration project moving data between arrays in order to consolidate the server farm. The migration is a combination of methods such as: True-Copy , NDM and host based data copying. The migration is from a series of VSP arrays to a set of G1000 arrays.

**2014-June – June 2015 Contract TNT SAN/NAS / Mainframe Storage Consultant Team Leader Atherstone**

Team leader of the SAN and Mainframe storage team for TNT spanning Europe & Asia. I have setup a dev/test AWS environment, creating VPC’s with an EC2 Linux and Windows instances. Also I have setup a web server using EBS storage and S3 buckets. Created a dynamo-DB database. Configured the Database in a DMZ isolated network configuration. Setup routing tables to divert traffic through the public IP connected web server via an internet gateway. Configured ELB Elastic Load Balancer across multiple availability zones for continuous availability. Added an auto-scaling group and monitored the performance via cloud-watch. Established IAM security, created user ID’s and groups such as Administrator, Billing Access and assigned policies to the groups. Created scripts to create the environments for the auto scaling servers to run.

I have hands on experience, installing equipment and setting up the environment from both a hardware and software perspective. Coordinated and installed a new DR HUSVM array at the Sunguard DR Hounslow site to replace the aging infrastructure currently in place. This required a considerable amount of tenacity to overcome the numerous problems including equipment site delivery, Sunguard installation requirements (Cabling , power & Cooling) engineering support and in house support. Designed and setup the journal and consistency groups. Setup the links between the two sites and created the HORCM files and setup pairs for an imminent DR test. Created scripts to collect statistics on the inter site DWDM links to ensure that there was sufficient capacity on the links to facilitate the new HUSVM traffic. Proposed a business case for the purchase of BNA (Brocade Network Analyzer) to manage the SAN. Installed and configured BNA to highlight SAN problems and to manage the SAN's from central point. BNA allows the storage team to identify potential problems before they become incidents and to correct the situation before there is a service outage.

Reviewed the SAN security and removed default passwords and strengthened existing passwords to prevent security breaches. Managed the transfer of knowledge to the HP outsourcing staff. Undertook briefing sessions on the global environment for the HP personnel.

Created an upgrade plan which would allow the removal of old storage arrays and the migration of data to a new set of HUSVM arrays engaging the supplier and support teams. Arranged capacity upgrades to the HUSVM, USPV, P9500 and XP24000 arrays to maintain growth capacity. Also arranged AMS upgrades in Singapore.Setup a capacity planning process to show growth a predict upgrade points. Created a simplified colour coded system for management presentations. Contributed to the design of a new Netbackup system for the Atherstone DC. Ordered the equipment and installed the servers and DAS storage units for the MSDP de-dupe pools. The DAS solution was 10 times cheaper than using HUSVM storage. Upgraded the Quantum 700 virtual tape devices with 32TB of new capacity to cater for growth and the new Netbackup system. Organised a program to remove old tapes from the silo's and replace them with newer cartridges to reduce errors and the risk of data loss. Setup project to replace the older LTO3 & 4 tape drives with faster high capacity LTO6 drives. Also consolidating the fragmented environment into a single tape pool with 16 units rather that many small pools. This reduces the impact of a failed drive and allows greater throughput as more units can be utilized by each media server. Produced a Netbackup capacity plan which indicates current utilization against the terra byte capacity license for audit purposes. Created a training plan for the graduate intern to give them a good foundation in storage management. Completed a very successful DR test at the end of April 2015 , where , all of the required service were recovered and tested within the recovery time objectives. The previous test had not been successful and I conducted a series of improvements to rectify the problems from the previous test. The success was due to overhauling the Netbackup environment and upgrading it so that AIR replication could be established.

**2012-November -May 2014 Contract LCH Clearnet Team Leader SAN Storage London**

Manager of the SAN storage team. Coordinating a team in London and an offshore team in Bangalore. Managed and implemented a successful san migration from a collection of older brocade switches onto 8510-8 switches without any service impact. The migration occurred at two sites and included 368 physical servers , VSP array, Hnas file servers, Symantec Appliances and tape library. Performed troubleshooting and data analysis on a 3DC VSP environment to determine the performance bottlenecks and provide solutions to reduce the response times for demanding customers. Setup remote command devices in order to reduce the latency time for HUR replication in a 3 DC setup. Implemented HDR to complete the 3dc triangle. Organized the storage upgrade of two live VSP's to meet the growth requirements for 2014.

Liaised with Symantec & Company 85 as part of the outreach program to upgrade the 5020 de-duplication cluster with two new 5020's. Arranged the build of two new media server to take up the workload while the main cluster was offline and being upgraded for 8 days. Setting up capacity planning and forecasting of data growth and automating the process via Perl scripts using the HCS CLI.I have created the LCH company backup policy which has to be EMIR compliant and also meets the LCH customer requirements for data retention. Organizing and implementing storage upgrades to the HDS VSP arrays. Adding new tiers to the dynamic tiering pools. Designing a storage plan for future improvements to storage allocation and the use of modular arrays to provide dynamic low cost solutions for storage. Problem tracking and resolution with suppliers, organizing vendor meeting to direct problem resolution. Reporting to business representatives on progress. Working with vendors to setup and implement a three data centre DR solution using HUR replication to a data centre in Paris. Organizing and planning the installation of a new backup system utilizing Symantec backup 5220 appliances and Netbackup v7. Creating storage solutions for business problems and demands .Implementing a data migration from XP1200 to VSP and from Netapp NAS filers to HDS HNAS. Troubleshooting HNAS problems and tracking progress with vendors. Designing a new SAN switch fabric to replace the current SAN. Meeting with CISCO & Brocade to discuss hardware and possible options and configurations. Creating high level design and cost and resource documents for purchase order approval. Troubleshoot FC port issues and cable problems. Designed a database refresh process using Shadow Image (BCV) copies to refresh pre production and testing databases from the production databases without impact to the production DB performance. The refresh process completes in a sixth of the time taken for a tape restore from Netbackup. Attend change board meetings to support storage changes and discuss risks and the impact.

**2012-August -November 2012 HDS Contract at Allied Irish Bank Dublin**

Conducted a data migration from EMC DMX & Clariion and HP EVA 5K & 8K arrays on a McData IK10 fabric onto HDS USPV arrays on a brocade DCX fabric. Added input to the migration plan for the server platforms and worked with the server teams to migrate the data , both host based data copies and array base migration via lun virtualization on the HDS VSP's. Provided on site support during the weekend migrations. Setup and tested the replication using truecopy. Created Pearl scripts to collect information from the Clarion & DMX arrays for the migration using Naviseccli & symcli. Using SYMCLI created LDEV's Mapped & Masked them to hosts. Setup SRDF replication and RDF groups. Also created Perl scripts to build the virtualization storage groups and add the luns to it in a certain order. Coded a Pearl script to check on the symetrix RDF status and build RDF groups to split the pairs before the migration. Using HDS Storage Navigator provisioned LUN's , created host groups and established True-copy replication for servers. Virtualized DMX LUN's on the VSP. Created LSAN's to connect devices on the old fabric to the new DCX fabric. Setup Zones Aliases etc for the new Zoneset. Provided troubleshooting skills to diagnose faults and correct problem situations. Provided on site weekend support to migrate the data and ensure the services were running normally.

**2011-July -July 2012 Barclays Bank Contract**

Planned and implemented a data migration of 694 disks from a DS8000-300 to a DS8000-800. Created a migration plan and change records. Loaded data from the DS800's into an Excel spreadsheet and coded VB macros to create the commands setup the disks , Remove the disks from the replication systems and the commands to migrate the data.

Also investigated capacity and performance issues on the SAN and the Mainframe environment. The fabrics I am working on are Brocade directors and switches of which some are segregated into virtual switches to separate live and test environments. The storage arrays I am using at this site are a mixture of HDS USP & USPV’s , IBM XIV’s & EMC VMAX. The storage is also virtualized behind IBM SVC controllers. Tracking down problems involved using the Brocade switch performance data , HDS performance stats and IBM’s TPC performance tool to analyze the utilization of components , buffer credits , and front end / back end disk performance.

Traced several performance problems on a large VMware farm which was experiencing poor performance. Documented the layout and the areas of concern for the managing team and presented options for improving the performance of the SAN.

On the Mainframe platform created SAS code to collect the disk capacity data from the mainframe systems to provide both Capacity and Charging data. . Created Perl code on a collection Windows server to match up the datasets on the mainframe to a charging code from SM7 (configuration / Change / Problem database). Created VB Excel macros to automate the creation of the capacity planning graphs. Created VB code to generate charging spreadsheets for charging departments for the allocated disk space.

Setup the environment for RMFMAGIC that collects mainframe stats for the DS8000 storage devices. Created a new script and consolidated the SYSPLEX’s into one database for ease of monitoring. Produced reports on the current performance of the attached IBM-DS8000 devices. Worked with IBM to provide a plan to consolidated small devices onto larger devices and when moving the DR site to another location.

**2011-May – July Atos Origin Contract**

This was a SAN Administrator role provisioning storage on Brocade SAN’s and HDS-AMS storage devices. Conducted the storage migration from a SUN T3 to the new AMS storage with out problems. The T3 was to be decommissioned , therefore , undertook a series of checks to ensure that the T3 was no-longer being used and ports on the san were not active. Installed and setup Netbackup V7 , Master and media servers , for VMware VCB backups , SQL server clusters , Standard backups. Tested and troubleshot the environment as fire wall rules proved problematic. Setup and zoned the storage and ADIC tape unit for the Netbackup environment. Created documentation detailing how the environment was setup.

**2010-May -2011 April Barclays Bank Contract**

SAN Administrator , providing the day to day support for 5 sites around the UK. Using EFCM/DFCM and Brocade directors & switches. Allocating storage on , HDS USP & AMS arrays , EMC DMX & VMAX arrays and IBM XIV and SCV. Troubleshooting problems and providing storage to multi-platform hosts. UNIX , Windows, LINUX, VMware & Solaris. Setting up Zones. Setting up remote replication using DRS ,and HDS HUR Universal replicator. Creation of LUSE volumes across raid groups for sizable allocations. Troubleshooting day to day performance problems. Created Vmax thin pools & VDEV's. Setting up Port Groups , Initiator Groups , Storage Groups & Masking Views via SMC and CLI symaccess commands. Organizing cabling of enclosures and individual servers. Setting up NPIV on the embedded enclosure switches. The setup of ports on Brocade virtual switches , moving ports from the default switch to the live or test virtual switches via the CLI. The setup of changes to cover the allocation and zoning work following ITIL processes. Scripting in Perl & Rexx to improve the efficiency of SAN allocations.

**2010-April -May Hewit Packard at BT site Sheffield**

Designed and delivered a training course on EMC Clariion & Symmetrix storage arrays so that staff trained in Netapp devices could administer the Clariion storage devices. Provided practical tests and demonstrations for the trainees. Demonstrated Navisphere and the navicli interface for batch scripting. Setup a new server with and without the Navisphere agent. Discussed the types of raid support and the setup of raid groups from scratch. Setup mirrorview and snapshots. Provided support for the day to day running and administration of the CISCO & Brocade SAN's located around the UK.

**2009-October -December 2009 HDS Hitachi Data Systems Contract**

**2009-April -June 2009 Vmware Training Moor I.T. Service Ltd**

**2008-December-April 2009 SAN Specialist First Data International Contract**

**2008-October Training Courses: SNIA Storage Network Management & Administration , VMWare Infrastructure 3: Install & Configure v3.5**

**2008-September 2 weeks Charity work in Africa Malawi**

**2008-April-August SAN Specialist Norwich Union Contract**

**2008-Feb-April SAN & NAS Storage Specialist: EMC Contract**

**2007-June-December SAN Storage Specialist AtosOrigin Nottingham-Contract**

**2007-September 3 weeks Charity work in Africa Malawi & Mozambique.**

**2007-Jan-April SAN Storage Administrator Norwich Union -Contract**

**2006-July-Jan 2007 SAN Storage Administrator EDS – Contract**

**2006-May Charity work in Africa Malawi & Mozambique.**

**2005-October-March 2006 SAN Storage Administrator Norwich Union -Contract**

**2005-April-August Storage Administrator Mercer HR Consulting Ltd -Contract**

**2005 Jan-Feb Charity Work in India Hyderabad & Vishakhapatnam**

**2003-Nov-2004 Manager of the Cross Platform Storage Team*, HSBC***

**2000-2003 Mainframe Team Leader Production Support Team*, HSBC***

**1996-2000 Mainframe Senior Systems Programmer*, HSBC***

**1993-1996 Mainframe Systems Programmer**

**1986-1993 Mainframe Performance Specialist & SAS Programmer*, Midland Bank***

**1983-1986 Mainframe Production Control Operator*, Midland Bank***

**EDUCATION & Training**

Symmetrix Foundations – 10/2000 – EMC,Clariion Foundations 10/2000,SRDF Foundations 11/2000, Powerpath Foundations 11/2000, ECC Foundations 12/2000, Managing Remote Teams – 02/2004, NAS Topology – 03/2004 -EMC, Using SAN's and NAS – 03/2004, NAS Foundations – 03/2004 – EMC,

Basic Network Environment – 02/2004 EMC, Celerra CFS-14 Architectural Overview- 03/2004

Celerra CNS-14 Architectural Overview- 03/2004, Celerra Features and Functionality- 03/2004

Celerra Fundamentals – 03/2004, Mirrorview & SANcopy 03/2004

SNAPview Foundations 03/2004, Visual SAN & Visual SRM Foundations 03/2004

SAS Base Certification 11/2004

Timefinder Foundations 10/2004

Centera Foundations 10/2004

Windows Server 2003 09/2005

HDS Lightening 9980's 10/2006

HDS Storage Navigator 09/2006

VMware Server 04/2007

VMWare Infrastructure 3: Install & Configure v3.5 10/2008

SNIA Certification SCSP & SCSE 10/2008

Cloud Datacenter solutions 06/2016

AWS Certified Solutions Architect Associate 06/2016

AWS Lambda 09/2016