Homesearch - An Ubertas Consulting AWS Migration Case Study

The Challenge

The front-end applications were hosted on bare-metal and are served using Nginx reverse proxy. The user pool had been rapidly increasing and the existing infrastructure could not support the growth in demand; the primary challenge was that they were unable to scale and manage their existing infrastructure.

In order to maintain competitive-edge with the most up-to-date information for their clients, significant data builds were required that would, in some cases, take up to two months to complete, representing a significant lag for data builds on which all applications depend. In addition to this, all back-end applications were using a single database as source, resulting in a high amount of replicated data and as a result compromised data consistency and accuracy; which feeds low efficiency and high cost.

Homesearch were also suffering from the lack of controls and governance around user access and data accessibility, with most of the resources in UK servers managed manually; which meant staff had access to production environment, and in addition were using it has a development platform, operating out of line with best practice and representing a business continuity risk.

Their private cloud infrastructure held 46TB of data in block storage which regularly had storage issues that required a high level of manual archiving and processing to relieve capacity, and to maintain operations. Due to the size of their data, backups were sizeable and the process to recover or restore data in a disaster recovery situation would have been extremely complex and lengthy; a risk the new technology leadership team wanted addressing as a priority.

The Solution

Following an initial review of the Homesearch on-premises and private Cloud environments, Ubertas Consulting and Homeseach worked closely to articulate the business benefits of migrating their workloads to Amazon Web Services (AWS). Ubertas Consulting were able to get Homesearch access to AWS's Migration Accelerator Program (MAP), a proven migration methodology for Cloud adoption, supplemented with AWS funding and discount initiatives. The project delivery was a collaborative effort between the Ubertas Consulting and Homesearch teams.

In order to satisfy the rapidly growing number of users front-end applications were migrated to S3 buckets, and served with CloudFront for optimal performance. All associated back-end services were containerised, and migrated to ECS.

As part of the project all databases, applications and scripts that need to be migrated to improve Database performance were moved to the AWS Cloud. Front-end application data was migrated to OpenSearch and optimised search performance by 98%. All the applications have been containerised and migrated to ECS.

To speed up development and automate deployments the Ubertas Consulting Basecamp was deployed. Alongside Basecamp Jenkins controller, Jenkins Agents were configured and deployed to run on ECS Fargate. To deploy all necessary infrastructure, Terraform (IaC – Infrastructure as Code) was utilised Everything from UK Block Storage was migrated using DataSync to S3.

Backups were automated with different AWS Backup plans – and it was recommended by Ubertas Consulting that game days be sued to test out recovery of those resources.

Homesearch.

About Homesearch

Homesearch are a leading provider of property data and insights in the United Kingdom, with the most comprehensive information database of both residential and commercial property anywhere in the country.

They collect, process, and analyse vast quantities of data, which drives a toolset that enables Estate Agents nationally to access a complete set of data for all properties in the UK, regardless of whether they are currently on the market or not, and leverage this information to generate leads, instructions and inform valuations.

The Benefits

MA validated best-practice implementation based upon the principles of the AWS Well-Architected Framework. Other benefits delivered through the migration and modernisation project include:

- Improved front-end scalability without performance limitations, which can scale with customer demand offering a highly available service
- Unlimited block storage reducing manual intervention and providing suitable capacity for data operations.
- Elasticsearch implementation resulting in search performance boost by 98%
- Fully automated deployments optimising the production pipeline and workforce efficiency
- Applications are containerised and more scalable, enabling scaling of services on-demand delivering cost optimisation and software development agility
- Networking is more simplified reducing management overhead
- Security posture has been increased mitigating business risks of data breach and system integrity
- Reduce RPO/RTO from weeks to hours
- Optimised Data Build so the process would take less than six (6) weeks, providing a vastly reduced lead-time for applications, as well as improved business value

Using proven migration methodologies and patterns coupled with a structured application of the principles of AWS Well-Architected, Homesearch are now well-placed to operate at optimal efficiency whilst continuing to evolve and scale their solutions.

Details of the MAP Migration

This section sets out detail of the migrations undertaken by Ubertas Consulting as part of the MAP engagement with Homesearch.

Migration Summary

The project carried out by Ubertas Consulting involved the migration from MSP-operated physical infrastructure to AWS EC2 and AWS ECS Fargate.

The engagement also included the modernization of the application (PHP) through containerization to leverage AWS ECS Fargate, and replacement of the use of file-system references in the application code with S3 API calls. Ubertas Consulting containerized their applications as part of the migration process.

Legacy batch processing and scraping workloads which could not be modernised through containerisation were split where possible to enable the smallest possible portions of these workloads to run on AWS EC2 with the remainder running on Fargate.

> " The completion of the migration project freed up our organisation to work with greater agility and reduced several overbearing constraints that were attributed to our initial on-premise solution.
>
> Adopting AWS as our Cloud-first approach for delivering both products mission-critical services meant that we saw a huge reduction in time-to-live both in application development but our overall offering. We now have much greater insights into our costed figures with cloud spend that we simply did previously did not have. This allows us to correctly assess our product pricing and in turn, adjust accordingly achieving greater retention and lower operating costs.
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> Ubertas Consulting is without a doubt seen as an extension of our team here at Homesearch as well as being trusted advisors who can be counted upon when making critical decisions that affect the entire operating model of the business. "

Michael Gray
CTO at Homesearch

Technical details of the MAP Migration Project

- Migrated 200 Million objects / 80TB from on-premises file-systems to AWS S3 using AWS DataSync.
- Used AWS DMS with Change-Data-Capture (CDC) to migrate, modernize, and keep synchronized multiple highly transactional self-managed MySQL instances to AWS RDS MySQL and AWS RDS Aurora.
- Migration of self-managed OpenSearch to AWS OpenSearch through a full rebuild sourced from the DMS-migrated MySQL data.
- Migration of customer-facing web-application to AWS ECS Fargate using a blue-green deployment and DNS switch-over, leveraging all of the above migrated data sources; the combination of the above yielded a 98% reduction in response time to the end-customer from 99 seconds per property search to 1.8 seconds per search.

Migrate to AWS with confidence

The AWS Migration Acceleration Program (MAP) provides a clear roadmap to migrate and modernise workloads to operate in the Cloud. Ubertas Consulting provides a free-of-charge Migration Discovery solution which builds out migration options for an organisation.

Ubertas Consulting provides a migration assessment for an organisation at no cost, so they are able to understand how AWS can support their migration journey and eligibility for the AWS Migration Acceleration Program.

The Migration Discovery looks at your current state, defines the future target state, and plans the path to make full use of the AWS Migration Acceleration Program; 100% funded by Ubertas Consulting.

Why Ubertas Consulting

Ubertas Consulting is a Cloud consultancy specializing in Amazon Web Services. As an Advanced Focus Partner, AWS Migration Partner, AWS Channel Reseller (Solution Provider Program) and Well-Architected Framework Program Partner our mission is to transform the way organisations modernise using AWS. We assist companies drive innovation and build new capabilities through embracing "Cloud Native" technologies and modernising with Amazon Web Services (AWS).

To find out more about how Ubertas Consulting can help you take your next steps to migrating to AWS with confidence visit us at www.ubertasconsulting.com or contact us at info@ubertasconsulting.com.

We're here to help.