

## Case Study: Data lake implementation using Azure

Harrington Starr Technology Consulting is formed of technologists who are proven experts in their fields delivering world class projects across financial services. Our leadership team consists of a CTO who has risen through the ranks from development and also a recognised test expert in finance. We are experts in innovative Agile Transformation for our clients bringing a wealth of benefits such as hugely reducing time to market and exceeding stakeholder expectation.



## Business Key Points

The company at a Glance:

**INDUSTRY:** Financial Services – Asset Manager

**EMPLOYEES:** 1,500 employees

**HEADQUARTERS:** London

### KEY POINTS:

- Unique culture that stands out from the crowd – a supportive environment that encourages innovation and creativity
- One of Europe's leading investment management firms

## The Problem

Our client had an inability to effectively use the data relating to their trading activities, and as such, the strategic decision was made to solve this problem by creating a data lake in the cloud. They were aware of an obvious skills and knowledge gap in their organisation, and as a result engaged with Harrington Starr Technology Consulting to aid them with realising their plans.

The implementation of a new trading platform acted as an umbrella, under which various cloud initiatives were able to be realised.

These included:

- A new data lake hosted in Azure
- Virtualisation of environments
- Breaking down the codebase from a monolithic code structure to a microservices approach
- Breaking down architecture as small as possible

While the implementation project is ongoing (further case studies to be made available after implementation) this case study focuses on the data lake aspect which is near completion.

## Organisational Challenges

### Key Challenges

- Lack of business engagement
- Need to improve the quality and process through automation
- Need to deliver more with fewer resources
- Need for cost saving – choosing the right consumption plan
- Educating existing staff in new technology whilst continuing with new projects and BAU
- No enterprise architectural direction coupled with the use of cutting edge technologies meant our expertise was heavily relied on
- Deployment of applications was complex due to a reliance on teams who's code was not ready for production therefore careful branching was required to mitigate risk
- Mindset shift required to overcome security concerns
- The precise level of benefit to the business was unknown



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## Our Approach

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### Architectural decisions

We suggested the use of Azure Cosmos DB due to its global distribution and ability to handle heavy data processing and scalability.

We also suggested using serverless Azure functions, which further increase developer productivity by removing the need to provision, maintain and manage servers. This in turn reduced cost.

We recommended the use of Logic Apps to simplify communication between on-premise and cloud. Logic Apps also helped to connect to other data sources.

As Apigee was the favoured proxy, we configured it to be the conduit for the APIs between on-premise, cloud and external consumers. Apigee provides various visualisation tools that offer an overall view of the entire API program as required. Apigee also allowed us to build a robust, scalable, secure and flexible development and deployment microservices environment.

We advised using application insights for logging, and integrated it with the OMS (Operation Management Suite) to create alerts for issues and tracking. Application insights and the OMS enabled us to centralise the health monitoring of applications.

### Operational Considerations

A mixture of Scrum and Kanban was used. All ceremonies were adhered, with the emphasis of being on point with daily stand-ups and learning from retrospectives. A developer forum was created to update the wider tech team as moving to Azure was a new initiative for the whole group. One delegate from each team would give updates on the tech spec, lessons learned and key milestones achieved.

Source data was extracted from the trading platform using Azure functions and placed in an Azure Data Lake to store, cleanse, refine and enrich the data. Data is then made available to be used for modelling, reporting and to populate the executive dashboards as needed.

The aim was for Continuous Integration and Continuous Deployment, to begin with weekly deployments moving to more frequently as required. There were many people to convince of our approach, and as such the initial implementation was faced with resistance. However, through the use of training sessions we were able to clearly and concisely demonstrate the benefits, allaying their worries and winning them over to a new way of working. As we broke down the code repository into smaller pieces for individual projects, we were able to automate along the way - this is always part of our mission, and this was greatly appreciated by the stakeholders.

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## Improvements Made

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- Reduction in Costs – costs were initially high as the usage was consumption based, and adhoc requests increased usage, but over time these requests reduced and the costs came down accordingly.
- Smaller Team - team reduced in size as dedicated infrastructure specialists and hardware was not required.
- Team Empowered - without reliance on other departments they were masters of their own destiny.
- Upskilled Team - they learnt newer technologies, improving their working experience and giving them a sense of pride.
- Decommissioned legacy on premise applications and moved to newer versions on Azure, resulting in ease of deployment of code.
- All legacy code is now restful.
- Improved tracking of resources making accountability and cross charging more effective.
- Making use of large volumes of data that was previously inaccessible.

## Results Achieved

- Successful implementation of a data lake in Azure that has allowed for more advanced reporting to be delivered on time, providing the client access to information they did not have before, allowing for more informed trading decisions.
- Replacing intraday reports with overnight batch, produced a significant cost saving due to there being less consumption.
- The success of the project has led to Azure being rolled out for all IT projects.
- Centralised monitoring and alerting was created allowing for greater efficiencies and more sophisticated estate management.

## Conclusion

The data lake project has proved itself as a hugely successful pilot project for the company.

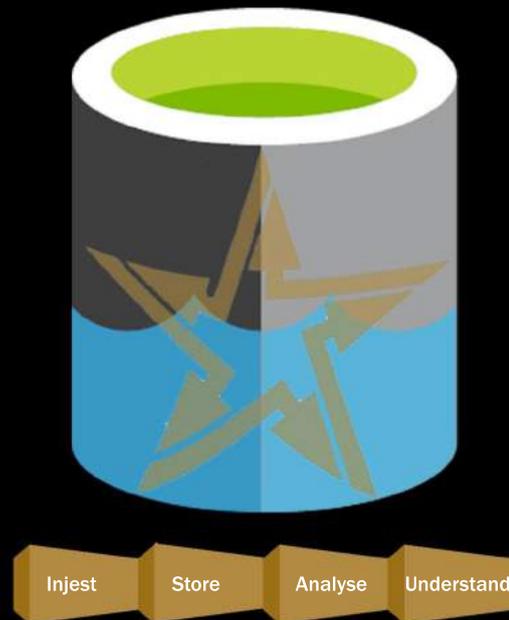
Our consultants were able to train, advise and educate the client's team through the steep learning curve of this cutting edge technology.

The client has progressed from hosting everything on physical servers to a migration to the cloud that is rolling out throughout all their development environments. This will mean huge savings as well as maintenance, uptime and security improvement leaps.

This has given them the ability to effectively utilise their large unstructured but valuable data in ways they didn't think possible before. Unlocking value while avoiding the high expense of large data centres.

Additionally this approach came with the ability to scale up or down with immediate usage thereby allowing our client to make huge savings in only paying for what they use as and when required to run specific business critical reports.

We enabled our client to **"build the apps of the future"**



We love to bring innovative transformation to your business, hugely reducing your time to market and exceeding stakeholder expectation every time.

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