



**Version 1
Delivers Musgrave
Processing Hub**



VERSION 1



Musgrave is Ireland's leading food retail, wholesale, and foodservice company. Together with their retail partners, they support more than 41,000 jobs, in more than 1,400 stores and offices, with combined total retail sales of over €5.2 billion.

Musgrave is one of Europe's most successful family-owned businesses with a 140-year heritage in food and brand innovation. Every day they feed one in three people in Ireland via a range of market-leading food brands that include SuperValu, Centra, Daybreak, MarketPlace, and La Rousse Foods.

Background

Key Vision

The vision for Musgrave Processing Hub (MPH) was to replace and transform Musgrave's 20-year-old legacy COBOL invoice processing systems, which are key to driving their multi-billion-euro turnover. The functionality is highly complex, having grown organically over its years of operation.

The legacy system and the associated business processes were largely undocumented, with most of the knowledge residing in the minds of the legacy system support team.

The Version 1 proposal was to replace the legacy systems with a modern, Azure Cloud-based solution. MPH was designed to produce highly accurate and efficient retailer invoices and distribute them to existing downstream systems in an efficient, well-controlled manner.

Solution

The MPH solution consists of three main services which are hosted on a Service Fabric cluster which provides high-availability, and a robust execution environment on Azure.

These services use CosmosDB to store and manipulate invoice documents and Blob Storage folders and Tables to store input files, output files, and look-up referential data. Data is moved between Azure and Musgrave on-prem folders, databases, upstream and downstream systems using Azure Data Factory pipelines which can be scheduled in line with Musgrave's end-of-day processes and the UC4 Batch Controller. Secure information such as credentials and certificates are stored in Azure KeyVault.

MPH additionally provided Musgrave's internal Finance team with an intuitive web portal to search and retrieve any of the processed retailer invoices. This enables the internal Musgrave Finance Team to be more self-sufficient when handling retailer queries. This same portal has also been opened up to Musgrave's Retail Partners to allow them to access their invoices and financial data in a secure way, reducing the amount of paperwork for all concerned and reducing the number of invoice-related support calls received by Finance.

The user-friendly web portal also provides access to Financial Reports and the ability to reconcile the output of the new MPH system with the legacy system to provide confidence in the figures. The portal also allows the maintenance of Master Business reference data with ease, a job previously only possible through expensive support activities. Authorised users can now modify accounting codes, product mapping, VAT rates and see how customisable business rules can adapt invoice information on a per-product or per-retailer basis.

The portal uses Azure AD to ensure that each retailer only has access to view their own invoice data. Azure AD is also used to ensure that the internal Musgrave Finance team is the only one with access to the reporting, support and data maintenance features of MPH. The project was delivered over 58 two-week sprints using Scrum. This Agile methodology allowed the development to begin before all requirements were established while continuously adapting to emerging feedback received from users and stakeholders.



Technologies

Embracing Cloud Technologies

Version 1 is helping reinvent Musgrave's IT infrastructure by embracing Cloud technology. Our solution brings many innovative technical advances:

- Azure Service Fabric cluster hosting mini-services
- Secure data storage in Azure CosmosDB and storage accounts
- Integration with on-prem systems using Azure Data Factory
- Integration with existing systems and 3rd Party APIs, such as Oracle, Remedy Salesforce, and bespoke APIs
- Secure Access using Azure Active Directory, KeyVault, and virtual networks
- An environment built using Infrastructure-as-Code scripting
- Automated deployment using Azure DevOps CI/CD pipelines without any downtime
- Web portal built using Angular 6.0 Material
- Automated testing framework using C#, Nunit, RestSharp, SpecFlow, and Selenium
- Real-time user feedback pushed to the portal using SignalR

Adoption of a disciplined Scrum approach is innovative for Musgrave, helping us work more collaboratively than before. There is a great sense of 'oneness' between the organizations and this sets us apart from other software providers.

The combination of Version 1's exceptional Cloud Consulting knowledge with our talented Agile software delivery team brings an innovative Azure-based solution to Musgrave.

Delivery

All of the MPH functionality was delivered using Agile. We used the sprint approach to ensure that we were able to deliver the solution in three separate phases. This, in turn, allowed us to de-risk the delivery and avoid having to use a big-bang approach to replace the legacy systems.

Real Differences, Delivered.

The Musgrave Processing Hub has de-risked Musgrave's multi-billion turnover business by allowing decommissioning of their legacy invoicing system, which are running on outdated servers, and reducing their reliance on the staff who created the legacy system for support and maintenance.



MPH User Acceptance Testing included running the new system in parallel with the legacy solutions for a period of time and comparing outputs from both systems. Cut-over approval was only achieved once the Finance Team was confident that MPH outputs were accurate and correctly matched the legacy systems. As MPH was verified to match the legacy processing, Musgrave's business did not suffer any disruption during the transition. By moving to the Cloud, the new system benefits from high availability, resilience, robustness, scalability, and reduced total cost of ownership.

Security was paramount and all access to the portal, APIs, infrastructure, and storage is controlled through strong Azure Active Directory accounts and subscriptions. No credentials are written in code but instead are held securely in Azure KeyVault. The whole network infrastructure was built with security and protection in mind from Application Gateways to VNETs. Certain key operations and data are only available to a small number of authorised users. MPH enables the Musgrave Finance departments and Musgrave Retail Partners across different divisions to efficiently access their invoice information online. Internal Musgrave staff and the Retailers themselves now have access to invoices for multiple different brands, all compiled from multiple sources, via one central hub.

The MPH system is cross-divisional, having been implemented for all Retail outlets on the Island of Ireland. This ensures that all Retailers are now benefitting from the new system and enjoying the self-service aspects of the MPH Portal. The Retailers are now empowered to perform many invoice-related tasks, without the need to contact Musgrave Support Staff. This is a significant change to business processes and ways of working, which will remove time-consuming delays and the need for costly support activities. Ensuring that the Retailer has the required tools to self-serve will free up the internal Musgrave Staff and allow them to focus more on providing further value-add to the Retailers.

Retailers are also benefiting from earlier access to the invoices themselves, as they are available to view on the MPH Portal as soon as they are created. The legacy system worked off a batch process which meant that the invoices were not available to the Retailer for up to 24 hours after they had been created. Modernising the way in which invoices are generated, opens the way for future innovation and optimisation of the invoicing process to help extend its reach far beyond what the legacy system could ever have achieved.



To find out how Version 1
can support your Digital
Transformation, contact us:

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