

## Case Study:

# Transport for NSW

PowerData Group helped Transport for NSW port a data application framework to SQL Azure and using Azure Data Factory to copy data from external SQL Server partner databases to SQL Azure.

### Client

Transport for NSW , Sydney.

### Challenge

Transport NSW wanted to port their existing PTIPS system for tracking buses to SQL Azure.

This task was completed quickly although there was a complex interdependence of the databases. Transport also wanted to get visibility of the community transport CTABS system data that is currently being provided by a company in the US called Route Match.

The CTABS data consists of 54 SQL Databases running on a SQL VM in the Route Match Azure subscription. Route Match provides the logistics of allocating vehicles and drivers to provide transport services to NSW community members.

Therefore transport wanted to create a PAS SQL Azure database copy of the 54 community bus databases in SQL Azure to be used for PowerBI reporting and machine learning analysis.

Transport decided that they wanted to use the new Azure Data Factory service to achieve this data copy as Route Match did not want to expose their databases to the public internet. Azure Data Factory can provide this security feature as all data must pass through a secure encrypted gateway called the Integration Runtime.

Although it was advised to them early on that a reverse proxy could have been used to retrieve the data which would be an effective simpler alternative method.

### Our Work

#### Proposed the architecture

In order to use Azure Data Factory to provide a reference reusable architecture for this type of application and to simplify the maintenance of the solution, the use of the net Azure Data Factory SDK was proposed. Also, as the maintenance of the system was to be outsourced to a third-party provider (Wipro), the system had to be designed to be as robust and reliable as possible.

#### Extendible Architecture

With so many errors of copying data from the route match site due to several factors (unavailability of databases, databases not all being in a consistent state etc.), it was realized that a web site would be needed to handle the automatic loading/reloading of data and to handle incremental loading of the data. The DDD approach allows the ability to plug and play different data source repositories and keep the same core domain code. Thus, to simplify application configuration the configuration data can be stored in Azure Table Storage.

#### Power BI integration

The transport PowerBI developer was assisted to build meaningful queries of the Route Match data and a sample of how to use Azure ML was provided to model clustered data.

### The Outcome

Transport has reference architecture for using Azure Data Factory with .net that contains a reusable code library. Transport also has reference architecture for how to do Domain Driven Design with the latest .net technologies such as .netcore and shared project libraries.

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