

## *Multinational Energy Company Uses K3 for Data Migration*

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Application: K3 (v. Xenon)

Configuration Time: 2 Weeks

Data Migration Time: 12 Hours

Testing & Validation: 3 Weeks

### *Business Problem*

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A global energy company needed to migrate its price data to a newly purchased price repository. As the company gone through mergers and acquisitions over the years, it maintained its data in 3 separate price repositories. Some duplicate data was kept in all three repositories. Each of the repositories was a custom application that managed forward and settle prices for NGLs, Oil, and Gas. Each of the price repositories had between 5 and 10 years of historical price data as well as differing architectures. What was certain was that each of the price repositories was intricately connected to the respective trading operations of the acquired groups. As a part of a corporate re-organization, the enterprise moved to a new price repository with enhanced query, data validation, and heuristic capabilities. The challenge was to migrate a consolidated set of historical data, an important asset of the enterprise, to the new price repository.

### *Traditional Data Migration*

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Data migration is a challenge for nearly every enterprise. It typically involves up-front development of custom code which is difficult to develop and rarely maintained afterwards. In other words, it is a throw-away effort created for the sole purpose of migrating data once. Data migration typically involves the following steps:

- a) *Custom code performing a database extract.* This custom code extracts the prices directly from the database (Oracle, MSSQL etc.) and presents them outside the database in a “convertible” format.
- b) *Custom code to perform transformation and mapping.* Transformation and mapping is one of the most challenging aspects to data migration. Transformation is a set of custom code that converts from one data format to another, for example from xml to csv. Typically this is done as a set of custom code between the source system and the target. Mapping on the other hand translates values from one system to the next. For example, the legacy source system thinks of West Texas Intermediate as WTI but the target system thinks of West Texas Intermediate as a combination of Product Code, Product Definition, and Time Period. Thus, in order to correctly

convey the price from the source system to the target system, mapping must be done to translate these values.

- c) *The last step in a typical data migration is custom code to perform the data load into the target systems.* Unfortunately, this is a step where many are enticed by an attractive shortcut. That is to circumvent the API of the target system and simply load the migrated data directly into the database. The reason this is attractive is because most developers are more familiar with the database structure than they are with what is usually an unpublished API. What is lost, however, is the data validation that could have been had by using the target application's API. Simply because the data can be successfully ported to the new target system's database, does not mean that that data will be usable in the application itself. Oftentimes, data migration projects spend 30% of project time actually migrating data and 70% of project time mopping up what was not done correctly the first time. This is one of the primary reasons that data migration projects tend to become exceptionally prolonged.

### *Use of K3 to Migrate Data*

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K3 with F1 framework provides an off the shelf tool to facilitate data migration. BroadPeak has created a framework that makes extraction, transformation, mapping and loading a streamlined process that eliminates many problems associated with data migration projects.

For this client we first organized data extraction. In this case we created 3 connections. The first two connections were extractions from Oracle. These became 'Oracle1 to New Risk Warehouse' and 'Oracle 2 to New Risk Warehouse'. Because the F1 framework already has an Oracle component it was a simple operation to create an extract from each Oracle database. Likewise with the third connection, an MSSQL database, we created an extract leveraging our MSSQL component.

The second and largest step was mapping. We centralized values for mappings that would transform data from the source system to then be understandable by the target system. For example, Henry Hub in the source system may be known and understood as HH, however, in the target system HH is understood as product code HHXO. We call this Domain Mapping and with K3, it is executed and managed by a Business Analyst. Typically, setting up mapping between applications will take from one to two weeks.

The third and final step is to feed the mapped data in HTTP format to the API of the New Risk Warehouse. This was as simple as leveraging the HTTP component in K3's F1 framework. Because we are feeding data through the API of the New Risk Warehouse we are actually performing an important validation function. That is, when going through the API we are validating that the application fully understands the data and ensures it is usable in the future. For example, if we were to simply load data directly into the New Risk Warehouse, there is no guarantee that the data has been properly assembled in the database. And as such it may not be useable.

Once the data began to migrate, K3 GUI provided a real time view of any price curves that did not flow properly into the New Risk Warehouse. For example, there were duplicate prices in multiple systems, but only one entry was required in the New Risk Warehouse. These duplicates were easily visible in K3's GUI and were segregated from the core set of data to be migrated.

### *Conclusion*

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In summary, K3 eliminates a number of outdated data migration processes. The first and foremost is eliminating time spent on custom throw-away code for data extraction and loading. The second is delivering pre-built components for data transformation and mapping, saving developers from "reinventing the wheel." Lastly, K3 provides insights and data management tools in place of what would have otherwise been dark code and mappings.

We estimate that the use of K3 eliminated over 60 person days from this clients data migration project.

If you are facing daunting data migration efforts, don't struggle, let us help.

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