GEM SYSTEM

Project of creating a reporting solution based on the Microsoft Power BI platform

EP ENERGY TRADING

Including the complete construction of a data warehouse

The project was created for the client EP Energy Trading a.s. (EPET) to create a reporting solution running on the Business Intelligence (BI) platform. Part of the implementation of the contract was the complete construction of a data warehouse.

Our IT solution will satisfy you

PROJECT IMPULSE & BUSINESS BENEFITS FOR THE CLIENT

The client used data sources from various repositories and there was no data warehouse in which individual data sources would be stored. The aim was to unify the company's used data sources and create a central data system. The reports used by the company are based on this new data source.

Until now, the customer has created his reports manually in the form of many calculations and data extractions from various systems. By automating reports in Microsoft Power BI, this not only saves time, but also reduces the potential error rate when manually compiling a report.

PROJECT GOAL

The aim of the project was to create a solution consisting of two consecutive parts:

- Implementation of two technological components (Unified database + Reporting tool)

- Implementation of selected reports

The implementation of these two parts created a comprehensive BI reporting platform, including introductory reports. The proposed solution is implemented to enable further development of the platform itself.

IMPLEMENTATION TIME

The project was running from January to August 2020, when the entire solution was deployed to the customer's production environment.

GEM

INTEGRATION AND DEVELOPMENT

BUSINESS INTELLIGENCE

SAFETY

MANAGEMENT AND SUPPORT

1 BI REPORTING PLATFORM

The comprehensive BI Reporting Platform was created by implementing two technological components:

- Unified Database (SDZ)
- PowerBI reporting tool

1 | 1 ARCHITECTURE SOLUTION

The architecture of the created solution consists of the following layers:

1. Data layer – Database server 3
2. Application layer – BI server
3. Aplikační vrstva – GW server
4. Presentation layer – Report Power BI

1 | 1 | 1 DATABASE SERVER

An Oracle database was created for the data warehouse, where the stored data are divided into three schemes according to their purpose: L0, L1 and L2.

1 | 1 | 2 BI SERVER

The GDIS tool with all its components (Pentaho, DISL, Jenkins) is installed and running on the BI server. The source data (Pentaho) is loaded here, the data model and its ETL processes (DISL) are modified, including the planning and execution of the necessary tasks (Jenkins).

1 | 1 | 3 GW SERVER

A Power BI Gateway is installed and configured in the GW server layer, which is used to connect data from the data warehouse to Power BI cloud reporting.

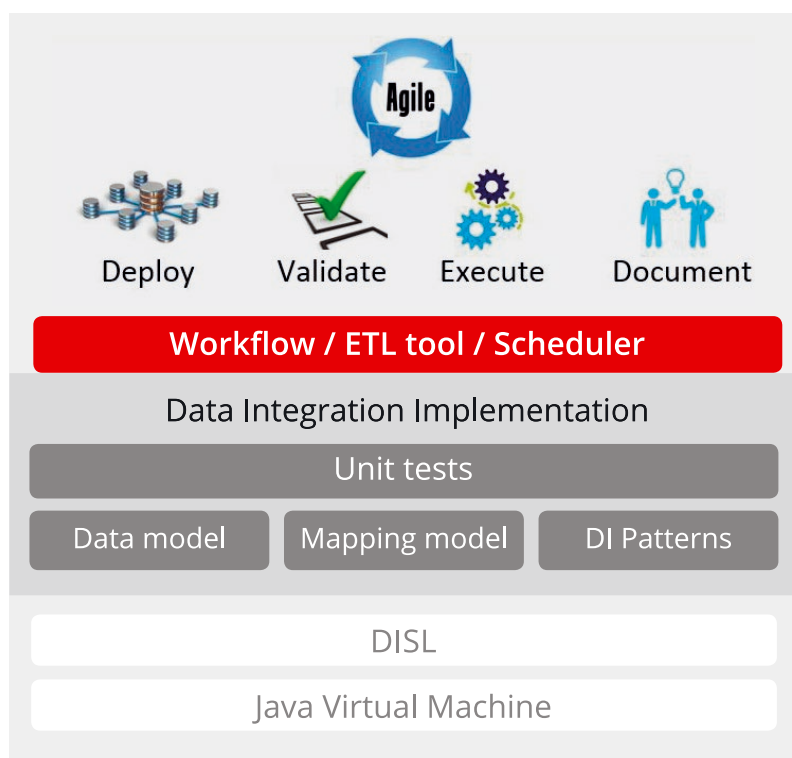#### 1 | 1 | 3 POWER BI REPORTING TOOL

This is reporting in the Power BI platform, which is used to present data by using selected data visualizations. Thanks to the chosen solution of the cloud variant with on-premise database, the created reports are easily publishable to the cloud storage, from where they are easily managed and are easily accessible on all devices (from mobile phones to desktop computers) to all authorized.

1 | 2 SDZ CREATION

The implementation of the so-called Unified Database is implemented by using technology GDIS (GEM Data Integration Suite), which consists of the following components:

1. Pentaho Data Integration (Pentaho DI) Comunity Edition
2. DISL – Data Integration Specific Language
3. Jenkins Continuous Integration (Jenkins CI)

The chosen solution is an ETL tool (Extract, Transform and Load) specializing in connecting to various data sources, their extraction, transformation and storage in a specified location.

Deploy Validate Execute Document

Workflow / ETL tool / Scheduler

Data Integration Implementation

Unit tests

Data model | Mapping model | DI Patterns

DISL

Java Virtual Machine

1 | 2 | 1 PENTAHO DI

Pentaho Data Integration (Pentaho DI) serves as a bridge for loading source data from the SAP system (tables S911, FIGL, TCURR) and external data sources (Excel files) to the built data warehouse.

1 | 2 | 2 DISL

The DISL tool is used to describe data transformations. In addition to creating data mappings, data models of source and target structures are created within the DISL tool at the same time. Labels are also inserted for all created entities - tables, columns, mappings.

1 | 3 SERVICE

The Jenkins tool is used not only for continuous integration within development, but it is also used for planning and running tasks of individual transformation scenarios of a common database. Within the BI platform operation, automatic or manual startup is set for individual tasks.

1 | 4 CREATING BI REPORT

For the implementation in the first phase of the project, the customer selected 1 report - the so - called Mass balance. By the implementation in the Microsoft Power BI program was created a report that covers two monitored commodities:

- Electricity
- Gas

The generated reporting monitors revenues, costs and their overall balance in the selected month. Monitoring is taking place for the Czech market.