Reporting Solution for Order Management

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Abstract

Order Management provides order orchestration through a centralised inventory, order promising and fulfillment hub to support omni-channel fulfillment. Reporting solution on top of Order Management application consists of multiple business reports that provide reliable information to the business people. The system enables to make better decisions how to promise and fulfil customer orders, resulting in improved profitability and customer satisfaction. In this paper, written as use case, some of the key points of the implementation are presented, deployed for a global durable goods company.

Keywords: Reporting, Business Intelligence, Data Warehouse, Order Management
JEL classification: L81, G31, M11

Introduction

Order Management software is a part of eCommerce and Merchandising software. Business is conducted directly between a company and consumers (B2C). The software enables companies to deliver a superior experience to their on-line shoppers by providing a seamless end-to-end cross-channel and highly personalized buying experience, from opportunity through order fulfillment.

Integrated Order Management combines multi-channel order aggregation with global visibility to inventory, and delivery and service availability, enabling the complete order promise and providing the ability to "order from anywhere, fulfill from anywhere, and return to anywhere" (ibm.com). With optimized, rules-based order promising and scheduling, inventory and resources are appropriately allocated from any internal or external source to meet the conditions of the order and the requirements of your business.

This system was implemented for an European global durable goods company. Order Management enables to present a single face to them by allowing information about any order, from any channel or division, to be made available on-line. It simplifies administration and maintenance of customer orders, allowing customers to check order status and modify, add, or cancel a line item or an entire order on-line as allowed by the terms and conditions of their order. With integrated order management capabilities business can:

- Query inventory locally or through real-time retrieval on demand.
- Perform order processing and fulfillment of the shopping cart.
- Provide comprehensive coverage of the order life cycle across channels.
- Provide real-time visibility of order details and status.

Short Project Description

Project Scope

The goal of the Order Management project when it comes to reporting was to replace the previous reporting capabilities that existed in previous systems. The

reporting solution assumed to shorten the implementation time for the reporting capabilities. The timeline to deliver the new reporting capabilities was short.

In order to deliver a scalable reporting solution, a data warehouse for data preparation was also scoped in the project. A key implementation drivers were functional and non-functional requirements received from the client business users. Today global rollout is on the way, rolling out the solution to more distribution units and new countries.

Business Analytics journey for better business outcomes

Cognos Business Intelligence incorporates the evolution of analytics by bringing key categories together in one Business Analytics portfolio with the focus of helping clientto achieve better business outcomes (Volitich, Ruppert, 2012). Key technologies used in a project are Oracle RDBMS, IBM Cognos Adaptive Warehouse and IBM Cognos Business Intelligence. Businesses interested in pursuing Business Analytics expand the business perspective and easily respond to growing demands. The journey to accomplish this task required from the client to successfully establish and agree upon a process and solid strategy. For better business outcomes results, we were dealing with Business Intelligence, Performance Management and Business Analytics & Optimisationtechniques and approaches.

Agile way of working

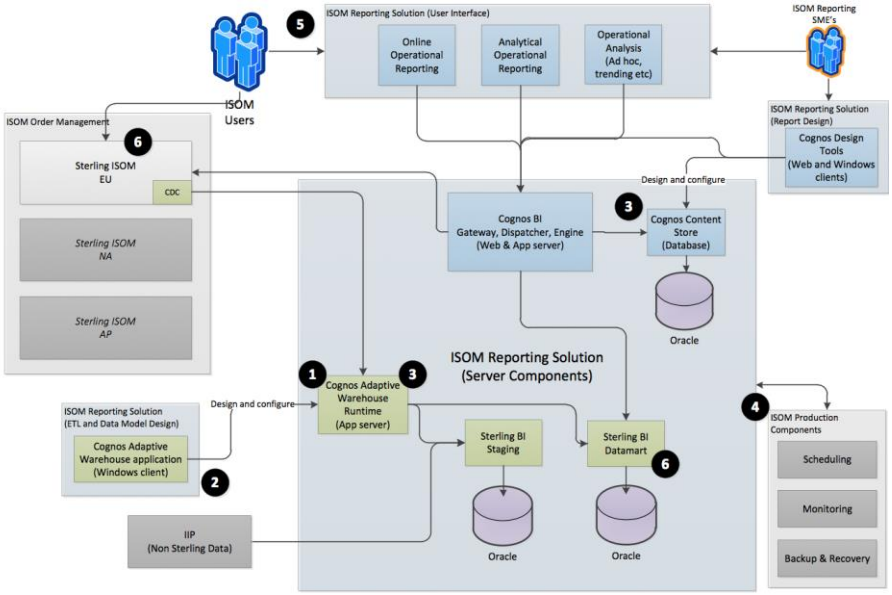
Project planning methodology was based on agile approach. Agile Manifesto defines what works in a timely manner to deliver results and to keep the client fulfilled (O'Brien, 2015). It means making short-term plans as you go along – to make plans in tandem with what is current at any particular time. In the project tasks were assigned to team members. Plan consisted of project increments which contained couple of sprints with a duration of three weeks. Daily meetings were held every morning where team members shortly represented achievements from the previous day and explained the expected tasks planned for a current day. Team members commited to complete the tasks until Due dates defined. Approach was incremental and iterative.

Architecture

Project Architecture

The architecture (Figure 1) is based on the Sterling Business Intelligence solution but adjusted for the final client (Global durable goods). Architecture overview is based on the aspects ETL (1), Data Model (2), Cognos (3), Capabilities (4), Security and users (5) and Data Source (6).

Figure 1
Architecture of the Order Management Reporting Solution



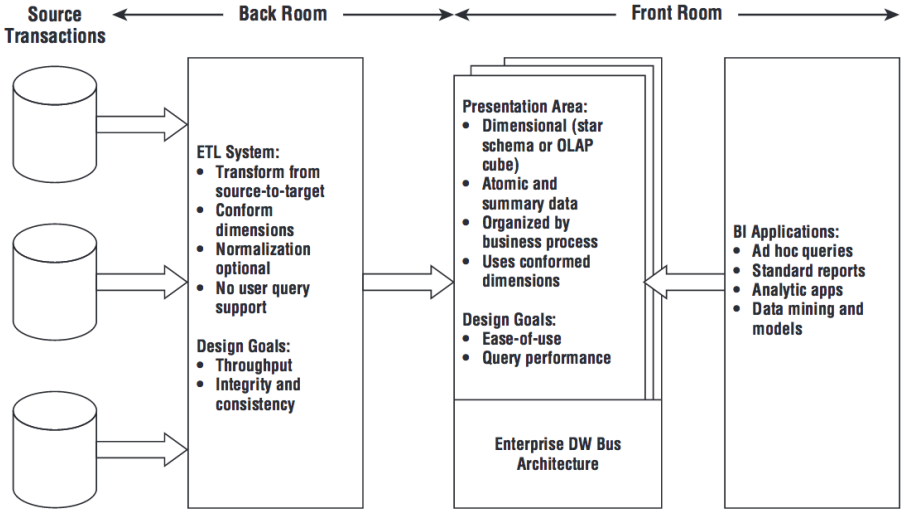
Source: Global durable goods company

Data Warehouse

In a Data Warehouse Star Schema approach was considered. Data integration is supported with ETL to extract the data from a legacy system and load it into Staging area and then further transform it to Data Mart RDBMS, which contains data prepared for business reporting. Important layers are the following:

- Source RDBMS
- Design Tool
- Runtime
- Staging RDBMS
- Data Mart RDBMS

Figure 2
Core Elements of the Kimball DW/BI Architecture



Source: Kimball, Ross (2013)

Figure 2 depicts the Kimball DW/BI architecture. It is acceptable to create a normalized database to support the ETL processes; however, this is not the end goal. The normalized structures must be off-limits to user queries because they defeat the twin goals of understandability and performance (Kimball, Ross, 2013, pp. 21).

Similar architecture is used in our implementation. Back room is presented by Staging database and front room by Data Mart database. Star schema is used – dimension tables are in the first normal form and fact tables are supposed to be in the third normal form.

Reporting Solution

Business Intelligence offers reports and more that can scale to meet the needs on a single platform. Both scale-out and scale-up approaches were used. Multi-tier reporting architecture consists of four important layers:

- Content Store (RDBMS)
- Content Manager
- Application Tier
- Gateway

Users can access multiple business reports deployed, querying the data available in a data warehouse. ETL processing is done in a background. In terms of systems we can state that reporting solution presents frontend while ETL presents backend.

Multiple reports have been implemented and delivered to the client to address certain aspects of Order Management. Business content and data are about sales orders, purchase orders, return orders, shipments and inventories. Reports are tracking life-cycle information of the orders full-time from order creation until successful delivery. Several performance indicators are calculated that provide valuable insights to the business.

Stacks and Environments

Two standalone stacks – Project stack and Production stack – were initially setup. Project stack includes Development in the cloud and three local environments i.e. Testing (for unit testing), System Integration Testing (for integration testing) and Preproduction environments (for volume and performance testing).Production stack with Production and M-environments is used for production and maintenance activities.

Results

Global roll-out is on the way. First countries are receiving the benefits this system offers while more countries are soon to include. Information is pre-calculated and delivered on time. Reports cover different views of the business process and data for different business units. Client's satisfaction has been increased and the feedback received is positive. In the future, solution will be rolled out to more countries and distribution units. New features will be added and new reports are to deliver.

Conclusion

The paper described the e-business use case from commerce area. Today solution is live, deployed on premise at customer site, as part of their IT infrastructure. Reporting solution for order management helps to establish an end-to-end commerce business flow from shopping to fulfillment through the integration of inventory, order, pricing, and promotions.

References

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