Front-to-back Architectural Re-design for a Global Universal bank

Cognizant delivered a robust and scalable target architectural design aimed at improving operational efficiency and delivering business transformation.

Preface

Early 2016, Cognizant published a whitepaper that laid out a path to operational efficiency for Investment Banking Divisions (IBD) of Financial Institutions. The whitepaper explained how applying a well-defined framework based on business capability modeling and a suite of architectural design principles could deliver significant advantages for banks. This case study demonstrates how the framework has been applied and delivered results in a real example.

Background

Our client is a global investment bank with business entities across EMEA, APAC and the Americas. The bank’s UK based broker-dealer entities historically operated as the risk management platform for all derivatives trades undertaken worldwide. This created bloated balance sheets for these entities and resulted in our client being one of the largest banks in the UK by balance sheet size. This in turn posed a systemic risk to the UK economy.

During its regular review process in 2013, the Prudential Regulation Authority (PRA) mandated the bank to:

• Scale back the balance sheet of the UK based broker-dealer entities by repatriating trading positions for clients not domiciled in UK.

CASE STUDY AT A GLANCE

• Regulatory imperative to “Right-size balance” sheet of UK entities thus requiring underlying IT architecture to support the migration of clients/trades and associated risk between legal entities
• Cost pressure and regulatory requirements required a more streamlined and scalable IT architecture
• A globally consistent front-to-back securities infrastructure necessitated the implementation of strategic platforms supported by a suite of design principles
• Cognizant leveraged a business capability modelling framework to ensure the target IT design was aligned to the client’s business capability model
• The target IT design resulted in a material decrease in control breaks together with increased quality of data available for product control and risk control functions
Review and implement appropriate controls over remote booking for UK based broker-dealer entities to prevent any re-occurrence.

Implement a strategic target architecture with a streamlined data sourcing strategy to reduce operational risk for all its broker-dealer entities in EMEA, APAC and the Americas.

To comply with the PRA mandate, the bank had to focus on the following remediation:

- Analyse UK entities trading books and review all remote booking flows.
- Identify the trading books which need to be migrated from the UK to the location where the client is domiciled.
- Create a strategic front-to-back design to support the delivery of a simplified and more controlled architecture for its broker-dealer entities.

Synopsis

This case study outlines the front-to-back architectural re-design exercise which was undertaken by the client in partnership with Cognizant. The objective was to create a global, standardised architectural design, capable of supporting both cash and derivative products. The clients’ approach was to pilot the design for one of its APAC based entities which would support a portion of the migrated business from the UK based entities. Once successfully piloted, the design could then be rolled out to all its broker-dealer entities. The creation of a global, standardised architecture aimed to resolve the following key issues:

- Lack of straight through processing between front and back office (FOBO) due to the lack of a front-to-back data model.
- Lack of clearly defined front-to-back business and IT controls, which undermined the integrity of the data consumed by different functions within the bank.
- Absence of single sources for many data attributes and the lack of clarity around the ownership of data meant that there were multiple data sources for downstream functions to consume and many redundant business processes which increased the overhead costs of the business.
• Functional inconsistencies in global trade capture, trade management and trading risk management platforms within the fixed income and equities derivatives businesses, resulting in data quality issues for downstream risk and finance teams.

• Front office and back office generated differentiated P&L calculations due to the capture of asset servicing events in the back office. This resulted in increased FOBO reconciliation efforts.

The key components of the front-to-back design were:

• Formulation of architectural principles which would drive the front-to-back alignment.

• Design of strategic trade management and settlement platforms capable of handling both cash and derivative products.

• Adoption of strategic settlement and risk management platforms as mandated by the bank’s design authority.

• Definition of golden sources and business ownership for key data classes produced or consumed front-to-back.

• Definition of standardised data model and messaging framework for all key data classes.

• Creation of a robust control framework to ensure that the front-to-back data flow worked as intended.

Challenges

The following challenges were encountered by us during the front-to-back architecture design exercise:

• Fragmented architecture with product line variations resulted in an increase in the complexity of the analysis.

• Lack of clarity on the operating model for common components impacting the sign-off of architecture artefacts.

• Lack of detailed technical understanding of the application landscape for securities and derivatives.

• Lack of standard tools and templates within the client organisation for creating architectural artefacts.

• Lack of common understanding regarding adoption of strategic platforms between design teams of impacted business functions. Efforts spent on multiple iterations of design thus delaying review and sign-off.

• Scope creep and lack of well-established change control mechanisms leading to delays in finalising the front-to-back design.

Solution Framework

We helped the client in formulating the front-to-back architectural design consisting of the following steps:

Understanding of the strategy: Our consultants conducted focused interviews with the technology and change SMEs to understand the business strategy and impact of the strategy on key functions and teams. The discussions centered on understanding the business context and key capabilities which were in scope for the front-to-back design exercise.

Scope definition: The scope of the engagement was framed according to product, function and region. The design was intended to be deployed for cash securities in the APAC region. Key in-scope functions identified were trade management, risk management, operations and finance.

Creation of a working group: Based on the defined scope, a design working group was created. It consisted of key stakeholders from the technology and business change teams covering trade management, risk management, operations and finance. The working group had weekly meetings to define/develop an architectural design strategy.
Formulation of design principles: Our consultants interacted with both the design working group and the bank’s design authority team to formulate the design principles. These design principles acted as a guide for building the solution framework:

- There should be a single point of capture for all trades and cash flows.
- Any trade enrichment should be done upstream, avoiding multiple enrichments in downstream functions/platforms.
- Any trade related adjustments and corrections should be done as early as possible (in upstream functions/platforms).
- Each business function should have unique role and responsibility in the front-to-back architecture.
- There should be clear ownership of any controls around a business process flow.
- Operations should own the cash control model and should publish the results of external cash control processes to other business functions.
- Risk and finance should consume the trade related data from the same source to ensure the convergence of data.

Documentation of “as-is” architecture: Our team documented the as-is front-to-back architecture for the cash securities product in the APAC entity. A mapping between the key functional components and current applications stack was completed. This was undertaken to identify application functionality and the level of fragmentation in the architecture. In the process, key gaps, control breaks and redundant processes were identified.

Identification of key controls: We created a control framework to document each control with a defined list of attributes. The framework provided details around the objective of the control - risk associated with non-implementation of control, control categories (e.g. business control/system control), control type, scope (entities/business/product lines), impacted functions and key data classes affected by the control.

Review and Sign off: Workshops with key stakeholders were conducted to walk them through the proposed front-to-back architectural design. The design was finally reviewed and approved by the bank’s design authority.

The Benefits

Here is a snapshot of the key business benefits accrued post implementation of the front-to-back design:

- Reduction in data reconciliation effort between front and back office through sourcing data from common golden sources.
- Harmonisation of trade information across all downstream consumers with common processes were pushed upstream where possible (example: position aggregation performed with trade management and the resultant position data consumed by risk and finance).
- Timely availability of trade and positions data with improved quality resulting in more accurate evaluation of risk exposures on T+0.
- Reduction in operational risk and support costs due to the decommissioning of legacy applications, standardised application interfaces and rollout of a robust control framework.
- Increase in the percentage of business/functional capabilities covered by strategic systems.
- Entity agnostic infrastructure providing a global blueprint which could be extended to support additional businesses and regional requirements.
- Consistent usage of data across CFO, CRO and operations with the objective of improved accuracy of the processing outputs, thereby addressing regulator concerns around inconsistent usage of data.
Conclusion

As banks struggle with declining profit margins and lower ROI/ROE, they need to design and implement new business and operational strategies. In today’s environment they need to revisit front-to-back architectural design to streamline business processes. Our client was instructed by PRA to right-size its UK entities prompting it to perform an enterprise wide architectural transformation. In meeting PRA’s mandate, the bank was able to deliver an enhanced front to-back architectural design. As a result of improved data management supported by golden sources, the revised architecture removed a number of redundant and inconsistent processes.

Cost management imperatives however mean that banks must not wait for regulators to drive changes in their front-to-back operating model; they must be proactive and work towards delivering more efficient business and technology architectures. Strong sponsorship from senior management and a commitment to spend in the short term can deliver sustainable savings in the long term. More details on our proposed solution framework can be found here.
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