BUSINESS BRIEF

Data Management and Analytics

Financial Services

Keeping Pace with the Demands of Financial Regulators

Technology as a Strategic Approach to Regulatory Reporting

"[The] appetite from supervisors for more granular data has been growing since the start of the financial crisis... Although short term cost and time pressures may force firms to adopt tactical solutions, it could well be more effective to take a more fundamental, strategic approach in the medium term."[1]

Industry Strategic Challenges

The financial services industry is under constant pressure from financial regulation bodies worldwide to ensure the integrity of the global financial system. Financial services firms are subject to requirements, restrictions and guidelines by government as well as non-government regulatory organizations and policies. These can include the PRA (Prudential Regulation Authority) and FCA (Financial Conduct Authority) in the UK, which oversee the implementation of European reporting requirements like FINREP and COREP and the Basel Accord, and the Sarbanes-Oxley Act of 2002 in the United States.

As part of these requirements, financial institutions are obliged to report periodically—whether daily, monthly, quarterly, or annually—to the various regulators. These regulatory reports may contain raw or summary data needed by the regulators to evaluate the safe and sound condition and operations of a bank or other financial institution or to determine compliance with any government act or other law, rule, or regulation.

Adding to the complexity of regulatory reporting are the volume and variety of data required as input for reporting purposes; the number of people with access to and responsibility for the data; and ad hoc reporting demands for stress and scenario testing.

Data and Regulatory Reporting

A wide spectrum of data sources now needs to be ingested and correlated with existing data to provide even deeper levels of insight for the purposes of creating reports for the regulators. Typical data sources/types include, but are not limited to

- Trade data from trading systems
- Reference data
- News feeds
- Social media
- Legal documentation (typically in XML format)
- Industry ontologies like FIBO (Financial Industry Business Ontology) and FIGI (Financial Instrument Global Identifier).
- XBRL filings to the regulators
- Spreadsheets

All of this data needs to be viewed, analyzed, and correlated holistically. Given the variety of data types and sources and the speed with which it needs to be manipulated, traditional relational databases are simply not up to the task. Technologies such as MarkLogic* Enterprise NoSQL Database are now available and able to provide a more efficient and effective platform for data management.

Data and Roles and Responsibilities

In addition to the variety of data and sources, the number of roles within a bank infrastructure linked to the data is considerable. The responsibilities of those roles and the way they access that data vary, but it is vital that they work as a collective in order to ensure that data and processes are compliant with the regulations and that regulatory reports are produced efficiently and accurately. Examples of these roles include

- **Compliance Officer**
- **Regulators (within the banks)**
- **Research Analysts**
- **Settlement and Clearing Staff**
- **Reference Data Operations**
- **Internal and External Auditors**

Stress Testing

As if the periodic reporting requirements were not enough, banks can be subject to ad hoc reporting demands for stress and scenario testing.

Regulatory stress testing is rapidly emerging as one of the most powerful tools for determining bank capital levels. Stress testing analyzes the impact of a variety of unfavorable economic scenarios to determine whether a bank has enough capital to withstand the impact of adverse developments. In Europe, the European Banking Authority (EBA) is now implementing EU-wide stress testing that will affect a large number of banks conducting business in the EU. In 2015, the Bank of England introduced a new framework for stress testing the UK banking system.

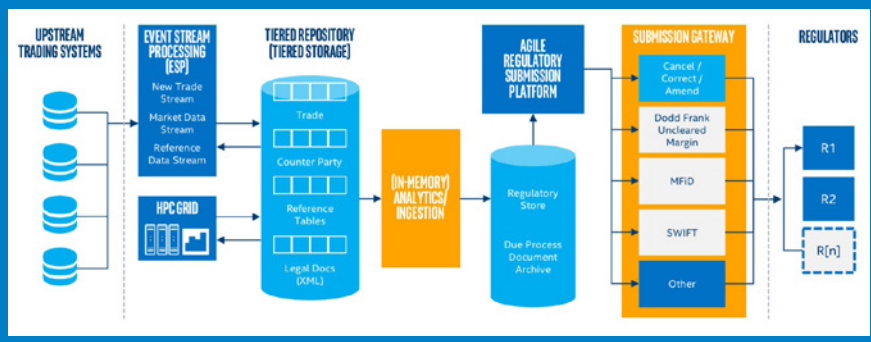
Example of a stress test:

In the United States in 2012, an adverse scenario used in stress testing was all of the following:[2]

- Unemployment at 13%
- 50% drop in equity prices
- 21% decline in house prices

Solution Value Proposition

An agile regulatory submission platform facilitates the production of reports from the Regulatory Store while a submission gateway facilitates the transmission of those reports, in XBRL and other formats, to the relevant regulators.



Business Value Possible

"A bank should design, build, and maintain data architecture and IT infrastructure which fully supports its risk data aggregation capabilities and risk reporting practices not only in normal times but also during times of stress or crisis, while still meeting the other Principles."[3]

All of these regulatory challenges put enormous pressure on financial institutions and consume considerable internal resources. So it is vital that financial institutions establish a sound application framework that will enable them to respond to regulators in an efficient, timely, and responsive manner. The volume and variety of data to be processed and analyzed, the complexity of the analytical processes, and the urgency of the reporting deadlines all contribute to the challenges.

Data quality and modeling are top priorities for the reconciliation of finance and risk data. The lack of a centralized data warehouse or trade repository will require a tremendous amount of manual reconciliation before correlating and aggregating data outputs. A holistic framework is critical to enable banks to meet current requirements and respond to new regulations as they are introduced.

Business Drivers and Desired Outcomes

- Deployment of a robust application framework that will enable companies to respond to regulators in an efficient, timely, and responsive manner
- Computing capability to handle vast volumes of data from a variety of sources including trades executed, reference and counterparty data, sourced from trading and market data systems
- Analytics capability to handle large and complex data analysis requirements quickly
- Flexibility to input, process, and output on regularly scheduled reports and also respond to ad hoc reporting demands for stress and scenario testing
- Ability to ingest new data sources and correlate them with existing data to provide deeper levels of insight for the regulators

Digital Transformation and Business Innovation

A complete regulatory reporting solution enables financial services companies to pull data from multiple sources according to regulatory dictates, aggregate and analyze the data, compile and output required reports, and store large amounts of data when

necessary for later access. It also enables companies to be more responsive to urgent ad hoc requirements.

Solution Summary

- MarkLogic* Enterprise NoSQL Database Platform
- High performance computing and storage powered by Intel® Xeon® processors
- Hadoop* software framework trade repository tiered storage
- Analytics from SAS*, Revolution Analytics*, or other
- MarkLogic* Agile Regulatory Submission Platform

Strategic Solution Partners

- MarkLogic
- SAS or Revolution Analytics
- Intel

Intel Technology Foundation

- Intel® Xeon® processors

Enabling Transformation

Intel is working with an ecosystem of software solution providers to develop solutions specifically targeted for the financial services industry. These solutions are based on integrated, interoperable technology components, including processing, networking, storage and software. Intel also helps software providers optimize their applications for Intel® technology to deliver high-performing solutions.

Where to Get More Information

Find the solution that's right for your organization: Contact your Intel representative, register at IT Center or visit **www.intel.com/FSI** or **www.marklogic.com**

[1] Deloitte's Outlook for financial markets regulation: Top 10 for 2015—**http://www2.deloitte.com/uk/en/pages/financial-services/articles/regulatory-top-ten-for-2015.html**
[2] Supervisory stress scenario for CCAR 2012 (Comprehensive Capital Analysis and Review), designed in November 2011 by the U.S. Federal Reserve Bank.
[3] BIS BCBS 239 Adoption Progress Report, January 2015—**http://www.bis.org/bcbs/publ/d308.pdf**

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