Eclipse Open Financial Market Platform Creation Review

January 2008

Objectives and Scope

The OFMP project's goal is to build an extensible, component-based Financial Market Platform based on industry business requirements and state of the art technologies.

It addresses several Financial Markets industry needs:
- Improved interoperability and integration between Business Lines and Front to Back operations;
- Financial Market Products flexibility;
- Real-time view on Financial Markets Department's activity.

- The frameworks, components and tools created by this project will be used by vendors, integrators and financial institutions to build tailor-made financial market applications.
- The components will leverage existing open source financial tools and libraries.
- OFMP provides exemplary application which demonstrate how the OFMP services can be used to create integrated applications.
- The project will foster an ecosystem involving organizations and institutions interested in this type of platform.

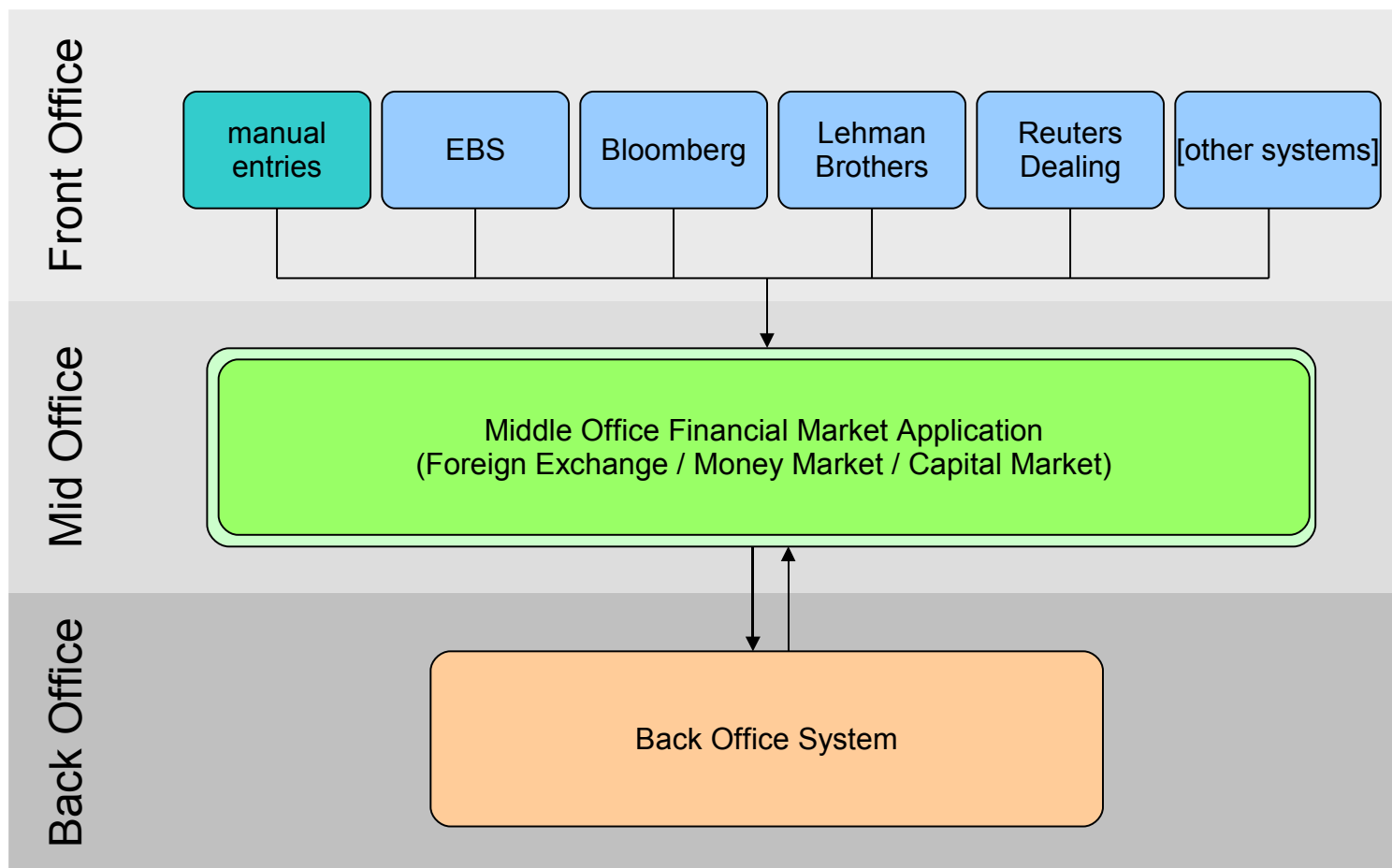A typical Financial Market Department requires a 3-layer-workflow:
- *Front Office*: traders input deals on the market using their preferred trading platform.
- *Middle Office*: first level control, employees validate deals, reconciliate positions discrepancies with Back Office, control and report profit and loss situation, assess counterparties' trade confirmations,...
- *Back Office*: second level control, impact bank's balance sheet, send SWIFT messages.

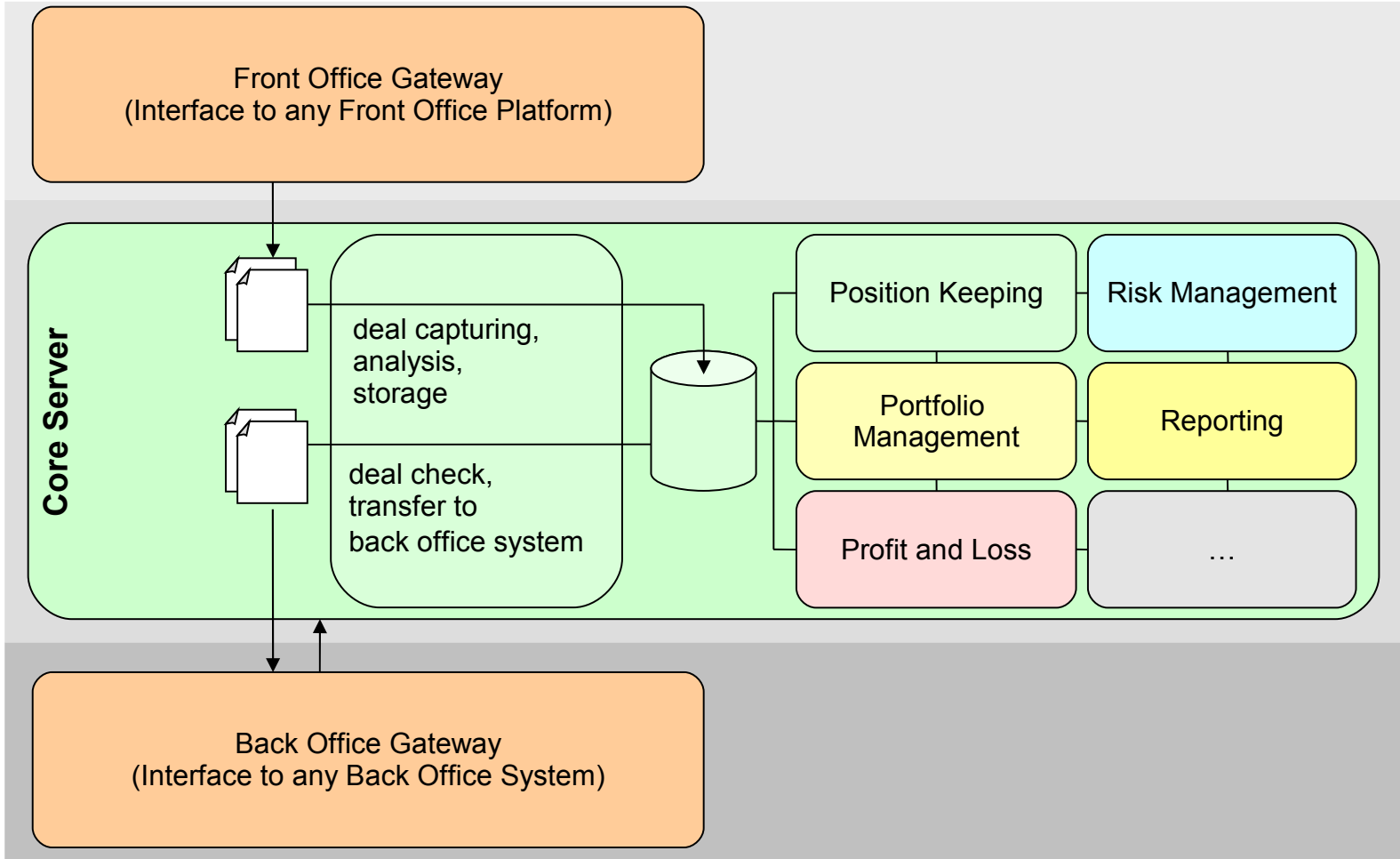A Financial Market Department may also be organized in 3 desks:
- *Foreign Exchange* deals with currency based products
- *Money Market* ensure bank's liquidity through interest rate based products
- *Capital Market* trades Equity products.

Foreign Exchange and Money Market desks together are usually considered as a single entity called Treasury.

Workflow Overview

Kaupthing Luxembourg offers its Financial Market platform as initial code-base.
The project started in Kaupthing Bank Luxembourg's Financial Market Department in November 2006 with collaboration of WeigleWilczek GmbH consultants; it sums up about 27 months of work and is used on a daily basis in production since March 2007.

Current features include:
- STP Front Office to Back Office workflow
- OSGi based Front Office Gateway (FOG)
  - TOF Protocol support
  - Interfaces to Reuters 3000 Xtra ® and EBS ® trading platforms
- Forex Desk support (Spot, Forward, Swaps)
- Money Market Desk support (Loan and Deposits)
- Business Date Management
- Banks and customers counterparties management
- Portfolio Management
- Position Keeping
- Account Manager deals' Profit and Loss
- Currency Rates
- CLS compatibility
- Automatic and On-Demand Reporting
- Automatic and semi-automatic deal validation
- Job Scheduler
- User/Roles security management

Code Contribution

WeigleWilczek GmbH offers the Rich Client Markup Language (RCML).

RCML combines XML and JavaScript to program and configure rich clients based on Eclipse's Rich Client Platform (RCP) in a very efficient and cost effective way. RCML allows you to quickly build interactive, Java-based rich client applications based on SWT/JFace.

RCML is used in the initial code base to define views and perspectives, simplify UI Data Binding, specify reports, define custom business-oriented testing languages and customize services.

Eclipse Technologies

The OFMP Platform is based on several Eclipse Technologies:
- Eclipse RCP for client side
- Equinox for Front Office Gateway
- Eclipse Data Binding through RCML
- Eclipse BIRT
- PDE Headless build technology

Planned Business Features

- Forex Profit and Loss
- Limits management: intra day and overnight (trading limits, counterparts exposures,..)
- Integration of Money Market and Forex activities
- Capital market products coverage
- Positions real-time mark to market
- Derivative instruments: Swaps (IRS, TRS), Options (starting by plain vanilla products), Contract For Difference (CFD)
- Asset and Liabilities Management (ALM)
- Forex and Capital Market Var and Expected Shortfall Risk reports.
- Advanced mark-to-market features:
  - Monte Carlo for exotic valuation
  - Closed forms solutions

Technical Plan

- Sanitize Initial Code Base
  - Equinox OSGi Migration. The current code base should run inside Equinox OSGi as a single bundle.
  - Extract third party libraries to standalone bundles.
  - Replace EJB remoting with one of the spring remoting technologies.
  - Use Spring OSGi to extract several services from code base to standalone bundles.

- Migration to Eclipse technologies like EclipseLink and Swordfish SOA Runtime Framework
- Move inter-service communications to Message Oriented Middleware (MOM)
- Provide extension points for financial product definition, based on FpML model.
- Integrate financial libraries like Quantlib or Matlab ®
- Abstract the BackOffice interface through a separated Back Office Gateway.
- Extend the protocols supported by the Front Office Gateway (FIX, web-based trading platforms)

Initial Roadmap

The Open Financial Market Platform (OFMP) Project is proposed as a sub-project under the Eclipse Technology Project.
The project functions under an agile development process with milestone releases every 3 months.

Date	Version	Description
2008 - January		Project Creation Review
2008 - March	1.0 M1	Sanitize source code OSGi based Front Office Gateway
2008 - June	1.0 M2	Forex Profit and Loss Single OSGi bundle server Extract third party libraries to standalone bundles
2008 - September	1.0 M3	Position Keeping, Counterparty, Currency, Date and Calendar services moved to OSGi Spring Remoting
2008 - December	1.0	Fully OSGi based server

Kaupthing Luxembourg will continue to invest 4 resources full time until June 2008.

Mentors
- **Naci Dai** - Eteration A.S. - Eclipse WTP Project Team.
- **Neil Hauge** – Oracle - Project Lead for Eclipse Dali and WTP PMC Member.

OFMP Interest Group

Getting additional requirements for OFMP besides those from Kaupthing Bank is crucial for a market driven development. We are working on the foundation of an Industry Working Group (IWG - working title) consisting of representatives from at least 3 financial institutes.

In collaboration with OFMP Project Team, this IWG is planned to:
- Collect and produce business requirements and analyses;
- Ensure a generic definition to ensure a broad market interest in these functions;
- Act as an advisory board on OFMP functional and technical roadmaps;
- Act as OFMP promoters in their industry.

Initial participants

Member	Company	Role	Experience and relation with OFMP
Frederic Conrotte	Kaupthing Luxembourg	Software Architect – Co-Project Lead	Frederic is a software architect working in Kaupthing Bank Luxembourg's Financial Market Department. He has been working for several financial institutions for about 7 years, and is currently working on OFMP project's technical and functional implementation aspects.
Fabian De Keyn	Kaupthing Luxembourg	Financial Engineer – Co-Project Lead	Fabian works as a financial engineer and market risk manager at Kaupthing Bank Luxembourg. In addition to his market risk assignments, he has launched the Victoria project, in which he leads the functional division.
Aleksey Aristov	WeigleWilczek GmBH	Software Architect – Co-Project Lead	Aleksey is a senior software architect with Weigle Wilczek GmbH, building enterprise apps for more than 10 years. While working on the architecture and implementation of Kaupthing's Victoria Project, Aleksey will work on OFMP's system architecture.
Gil Huart	Kaupthing Luxembourg	Financial Engineer	Gil works as a financial engineer and market risk manager at Kaupthing Bank Luxembourg. He works on OFMP functional and risk business analyses.
Sergey Vasiljev	Independant Consultant	Software Designer - Commiter	Sergey is an Independent IT-Consultant. Working for years in the field of Java-EE, he is responsible for the design and realisation of the MoneyMarket module in OFMP.

More information

- Project Proposal:
  http://www.eclipse.org/proposals/ofmp/

- Newsgroup:
  news://news.eclipse.org/eclipse.technology.ofmp

- OFMP preview demo:
  http://www.covariance.lu/docs/OFMP_Presentation.htm