INTRODUCTION: Business Requirements

Achieving our goal of being a top provider in the global foreign exchange (FX) marketplace demands providing clients with competitive pricing, liquidity, and credit. Delivering enhanced service requires that the sales staff and traders have access to the best tools and the most current information. Partner credit lines, margin requirements, hedging strategies, deal structuring and option pricing are the minimum requirements of a system supporting a top trading desk.

The trading business is currently being re-engineered to handle higher trading volumes and larger deal sizes while simultaneously improving risk control. The world is moving into an era where global order execution and processing are occurring on a 24 hour basis. The current systems environment does not support the expansion and globalization of our foreign business.

The basic infrastructure for deal processing in the current FX systems environment is supplied by outside vendors. As only one of many customers, the Bank can expect only limited responsiveness from these vendors in meeting its unique needs. None of these vendor systems can be used in conjunction with a global database. Perhaps most importantly, for many of the smaller dealing rooms, the high cost of these vendor solutions cannot be justified, so that these dealing rooms have no front-end system at all.

The Technology Group will architect the next generation FX and money market system based on high availability and a global database in a 24-hour marketplace. This next generation system will be developed in-house using object-oriented ("OO") analysis, design and development techniques. The selection of OO technologies was made to create a platform that could be extended to other trading businesses with a higher degree of reusability than current technology. This new system is called FXX.

INTRODUCTION: Technical Environment

Network Architecture

FXX is architecturally designed to be system and network scaleable. FXX will be capable of running low end to high performance SMP and MPP cluster servers that can be configured for regional processing to support multiple branches, single large dealing rooms, and global servers.

All FXX branch, regional, and global servers will be connected to our global network. All data that is passed on the network will be completely encrypted. Under the current plan, FXX will be installed in all FX dealing rooms and will replace existing FX deal capture and front-office processing systems. Interfaces will be provided to front-office electronic dealing systems and to back-office systems for confirmations, payments, and accounting.
Traders using FXX will be set up with RS6000 workstations running AIX (IBM’s version of UNIX) with a Motif based graphical user interface. Each workstation will be equipped with a keyboard, mouse, and electronic tablet.

FXX will initially support an electronic tablet configured with functional selections for fast input such as customer names, currencies, prices, deal entry, modification, cancellation, portfolio selection, etc. Personal communicators and remote devices will be supported in later phases.

**Local Servers**

The trader workstations will be connected to local servers running the Oracle database management system in a client/server architecture.

**The FXX Applications Manager**

FXX is composed of several independent applications for pricing, deal capture, position reporting, and risk management. The applications manager will be used to invoke and monitor the various applications and user environment.

The applications manager will launch the FXX applications and then continuously check database status and report all problems to the appropriate FXX application. It displays a console to report application and system status.

**Global Database**

The Global Database contains a Replication of information from each of the Branch and Regional servers based on Local Time Zone and GMT. The Global Database is continuously updated by branches and regions worldwide on an asynchronous, real time basis. The nominal delay attributed to transmission time will not exceed one minute. All tier 1 cities will be linked via ISDN to handle network traffic overflow and any network failures.

The data in the Global Database is time stamped to GMT time and the Local time of the branch from which data was received. Time stamping data to GMT time supports query consistency across multiple time zones. Time stamping data to Local time supports per site queries.

The Global Database will include all region/branch deals, End of Day P&L, daily risk figures including Money-at-Risk, partner, and credit information. Global Business Managers and senior management can use the Global Database to manage, monitor, and analyze positions, P&L, risk, partner activity, credit limits, brokerage, margins, and the Global FX Order Manager. Any third party Executive Information System (“EIS”) tools can be used against the Global Database.

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