IBM

# IMS newsletter

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## Royal Bank of Canada and IMS Connect - A Winning Combination

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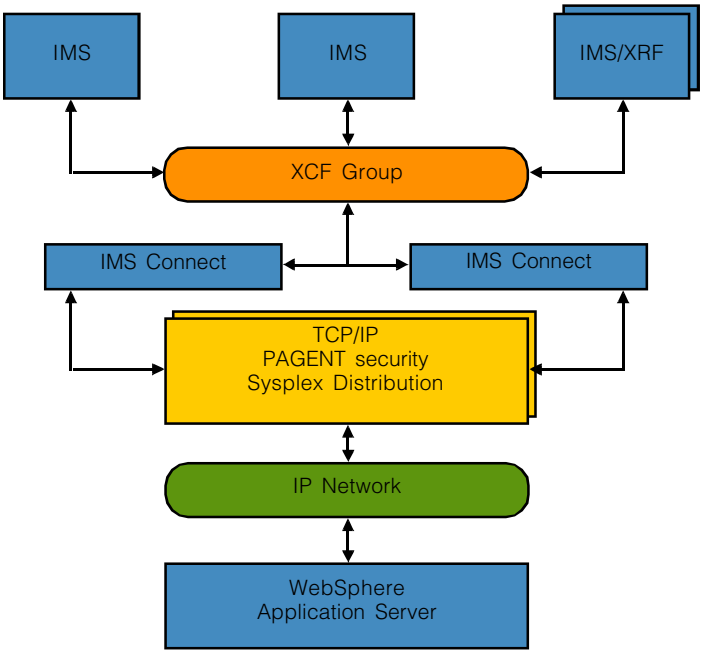
*Chartered in 1869 as the Merchants' Bank of Halifax and later renamed, the Royal Bank of Canada (RBC) has become Canada's largest bank based on assets (over $362 billion). With over 57,000 employees and 12 million customers last year, the company offers over 4,500 ATMs (automated teller machines) and extensive telephone banking services to its customers. Innovation is second nature to this stalwart financial institution, and in January 1995, RBC became the first Canadian bank to offer information about its services through the World Wide Web. Then, in December 1996, it launched its Internet Banking service. This article is an account of RBC's experience implementing IBM® IMS Connect to achieve the company's online goals.*

RBC has been recognized as the first financial institution in Canada to integrate systems so that our clients can use a single logon ID to access their checking accounts, mortgage services, investment accounts, and lines of credit. RBC also introduced North America's first wireless banking service for handheld devices, offering secure end-to-end encryption of all information. By January 2002, we had over 1.9 million internet banking and trading customers and had introduced the "My View" New Account Aggregation feature within our internet banking service.

RBC has based its mainframe business on IBM software for many years: IMS®, DB2®, MQSeries®, and CICS®. The challenge was to transform these legacy systems to an online system for e-business. The platform chosen for this new development was IBM WebSphere® Application Server (WAS/390). The access to our existing IMS applications is enabled by IBM IMS Connector for Java, V1 (5655-E51) through IBM IMS Connect, V1 (5655-E51).

IMS Connect provides TCP/IP access to IMS using Open Transaction Manager Access (OTMA). We purchased IMS Connect and were ready to run our first trial of WAS services by the end of 2001. IMS Connect installation procedures use SMP/E, which is a benefit and was very straightforward. IMS Connector for Java is also packaged with IMS Connect and was required for our WAS development. After the initial install, IMS Connect was operational immediately. The code quality was good from the beginning, and we encountered no problems. The sample program proved to be a valuable tool that was easily modified with our installation customizations. Our developers used VisualAge® for Java® (VAJ) to build their application code, utilizing IMS Connector for Java to communicate with IMS Connect. They were able to execute IMS transactions from WAS in a very short period of time. We also have development underway using native TCP/IP socket calls to IMS Connect. This development has also been relatively problem free - the documentation was very clear, and our developers had little difficulty creating the code. From our initial experience, the largest hurdle for native IMS Connect clients was creating the IMS Connect message prefixes.

### In This Issue:




RBC currently has three production centers across Canada, each running multiple OS/390® or z/OS® images in a Sysplex environment. Each center runs three IMS systems, which are symmetrical across geographical centers. One of the IMS systems processes our high volume banking transactions and uses XRF (Extended Recovery Facility) for fail over. The other two IMS systems are clones (of each other) in a shared queues group and are capable of processing the same workload. Our peak transaction rate averages 450 IMS transactions per second for each center.

Currently, WAS/390 runs in one of the three sysplexes- eventually to run in all three sysplexes. WAS applications use IMS Connector for Java to access IMS in any of the three sysplexes. There are two instances of IMS Connect in each sysplex. The IBM Sysplex Distributor is used to balance the connections between them. Each IMS Connect has data store connections to all three IMS systems in the sysplex. This provides multiple redundancy for both the TCP/IP connection and OTMA to IMS. The entire solution runs securely with Policy Agent to limit TCP/IP addresses that can access the IMS Connect TCP/IP ports.

The first (pilot) WAS application delivered new functionality to our Web customers. The initial VAJ development was done using WAS on Windows NT. After WAS for z/OS was ready, the application was ported to the host. Using the current configuration, customers can now open new accounts on the Web using IMS Connect behind the scenes. By driving legacy IMS transactions using IMS Connect, customers can easily access their legacy data. Our internet banking application currently experiences up to 3 million page hits per day. Each page hit averages 2.6 IMS transactions. The internet access has put a new focus on true 24x7 IMS availability.

The use of IMS Connect is expected to grow. Branch office workstations that are currently connected through a Systems Network Architecture (SNA) network will eventually be moved to TCP/IP using IMS Connect. This network currently maintains a rate of approximately 380 transactions per second. In addition, we have an external company that has a requirement to access legacy IMS data from an AS/400™ platform. They have written an application, using native socket calls, that connects to RBC's IMS Connect and ultimately executes IMS transactions to retrieve their data. Several other in-house RBC initiatives are investigating and testing the use of IMS Connect to replace existing SNA IMS sessions with TCP/IP. One of RBC's fraud detection systems is in the process of packaging their software for re-sale. The application runs on AIX™ and has a requirement to send update transactions to an IMS application. Initially, the MQSeries IMS Bridge was used to deliver the transactions to IMS. After experimenting with a native TCP/IP sockets interface to IMS Connect, a decision was made to switch to IMS Connect for reasons of performance and cost (no additional software costs on AIX). Future design options include the use of SSL and J2EE for additional function and flexibility.

Overall, RBC believes that IMS Connect is a high-quality product that works as advertised. It has become part of our strategic direction for not only enabling new access to our existing IMS transactions, but also converting existing SNA sessions.