JNBridge®

SPANNING JAVA & .NET

Case Study

JNBridgePro Connects Société Générale's Excel Trading Application Clients to WebLogic Server

Customer Profile

Société Générale Corporate & Investment Banking is a leading worldwide bank in euro-traded capital markets, derivatives, and structured finance.

Business Situation

The new Java-based Equity Derivatives post-trade information system needed to interoperate with Excel clients in a highly performant manner while keeping the communications layers separate from the business logic.

Solution

Use JNBridgePro to bridge between COM and the Java API.

Benefits

- High-performance, scalable architecture.
- Simple to use, no .NET development required.
- Flexible communications, easy to reconfigure and deploy.

"JNBridgePro has a high level of performance, is very easy to use, and increases our team's productivity."

Thierry Pécoud, IDEA Program Director

Situation

Headquartered in Paris, France, Société Générale Corporate & Investment Banking is a leading worldwide bank in euro-traded capital markets, derivatives, and structured finance.

The Equity Derivatives Department of the bank needed to revamp their global post-trade information system in order to reinforce its leadership. The new post-trade system is based on a J2EE infrastructure that uses Enterprise Java Beans (EJBs) services to communicate with a variety of heterogeneous client applications, including Java-based, .NET-based, and other client types. One challenge the Equity Derivatives IT team faced was to simplify the use of the EJB services while enabling communications between the various client applications.

Considerations

The project had numerous platform requirements including a WebLogic infrastructure with an EJB interface on the back-end that would support cross-platform end-user client applications. The team developed a plan to build a standardized set of Java interfaces on top of the underlying WebLogic/EJB infrastructure, and avoid commingling technologies at the business logic layer.

The Equity Derivatives traders use Microsoft Excel to directly access and update market data and trade information. Rather than trying to create a Java GUI to duplicate the functionality of Excel, the IT team chose a heterogeneous approach. The team then need a way to expose the EJB services in a form that the Excel clients could consume them, without having to cross-train the team on .NET.

Evaluation

Excel does not access .NET directly; it interfaces with COM, and an additional COM/.NET interop layer is required to connect Excel to .NET. The team evaluated different solutions for interoperability between Excel and Java, including web services and IIOP Java/.Net connectors, and found them lacking in performance and complex to use. Even with the extra architectural layer of connecting COM to .NET, JNBridgePro proved superior. Thierry Pécoud, IDEA Program Director, said "JNBridgePro has a high level of performance, is very easy to use, and increases our team's productivity."

Solution

The team built a new layer in front of the EJB services that exposed a simple and uniform application program interface (API) to manage the WebLogic application server connection. The API is far simpler and more flexible than the connections provided by the EJBs themselves, and, as it conceals the EJBs and the underlying WebLogic server, even allows for the possibility of swapping out the EJB and WebLogic layer in the future and replacing it with something else.

A variety of heterogeneous client applications then access the API. While Java-based clients can access the API directly, Excel clients must go through several layers, each of which could have had added costs in implementation time, inefficiencies, and performance.

The team bridged the gap by using JNBridgePro to create a .NET assembly that contains proxies for the Java-based API. They then selected JNBridgePro's TCP/Binary communications mechanism to bridge between the .NET proxies and the Java-based IDEA API.

Once the .NET assembly and API proxies were generated, the team created a COM-Callable Wrapper (CCW) from the .NET assembly using the tools contained in the .NET Software Development Kit (SDK). Calls to the CCW are automatically routed to the .NET proxies using .NET's built-in COM interop capability, and are then sent from the .NET proxies to the Java API by JNBridgePro. As it is a COM component, the CCW can be integrated by Excel just like any other COM component. A team of Visual Basic for Applications (VBA) programmers then wrote a set of Excel macros which accessed the functionality exposed by the COM component and implemented the features required by the end-user traders.

"The Java library we built is exactly the same no matter what type of client we are communicating with" said Thierry Pécoud. "Using JNBridgePro enabled us to separate the interop into its own layer and keep the API uniform."

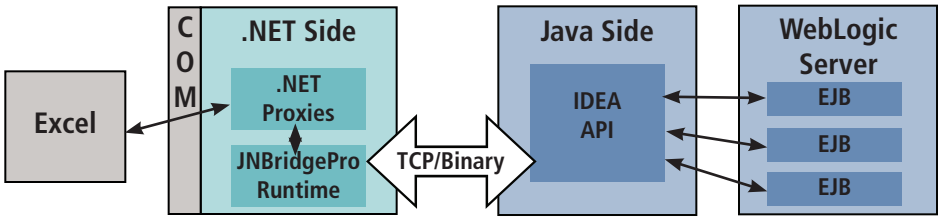

Figure 1: Solution Architecture

Benefits

Société Générale Corporate & Investment Banking experienced the following immediate benefits using JNBridgePro:

Reduced Development Costs

The team was able to implement the Excel communications layer quickly, and without writing specific .NET code. The ongoing cost of exposing new services to Excel clients is close to zero.

Superior Performance

The time spent in the COM to Java bridge layer represents less than one percent of the total time of one call.

Ease of Deployment

During the initial rollout, the only components that needed to be deployed on the client machines were the JNBridgePro-generated proxy DLL and its associated components. Future new versions of the API will require server updates only, as long as the API calls remain consistent.

Flexible Communications

Using JNBridgePro, the application architects have complete flexibility to switch between binary communications and SOAP. They use binary communications for their production environment when performance is the most important consideration, and SOAP for testing and debugging purposes.

Scalable

The JNBridgePro is scalable: the team can increase the number of JNBridgePro servers transparently without any changes to the client side.

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JNBridge provides Java and .NET interoperability tools that simplify joining any type of program element together across the platform boundary. Unlike the single narrow view that Web services provide, JNBridgePro allows developers to access the entire object-oriented API from the other side, providing a high degree of performance, reliability, and programmatic control. JNBridge's customers include 5 of the top 10 U.S. financial services firms and over 30% of the top 25 global financial services firms.