Starwood's Web Service Shines Brighter

By Susan Darling

I magine you are the leading developer and operator of high quality vacation ownership resorts. Each day, thousands of owners depend on your agents to manage their personal data, provide loan pay off values, make credit card transactions, and even schedule services for their properties. Your PRO/5® applications reliably provide these services, but only to your in-house agents. With a growing number of Internet services across all industries, you too would like to offer your services to your owners. What is the best approach to providing your owners with access to PRO/5 data and business logic through the Web?

Starwood Vacation Ownership (SVO) is that developer. Matt Lewis, SVO's Manager of Architecture explained, "We needed a secure, standards-based solution that we could expose to our external Web sites. Access to our data beyond the functionality of JDBC and ODBC drivers was critical - we wanted to access the business logic that already existed in our PRO/5 system."

Considering all the options, the answer was clear. Lewis led his team to a BBj® solution using Web services that would do all that and more.

StarCentral Integration

Starwood Vacation Ownership had an existing owner-based Web site, StarCentral, that made use of batch-loaded data and transaction requests that agents later processed manually. SVO wanted to make this owner data real time and automate these transactions. In just over a year, the internal development team made up of PRO/5, BBj, and Java developers, was able to make a majority of data and transactions real time - owner data, loan payments, loan balance, and homeowners' association (HOA) balances, and payments. The team utilized BBj's capabilities to access PRO/5 application logic and data to provide real-time Web services that

Integration Environment Stats

Run BBj 5.0, PRO/5 4.10, Java 1.5, and Solaris 10 on two dual-processor SunSPARCs

200 users run Web services for internal applications

3,000-5,000 external users a day talk to a back-end license of 800 users

200,000 transactions per week averaging $1.5-2 million (over $100 million annually)

talked with their existing PRO/5 systems. New owners now simply log in through an authentication process, and then in real time, access Starwood's back-end system. Owners can now review their contract data, list all their ownerships, view their status and make loan and HOA payments. StarCentral became the owners' command central where they make reservation requests, pay accounts, read owner news, communicate with Starwood, and get other valuable ownership information. Surfing through these options allow owners to manage their data needs easily and intuitively from their own unique computer configurations. StarCentral empowers owners and releases them to enjoy a new level of data freedom.

Shining Brighter

Recognizing that owners expected similar performance as elsewhere on the Web, Starwood spent extra effort speeding up the performance of the system and its integration with PRO/5. Proudly, most Web services calls take less than one second and credit card processing takes an average of six, which is quite acceptable to the owners.

The Web services solution also met Starwood's need to access the business logic in their PRO/5 application. For example, when calculating the mortgage payoff to the current day, owners and agents both rely on the business logic already embedded in Starwood's PRO/5 programs. Since this information is dynamically calculated and therefore not stored in the database, owners can run the same program over the Web that the agents run locally. Using the existing proven PRO/5 code base is a guarantee that both the owner and agent get the same real-time results. The savings in programming, testing, and deploying one code base is far reaching.

Trouble*SHOOTING STAR*Central

As the volume of transactions increases, so does the need for more refined and effective troubleshooting tools. One significant step was their addition of globally unique identifiers for each transaction. With this in place, Starwood

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Matt Lewis, *Development Manager at Starwood Vacation Ownership, leads the development team of PRO/5, BBj, and Java developers. Matt holds a degree in Computer Science from The Citadel - Military College of South Carolina and completed some graduate courses at the University of California at Berkeley and the University of New Delhi in India.*

STARWOOD VACATION OWNERSHIP

In the fast-growing segment of vacation ownership, **Starwood Vacation Ownership** *is setting the benchmark, consistently producing quality products in some of the world's most sought-after destinations. Their focused vision has established a strong foundation for growth and future successes.*

Starwood Vacation Ownership is one of the premier developers and operators of high-quality vacation ownership resorts. The company is a wholly-owned subsidiary of Starwood Hotels and Resorts Worldwide, Inc. (NYSE: HOT) and currently operates vacation ownership resorts under the Westin, Sheraton, and St. Regis brands in some of the world's most desirable destinations including Hawaii, Colorado and the Caribbean. Starwood, headquartered in Orlando, Florida, has 18 resorts and more than 4,300 employees. Visit www.starwoodvacationownership.com.

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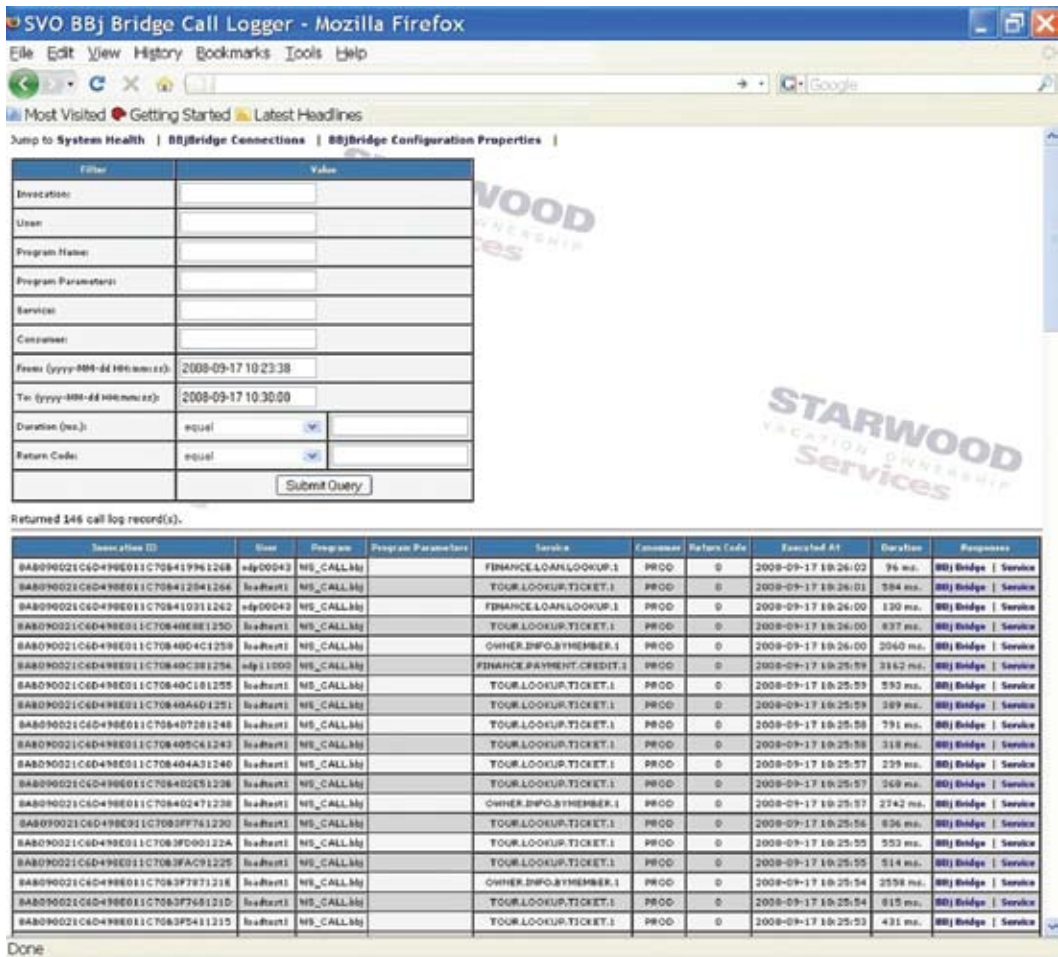Development Tools

System Administration

Applications

Figure 1. BBj Bridge Call Logger

can replay any transaction at any point in time to see the trouble spot in action. Another step was to add effective dates. Their PRO/5 system has many rules that pertain to certain times of the month or of the year so they use effective dates to test those rules in their services environment. Refining their reporting and debugging tools is a high priority in an effort to improve their troubleshooting and problem solving skills.

Stargazing

StarCentral is a highly available, load-balanced environment. Currently, they average 3,000-5,000 log ins per day and take credit card payment amounts ranging from $29 to $80,000. Load balancing allows them to present one system or URL to the user for both machines and the system routes the traffic to the available machine based on the load. It also has a fail-over feature to re-route all traffic in the event of a system failure.

To keep a careful eye on the system, Starwood built in a real-time monitoring system. In **Figure 1**, the BBj Bridge Call Logger, reports real-time queries of transactions based on the user, transaction ID, name of service, to/from dates, duration time of transaction, and the return code. Starwood also relies on JMeter, a desktop application by Apache, to report performance-testing data vital for further analysis. They constantly load and performance-test their environment to the upper capacity of 200 concurrent transactions per second – far beyond today's needs.

Star Struck

"We are pretty happy with the stability of BBj 5.0. We do have plans though to go to 8.21 after we run it 24x7 for a few months in QA and development," says Lewis. As their load increases, BBj's scalability easily allows them to add more hardware.

Starwood's BBj-powered solution processes more than $100 million per year, illustrating the high value of BBj's scalability. Even if your current or future Web services application does not propel you into this stratosphere, there are strong benefits that you can take advantage of today.

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Read more about Web services in earlier issues of the *BASIS International Advantage*

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