



Choice Hotels Selects Sierra-Cedar to Integrate with Google Maps and Google Places Utilizing Oracle SOA Suite Platform



BACKGROUND

Choice Hotels International, Inc. (CHH, www.choicehotels.com) was founded nearly seven decades ago and has grown into one of the largest lodging companies in the world. Based on a franchise model, its network includes more than 6,000 hotels in the United States and in over 35 countries around the world. Their IT systems process nearly \$7B each year.

Industry	Hospitality
Services	Implementation and Integration
Application & Modules	<ul style="list-style-type: none"> • Oracle Service Bus 11.1.1.5 • SOA Suite 11.1.1.5 • WebLogic 11.1.1.5 • JRockit • Oracle Database 11g • JDeveloper
Client Since	2011

CHALLENGES

Today's travel consumers are growing more savvy and sophisticated in their use of the Web and search engines during the travel research and buying process. Choice Hotels is continually working to cater to these sophisticated consumers by providing new ways to quickly locate and reserve available hotels rooms. In order to meet current business demands, Choice decided to embark on a full enterprise IT transformation to replace their 25 year old core systems with a true event-driven, standards-based, loosely-coupled, service oriented architecture. Such architecture is required to allow Choice to reduce the cost of partner integration, service global markets, and reach end users on a wide array of devices, and scale to meet their growth goals.

One of the first projects in this IT transformation involved real-time integration with a new Google service that is rolling out which allows consumers to perform location searches and have branded hotel information and pricing shown directly on Google Maps and Google Places. The consumer then clicks on the hotel information and is deep linked into the reservation process of www.choicehotels.com. With franchisees in over 35 countries this was a cost-effective way to quickly reach a growing number of internet users.

SOLUTION

Sierra-Cedar was selected to implement the Google solution because of proven expertise and ability to repeatedly deliver large and extremely complex projects on time and on budget. The solution needed to be implemented in an aggressive 16 weeks in time for the high travel season. Sierra-Cedar completed the project in this timeframe and delivered four reusable enterprise services and two events to advance Choice's larger SOA roadmap vision.

Choice Hotels evaluated several different SOA platforms including Oracle's. Sierra-Cedar worked with the Oracle Sales team to help Choice understand the benefits of utilizing the Oracle SOA Suite over the other platforms resulting in the decision to move forward with the Oracle SOA Suite platform.

The new Google service requires Choice Hotels to send real-time hotel, room rate and availability information to be displayed in their search results, shown in **Figure 1**. The first step in doing this was to create an Oracle Service Bus end point that allowed Google to retrieve a .zip file containing the hotel listings in the proprietary Google XML data format. This service leveraged the Choice Hotel Data Service, another OSB service, to retrieve all of the hotel information, which was then transformed and streamed to Google as a .zip file.

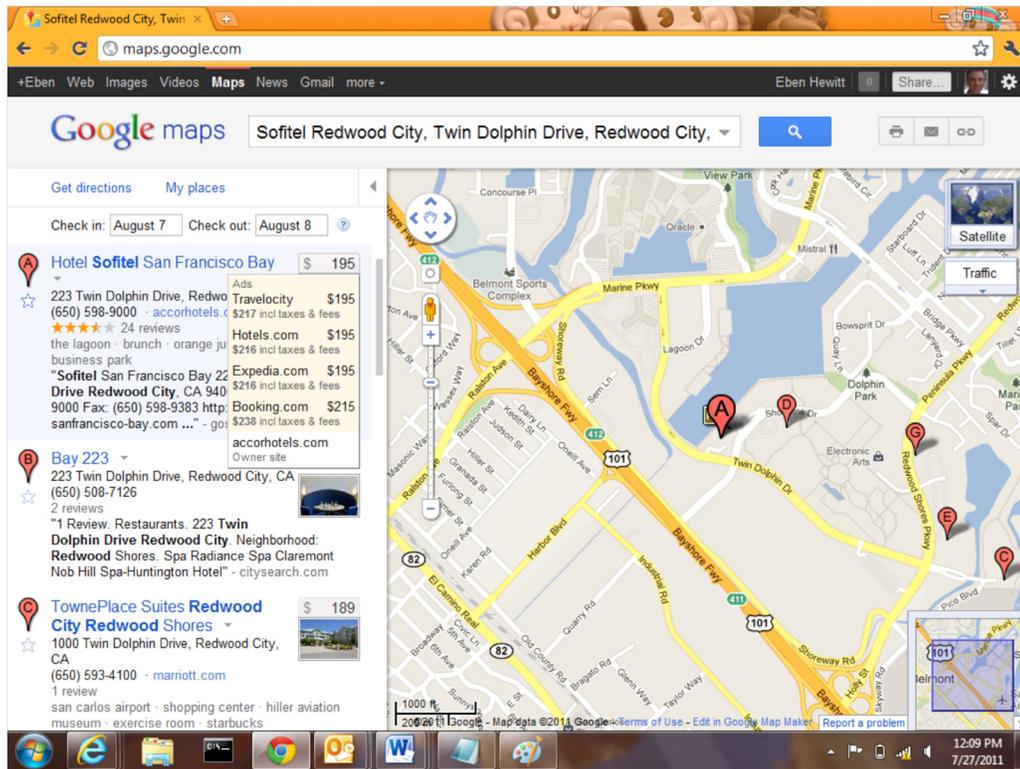


Figure 1 – Google Maps showing available rates

The next step in the project was to create a mechanism to send Google up-to-the-second availability and room rates by dynamically calculating the lowest possible rate that still satisfies Choice's rate parity rules with other distribution channels. This information is maintained by Google in a cache for 90 days of availability and rates for each hotel (6000) with a length of stay from 1 to 7 nights, which equates to approximately 4 million data points. It is imperative that this cache is maintained in real-time to prevent overbooking hotels and displaying rates that are no longer available.

To ensure Google always has accurate availability and lowest double occupancy rate, an event driven architecture was create as shown in **Figure 2 – Google Architecture**. Two WebLogic JMS topics were created that contain reusable events that leverage the Choice canonical event message format. The usage of JMS technology throughout the real-time integration allows for the core systems to handle high peak traffic volumes as well as bridge scheduled and unscheduled system downtimes. These events are Room Availability Event and Room Rate Event and are enterprise events, not specific to Google, and have been slated for reuse in other projects in the IT Roadmap. The Choice reservation system generates these events when either the inventory for a given hotel/date/length of stay combination crosses a predefined threshold or a rate has potentially changed.

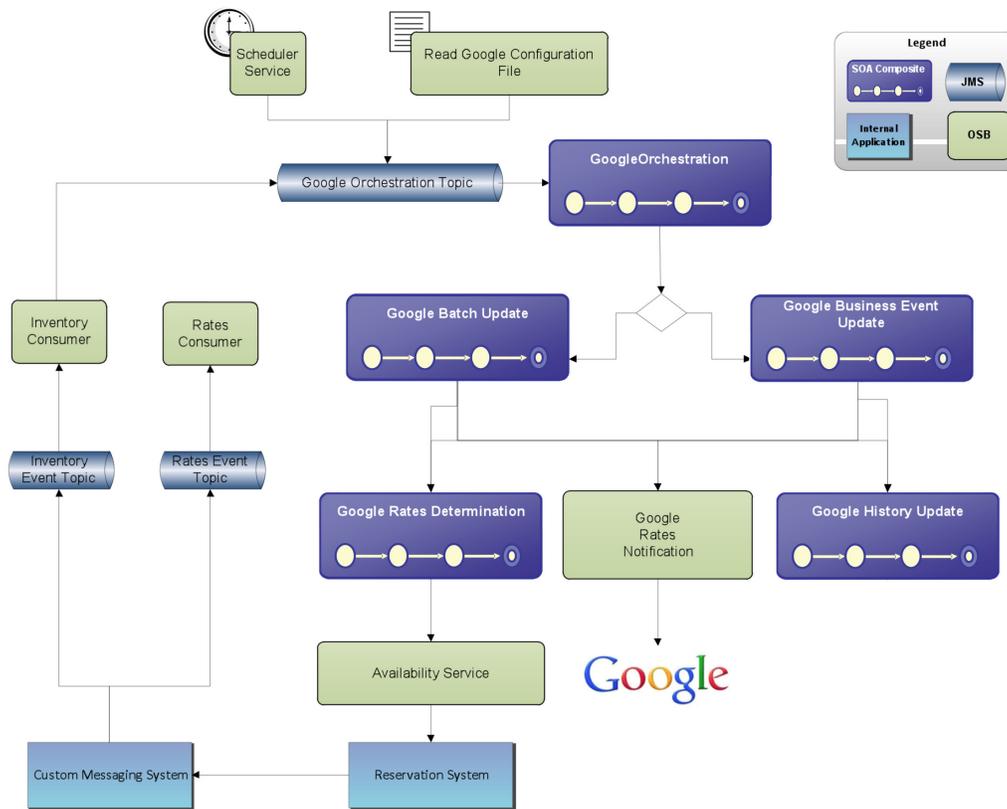


Figure 2 – Google Architecture

The integration processes consume these events and determine if the event is for a hotel and/or rate plan that Google cares about. For example, if a rate changes for a date nine months from now, the process ignores the event, because its time horizon is always only 90 days out. A Room Availability service was created to determine if there are rooms still available and the lowest possible rate based on information in the event. This means that if the availability changes and there are no longer any queen rooms for sale, the king room rate could potentially become the new lowest rate. If there are no longer rooms available or the updated rate is less than the rate that Google currently has a message is sent to Google.

Google considers their cache stale after seven days and stops displaying the data so Choice is required to send availability and rate messages for each price (hotel/date/length-of-stay combination) at least once every seven days requiring, at a minimum, all four million data points need to be updated every seven days.

An intelligent Scheduler was created that prepares availability and rate data to send to Google just in time in order to ensure Google's cache is absolutely fresh allowing no data point to get older than seven days. The scheduler smartly determines which of the data points in Google's cache need to be updated for the current day and only updates those data points. This reduces the number of refreshed data points to 540,000 per day and prevents the need to send four million data points at one time, which would have severely impacted the reservation system. This provides a more even and predictable load and reduces the impact on the reservation system.

A custom configuration file was created to allow the business users to dynamically turn on and off which hotels and rate plans are active with Google. If the configuration is changed, the processes need to determine which hotels need their availability and rates created, deleted, or updated.

As we've embarked on an ambitious plan to completely re-architect and transform our legacy and core systems, Sierra-Cedar has become a key partner for us. More than just technical experts, Sierra-Cedar is providing thought leadership in helping us move forward in these strategic initiatives. They embody the phrase and "trusted advisor."

Rain Fletcher
Vice President

Application Development and Architecture

RESULTS

Choice Hotels views this project as having strong strategic alignment and anticipates a significant ROI. Choice Hotels also received the 2011 Oracle Fusion Middleware Innovation Award.

Metrics Used to Determine Success

Google provides Choice with both Impression data and click through data for each hotel daily. Google embeds a tracking token into the deep link during the reservation process and tracks reservations that originated from the Google project. Combining the impression, click through, and reservation information allows the business to easily measure the value and success of this project.

Short Term Results:

- A new distribution channel for the franchisees has been added that will increase targeted advertising and thus the number of reservations.

- The project was completed in a short four month timeframe.
- Four enterprise services were developed that helped to establish the standards and guidelines for developing additional services. These services are being used in several other projects already and are slated for use in many more projects on the IT roadmap.
- An initial event driven architecture was established around real-time events for room availability and room rate changes. These events were immediately reused by other projects that integrated with 3rd party hotel distribution companies.
- The Canonical Data Model consisting of dozens of XML schemas that represent the Choice business domain were created as a part of this project.
- Completed the initial build out of four OSB clusters and two SOA Suite clusters that run in different DMZ on eight physical servers.

Long Term Results:

- Demonstrated the power and efficiency of the Oracle SOA products thus validating their purchase.
- Created a framework of reusable services that will be used for further automation. This framework will significantly reduce the cost of integrating availability and rate information to other 3rd parties (i.e., Expedia, Travelocity, etc.)
- This project will serve as a reference point for many projects. Many best practices were established and utilized during this **project and this project was a driving force** for Choice to set up several pieces of their SOA infrastructure.
- Sierra-Cedar provided four training courses around the Oracle SOA platform to help Choice Hotel resources become productive with the products **quickly**.

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