

White Paper – Technology Overview

Summary

The eTapestry application represents the latest in Internet, database, and programming technology. We feel it is important, therefore, to outline the technologies included within and how they are being utilized. By doing so we hope to both inform our prospects and customers of the benefits that are granted by the use of the technologies as well as allay any concerns our customers may have about its use.

The Client

The eTapestry application is a true Internet-based application. It has been designed from the ground up to support a thin Internet HTML-based client interface. eTapestry is compatible with a variety of commercial internet browsers including Internet Explorer and Firefox.

This compatibility ensures the ability of an organization to access their data regardless of the machine and operating system. Even an organization with a mix of Windows and Mac hardware can leverage all of their machines to access eTapestry. eTapestry also utilizes JavaScript and AJAX technologies to bring the look and feel of a rich internet application to the product.

Client-Server Communication

The communication method that the client uses to access the server cannot be glossed over. Since it is critical that unauthorized individuals do not gain access to the information contained within the communications, and since the Internet is, inherently, a public network, it is imperative that we provide encryption. The method of protection that we have chosen is a tried and true Internet encryption protocol: SSL. This is the same protocol used by major banks to provide secure banking services to their customers and by national brokerage firms to offer online trading facilities, so one can easily see that it certainly can offer an excellent degree of protection from snoopers! In addition, because it is a

standard Internet protocol, all major web browsers support this method of communication with the server, allowing us to avoid forcing our customers to adopt a certain operating system or browsing software.

The Server

Our server, like any application server, is a blend of technologies. Some of the technologies that we employ on our servers include Java, Java Server Pages, JavaSpace Messaging, Struts Framework, and an Object Database. The overarching platform is a service oriented architecture that provides a number of advantages.

Specialized functionality

The service oriented architecture provides the ability to segment all of the application processing into logical components that perform very specialized tasks. The benefit of this type of organization of function is that it helps to encapsulate application enhancements and fixes, minimizing the impact of changes across other areas of the application.

With this degree of specialization of services, we also benefit from a high degree of flexibility with regard to hardware deployment. We can tailor the type and amount of hardware to each service. We do not have to rely on bigger and bigger machines to scale the application as we add customers but rather we can employ smaller, commodity hardware to split up the application load while maintaining highly responsive server side processing.

Deploying Redundant Hardware

As application requests come in from client machines for a specific application service, there are multiple servers listening for each type of service. Requests are taken by the most available server so that the request load is apportioned evenly among the machines. This load balancing ensures a consistent user experience. With multiple machines assigned to each service, eTapestry minimizes the impact of a hardware failure. Hardware will fail, and in the event of a failure, there is enough overhead built into the environment such that the other servers pick up the

load for the failed server until that server is fixed or swapped out for a new machine. Elimination of single points of failure in the platform contribute to the high uptime and 24x7 availability that our customers have come to expect.

Modular Growth

Finally, the service oriented architecture allows us to add machines to various points in the system in a modular fashion, insuring a consistent user experience as we support more and more customers. The analogy is similar to that of a supermarket queue model. As the request traffic increases, we simply add more machines to our hosting center the way a supermarket opens another checkout line to handle additional customers.

eTapestry employs a highly automated monitoring system to analyze its production hosting environments. Key server health indicators are analyzed and alerts are automatically sent to on call personnel when acceptable ranges are exceeded.

The eTapestry architecture is an open system. eTapestry provides an API for retrieving and modifying the database outside of the eTapestry application. A typical scenario for API usage is synchronizing data in eTapestry with ancillary systems such as finance and accounting, ticketing or event planning, etc.

Object Database

eTapestry uses an object database for data storage needs. Using an object database ensures that there is no mismatch or confusion between how the application implements a given object and how it is represented in the database. In fact, there cannot be any difference in the representation because it is the Java object itself that it stored directly in the database! This is an obvious boon not only for our developers—who need not learn both the object structures within the Java application as well as relational database structures—but also for our customers as we can more easily and quickly add new functionality to our system. Finally, because we do not have to “map” our Java objects into a relational table structure, we do not have an additional layer of complexity in our application that

will only serve to slow down database access and, therefore, client response time.

Summary

We use many of the latest technologies in the eTapestry application in order to provide the level of service that our customers will expect from us and to make this state-of-the-art application possible. Our architecture was constructed to accomplish the dual, primary goals of quality user experience and maximum uptime for our customers. As we continue to grow we feel our architecture provides us the flexibility and scalability to grow ahead of demand while embracing continually evolving technology improvements in both software and hardware.

About eTapestry

Founded in 1999, Indianapolis-based eTapestry® is the first web-based donor database and communications management system that delivers its software over the Internet, allowing access from desktops, laptops and mobile devices. eTapestry's web site development, ecommerce and advanced email tools give its more than 3,000 customers a fully integrated and maintenance free solution. For more information, visit www.eTapestry.com.

eTapestry is a Blackbaud company.