

case study



Credit Analysis

KEY METRICS

- 47% of application source code from reusable TopCoder .NET components (by LOC)
- 24% of application from custom components (by LOC)
- 21 generic components used from component catalog
- 2.2:1 ratio of test code to production code
- Personnel:
 - One TopCoder Project Manager
 - One TopCoder Architect
 - One TopCoder Deployment Engineer
 - 64 members involved in design, development and review of components
 - 2 members used for assembly



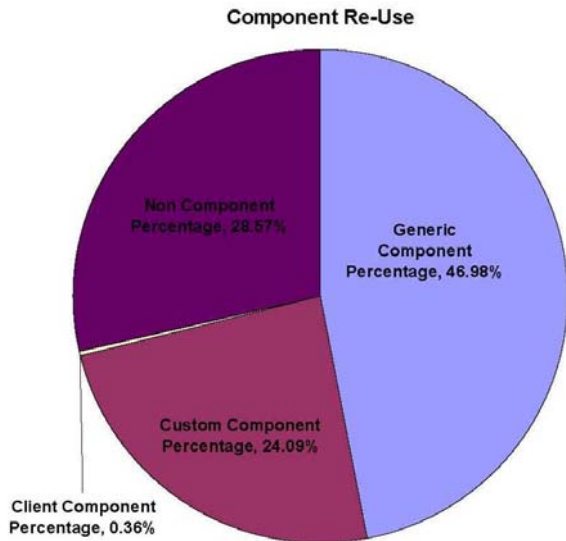
The Customer

From its inception in 2000, Direct Energy has grown to become one of the largest energy and related services providers in North America with five million residential and commercial customer relationships. Direct Energy provides customers with choice and support in managing their energy costs through a portfolio of innovative products and services. Over the last seven years, Direct Energy has grown into an C\$8.6 billion organization with more than 4,800 employees.

The Challenge

Direct Energy's (DE) credit risk group, responsible for analyzing the creditworthiness of commercial and industrial (C&I) retail customers for all of its North American markets, required a mechanism for managing the credit request process. Before engaging in a retail energy services contract with a commercial customer, for example a large manufacturing/industrial facility, DE must calculate the creditworthiness of the customer determining their ability to pay for the provided commodity or service. Previously, the credit request process was manually intensive requiring satellite sales offices to email or fax credit requests to the credit risk department. The credit risk department would capture much of the credit request and customer analysis information into a local access database or excel spreadsheets and communicate the results via email or fax. Due to the manual nature of the procedure the forms and processes were different amongst the various sales offices.

All of this contributed to an inefficient credit approval process that could not scale without adding more human resources. Credit reporting and auditing was also very difficult given the lack of structured, centralized data.



The chart above shows that most of the application code was generic (46.98%).

The Solution

TopCoder's proposed solution was a web-based Credit Analysis Tool that would be accessible by all the sales coordinators and credit departments, regardless of location, to input preliminary contract information for evaluation by the credit risk department. The Credit Analysis Tool (CAT) improved Direct Energy's credit request and analysis process in several ways:

Standardization. CAT provided a standard credit request form that ensured all of the required information would be collected in a unified format. Not only did this standardize the process, but it also standardized the data so when it came time to consolidate data and reporting across sales markets it was far easier to do with the data available in a central location.

Efficiency. With the introduction of a work-flow component to route the credit request to the appropriate group based on the data and provide the latest status of the credit request to interested parties, DE is able to drastically reduce the turnaround time in completing a credit request.

Auditing, Compliance and Controls. Every change within the system is tracked and tagged with date/time stamps, who made the change and what attribute values changed. This audit trail provides an electronic history and reporting mechanism ensuring compliance to corporate risk management standards.

The Details

Designing this system, TopCoder leveraged a world-class architectural approach - a 3-tier application, with a fully XML schema-driven, object-oriented domain model, an SOA-enabled

business logic tier, and an AJAX-enhanced presentation tier.

Foundation Technologies - Microsoft .NET 2.0 and ASP.NET 2.0. .NET development is a natural fit for Direct Energy's Wintel environment. The web-based application approach centralized management of the application and associated business logic in the hands of IT personnel.

Presentation Tier - ASP.NET AJAX 1.0. ASP.NET. AJAX was released by Microsoft during the early design stages and provides a foundation for a seamless user experience.

Easy extensibility. The architecture features several pluggable strategies although the most important might be the ability to integrate with a contractual information source and match contract data to credit requests. TopCoder's members worked with a database driven approach while Direct Energy simultaneously developed a web-service interface to their own systems. This service was later integrated into the system in a matter of days. Internally, the presentation tier is strictly isolated from business logic via the rich set of web services in the service tier. With this separation Direct Energy has the capability to integrate Credit Analysis functionality into other systems and other business orchestrations without any changes to the application itself.

The TopCoder Advantage

The TopCoder methodology uses competition to ensure the highest quality solution for each phase. At least two designers and developers compete, and a Review Board made up of three of the highest rated TopCoder members evaluate each submission on a number of key metrics.

Each component is packaged separately to promote reuse within other areas. In addition, this lowers the impact of changes throughout the project. TopCoder Project Managers create developer forum threads and posts for rapid updates to required changes.

Compared to traditional IT consulting, the component-based methodology and reuse solution resulted in a substantial savings over the cost of the total application, higher quality in design and development, and consistent deliverables that will save significant time and resources in future phases.

About TopCoder

TopCoder has over 139,000 members worldwide representing its virtual workforce. Through competition-based methodologies these members create commercial grade software components and assemble them into a wide variety of applications for numerous Fortune 500 and leading high tech companies. TopCoder maintains a library of over 1,100 generic components in Java and .Net that are leveraged to reduce cost and time, and increase quality in client applications.