

Qwest Communications

Managing Large-Scale Program Deployment Over the Web with Windows 2000 Advanced Server and SQL Server



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Each day, Qwest Communications deploys new services and new facilities, each one targeted to meet different customer needs. Managing more than 1,000 programs simultaneously is no easy matter. But with Microsoft Windows 2000 Advanced Server and SQL Server 7.0, Qwest has built a Web-based program management system called eSite that provides point-and-click access to information about all ongoing programs. This highly scalable solution not only enables managers to use the Web to collaborate more efficiently, but it also has enabled Qwest to improve program manager productivity—from a ratio of 1.6 programs per program manager to 10 programs per program manager.

Solution Overview

Customer Profile

Qwest Communications, Inc. is a broadband, Internet-based communications company, providing wireless data, voice, image, high-speed Internet access, and multimedia communications. Qwest serves more than 30 million customers worldwide.

Business Situation

Qwest needed a program management solution that would enable employees at all levels of the organization to see what activities were underway and how different programs would affect local operations.

Solution

With its Web-based program management system, Qwest has increased productivity significantly—from 1.6 programs per manager to 10 programs per manager. Moreover, more than 5,000 employees now have point-and-click access to current program status information.

Software and Services

Microsoft® Windows® 2000 Advanced Server operating system with Internet Information Services version 5.0
Microsoft SQL Server™ version 7.0
Microsoft Visual Studio® development system version 6.0

Situation

Qwest Communications is always expanding. At any given moment, the telecommunications giant may be building a new long-distance switch in Atlanta or Baltimore; installing a fiberoptic ring between Chicago, Kansas City, and Albuquerque; or upgrading 10 gigabit cards in racks around the country. These and a thousand other programs are going on simultaneously, and Qwest managers needed a way to keep track of them all.

Back in 1998, when the 25 program managers in Qwest's engineering organization could manage only around 40 programs simultaneously, Qwest decided to use Microsoft's Office and Internet technologies to revolutionize the way it managed its programs. Today, through the use of wizards, Microsoft Project, Microsoft Internet Explorer, Microsoft Windows 2000 Advanced Server with Internet Information Services, and Microsoft SQL Server, Qwest's project managers are far more efficient. Indeed, Qwest has nearly 100 program managers now, and they can effectively manage and coordinate more than 1,000 programs simultaneously. Moreover, up-to-date information about any and all programs is available on Qwest's eSite Web site, which is only a click away on the corporate intranet.

Solution

Large, complex programs are not new to Qwest. The telecommunications firm, number 120 on the Fortune 500, has evolved to deliver a range of solutions that runs from long distance to broadband. But keeping track of how and where it was evolving became more and more of a challenge as that expansion picked up steam.

“We needed to develop a solution that would enable a seamless flow of information between planning, engineering, and operations,” says Kevin Smith, Senior Director of Engineering Program Management for Qwest Communications. “Planning plans it, engineering builds it, and operations maintains it. Our vision was to build a system that would enable our president to get up-to-date information on any program quickly and easily. He could say ‘*I want to know all the physical sites you have, what equipment is there, what plans you have to enhance those, when those plans are going to come to fruition, and what the current status is on each of those programs.*’ And with this system, he should be able to click a button and get all that information in a matter of a few minutes. That’s a big challenge, for it involves three very different organizations and a lot of very disparate data.”

Yet Smith’s team was more than equal to the challenge. His team worked closely with each of the three organizations to discover precisely what their workflow and program management requirements were. Then they set about mapping those requirements to a Web-oriented solution called eSite.

“eSite started out as a wizard-based project management-only system,” says Smith. “Someone would put in a request for a project by filling out an online request form on the Web. eSite would route that request to the appropriate senior manager, who would approve it and assign it a priority and a level of effort. Then they’d assign it to a program manager—and they’d do all this on the Web.

“Each program manager has a page on their system called My eSite, and that’s their personalized view of eSite. A program manager would look in My eSite and see a prompt indicating that they’ve had a new program assigned to them. They can click the wizard, which walks the program manager through the program—asking what kind of a program it would be, collecting background details, and offering to merge program data into an existing Microsoft Project-based program management template or offering to allow the manager to develop a free-form plan directly on the Web. If the manager wants to use Microsoft Project, the wizard will merge all this collected data into a Microsoft Project template and save a copy to the manager’s PC. It also puts a copy of this plan up in a Microsoft SQL Server database on the eSite server, where anyone in the company can view the plan through a Web page.”

With the local copy of the program plan running on the desktop, the program manager can manage the project using Microsoft Project wherever, whenever. When the program plan is updated, eSite synchronizes the updated plan with the plan in the SQL Server database on eSite so the data there always reflects any updates incorporated by the program manager—ensuring that anyone else checking eSite for a program status update always has the latest information.

eSite has grown even more sophisticated since those early days of wizards. Today, it is the key system for backbone project management and reporting, network maintenance approval and tracking, document collection and sharing, and general departmental administration. The site hosts a number of workflow applications that are critical to the daily operation of the Qwest

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Program Management
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nationwide fiberoptic network, including applications that enable the streamlined creation, approval, tracking, and closure of requests through multiple departments across the enterprise. The workflow functionality includes network maintenance requests, backbone design change approval and handoff to Engineering, equipment design change requests, and more.

The site implements an n-tier design, with a clear separation between script-based presentation logic, component-based business logic, and database-level stored procedures. This design maximizes custom development flexibility and source code reuse while minimizing development turnaround time and duplication of effort. The Web interface eliminates deployment and versioning issues, because all interaction is accomplished through a standard desktop browser. New applications can be designed, coded, tested, and released with no impact to the large customer base or their desktops. All site data is stored in a central collection of SQL Server databases, allowing the sharing of information and dependencies among applications. If someone creates a program plan that involves, for instance, the installation of cards at 12 different facilities, eSite notifies personnel at those facilities so they can see just what the program is and when personnel associated with that program will be arriving to work at the site. It also allows planning personnel at a site to see all the programs that will have an impact on their site and enables them to manage their own operations accordingly.

Benefits

The automation of so many program management details, as well as the capabilities of eSite to link so many of Qwest's personnel into a unified system, has increased the productivity of Qwest's program managers significantly. Three years ago, Qwest had 25 program managers, who managed some 40 programs—and all they could use to communicate program status were online Microsoft PowerPoint® presentations, which were not always up to date. Today, Qwest's engineering organization has more than 125 program managers using eSite, and they manage more than 1,000 programs—and any authorized individual on the corporate intranet can get the latest status of a program simply by visiting the eSite Web page.

Moreover, the success of the eSite system has prompted adoption of its use beyond the original planning, engineering, and operations groups at Qwest. Today, around 5,000 users access the system on a regular basis to see the status of programs underway in the engineering, operations, planning, hosting, and sales operations groups. And because of the modularity of the underlying objects, Smith notes that his organization can adapt the system to incorporate the particular needs of new organizations quickly—often in only a matter of days.

"eSite is a force multiplier," says Smith. "It allows us to do more work, faster, with fewer people than it would normally require. The Microsoft platform has allowed us to respond quickly to a business need with a robust, flexible solution. We don't spend months or years developing tools; we develop them in days and are able to modify them as our needs change.

"We used Microsoft's suite of tools to create three unique, mission-critical applications in less than 30 business days from concept to production," Smith goes on to say. "In today's business environment, that kind of speed translates to a significant competitive advantage."

A High-Performance, Cost-Effective Solution

Application development is not the only area in which Qwest executives have seen significant performance benefits from the Microsoft platform. Windows 2000 and SQL Server have enabled

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Microsoft®

Qwest to scale eSite from a site that supported 25 users and a few thousand hits per month to one that now supports more than 5,000 users and 3.5 million hits per month.

"Windows 2000 Advanced Server has enabled Qwest to scale out, not just up," says Derrick Tussey, Qwest Engineering eBusiness Team Lead. "Our intranet traffic has rocketed to more than 1 million database-driven page views per month, and Windows 2000 Advanced Server and SQL Server have kept pace—with performance to spare."

Smith notes that the cost of developing and maintaining the Microsoft-based solution has been far lower than it would have been in other environments. "Microsoft provides scalable and reliable products at an unbeatable price," Smith says. "An equivalent UNIX-based solution would have been very expensive and would have provided no significant advantages. Moreover, Microsoft's products have provided the ability to add new servers to our environment without rebuilding the production platform and experiencing costly downtime."

For Qwest and its ever-evolving network and ever-evolving suite of communications services, such control, cost-effectiveness, and flexibility are critical. With its eSite Web system, the company is able to plan and manage its programs more efficiently and effectively than ever. And it can meet its customers' needs faster and more effectively than ever before.

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Derrick Tussey
Engineering eBusiness Team
Lead
Qwest Communications

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