

JPL Explores Space Faster, Better, Cheaper with Xerox DocuShare

Jet Propulsion Labs (JPL) is perhaps best known recently for its highly publicized Mars Pathfinder mission. It is the lead U.S. center for robotic exploration of the solar system, and since 1958's launch of the first U.S. satellite, Explorer 1, JPL has been in the forefront of technology in space exploration. Throughout, JPL is recognized worldwide for its innovative solutions to complex problems, from launching satellites and "rovers" to developing advanced computing techniques for data-analysis. In the spirit of true innovation, JPL seeks out equally creative solutions for managing space and technology missions, in particular the enormous amount of associated research, documentation and collaboration. Products such as DocuShare now play a leading role in helping JPL develop and manage an increasing number of space and technology missions "faster, better, cheaper."

JPL manages information for over 5,000 employees, 700 on-site contractors, and several thousand partners and affiliates around the world. Projects involve project managers, administrative staff, engineers, and scientists working together, and can last from several weeks to decades. Capturing, finding and sharing important documents is more than just a challenging task in this environment; it is critical to the ongoing success of projects and the laboratory itself.

Several years ago JPL began seeking a single application to replace a number of "project library" solutions then in use. Different organizations had developed different solutions for JPL projects, and day-to-day documentation of projects was a struggle. Hundreds of documents would be stored for each project, each individually named. It was not only difficult to find docu-

uments, but users often had no idea if they were reviewing the most current version of the document. JPL recognized they could not continue to meet all their goals, and maintain the level of ongoing document management with their current solutions. This combined with a reduction in the IT workforce forced JPL to look for a commercial, off-the-shelf software solution. "As the rate of development increased we needed to provide much faster ways to capture, find and share important documents," said Susan Hess, system engineer, enterprise information systems for JPL. "We needed a web-based solution due to the variety of partners involved in our work and our lack of control over their desktop software. The solution also needed to be very simple to administer, as well as low-cost," said Hess.

A requirement analysis and technical survey was conducted. JPL's design methodology includes pilot testing of products before deploying them widely. "Being easy-to-use was critically important to DocuShare's adoption within JPL. Engineers and scientists in the 'faster, better, cheaper' era simply do not have the time to learn new information systems. They use tools they are familiar and comfortable with," said Sugi Sorensen, a systems engineer with JPL. When you have project teams designing new spacecraft or figuring out how to land on Pluto, it is important to keep them focused on the project at hand rather than the software.

DocuShare's ease of use has encouraged widespread deployment and adoption, from a single server in March 1998 to 47 servers and 3,450 users in just 17 months. Users span the gamut, from researchers, developers and scientists to administrative assistants and interns. JPL's DocuShare libraries



DocuShare installs in minutes and immediately sets up a default home page



Content is stored in a familiar nested folder structure so users are immediately comfortable with DocuShare



DocuShare's powerful search tools make finding the right information effortless

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primarily store project documentation which includes memoranda, presentations, reports, plans, engineering notes, policies, requirements and specifications, reviews, proposals, schedules and procedures. Financial data and product data have historically been stored in their own information systems; because of DocuShare's ease of use, some groups have also begun to store product and financial data in their DocuShare libraries. "Line organizations will use DocuShare to store their local policies, procedures, memos, presentation and basically anything else that is generated by standard office applications. In short, if someone creates a document that more than one person needs access to, then a logical place for it is a DocuShare library," said Sorensen.

"DocuShare maps to the way people work today, sharing information across geographical, functional and system boundaries. In the spirit of the Web, DocuShare creates a common ground among users so regardless of their technology expertise, they can participate in the collaborative process of developing and sharing information," said Doug McLean, vice president, sales and marketing, Xerox Internet and Software Solutions (XISS).

As a web-based, community-maintained solution, DocuShare reduces administrative and technical support requirements to a fraction of centralized systems. At JPL only one full-time and two part-time technical staff members are required to customize each of the project "libraries," and provides technical support for the 47 DocuShare servers and 3,500 users. "The

DocuShare solution removes the requirement for an administrator/librarian in the loop. Users can easily post their own information to share in a work area," said Hess.

The success of DocuShare's initial implementation has led to it being part of several larger initiatives at JPL. Central to these is the move from Document Management to Knowledge Management. While the project information management process is in development to further standardize methods to build, document and maintain information throughout a project's life cycle, JPL, like most organizations today, is seeking strategies to manage its knowledge. "Our knowledge management solution must enable one of the projects primary objectives—sharing and re-use of information. Our future plans call for centralizing the authentication mechanism enabling users to search multiple DocuShare libraries from a single search interface. We plan to provide access from JPL's new enterprise portal that will replace our current static internal home page. Even in its current implementation, DocuShare allows the knowledge management team to work together even though we are spread out over multiple buildings and site locations," Sorensen said.

DocuShare's standards-based repository and community-maintained model for sharing information is contributing to solutions for space exploration. With its eye firmly set on the 21st century, JPL has embarked on a course propelling their projects to the outer reaches of the galaxy.

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HOW THEY DO IT

The end-user computing environment at JPL is heterogeneous—about 1/3rd each of Macs, PCs (running Win95 and NT), and Unix workstations—mostly Sun but also with pockets of Silicon Graphics and HP machines.

Serving 3,450 users and 47 servers, this load is spread out among two Sun and three NT servers. Clients access the servers primarily through the DocuShare web interface, using either Netscape Navigator or Microsoft Internet Explorer.

Users connect to the DocuShare repositories in a variety of ways, from 28.8K dialup modems to dedicated T1 lines.

FOR MORE INFORMATION OR TO ORDER DOCUSHARE

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