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White Paper

Defining the EMC Documentum CenterStage Product: An Inside Look at the Extensive Research Effort for EMC's New Knowledge Worker Client

A Detailed Review

Abstract

This white paper has been designed to provide unique insight into how EMC® Documentum® designed the new knowledge worker clients – CenterStage Essentials and CenterStage Pro. It includes the vision for CenterStage, the customer research process, key lessons learned, and the development of the conceptual model.

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Executive summary

This white paper provides an insider look at the product definition process for EMC® Documentum® CenterStage. CenterStage is a suite of new knowledge worker clients that provides a collaborative, web 2.0 front end to the Documentum platform. A rich and easy-to-use set of web 2.0 clients, CenterStage brings content management capabilities to every desktop, making the benefits of social collaboration, document management, and advanced search more accessible to a broader range of knowledge workers within an organization.

The CenterStage clients will be offered in two versions:

- CenterStage Essentials will provide basic content services at no cost to existing Documentum Content Server license holders. This client offers team workspaces; folder, thumbnail, and image carousel views of information; desktop integration; smart navigation of search results; secure access controls, and much more. A public beta program for "CenterStage Essentials" is now available. Check out the beta site at http://labs.emc.com.
- CenterStage Pro, a feature-rich client, will offer all of the capabilities available in the CenterStage Essentials client, plus support for robust web 2.0 capabilities such as wikis, blogs, and RSS feeds; enhanced tagging; federated search; and advanced visualization techniques.

The extensive product design process conducted by the EMC Documentum CenterStage team has successfully enabled EMC to:

- Define the top information management problems facing knowledge workers
- Determine the technical solution sets to solve such problems
- Map different problem statements to different class of users
- Categorize end users into multiple user personas; define their goals and how the CenterStage client can meet those goals.
- Create an innovative new product that was designed from the ground-up to meet the needs of today's knowledge workers in any organization.

As shown in this white paper, the definition process for CenterStage was an iterative and extensive process, where the EMC Documentum CenterStage team analyzed user needs, developed technical use cases and created personas, and validated product features with customers and partners. It helped validate the EMC Documentum CenterStage vision to provide "a place where users can connect" that integrates with existing applications and allows users to:

- Manage and organize visually their personal, team, and corporate work information
- Work with others on content and documents in "project spaces" and not have to reinvent the wheel
- Engage in the big conversation and enable new ways to interact with others
- Discover others who have the expertise to help them work on their own projects
- Find the information they need to research work projects

Introduction

This white paper provides an insider's look at the product definition process for the EMC Web 2.0 suite of clients — CenterStage. It includes sections describing the vision for CenterStage, the customer research process, key lessons learned, and the development of the conceptual model.

Audience

This white paper is intended for line-of-business and IT professionals, including C-level executives.

The vision

The main goal behind the product definition exercise for EMC's next generation knowledge worker client (aka CenterStage) was to identify the common challenges facing knowledge workers today. This white paper provides insight into those challenges and the corresponding use cases that were developed.

In order to leverage the benefits of a content management platform, knowledge workers need applications with familiar and easy-to-use interfaces that can be personalized and enable them to work the way they want to. Over the years, a number of technologies from shared drives to content management to traditional asynchronous collaboration and more recently social networking have attempted to address these issues. The proliferation of such tools has led to an increasing number of information silos and no central place to access and manage these tools to ensure that business-critical information remains secure. As the CenterStage team observed customers performing their daily work, it became apparent that their information management needs were not effectively fulfilled. Knowledge workers need to find relevant information easily, share that information securely, and collaborate to create and manage their content within a consolidated, contextual, and multi-modal user interface.

In 2006, Susan Feldman from IDC published a research update outlining the Hidden Cost of Information Work. In her report, Feldman identified that companies, with an average of a 1,000 enterprise workers, waste $30 million a year in productivity that could be avoided with effective information management tools. The top annual costs were as follow:

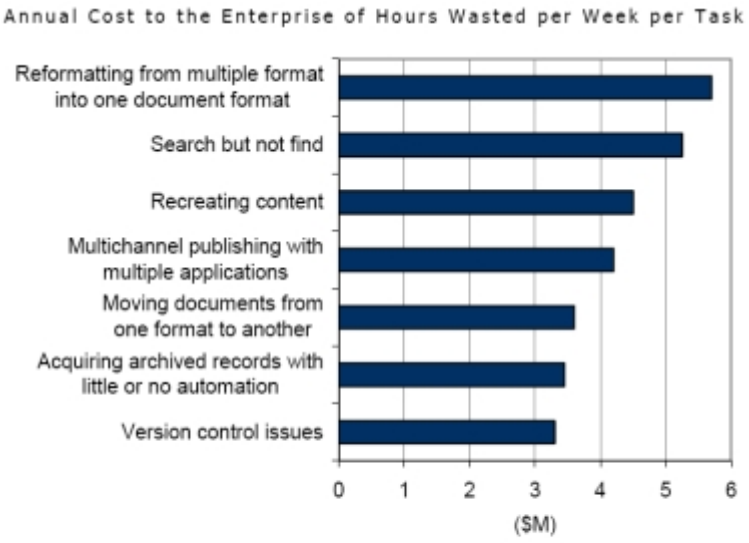

Figure 1. The hidden cost of information work

These challenges were also validated by the research effort EMC conducted, as we observed knowledge workers at their desks – the most common challenges being collaborating with others, searching and discovering information, and organizing and personalizing information.

The knowledge worker product management, marketing, and design teams conducted a Design Partner Program (DPP) starting in June 2007 whose purpose was to identify the top challenges faced by today's knowledge worker in order to focus on the right information management problems to solve.

The program resulted in over 1,900 observations that were aggregated into key problems, summary problem statements, and needs, which we will describe in detail later in this paper.

The research resulted in the following problem statement for CenterStage:

Table 1. EMC Documentum CenterStage problem statement

The problem of	• Not finding content and not understanding the value of content • Having to start from scratch with a limited ability to reuse existing content • Needing to share content with others and having work-in-progress (WIP) spaces • Reviewing content and organizing content for others • Grouping things in ways that make sense to users
Affects	Knowledge workers across many industries
The impact of which is	A significant loss of productivity and cost to large organizations (up to $30M for a 1,000-person organization)
A successful solution would provide	"A place where you can connect" that integrates with existing applications and allows users to: • Manage and organize visually their personal, team, and corporate work information • Work with others on content and documents in "project spaces" and not have to reinvent the wheel • Engage in the big conversation and enable new ways to interact with others • Discover others who have the expertise to help them work on their own projects • Find the information they need to research work projects • Have ubiquitous access to this information as it changes

The methodology

The Design Partner Program

The EMC Documentum CenterStage team underwent an extensive product design research process through its Design Partner Program (DPP). The objective of the DPP was to involve EMC customers in the early definition and design phases of EMC's next generation Knowledge Worker Client. Participants in the DPP were recruited from a broad range of industries and voluntarily participated in the program. Many of the same design partners are participating in the EMC Documentum CenterStage Essentials private beta program hosted on http://labs.emc.com at the time of publication.

The CenterStage team visited 19 customers from June to August 2007, and observed knowledge workers and how they interacted with tools and information. The program resulted in over 1,900 observations. Design partners include Booz Allen Hamilton, GSD&M Idea City, Fujitsu, and Bechtel – to name a few.

The definition part of the DPP was carried out in three phases:

- **Phase 1:** The goal of the first phase was to conduct onsite customer visits to uncover critical business processes, knowledge workers, and organizational needs. Contextual inquiries were conducted to observe workers in their work environment.
- **Phase 2:** The goal of the second phase was for each contextual inquiry team to synthesize observations, business processes, and scenarios and prepare for the affinity mapping.

- **Phase 3:** The goal of the third phase was to conduct the affinity mapping of the collected observations. The affinity mapping process was the process by which group notes from multiple customer visits were consolidated to find common themes and assign weighting for the most common user problems.

Once the prioritized user problems were identified, EMC conducted validation sessions and surveys with customers to validate the derived product requirements. Let's further explore each definition phase of the program and their findings.

Phase 1 and Phase 2: Onsite customer visits and contextual inquiry synthesis

The EMC Documentum CenterStage team launched the discovery phase of the program in June 2007, consisting of onsite visits and one-on-one customer interactions to:

- Identify key user personas
- Develop a product process map
- Collect usage scenarios
- Perform contextual inquiries consisting of silently observing business users in their working environment
- Review and provide feedback on early conceptual designs

During the onsite visits, customers provided an overview of their business processes and use cases within a targeted solution area. This allowed EMC to fully understand the customer's business systems and how they leveraged their content management system.

Observing a line-of-business user performing his or her job provided real usage scenarios and allowed the team to collect artifacts (such as screenshots, printouts, etc.) illustrating a particular use case or scenario.

After each customer visit, the EMC team collectively de-briefed the contextual inquiry and documented business processes and observations, preparing for the affinity mapping part of the program.

Phase 3: Affinity mapping

The affinity mapping phase of the design process was the most intensive. During this phase, the EMC Documentum CenterStage team applied the process of "affinity mapping" to determine the high-level needs of knowledge workers and drive prioritization of the problems to address in future releases of CenterStage.

During the affinity mapping process, a cross-functional team (with representatives from engineering, design, and product management) analyzed the observations from the multiple customer visits, found common themes, and grouped them by categories of problems and needs. Figure 2 on page 8 is a snapshot of how the affinity mapping process worked within the hallways of the EMC Documentum office in Cambridge, Mass. As a result of the affinity mapping exercise, 15 high-level needs, 55 summary level problem statements, and 204 problems were identified.

Figure 2. The process of affinity mapping

The findings

The DPP yielded 1,910 observations, 204 problem statements, 55 problem summaries, and 15 final problem categories that were used to prioritize product features.

Identifying key themes and problem categories

Having identified the key problems and needs of EMC customers, the EMC Documentum CenterStage team needed to prioritize the problems that the CenterStage product would address. The team focused on the summary problems and prioritized the 55 problem summaries according to two criteria:

- Subjective criteria:
  - *Adoption impact:* if CenterStage were to fully address the stated need or problem, what would be the impact to the adoption of the product? This criteria was ranked high, medium, or low (H=3, M=2, L=1).
- Objective criteria:
  - *User count:* How many users had this need or encountered that problem or any of its sub-problem statements? A roll-up count of the number of unique users was computed.
  - *Company count:* At how many unique companies did we observe that need or problem? For instance, the need "I need to reuse existing content" was observed at 13 companies across 34 users. Solving this need would have a high impact on the product adoption.

EMC Documentum CenterStage product definition therefore focused on the top 40 percent of the prioritized problems. From the final list of 15 summary problem statements (out of 55), we derived the seven key high-level needs that the KW Client must fulfill. These are shown in Figure 3.

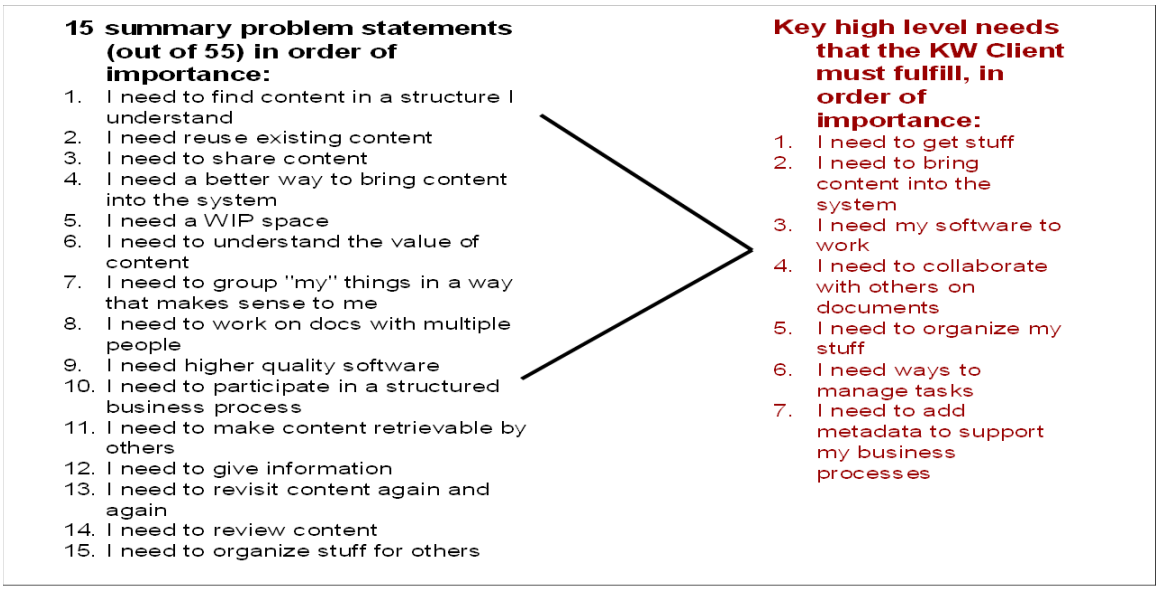

Figure 3. Prioritizing EMC Documentum CenterStage problem statements

These needs were grouped into the following themes: Organize, Discover, Create and Collaborate.

Mapping needs to summary level use cases and user goals

Summary level use case analysis

The prioritized list of "summary problem statements" was also used to identify the key use cases that the product needed to address. High-level user goals were plotted against the list of summary problem statements and ranked accordingly.

Through the research conducted during the DPP, the EMC Documentum CenterStage team identified the top needs CenterStage was going to address, what challenges knowledge workers were currently facing, and what technical solutions could address those challenges. Table 2 on page 10 indicates these needs, the specific problems faced by users, the current solution gaps, and how EMC Documentum plans to address those gaps.

Table 2. Needs, problems, and solutions

Top 5 Needs	Concerns	Current Situation	Proposed Solutions
Find relevant information	Knowledge workers spend 3.5 hours a week looking for information but not finding it. Of the 82 users the D7 DPP observed, 37 from 16 companies had issues finding content or understanding its value related to the task at hand.	• Individual sources of information can be searched but are often disconnected • Users cannot access information when offline • Search results are too long and lack context of how they relate to other content and people • Information cannot be previewed to decide whether it is useful	• Leverage saved and federated search to consolidate information across data sources • Provide offline synchronization of content • Leverage guided navigation and visualization to provide a more accurate and visual search experience • Preview everywhere to help people decide whether the information is relevant • Tagging to provide personal organization and access to information regardless of its origin
A better way to bring content into the system and leverage it	Knowledge workers spend upwards of 1 day a week re-creating and reformatting content Of the 82 users the D7 DPP observed, 34 from 13 companies could not reuse content effectively.	• Limited offline support and desktop integration often result in people needing to duplicate information • Content reuse is difficult as desktop-based content cannot be put in "mashed up" formats	• Provide tight desktop integration • Inline authoring to leverage the web-based model for mash-ups, reuse and visual aggregation of information • Content transformation and rendition where inline content and content from third-party applications can be rendered into various formats
Collaborate with others on documents	During the D7 DPP, over 50% of the observed users needed an effective way to share content, work on documents with others to have them review, annotate and approve or communicate changes. Current tools at their disposal were not satisfying those needs effectively.	• Shared workspaces such as eRoom® have to compete against shared drives or are perceived as glorified shared drives • Information is duplicated on local drives, creating disconnects among information sources • Reconciling changes to various versions of content is difficult. Versioning does not help as it is difficult to know what changed • Simple approval workflows are often handled through e-	• Personal and Team workspaces with tight desktop integration and offline support • Inline authoring with the ability to compare content versions and see what changed • Inline comments and the ability to leverage comments as a mechanism for initiating simple approval workflows • Content that can be

		mail and changes are hard to reconcile. Discussions about changes are disconnected from the changes themselves	shared and linked to

From both the understanding of the user needs and problem statements, the EMC Documentum CenterStage team also created a set of personas, their goals, and use case analysis to outline the product requirements.

User goal level use case analysis

The summary problem statements identified during the DPP were also grouped around specific roles and personas. Detailed personas were also created to describe the needs of a particular class of users. Table 3 maps different user needs to different end-user roles such as the individual contributor, business expert, etc.

Table 3. Sample actors/personas and user roles

Name	Description	User Needs/Goals
Individual Contributor	The primary focus of CenterStage. Individual Contributors are knowledge workers across a broad spectrum of industries who are under pressure to become more productive and, as organizations become more global, increasingly need to work in distributed teams.	• Find people and content quickly no matter where it is located • Reuse existing content to avoid having to start from scratch • Collaborate effectively on content with distributed teams • Remain organized and effectively organize information for others • Share information with others and stay up to date on project activities and industry trends • Manage tasks and stay on the "ball"
Business Expert	Business experts must be empowered to effectively support the needs of the individual contributors they work with. As line-of-business experts, they put their expertise to use to create reusable business solutions and templates.	• Create and manage team spaces to improve team work • Capture best practices as reusable templates and organize shared environments • Manage workspace policies and membership • Report on usage to see how effectively the space is organized

User personas

To describe the class of users preoccupied with specific problems, the EMC Documentum CenterStage team created four key user personas: Desktop Dan, Web 2.0 Wendy, Business Expert Brad, and Mobile Mike.

For example, Web 2.0 Wendy is involved with highly collaborative business processes – she needs to collaborate with multiple people, across geographies, time zones, and organizations. She also needs to create, manage, and share documents and ensure she can find relevant information within a matter of seconds. She has experienced the pain of information being buried in chaotic e-mail threads and being unable to find a document when she requires, or editing it within Outlook. Her goals are simple – she needs to be able to collaborate effectively with multiple teams and work more productively. The solution set that would meet her needs would be search, tagging, RSS Feeds, guided navigation, content

visualization, online personal, team and public spaces, recent changes, content templates, notification, discussion threads, inline authoring, etc.

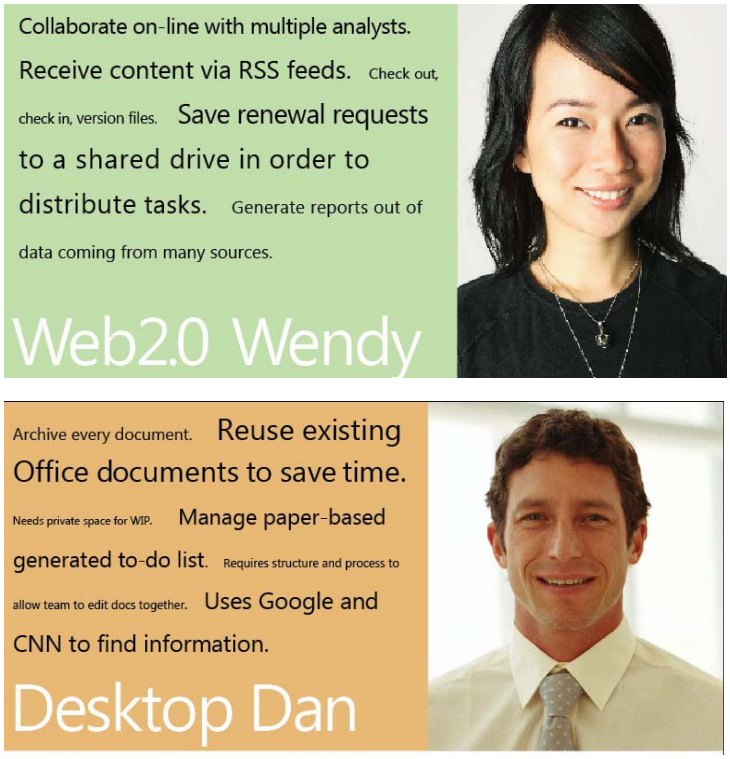

Figure 4. Two key user personas identified by the CenterStage team

Product features

The DPP provided the EMC Documentum CenterStage team with an in-depth understanding of user problems and goals for specific class of users (described using personas). This provided the team with a mechanism to identify and prioritize the features that would be built in CenterStage.

Once the EMC Documentum CenterStage team identified the product features, the team also conducted a survey with more than 100 business users in the DPP and validated the features priority. The figures on the next page are the results from the survey. Respondents to the surveys were asked to rank various features High or Low based on their significance to their business context.

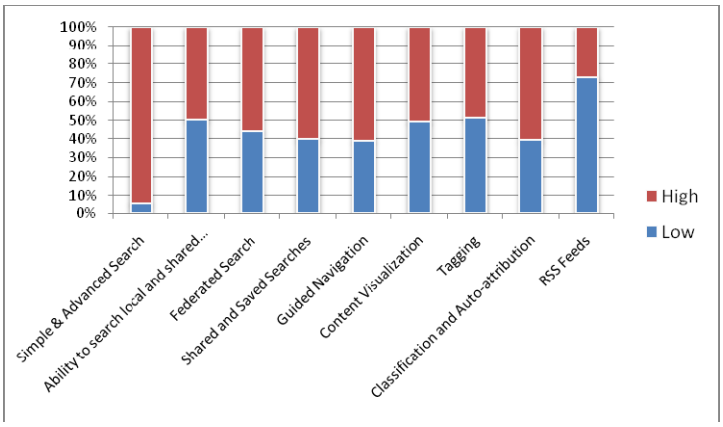

Figure 5. Information Discovery

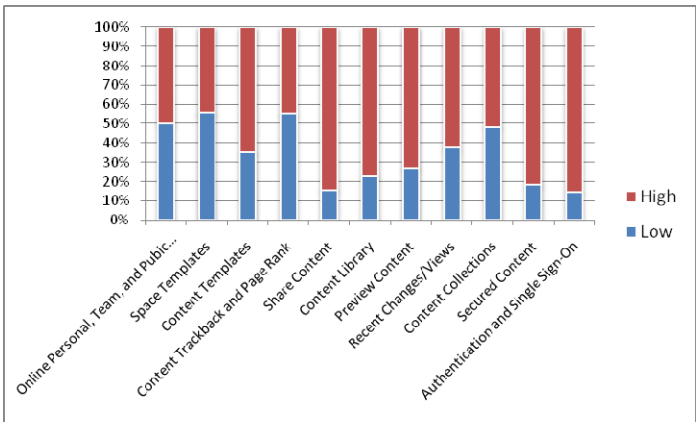

Figure 6. Asynchronous Collaboration

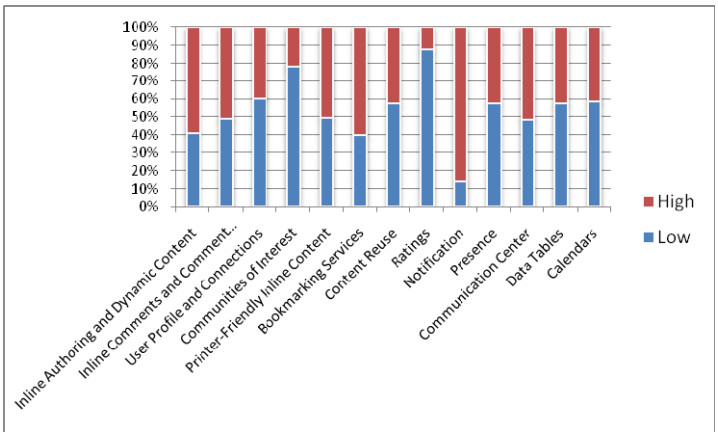

Figure 7. Web 2.0 and Social Networking

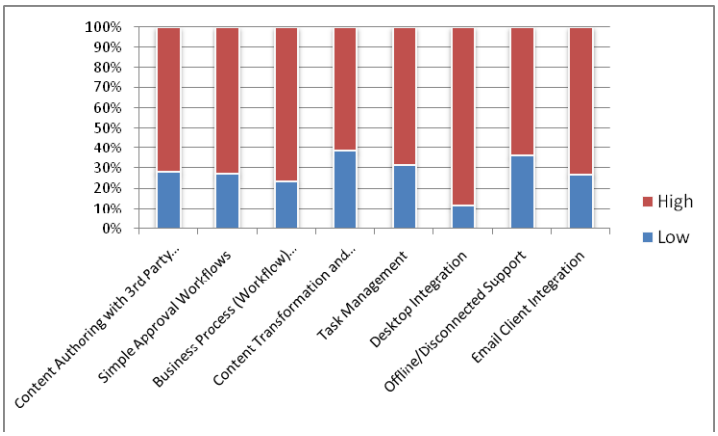

Figure 8. Access Anywhere and Task Management

Conclusion

The extensive product design process conducted by the EMC Documentum CenterStage team has successfully enabled EMC to:

- Define the top information management problems facing knowledge workers
- Determine the technical solution sets to solve such problems
- Map different problem statements to different class of users
- Categorize end users into multiple user personas; define their goals and how the CenterStage client can meet those goals
- Create an innovative new product that was designed from the ground-up to meet the needs of today's knowledge workers in any organization

As shown in this white paper, the definition process for CenterStage was an iterative and extensive process, where the EMC Documentum CenterStage team analyzed user needs, developed technical use cases and created personas and validated product features with customers and partners. It helped validate the EMC Documentum CenterStage vision to provide "a place where users can connect" that integrates with existing applications and allows users to:

- Manage and organize visually their personal, team and corporate work information
- Work with others on content and documents in "project spaces" and not have to create new content when it already exists
- Engage in productive brainstorming and enable new ways to interact with others
- Discover others who have the expertise to help them work on their projects
- Find the information they need to research work projects

This research effort also provided deep insight into how knowledge workers' information management needs are changing. Knowledge workers demand intuitive, easy-to-use interfaces to create, share, and manage information. Consumerism is driving the adoption of new tools and new ways of working in organizations. A new wave of business communication tools including blogs and wikis that allow for more spontaneous, knowledge-based collaboration is resulting in more productive and collaborative environments. With EMC Documentum CenterStage, EMC is uniquely positioned to answer knowledge workers' needs and provide easier and more productive ways to collaborate while resolving IT's fears for security, governance, and compliance.

By helping drive productivity and eliminating knowledge gaps, EMC Documentum provides organizations the management tools to control these new information types. According to Forrester, enterprise spending on web 2.0 technologies will grow strongly over the next five years, reaching $4.6 billion globally by 2013, with social networking, mash-ups, and RSS capturing the greatest share. In the coming years, social networking or Enterprise 2.0 technologies will be absorbed into the fabric of the enterprise. Building on the strength of the EMC Documentum Platform, EMC Documentum CenterStage will certainly play a role in this evolution.

For more information on EMC Documentum CenterStage, please visit our Beta site at http://labs.emc.com or visit http://www.emc.com.