IBM

IBM FileNet Team Collaboration Manager Technical White Paper

Executive Summary

Designed to meet next-generation collaboration requirements, IBM FileNet Team Collaboration Manager brings together productivity-enhancing collaboration tools, unprecedented access to enterprise content, and support for both structured and ad hoc business processes to streamline group decision-making.

Introduction

IBM FileNet Team Collaboration Manager (TCM) is designed to promote more effective and efficient group decision-making by removing barriers between people, documents, and processes. It provides the contextual framework and collaboration tools, including discussion forums, live meetings, and interactive polls, to enable group members to share information and participate in processes to facilitate group decision-making. These tools help organizations reduce time to market, lower costs and enhance employee productivity and customer satisfaction.

All related content is captured and processes streamlined to promote knowledge exchange and improve decision-making. TCM can also enforce corporate-best practice execution and regulatory compliance throughout your organization. With TCM your organization can:

- Increase team interaction through the capturing and sharing of ideas, issues and comments from team members

- Shorten exception/resolution cycle times with complete record of decision-making process

- Increase project speed while improving effectiveness

Team Collaboration Manager is based on the IBM FileNet P8 platform, which offers enterprise level scalability and flexibility to handle the most demanding content challenges and the most complex business processes. FileNet P8 is designed to easily integrate with other enterprise applications and provides a scalable framework for functional expansion for managing enterprise content and Web publishing challenges, and provides greater process control and consistency across your enterprise.

Since TCM is built on the FileNet P8 architecture and its Web Application Toolkit, this paper assumes that the reader is familiar with the underlying technologies. For more information on FileNet P8 architecture, please see the following technical documents:

- FileNet P8 Technical White Paper – January, 2003

- J2EE and FileNet P8 Architecture, Technical Brief – January, 2003

- FileNet Content Manager Architecture, Technical White Paper – January, 2003

- Security in the FileNet Business Process Manager, Content Manager and Web Content Manager, Technical Brief – January, 2003

- Supported Platforms for FileNet Content Manager, Business Process Manager and Web Content Manager, Technical Brief – January, 2003

Features

FileNet Team Collaboration Manager revolutionizes work as we know it by streamlining group interactions for better, faster decision-making. Team collaboration solutions need to remove barriers, connecting people in the workplace to business processes and related enterprise content. They must provide the structure and tools to maximize productivity, as well as support both structured and ad hoc processes inherent in every project. In the interest of knowledge management, they must capture content and best practices resulting from collaboration sessions for reuse throughout the organization, extending the value of team collaboration.

Designed to meet next-generation collaboration requirements, Team Collaboration Manager brings together productivity-enhancing collaboration tools, unprecedented access to enterprise content, and support for both structured and ad hoc business processes to streamline group decision-making.

It integrates easily with existing applications and tools. An extensive range of collaboration features, including ad hoc tasks, discussion forums, live meetings and interactive polls, enable group members to share information asynchronously or in real time. TCM's email archive capability makes it easy to track all project related communications, even those that take place outside of the collaborative environment.

Event, subscription and notification services within TCM allow users to receive emails whenever something of interest to them happens in the system (e.g., when another user replies to a discussion topic or adds a new document to a project folder). Email is a valuable collaborative tool and TCM uses it as a way to keep users up-to-date on their collaborative projects.

TCM integrates well with other applications in FileNet's P8 platform. Enterprise content stored in the repository can be easily referenced and accessed from the TCM application. There is no need to create duplicates of the documents or go through additional authentication procedures. Tasks in the TCM environment can be part of defined Enterprise workflows, where the workflow stops until collaborative work inside TCM is completed at which point the workflow automatically continues processing. Enterprise workflows related to TCM objects can also be launched from within TCM.

TCM also features centrally managed, role-based security. Enterprise administrators control security for members of the enterprise and their group assignments. Teamspace administrators can only configure roles and assign users to them. They cannot override security policy on an individual level.

Architecture

TCM is a modern J2EE-based Web application built on the FileNet P8 platform (detailed platform requirements are listed later). The suite includes several different components as indicated in the figure below:

- **TCM Web application** – this is an out-of-the-box application that is designed to solve an enterprise's team collaboration needs as is. Its intuitive interface and broad feature set make it both easy to use and immediately useful. Many aspects of the application are easily customized to meet an organization's specific needs (see the customization section later in this paper for more details).

- **TCM Collaboration Engine** – handles all of the behind-the-scenes activities of the Collaboration application, such as maintaining access rights on documents and folders and handling event notification emails. TCM Component Integrator Component – to integrate seamlessly with other FileNet P8 capabilities, TCM provides its own module to interact with the FileNet P8 Component Integrator.

- **TCM Mail Server** – to provide for email-based notification and receipt of messages for archiving, TCM needs its own mail server support. This is currently provided using the open source Apache James email server software.

- **Collaboration Java API** – provides complete access to the FileNet P8 Collaboration capabilities to developers for creating their own applications or integration points with TCM. The Collaboration Java API is a product in its own right.
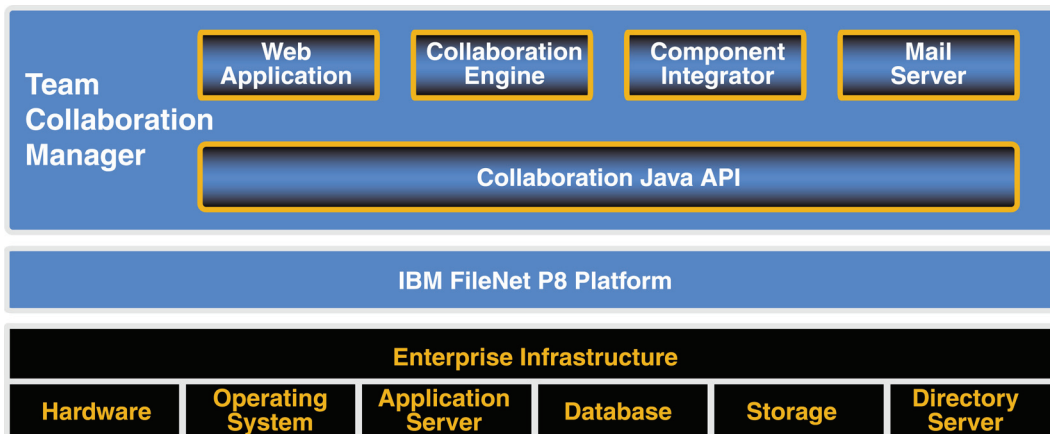
The figure below provides more detail about how the primary components interact with each other and within the FileNet P8 platform. The FileNet P8 Workplace is focused on document-centric collaboration and remains the best FileNet offering for that specific purpose. TCM integrates tightly with the FileNet Business Process Management (BPM) components, making workflows available to collaboration users and making teamspaces and teamspace tasks available to BPM workflows. The Collaboration Java API provides full-scale collaboration application development support as well as integration points for third-party applications. TCM comes with built-in support for the WebEx online meeting facility.
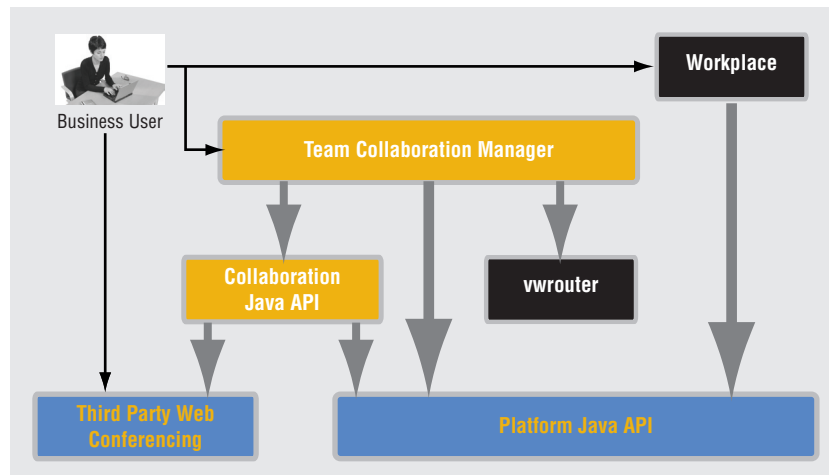
Deployment Overview

TCM deployment requires a FileNet P8 platform deployment. The topology depicted in the figure below presents a fully distributed version of a FileNet P8 deployment along with the installed TCM components: the TCM Web application, the Collaboration Engine, the Collaboration Mail Server, and the Collaboration Component Integrator module. This fully distributed version provides for scaling up TCM to support many users and teamspaces. A more simplified topology would co-host the AE and TCM in the DMZ and co-host the backend Collaboration components on a single server.
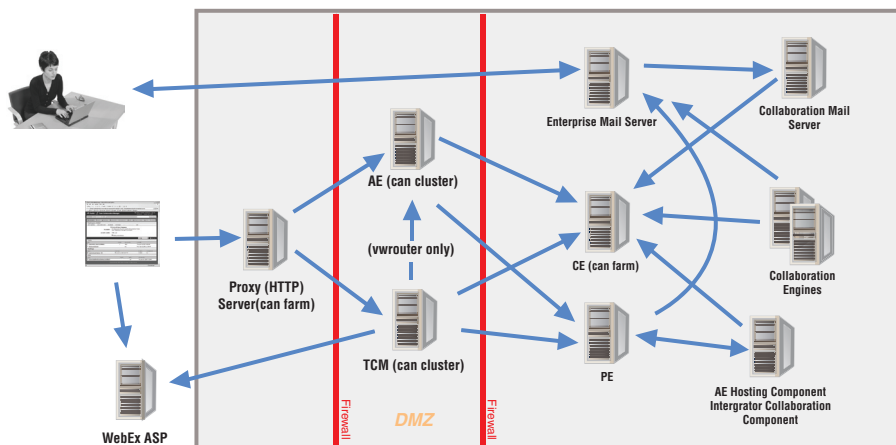
Web Application Architecture

The TCM application is an out-of-the-box Web application built on the FileNet Web Application Toolkit that is run on a J2EE™ application server. It can be immediately used as-is by organizations as their collaborative environment and can also be customized extensively, both in behaviors and appearance. The majority of its functionality is provided via zero-download HTML that runs under many browsers on most business platforms.

Illustrated in the figure below is how the TCM Web Application architecture leverages the various P8 Web Application Toolkit components. On top of this framework, TCM adds a variety of user interface components including JSP pages that specify page layout, Enterprise JavaBeans™ (EJBs) that render user interface elements, XSL documents that control how XML returned from the FileNet P8 and Collaboration Java APIs is rendered in the user interface, and Cascading Style Sheets (CSS) that define fonts, colors and other rendering characteristics for various HTML page elements.
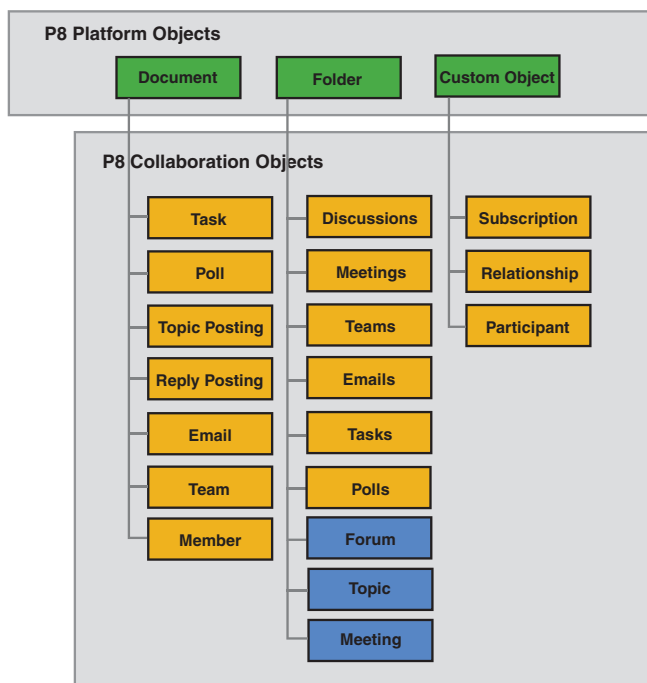
The TCM Application Manager framework also provides a highly customizable UI framework that is driven by an XML-based capability specification.
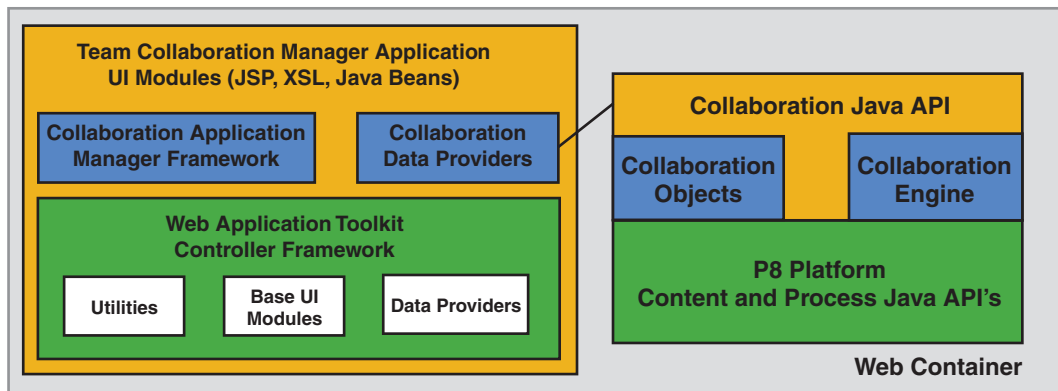
Collaboration Java API

As is evident in the diagram in the previous section, the FileNet P8 Collaboration API is a critical component of the overall TCM solution. The entire out-of-the-box TCM Application is written on the FileNet P8 and Collaboration APIs, much as a third party developer might write an independent application on them. Using this API, any organization can add collaborative capabilities to existing FileNet P8 applications or create new collaboration applications.

The Collaboration Java API exposes the collaboration object model. This object model extends P8 objects and builds custom objects from the platform's base objects. The primary elements of the Collaboration Object Model are depicted in the figure below.

P8 Platform Objects

Document	Folder	Custom Object

P8 Collaboration Objects

Task	Discussions	Subscription
Poll	Meetings	Relationship
Topic Posting	Teams	Participant
Reply Posting	Emails	
Email	Tasks	
Team	Polls	
Member	Forum	
	Topic	
	Meeting	

From a services perspective, the Collaboration Java API (through the Collaboration Engine) queues and executes all asynchronous tasks (such as email notification), dispatches BPM work objects, and provides interfaces to third party services (such as real-time Web conferencing).

FileNet P8 Requirements

TCM requires the following FileNet P8 components:

- FileNet Content Manager Suite that includes:
  – Application Engine (with optional separation of web container from application server)
  – Content Engine

- Process Engine

- Process Designer – functional expansion

- Process Analyzer – functional expansion (optional - required only for reporting features)

- Please contact your FileNet representative for other packaging options.

In addition, as indicated above, the TCM Suite requires access to a dedicated mail server to support receiving email into the teamspace as well as generating email based notifications for collaboration events.

The TCM Web Application

The first Web-based, out-of-the-box collaboration solution to include BPM, Team Collaboration Manager provides a framework for team collaboration within the context of processes that run and drive the business. What's more, it enables the first real-world delivery of contextual collaboration, enabling team members to communicate and instantly share resources.

Featuring a highly scalable and fully integrated architecture and common content repository, Team Collaboration Manager is different from other stand-alone collaboration products. Its unified architecture helps lower total cost of ownership, while enabling team collaboration information – both structured and unstructured project content – and business outcomes to be captured, managed and leveraged by the entire organization.

Its intuitive, user-friendly interface enables even novice users to get up and running with minimal training. Users can easily view files and tasks and quickly check in/check out files. Additionally, Team Collaboration Manager features role-based security, which enables administrators to establish participation parameters for diverse team members.

The screenshot below shows an example of the teamspace overview page where a user can easily see all current activity of the teamspace which relates to them.
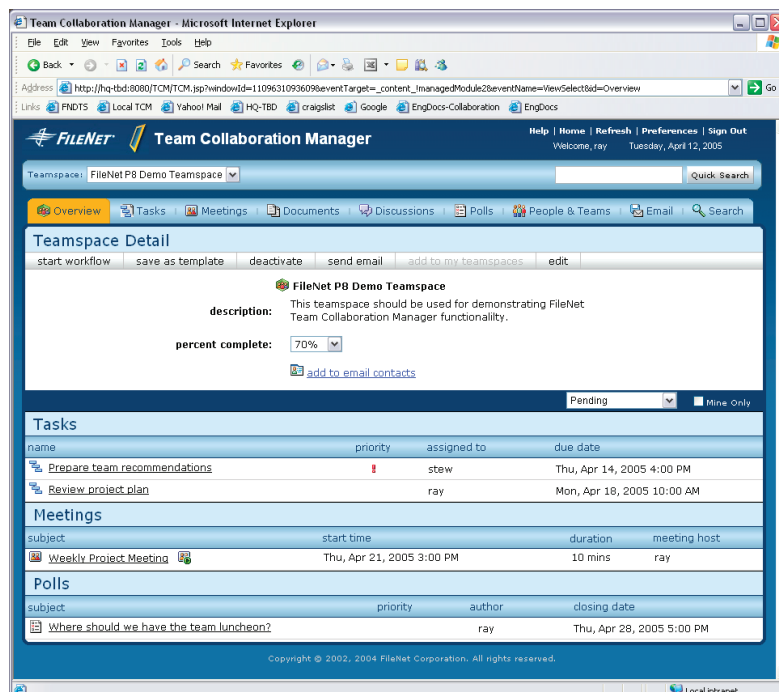
ECM Integration Features

TCM is built on FileNet's P8 platform, so it is tightly integrated with FileNet's ECM repository. Content filed directly into a teamspace is seamlessly managed by IBM FileNet Content Manager while using a simpler and more direct interface. These documents are also immediately available to all other document management applications. From within TCM it is possible to search not just the current teamspace, but across all teamspaces and the entire content repository.

Business Process Management (BPM) Integration Features

Many business situations require intelligent processes to address their work situations. Not every workflow can be handled in lock-step fashion or is worth modeling because of its complexity or flexibility requirements. A unique feature of the TCM-BPM integration allows a workflow to interact with the TCM application, creating work to be done within the teamspace (and even creating the teamspace, if needed). In the example workflow below, an ad hoc workflow step to create a proposal is assigned to a TCM teamspace as a Task after the workflow creates an appropriate teamspace. The BPM integration is capable of creating teamspaces using teamspace templates that include any necessary collateral documents as well as member assignments. When the task is marked as completed, the BPM workflow will continue.
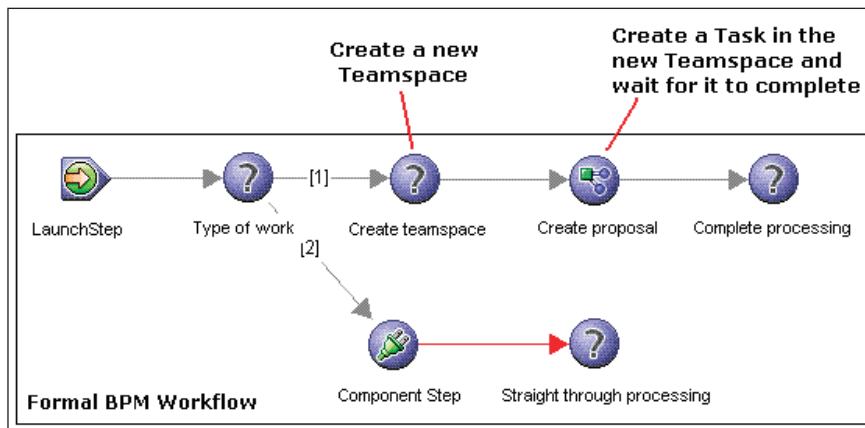

BPM integration is also available from within TCM where it is possible to launch existing workflows based on teamspaces and folders or documents in the teamspace. These sorts of workflows typically involve members of the enterprise who may not be teamspace members, but whose efforts are required to help the teamspace effort be successful.

Email Integration

Because email is a long-standing and valuable collaboration tool, perhaps one of the first real collaborative tools, TCM integrates with corporate email servers rather than trying to replace them. Part of the TCM deployment involves installing and configuring the open source Apache James mail server. This server is used exclusively for handling TCM email – TCM does not depend on nor require integration with a corporate email server beyond simple connectivity.

Email sent to the teamspace is received by the James email server where the Collaboration James Mail-let plug-in interacts with the Collaboration Java API to make sure it is stored in the teamspace. Any attachments are automatically turned into documents and stored in the teamspace (and therefore, the FileNet Content Manager repository). Email sent from the teamspace, either by users or as part of an email notification, goes to the James server where it is forwarded to the corporate email server on the configured schedule.
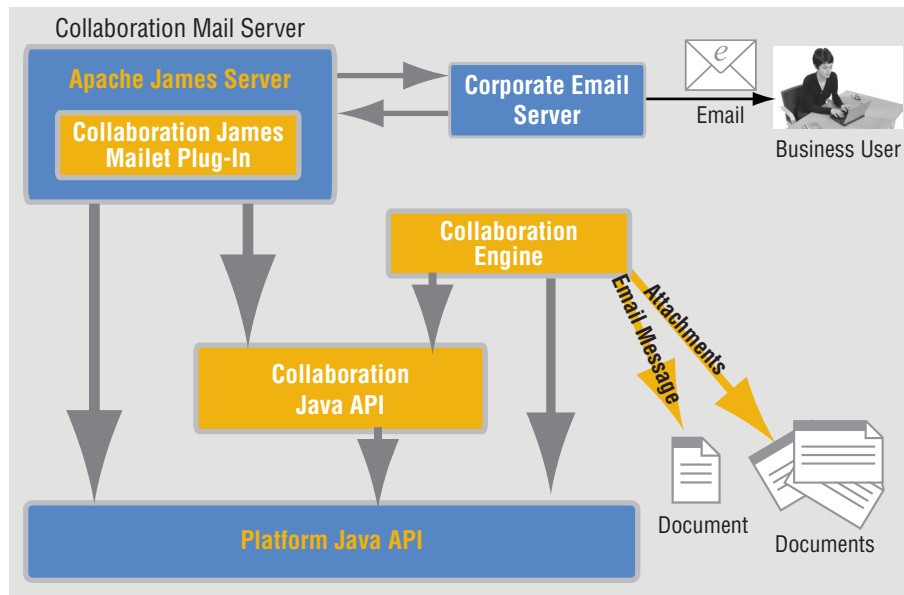
Customization

Nearly any aspect of the TCM Web Application's presentation, both content and visual, can be customized. While the basic application architecture remains the same, both the visual appearance and the content of many pages can be changed dramatically through the application configuration files and style sheets. The depth and breadth of customization available makes it possible to craft "custom" applications without any programming.

To start with, nearly every aspect of the application's visual appearance is controlled through CSS. Someone knowledgeable with CSS can easily change the application's color scheme and fonts and logo image, easily adapting it to their organization's environment. It is very easy to "re-brand" the TCM Web application. The many icons and images used within the application are easily customized as well.

Through the use of XML based configuration files, it is possible to control many aspects of the content displayed to the users and the operations available to them. In the many list-oriented views that are rendered in the application, the configuration files control what data elements are displayed as well as the order and formatting of certain elements. The filter conditions on many of these lists can be easily changed or expanded.

Every page has a variety of user actions available including context-sensitive actions based on the state of the object displayed or the role of the user. All actions and their access controls are configured through the application's configuration files. Even new actions can be added to the application through this facility. A powerful facility for adding actions to TCM that invoke external applications while passing information about the current object state provides for flexible customizations as well as integrations with other FileNet or non-FileNet applications.

Even operational aspects of the application, such as data caching strategies, object searching restrictions, and general teamspace configuration are easily customized through these configuration files.

About IBM ECM

As the clear market leader in Enterprise Content Management (ECM), IBM's ECM solutions help organizations make better decisions, faster by managing content, optimizing business processes and enabling compliance through an integrated information infrastructure. IBM's ECM portfolio delivers a broad set of capabilities and solutions that integrate with existing information systems to help organizations drive greater value from their content to solve today's top business challenges. The world's leading organizations rely on IBM enterprise content management to manage their mission-critical business content and processes.

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