Fortis SE
The power to share information

PRODUCT OVERVIEW

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Westbrook
technologies incorporated

W h i t e   P a p e r

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Introduction

Fortis SE is comprehensive document management software from Westbrook Technologies that provides superior document-handling. Fortis SE operates as a multi-user system on a local area network (LAN) for up to 10 concurrent users.

Fortis SE uses Microsoft SQL Server 2000 Desktop Engine (MSDE 2000) as its database back end. The back end is integrated with Fortis SE using Open Database Connectivity (ODBC), Microsoft's database communication standard.

Fortis SE also includes a PowerWeb for IIS license so that users can access documents via a browser interface. PowerWeb for IIS provides complete PowerWeb functionality for the IIS server while taking advantage of such IIS server capabilities as Secure Socket Layer (SSL) for enhanced security.

Fortis SE captures a wide variety of documents and associated data and organizes them into a custom-designed structure. Fortis SE can capture documents from any source, such as scanned, faxed, and electronic files, including black and white, color and common file types.

Fortis SE allows end users to efficiently organize and index documents that are then stored on your choice of storage media. Fortis SE retrieves documents instantly for editing, annotating, and/or integrating into your current business applications. Fortis SE also enables an organization to share or distribute documents via LAN, e-mail, fax or printed copy.

Stations

A Fortis SE system can contain the following station types:

- **System Administration Station**, where the Fortis SE administrator defines system users, assigns them to Groups, grants them access to specific databases, and sets up In Baskets. The Fortis SE system administrator must work closely with the database and network administrators when defining users and granting them database access to implement the Fortis system as planned. The system administrator also sets user and Group access for the functions users can perform on In Basket documents, assigns permissions allowing users to set various Preferences, and assigns permissions allowing users to perform certain administrative functions.

- **Database Administration Station**, where the Fortis SE database administrator creates and maintains Fortis databases. Creating a database entails defining its objects, specifying Group and user permissions for those objects, and defining mechanisms that control how document information is indexed to a Fortis database and subsequently retrieved. The database administrator also assigns user permissions for various functions performed on documents in the database and assigns permissions allowing users to perform certain administrative functions. The Database Administration Station also provides access to a variety of database maintenance tools and features.

- **View Station**, where users can retrieve and output documents. The View Station with Annotations option lets View Station users add annotations to documents.

- **Scan Station**, where users perform the bulk of the processing tasks associated with everyday document management. These tasks include capturing (by scanning, faxing or importing), indexing, editing, retrieving, and outputting documents.

- **Edit Station**, where users can perform all the tasks of Scan Station users except capturing documents by scanning.

- **Script Manager**, a program that monitors scheduled database-related Scripts (i.e., Scripts that send documents to a database Folder) and non-database Scripts (i.e., Scripts that send documents to an In Basket).

Features

In addition to the basic stations, Fortis SE also includes the following features:

- Using **Fortis Office**, users can send files from their Microsoft Office (2000, XP or 2003) Word, Excel, PowerPoint and Outlook applications directly to a Fortis In Basket or a Fortis database Folder.

- Fortis SE provides several options to assist in document capture: **Optical Character Recognition** (OCR), **Bar Code Recognition** (BCR), **Full Text**, and **Image Enhance**.

- Fortis SE includes a **PowerWeb for IIS** license so that users can access document via a browser interface. PowerWeb enables your user base to access Fortis documents via the Internet or an intranet using Microsoft's Internet Explorer. The ActiveX Viewer control allows users to view Fortis documents within Internet Explorer. Users can search a Fortis database and view and print documents right inside their browser. Edit Station users can also import new documents, edit a document's index data, annotate documents, insert and delete pages from a document, and delete documents.

Options

Fortis SE also allows for the following options:

- The **Audit Trail** option enables administrators to set up an audit log file so that Fortis tracks a variety of user activities performed on documents. Fortis performs audit logging for a document on a function-by-function basis; administrators can select exactly which functions to track in the audit log.

- To assist in data capture and the updating of data, the **Data Entry Assistant** and **Update Assistant** options are also available. Data Entry Assistant lets users add or update index data in a Fortis database from an OBDC-compliant data source. Update Assistant also lets users add or update index data as well as add and replace pages in existing documents. Update Assistant uses a delimited ASCII file to add or update data.

Fortis SE Database Structure

The Fortis SE document management system is a powerful database application. While actual document files are not stored in the Fortis database, the database contains user-provided information (i.e., index data) as well as the information necessary to retrieve the document associated with each database record. The process of creating a Fortis database also creates all the necessary tables and indices within the database. There is no need for a database administrator to create any of these tables external to Fortis.

The structure of a Fortis database is integral to how end users actually control and use documents. Each database uses database objects that both organize the information and determine how document information is entered into, and subsequently retrieved from, the database. The internal objects that organize the database are Folders, which form a hierarchy of Subfolders as a means of logically and visually organizing the documents in a database; Document Types, which define the properties of a single type of document; and Query Sets, which form a hierarchy of Subsets that organize the Queries available to search a database.

Each Document Type defines a set of index fields that determines how documents of this type are entered and retrieved. Internally, each Document Type is a table in the database. Index fields form the basis for how users can retrieve documents from the database.

Fortis also enables users to index a document based not just on specific index fields but also on the actual textual content of the document. Users can perform Full Text indexing on text documents during capture and on image documents after performing OCR on them.

Creating a Fortis database involves:

- assigning a database name and specifying a location for the files associated with the database.

- specifying a file Archive Location in which to physically store the document files for the database.

The database administrator then creates the database structures and objects that control database access, content, and organization. Specific structures include:

- **Folders**

  Folders are an organizational tool; they are assigned names by users or the administrator, can contain Subfolders and/or documents, and display in a Document Explorer window, similar to the Windows Explorer. Database administrators can assign user permissions to Folders so that only certain designated users can access, modify, create, or delete the documents and Subfolders contained in them.

- **Document Types**

  Document Types define documents that are similar in form or layout, or documents that should be indexed in a similar fashion. All documents of the same Document Type use a common set of index fields. Documents of different types can be stored in the same Folder or Subfolder. Database administrators can assign user permissions to

Document Type files so that only certain designated users can access, modify, add, or delete the document files of a specific type. Database administrators can also define a model Document Type and use it as a template when creating new Document Types.

- **Index Fields**

  Index fields are defined for a Document Type and are used to index or describe each individual document of that type. The index data identifies the document in the database and enables users to retrieve documents by constructing search statements using this data. The database administrator can assign user permissions for each index field of a Document Type so that only certain designated users can view a field and the data it contains, enter data into a field when indexing a document and modify index data in a field for a document already indexed to the database. The administrator can define as many index fields as needed for a Document Type, some of which can be specified as Quick Find fields for faster searching and retrieval of document records. Index fields can also be specified as Multi-value, Unique or Required.

- **Query Sets and Queries**

  A Query is a search statement that users create, and optionally save, to search a database to retrieve any matching Fortis records. Queries can be static, with the search criteria pre-defined, or variable, where users enter the search criteria at run time. When users execute a Query, Fortis searches the open database for any records that match the search criteria. Any records returned also include pointers to the actual documents at their storage locations. Queries can be generic or quite specific.

  Administrators and end users can save Queries in a Query Set hierarchy, which is displayed in the Query Explorer, to enable themselves and other users to quickly access and run Queries. The database administrator can assign user permissions to a Query Set so that only certain designated users or groups of users can access, modify, add to, or delete the Queries and Subsets stored in the Query Set.

- **Pick Lists**

  A Pick List eases data entry by providing a finite list of acceptable value choices from which users can select for a given index field. The Pick List values standardize the information that can be entered during indexing so that data is consistent in the database. Pick Lists offer the double benefit of increasing the speed with which data can be entered while ensuring uniform data to enhance searching and reporting.

- **Formats**

  A Format for character, numeric, and date type index fields determines how a value displays for that index field in the database record. In addition, Formats force users to enter index data in a specific format. Fortis provides a list of pre-defined formats for numeric and date fields that can be added to, modified, or deleted.

- **User Database Permissions**

   Only users granted access to a database by the system administrator can access that database. Database users are also assigned security permissions for the various database structures and objects, which means they have different functional access to those items. Add, Modify, Delete and View permissions are at the Folder, Document Type file and Query Set levels. Set, Modify and View permissions are at the Document Type field level. Only a Fortis database administrator can specify user structure and object database permissions.

Capturing Documents

Fortis SE supports several document capture techniques: scanning, importing, faxing in, importing data and documents, and the Fortis Office option. Fortis recognizes a variety of file types when capturing documents:

- black and white images, including PCX, TIFF, and BMP

- color images, including JPEG, GIF, PCX, TIFF, and BMP

- text-based documents, including more than 225 file formats such as Word, Excel, HTML, and PDF

Black and white data is typically input via a scanner or fax, or imported from other formats such as TIFF or PCX, and compressed using a Group 4 (i.e., G4) compression technique. Color images are created via scanning or importing from several different color formats and are compressed using a JPEG technique. Text-based documents are stored in appropriate formats, such as Word, Excel, HTML, or PDF, and are compressed using PKZIP.

Fortis SE users can capture documents directly into a Fortis database Folder as a specific Document Type or into a Fortis In Basket. In Baskets store captured documents before they are indexed and stored in a database. An In Basket lets users view, edit, index and share documents with other users and network devices by forwarding them to another In Basket or by printing, faxing, e-mailing, and exporting them. In Baskets are either public or restricted.

In Baskets are especially useful in high-volume applications where different personnel are dedicated to specific tasks, such as document preparation, scanning, quality assurance, and indexing. Restricted In Baskets work particularly well for departmental-based workgroups or task-based teams.

Fortis lets users save frequently used capture settings as a Script so that users can quickly recall and use them to scan, fax in, or import documents. Scripts save time and reduce the need for user intervention. Users can schedule Scripts to run automatically.

Users can capture multiple pages into one Fortis document, or capture multiple pages into separate documents. When scanning documents, users can separate documents using a page count, a blank page, or a bar code. A barcode separator can contain the name of a Script, thereby specifying all the settings to use in addition to document break information.

Fortis SE supports a variety of ISIS-compliant and TWAIN-compliant scanners, and works with most standard fax software. Any fax software that creates a supported black and white image file can be used for the Fax In process.

Fortis SE users can also import delimited ASCII files that contain record information directly into a Fortis Folder as a specified Document Type. Fortis captures each line in the ASCII file as a separate database record; multiple documents can be merged during the import process. Importing ASCII files is useful when converting from an existing imaging system, restoring an index, or automatically indexing documents.

Capture Features

Fortis SE provides several capture features to improve document quality, aid in document and data capture, and improve efficiency:

Fortis Office

Using the Fortis Office option, users can send documents from Microsoft Office (2000, XP or 2003) Word, Excel, PowerPoint and Outlook applications directly into a Fortis database Folder as a specified Document Type or into a public or restricted In Basket. With Outlook, users can send e-mail messages and attachments from the Outlook Inbox (or any Outlook folder), as well as Notes and Posts, directly to Fortis.

Fortis can use the value of a Property field in a Word, Excel, or Outlook document (e.g., Title, Subject, Author, etc.) as the value for an index field. If the Document Type selected has an index field with the same name as one of the document Property fields, Fortis will automatically insert the value in the Property field into the Fortis index field.

Optical Character Recognition

The Fortis Optical Character Recognition (OCR) feature enables users to perform zone or full-page OCR on a document, either during the capture process or at a later time.

Zone-based OCR involves the creation of an Index Template for black and white documents of a specific Document Type. Using a Point & Shoot technique, users highlight certain zones on the document and associate these zones with specific index fields. When the index Template and the OCR option are used together, Fortis automatically reads the data from the defined zones into the associated index fields.

Full page OCR converts an image document into a text document that can then be Full Text Indexed. Fortis merges the results of the full-page OCR process into the document in a specific file format.

Image Enhance

The Fortis Image Enhance feature provides a full complement of image enhancement features that improve the appearance and readability of documents. The Image Enhance option can be applied to a document before and/or after performing OCR, and can be used both on documents being captured and on document images already stored in an In Basket or in a

database Archive. In both instances, these enhancement options yield a cleaned up, visually improved document image.

Bar Code Recognition

The Bar Code Recognition (BCR) feature enables Fortis to automatically read and index bar code data on captured image documents. Users define the input data as a bar code, and then specify the bar code type. Fortis also supports the use of bar codes as document separators during the scanning operation.

Full Text

A Full Text index is a database that stores the locations of all of the words (except such noise words as *but* and *if)* in Full Text indexed documents. Fortis can Full Text index any text-based document that can be viewed in Fortis.

When a database administrator creates a Full Text Document Type, Fortis creates the Full Text index. Fortis then uses this index to perform fast searches using a Full Text Query. A Full Text Query statement can consist of a single term (word or phrase) or multiple terms. Users can also combine Full Text Queries and index field Queries to search for specific terms or phrases, as well as specific index field values, in documents of a Full Text Document Type.

- Stemming searches find other grammatical forms of the words in a Full Text Query statement.

- Phonic searches find words that sound similar to words in a Full Text Query statement.

- Fuzzy searches sift through scanning, OCR, and typographical errors. Fuzzy searches adjust from one to nine degrees, depending on the degree of misspellings.

- Numeric-range searches find integers between two values.

- Regular-expression searches find a pattern of text.

Document File Format

Fortis SE stores all documents in Westbrook Technologies' proprietary MAG file format, which was created a decade ago to enable secure transfer of information across networks and the Internet. Fortis SE uses three different compression techniques to attain optimal compression, resulting in small, portable, and secure multi-page document files. Each document, regardless of the number of sections or pages it contains or the number of sources, is stored as a single file.

Retrieving Documents

Scan, Edit and View Station users can retrieve documents from a Fortis database by using the Document Explorer, by executing a Query, or by running a Document Type Browse.

The Document Explorer, a two-paned window, displays the architecture of the database. Patterned on the Windows Explorer, the left pane displays the Folder hierarchy of the

database and the right pane displays the contents of the open Folder, which can include Subfolders, documents, or both. Fortis displays documents using the icon associated with the Document Type and the Label associated with a specific index field.

A Query is a set of search criteria that, when executed, searches the database for documents that match the criteria. Each Query is associated with a specific database Folder or Folder tree and at least one Document Type. Fortis supports two types of Queries: static and variable. A static Query always searches for the specific values defined in the Query, while a variable Query lets the user enter the search criteria values at run time. Typically a variable Query has a user prompt defined for certain index fields, such as "Enter the name of an employee."

Users can save individual Queries in a Query Set hierarchy that displays in the Query Explorer, a window similar to the Document Explorer. A Query Set can contain Subsets, Queries, or both.

A Document Type Browse is a generic Query that enables a user to search for all documents of a specific type, either in a specific Folder or in the entire database. Users run a Browse from the Query Explorer; a Browse emulates the Query by Example (QBE) interface that is familiar to many users.

Query Operators

Defining a Query involves specifying a starting Folder and a Document Type and selecting at least one index field. The user must then define the operator or condition that must be met (or not met) with respect to the specified field.

Queries can also define multiple search conditions using the AND/OR Boolean logic operands. The OR operand means that either or both of the conditions specified in the Query must be satisfied. The AND operand means that both of the search conditions specified must be satisfied.

Query Results

Fortis displays information about the documents retrieved by a Query in the Query Results window. Users can quickly change the Layout and rerun the Query, or users can select documents and open them in the Document Viewer. Users can also print the contents of the Query Results window (i.e., a list of the documents retrieved by a Query).

Advanced Query Features

Fortis provides several advanced features to enable users to construct complex Queries. A Query Preference turns on the advanced features, which include parentheses for grouping clauses of complex Queries, additional Boolean operands and additional Full Text index continuation operators.

Working with Documents

All Scan, Edit & View Station users can view documents in the Document Viewer. Scan & Edit Station users with the proper permissions can edit and annotate documents as well.

Viewing Documents

The Fortis Document Viewer provides complete functionality for accessing and viewing all types of documents. The Viewer provides several visual options:

- Document only, with or without thumbnails of the pages of the document

- Index data only

- Both the document and the index data in panes that can be split horizontally or vertically. Page thumbnails can also be included in a third pane.

Any Fortis SE user (with the proper permissions) can open documents in the Viewer from an In Basket, from within the Document Explorer, or from the Query Results window. Users can load one document at a time or load multiple documents into the Viewer. Using the toolbar buttons, users can quickly page through a single document or move through multiple documents loaded in the Viewer. Double-clicking a page thumbnail in the Viewer displays the corresponding page.

Documents can be rotated and flipped or displayed full size or full width. Users can zoom in or out, or zoom into a section of a document, adjust the contrast, and use a scale to gray option. Users can open multiple Viewers by "pinning" a document in an open Viewer, and users can copy a document into multiple Viewers. The Viewer also has a textual Find function for text-based documents.

Database administrators can define a Related Query as part of a Document Type definition. A Related Query will retrieve one or more documents associated with the currently opened document. Users can access these related documents by executing a simple menu command. Administrators can also insert links to related documents on a template for a specific Document Type. When a user opens a document of this type in the Viewer, these links display as either a solid or outline rectangle on the document. Visual links only appear on black and white documents.

Editing Documents

Scan and Edit Station users can perform a variety of operations on documents in the Viewer. Users (with the proper permissions) can cut, copy, paste, delete, or enhance pages within a document. Users can also insert, replace, burst or reorder pages, remove blank pages, and rotate an entire document.

With the proper permissions, Scan and Edit Station users can add a variety of annotations to documents. The Viewer toolbar contains buttons for all the annotation tools, and users can set a variety of preferences for Fortis annotations.

Fortis SE Security

Fortis SE security capabilities provide a powerful yet flexible blend of user access management and control for any Fortis installation. This security is provided by assigning Fortis users a password and personalized database access privileges, and by varying their functional permissions. In essence, the security of your Fortis system can be separated into two general levels: the system level and the database level.

System-Level Security

The Fortis SE system administrator creates system-wide user accounts, assigns users to Groups, and defines which users have access to which databases. In addition, the system administrator creates In Baskets, both public and restricted, and specifies which users and/or Groups can access those In Baskets.

The system administrator also specifies individual user and Group permissions that control access to several functions and features, known as feature access permissions. Feature access permissions provide a fine grain of control so that the system administrator determines whether users can capture documents to In Baskets, which functions users can perform on In Basket documents, whether users can create, modify and use Scripts to capture documents to In Baskets and whether users can set General and Annotation Preferences. The system administrator can, for example, permit a user to add documents to In Baskets but not export or print In Basket documents.

The system administrator can also provide administrative access so that a user or group of users can, for example, create In Baskets or add a user account. Designated users can then perform certain administrative functions within the Fortis system.

Database-Level Security

The Fortis SE database administrator assigns individual user and Group database object permissions and feature access permissions, which dictate what tasks users can perform while accessing a database at a Scan, Edit, or View Station.

The database administrator sets user and Group permissions at the Folder, Query Set and Document Type file and field level to specify which Queries, documents and index fields each database user can access, and what each user can do with those Folders, Queries, documents and index fields once they've accessed them. Database object permissions for Folders, Document Type files and Query Sets are of four types – Add, Modify, Delete, and View. Permissions for Document Type index fields are of three types – Set, Modify, and View.

The database administrator also specifies user and administrative feature access permissions for individual database users and Groups. While these permissions also provide a fine grain of control, they are separate from those assigned by the system administrator and control access to functions and features related to documents in the database and certain database-related administrative tasks.

The database administrator can, for example, permit a user to e-mail or print documents but not export documents from the database. The database administrator can allow a user to

burst pages in documents in the database but restrict the user from launching documents for editing. Likewise, the database administrator can provide administrative access so that a user or group of users can, for example, create Document Types and add Pick Lists. Designated users can then maintain certain administrative aspects of the database.

Feature access permissions work in combination with database object permissions to ensure document integrity. For example, assigning a feature access permission allowing a user to e-mail documents permits that user to only e-mail documents for which they have the appropriate permissions on the Document Type files and Folders.

Fortis SE System Architecture

Fortis SE is designed for Windows 2000 Server and Windows Server 2003 LANs. A multi-user installation supports up to 10 concurrent users.

The system architecture for a Fortis SE installation involves three servers: a database server, running MSDE 2000, the shared-client server, on which the Fortis program files reside and the PowerWeb for IIS server installed on a dedicated server-class machine.

The shared-client server also contains the site license files, the Fortis In Baskets and possibly the document files. The shared-client server can be used to store document files, but many organizations store document files on separate devices, such as a mass storage solution like RAID or an optical jukebox. Under no circumstances should the Fortis software or the PowerWeb server software be installed on the database server.

Figure 1 illustrates a Fortis SE installation with a shared-client server, a database server, a PowerWeb IIS server, several client workstations, and a separate storage device for document files.
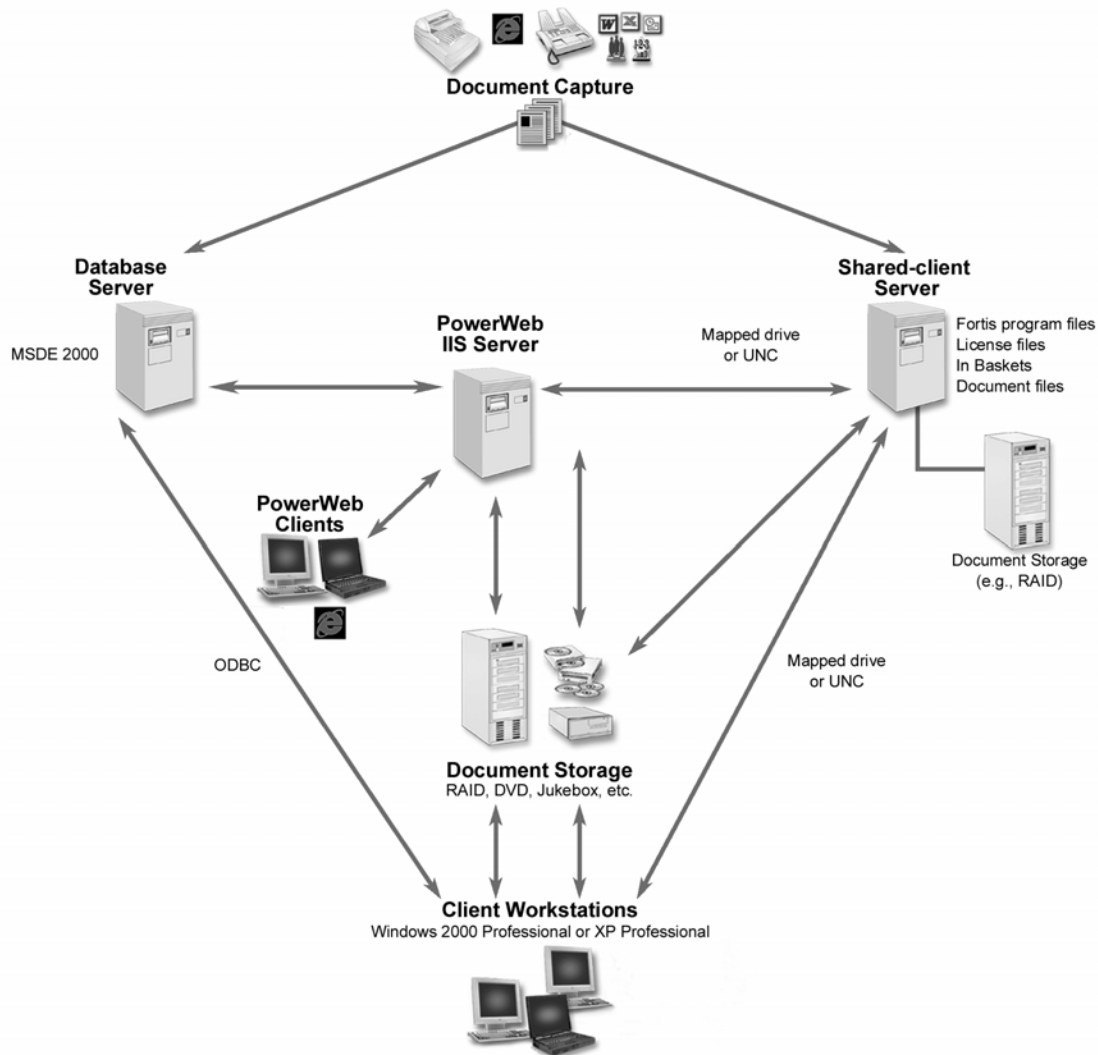
Figure 1: Fortis SE Installation

Communications and Protocols

The client workstations communicate with the database server using ODBC over TCP/IP and communicate with the shared-client server using either a mapped drive or UNC.

The PowerWeb server and any additional servers (i.e., machines running the Script Manager server processes) communicate with the shared-client server using a mapped drive or UNC and communicate with the database server using ODBC over TCP/IP. Thin client browsers accessing the PowerWeb server require no special software other than a standard ActiveX control for document viewing.

Storage devices can use multiple servers and/or cluster technology in addition to optical (e.g., CD, jukebox, and DVD) and magnetic (e.g., RAID) storage.

Storage Requirements

The storage requirements for a Fortis SE installation involve two areas of consideration: the size of the database and the size and volume of documents to be stored (archived).

Each database record represents a single document stored in the system. A Fortis document can contain thousands of sections (typically pages) and consequently, can be very large. The document itself is not stored in the database. Instead, each database record contains a pointer to the external file.

The database growth rate and total size is dependent upon the complexity of database record information. The actual overhead per Fortis record is about 54 Bytes. Add to this the actual amount of data being stored to arrive at the total amount of space per record that is being used. On average, Fortis SE databases grow at a rate of 100 - 1000 Bytes per record. Take note that MSDE limits data to 2 GB per database, but a single MSDE server can support multiple MSDE databases, each with a limit of 2 GB.

The Archive is common shared storage consisting of RAID, Optical, CD, and/or a standard network volume. Each database can store documents in a variety of locations based on security needs, accessibility requirement, and document lifecycle. Because Fortis documents can be very large, the Archive Location can fill rapidly. Typical documents are between 2-5 pages, with each page occupying 30-50 KB of space.

To make a rough estimate of the storage space required for your installation, calculate the number of documents to be stored and multiply that number by 50 KB for each 8.5" x 11" document. Or you can scan 100 typical documents, view the total space required, and then divide by 100 to estimate the size per document. The annual growth equals the number of documents added per day x the size of each document x the number of working days per year. When estimating storage needs, it's important to include a buffer and increase the volume over the years, as your business will undoubtedly increase as time goes by.

Summary

Fortis SE is a feature-rich document management system that lets users capture and retrieve paper-based, electronic, and faxed documents. Fortis SE uses ODBC architecture and Microsoft's SQL Server 2000 Desktop Engine (MSDE 2000) as the back-end database engine to provide an exceptional document-handling solution.

Fortis SE supports up to 10 concurrent users, allowing them to capture a wide variety of documents by scanning, importing, and faxing. Once documents are captured, users can retrieve documents for editing and annotating, and users can easily share or distribute documents. In addition, users can view, print, import, edit, annotate and delete documents from within Internet Explorer using PowerWeb for IIS.

For additional information about Fortis SE or other Westbrook Technologies products, go to www.westbrooktech.com/about/want_to_know_more.htm.