Overview of Documentum 5 Server with NetApp Storage Solutions

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TECHNICAL REPORT

Network Appliance, a pioneer and industry leader in data storage technology, helps organizations understand and meet complex technical challenges with advanced storage solutions and global data management strategies.

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Abstract

Content solutions enable users to collaboratively create, manage, and deliver content through the information lifecycle (ILM). Content may include e-mail, Web pages, records, and rich media, all using one common content platform and repository. Network Appliance (NetApp) provides enterprise storage solutions to meet Documentum users' requirements. This document discusses the procedure required to integrate Documentum 5 server with NetApp storage in Windows® environments with the iSCSI protocol. NetApp helps to deliver a fast and efficient storage infrastructure in the Documentum 5 environment. NetApp provides several features to provide quick backup/recovery, management of data, and replication of data to the same or a remote site.

1. Overview

It is important to combine both Web content management (WCM) and document management or imaging in the same application in an enterprise content management (ECM) area. Customers may have to solve just document management or web content management. New requirements such as e-mail archival have become a critical need for regulatory compliance and company archival purposes. This type of issue can be resolved with better data management, easy backup and recovery options, and easier management and still address the scalability issue. A NetApp storage configuration with Documentum provides an excellent solution to enterprise content management problems.

A Documentum and Network Appliance configuration provides a comprehensive, fully supported solution to the end users. NetApp provides storage solutions for the entire Documentum infrastructure, including the database configuration. The NetApp solution helps to effectively manage data and information associated with Documentum products. Specifically, this paper is intended to provide Documentum users an overview of the deployment options that are available.

Documentum 5 server provides an ECM solution to address the document management space. Documentum 5 allows effective collaboration or and sharing of information among different users in the system. Documentum 5 also integrates with Customer Relationship Management (CRM) systems and Enterprise Resource Planning (ERP) in the back office for automation and e-business applications. Documentum 5 offers several components, some of which are mentioned below.

The Docbase is the content repository, and several repositories can be linked together across logical and geographical boundaries to form a single content repository.

Documentum Server manages the communications between clients and the Docbase and manages the processing of scanned document input and auto rendering. A developer studio is a GUI utility used to develop Docapps that consists of a set of business rules, workflow, document lifecycle, and security for each Docbase. These Docapps can be migrated between Docbases, reducing the implementation time.

Documentum Foundation Class (DFC) is an object-oriented API layer that provides interfaces to a variety of industry-standard languages and developer tools.
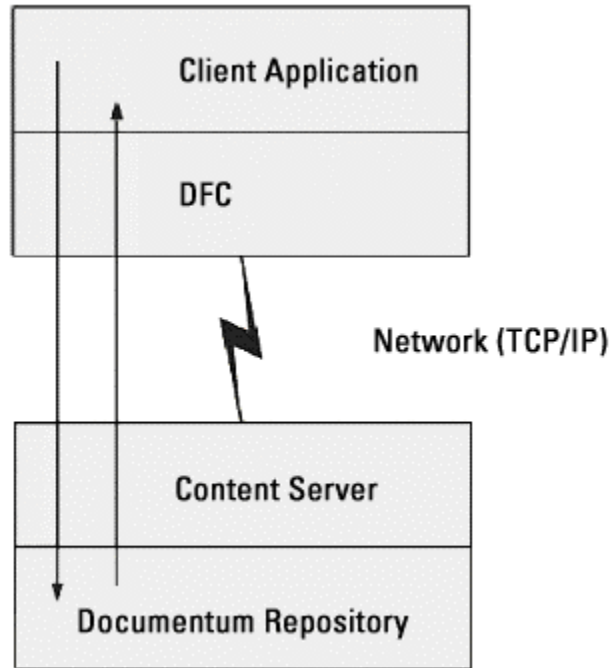
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Figure 1: Documentum Client/Server Architecture

Since the applications access the content server through DFC using a client object, NetApp storage configuration fits well with the Documentum environments.

Documentum Query Language (DQL) is similar to SQL commands and allows Documentum users to access database data in the Documentum environment. The Documentum attributes are stored in a relational database table, and these attributes are configurable and fully extensible. Users and developers access the storage systems in the same way, assuming the storage type is transparent. Using NetApp storage adds value with its Snapshot™, SnapRestore®, and SnapMirror® features.
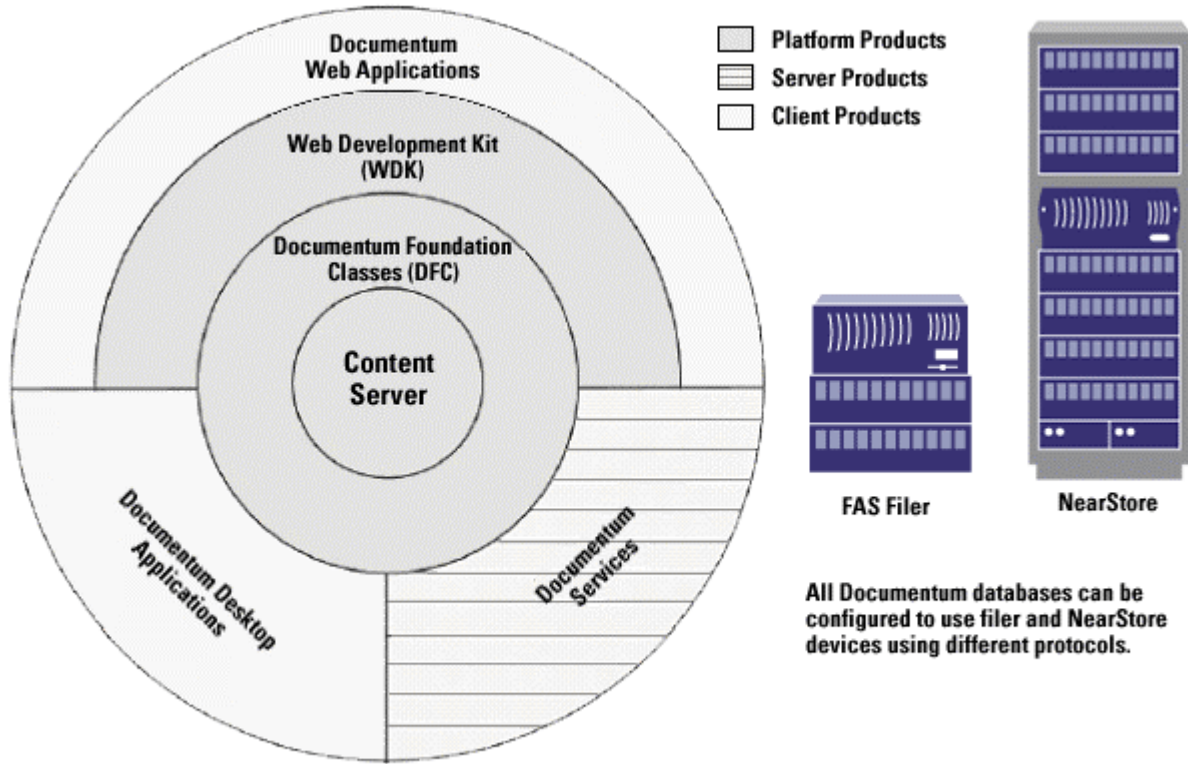
Basic Architecture of Documentum. Filer and NearStore can be deployed on all
Documentum supported platform products and client product machines.

Figure 2: The Content Server Is the Core of the Documentum Architecture

2. Introduction

2.1. Challenges

In the competitive market, users are challenged to plan well and deploy the best possible configurations to address their problems. Customers expect to increase the productivity of their end users and ensure the resources are available when they are required. Customers managing these resources often encounter the following issues:

- Managing document data and moving it across multiple remote sites

- Providing improved access to archived data

- Maintaining the integrity and security of information

- Providing high-level performance and data availability

- Providing highly effective data protection and information management

- Planning for quick backup and recovery configuration

- Addressing disaster recovery through a data replication strategy

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In order to meet these challenges, significant resources such as budget, equipment, human resources, and skills are needed. Improper planning to meet these requirements can impact performance of the solution set, resulting in production environment failure.

2.2. Advantages

While Documentum 5 software offers an efficient document management design, NetApp storage solution offers the most efficient use of resources in relation to document/image management and data protection, including a highly efficient backup and recovery solution. It also helps to address document data replication to a remote site or within the same data center. This improves the document ILM process. Recent regulations expect to achieve the acceptable standards set forth by recent regulations with regard to data protection policies in force. NetApp storage solutions offer an effective way to achieve it in Documentum environments.

- Performance—NetApp storage reduces Documentum 5 business process time compared to direct access for document load operations for up to 50,000 documents.

- Scalability—This is an important factor, and NetApp storage easily addresses this issue.

- Availability—In application-level failover as well as storage failover, NetApp storage configurations provide the high availability that is important in a Documentum 5 production environment.

- Backup—NetApp storage solutions offer efficient and quick backup features. NetApp filers also allow Documentum administrators to take a Snapshot copy and optionally back up the data onto secondary storage such as NearStore® or tape media in an offline mode. Using this method, the Documentum server will have much less impact on performance while the backup is in progress. The administrator can save up to 255 Snapshot copies of the data. This is equivalent of having 255 backup copies of data.

- Recoverability—Even though backing up of data is very important in an enterprise customer environment, restoring the lost or needed data plays a critical role. Usually the recoverability becomes a bottleneck issue. NetApp addresses this issue by having a feature called SnapRestore. With SnapRestore, the data can be restored in a very short time irrespective of the size of the data on the volume/file system.

- Manageability—Enterprise customer configurations are touted as complex and difficult to manage due to their complexities. With the NetApp solution, managing the storage component becomes very easy. The NetApp filer or NearStore may be fully integrated in a real application environment and serving data with much less effort. It is easy to scale as the data grows.

The components of the solution are listed below:

- Filers are high-performance, industry-proven, highly available fabric-attached storage. It can be used for consolidating data and simplifying data management. The filer comes with its well-optimized operating system called Data ONTAP™. which offers a unified storage solution supporting both network-centric data and storage area network configurations. For high availability the filers can be clustered to provide a solution for mission-critical environments.

- NearStore storage solutions are cost-effective, yet high-access storage for online backup and archive data. NearStore can be used in online backup, archiving, document storage, and disaster recovery. NearStore runs on the same operating system, file system, and RAID protection as NetApp filers but at a lower cost due to the disk architecture.

- Snapshot is an integral part of Data ONTAP and can make an instant image of the file system. The Snapshot copy has read-only attributes, and the system will not allow it to be modified to protect

the integrity of the backup copy. Data ONTAP 6.5 and later versions support 255 Snapshot copies for backup purposes. The data from the Snapshot copies can be archived to secondary storages or to a tape library in offline mode without affecting the Documentum server.

- SnapRestore offers an option to revert back to a point-in-time recovery from the Snapshot taken previously. This simplifies and speeds up the process of recovery from a data loss or data corruption scenario.

- SnapMirror allows simple, robust data replication to the same site or to remote NetApp storage. Data can be replicated in either asynchronous mode or synchronous mode. With synchronous SnapMirror, the configuration is limited by the distance. If the data is to be replicated to a longer distance, the use of repeaters is required. For detailed information, refer to the related topics on our portal.

2.3. Assumptions

For the purposes of this paper, it is assumed that the reader is familiar with Documentum products and services and has working knowledge of Documentum tools. This paper assumes that the reader is familiar with networking configurations. The reader is assumed to be familiar with operating system (OS) administration. Some of the configuration setup may require the administrator or root user privileges to complete successfully. This paper will demonstrate best practices for deploying Documentum 5 using NetApp storage solutions to serve the critical needs of a high-availability Documentum environment.

3. Deployment

The following diagram shows a Documentum 5 server design environment used to manage document information. Typically the Documentum server may reside on a UNIX® or Windows server, and clients accessing the server use Documentum tools. Either a Windows domain or the workgroup may be configured to set up Documentum 5 server on a Windows platform.

3.1. Documentum Deployment

Documentum is based on standards that enable it to integrate easily with the existing IT infrastructure. Since Documentum APIs may be used with several applications such as FTP client, JDBC, etc., it is easy to integrate with enterprise applications. The following figure shows a multitiered Documentum deployment configuration where the client applications such as FTP client, Documentum Desktop, and others can access the different components of Documentum 5 server. By deploying NetApp storage, data can be shared across client and server machines via the network infrastructure. In the following figure, different qtrees/volumes were created on the NetApp FAS series filer and NearStore. Database and Documentum are installed on the NetApp storage.
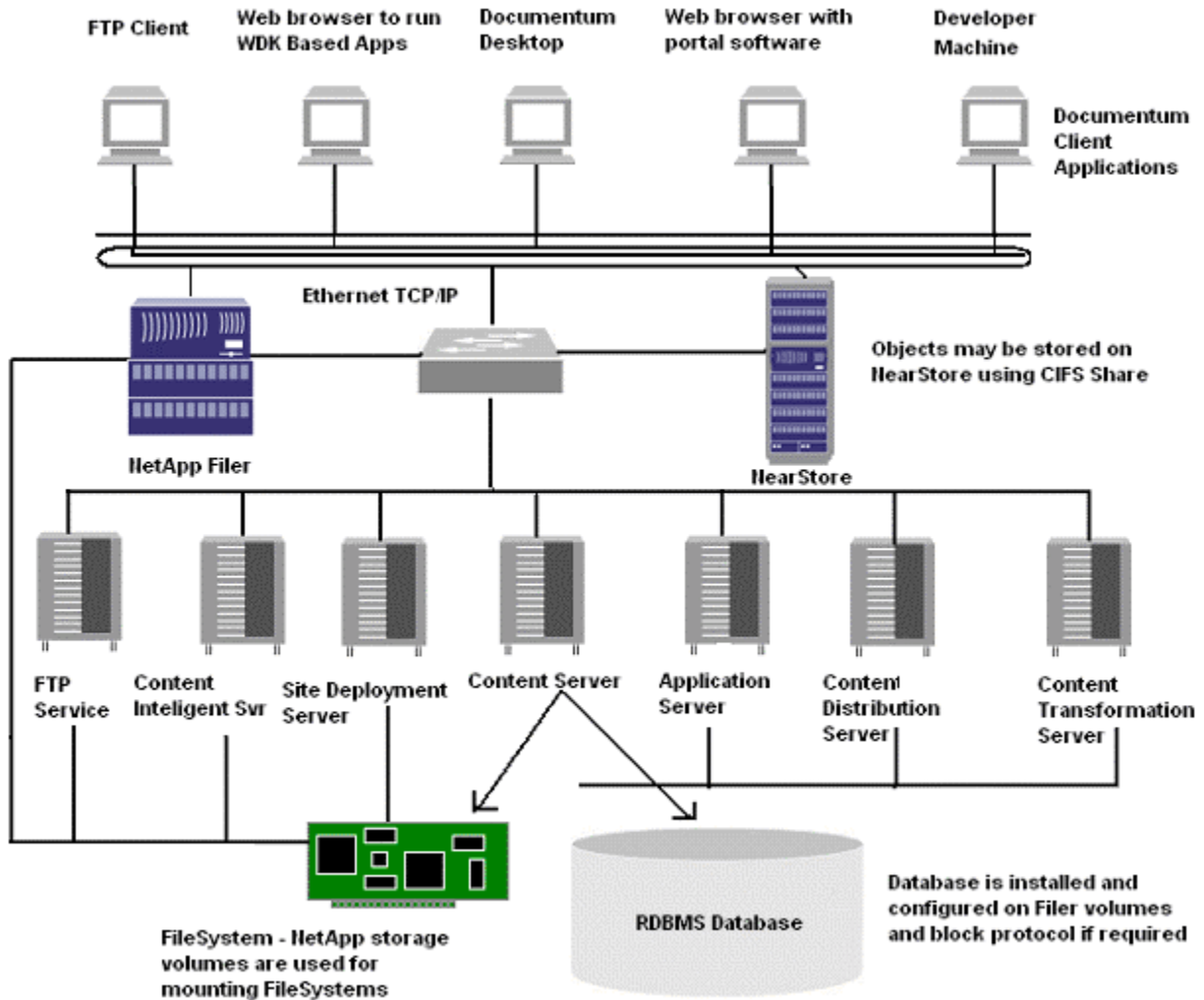
Figure 3: Multitier Documentum Deployment with NetApp Storage

3.1.1. Additional Configuration Details

The additional deployment options may be considered using third-party applications such as CYA Technologies and Open Source utilities. Data protection can be increased by deploying CYA Technologies to support single-object restore and the NetApp storage solution can be used to back up and restore objects at the Docbase level or qtree or volume level. With CYA HOTBackup, single objects can be backed up or restored from the backup.

The SnapMirror solution can be deployed to replicate CYA HOTBackup data to an environment running CYA Virtual Standby in a disaster recovery configuration. Even in the absence of CYA configuration, the SnapMirror option may be deployed to replicate Documentum 5 data. Each Docbase may be configured to use a qtree. With SnapMirror, these qtrees may be replicated to a remote site in a passive configuration.

Remote mirroring from direct-attached storage to a filer using rsync can be deployed seamlessly. This rsync utility is used to replicate a Docbase from DAS to NetApp storage at a remote site for failover and disaster recovery scenarios.

Documentum server uses a relational database to manage information and creates document objects. In Documentum, an object is a component consisting of data and methods. The data consists of content files, attributes, and relationships in the case of documents. The method is instructions for the operations available to be performed on that data. An example of a method is print instruction. Content Assets such as text, image, rich media, and graphics are the core of the Documentum object.

3.1.2. NetApp Storage

The NetApp storage solution supports both file- and block-based architectures. Block protocol-based storage can be configured using the iSCSI protocol and existing network infrastructure or using FCP. The client machine, workstation, and server data can be backed up onto a NearStore appliance.

The following figure shows the Documentum architecture in the NetApp storage environment. High-performance fabric-attached storage (FAS) filers are used to install the Documentum and relational database servers and data and the Documentum objects stored and archived on NearStore. Several user transactions go through the Web server and other client applications to the Documentum 5 server and use DocBroker, Content Server, and Docbase. Docbase is a collection of objects. Documentum stores and archives at object level. The figure illustrates a typical Documentum architecture.

Note that on the Windows 2000 platform, we recommend using FCP or iSCSI/SnapDrive™ software to configure the block protocol to install and configure databases on SCSI disks. Documentum objects may be stored using either SAN or NAS configuration. Also, the customer may use CIFS Shares to configure Documentum objects to store and archive onto the NearStore appliance.

On UNIX platforms, the database may be configured on either a NAS or a SAN configuration. Documentum software is known to work well with network configurations. Configuring using NFS provides data sharing among different servers and clients.

The following figure illustrates the way Documentum users can access data residing on the NetApp storage devices. Using protocols like iSCSI, CIFS, FCP, or NFS, network connectivity to the server may be established. With network share, it's easy to share the information across different clients. On the Windows 2000 platform, using the iSCSI configuration and SnapDrive 3.0 software, local SCSI disks can be configured on the existing IP network infrastructure. Some of the users may use offline folders, complete their work, and sync their data with the server at a later time. This is shown in offline folders. The data can be archived to near-line storage such as NearStore and then archived to a tape library. The archiving process can be configured to work in offline mode so that the server performance will not be affected.
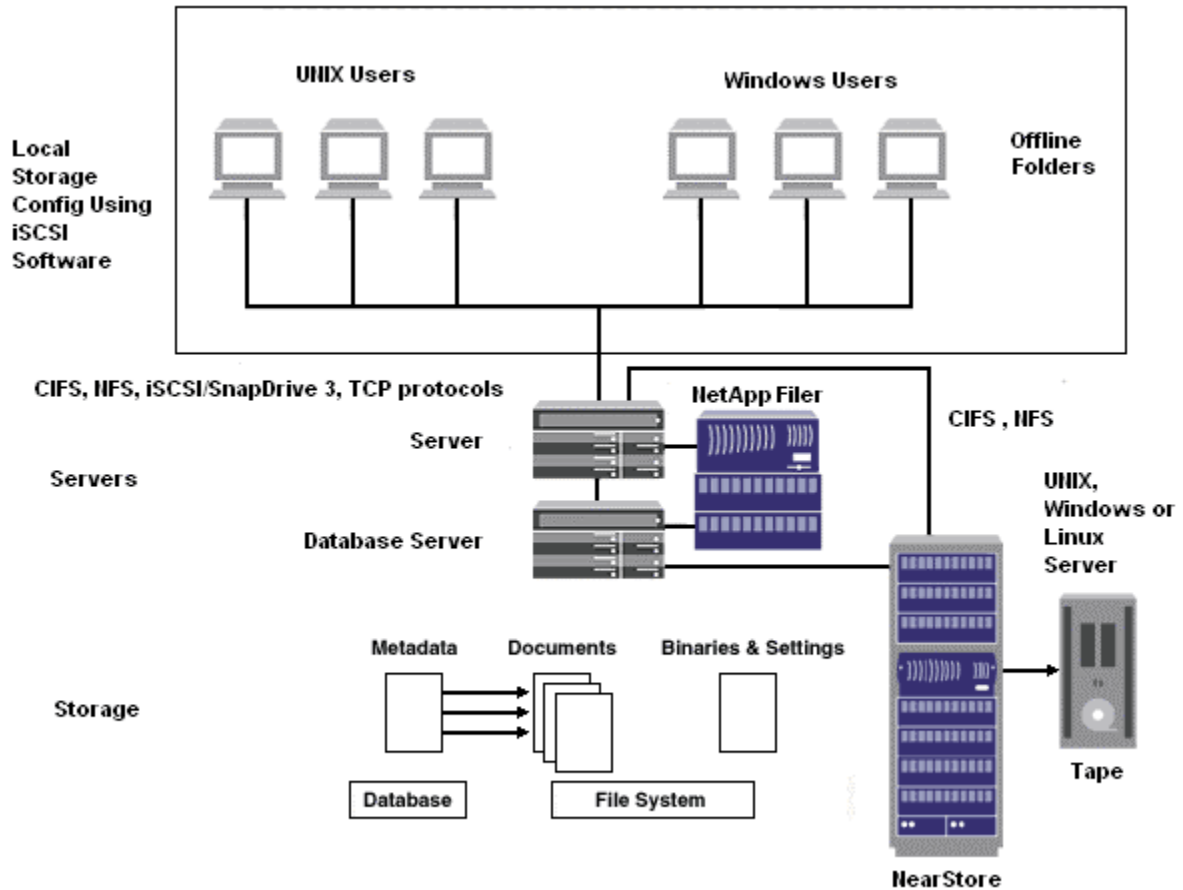
Figure 4: Installation and Configuration of Documentum and Database Products

This is an example of a plan and configuration for deploying Documentum 5 software. For higher data availability, the filer can be clustered and the data can be backed up to near-line storage such as NearStore (R200 in our test scenario). Most of the documents are archived in Documentum, and it can be archived to NearStore to enable efficient data management and allow for quick recovery of documents when requested. Snapshot and SnapRestore are an efficient way to back up and restore data. The SnapMirror feature offers cost-effective data replication to a different location.

The deployment guide's objective is to define and test multiple configurations of NetApp storage in a Documentum 5 environment. The configurations provide customers a Documentum design integrated with NetApp storage. The assumption is that 10% of all registered users use the system concurrently. Another objective of a deployment is to demonstrate the feasibility of integrating NetApp with complementary solutions such as CYA Technologies or open source resources. This will help to address common Documentum 5 administration issues.

The following figure shows configuration of Documentum with supported protocols such as FCP, NFS, iSCSI, and SnapDrive 3.0 software. The NetApp SnapVault™ feature helps to manage data archival to another NetApp storage appliance such as NearStore. Content Server is an object-based system and users' manipulated data is stored as an object. Docbase is also an object and the server organizes all the objects including Docbase.
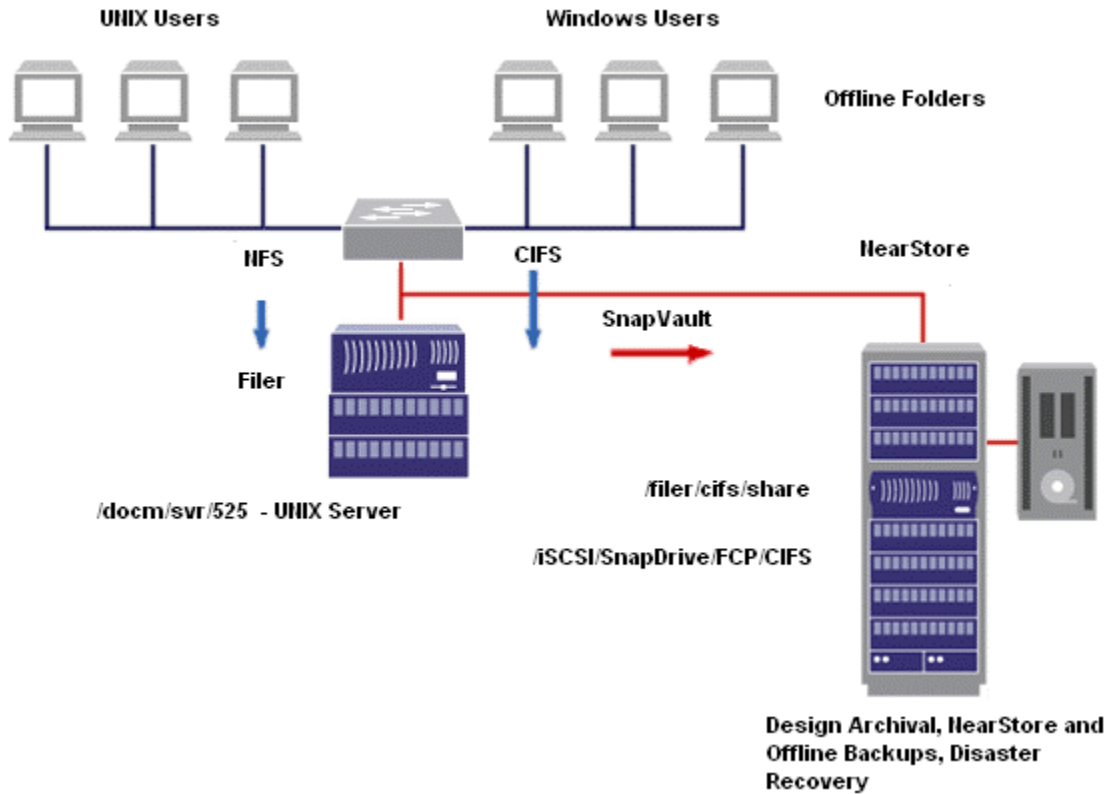
Figure 5: Sharing Data and Archiving to NearStore

This document provides additional information to customers who:

- Are planning to implement Documentum 5 and need to understand their options for using network-attached storage, storage area networks, or iSCSI over IP network in a Documentum 5 environment

- Understand how to manage a database or a large number of content files

- Need a way to reduce a large backup window

- Need to architect or implement Documentum systems and provide storage, backup, recovery, and disaster recovery solutions

3.2. Installation Procedure

Documentum 5 server may be configured with the installation directory on the NetApp storage and the data being stored. This section describes installing Documentum binaries and configuring Documentum for database.

3.2.1. Preinstallation Work

Documentum supports both UNIX and Windows platforms. It supports the Solaris® 8 and 9, AIX, HP-UX, and Windows 2000 platforms. Relational databases such as Oracle® 9.2.0.x, SQL Server 2000, DB2, and Sybase ASE 12.5 are supported in Documentum environments. Both operating systems and database servers need to have the necessary patches installed before the product installation. The network-based configuration is best suited to the Documentum environment and the database component to a block protocol environment such as iSCSI/SnapDrive or FCP protocol.

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Check the preinstallation requirements of Documentum server and install the necessary patches on the operating system. Note that SnapDrive 3.0 software requires Service Pack SP3 or later on the Windows 2000 environment. Gigabit Ethernet network connectivity between the filer or NearStore and the OS server improves network throughput compared to regular 100Mb network. Use of Gigabit Ethernet is strongly suggested for the database software installation and using database data while using NFS. On the Windows 2000 platform, use of iSCSI with SnapDrive 3.0 is recommended instead of using CIFS protocol for database and for installing the Documentum server.

3.2.2. UNIX Platforms

Network Appliance supports both file system (NAS)- and block protocol (SAN)-based configurations. When a NAS configuration is used, the best practice is to set up faster network connectivity such as Gigabit Ethernet with full-duplex mode. Solaris 8 and Solaris 9 support the use of jumbo frames. Database and Documentum software can be installed on filer volumes mounted as a file system. A sample mount command with options is given below:

```
#mount -o intr,vers=3,proto=tcp, rw, rsize=32768, wsize=32768
filer:\vol\volname \mntpoint
```

When FCP configuration is used, you may configure file systems and raw devices using the LUNs created on the filer. These LUNs are scalable and are Snapshot/SnapRestore supported. With FCP, multipath and Veritas Volume manager options are supported. Follow the FCP configuration guide for more details on how to set up LUNs and file systems on the Solaris platform.

3.2.3. Windows 2000 Platform

The Documentum server requires the operating system to have certain service packs to be installed for successful installation. Windows 2000 systems should have SP3 or later service packs. SnapDrive 3.0 also requires this patch. Network Appliance supports either network share using the CIFS protocol or block protocol using iSCSI or FCP. SnapDrive software helps to ease the storage management to expand the disk size and improving backup and recovery features. SnapDrive software requires configuring a faster network such as Gigabit Ethernet. For detailed information on the setup and configuration of SnapDrive software, refer to the Data ONTAP System Administrator's Guide.

iSCSI can be deployed using the software initiator available free from the Microsoft download site or by using the iSCSI host-attached kit. For detailed information about the iSCSI solution, visit the NetApp portal.

If the production environment demands higher performance and high data availability for mission-critical projects, this paper suggests deploying the FCP-based SAN solution available from Network Appliance. The FCP-based SAN solution provides features such as multipathing and higher throughput.

3.2.4. Filer/NearStore

Documentum and relational databases can be installed on filer volumes, and Documentum objects (data) can be stored on NearStore. For most Documentum environments, Both filer and NearStore may be able to meet performance requirements for most Documentum configurations. If it's an enterprise mission critical Documentum environment with heavy load on Database servers, you may have to use our high end solutions of filers and NearStore using SAN and/or NAS solution. To use the storage space, the filer and/or NearStore have to be configured. In order to complete this task, volumes can be created, which is similar to a file system, and a qtree can be created on the volume. Several qtrees can reside under the same volume. For CIFS connectivity, the filer has to be configured and CIFS sessions are running. Create CIFS Shares. Volume, qtree, and CIFS shares can be created using either a command prompt or a GUI utility. To open a NetApp filer GUI utility, open a browser with http://filername/na_admin/. For detailed information refer to the Data ONTAP System Administrator's Guide.

3.2.5. Creating a Filer Volume

In order to provide much higher data protection, in Data ONTAP 6.5 and later, volumes can be created using an optional RAID protection called double parity. For detailed information on double parity, please refer to the Data ONTAP System Administrator's Guide. Note that it's easy to grow the volume by adding disks to an existing volume. It is good practice not to use the root volume, which will make it easy to recover system filers in case data recovery is needed to correct data loss or corruption.

While creating a database, the best practice is to configure an appropriate size for the RAID group. Before creating a volume, decide the type of data protection needed and whether to use double parity. At least three disks are required to configure a volume using double parity, with one disk for data and the other two for parity information.

An example is shown below to create a filer volume and review all the information and deciding the important factors such as disk parity size, etc. Double parity is best suited to mission-critical production environments to provide an increased level of data protection. The following figure lists the summary of information about creating a new volume. If high data protection is required, this paper recommends enabling double parity while creating a volume.
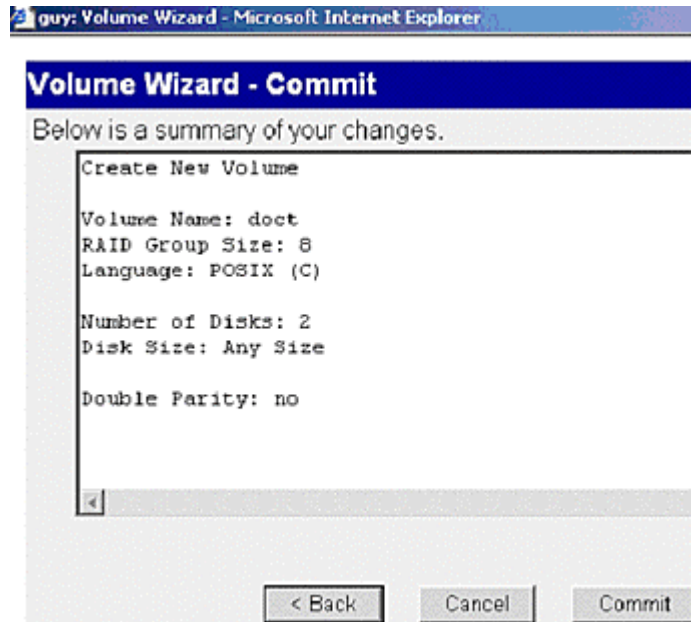

Figure 6: Creating a Volume

Create the needed qtree(s) on top of the volume created. Qtrees can be created either by using the filer GUI utility or on a command line. Depending on your environment, set the necessary security type such as "mixed," "NTFS," or "UNIX." Mixed mode type allows the qtree to have both UNIX and NTFS style attributes. For more details about qtree and security style, refer to the Data ONTAP System Administrator's Guide.

3.2.6. Creating a CIFS Share

On a Windows platform, with volumes and qtrees configured, verify that CIFS sessions are running. If not, set up CIFS services by running the "cifs setup" command. It is a good idea to make sure you are using faster network connectivity such as Gigabit Ethernet with full-duplex mode. In case of FCP configuration, refer to our FCP configuration manual for detailed information on how to set up the SAN configuration. Create new CIFS Shares that can be used to map a network drive or to use with iSCSI LUNs.
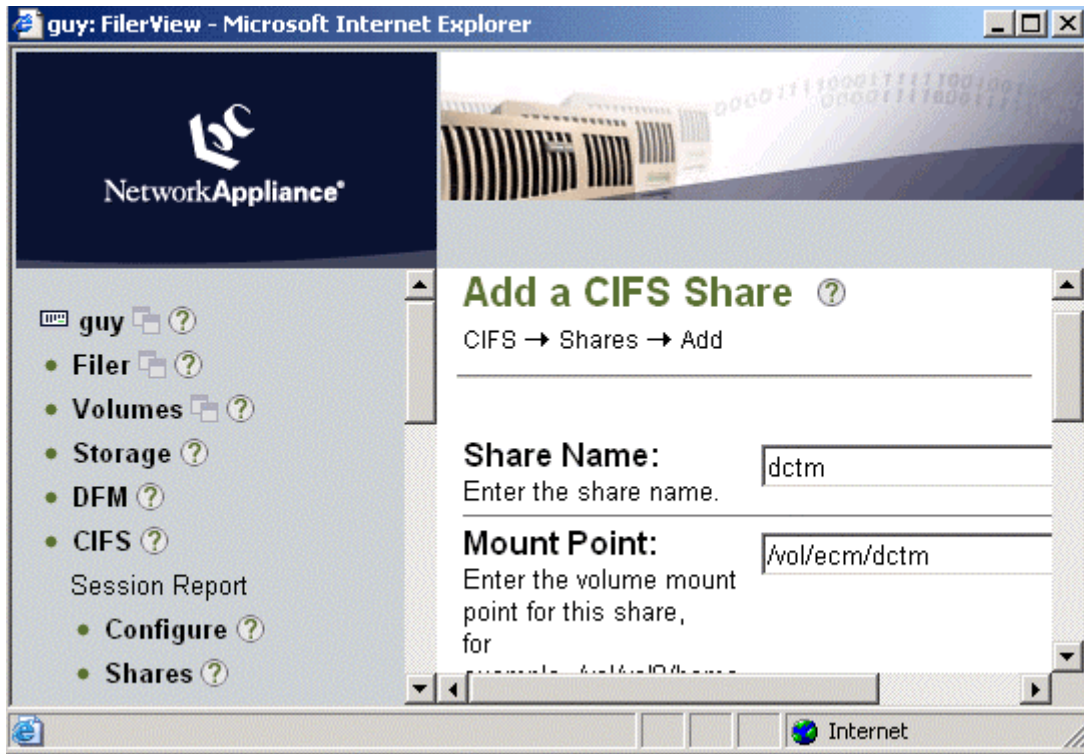
Figure 7: Adding a CIFS Share

In the absence of a Windows environment, there is no need for CIFS services/sessions to be running. CIFS Shares must appropriate user permission, usually being "everyone" with "full access" to the administrator account.

SnapDrive 3.0 software allows management of iSCSI LUNs and backup and recovery. To successfully use SnapDrive 3.0, install either the iSCSI software initiator or the iSCSI HBA solution. Detailed information may be obtained on Performance and Tuning of iSCSI Software, a technical report. After installing iSCSI software, install the SnapDrive 3.0 software on the Windows supported server. To install SnapDrive, system administrator user privileges are required. SnapDrive installation may be found on our NetApp portal.

On UNIX you can mount the file system using the NFS protocol. NetApp supports the iSCSI protocol on Windows 2000 and Linux® platforms. For configuring and setting up the storage system, refer to the FCP product installation guide.

3.2.7. Deployment Options

Before installing Documentum software, review the storage configuration setup such as database installation directory, Documentum product installation directory, and the Docbase information.

3.2.7.1. Windows 2000

On a Windows 2000 platform, using SnapDrive 3.0/iSCSI, the local SCSI disks can be created and used as local disks. During disk creation, we recommend planning for sufficient space requirement and future growth requirements. SnapDrive software allows growing your disk space requirement as data grows. It is a good idea to use NetApp storage as local SCSI disks using SnapDrive/iSCSI to install the database and Documentum software and data. Documentum software may also be installed on local disks.

3.2.7.2. Solaris Platform

On the Solaris platform, either the NFS or FCP protocol may be used to configure the file system for installing Documentum and databases such as Oracle and Sybase. Both Documentum and the database

servers may be installed on the same file system or on different mount points. A sample mount command on the Solaris operating system is given below:

```
#mount -o intr,vers=3,proto=tcp,rsize=32768,wsize=32768 filer-
gige:/vol/volname /doct
```

where /doct is the mount point and filer-gige is the Gigabit Ethernet network IP address of the filer to the OS server.

Using the FCP protocol, you can create a logical unit number (LUN) container and use the OS to create the disks and file systems. NetApp storage allows these LUNs to scale to manage the storage growth, and the Snapshot and SnapRestore features work well with these LUNs.

AIX and HP-UX platforms work similarly to the Solaris environment. UNIX systems have to be ensured that the latest OS patches are installed that will enable to configure and use Documentum and Oracle servers to work well.

At this time the user is expected to be ready with the file system configured and the software may be installed.

3.2.7.3. Database Setup

Documentum 5 supports different relational DBMS products such as Oracle 9.2.0.x on Windows, UNIX platforms, SQL Server 2000 on the Windows platform, Sybase ASE 12.5 on the Solaris platform, and DB2 on the AIX platform. Install the database software and configure the file system for storing database data. For detailed information on installing the database component, refer to the Documentum 5 server installation guide. Each RDBMS product requires the user to apply the Documentum required patches or the latest available patches from the database vendors.

3.2.7.4. Documentum 5.2 Server

Assuming that the configurations are set up correctly, the reader would have all the file systems available to proceed with installing Documentum 5 software. In our test case, we used the Windows 2000 environment and installed iSCSI software initiator and SnapDrive 3.0 software with fast network connectivity such as Gigabit Ethernet with full-duplex configuration. Refer to "Integrating Documentum 5 Server with NetApp Storage" for the Windows 2000 platform.

3.3. Documentum Backup Using Snapshot

NetApp storage can improve manageability and decrease the time needed for routine Documentum backup operations.

Preventing data loss or recovering from data corruption involves a backup strategy. It is also important to consider the window of time consumed to take a backup copy of all the data. As the data that needs to be backed up grows, the backup time also increases. The backup process usually affects the system performance. The choice between hot backup and cold backup is predominantly determined by the allowable downtime of a customer environment. The cold backup approach relies on the fact that the Documentum server and the database server are unavailable to the users. This type of scenario demands a solution where the backup process can be completed very quickly. Snapshot allows taking the backup instantly once the Documentum services are brought to offline mode. By bringing down the Documentum services, all the relevant data is in sync with the system by flushing the metadata. Note that the database and Documentum data and binaries also reside on the filer volume.

3.4. Data Recovery Using CYA HOTBackup Configuration

Another approach is to do online backup where the database is set in archive log mode, a Snapshot copy is taken, and the archive logs are saved to recover the database in case of recovery efforts. We recommend flushing the metadata before taking a Snapshot copy so that the backup copy will have consistent status data. The test results showed that a Snapshot copy-based backup will have minimal effect on the Documentum server and it finishes quickly.

CYA HOTBackup enables the integrity and availability of information critical to production environments. Using the CYA HOTBackup feature, the customer can roll back repositories to a specific point in time or restore either single or multiple objects. In the NetApp storage deployment environments, the CYA HOTBackup feature allows backup or restoration of a single object in a hot backup mode without affecting the availability of the Documentum server. If the customer environment allows a shutdown of the Documentum server and database server, a backup can be taken instantly using Snapshot. If it's scripted, the entire operation may be over within a couple of seconds.

CYA also provides another feature called CYA Virtual Standby to provide business continuity by incrementally sending the information from the primary server to a secondary server at a different site. To replicate all the data efficiently, you can also use the SnapMirror solution from NetApp. For more details on CYA products and features, visit its Web site.

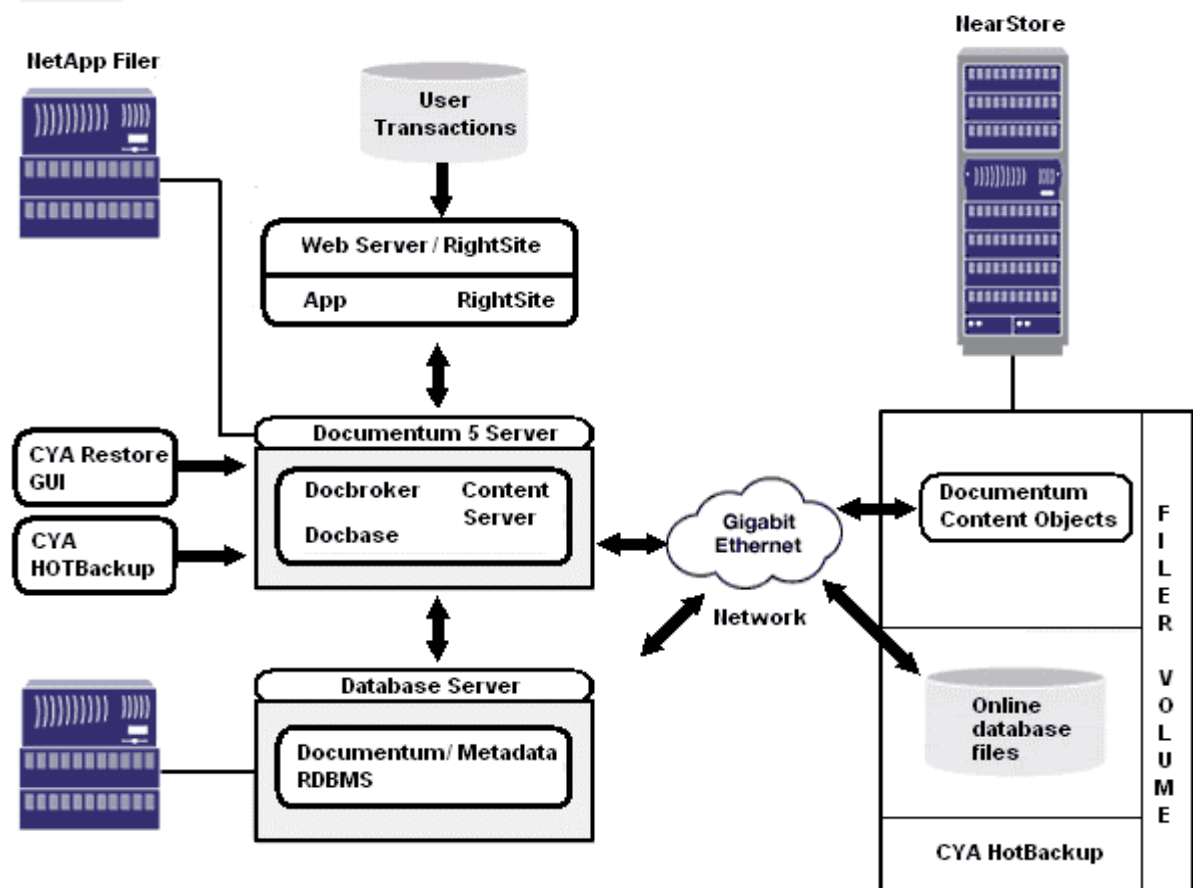**Figure 8: Using CYA HOTBackup Configuration**

3.5. Data Recovery Using SnapRestore

Just backing up the data is not sufficient in an enterprise configuration, and an efficient data recovery plan must be designed. With SnapRestore, the file system may be restored quickly, no matter how large it is. SnapRestore increases the data availability by minimizing time to recovery. An example of the configuration is shown below.

3.6. Documentum Data Mirroring for Failover Using SnapMirror

In addition to addressing data backup and recovery, a good data management architecture must also address disaster recovery. Disaster recovery can be achieved using different technologies and approaches. With SnapMirror, both Documentum object data and the database data can be easily and efficiently replicated to a secondary site. The following figure shows a strategy of a mirrored application with no data sharing. It is a good practice to define a strategy with downtime tolerance and adding any application redundancy to reduce the downtime. A typical business scenario involves a need for business continuity involving replicating data to a remote standby Documentum environment.

Failure may occur due to several reasons and a design architecture will help us to resolve any failures. Typical failures are due to:

- Network connectivity outages

- Power failure

- Failure of hardware/software in the configuration

- Disaster at the primary site

If the Documentum 5 server and database servers are hosted on different host machines and on different filer volumes, they have to be mirrored to the target site and recover the database if the database server experienced a crash due to outages.
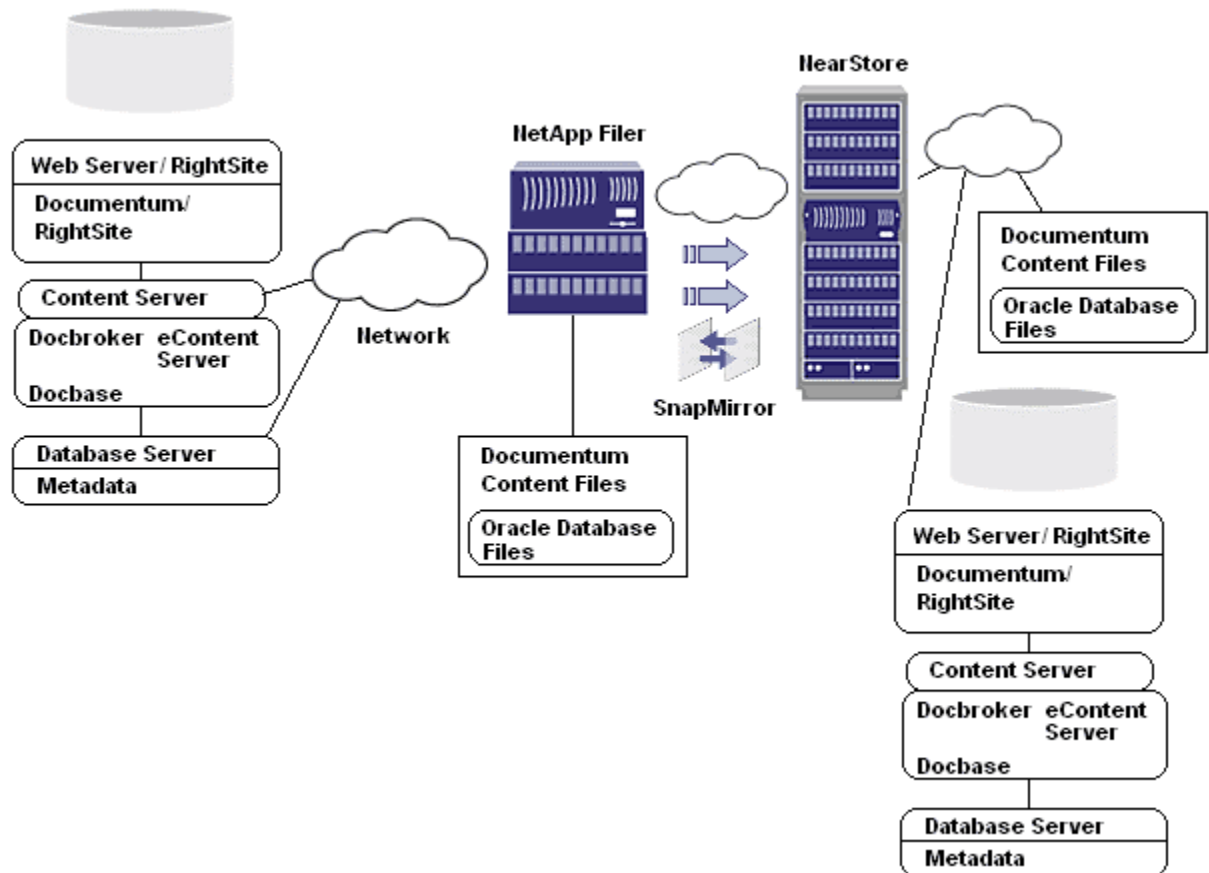

Figure 9: Documentum Data Replication Using SnapMirror

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Disaster recovery of the Documentum 5 environment can be achieved through two approaches. One configuration uses NetApp storage for storage with mirroring features. The other one uses CYA virtual standby for object-level mirroring with a virtual active environment configuration.

4. Support for SnapLock™

Recent regulations and business requirements have shown that some of the Documentum data needs to be archived to a nonrewritable, nonerasable medium. NetApp storage solutions provide a feature called SnapLock to fulfill this requirement. SnapLock is a software feature that supports WORM and the retention date features for the documents on the file system. Once the application sets the retention date and the read-only mode, SnapLock preserves those attributes until the retention date is reached.

This can be achieved by running a user-generated DQL statement (Documentum Query language) to set the retention date, changing the file attribute and archiving to the SnapLock volume. SnapLock is supported by two versions: one is the regular compliance version, which will not allow either modification of the file attribute or decreasing the retention date, and the other version is called enterprise edition, which allows some specific users like administrators to modify file attributes or delete the file and reclaim the space on the SnapLock volume.

5. Summary

NetApp delivers an efficient storage solution for the successful deployment of Documentum products in new installations or in upgrade environments. Using Snapshot, SnapRestore, and SnapMirror helps to easily manage backup, data recovery, and data replication requirements. This document is not intended to be a sizing guide or a complete review of Documentum products and features.

Operating System	Database Information	NetApp Supported Protocol
Sun Solaris HP/UX IBM AIX Windows	Oracle MS SQL Server IBM DB2 Sybase ASE	SAN configuration may be achieved by using FCP or iSCSI protocols. NAS configuration may be achieved by using NFS or CIFS protocol. On Windows platform, SnapDrive 3.0 utility may be used to manage the storage needs efficiently.
Directory Servers	Application Servers	Comments
SUN ONE Directory Oracle Internet Directory Active Directory	J2EE COM/.NET	Some of these applications may need block access (SAN). If SAN configuration is required, configure the storage using FCP or iSCSI protocol to deploy the Documentum environment including Directory Services

Support Matrix for Documentum Deployment

6. Database Management Information

This section describes some database tips to help you to manage Oracle database server. This paper recommends replicating some database-related files such as "init.ora" and control files to a new location other than the source path. In a nonclustered failover configuration, modify the init.ora file with new control file information; restart the Oracle server for the changes to be effective. Create mirrored sets of online redo log files. This can also be done using Veritas Volume Manager.

Keep online and archived redo logs in separate volumes. Keeping them in separate volumes provides some advantages such as data protection and more flexible database recovery. Placing the redo logs in separate volumes also simplifies the management of these files. This is especially useful in a backup and recovery process.

To increase the Oracle server availability and prevent any emergency situations, avoid filling the volume to capacity. In a SAN configuration, enable persistent binding so that a device entry to LUN connection will remain consistent across the system reboots.

The NetApp Web site offers several technical papers that cover deployment of Oracle on NetApp storage. NetApp offers a special service in conjunction with Oracle for deploying Oracle on NetApp using proven best practices.

7. Caveat

NetApp has not tested all possible combinations of hardware platforms and storage architecture and software options. If you use a different server OS, a different version of Documentum Server, or a different database, then there could exist significant differences in your configurations that may alter the procedures necessary to achieve the set objectives outlined in this document. If you find any of these procedures do not work in your environment or need additional information, we suggest contacting the author immediately.

8. References

- Documentum on NetApp® Filers and NearStore—Business Continuance

- A Storage Networking Appliance

- The Compatibility and Configuration Guide for NetApp FCP and iSCSI Products

- Performance Tuning for iSCSI

- NetApp Filer, Data ONTAP 6.1 and later—Windows 2000 Technical FAQ

- File Recovery from Snapshot Copies

- Documentum 5 Product Manuals

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