

5.6 Integrated Document Management

It is for managing integrated documents.

Integrated document Management for Messaging Specialized messaging system such as Lotus Notes provide Integrated document management for messaging. The user can attach embed or link a variety of multimedia objects.

When document is forwarded to other users, all associated multimedia objects are also forwarded and available to the new receivers of the forward message.

Integrated Document management for Messaging:

Specialized messaging systems such as Lotus Notes provide integrated document management for messaging. This means the user can attach, embed, or link a variety of multimedia objects such as graphics, images, audio and video. This also implies that when the document is forwarded to other users all associated multimedia objects are also forwarded and available to the new recipients.

Multimedia Object Server and Mail Server Interactions:

The mail server is used to store all e-mail messages. It consists of a file server with mail files for each user recipient. This file server act as a mail box.

All received mail is dropped in the user's mail file. The user can review or delete these mails. When mail messages include references to multimedia objects, mail file contains only link information.

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DISTRIBUTED MULTIMEDIA SYSTEMS

5.7.1.Components of a Distributed multimedia systems:

If the multimedia systems are supported by multiuser system, then we call those multimedia systems as distributed multimedia systems.

A multi user system designed to support multimedia applications for a large number of users consists of a number of system components. A typical multimedia application environment consists of the following components:

1. Application software.
2. Container object store.
3. Image and still video store.
4. Audio and video component store.
5. Object directory service agent.
6. component service agent.
7. User interface and service agent.
8. Networks (LAN and WAN).

Application Software

The application software performs a number of tasks related to a specific business process. A business process consists of a series of actions that may be performed by one or more users.

The basic tasks combined to form an application include the following:

- (1) **Object Selection** - The user selects a database record or a hypermedia document from a file system, database management system, or document server.
- (2) **Object Retrieval** - The application retrieves the base object.
- (3) **Object Component Display** - Some document components are displayed automatically when the user moves the pointer to the field or button associated with the multimedia object.
- (4) **User Initiated Display** - Some document components require user action before playback/display.
- (5) **Object Display Management and Editing**: Component selection may invoke a component control subapplication which allows a user to control playback or edit the component object.

Document store

A document store is necessary for application that requires storage of large volume of documents. The following describes some characteristics of document stores.

1. Primary Document Storage: A file systems or database that contains primary document objects (container objects). Other attached or embedded documents and multimedia objects may be stored in the document server along with the container object.

2. Linked Object Storage: Embedded components, such as text and formatting information, and linked information, and linked components, such as pointers to image, audio, and video. Components contained in a document, may be stored on separate servers.

3. Linked Object Management: Link information contains the name of the component, service class or type, general attributes such as size, duration of play for isochronous objects and hardware, and software requirements for rendering.

Image and still video store

An image and still video is a database system optimized for storage of images. Most systems employ optical disk libraries. Optical disk libraries consist of multiple optical disk platters that are played back by automatically loading the appropriate platter in the drive under device driver control.

The characteristics of image and still video stores are as follows:

- (i) Compressed information
- (ii) Multi-image documents
- (iii) Related annotations
- (iv) Large volumes
- (v) Migration between high-volume such as an optical disk library and high-speed media such as magnetic cache storages
- (vi) Shared access: The server software managing the server has to be able to manage the different requirements.

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Audio and video Full motion video store

Audio and Video objects are isochronous. The following lists some characteristics of audio and full-motion video object stores:

- (i) Large-capacity file system: A compressed video object can be as large as six to ten M bytes for one minute of video playback.
- (ii) Temporary or permanent Storage: Video objects may be stored temporarily on client workstations, servers Providing disk caches, and multiple audio or video object servers.
- (iii) Migration to high volume/lower-cost media: migration and management of online storage are much of greater importance and more complex than of images.
- (iv) Playback isochronosity: Playing back a video object requires consistent speed without breaks. Multiple shared access objects being played back in a stream mode must be accessible by other users.

Object Directory Service Agent

The directory service agent is a distributed service that provides a directory of all multimedia objects on the server tracked by that element of the directory service agent.

The following describes various services provided by a directory service Agent.

- (1) Directory Service: It lists all multimedia objects by class and server location.
- (2) Object Assignment: The directory service agent assigns unique identification to each multimedia object.
- (3) Object Status Management: The directory service must track the current usage status of each object.
- (5) Directory Service Domains: The directory service should be modular to allow setting up Directory Service Server Elements: Each multimedia object server must have directory service element that reside on either server or some other resources.
- (6) Network Access: The directory service agent must be accessible from any workstation on the network.

• Component Service Agent

- A service is provided to the multimedia used workstation by each multimedia component.
- This service consists of retrieving objects, managing playback of objects, storing objects, and so on.
- The characteristics of services provided by each multimedia component are
 1. **object creating service:** It obtains a identification for creating a new object from the directory service agents and provides user interfaceservice agent access for storing the new object.
 2. **playback service :** It provides services like play, seek,search ,copy, delete and so on.
 3. **component object service agent :**This is the code that provides these services for specific object type such as vide component.
 4. **service agents on servers :** multiple component agents may co resident on a server if the server stores multiple component object. and
 5. **multifaceted services -** (multifaceted services component objects may exist in several forms, such as compressed Or uncompressed).

- **User Interface Service Agent**
- It resides on each user workstation.
- It provides direct services to the application software for the management of the multimedia object display windows, creation and storage of multimedia objects, and scaling and frame shedding for rendering of multimedia objects.
- The services provided by user interface service agents are
 - **windows management:** creates a new window for multimedia object when invoked and registers it. handles messages for that window.
 - **object creation and capture:** requests component service agent to set up a new object and captures and stores new object.
 - **object display and playback:** sets up object for decompression, scales and adjusts frame speed for display or playback of object.