

The Cinemage® System

The Cinemage® System is a 100% solution for searching, retrieving and presenting images, audio, video, and other content-rich information over the Internet. Cinemage® can be customized for a variety of applications.

System Highlights

Highlights of the system include

- Powerful search capabilities
- Access to a rich collection of content
- Ability to display images in different resolutions and levels of detail
- Provision of multiple levels of access and authentication
- Sophisticated billing and usage monitoring
- Ability to access distributed remote content servers
- Ability to handle multiple media & data formats

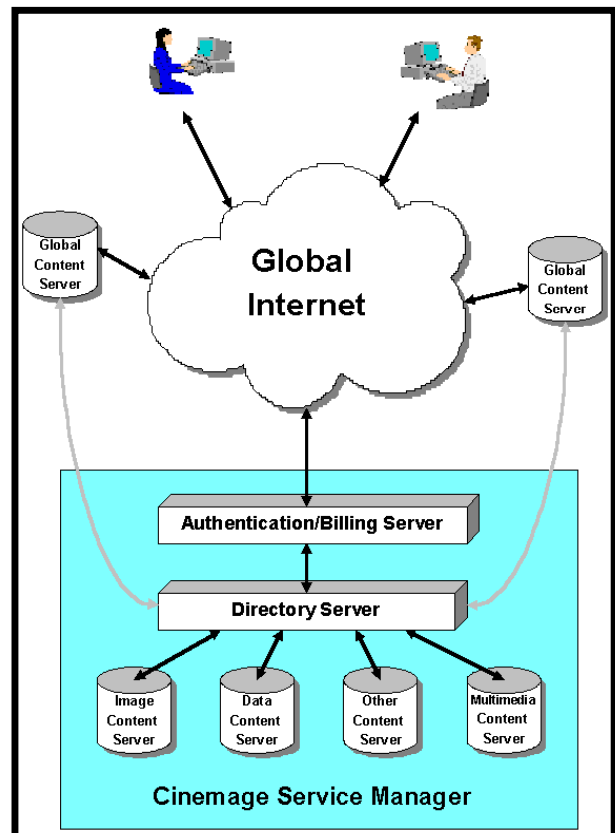
System Description

The fundamental basis of the Cinemage system is a distributed multimedia database system. Because of the way the system is designed, and the fact that it is database-driven, it is very easy to adapt the system for different uses. The system is designed so that it may access multimedia content collections located anywhere on the Internet.

The heart of the system is the Service Manager, which controls access to the various collections or services. The service manager performs two major roles for each service, acting as a top-level directory to the services, and providing authentication and access control to the services.

Each service consists of one or more inter-linked databases, containing text and possibly multimedia items. Users can search and browse the various databases, moving freely between them

The owner of a service has complete control over access to the data with multiple levels of access available. These levels can include free public access to some or all of the data, access which requires a user account, and administrative access. Administrative itself provides multiple levels to allow complete control over the data and access to it. Administrative accounts have access to tools for data entry and maintenance as well as tools for creating and maintaining user accounts. The service owner also has control over



the look and feel of the service including such things as organization, colours, fonts, and other items.

The system includes an e-commerce component that provides a variety of options including, pay-per-view, subscription-based pricing, and the ability to sell individual media items (for immediate download or later delivery) or other items related to the collection.

The system is entirely web-based both for the service owner and the end-user so it can be accessed from anywhere on the Internet using a standard web browser. For information providers who wish to maintain their own web sites the service can be linked seamlessly into their own site. Although the service is running on ACT's servers the system appears to the user as part of the provider's site.

In short, the system provides a powerful tool for creating and maintaining multimedia collections.

Functional Overview

The Cinemage system is a proprietary software system that is entirely web-based. It is accessed through standard web browsers and requires no other software for user access. Access to the system is controlled through individual user accounts and passwords. Public access is accomplished through a special “public” account that provides limited access and bypasses the password requirement. Thus the system can be configured so that the public can access the system directly without even being aware of the user account/password requirements.

The system is designed so that the owners of individual data records have complete control over their data. The record owner can determine who has access to their records and the level of access. This can extend to fields within records. This means, for example, that owners could set their data up so that only they can edit it, other archivists could look at the complete record, while the general public could only view some of the fields. The types and levels of access are governed through the user account system.

ADMINISTRATIVE COMPONENTS

User Account Management

Financial management includes all those functions associated with authentication, accounting, billing and pricing.

User Classes

All users belong to user classes that determine their level of access to various facilities as well as the pricing structure that is used for financial transactions for that user.

- Public access accounts
 - Individual (login and password)
 - Generic (no login required)
- Staff accounts
 - Editor account (media maintenance)
 - Administrator accounts (create user accounts, editor accounts)
- Systems admin accounts (full access for system changes)

User Account Maintenance

Note that while users can self-register, administrators can also create accounts for them. Administrators can also examine the status of accounts, and perform functions such as changing user passwords (without having to know the original password).

- create user accounts
- update user account information
- change user passwords
- purchase subscriptions on behalf of accounts

Logging or statistics gathering

The system has the ability to log virtually all transactions. There is a standard set of items that is logged by default. The system administrator can configure the logging process to include more items. Note that the log files are not used for accounting purposes.

- standard logging provides session start/end, summary of objects of each type delivered.
- ability to choose what items are logged

Financial Management

Billing Models

The current model is a subscription model in which the user pays an initial deposit and the resources used in a session are deducted from the balance. When the balance is exceeded access is then restricted until additional funds are added to the account. The system is flexible enough to offer several billing models.

- time-based billing - customer subscribes for a time period, during which has access to those services and functions provided by the chosen subscription. The subscriber can select the time period (in months or years) for the subscription.
- token-based billing - in this model different items are assigned different values or tokens and accessing an item means that the corresponding number of tokens are deducted from the users' account.
- combination of above - the subscription is time based with certain items available for free. Accessing other items would require extra tokens.
- virtual tickets - essentially short term (one day?) time-based subscriptions, similar to a one-day admission to a museum. Such tickets might be good for one specific service or exhibit.

Accounting

Accounting refers specifically to the collection and distribution of revenue. This includes accepting payments from users and the distribution of revenues to content providers.

- Accept payments for accounts
- Credit card processing
- Funds distribution to content providers

Pricing

Pricing refers to the establishment and maintenance of all prices required. This includes prices for subscriptions as well as prices for individual items.

- Establishment and maintenance of pricing tables
 - Prices for subscriptions
 - Token costs - tables showing number of tokens required to access individual items
 - Price tables for items for sale (eg. images for sale)
 - Discount tables

Reports (statements, etc.)

This refers specifically to financial-type reports.

- Customer accounts and monthly statements
- Content provider statements

Security

- Use of SSL for login and financial processing

Content Management

Service Creation

There are a number of functions associated with the creation of a service. Different services will lend themselves to different structures, presentation, and navigation methods.

- Creation of “standard” services
- Establishing database structure
- Establishing standard index fields
- Determining navigation methods
 - Searches
 - Map-based
 - Table of contents
 - Indexes

Content Database Maintenance

This refers to the service content databases and the tools used to maintain them.

- modify entries in the databases
- add a new item to the database
- delete items from the database
- bulk upload information into the database

Image Management

This refers to the image collections and the tools used to maintain them.

- manipulate an individual image
 - rotate or flip
 - add watermark
 - add caption
- add a new CD-ROM (bulk upload)
- view thumbnails from some CD

Image Bank or catalogue (items for purchase)

- maintain catalog of prices
- provide mechanisms for delivery (CD-ROM, ftp, email attachments)
- negotiation methods for purchase
- types of rights to image (eg. Exclusive rights implies no-one else can purchase)

Reports

The system is capable of producing a variety of reports showing both system usage and content holdings.

- Various reports on holdings

Image Protection

The system provides several mechanisms for protection of images, which can be used singly or in combination. It should be noted that it is almost impossible to prevent against capture of an image from the screen. However, screen resolution images are generally unsuitable for publication or other uses. The main protection against illegal use of images is really through copyright laws.

- Watermarking of images
- Copyright notice
- Display of very large images as tiles or mosaics for efficiency and to prevent capture
- Display of image so as to make saving of image file impossible

System Management

The items in this section refer to system-level items outside of the Cinemage system itself. This includes system support for the computer system that the Cinemage system will be running on including operating system support, networking, and functions such as regular back up.

Database Architecture

- Current system uses flat file format
- Support for Oracle as database engine

System Administration

- Configuration
- Back-up

Documentation

User documentation for administrative functions

This refers to documentation for all of the administrative functions described in the previous sections.

- On-line help

Installation Guide for building system

This refers to documentation for a complete installation of a new system on a new machine.

- On-line information

System documentation

This refers to internal documentation describing the various system modules.

USER COMPONENT

Registration/Login

Users can “self-register” to use the system, creating their own account and passwords. Once registered they can subsequently access the system through the chosen account and password.

- self registration via the web
- secure purchase through credit card

Service Selection

The system provides access to a number of services. The user, once logged in to the system, chooses the service he or she wishes to access. Once logged in, the user can move freely between the services that have been subscribed to, and can also subscribe to other available services. The system presents the all available services, with the currently subscribed services at the top of the list.

- Select from available databases/services
- Display of all available services and ability to purchase new services at any time

Navigation Methods

The user can select from a variety of navigation methods. Different services provide different access options.

- Search-based
- Table of contents
- Map-based

The choice of navigation methods depends on what options are provided within the specific service that is being accessed.

Searching Methods

The system provides for several search mechanisms. For new users there are some very simple search methods while more sophisticated users have access to more complex searching.

- types of searches
 - simple search (on one or several fields)
 - advanced searches
 - free form searches
- scan (index) fields
- refine search results
 - limit initial search through additional criteria
 - sort results on some field
 - summarize search results on some field

Saving of Search Results

- ability to save searches – this allows the user to save and maintain search strings, giving them more meaningful names.

- ability to save favorite images – this allows the user to save individual items in a personal gallery for future reference.

Display Formats

This refers to the information that is displayed. The display options described here refer specifically to images.

- thumbnails
 - list or light table format
 - small or large thumbnails
- vignettes
- full screen
- high-resolution
 - tiling of images
 - panning of images
 - several resolutions

Purchase Items

Some services consist of image banks or catalogs of items. These items can be purchased. Purchasing may imply simply buying a copy or perhaps buying exclusive rights to an object for a period of time.

- Purchase an image
 - Transfer via ftp
 - Request on media for delivery

Account Options

The account options function allows the user to display and change the various user-settable display options. This allows the user to customize the system to a certain extent. The function also provides access to the user's account information.

- change/save display options
 - language
 - thumbnail formats
 - new windows
 - database selection
- change/save account options
 - personal info
 - password
- display account status

Feedback/Help

The feedback feature allows users to easily send messages and comments to the system maintainers. Problem reports are read by staff and responses sent back to the user.

User Documentation

The primary user documentation currently consists of context-sensitive on-line help files linked directly to the pages being accessed.