

Group: 3D'S
Project: Media Server
Document: SDS
Date: February 4 2005

1. Introduction

1.1 Purpose of this document

To more formally describe the relationship between the various modules, their individual tasks, and how the user interfaces with the system.

1.2 Scope of the development project

We are developing a media server that will store media (DVD/CD content). This will only operate on a home network with windows machines. The amount of media stored is dependent on the network's free hard drive space.

There is a recommendation system to help indecisive viewers decide on what movie they wish to see or music to listen to.

Some benefits are that you can store the media on any computer on the network. Since you won't be using the actual disks they can be safely stored and media becomes readily accessible.

1.3 Definitions, acronyms, and abbreviations

Client Application: The system that the user interacts with to interact with the recommendation system, request media, and play back the streaming data.

Database Server: A server that runs a database containing information on movies, music files, and local media location.

IMDB: A website (<http://www.imdb.com>) that maintains a great database full of movie information.

Media: A movie or music data file.

Media Player: A program (implemented by a third party such as Windows Media Player) to play the media sent to it by the streaming server.

Recommendation System: A system that we will design, to make a good decision on what to recommend if a user would like the system to suggest a movie or an appropriate music playlist. This will analyze current preferences (i.e. I want to watch a comedy tonight) and the user's previous viewing practices to make a recommendation.

Streaming: The transfer of large amounts of data over a network. The receiving computer will then display the data, while it is coming in rather than saving it all.

Streaming Server: A server that streams media from the local hard drive to any other computer.

Session: A session consists of a user starting the client program, logging in, either picking some media, or having one recommended, and enjoying the media.

1.4 References

<We will find these references as we need them.>

IMDB: <http://www.imdb.com>

Java: <http://java.sun.com/j2se/1.4.2/docs/api/>

Microsoft MFC Library:

http://msdn.microsoft.com/library/default.asp?url=/library/enus/vclib/html/_mfc_Class_Library_Reference_Introduction.asp

<Streaming stuff>:

<Media conversion tool>:

<Media Player>:

<Database server – MySql>:

1.5 Overview of document

In section 2 we give a high level overview of our system and how a user interfaces with it. Section 3 will be completed in version 2 of this document. Section 4 describes the third party components we are using. Section 5 discusses the tradeoffs and design choices of our system.

2. System architecture description

2.1 Overview of modules / components

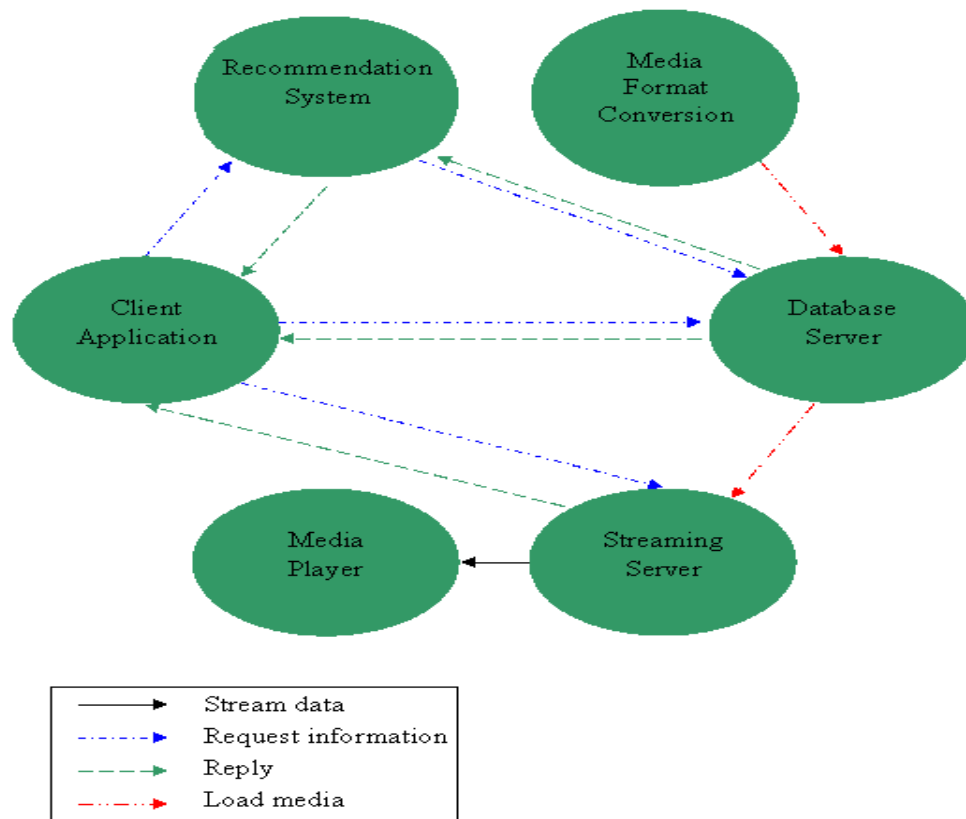
There are four major components to our system, plus a few other components provided by third parties. The user will interface with our system through our client application which has two options. First, a user can choose a movie to watch, or some music to listen to. Otherwise they can ask the advise of our recommendation system on what they should watch or listen to. The streaming server can run on any computer on the network with enough hard drive space to store media. This server will stream media to a users computer. A back end database server will store the locations of the media as well as the viewing history of the various users. The final component is an interface for adding media to the system, and if desired, converting it to a new file format.

2.2 Structure and relationships

User interacts with the client program to request media via either a wizard style interface or an explorer type interface.

User interacts with the database server to add media to the system via a wizard style interface.

This is a graphical representation of how our system interacts.



2.3 User interface issues

The user will start the client application and identify themselves through a login (so we know whose viewing history to reference and update). They can either choose to use the recommendation system, or to select media from the available list. Finally they can watch/listen to the media via Windows Media Player.

Little Billy comes home from school with his homework completed (he got bored in math class). His friends are all in detention for hacking into the school's grading system. Fortunately for Billy, he was getting a snack at the time. (He likes to eat Ho-Ho's while hacking.) Since his cohorts are all serving time, he no longer has a scape goat at his side to take the blame for his exploits on-line. This gives him a couple of hours to watch a movie before SuzyQ comes home from school and starts bossing him around. He logs in, and wonders what to watch. He sends in his preferences, "sci-fi," to the

recommendation system. He receives a list of movies to watch. These include *The Revenge of the Nerds*, *War of the Worlds*, *AI*, *I-Robot*, *Star Wars IV*, *Star Wars VI* and *Sneakers*. Various movies have been weeded out such as *Star Wars V* and *Minority Report*, because he has watched them recently. He chooses to watch *Star Wars VI* because he knows that if he does, he will be able to hone his own ability to use the force.

Two-and-a-half hours later, SuzyQ Teenager comes home after a rough day at school. She actually got caught ditching math class and making out with Brett – the Swedish model/foreign exchange student. She brings her friends with her to talk about the incident and after an hour of sharing the details of the Swedish Hunk's kissing abilities, they decide to watch a movie. At this point Little Billy becomes the servant of “The Brett Svenson Fan Club.” He is sent to make popcorn (“None of that microwave crap!”) and bring them cookies and milk. While they wait, they fire up the media server's recommendation system. They enter in “Brad Pitt” and “since 1995” and wait for the results. The recommendation system returns a list of movies that she hasn't watched more than once in the last week. This list includes *Ocean's Eleven*, *Meet Joe Black*, *Fight Club*, *Seven Years in Tibet*, and *Sinbad: Legend of the Seven Seas*. *Interview with a Vampire* was removed from the results because it was too old. They choose to watch *Meet Joe Black* because it is the longest and gives them more time to feast their eyes on his body.

That evening, Dad comes home all excited. He has purchased four new movies: *Mr. 3000*, *Sky Captain and the World of Tomorrow*, *Ray*, and *The Grudge*. He apologizes to his princess, but he has to get these loaded immediately. (The loading will use up some of the bandwidth, and may cause the loss of data to be a little more common which could cause possible glitches in the streaming of the movie). She complains enough and he collapses under her pouting. He decides he can do it later. After the “Pitt-fest” is over, he immediately begins to load the new movies into the system.

Later that night, after both of the kids are in bed, Mom and Dad go off to their room to enjoy a movie. Having just loaded four new movies, Dad wants to watch one of them. Mom however, has another movie in mind. She wants to watch one of the most romantic classics of all time, *An Affair to Remember*. They enjoy the rest of their evening together....

2.4 User Interface Spec

Located at http://www.cs.utah.edu/~arichard/3DS_UI.html

3. Detailed description of components

NOTE: This section is the main focus in version 2.0 of the SDS, the detailed design. This section will provide most of the basis for implementing the product.

3.1 Component template description

This section is not part of your design. It is the pattern you will use to describe the components given in subsections 3.2 - 3.n. Each part of the template will be identified by a label. Here in 3.1, you must briefly explain the purpose of each point. To make the presentation clear, use a table or bullet list. You may adapt the template suggested below to your particular needs (although deviations from the suggested template should be minimal and well motivated).

3.2 X Component (or Class or Function ...)

Use exactly the template you define in 3.2. If a part of the template is not applicable, then mark it N/A rather than omitting it.

3.3 Y Component (or Class or Function ...)

...

3.n Z Component (or Class or Function ...)

4.0 Reuse and relationships to other products

For teams doing enhancement work, reuse is an important issue. Most enhancement work should focus on extending, rather than replacing, the design and product development from earlier semesters.

For teams doing new development, reuse can also be an important strategy. In some cases, there is freeware that could be incorporated. In other cases, there are existing modules or classes that could be adapted. Another possibility is the use of special tools that produce open source results and thus permissible under the terms of this course.

This section should include the following subsections as appropriate:

how reuse is playing a role in your product design

how reuse is playing a role in your product implementation (and the motivation for changes)

if you are not reusing material that is available, then give motivation for why it is being thrown out.

5.0 Design decisions and tradeoffs

Use this section to motivate any decisions that will help the reader understand the design that your team is using. This section can also capture good ideas that were abandoned and the reasons for leaving them out of the design.

6.0 Pseudocode for components

None at this time

7.0 Appendices (if any)

None at this time