Architecture

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ABSTRACT:

The consumption of media via video streaming services is higher than ever. With video streaming platforms such as Netflix, Twitch, and YouTube growing continuously, consumers of these platforms have an endless amount of content to watch. Often times, consumers who may watch multiple video media or platforms at once, have to change between multiple screens or browser windows. Proposed is a multimedia platform which will all the consumer to watch multiple video streaming services at once, on a single screen, to alleviate the need to switch between screens or windows.

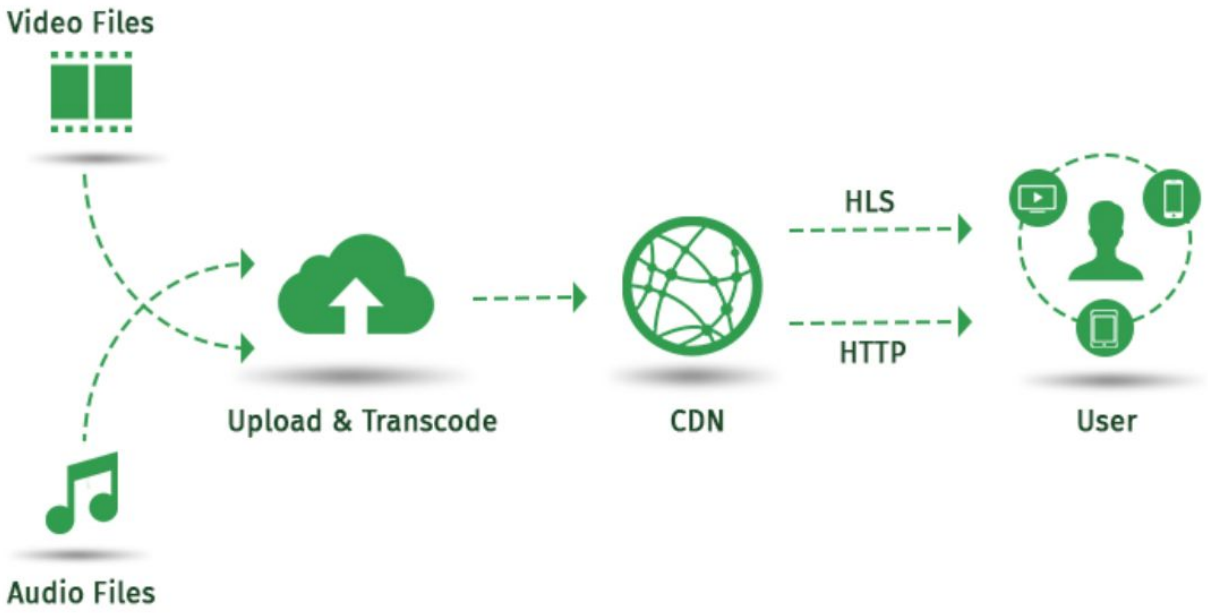
LIST OF FIGURES:

1. Introduction

This Architectural Plan is for the web service known as Redflix. Here we will discuss the structures of our software system that we believe will be the best fit for our project. For its implementation we will use a client/ server architecture which is a distributed web application that performs certain tasks (like video streaming). To find the nearest server, we will do that by the help of a CDN which will be selected later in the stage.

The purpose of this document is for the design deliverable to be easier to create. If we have good architecture for this project then we will base our design on that. We have illustrated a few diagrams in this document so we can illustrate the direction that we are trying to go for in terms of the service that we are trying to provide. Another purpose is for us to understand what video streaming services are currently out there in the market and improve it and make it as out service. We want this project to expand to the current big streaming companies and in the future slowly take them out by offering our own streaming services With more shows than the computers. Of course with this project we will be doing a smaller implementation of that such that the people that use our services will delete there other accounts for other streaming services and soly use ours.

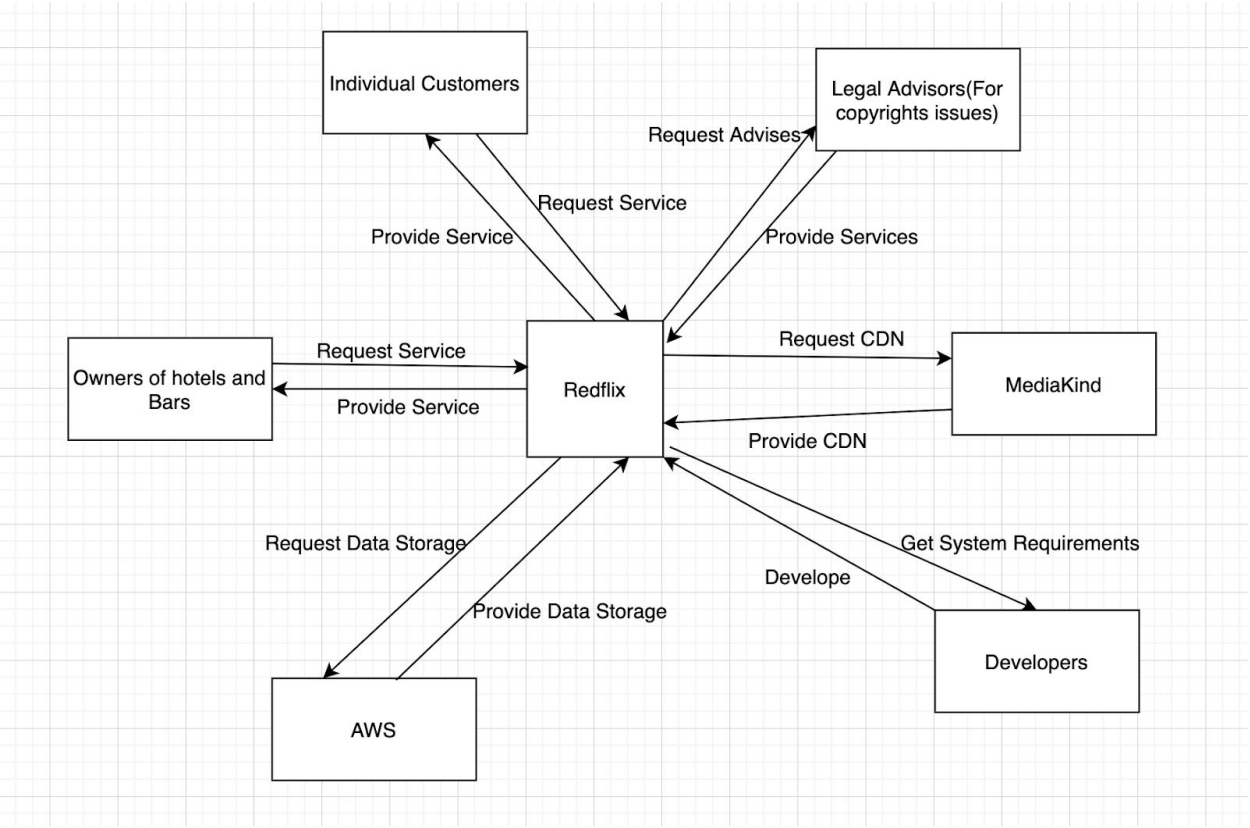
2. Architectural styles used:



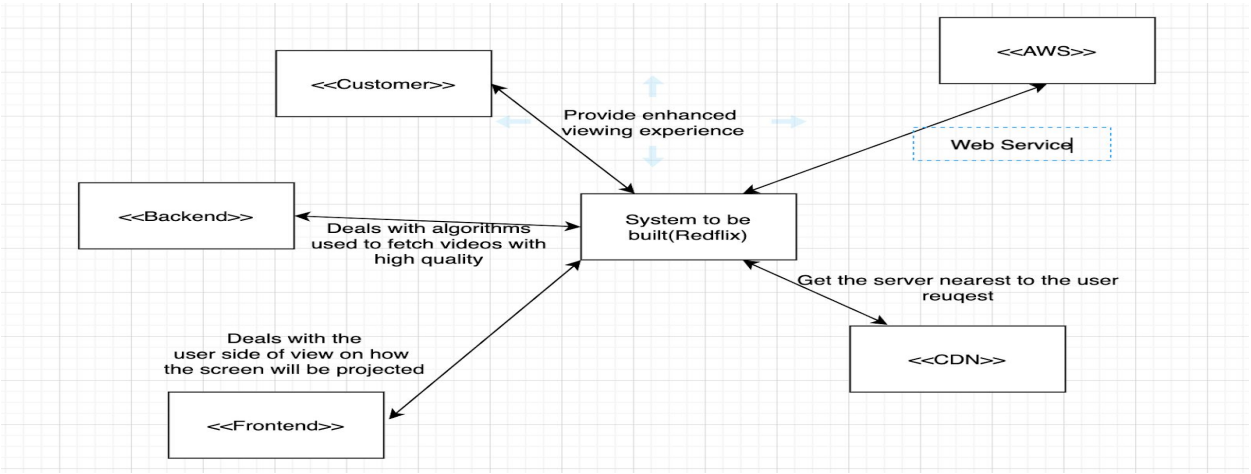
2a- Client Server

For this project, we will be using the client server architecture. The clients will be accessing the server every time they use our service and the server will answer the user's request. The server will be fetching videos and audio files

(2b)Business Context:



(2c)System Context:



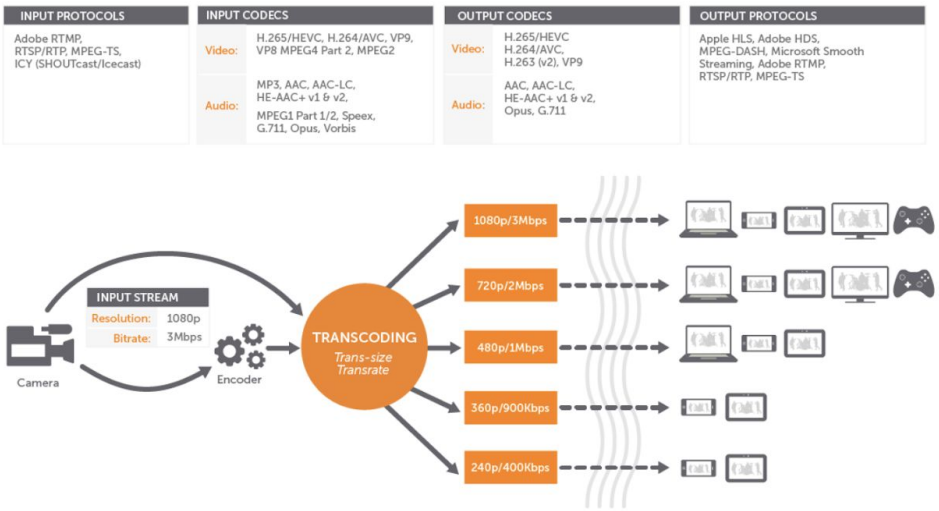
3. Architectural Model:

Redflix will be buying distributions rights from major content delivery organizations like Netflix, Hulu, Disney+, Prime Video, Live Channels, etc. We will support many more in the future as we grow. Contents given by these organizations will be then stored to our databases around the world. With contents from over 60+ distributors you won't miss out on any of your favorite entertainment. We will be providing our valuable service with various different packages from all over the globe.

Our contents will be stored on Amazon S3 database web services. The database will store our key information regarding our users, security protocols and authenticating and verifying the encoding done by Amazon on the EC3 server. The transcoding will be done on Amazon EC2 servers. Amazon provides 99% reliability so you can watch all your favorite entertainment without any fear of content not being available. Once a user has logged in, a server request is sent to our CDN network. CDN network that connects to our main server which stores all the contents for Redflix. The CDN then responds by connecting the user with the closest data server by their geo location and CDN then produces the content from the closest network server.

The amount of content that Redflix is offering we have partnered up with multiple different CDN providers like Akamai CDN, Amazon Cloudfront and Google Cloud CDN. These CDN's will provide content to users worldwide in an instant. With our own Redflix Open Connect technology, CDN networks can connect to our open connect system and access all the different types of content that we provide. The data is accessed once authentication is validated and then the content is delivered to the user. Our CDN's are protected and secured at all times. The security will be provided by our CDN partners on our contents and for all the database storage required in the Amazon EC2, EC3 and web services.

Redflix will deliver high quality content depending on your internet provider and speed. Diagram 3a. Describes how Redflix optimizes the videos to produce the best quality content for its user. Currently, we only operate on the web but future iterations will allow the users to stream and watch all these favorite entertainment in different portable devices like cell phones, tablets. The idea of having multiple UI screens which enables users to watch multiple different content under one screen.



(3a) Video encoding and decoding process

4. Technologies, Software and Hardwares used:

Technologies used:

CDN, AWS, Amazon S3, EC2.

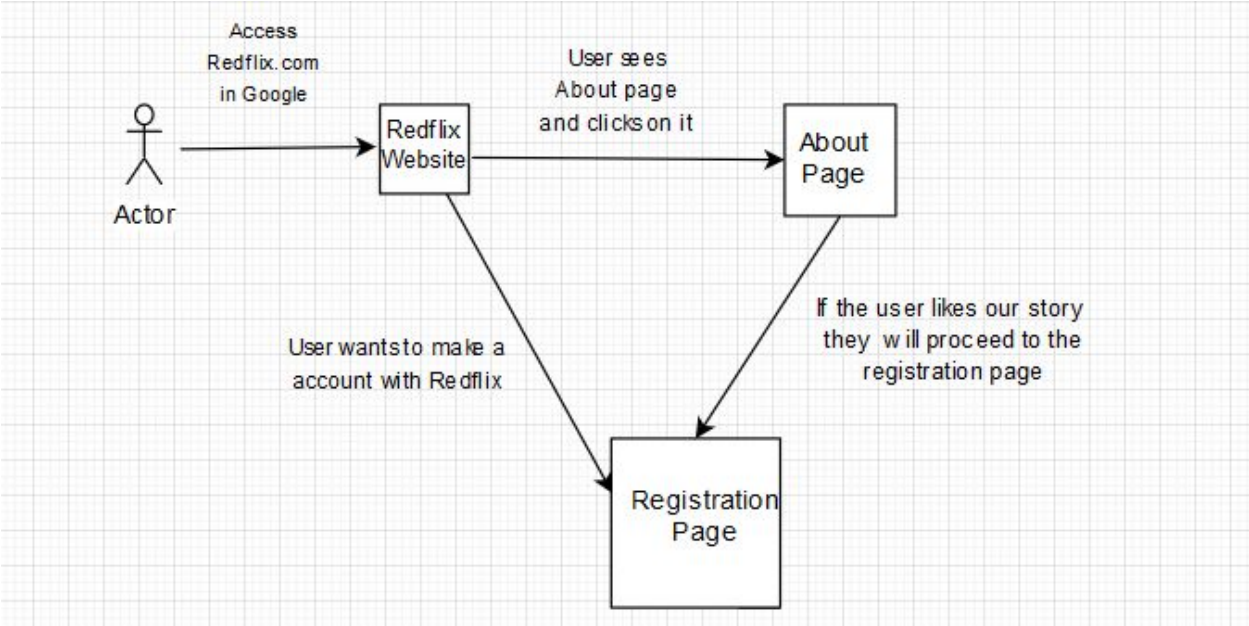
Software:

Java,HTML, JavaScript

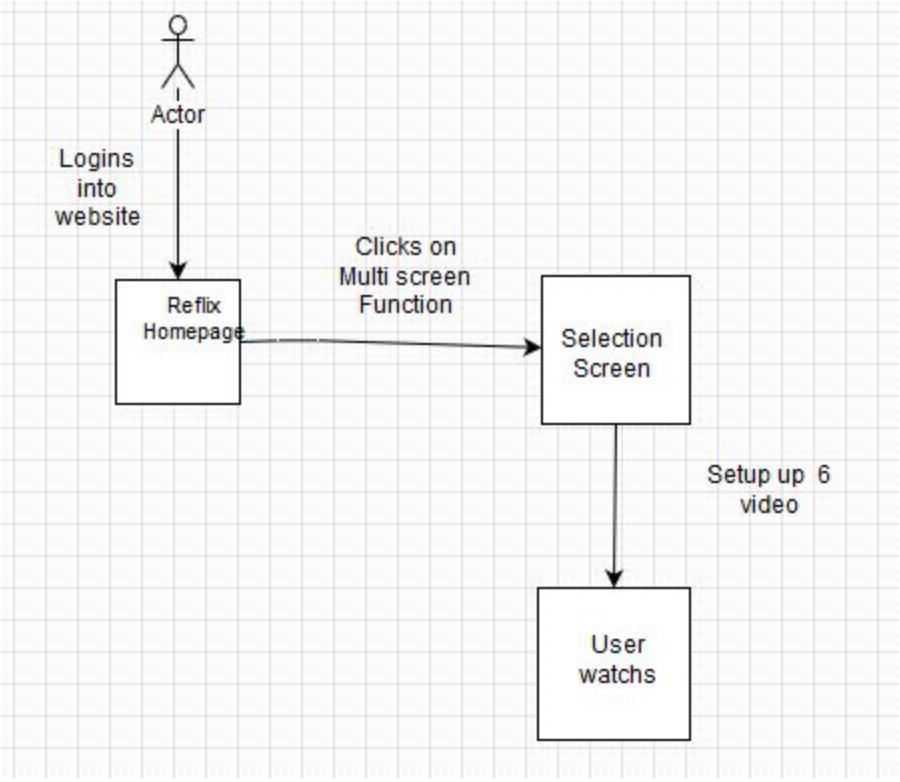
Hardware:

N/a as of yet.

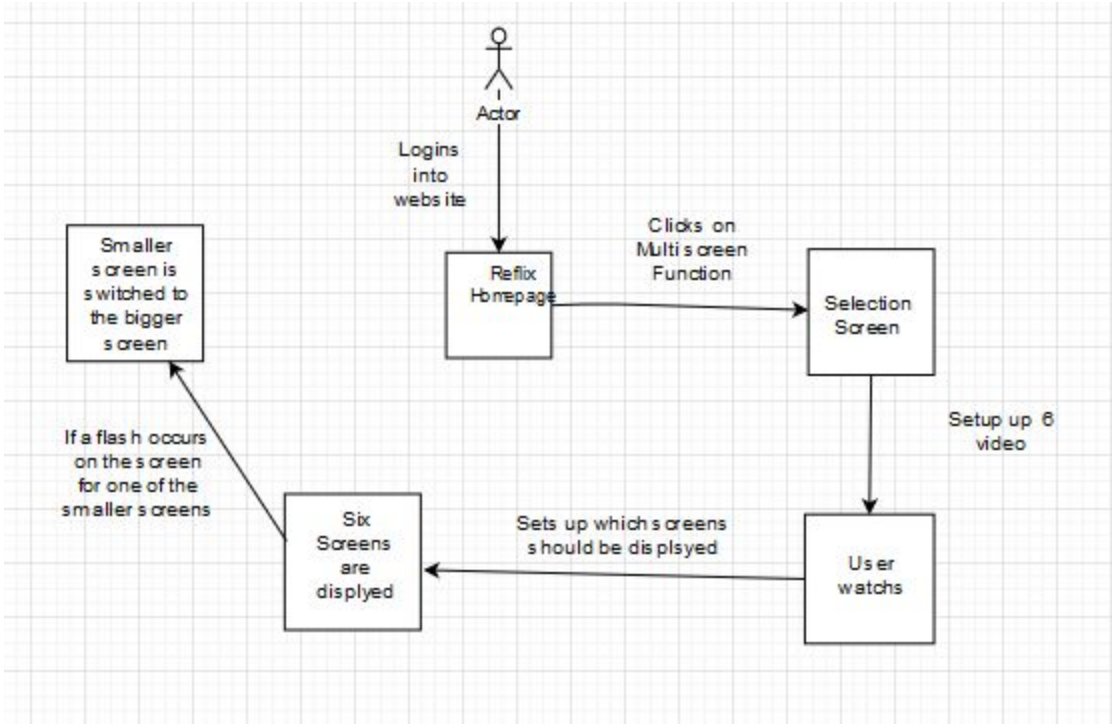
Business Case 1: User will interact with the the About and Registration Page



Business Case 2: User will be able to go from the homepage to the Multi Screens



Business Case 3: Once the user is on the Selection screen and a flash occurs on the smaller screen then that screen will be set to the main big screen



5. Rational for your architecture style and Model

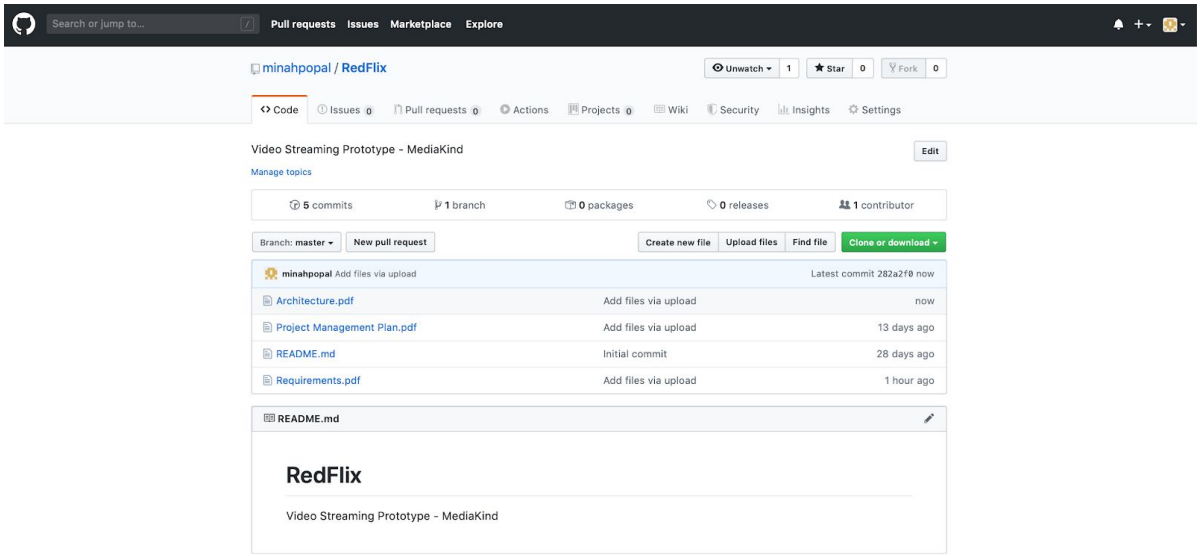
1. 6 screens all being streamed at the same time :
   Today Bars and Restaurants are big places for people to watch if there is a big event happening. Now, there could be multiple events happening at the same time. Currently, the TV's in these places can only show one event at a time. If there are multiple groups of people who might prefer to watch different live events. This is where our software comes in. Our software will not only be limited to restaurants and bars but also to an individual level. Anyone can subscribe to our service and can utilize watching multiple events at the same time.

2. Video motion detection when identifying something "important" :
   While the user is watching all six screens or if the user is looking away from the computer screen, video motion detection will project the video with the most action. This will attract the users attention, for example, if a live streaming of a football game was happening and a team was about to make a touchdown, that would be projected so the user has its attention on that current screen

3. Switching screens to different content of your choice :

People tend to have short attention spans, therefore being able to change the content of your screens constantly to something new is satisfying for a user. If a user does not like the broadcaster for a certain sports game, he or she can change it to another channel for another spokesman.

6. Evidence the document has been placed under configuration management:



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