Software Requirements Specifications

for

OTT Platform,

v1.1

Prepared by
-Adithya TG
Amara Sai Prasad
Aaryan Shetty
Adithya Mahesh

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REVISION: v1.0 Sep 15 2023 to v1.1 on Sep 30 2023.

Updating requirements after further evaluating dependencies and constraints.

1. Introduction

The project aims to develop an Over-The-Top (OTT) platform similar to popular services like Netflix, Amazon Prime, etc. This document provides essential information about the project.

Motivation:
The main motivation for this project is to get into the growing demand for high-quality streaming content. The OTT market has been expanding rapidly especially after the pandemic and there is a significant opportunity to fill a gap by offering a competitive OTT platform.

Customer:
Our target audience consists of consumers who seek a wide range of on-demand streaming content, like movies, TV shows and more. We aim to serve a diverse customer base across different demographics and regions.

Project Deliverables:
The project will deliver a fully functional OTT platform that allows users to access a vast library of video content. This platform will include features such as personalised recommendations, user profiles, streaming in high-definition and multi-device compatibility. It will be available as a web application and through a dedicated mobile application.

Cost:
The estimated cost of this project includes expenses related to software development, content licensing, server infrastructure, marketing and ongoing maintenance. A detailed cost breakdown will be available in the Project Proposal.

Duration:
The project is expected to span approximately 16 to 18 months from initiation to full launch, depending on the complexity of the platform and content acquisition processes.

Organisations Involved:
The core project team will include software developers, content acquisition specialists, marketing experts and customer support staff. Additionally, external partners and vendors may be involved in content licensing and infrastructure setup.

Dependencies:
This OTT platform project depends on the successful completion of many parallel projects. These include content acquisition and licensing agreements, server infrastructure setup and mobile app development for different platforms. Delays in any of these areas could impact the overall project timeline.

Contributing Projects:
Other projects within the organisation, such as marketing campaigns and customer data analytics will contribute to the success of the OTT platform. These projects will enhance user experience and engagement, ensuring the platform's and hence the company's profitability.

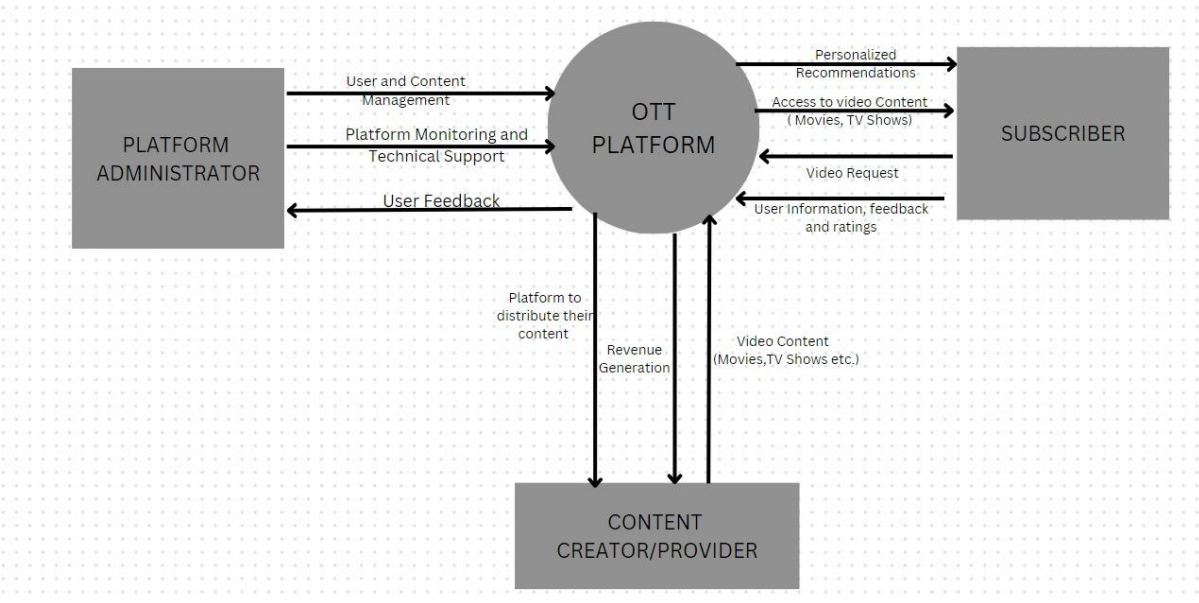
2.Overall Description

2.1 Product Perspective

The OTT Platform project represents the development of a new digital streaming platform that will revolutionise the way users access and consume video content. This platform is a response to the growing demand for high-quality streaming services and aims to replace traditional cable TV and CD based viewing of content.

The system's development will occur over multiple releases with a long-term vision to expand its capabilities. Future releases may involve integrating with content providers, enhancing user recommendations and accommodating emerging technologies in the streaming industry.

2.2 User Classes and Characteristics



Subscriber (Viewer):	Subscribers are the primary users of the OTT Platform, representing people who wish to access and enjoy the video content. The platform expects a diverse user base. Subscribers can register, log in, create user profiles and personalise their viewing experience. They have the ability to browse, search and select from a wide range of content including movies, TV shows and documentaries. Subscribers can rate, review and engage with content, as well as share their viewing history and preferences. Some subscribers may opt for premium subscription plans with additional features like offline downloads, change of language and ad-free viewing.
Content Creator/Provider:	Content creators or providers are external entities that supply video content to the platform. These may include studios, production companies or individual content creators. Content providers can submit their content for distribution on the platform, including licensing agreements, metadata and promotional materials. They can request to have access to analytics and performance metrics for their content.
Platform Administrators:	Platform administrators are responsible for managing and maintaining the OTT Platform. They oversee user accounts, content ingestion, system performance and security. Administrators can access content management tools, user data and analytics to ensure smooth platform operation.

2.3 Operating Environment

The OTT Platform shall operate across a variety of devices and platforms like web browsers (e.g: Chrome, Firefox, Safari), mobile devices (iOS and Android), smart TVs and gaming consoles.
The system's backend infrastructure will initially run on cloud-based servers, ensuring scalability and reliability.

2.4 Design and Implementation Constraints.

The OTT Platform will utilise a combination of programming languages and services, such as Python, JavaScript and cloud services.
Compliance with industry standards for video encoding, streaming protocols and content delivery will be essential to ensure compatibility with a wide range of devices.

2.5 User Documentation
The OTT Platform shall provide a comprehensive online help system accessible to users. This system will include detailed explanations and guides for all aspects of the platform's functionality.
Additionally, user-friendly tutorials will be available for new users, allowing them to explore and use the platform effectively.

2.6 Assumptions and Dependencies
The OTT Platform will operate 24/7 with maximum down time of 1 hour in a month to provide continuous access to subscribers.
Integration with payment gateways and third-party services for billing and authentication will be required to facilitate subscription management.
Operation of the platform heavily relies on content licensing agreements with external providers.

3. System Features

3.1 Content Streaming

3.1.1 Description and Priority
Users, also known as “Subscribers”, shall have the ability to stream video content directly from the platform. Subscribers can choose to stream content on their preferred device and location, with options for multiple streaming quality settings. The priority of this feature is considered critically high.

3.1.2 Stimulus/Response Sequences

Stimulus: Subscriber requests to stream video content.
Response: The platform provides the selected video content for streaming to the subscriber's device.

Stimulus: Subscriber selects the streaming quality (example: auto, 360p, 480p, 720p, 1080p, 4K).
Response: Platform displays video content at the quality of the Subscriber’s choice. Adaptive streaming(auto) is applied to ensure uninterrupted playback.

Stimulus: Subscriber requests to pause, rewind, or fast-forward video playback.
Response: The platform allows the subscriber to control video playback, including pausing, rewinding, or fast-forwarding within the content. Subscribers can also access closed captions or subtitles if available.

Stimulus: Subscriber adds a video to their watchlist or favourites.
Response: The platform saves the selected video to the subscriber's watchlist or favourites for easy access. The platform may also provide recommendations based on the subscriber's watchlist.

Stimulus: Subscriber searches for specific video content.
Response: The platform provides search results matching the subscriber's query, allowing them to select and stream the desired content. Search results may include categories and genres. If unavailable due to multiple reasons like licensing issues, subscribers are recommended similar movies and of interest.

Stimulus: Subscriber receives personalised content recommendations.
Response: The platform's recommendation engine suggests content based on the subscriber's viewing history, preferences and ratings. Subscribers can explore and select recommended content to stream.

Stimulus: Subscriber encounters network connectivity issues.
Response: The platform detects network disruptions and automatically adjusts the streaming quality to maintain uninterrupted playback. Users are informed of the issue and advised to check their network connection.

Stimulus: Subscriber initiates a parental control feature.
Response: The platform enables parental control settings restricting access to content based on age ratings and parental preferences. Subscribers can set PINs and access controls to ensure child-appropriate content.

3.1.3 Functional Requirements

Content.Login	System authenticates user accounts for login access and gives access only to correct details.
Content.Display:	The system shall allow a subscriber to choose language and movie of their choice.
Content.Stream:	On choosing content with language, content loads and plays.
Content.Profile.Edit	The system shall give an edit option through edit button to the user to change their profile details such as password upon entering other correct details.
Content.SignUp	System allows creation of new user on condition that details are valid.

Content.Search.Works	The search results generated for the user's search must be relevant to the name, language and/or genre that the user searched for.
Content.Profile.Watchlist.Add:	The system shall permit subscribers to add selected video content to their watchlist or favourites for convenient access.
Content.Recommendations.Start:	The system shall utilise the subscriber's watchlist to generate content recommendations on the user's landing page.
Content.Search:	The system shall provide a search feature for subscribers to find specific video content efficiently.
Content.Search.Results:	The system shall display search results matching the subscriber's query, including relevant categories, genres and related content.
Content.Personalized.Recommendations:	The system's recommendation engine shall suggest video content based on the subscriber's viewing history, preferences, ratings and reviews. Change in viewing over time should lead to change in recommendations.
Content.History:	The system shall detect and respond to user activity and so user must be able to view their history anytime so as to rewatch or finish watching the content they started.

	informed of the issue and receive guidance to check their network connection.
Content.Parental.Control.Enable:	The system shall allow all subscribers to enable parental control settings, restricting access to content based on age ratings and parental preferences.
Content.Sharing:	Subscribers shall have the ability to set available content item links to their social media.
Content.Parental.Control.Access.Limits:	The system shall enforce parental control access limits to ensure that child-appropriate content is accessible only to authorised users.
Content.Download:	The system shall offer a download feature that allows subscribers with special plans to download video content for offline viewing. Subscribers shall have the option to select the download quality and manage downloaded content.
Content.Video.Rating.Review:	The system shall allow subscribers to rate and review video content, providing feedback and star ratings on a scale like 1 to 5 stars. Ratings and reviews shall contribute to content recommendations.

4.External Interface Requirements

4.1 User Interfaces

Consistency with UI Standards (UI-1):	The user interfaces of the OTT Platform shall ensure a consistent and user-friendly design across all platform screens.

Contextual Help Links (UI-2):	The platform shall feature a help link on every displayed page.
Keyboard Accessibility (UI-3):	The web pages of the OTT Platform shall be designed to facilitate complete navigation and content selection using keyboard inputs alone.
User-Friendly Menu Navigation (UI-4):	The platform's user interface shall include an intuitive and user-friendly menu navigation system. Users will be able to easily browse and access various content categories, genres and features through the menu.
Customizable User Profiles (UI-5):	Subscribers shall have the capability to personalise their user profiles like avatars, personal information and content preferences.
Content Recommendations (UI-6):	The platform's user interface shall prominently display personalised content recommendations based on the user's viewing history, preferences and ratings.
Content Search Functionality (UI-7):	The platform shall offer a user-friendly content search feature. Users shall be able to enter search queries and receive relevant results efficiently. The search interface shall include filters and sorting options for enhanced usability.
Subtitle and Audio Settings (UI-8):	During content playback, users shall have the ability to adjust subtitle settings like language, size, style and audio settings like language, volume through an on-screen interface.

4.2 Hardware Requirements

Web Servers:	Using high-performance web servers with redundancy and load balancing. Server specifications match expected user traffic and storage needs.
Database Servers:	Implementing dedicated database servers with SSD storage. Ensuring data backup and disaster recovery mechanisms by having a few stand-by servers.
Content Delivery Network (CDN):	Employing a global CDN with strategically located servers hence supporting high-bandwidth video streaming.

Video Encoding Servers:	Using encoding servers with GPUs for efficient video transcoding. Ensuring compatibility with various resolutions and formats.
Content Storage:	Using high-capacity storage systems. Implementing data redundancy and replication.
User Data Storage:	Allocating storage for user profiles and viewing histories. Ensuring scalability and fault tolerance.
Network Components:	Using routers, switches and firewalls for optimised data traffic. Establishing high-speed and low-latency network connections.
Monitoring Tools:	Implementing monitoring tools to track system performance. Setting up automated alerting for anomaly detection.
Scalability:	Designing architecture for easy resource expansion. Scale servers, storage and network as user demand increases.

4.3 Software Interfaces

Content Licensing	The OTT Platform shall integrate with content providers to acquire licensing agreements for the inclusion of third-party content.
Payment Processing	The platform shall communicate with payment gateways to facilitate payment processing for subscriptions, rentals and purchases.
User Identity Verification	The platform shall utilise programmatic interfaces to authenticate user identities through external identity providers.
Analytics Integration	The OTT Platform shall integrate with analytics services via programmatic interfaces to gather subscriber’s behaviour data for analytics and reporting purposes.
Content Distribution	The platform shall interface with a Content Delivery Network (CDN) programmatically to optimise content delivery and reduce latency for users.
Social Media Platforms	The platform shall provide integration with popular social media platforms interfaces to enable user engagement and sharing of content.

Ad Integration	The platform shall integrate with advertising networks to manage and deliver targeted advertisements to users.
Recommendations API	The platform shall utilise a recommendations engine to provide personalised content recommendations to users.
Push Notifications	The platform shall use programmatic interfaces to send push notifications to user devices for content updates, recommendations and other relevant information.
Compliance Reporting	The platform shall provide programmatic interfaces for generating compliance reports required by regulatory authorities.
Content Ingestion	The platform shall integrate with content ingestion and encoding services to efficiently process and make new content available for streaming.

4.4 Communication Interface

Email Confirmation	The OTT Platform shall send email notifications to users to confirm the acceptance of subscription, rental, or purchase orders including details such as order summary, pricing and delivery instructions.
Issue Reporting	The platform shall send email notifications to users to report and address any issues with their content orders or deliveries, providing relevant information for problem resolution.
Push Notifications	The platform shall send push notifications to user's mobile devices or web browsers to provide real-time updates on content availability, personalised recommendations and important announcements like downtime, etc.
SMS Alerts	In addition to email and push notifications, the platform may provide SMS notifications to users for critical alerts, account security and promotional messages.
In-App Messaging	The platform shall feature an in-app messaging system like a chat-bot to communicate with users within the application, delivering notifications, announcements and user-specific messages.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

Scalability	The platform shall be designed to accommodate at least 10 concurrent users during peak usage hours for now, which typically occur during evening time 4-8 pm, with an average session duration of per user. The system should scale later.
Content Loading	All video content on the platform shall begin streaming within seconds after a user selects it for playback, considering variations in internet connection speeds.
Search Responsiveness	The platform shall ensure that search queries return relevant results within 5 seconds after the user submits the query, even as the content library grows.
Navigation and Page Loading	All web pages including menus, category listings and user profiles, shall load fully and be interactive within seconds, ensuring a smooth user experience regardless of device or internet speed.
Buffering and Playback	Video playback shall begin without buffering interruptions and maintain a smooth stream with minimal buffering time, especially for high-definition content, ensuring uninterrupted viewing.
User Authentication	User authentication and login processes shall complete within 5 seconds to minimize delays in accessing personalised content depending on the internet speed of the subscriber.

5.2 Safety and Security Requirements

User Data Protection	The platform shall employ encryption algorithms to protect user data like personal information, payment details and viewing history, both while viewing and at rest.
Secure Authentication	User authentication shall be implemented securely, requiring strong and unique passwords, two-factor authentication (2FA) options and protection against brute-force attacks.

Age-Restricted Content	Age-restricted content shall be appropriately labelled and access-controlled to ensure it is not accessible to underage users.
Payment Security	Payment processing shall comply with payment requirements to protect subscriber's financial information.
Disaster Recovery	Implement a disaster recovery plan to ensure data backup and system restoration in case of unexpected incidents such as server failures or data breaches.

5.3 Software Quality Attributes

Availability(Uptime) :
The OTT Platform shall aim to be available to users 99% of the time during peak hours and 95% of the time during non-peak hours, adjusted to the local timezone. Downtime should be minimal for maintenance.

Robustness (Resilient Streaming):
In the event of a network disruption or interruption, the OTT Platform shall provide users with the ability to resume playback from the point of interruption, allowing them to recover an incomplete viewing session seamlessly.

Usability (User-Friendly Interface):
The platform shall prioritise a user-friendly interface that allows users of all technical backgrounds to easily navigate and access content.

Scalability (Elastic Scaling):
The platform shall be designed with scalability in mind, enabling it to efficiently accommodate a growing user base and increasing content library without significant performance degradation.

Performance (Fast Content Delivery):
The platform shall ensure rapid content loading and minimal buffering times, providing users with a smooth and uninterrupted viewing experience.

Security (Secure Data Handling):
All user data including personal information and payment details shall be handled securely, employing encryption and strong authentication mechanisms to protect user privacy and data integrity.

Reliability (High System Reliability):
The platform shall aim for a high level of system reliability, minimising service interruptions, errors and system failures to ensure consistent user experience.

Compatibility (Cross-Platform Compatibility):
The platform shall be compatible with a wide range of devices and operating systems, ensuring accessibility on various platforms, including smartphones, tablets, smart TVs and web browsers.

Adaptability (Content Personalization):
The platform shall offer content recommendations and personalisation features to adapt to subscriber's preferences enhancing user engagement and satisfaction.

Maintainability (Easy Updates):
The platform shall be designed for ease of maintenance and updates, allowing for seamless software and content library updates without major disruptions to service.