



RFP TEMPLATE

FOR IPTV FUNCTIONS AND FEATURES

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1 INTRODUCTION

Present a summary of the technical description of the offered platform, and describe elements such as:

- Architecture
- Middleware
- Scalability
- Deployment methodology
- Replacement of existing databases
- OSS/BSS integrations
- Disaster recovery
- STBs/devices supported
- Application development
- Catch-up/replay
- Roles & responsibilities
- Components of the product

2 REQUIRED COMPONENTS OF THE PLATFORM

2.1 Platform Architecture

- The platform should be modular and scalable
- The system should automatically be scaled in a production environment
- Work in virtual server environment
- Specify the required server capacity for each element of the platform
- Shall contain a special management portal that can be integrated into various 3rd party systems
- The management portal will enable and authenticate service parts such as:
 - *Live TV*
 - *VOD (TVOD and SVOD models)*
 - *Timeshift/Catch-up services*
- The management portal supports creating and deleting users as well as maintaining user data, supporting device manipulation, channel lists, and other IPTV related operations, which implies:
 - *duration length of user account (activation, deactivation)*
 - *user data changes*
 - *blacklisting users*
 - *user packages*
 - *adding and deleting user devices*
 - *adding and deleting a channel*
 - *adding and deleting VOD content*
- Changes to the management portal made by subscribers/users themselves:
 - Visible to clients on STBs (such as deleting and adding new channels)
 - Immediately propagated to all users (active devices) within 45 minutes
 - Any changes will be automatically propagated without additional intervention on the middleware system (e.g. restart cluster, server restart, etc.)
- The management portal support:
 - administrator and operator roles and rights,
 - creating special users and roles to manage all associated modules
 - Enable the management of service products, packages, and bundle services from the point of creation, maintenance and modification of services, including billing and related operations over services and service packages
- The Middleware manages user devices, which includes:
 - device types
 - status and device capabilities
 - the associated device technology
 - and will activate and deactivate them
- The middleware supports multi-tenancy for creation of separate user regions or groups
 - Each group can have different channel packages
 - Each group can have a different UI/UX
 - Each group can have different services (VOD, purchases, etc.)
- Show a schematic drawing of the platform

2.2 Server Architecture

- Show the interrelation of the various servers for applications, web browser, modules of the middleware, and 3rd party server integrations
- State server requirements and operating system recommended
- State preferred data base system

2.3 Architecture for Disaster Recovery

General description for DR site:

- When activating the DR site, it is necessary to activate the DR Middleware and the DR database and to serve users of the live channel list
- Other middleware functionality does not need to be replicated. all requested services should be active within four (4) hours
- Replicates in near real time by using on-line database replication between the main and DR site
- Describe the DR setup and synchronization
- CAS/DRM not necessary for DR site

2.4 Features of the Middleware

The requirements of the middleware solution consist of:

- **Live-TV** (IPTV, OTT, multi-profile, pay-tv, pay-tv packages, channel lists by subscriber/group/global)
- **Hybrid Live-TV** (DVB-T, DVB-C & DVB-S)
- **EPG** (Multi-language, categories, age ratings, pictures)
- **Recordings, Network-PVR** (Catchup-TV, search, ratings, timeshift, start-over, trick play, seek)
- **Video-On-Demand** (Categorization, search, ratings, trick play, seek, reports, multiple content providers)
- **UI Configuration** (Themes, localization, widgets, services)
- **API's** (Webservice & REST)

Support protocols to deliver Live TV and VOD content using unicast and multicast delivery across different access networks:

- RTSP
- HLS
- MPEG-DASH
- HTTP download
- HTTP progressive download

Do note that all STBS and other devices deployed must also support these protocols in order to use them.

For interactivity by the subscribers, support the following functionalities:

- Preview of live TV
- Display preview of insertions from VOD content
- Display of interactive applications (eg weather forecast)
- Support multiscreen functionality associated with the same unique account

Additional middleware features:

- Support functionality of OTT, DVB-T/C/S
- On the system side, it is possible to enable / disable automatic logon to the user interface of the STB
- The system operator is able to activate and deactivate zero touch auto-login as needed
- Allow for "unlimited" number of channels to be offered by the provider

2.5 Features User Interface Functionality

User interface functionalities:

- Live channels: support linear TV channels in SD, HD, and UHD format. Support the delivery of the channels via multicast and unicast format and supports constant bit rate operation in MPEG -2, MPEG-4, h.264 and h.265 video codecs.
- Audio formats support MPEG 1, layer 2, MP, MPEG2 AAC and MPEG4 AAC LC and supports multi-audio functionality HLS, DASH and RTSP standards. Supports multiple audio signals and offer the option of current selection - in the case that more than one audio stream is present.
- VOD Content: Content distribution by categories. Content categories can be defined by provider (eg, action, comedy, thriller ...), the user can choose each individual content and run content start or purchase and start, depending on the current user subscription, TVOD or SVOD categories, Each purchase uses a PIN request system. All VOD segments such as categories, price, package can be defined on the system. When viewing VOD content, triple-play functionality is available: pauses / play, skip, rewind, fast-forward.
- Timeshift and Catch-up TV: support timeshift and catch-up functionalities of all channels made available for recording (channels defined by provider).
- SVOD and TVOD: support SVOD and TVOD functionality with the ability to easily define the packages. The package functionality includes content list, package price, and package name as well as timing for availability of the packages. Support the creation of the packages so that any combination of linear channels, VOD, nPVR and catch-up channels, and recordings can be used in the packages.
- Subscriber user management: allow the user to know how much of the content they have viewed and to restart from where they left off when using VOD, timeshift and catch-up features. The subscriber can also search easily for specific content that includes titles, actors, etc. The search can also be by popularity, most watched, favorites, etc.
- For system product management there is the possibility to create packages, bundle packages and all related operations on them. Within the package, all combinations of content offered (linear channels, VOD, Network Timeshift / catch-up, user resources eg-for recording etc.) can be added on SVOD and TVOD packages. The user is able to realize all of their requests through the user interface on the device (purchase of content and content packages).
- For managing the content from the user perspective, the subscriber/user IS able to mark the end of viewing content with offering to continue viewing the same contents from the last time or when restarting - this functionality includes VOD, Network Timeshift and Catch -up.
- Support smart search functions that allow the user to easily access specific content. The search must work on the principle of typing titles, actors, and similar. The search result is sorted by a certain content rating (such as popularity or content impressions date) or based on the user's own preferences resulting from analysis of statistical viewers data for that specific user.
- Uploading posters: support uploading posters in real-time. The STB or device will display the posters in the most appropriate resolution for each subscriber device. Allow for posters to cache locally as well as static resource acceleration, accelerate responses to posters sent by the device, and to reduce the frequency of poster pulls from the poster server so the user experience is improved.
- CMS functionality: content management functionality is as follows:
 - Receives content from 3rd party and their classification
 - Receives metadata for automatic ingestion into EPG and VOD menus (content name, locations, synopsis, posters, trailers, rating, genres, validity periods, logos, etc.)
 - Creates categories and subcategories as defined by the provider

- UI Settings and Management
 - Navigation: user portal is simple to use with ease of entry into menu and submenus using Menu, Back, Exit buttons and available with short cut keys as defined by the provider as well as up/down/left/right. Also includes Program Guide button, Service Start button, Recording button, and teletext/subtitles button.
 - Channel Lists: the subscriber can view the list of live channels by name with the option of viewing the channel by pressing the OK button. The subscriber can define their own favorite channel list and the locking/unlocking of specific channels based on parental control (using a PIN code system).
 - Program Guide (EPG): the EPG includes at a minimum the name of the program, the start and end times, the duration, the description of the show and if available the current live stream image.
 - Subtitles: Supports subtitles as long as the STB also supports.
 - PPV event: can define PPV events with the description and price and using a Pin code for approvals.
 - Service activation/call to action purchases: ability to define various packages and services (i.e.: channel package, recorder) VOD content packages, and adding storage for recordings. And then the services are shown on the STB interface where the subscriber can choose to activate using the call to action button (pay) and using the PIN code for approval.
 - Language selection: allow the subscriber to change language formats.
 - PIN and parental protection: allow the subscriber to set the parental protection limits using the PIN code for approval.
 - Pop up messages: are interactive and allows the provider to send pop-up messaging to single, groups, regions, or globally within the network.
 - Advertising functionality: an easy to manage digital advertising function that allows the provider to schedule unlimited number of adverts, as well as time how long and when each advert plays. The format for the advertising can be in video or PDF.
 - Auto-standby functionality: configurable at the system level for setting the auto-standby mode after a certain period of inactivity on an STB.

2.6 Features Statistics and Processing of Statistics

User statistics that includes the following:

- User data
- User product Information
- Content View Data – all content Live and VOD (daily, weekly, monthly, and annually)
- Content View Data, all content types live and VOD based on region or geographic location
- Real-time viewing Live channels
- Real-time viewing statistics of VOD content
- Real-time viewing statistics of Time-shift/Catch-up content
- Real-time statistics TimeShift/Catch-up per user
- Statistics of all customer purchases on the system
- Statistics about usage of additional apps on the system
- Data on system logs (applies to logging in and deleting user devices).

The statistics reports can be exported using either HTML, Excel, CSV and PDF formats.

2.7 Statistics Usage for Recommendations

Provide a system usage statistics module that:

- constantly collects user data based on which it makes recommendations
- performs Catch-up and VOD content rankings, provides search results
- true usage history for each user individually

As a search result for each user, responses are created:

- based on the preference of the user
- and based on the most globally popular content.

The system supports the ability to:

- analyze media tags from the VOD metadata and
- make the media tags fit by default locations (known sites eg TMDB)
- and supplement data according to the comparison results

Media tags include:

- information such as synopsis
- actors
- awards
- ratings

The system has the ability:

- to send recommendations to users
- Most watched content recommendations
- Audit choice recommendation

2.8 Middleware Support and Warranty

The following chart highlights the key support, warranty, and response times:

Table 1 Response time

Service	Priority	Availability of technical service support	Initial response	Removing problems (initial solution)	Final solution
Emergency case	Critical	24h/7/365 days	15 min	4 hours	-
Troubleshooting	High	24h/7/365 days	2 hours	3 days	30 days
	Medium	during working hours	2 hours	2 weeks	60 days

	Low	during working hours	1 day	4 months	Next SW correction
Technical request	High	during working hours	8 hours	N/A	2 weeks
	General requirement	during working hours	2 days	N/A	6 weeks

Note:

- Initial response is the time where a malfunction is reported and informs the customer that it is in processing
- Critical Case means an error that leads to where the operations of one or more critical functions of the system is causing the operation of the system to shut down, or a whole system failure.
- Emergency Case – critical, should be 100% compliant on a monthly basis
- Troubleshooting – High, should be 100% compliant on a monthly basis
- Also 90% compliant for solving lower level problems on a monthly basis
- Troubleshooting - High Priority " ("High CSR" or "Major Problem") means an error that results where one or more of the critical system functions is causing: higher service / system performance disruption or complete loss of I/O administrator communication or a partial or complete loss of communication with other systems. The "zero downtime" strategy has been shaken.
- "Troubleshooting - Minor Priority "Low CSR or Minor Problem" means an error that does not disable the work or the continuous operation of one or more of the software, services, or systems functions: issues that do not affect product functionality such as non-interfering errors traffic or do not cause any loss of service, or errors in the documentation.
- "Urgent Request" refers to technical staff queries where any non-response may cause interference to the functioning of the system or service regarding the technical characteristics and functionality of the equipment, the parameter setting on the system, the development of new products etc.
- "Technical Request: General Requirement" - Other technical queries are of lower priority.

2.9 Features of CDN

The CDN solution is required to be scalable and installed with a distributed architecture to allow live capacity increase by adding new modules / elements to the system. The management of the system (modules) is done through a single administrative console / portal and supports HTTP and FTP content ingestion methods.

The CDN will harness all nodes responsible for streaming and ingest solutions as stand-alone hardware components while control components are used by machines that use virtual infrastructure. Streaming CDN system elements have RAM, SSD, and SATA (local) storage for local storage where RAM is used for the most popular, and SATA for the most unpopular content and the system manages the storage of data on each of the elements. The system manages in such a way that in case one or more streaming nodes fail, all traffic is transmitted to the correct streaming nodes, while individual nodes have redundant critical parts (power,

network interfaces, and processors). Each special streaming server has at least 4TB of local storage space for data storage.

In addition, current or future support for UHD / for future 4K for IPTV and OTT services. The CDN supports HEVC, JIX for HLS and DASH formats etc., for the purpose of future application.

The CDN solution also supports HTTPS based stream access as well as "accelerate" service for: Live TV, VOD, Network TSTV, Catch-up TV and nPVR by setting cache mechanisms on edge locations since it is necessary to "accelerate" the delivery of popular posters to end users.

Support the following routing requests methods for content:

- HTTP redirection
- Geo-IP based routing
- LB routing
- Routing based on content

2.10 Key Features of CAS/DRM

- The CAS/DRM must work on all STBs.
- Specify the number of channels to be encrypted:
- Specify the future growth of number of channels:
- Forecast the number of end user STBs:
- Forecast the number of end user mobile devices:

CAS/DRM system has the following functionality:

- encryption of "live" channels
- encryption of VOD content
- copy control
- cloning detection.

In the event the provider decides to offer 4k, UltraHD and/or MultiDM/OTT services, it must be planned in with the CAS/DRM system.

2.11 Features of STB Recommendations

Must Include specifications for optimal terminal performance used for both IPTV and OTT service (API call counts, KPIs, etc.)

Standard STB models should have at least following specifications to have a good user experience:

- 10,000 DMIPS
- 1 GB RAM
- Linux and Android Open Source Platform (AOSP) compatible

The STBs must include:

- multi-processor high-performance devices with GPU acceleration and must be able to be used for IPTV and OTT service.
- support, unicast, multicast (IGMP v2.3), HLS, MPEG-DASH, RTP, RTSP, and FCC.
- the ability to encrypt the encryption key in a safe manner.
- new generation processors and must be Open Source Linux based.
- support all codecs and formats specified as IPTV middleware requirements and must contain at least one USB, RJ 45 input and HDMI output.
- come with a power cable (adapter), a network cable, a remote control (with required batteries), and an HDMI cable.
- embedded logo on the devices, optional and based on volume

2.12 Integration with External Systems

Specify the integrations required, which could include these systems:

- CRM
- Billing
- EPG
- DRM
- VOD
- CDN

The solution offers an interface for integration towards CMS systems that can be ADI, XMLTV, FTP.

For BSS integration, as specified by the provider, but could include:

- Provisioning via proxy solution which will do the translation of calls from BSS side into form acceptable for offered middleware system.

Uses a SOAP based API for the following purposes:

- Creating Users
- Change user data
- Deactivation of users
- Add a device
- Provisioning user for device data
- Provisioning user for channel packet data
- Provisioning user for additional packages/services data

The middleware generates CDR records which mediate with the BSS, billing system. The CDR's generate the following activities:

- Using VOD services
- Management of user devices
- PPV events
- Products or combinations of VOD and channel package events

The provisioning system provides WSDL (Webservices) based interfaces that are supported by XML.

All other aspects of the middleware are solved through the administrative web-based console (like creating channels packages, package definitions and pricing). The CRM is integrated with the CDN

for automatically adding or changing subscribers, STB devices or services, and simplifying daily operation of the TV service. The CRM integration is done using Webservice APIs.

2.13 System Management, Monitoring, Security

Ability to monitor and report on servers, firmware of STBs, and other elements within the platform.

Manages and monitors:

- surveillance of all physical/virtual servers and applications,
- network and storage elements
- alarming with 4 alarm levels: critical, major, minor and warning) in real time,
- notification process in case of any issue via email

The mode of displaying the management and control system data is a graphical representation of the topology of the elements that make up the IPTV system with status information and alarms.

Reports from monitoring include:

- Number of online devices
- Number of attempts to boot the device
- Number of devices that consume live video content
- Number of devices that consume VOD content
- Number of devices that have any problems
- Number of devices that have unicast / multicast problems
- The number of devices affected by some of the indexes
- The number of successful video play sessions - for live and VOD
- The number of unsuccessful video play sessions - for live and VOD
- Average delivery delays of live and VOD content
- The number of successful EPG requests
- Number of unsuccessful EPG requests
- Average EPG delivery delays
- Number of STBs reporting problems
- The number of "disassembling" STBs

Reports are generated in XLS and/or PDF formats. Generated reports contain data in textual and graphical form, and customization of the reports is possible.

For Security systems, here are the services to meet normal security standards:

- The passwords cannot be copied
- When you first log on to the admin portal, default credentials must be changed
- When changing the password, an old password must be entered
- Only the administrator can change the passwords of other users
- The password validity period must be configurable
- Passwords and other sensitive information (security keys, session ID, bank data) should not be stored as plain text
- Checking the correctness of the entered access data must be done on the side of the application servers (no client side)

- In the case of an invalid authentication, any access to the user must be disabled
- There must be configurable locking of the user in case of incorrect data entry (number of attempts and lock time)
- Automatic deactivation mechanism must be established in the event of inactivity (configurable time
 - no detention of sessions with "violent" methods such as URL rewriting or consistent cookies.

3 IMPLEMENTATION APPROACH

Describe the Project Management for the delivery of the Offered Product and all required integrations, coordination of all involved parties as well as installation and configuration of some parts of the proposed solution.

Present a document for the Acceptance tests procedures used for final.

3.1 Project Organization

Describe the Project organization based on how you expect to deliver the project. Include the team, the communications, and the change management process.

3.2 Communication

Describe the flow of communication to take actions necessary for correction and improvement, that are facilitated by:

- Attitude of teamwork, seeking to get the best results from joint efforts, willingness to discuss problems without immediate recourse to recriminations and to make the immediate adjustments that may be necessary to correct problems.
- Well organized oral and written reporting system, which highlights progress and problems and measures them against expected performance and results.
- Regularly performance and progress review meetings at appropriate intervals, to ensure that all stakeholders are updated with the current progress, forecast and risks.

3.4 Training

Describe the training and include the content of the training, the locations, and numbers of people to be trained.

Example Training agenda:

- I. Introduction
- II. Fundamentals
 - a. Network Services
 - b. Content Management
 - c. System Setup
 - d. Hardware Setup
 - e. Export/Import
- III. Working within Admin tabs

- a. Network Services
 - b. Content Management
 - c. System Setup
 - d. Hardware Setup
 - e. Export/Import
- IV. Working with Customized Reports, using SQL
- V. Change Management
- VI. Debugging