
# Video Platform Services

# TELEBREEZE VIDEO PLATFORM

Telebreeze Video Platform Services is a software-defined platform, designed for the preparation, management and delivery of media content across multiple platforms.

The solution provides a flexible, modular, open ecosystem that enables TV operators to offer competitive next generation video services. The platform enables advanced technologies, management features, and monetization opportunities for a TV services provider. It also provides a truly converged multiscreen experience for viewers, including both, over-the-top and managed video, across all access types.

## End-to-end solution developed in-house

Telebreeze is a pre-integrated solution that covers whole IPTV/OTT distribution pipeline: from video transcoding, down to delivery and playback at a wide variety of end-user devices, including management on all stages of the process. All software components of the solution developed in-house. This guarantees the best interoperability between software modules and maximum efficiency of the whole IPTV/OTT network. No extra integration with 3rd party transcoders, media servers or players needed.

## Software-defined platform

Software is a key component, which is not tied to certain hardware. This enables fast scalability, quick updates and upgrades of the end-user service without lengthy deployment and verification cycles as current TV deployments have.

## Multiplatform playout

Telebreeze ensures playout of media content on various types of platforms: mobile (iOS, Android), PC (Windows, MacOS), TV boxes (Android, Roku, MAG, tvOS), Smart TVs (Tizen, WebOS, AndroidTVs), web browsers. Overall, we support more than 17 platforms.

## Customization

In-house development ensures wide possibilities for customization of all key software components. Telebreeze can customize player interfaces, integrate payment systems, optimize configurations and fulfill feature requests from customers.

## Monetization opportunities

The platform provides vast monetization options letting TV operator earn more money: all types of VoD monetization (AVoD, SVoD, TVoD), live channel packages, Pay per View, ad insertion, in-app shop, and vouchers. Sub-operators and dealers allow maximum scalability of an operator's network on new markets.

## Market proven

Telebreeze has been developing its platform since 2011. We have hundreds of customer feedbacks, and Telebreeze is constantly improving the solution. Now this is one of the most robust and feature rich platforms on the market. More than 150 companies in 62 countries of the world trust the solution from Telebreeze.

# VIDEO PLATFORM BENEFITS

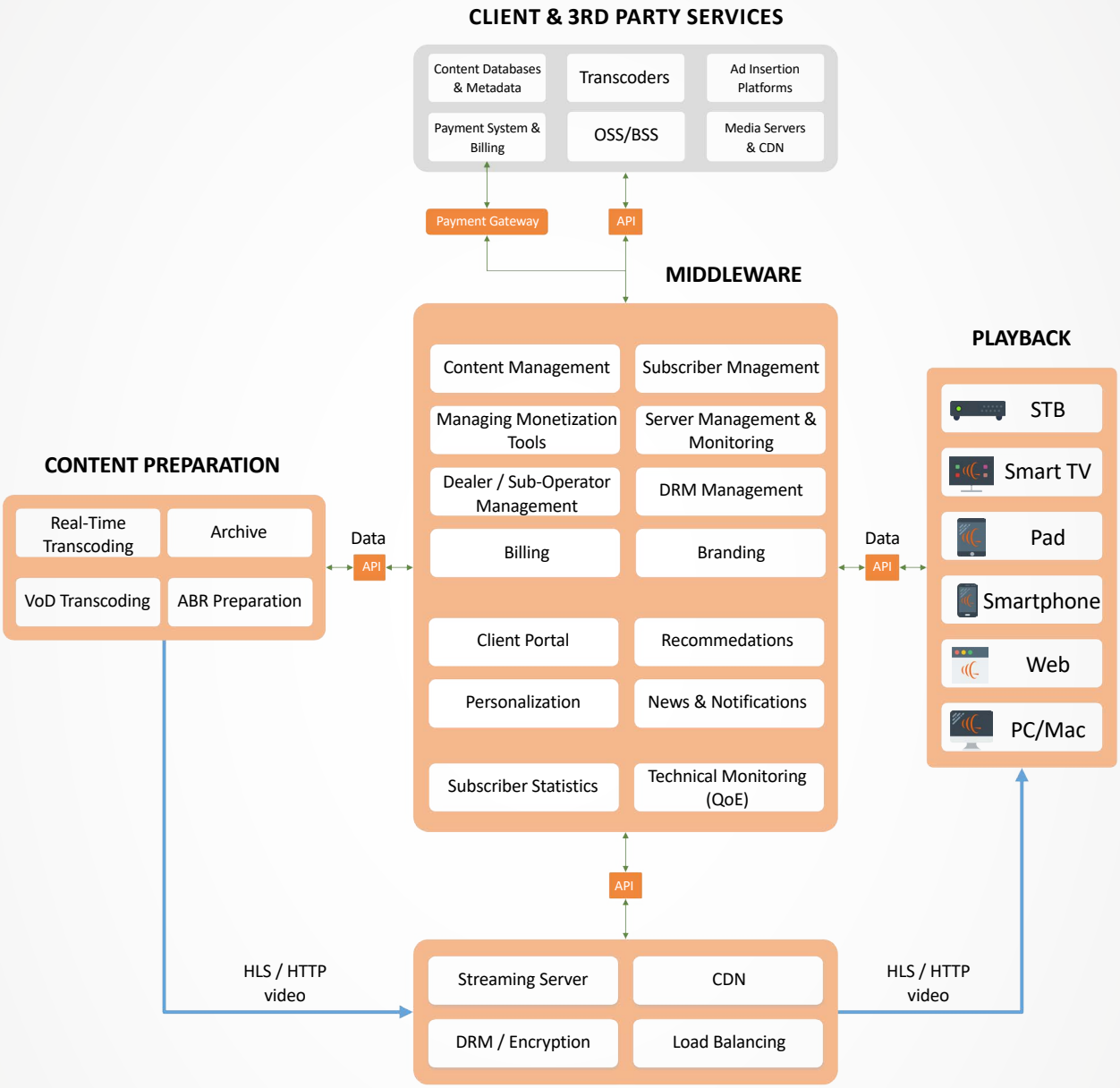
## Benefits for OPERATORS

- Competitive cost structure due to multi-device end-to-end converged solution.
- The solution is designed to attract, monetize and retain customers with enhanced user experience coupled with real time analytics and advertising capabilities that enable ARPU growth.
- Support of cloud and web-based technology and architecture to lower capital expenditures and support rapid deployment.
- Consolidation of disparate video platforms into a single multiscreen platform to provide converged multiscreen services over fixed, mobile and enterprise networks.
- Consolidated, optimized and rationalized business and operational support systems including an 'Operator Dashboard' for management and operation enhancement.
- Telebreeze VPS allows Operators to apply different business rules and features to different customer segments.
- Enables a differentiated/competitive service based on web technology to allow continuous growth and quick launch of new services and innovations.
- The user interface is ready to be deployed with simple skinning and branding and is also highly customizable in a simple way as desired.

## Benefits for VIEWERS

- Telebreeze VPS moves pay TV from a device-centered experience, each with a unique user interface, to one in which users can enjoy their entertainment on whichever device they choose.
- Modular system: Features and third parties are easily customized, added or removed.
- Bring user and content closer: Minimize effort to reach and enjoy content. UI enhances the content.
- Video is First and Last: In the user experience, content is the focus, even when navigating UX
- Telebreeze VPS delivers a converged premium TV user experience across connected devices in and out of the home, including Live, Digital Video Recording (DVR), Video on Demand (VoD), Catch Up and Time shifted content.
- Naturally the greater the TV experience for Viewers the greater the opportunity for Operator to grow subscriber numbers rapidly through peer-to-peer recommendations whilst increasing the ARPU of those customers who value the great service they are enjoying.
- Additionally, it offers a personalized experience that learns about the consumer behavior, it delivers richer experiences through secondary screens and integration of social networks and Pay TV to provide a rewarding Social TV experience.
- Personalize the experience: Data-driven engine that tailors experience to viewer preferences.

# VIDEO PLATFORM ARCHITECHTURE



# COMPONENTS

## CONTENT PREPARATION

Receiver streams come to Telebreeze Coder, and multimedia data is being transcoded in real-time mode. Coder puts out compressed multimedia data in several output bitrates/ resolutions. The software prepares transcoded content for archive functionality, keeping a preset volume of media data on a server.

Telebreeze Video on Demand Server provides automatic conversion of films and media files preparing them for broadcasting in the adaptive format that is applicable for viewing on a large number of different viewing devices.

FUNCTIONALITY:

- Receiving media live/linear feeds and content from VoD storage
- Live transcoding
- VoD transcoding
- Adaptive bitrate preparation
- DRM encryption
- Archive preparation

## MIDDLEWARE

Telebreeze Middleware is the core of the system and operator's member area controlling operation of all modules on all levels. Telebreeze Middleware allows to change lists of TV channels and packets, to classify content according to genres, to provide access to archives of TV broadcasts, and films, to manage user subscriptions, and to show other information such as news, ads, etc.

FUNCTIONALITY:

- Managing and coordination of all Telebreeze VPS components
- Providing subscriber services
- Subscriber authentication
- Operator's / subscriber's web portal
- Managing subscribers
- Managing content
- Billing and reports on payments
- Aggregating and providing of metadata and statistics
- Providing API for integrations

## CONTENT DELIVERY

Telebreeze Media Server collects data streams from Telebreeze Coder and Telebreeze VoD via the network, cache it, and delivers the signal to the end user. Moreover Telebreeze Media Server converts IP broadcast formats form one to another.

Telebreeze Media Server puts out media data into the customer network. The end user receives media content from the customer network to his device. This media data is presented as TV channels, films, and audio. Multiplatform Telebreeze Player is user interface used to access to media content and is installed on the user device.

FUNCTIONALITY:

- Delivering content to user's devices
- Adaptive streaming
- Caching
- CDN functionality

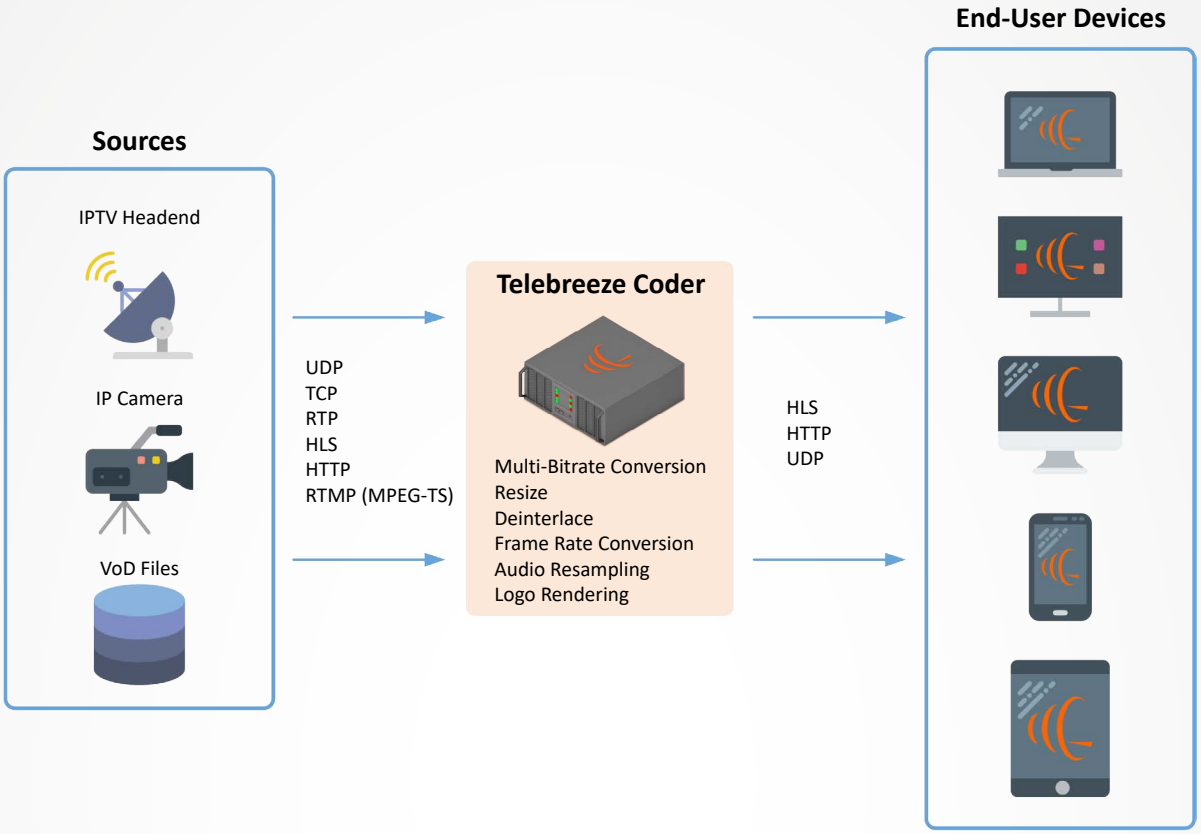
## PLAYBACK

Playback component is a subscriber's interface for accessing and buying media content. HTML5 based Telebreeze Player is compatible with the variety of platforms for Connected TVs, STBs, smartphones, pads, PCs, and web browsers. This ensures subscribers will be able to watch their media no matter the device and location.

FUNCTIONALITY:

- Multiplatform playout
- ABR playback
- Subscriber's UI

# CONTENT PREPARATION




| Specifications | |
|---|---|
| **Input streams / interfaces** | UDP, TCP, RTP, HLS, HTTP, RTMP (MPEG-TS) |
| **Output Streams** | HLS, HTTP, UDP |
| **Video / Audio Formats** | MPEG-2 Video, H.264/AVC, H.265/HEVC, MPEG Layer Audio, AAC |
| **Hardware** | 1U / Intel® Xeon® Processor E3-1275 v5 / 2x8GB RAM or higher |
| **Operation System** | Linux CentOS |
| **Preprocessing** | Resize, Deinterlace, Frame Rate Conversion, Audio Resampling, Logo Rendering |

# CONTENT PREPARATION

## LIVE TRANSCODING

Live transcoding is critical in today's streaming workflow because it enables you to change the video and/or audio format (codec) from one to another, changing the bitrate of the video or audio source, changing video frame size. Other tasks could include watermarks, logos, deinterlacing, frame rate conversion, audio resampling. Live video processing causes delays, that is why all the above mentioned tasks should be performed with a minimum time lapse.

## VOD TRANSCODING

Software is resposible for VoD content preparation, performs the transcoding of video archive, preparing movies for adaptive streaming across OTT devices. Transcoding is performed automatically, with adding of new content to a video archive. You can set different transcoding profiles for different content types and folders.

## ARCHIVE PREPARATION

Telebreeze VPS supports archive recording features which makes available such interactive TV functionality as Catch up, Time Shift and nPVR. The software prepares a temporary storage with TV programs, which becomes available for further downloading. The technology makes available:

- Catch up TV - watching telecasts over the Internet after a while of their television air
- Time shift TV - allows users watch programs using «Pause» and «Rewind» features
- nPVR – allows users record TV programs or its fragments

Different content packages or subscriber groups support different storage limits. Operators define the limits in the Middleware dashboard.

## SCALABILITY OPTIONS

- A software-defined transcoding allows fast scalability of server capacities
- It is possible to increase the transcoding capacity (shift from SD to HD and UHD transcoding), as well as geographical expansion of transcoding servers
- Shift from a cloud-based model to on-premise model and back, as well as using a hybrid model

## HARDWARE ACCELERATION

- Telebreeze supports Intel Quick Sync Video hardware acceleration
- Intel Quick Sync Video is a technology of hardware acceleration of video content encoding and transcoding, used in some of Intel chipsets
- As distinct from a GPGPU encoding, Quick Sync technology is based at the integral scheme, specialized for a certain task, which allow process video faster and less enegry consuption

## ADAPTIVE BITRATE PREPARATION

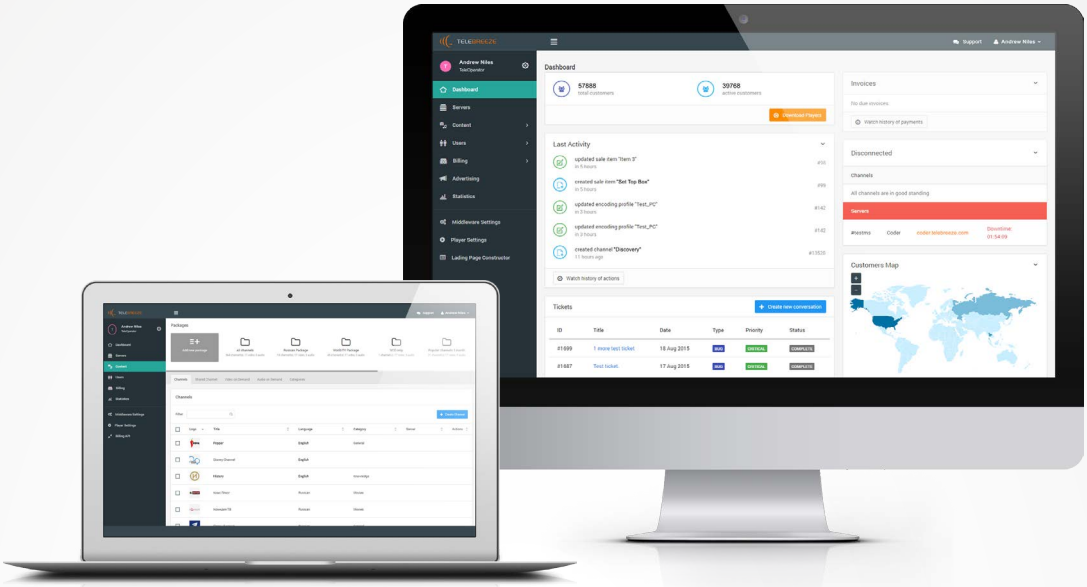
With adaptive bitrate streaming technology, a server prepares several streams with different bitrates and/or resolutions for each broadcast. A player application on a user side requests, receives, and playbacks a stream that is optimal in the current situation. A player requests a stream depending on the following information:

- Player buffer size
- Network speed
- Screen size and resolution
- CPU loading

The client application switches between streaming the different encodings depending on the above factors. As a result, users get smooth video with no buffering even when the network connection is rather slow.

For the implementation of adaptive streaming, Telebreeze uses HLS (HTTP Live Streaming) protocol. The software on the basis of HLS protocol segment transport stream into small files (chunks), available for further downloading over HTTP. The stream can be continuous and, in theory, unlimited. At the beginning of the session, a player application downloads an M3U playlist that contains the metadata of included streams.

# MIDDLEWARE FUNCTIONALITY



| | |
|---|---|
| Content management | The content management module provides the integrated management of all the content in operator's network, including live channels, video, and audio on demand.<br>Telebreeze content management module supports:<br>• Creation and management of content packages<br>• Managing content categories<br>• Content metadata management<br>• Automatic metadata updates from source file<br>• Video on Demand section is integrated with OMDb movie metadata database, which allows easy and quick filling of VoD metadata, such as movie posters, descriptions, actors, years, genres, etc.<br>• Seasons/episodes for VoD content<br>• Archive/nPVR settings |
| Customer management | The module is a control panel for managing subscribers and system administrators, and controlling their actions.<br>*Subscribers*<br>• Subscribers are people or organizations who have bought a content package from a TV operator.<br>• The «Subscribers» tab in Middleware displays such information as name, status, registration date, time of last visit, a user name, IP address, e-mail, devices, and users'actions<br>*Administrators*<br>• Administrator is a member of an operator's team who manages the operation of IPTV network<br>• The «Administrators» tab in Middleware displays displays such information as name, status, registration date, time of last visit, a user name, phone, e-mail, and administrator's actions<br>• A system of administrator's permissions is used to select actions which the administrator is allowed or forbidden to perform over servers, content, users, billing, advertising, Middleware settings, etc |

| | |
|---|---|
| Server management | The server management module is a control panel for administrating and status monitoring of media delivery servers, transcoders, and VoD servers of your IPTV/OTT network. Status shows current server parameters such as CPU, memory load, uptime, downtime, server zones, network speed, etc. Sends notifications in case of failures. Users can set encoding profiles for transcoding servers.<br>The module is responsible for load balancing between several servers. |
| Billing | Billing is a very important component of any commercial IPTV provider operation. Billing functions includes accounting of subscribers' purchases, content consumption, creation and management of payment plans. Billing payment plans include configuration of included content, prices, plan duration, etc.<br>One click integration of 3rd party payment systems (PayPal, Robokassa, Skrill etc.) is possible. At the moment we have 19 platforms already integrated. Any new platform can be added.<br>The billing module contains tools for managing payment plans and payment actions:<br>• Creation and management of payment plans, linking payment plans to content packages and subscriber groups<br>• Gateway for payment system integration<br>• Postpaid and prepaid charging of any content purchase.<br>• Free/trial subscriptions<br>• SVOD, TVOD, AVOD models<br>• Pay per view: a TV broadcast subscription with a predefined viewing period |
| Management of monetization tools | • Promo notifications<br>• Ad insertion tools<br>• Creation of vouchers/coupons<br>• In-app shop management |
| Reports and statistics | The module contains tabs for viewing statistic information about users, plans, popularity of channels, video and audio on demand:<br>• Customer geography<br>• Devices<br>• Visits<br>• Content package popularity<br>• Subscriptions<br>• Channel, VoD, and AoD popularity<br>All statistics data can be exported to reports as files |
| Digital rights management | • Connection of new DRM systems<br>• Geo-IP filtering<br>• Control of content publishing for different devices, user groups, and regions |
| Dealer and sub-operator management | • Creation and managing of dealers<br>• Creation and managing of sub-operators |
| Subscriber Dashboard | In the subscriber dashboard a user can:<br>• Replenish the balance<br>• Buy packages of TV channels<br>• Track history of payments and purchases<br>• Read operator's news<br>• Edit account data<br>• Ask for a tech support |
| Recommendation engine | Telebreeze provides a recommendation engine that allows the implementation of:<br>• Content based recommendations<br>• User behavior recommendations<br>• Forced recommendations |

# PLAYER APPLICATION FUNCTIONALITY


iOS | SmartTV | Roku | Android TV | Tizen | LG webOS

Android | Windows | tvOS | Infomir MAG | Chromecast | Amazon TV

The Telebreeze Player is a cutting edge subscriber's interface for accessing media content. The player supports the most popular operating systems such as Windows, MacOS, Linux, Android, and iOS. The player is compatible with all major Smartphones, Tablets, TV Boxes, and PCs. This ensures subscribers will have their media at their fingertips no matter the location.

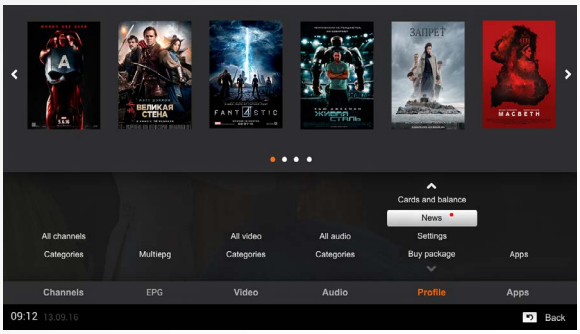
Telebreeze allows its subscribers to access high-quality media content on virtually any device.

| | |
|---|---|
| Watching Live and Programs from Archive | The player supports both watching live and watching from an archive. Any TV program can be available for watching from an archive. The storage period for each TV channel is defined by a provider in a TV channel settings. There is a function of reminding about the start time of a TV program. |
| Pause and Rewind of Video Stream | Video stream of both archived TV programs and live programs can be paused and rewinded. |
| EPG (Electronic program guide) | An electronic program guide is a list of current and scheduled programs that are or will be available on each channel and a short summary or commentary for each program.<br>• Support of EPG list<br>• Support of tiled EPG |

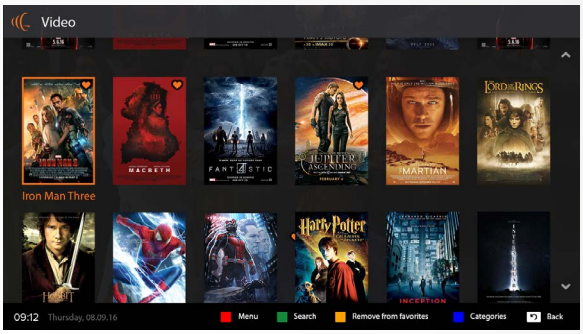
| | |
|---|---|
| Viewing VoD Content | VoD content can be accessible via player interface. Also, users may watch video from a hard drive. |
| Listening audio content | Audio content can be accessible the same way as VoD content. |
| Favorite content | Users may add selected channels to “favorites” list. |
| Search | Inclusive search in content library, including live channels, VoD, AoD, archive. |
| Parental Control | Player has a function of parental control that is intended to prevent children from viewing inappropriate content. Inappropriate content is defined by a provider. |
| Provider News | Administrators can add operator’s news that users will see at their player applications. Each piece of news contains heading, date, and text of the news. |
| Using a Remote Controller | Player supports configuration of a remote controller for TV set-top boxes. |
| Buying Packages | Users can buy content packages via player applications. Packages may include live TV channels, VoD content, and audio content. |
| Advertisement | Ads can appear while watching video content. Ads are displayed in Player with the following ways: video commercial, text ads, banner ads. |
| Announces | Viewing announces and notifications form providers. |
| Ratings | Setting content ratings via user interface. |
| Multi-language | Users may choose menu languages via player interface. |
| Social integrations | User authorization via social networks, sharing content via social networks. |
| Adjusting content | Users may adjust volume, change bitrate and aspect ratio. |
| Bookmarks | Users may add bookmarks for TV channels and VoD. |
| Catch-up TV | Support of Catch Up TV via player interface. |
| Time-Shift TV | Support of Time-Shift TV via player interface. |
| Reminders | Users may set reminders via EPG. |
| Multi-subtitles | Users may choose between several subtitles for each piece of content. |
| Multi-audio | Users may choose between several audio tracks for each piece of content. |
| In-app shop | In-app online shop allows targeted offerings of any goods to subscribers: TV boxes, electronics, clothes etc. You may add any external links to a web shop. |

# PLAYER UI

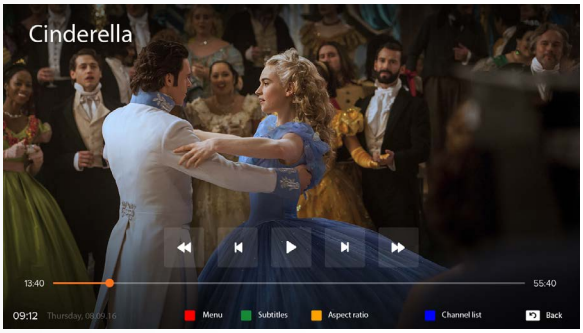
## SET-TOP BOX / SMART TV



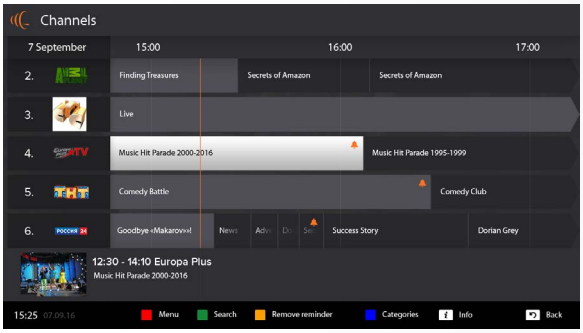

Main Menu




Video on Demand

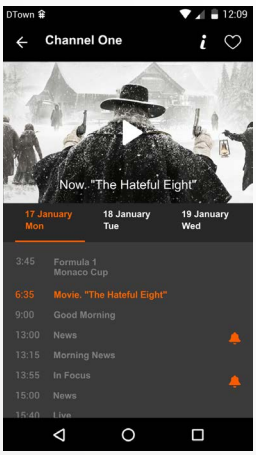



Video Playback



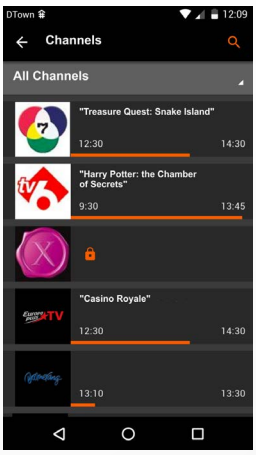

EPG

## MOBILE

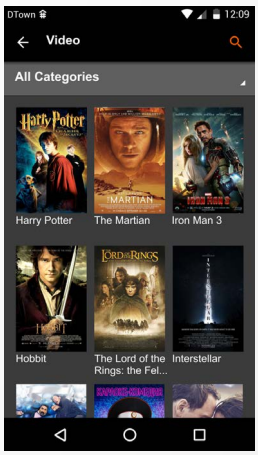




Video Playback

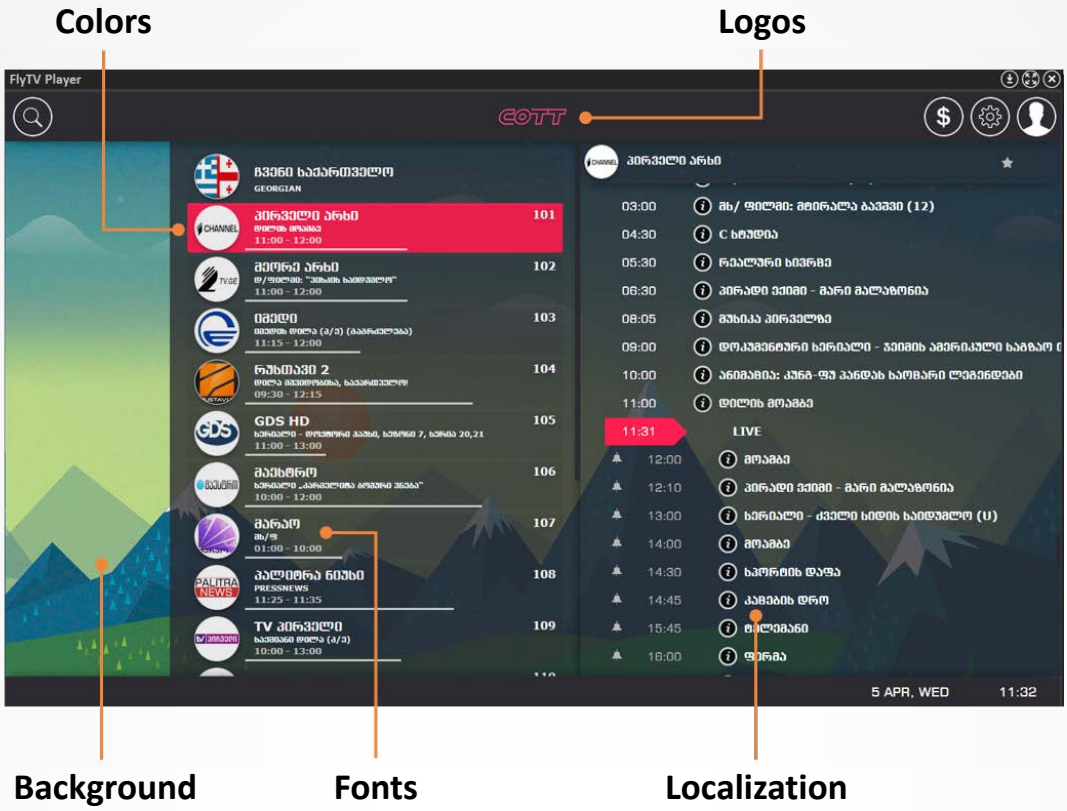



Channels




Video on Demand

# PLAYER CUSTOMIZATION




Telebreeze provides a white label platform, which means that an Operator has a freedom to brand and customize the solution under his name.

Herewith, an operator has an opportunity of branding and customization both with the help of Telebreeze professionals and by its own staff.

There are many options of UI and UX customization, depending on client's preferences.

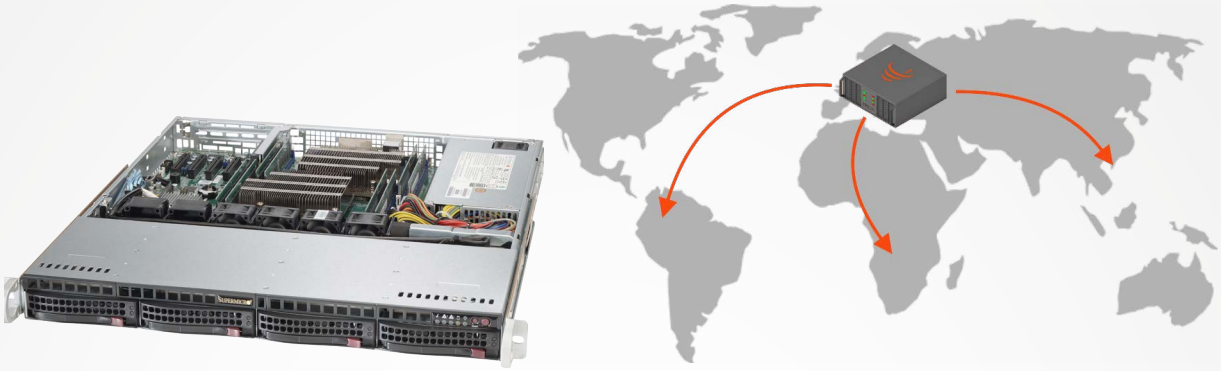
Player application customization possibilities:

- Replace logos and backgrounds
- Replace colors of graphical elements
- Rewrite hello messages and menu texts
- Configure functionality and menus
- Fast localization (menu languages)

Cuztomization options:

- Changes available for all platforms (separate changes for platforms are available as well).
- Changes via player menu
- One-click player customization from Middleware menu.
- UI design via CSS customization

# CONTENT DELIVERY



| Specifications | |
|---|---|
| **Output streams** | HTTP, HLS |
| **Input Streams** | UDP, RTP, HLS, HTTP, RTMP (MPEG-TS), TCP |
| **Hardware** | Intel® Xeon® Processor E5 Series / 32GB RAM / RAID HDD or higher |
| **Operation System** | Linux CentOS |

Telebreeze VPS delivers content to end-users and makes it possible to stream live unicast over a network connection.

The delivery servers can be utilized to live stream between two or more work stations with an internet connection for further content broadcasting to end-users. The HLS support provides adaptive streaming for networks with unstable bandwidth such as 3G/4G, which ensures smooth distribution of the media content of different quality to users with variable bandwidth.

The server can distribute media content live via and Internet connections to different types of end-user devices, such as set-top boxes, smartphones or HD displays. This feature enables IPTV operators to reach a wide range of mobile subscribers, which used to be an impossible task due to restrictions of a user's Internet connection.

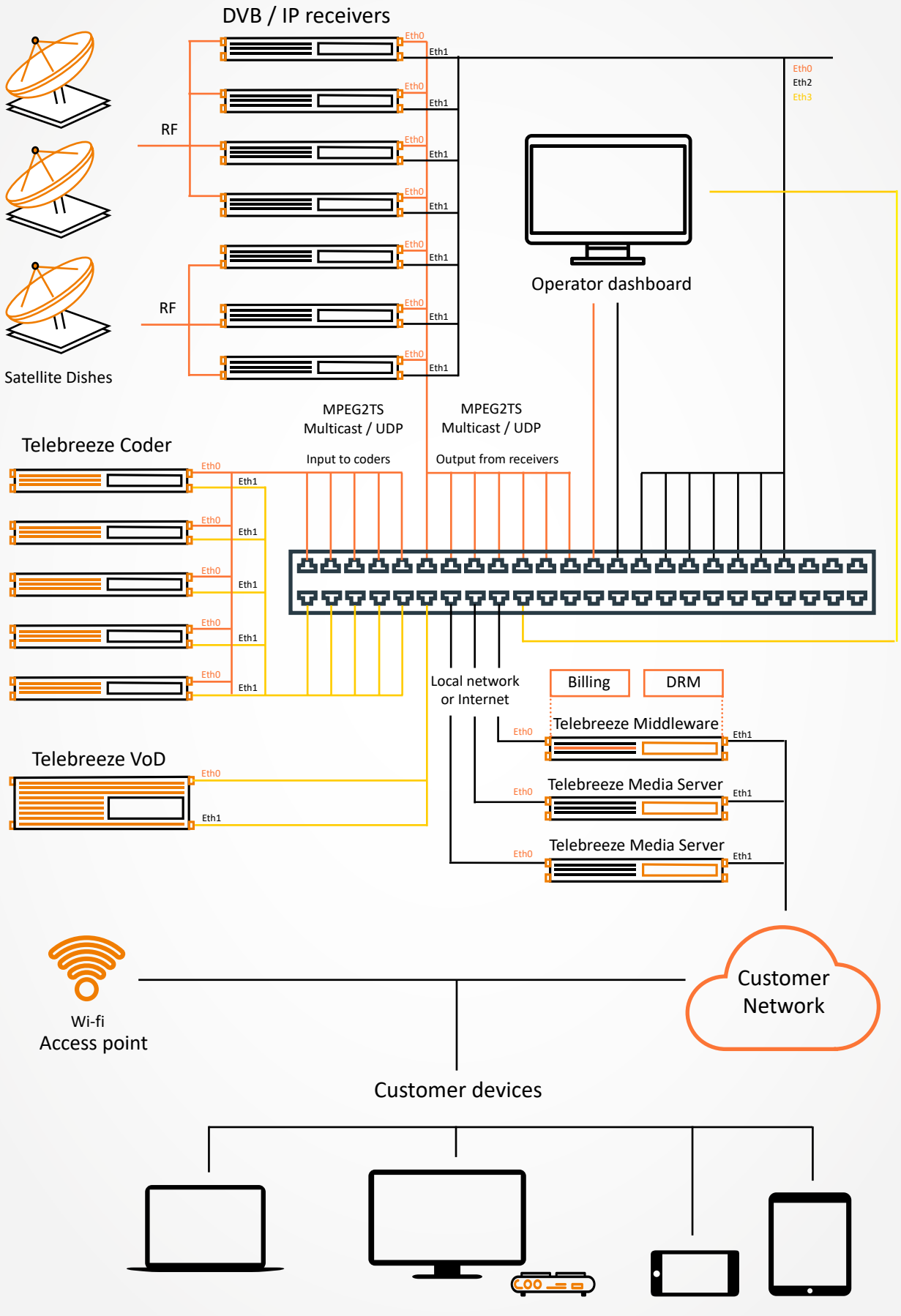
The main features are as follows:

- Support adaptive live streaming HLS/HTTP
- Applying in a mode of content delivery network (CDN) node
- DRM encryption
- Load balancing

General characteristics

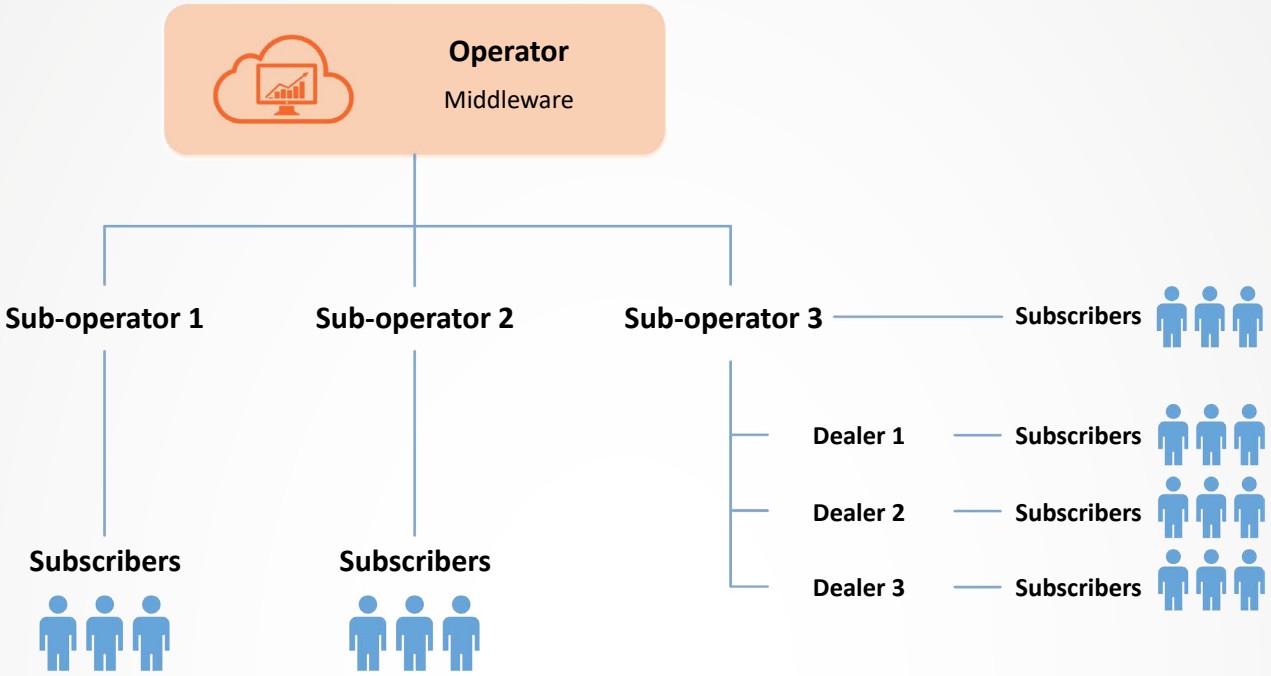
- Input formats: UDP, RTP, HLS, HTTP, RTMP (MPEG-TS), TCP
- Output formats – HLS, HTTP

# EXAMPLE OF DEPLOYMENT



# MULTI-OPERATOR MODEL

Telebreeze's multi-operator features allow fast scalability of IPTV/OTT networks.




SUB-OPERATOR

- Sub-operator get its own middleware under his own brand
- Operator shares his server infrastructure, distribution channels and content with sub-operators
- Sub-operator launches his own IPTV/OTT service
- Operator can control sub-operator's activity via middleware

DEALER

- Dealer gets an account in an operator's system
- Dealer can add new subscribers to a system, however he has no access to content management


TELEBREEZE
Dracula
Dracula HD - 720p
Draft Day BDRip
MIRACULUM
Miraculum BDRip
AFTER THE DARK
After The Dark HD - 720p

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