

Deliverable

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D4.1.2 Pilot Execution Plan

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Abstract: This document describes how the three pilots of the project will be prepared, deployed and executed. It mainly addresses the infrastructure, contents and apps that will be part of the pilot, without going deep in technical details. Finally, it also explains how users will be involved, what will be their role and how privacy will be managed on each region/country.

Revision History

Revision	Date	Author	Organisation	Description
0.1	22/7/2014	Pau Pamplona	I2CAT	General revision of the TOC and First revision of the Catalan contributions
0.2	1/8/2014	Pau Pamplona	I2CAT	First revision of the German contributions
0.3	18/8/2014	Pau Pamplona	I2CAT	First revision of the Dutch contributions and overall document
0.4	21/08/2014	Pau Pamplona	I2CAT	Final revision of the deliverable
0.5	1/09/2014	Sergi Fernández	I2CAT	Last revision

Disclaimer

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Statement of originality:

This document contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

1. Executive Summary

During the preparation of the pilot, the consortium decided to generate a separate deliverable, not foreseen before. D4.1.2 focuses on the plans of execution, thus differentiating between deployment & execution and evaluation tasks. This deliverable summarises the work done in tasks 4.1, 4.2, 4.3 and 4.4 and it clearly defines how, when and where, the three pilots are executed. This document does not give technical details, just explain what is going to be deployed and the relevant information related to its tests.

As they, the pilots, have been conceived as independent actions in three different regions, it is also useful to put all this together in one single document providing a first individual approach and a global perspective of the piloting phase of the project. In the deliverable, it is explained how each pilot manages the preparatory actions for the deployment and execution of the different services and apps developed in WP3. The document, also contains descriptions of the activities that will be carried out, the contents and the services delivered, how they are organised and when they will be tested. Finally, each country/region involved describes what users are engaged, how they will be enrolled in the tests and in what activities they will take part.

It is important to highlight the fact that some second phase tests are still pending of internal validation of each broadcaster, but the consortium will work to run longer tests to improve the services and apps deployed.

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3. Introduction

D4.1.2 is structured around the three pilots with an initial general calendar that helps to understand the time-scheduling for the following 18 months (execution and evaluation of the pilots). This calendar can be found in section 5. The following sections (6, 7, and 8) are dedicated to each pilot, starting with the Dutch pilot, and followed by the German and Spanish pilot. Each pilot has several subsections, mainly describing:

- The preparative work before the pilot (e.g.: finding users, etc.)
- Description of the sub-pilots (and also its services, apps and contents) that will be deployed
- A detailed calendar of execution and evaluation
- All information regarding users and their role in the project (avoiding overlapping with D4.1 – Evaluation plan)

Finally, there is a closing section dedicated to users' privacy policy applied on each pilot. It is important to ensure for all those people involved to preserve their privacy according to the European and regional legislation.

4. Action Log

10/02/2014 – Kick Off Meeting Spanish pilot. TVC, RTV and i2CAT. Initial discussions and plan of the regional pilot.

15/04/2014 Kick Off Meeting Dutch Pilot. NPO, KUL and PPG. Initial discussion and global plan of the Dutch scenarios.

05/05/2014 – ISP Guifinet user involvement meeting. Guifinet and i2CAT. Discussion regarding users role and involvement in the Gurb pilot.

09/05/2014 – Kick Off Meeting German pilot. IRT and RBB. Detailed plan of the regional pilot (application development, content production and delivery, responsibilities, timing).

05/06/2014 – Follow-up meeting Spanish pilot. TVC, RTV and i2CAT. Detailed plan of the regional pilot (user engagement, equipment to be used, etc.)

05/06/2014 – Follow-up meeting Spanish pilot. TVC, RTV and i2CAT. Detailed plan of the regional pilot (user engagement, equipment to be used, etc.).

06/06/2014 – Follow-up meeting Dutch pilot. NPO, PPG and KUL. Discussion and more detailed plan of the three scenarios and a list of action points.

17/06/2014 – Follow-up Meeting German pilot. IRT and RBB. Updates regarding application development, test equipment, content production and timing.

08/08/2014 – Follow-up Meeting German pilot. IRT and RBB. Updates regarding application development, content production and timing, as well as user engagement for the pilot.

5. Approach

This deliverable has the objective to provide initial information about the execution of pilots. Thereby, it has been chosen to define it at global level, and then proceed with add particular details for each pilot.

Each pilot is described as follows:

- **Pre-pilot actions:** those actions that are necessary to prepare and get everything ready to start with the execution of the pilot. This will be mainly focused on the generation of contents and the setup of the infrastructure (from a logistical perspective).
- **Pilot activities:** this section explains for each sub-pilot what contents do we have, encapsulation process of these contents, how them will be published and distributed, and finally, what applications and services will be contained on each pilot.
- **Calendar of execution:** even if sub-pilots can be susceptible to suffer changes, there is an initial schedule that will given in this section. It is really important to have this calendar to make sure that the overall project execution will be done in time.
- **Users:** as it is one of the most important parts in the project, this separate section will explain what are the users in each pilot, how they have been engaged and what is their role in the activities that they will be involved in.

A final section is oriented to explain how each pilot manage with privacy of the users in order to adequate it to current national and European laws.

6. Pilot Execution plan

6.1. Global pilots execution plan

GANTT CHART Evaluation task	2014				2015												2016			
	Year 1	Year 2												Year 3						
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Marc	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	
Pilot month	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Week	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4		
Nominal project schedule																				
Pilots Execitopm (T4.2 /T4.3 / T4.4)																				
Final Evaluation of Pilots (T4.5)																				
Dutch pilot																				
Pilot execution schedule																				
Module - Recommender																				
Module - DRM																				
Module - Quiz																				
Spanish pilot																				
Pilot execution schedule																				
"Oh Happy Day" On Demand multicamera																				
"Oh Happy Day" Live multicamera																				
"Oh Happy Day" 2nd season test results																				
Potential schedule																				
Second On Demand - Live test																				
German Pilot																				
Pilot execution schedule																				
Advertising of TV show and application (Facebook, on air trailer)																				
AL app on air																				
TV show on air																				
TVAppGallery user evaluation																				

Image 1: Global Calendar of execution

6.2. Dutch pilot

6.2.1. Pilot groundwork

6.2.1.1. Infrastructure

For the Dutch pilot we will use the existing NPO HbbTV Catch-up platform ‘Uitzending gemist’, developed by Peoples Playground. We need a DRM license server for the first sub-pilot. We have already two known suppliers who are interested to participate in this. We need to develop a recommendations engine query and to select an existing recommendations tool we can re-use for the second sub-pilot. To develop an algorithm we are in conversation with KUL and TNO, a Dutch research institute. For the third pilot we will make use of the existing second screen framework of Angry Bytes, an app developers company, in combination with a quiz master framework which need to be developed in cooperation between PPG and Angry Bytes.

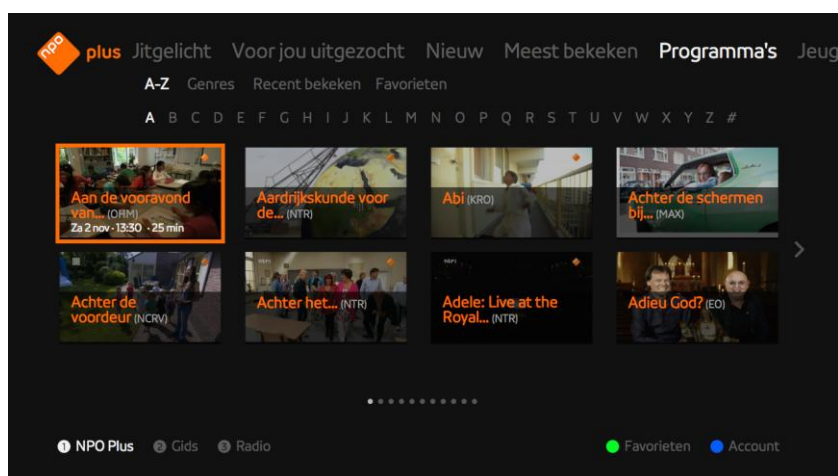


Image 2: NPO's existing HbbTV Catch-up service ‘Uitzending gemist’

6.2.1.2. Generation of content

For the Dutch pilot we need high quality worth content which we can use from the Uitzending gemist archive of NPO. For the DRM scenario we will select around 15-20 items which have to be encrypted and delivered in different stream bit qualities. For the recommendations we need to collect data based on IP addresses from our test users. The outcome of the data analysis will be used for the recommendation engine query which will make use of the existing NPO Uitzending Gemist archive. For the Quiz –second screen scenario we will make use of existing TV- programs from two of the public broadcasters in the Netherlands, namely ‘De Rijdende Rechter’ and ‘Euro song Festival’.

6.2.1.3. Sub-pilot 1: Quality differentiation by using DRM

Contents

We will use high quality content from the Uitzending gemist archive of the NPO like docu's, nature movies, concert registrations and action movies.

The content have to be encrypted and will be served in different stream bit qualities. Around 15 items 1-5 Mbit encoded test video material. The content will be available via the existing

HbbTV platform of NPO and will make use of the same templates as the current 'Uitzending gemist' platform.

Application and services

Test users will get a choice of watching certain content. We can differentiate in the stream rate quality of the content but also in the supply of various content.

We create three different profiles that have one key, with different access to the content.

- The first profile has only basic access
- The second user has access to more content and better quality but limited (premium account)
- The third profile has access to all available content in high quality (gold member)

We can test in the module if people experience different types of quality and if this is depending on the type of content (drama series or movies can maybe differ from human interest programs).

To realise this we need a CDN play-out server, a DRM Play ready licensing server for max 20 accounts and the CTV NPO framework Peoples Playground developed.

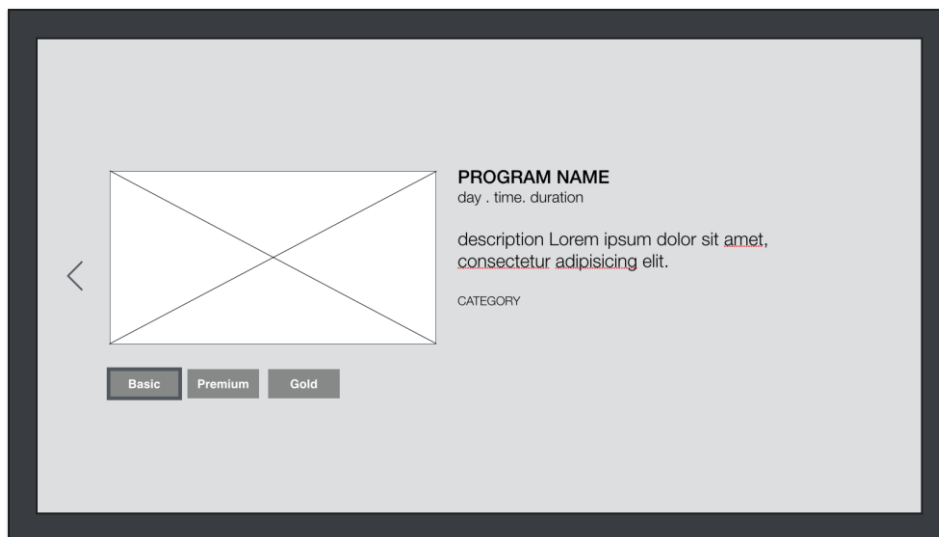


Image 3: Different profiles using one DRM key

6.2.1.4. Sub-pilot 2: in house recommendations for HbbTV

Contents

We will collect data from the test group based on IP addresses (what do they watch on which time of day on 'Uitzending gemist') and provide recommendations based on an analysis of this data, using the archive of uitzending gemist for a wide range of programs to offer.

For publication we will use the existing NPO play-out (H.264/HLS), frame rate 25f/s adaptive. The content will be available via the existing HbbTV platform of NPO and will make use of the same templates as the current HbbTV 'Uitzending gemist' platform. There will be added an extra layer for the recommendations.

Application and services

We need a CDN logging tool and playout platform (IP/TOD/Video stats/device), a smart recommendations query engine and the existing CTV NPO framework developed by Peoples Playground. Besides that we need access to the IP data of our test-users and the data analysis tool of NPO. We will show test-users the proposed recommendations via the existing HbbTV Uitzending gemist platform via an extra layer and we will add a simple questionnaire on the screen to investigate whether the suggested recommendations meet their expectations.

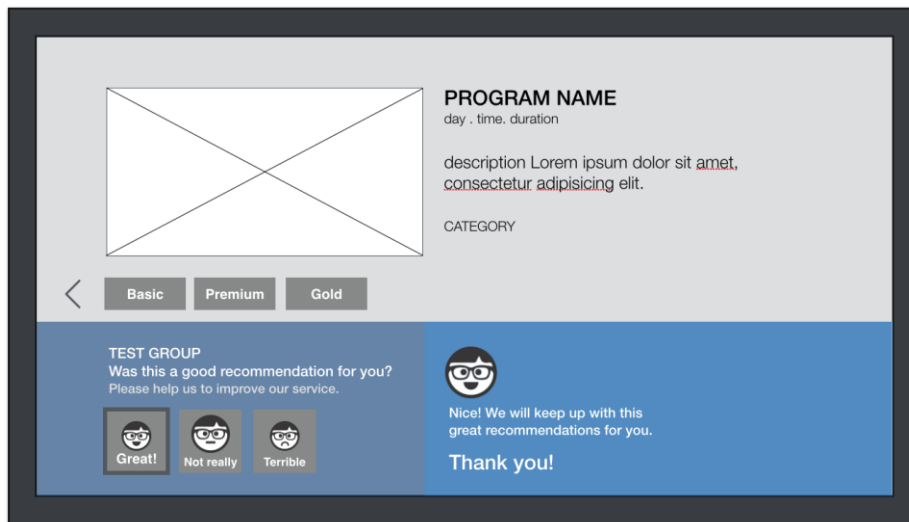


Image 4: Recommendations relevance

6.2.1.5. Sub-pilot 3: HbbTV as a central interface for second screen competition

Contents

We will use three VOD episodes of 'De Rijdende Rechter' and in a second phase of the sub-pilot a live contest, probably Euro songfestival. For publication we will use standard NPO adaptive video files, possibly updated to 2.5 Mb/s. The content will be available via the existing HbbTV platform of NPO.

Application and services

A family or group of people in the same household have to watch an episode of the proposed program and play along a second screen quiz app, each on their own second screen device. A quiz master device will gather all individual results and these will be shown on the central TV screen via an extra HbbTV layer. Therefore we need the existing CTV NPO framework developed by Peoples Playground (PPG), the second screen framework of Angry Bytes and there must be developed a Quiz master framework by PPG in cooperation with Angry Bytes.



Image 5: Overall results of all players of the second screen app as displayed on the TV screen from TV-Show 'De Rijdende Rechter'

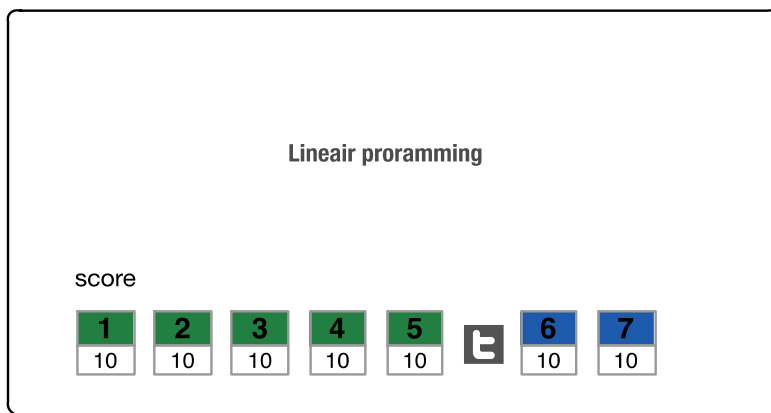


Image 6: The overlay acting as a scoreboard

6.2.3. Users

6.2.3.1. Description of the user panel

The Dutch pilot partners want to invite current HbbTV users, who already use the NPO 'Uitzending gemist' Platform on HbbTV. These users already have access to HbbTV via satellite (canal digital), digitenne, through fiberglass operators (Glashart) or Cable via the providers CAIWay, SKV Veendam, Cable Nord or Delta. This has a reach of around 450.000 unique monthly visitors. Pilot partners will create a banner on the existing platform to invite users to join our pilots. Via a QR code or URL they can connect to a Google form where they can find more information and leave their e-mail address and contact information.

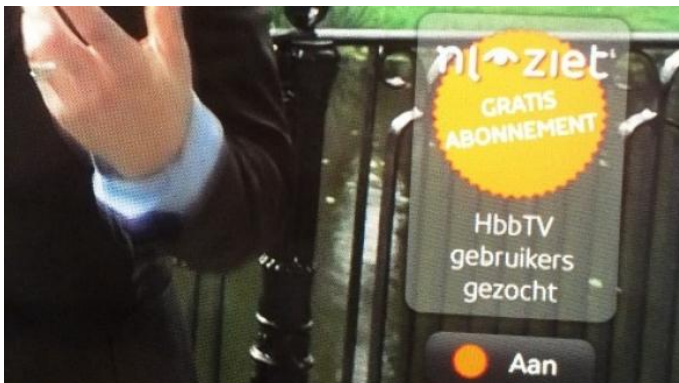


Image 9: Promotion banner on HbbTV 'Uitzendinggemist service' to activate test-users

For the pilots people must be in possession of a Samsung 2013 or 2014 model, HbbTV version 1.5 compliant. PPG can detect if the TV has HbbTV and will only show the banner on these TV's. To see if the TV's are 1.5 compliant the owners will have to send their model details, which will be asked on the Google form.

The Dutch pilot asks their local partners (CAI, Cable Nord, Delta, SKV and Glashart) to actively approach their users (by digital newsletter or e-mail) to explain the project and invite users to participate. Pilot partners can also use social media to invite people to participate.

If the Dutch pilot does not get enough responses or there are not enough TV's 1.5 compliant, they can hire a recruitment office to select people to participate.

Scenario 1 (DRM)

A test group of around 20 individual users, varying in age, gender and type of TV-viewer.

Scenario 2 (Recommendations)

A test group of around 15-20 families of different nature and composition.

Scenario 3 (Quiz- second screen)

10 or more families or groups living or being together in different nature and composition (with and without children, student house, sport clubs, bars). Already used to HbbTV and second screen.

6.2.3.2. Engagement

The pilot needs around 30-40 test-users willing to participate. To make it attractive NPO can offer them a free account for NL Ziet (and NPO Plus) during the pilot. NL Ziet is the paid (monthly fee) on demand service from RTL, SBS and NPO.

The test group acquisition and recruitment will be planned in August and September 2014. We will recruit test users in the existing HbbTV Catch-up TV platform, by local partners who offer the infrastructure and access for HbbTV in the Netherlands and via social media. We will organise an introduction meeting for all users from the dedicated testpanel or contact them online before the actual start of the pilots.

Test-users must sign a form to accept access to their IP data & data logging for a certain period. They must also be willing to fulfill questionnaires (before, during and after the pilots) and participate in interviews.

6.2.3.3. Activities with users

We will start with interviews on how people watch hybrid tv, being the combination of linear and on demand content, and how their moods are and organize observations how user groups watch television in September. We will repeat these sessions in January, March and April 2015. Besides we will carry out questionnaires in the same periods about user perception.

To evaluate engagement also professional users will be interviewed and questioned about their expectations and perception during and after the pilots, between September and April 2015.

Actual usage will be evaluated through analysing logfiles, this will be done during the whole pilot period from September 2014 until July 2015. Finally we will use Comscore and Google analytics to analyse stream starts, click through rates, number and duration of visits during the whole period and create monthly reports during September until August 2015

6.3. German pilot

6.3.1. Pilot groundwork

Over a period of fourteen days, three boys and three girls aged 13 to 15 years are observed for the Daily documentary "VERKNALLT & ABGEDREHT". The teenagers are kind of actors and they are observed while they are making short films on the topic "First Love". During the production of the spots the young people live together in a loft in Berlin-Kreuzberg.

The pilot will include the broadcast of TV series itself as well as the parallel provision of the HbbTV-based application offering additional content and features.

The daily TV documentation will be broadcasted at KiKA – the ARD Children channel in Winter 2014. Scheduled broadcast date for KiKA is November 17 to December 18 2014th. This is the first phase of the pilot where the focus is on (ultra-)high definition video streaming and MPEG DASH provision.

The 2nd phase of the pilot will be the rebroadcasting at RBB – therefore the existing application will be enhanced with regards to the results of the first user tests, also social media feeds and other interactivity features will be integrated, like quizzes and voting. The broadcast date for RBB is not fixed yet; the format fits very well in the holiday program, so we assume that the re-broadcast date will be in summer 2015.

6.3.1.1. Infrastructure

RBB's TV-Ring pilot will include a number of different technical modules and content flows, as shown below in Image 10. The HbbTV application will be hosted on a dedicated web server at RBB and is the core of the pilot service and will pull content from several other data resources.

Content as text and pictures will be handled by an existing CMS based on Adobe CQ5. Video content will be the episodes of the series as well as a number of video files showing behind-the-scenes films and other additional content. Standard video file format will be MP4, only the episodes will be provided in two formats: as MP4 format and in parallel in MPEG DASH for HbbTV V1.5 capable devices. All MP4 videos will be hosted via the before mentioned web CMS and the according local CDN. The MPEG DASH files will be hosted via TV-Ring partner IRT and a 3rd party CDN. The references to these DASH files will also be stored in the web CMS. All CMS-based content can be accessed via a number of pre-defined XSL transformation profiles. This will also be the case for the HbbTV application.

For the second pilot phase (re-broadcast) additional major features will be integrated into the HbbTV service. This will mainly be realised with the help of the blog framework ScribbleLive, which is used in most ARD stations. Here, native blog user comments, Twitter updates (tweets), Instagram pictures and so on can be aggregated as a dedicated web blog. ScribbleLive has a dedicated API which can provide blog content to other web services, exactly this API will be used for pushing interactive features to the HbbTV application.

Production of Ultra HD content implies a number of challenges, mainly due to the of the higher resolution of the format, the progressive scanning, and the increased bit depth of at least 10 bit create a significantly higher data volume than HD productions. Also for the post-production some issues occur, e.g. preparation of professional interfaces, filing and storage, this should be resolved before starting to work. Therefore the working process and environment have to be adjusted. Storage and smart cards will be expanded, server performance should be improved and the editing station has to be updated to the UHD format. At least a 4k display is necessary to show and control the footage.

For the hosting and delivery of the UHD video material it is foreseen to use the Akamai CDN. Akamai has one of the world's largest distributed computing platforms, responsible for serving between 15 and 30 percent of all web traffic. The platform is a secure, reliable cloud platform for delivering websites, media and software accelerating on demand applications, and enabling ecommerce capabilities on any device, anywhere. The videos will be encoded by IRT and uploaded to an Akamai server. Akamai with its huge streaming architecture will be responsible for the global reach of the UHD content. They promise to bypass traditional server and bandwidth limitations, and handle peak traffic conditions and large file sizes with ease.

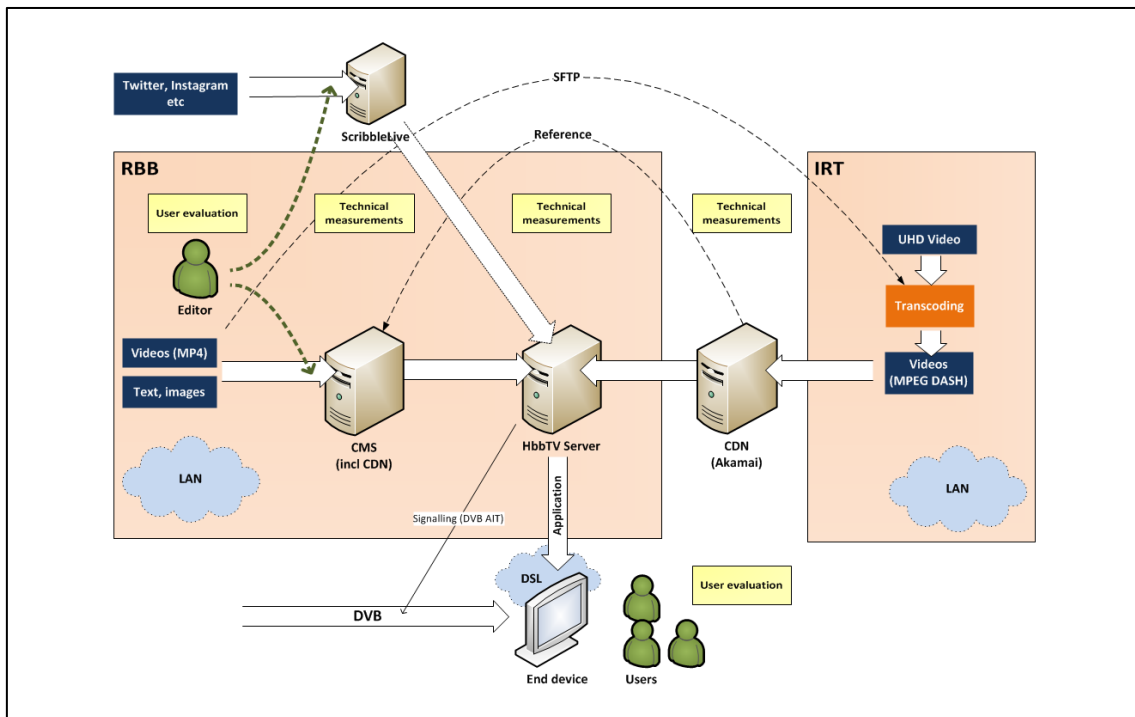


Image 10: Overview German Pilot "Abenteuer Liebe"

6.3.1.2. Generation of content

"Abenteuer Liebe" is a daily TV documentation series. It contains 20 episodes of 30 minutes, which will be broadcasted daily, from Monday to Thursday. After their broadcast all episodes will be available on-demand via the HbbTV-based AL application. This app will accompany the series with a lot of additional content, background information and (in a second phase) a number of interactive features. All additional content (texts, images etc.) is originally produced for the website but for the German pilot it will also be available on the TV screen through the HbbTV application. For the encoding of the MP4 versions of the episodes and the additional video one of the following, ARD-specific formats will be considered:

Web L:

- Spatial resolution: 960x540 pixel
- Aspect ratio 16:9
- Frame rate: 25 fps
- Scan mode: progressive
- Audio: stereo

Web XL:

- Spatial resolution: 1280x720 pixel

- Aspect ratio 16:9
- Frame rate: 25 fps
- Scan mode: progressive
- Audio: stereo

Special ultra-high definition video content which is produced only for the HbbTV application to test and evaluate higher bandwidth.

For the German pilot in TV-Ring, MPEG DASH and UHD video (the latter will be exclusively produced for the HbbTV provision) are introduced as new provision and presentation formats. They will be described in depth now. The UHD video content will be generated separately from the show. For the shooting the Sony PXW-Z100 will be used. The semi-professional 4K handheld XDCAM camcorder features a 1/2.33-inch Exmor R CMOS sensor with 16 million pixels. The camcorder is ideal for creating UHD content (3820 x 2160) at 50 fps. The scenes will be shot with the following production format:

- Spatial resolution: 3840x2160 pixel
- Aspect ratio 16:9
- Frame rate: 50 fps
- Scan mode: progressive
- Bit depth: 10-, 12-bit
- Audio: stereo

The encoding of the UHD content will be handled at IRT. To provide the content also to end user without a 4K end device it is recommended to use a MPEG-DASH set. MPEG-DASH is an [adaptive bitrate streaming](#) technique that enables high quality [streaming](#) of media content over the Internet delivered from conventional [HTTP](#) web servers. Adaptive streaming allows switching between different video streams which are hosted at the streaming server. The end users player decides based on its internal buffer management, which video format is possible at the moment dependent of the available channel rate. Prerequisite for this is a segmentation of the video data into several fragments. These fragments are stored at the streaming server. The fragment size is determined by Group of Pictures (GOP) of the video elementary stream. The player is able to load different kind of segments during the playback. The switching between the segments is seamless and without any interruption of the video or audio. Adaptive streaming could be used for live and on demand distribution. Which kind of qualities the player could choose is defined in the manifest file. This file will be loaded by the player before the playback of the video starts.

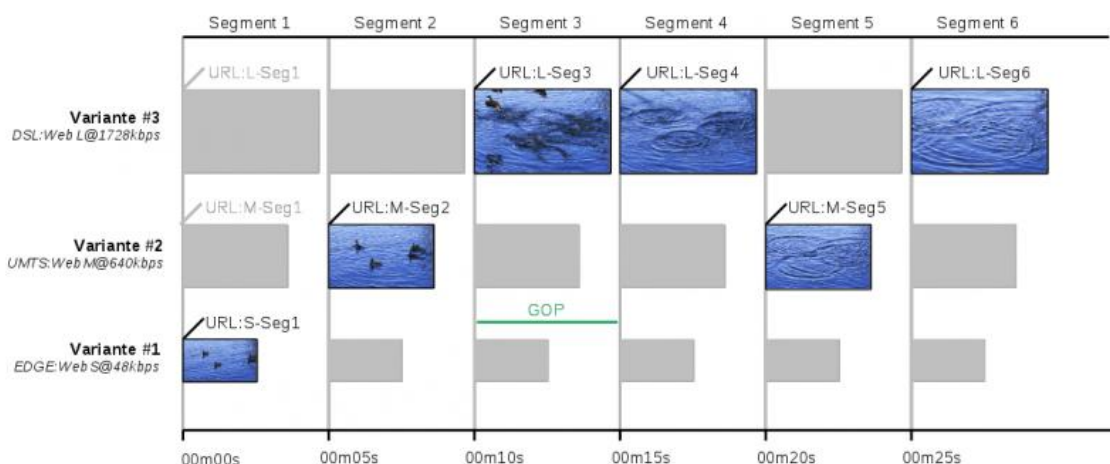


Image 11: Adaptive streaming process

The MPEG-DASH encoding sets will include profiles according to Annex E of TS 102 796 v1.2.1. Table 1 shows the different video formats which are planned to use for the adaptive streaming set. The set includes HD as well as UHD formats in progressive mode. The two smallest formats will be encoded anamorphic. Anamorphic widescreen is a process by which a widescreen image is compressed horizontally to fit into a storage medium with a narrower aspect ratio. Compatible playback equipment can then re-expand the horizontal dimension to show the original widescreen image. This is mandatory to avoid interlaced formats in the HbbTV streaming set. It is foreseen to use MPEG-4 AVC (H264) in the first place for the video encoding. A lot of experience could be made with H264 in the last few years and also it is part of the HbbTV version 1.0 and 1.5, so the decision fell on this codec. But it is also imaginable to encode the complete video set with HEVC, if HbbTV version 2.0 is ready and any end device, following this standard, is available. For the audio encoding the Fraunhofer AAC with high efficiency profile will be used. Image 12 visualizes the different adaptive streaming resolutions which are planned to use for the pilot.

Resolution	Frame rate [fps]	Video bitrate [Mbps]	Video codec	Audio codec	Audio bitrate [kbps]
640x720	p50	1,5	H264/HEVC	AAC/HEAAC	128
960x720	p50	2,5	H264/HEVC	AAC/HEAAC	192
1280x720	p50	5	H264/HEVC	AAC/HEAAC	192
1920x1080	p50	10	H264/HEVC	AAC/HEAAC	256
3840x2160	p50	25	H264/HEVC	AAC/HEAAC	256

Table 1: Format overview

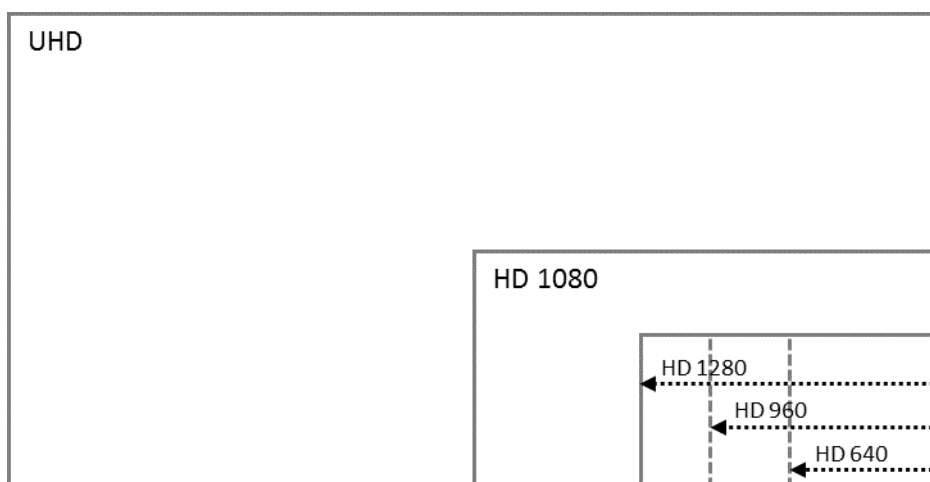


Image 12: Video sets

6.3.2. Description of activities (both technical and logistics)

6.3.2.1. Pilot AL Application phase 1

The main focus of the first pilot phase is on the implications that come with the provision of bandwidth-intense HbbTV-based content. For the German pilot this includes a rich HbbTV application offering a huge number of videos especially in MPEG DASH format and also UHD video. Thus, evaluation work will concentrate exactly on richness and bandwidth (see Deliverable D4.1.1).

Contents

Besides the actual TV broadcast the main content items in the German pilot will be the episodes and additional text and picture content, including the high definition videos. All that content is already recorded but must be edited and rendered in the desired output formats. During the broadcasting cycle there will be a lot of additional content available, describing the protagonists, locations and stories in depth, such as home stories, behind-the-scenes footage and photo galleries in addition to the episodes on the homepage and in the HbbTV application.

All of this content was produced during the shooting in close cooperation with the production company. After editing texts, pictures and video (including transcoding in the target formats) these content bits will be ingested into the web CMS and enriched automatically and manually with the needed metadata. For the generation of MPEG DASH format the episode videos will be transferred via IP to IRT, where transcoding and uploading to the 3rd party CDN will then be executed. In addition to the before mentioned video content there is the processing of dedicated UHD content planned for the pilot. At the moment three different scenarios are possible and exemplarily described below:

- Interview with Stuntmen
- Behind the scene: Stuntmen set
- Interview and concert with Nick

The first two scenarios are footages accordingly to the “Abenteuer Liebe” TV show. Both parts will take around 5 minutes and will be provided to the end users in time with the broadcast of the show. In the first video two stuntmen will be interviewed about their job and the risks that it brings with it. The second part shows two protagonists how they are practising to have a little fight with each other. The format of this short video is “behind the scene” and represents one of many extra content of the show.

The third scenario is produced by IRT independently of the TV show. It contains an interview with a band called “Nick and the Roundabouts”. It is a singer-songwriter band consisting of two persons. Both will be interviewed about the topic “love”. This video is expected to be offered only to a specific test user group.

Application and services

The HbbTV application to be developed will be provided from one week before the actual TV broadcast until one week after broadcasting schedule. The app will be accessible from the specific HbbTV launcher bar (“Startleiste”), that is loaded from the tuned TV service and loaded with dedicated theme and application widgets, in our case KiKA specific. Users there can navigate between application widgets and launch a desired HbbTV application by hitting the “OK” button.

Once the “Abenteuer Liebe” application is started it can have two states – the live view during the broadcast time and the non-live episode view. The live view will have reduced additional

content in addition to scaled live TV picture – for example information about a teenager on the right side and on the left side of the TV screen the scaled live TV picture. The non-live view will offer more additional content especially a huge number of video clips (MP4 and MPEG DASH format, depending on the end device). The application will have a prominent main menu for navigation, with sections news, episodes, persons, places, specials, and under each main menu is a list with the sorted content. In that list users can choose and then play content.

6.3.2.2. Pilot AL Application phase 2

The main focus of the second pilot phase is on the implications that come with social media and interactive features within HbbTV-based content. Participatory features are considered for a roll-out, like quizzes or voting. Evaluation work will concentrate on interactivity and social media involvement (see Deliverable D4.1.1).

Contents

The content used will be basically the same as in the first phase, but complemented with the mentioned features of interactive and social media. For the second phase of the German pilot this will mean the integration of a ScribbleLive blog in the HbbTV application. Here, users can comment on and chat, send their user-generated content bits specifically attached to the currently running TV episode. RBB's editorial team will try to motivate and to invite users to take part, to send texts, pictures and maybe video clips, to vote and to rate.

Application and services

For that second phase the HbbTV application will also be basically the same, but social features will be added, like dedicated Scribble Live blogs for each episode. There will be voting and quizzes in dedicated sections of the application.

6.3.2.3. Pilot TVAppGallery (TVAG)

A first prototype of the TVAG was developed within the Flcontent project. For the usage in TV-RING it is necessary to translate the TVAG registration website and HbbTV application into English or any language which is important for the project. The registration page is available by following the link: <http://www.tv-app-gallery.net/>

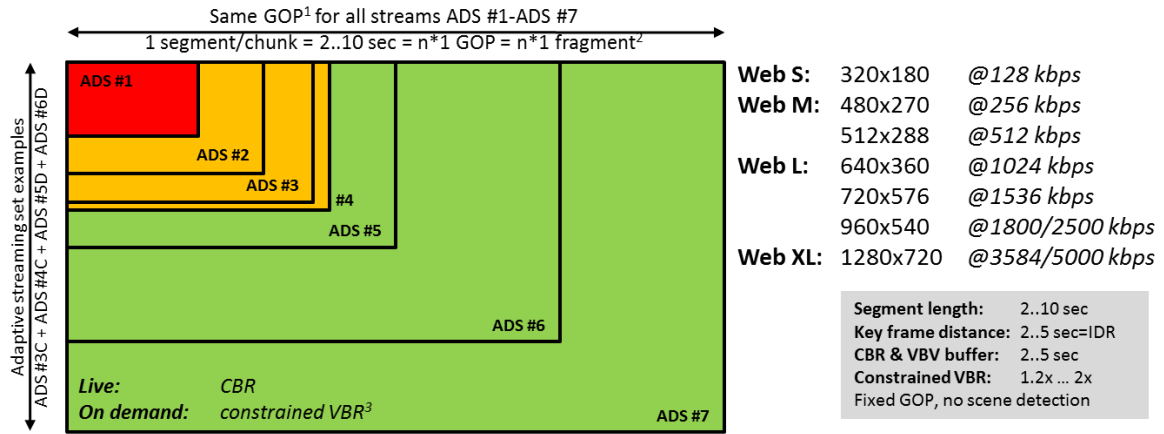
The TVAG HbbTV application could be reached throughout the following link: <http://www.tvappgallery.net/HbbTV/html/tvring.php?lang=en>

The application should be implemented within the different pilots to demonstrate the huge advantages of the portal and to publish it.

Content

The TVAG should be filled with applications developed along the project. A first new application will be an HbbTV-MPEG-DASH player which could be used to play different reference streams on several end user devices. The player and the streams are generated by IRT.

The reference streams are encoded following the audio/video standard of the German public broadcasters. For MPEG-DASH testing, different combinations of video and audio streams are produced. When composing a multi-format encoding set, the capabilities of the media player on your smart phone, PC or HbbTV have to be considered and depending on the characteristics of the transmission channel. A composition of more than one video profile with only one audio stream is called video set. An audio set includes exclusively just audio profiles.



- (1) variable GOP possible if frame-synchronisation → scene detection for all or strict key frame-interval
- (2) MP4-ISO moof-Atom allows fragmentation within the container → only one file per stream at the server, compatible to Microsoft PIFF
- (3) Useless switching of the players within VBR-variation because of an empty player buffer

Image 13: Streaming sets for ADS

Application and services

The TVAG application is already developed so in the first phase there are no changes regarding the application itself is necessary.

6.3.3. Calendar of execution

GANTT CHART Evaluation and execution task	2014				2015												2016			
	Year 1				Year 2								Year 3							
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Marc	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	
Pilot month	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Week	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	
Nominal project schedule																				
Pilot Germany (T4.2)																				
Final Evaluation of pilots (T4.5)																				
Pilot evaluation schedule																				
User acquisition and recruitment																				
Pre Pilot Evaluation (Before pilot deployment)																				
On air evaluation (During pilot deployment)																				
Post Pilot Evaluation (After pilot deployment)																				
Processing of the results																				
Ideas and recommendations for improvements																				
Overall results aggregation																				
Pilot Execution Plan																				
Preperation																				
Application development																				
Bug Fixing																				
On air Test																				
On air pilot execution 1st Phase																				
Advertising of TV show and application (Facebook, on air trailer)																				
Technical and User support																				
Continuous and regular technical measurement (see D4.1.1.)																				
On air pilot execution 2nd Phase																				
Integration of recommended improve-ments based on 1st user evaluation																				
Integration of social media features																				
Advertising of TV show and application (Facebook, on air trailer)																				
Technical and User support																				
Continuous and regular technical measurement (see D4.1.1)																				
TVAppGallery user evaluation																				
User panel recruitment																				
Evaluation																				
Processing of the results																				

Image 14: German pilot execution calendar

6.3.4. Users

6.3.4.1. Description of the user panel

The user panel of the German pilot “Abenteuer Liebe” will considerably consist of ~40 people between 12 and 15 years old, as this is exactly the target group for the TV series. All of them will have experience in social media usage and access to HbbTV-enabled devices. The users can be located all over Germany, the broadcast and thus the provision of the HbbTV service will be nation-wide.

The user panel will likely have the proportion of HbbTV V1.5 capable devices (MPEG-DASH) which is present in the overall German market. It is not a precondition to participate actively in the pilot. Precondition for the users is to have DVB reception, a fast ADSL or even VDSL internet connection, an HbbTV-enabled TV or set top-box, a smartphone and if needed a parental consent.

The users will take part for two months, which includes some time before and after the broadcast cycle of the TV series. For the first pilot phase 20 users will be engaged, and for the second phase again 20 people.

6.3.4.2. Engagement

The German pilot “Abenteuer Liebe” aims at recruiting the expected number of test users for pilot participation by starting acquisition in September 2014. A team for managing the contacts and all issues of their involvement during the pilot and evaluation will be set up at RBB. That team will decide which acquisition channels to use, for example the RBB Facebook page or KiKA website and web community will be used to recruit users from the target group. Promotional texts and images will be prepared for publication online and on-air (radio). The recruitment process will probably finished by the end of October.

RBB will organise a kick-off meeting for all users from the dedicated test panel. This meeting can happen virtually online, if some users live quite far away. If this is not possible it is always feasible to contact users individually by mail, email or phone.

6.3.4.3. Activities with users

Basically user will have to share their experiences via user experience questionnaires, interviews and a focus group discussion at the end of the trial, all provided by the RBB team, according to the evaluation planning.

In the first two weeks of November, which is the beginning of the home-use phase RBB will carry out interviews with each user from the test panel about their expectations; this could also be carried out via phone. In the pilot phase in November and December each test user will be asked to fill out online questionnaires, weekly or bi-weekly. At the end of the broadcast cycle of the TV series in January 2015 RBB will carry out closing interviews with all test users from the panel. Afterwards, approximately in February, a closing event for all participants will be organised, again if not the most of the users live quite far away.

6.4.Spanish pilot

6.4.1. Pilot groundwork

6.4.1.1. Infrastructure

The Spanish pilot will deliver multicamera HD content through both the managed i2CAT network and the general non-managed Internet. Both will feature a CDN deployment, in the former case i2CAT will deploy CDN-like facilities to deliver content to test users and in the latter case, RTV will use a CDN to deliver content to any users on the Internet having proper equipment. The i2CAT CDN facilities be deployed both within their network and the Guifinet ISP (<http://guifi.net/en>), to deliver more effective caching and better last-mile behavior to the controlled end users.

This means the following general infrastructure will have to be provisioned as follows:

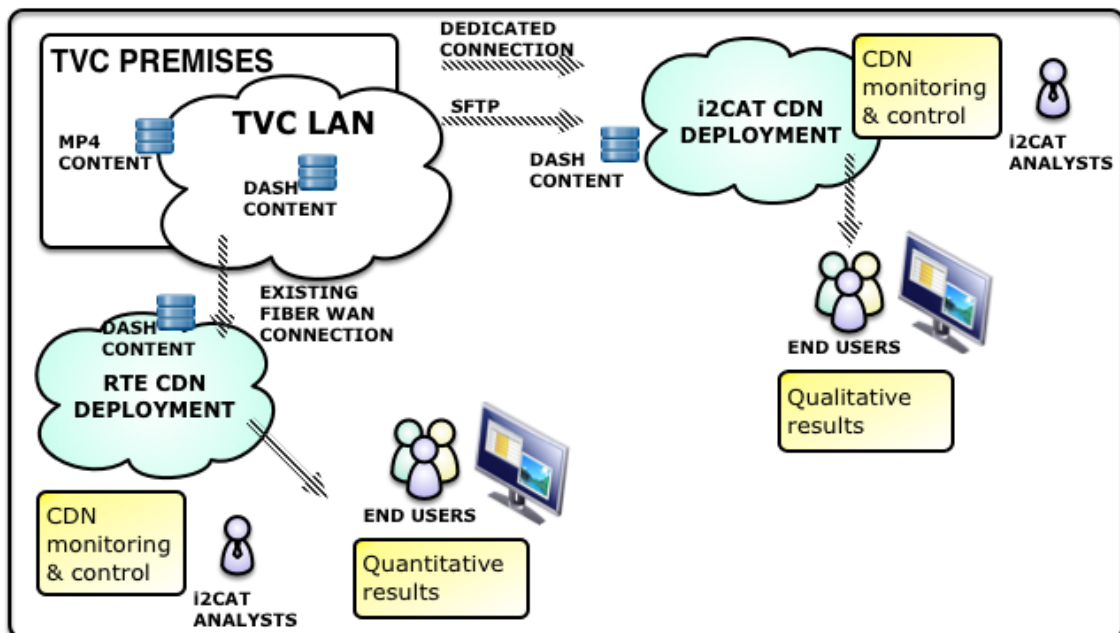


Image 15: Spanish pilot infrastructure deployment design

Namely, content will be encapsulated into MPEG-DASH within the TVC premises using a pull model, that is, whenever an end-user requests a media asset that is not yet cached by the CDN the CDN will request TVC to provide it, which will be encapsulated from a regular MPEG4 file into the appropriate format.

In the case of the managed network, content will be provided by both an ad-hoc direct connection to the i2CAT network or by pre-uploading content using SFTP, specially in the case of on-demand content. On the other hand, in the case of the non-managed RTE SDN, the content will be pulled through and already deployed fiber WAN connection.

For a good pilot performance it is needed to connect content servers (where the content is allocated) and CDN network (who will distribute that content).

TVC is managing the WEB servers where both HbbTV applications and Multimedia content will be stored (Origin server). In the same way RTV is in charge of managing the CDN network which is going to be used to deliver both multimedia content and HbbTV apps to end users.

CDN edge servers will act as a system cache storing the received content and waiting for future requests to be served.

When data is requested by an end user, firstly it is checked if this information is found in a closer point within the network (edge servers). If it is found there the content is served directly from the edge server to the end user who requested the content, if the content is not found there, then the network is going to get that content at the Origin server and deliver it to end user through all the network elements: origin server, mid-tier servers and edge servers.

TVC Origin server is connected directly with CDN provider through a high speed connection in a specific data center.

A complete set of measures can be taken from the content delivery like for example consumed content, data rate, requests made, bandwidth, cache efficiency among others.

6.4.1.2. Generation of content

Content generation largely depends on broadcast TV programme provisioning and commissioning which is in itself a very complex process, involving lots of agents within any broadcaster. In the case of the Spanish pilot, content generation has been split into two general phases: *planned* and *potential* content generation. In the case of the planned content it means that the programme has already been commissioned and it is either being created or that at least the commission has been approved. On the other hand, potential content is a posterior phase where other opportunities of suitable test content are yet to be determined and finalised, though some candidates are already under discussion.

In the case of the planned content, the entertainment show ‘Oh Happy Day’ (<http://www.tv3.cat/oh-happy-day>) has been selected as suitable content.



Image 16: Header of the content delivered in the pilot.

The programme is a popular fan-based entertainment competition that pitches choir against each other in a singing competition. Gospel and a cappella songs are sung by the choirs and selected by a jury of experts and the general public intervenes in the final gala to select the winners. This particular programme has been selected for two reasons. Firstly, all episodes are broadcast non-live so there is time to generate the required extra content and do any needed on-demand test. Secondly, the season finale is broadcast live so the live components of the project have an opportunity to be tested. There is also the fact that as a fan-based entertainment programme, there is an expectation that the viewers will appreciate the extra content and more quality more than other types such as news, which have far less replayability potential or requirements for higher quality.

Content production for the on-demand bits will be made separately from the main production and is expected to be used mainly for technical and end-to-end testing, even though it remains a target of opportunity so if any content-producer ideas are suitable they will be incorporated into the extra streams. At the finale, the attempt to create a separate live IP-only channel will be made with original content, backstage interviews and lighter content, aiming for multicamera selection during the gala and also for replayability on-demand after the event.

6.4.2. Description of activities (both technical and logistics)

6.4.2.1. Pilot 1 (1st phase)

Contents

For the already planned content generation phase, content will be generated for the *Oh Happy Day* programmes and published simultaneously with broadcast of shortly thereafter. Meanwhile, the content and script for the final gala will be worked on, both from a scriptwriting and video production perspective. Standard off-the-shelf tools will be employed to produce the alternate content in broadcast quality, including the multicamera mosaic itself. Tools for production can include any broadcast editing system such as Final Cut Pro or Avid. Results will be uploaded the current broadcast and IP system, and the required metadata for IP publishing will be added, taking into account the fact that it is extra content for an existing programme. At the season finale, live multicamera content will be attempted, with a fallback for publishing the alternate content on-demand (which will be made available after the broadcast anyway). This fallback proposition has been put into place as live production is inherently more complex than on-demand though all efforts will be made to broadcast the gala on IP completely live.

Application and services

The HbbTV application developed by TVC will feature in the first phase the functionalities described in requirements deliverables D2.2 and D2.3. User activity will mainly be captured using in-app JS-based marking, as described in detail in deliverable D4.1.1. MPEG-DASH content generation will be ready for this phase, both for on-demand and live, being supported by the necessary network infrastructure described in section 6.4.1.1. It should be noted that from a purely infrastructure point of view, as fallback for the TVC-managed network interconnection, on-demand content can still be uploaded using plain SFTP.

6.4.2.2. Pilot 1 (2nd phase)

Contents

In the case of the *potential* content generation, discussions with programme production teams will be made to select appropriate content for inclusion in the pilot. Some ideas have already been put on the table such as producing extra content for *La Marató de TV3* (<http://www.tv3.cat/marato/en/>), which is a fund-raising gala done every year for TVC which is a major event in the region of Catalonia.

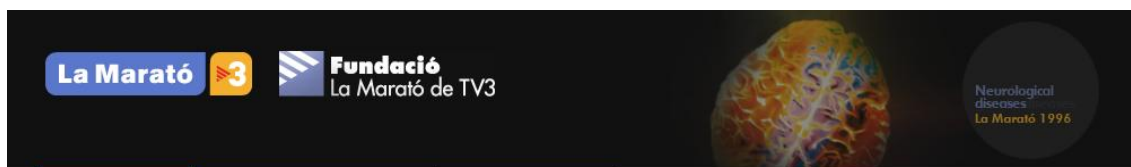


Image 17: Potential contents to be added in the 2nd phase of the pilot

On the year 2013 the gala managed to raise more than 11M€ only in Catalonia and it is expected that the event in 2014, which is aimed at heart diseases, will also be a success. As it is a major popular event, discussions will be made to include it as the second phase of the pilot.

Application and services

In the case of the end of the pilot, facilities for gathering user feedback from the non-managed RTE CDN users will be added to the pilot HbbTV. Even though the actual implementation is to



be determined, the most likely UX tool used will be a 'like' button, which is a common affordance to establish user feedback.

6.4.3. Calendar of execution

GANTT CHART	2014				2015												2016																							
	Year 1				Year 2												Year 3																							
	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Marc	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb																					
Evaluation and execution task	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30																					
Pilot month	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Nominal project schedule																																								
Pilot Spain (T4.2)																																								
Final Evaluation of pilots (T4.5)																																								
Planned schedule																																								
Call for user panel members																																								
User panel recruitment																																								
"Oh Happy Day" 2nd season on air (On Demand multicamera programme test)																																								
"Oh Happy Day" 2nd season Finale, (Live multicamera programme test)																																								
"Oh Happy Day" 2nd season test results retrospective																																								
Overall results agregation and analysis																																								
User panel focus groups (phase I)																																								
User panel evaluation (video-based observation and post-test interviews, phase I)																																								
In-app marking evaluation																																								
Qualitative non-managed evaluation ("like")																																								
Potential schedule																																								
Establishing next programme																																								
Second On Demand - Live test																																								
Second test Retrospective																																								
"Oh Happy Day" 3rd season on air (On Demand multicamera programme test)																																								
"Oh Happy Day" 3rd season Finale, (Live multicamera programme test)																																								
"Oh Happy Day" 3rd season test results retrospective																																								
La marat6 2014 (Charity one day special programme)																																								
La marat6 2014 Retrospective																																								
La marat6 2015 (Charity one day special programme)																																								
La marat6 2015 Retrospective																																								
User panel focus groups (phase II)																																								
User panel evaluation (video-based observation and post-test interviews, phase II)																																								
Infrastructure																																								
RTE CDN interconnection testing																																								
(Planned) i2cat interconnection																																								
(Potential) i2cat interconnection																																								

Image 18: Spanish pilot execution calendar

6.4.4. Users

6.4.4.1. Description of the user panel

The Spanish pilot user panel will be composed of a group of 15 to 20 households, encompassing between 20 to 50 individual users of mixed demographic profiles (young couples, senior citizens, families with kids, and single-person households). These will be geographically concentrated in Gurb, a town in central Catalonia.

6.4.4.2. Engagement

In the Spanish pilot, users for the evaluation of the HbbTV application will be reached in two ways, depending on whether they experience the service during the pilot period through the managed or the non-managed CDN.

For the managed CDN side, the committed user panel selected in T3.2 in preparation of the pilot will be mobilised in a series of co-creation and user experience evaluation actions. To assist in the recruiting and running of the pilot actions regarding the user panel, a partnership has been formalised with Guifinet, a local network provider with a strong presence and reputation in this area. The user panel households will receive a TV set with HbbTV 1.5 support, to be used for the pilot activities. Upon successful completion of the pilot actions, user panel households will be ceded the TV sets as compensation for their participation.

For the non-managed CDN side, strong dissemination efforts are expected to yield an organic growth of the HbbTV market. These users will be enticed to use the TVC application with a series of promotion actions. Adequate audience monitoring and user feedback mechanisms will be in place to ensure that high-quality data on usage and satisfaction is generated.

6.4.4.3. Activities with users

The user panel will be involved in a series of data-generating activities, which will be focused on the evaluation of the user experience with the HbbTV applications and contents offered throughout the pilot's duration. These will be:

- A total of 4 co-creation workshop sessions, at the beginning and end of each of two pilot phases, in which end users and project professionals will work together to understand and co-create aspects of the application which need further elucidation and polishing.
- After each use of the application, user panel members will be asked to answer a short online questionnaire of satisfaction with the application. This questionnaire has two main purposes. First, to obtain a quantitative measure of satisfaction which will allow the project's researchers to triangulate these non-technical data with technical metrics of quality of service. And second, to have a satisfaction benchmark with which to assess the progress of the application towards an optimal solution from the user's point of view.
- Ethnographic methods are one of the main planned sources of knowledge in the pilot. For up to two times in total per user, the researchers of the project will perform a participant observation in a household to watch TV with the volunteer, assess first-hand experience of the user, and identify areas for improvement. To overcome logistic

challenges, a participative two-step approach to ethnography will be followed. First, the selected household will be assisted to record with their own devices their reactions and interactions while they watch the show live on Saturday night, and send the recordings to the project researchers for further analysis. And second, the project researchers will visit the household to talk with the users and observe in situ their consumption of on-demand contents. A post-event semi-structured interview will serve as a participant debriefing of the whole experience.

At the Spanish pilot, validation of the TVRING technologies from the point of view of the professional users will be achieved through two sets of research actions:

- For the global CDN element, with a series of in-depth interviews with the professionals from TVC and RTV who are involved in the pilot. These interviews will be conducted towards the end of pilot phase 1 (around November and December), and will be focused on confirming that professionals feel comfortable working with the technologies of the pilot, and eliciting suggestions of small tweaks and improvements.
- For the local controlled CDN element, professional users from I2CAT and project collaborator Guifinet will be involved in the four focus groups planned at the beginning and the end of each pilot phase.

7. Data protection policy

7.1. General approach

Collection of data from human participants for the purposes of scientific research within the course of the TV-RING project may be subject to European and national data protection and privacy regulations. For experimentation sites that are located in EU member states, the generic applicable data protection and privacy regulations are based on the European directive 95/46/EC, which covers collection and processing of personal data for scientific purposes.

7.2. Specific approach

7.2.1. Dutch pilot

Dutch data protection act

The most important rules for recording and using personal data in the Netherlands have been set forth in the Wet bescherming persoonsgegevens (Wbp; Dutch Data Protection Act). http://www.dutchdpa.nl/Pages/en_ind_wetten_wbp.aspx

This act was unanimously adopted by the Dutch Lower House on 23 November 1999 and accepted by the Dutch Upper House on 3 July 2000. The act came into force on 1 September 2001.

The Wbp relates to every use - 'processing' - of personal data, from the collection of these data up to and including the destruction of personal data.

If the data controller is established in the Netherlands, the Wbp applies to all processing of personal data conducted within the scope of the operations of the establishment in question, regardless of where the data are processed or where the data subjects are. If the data controller is established in another Member State, the legislation of this other Member State applies.

According to the European Privacy Directive, the term "establishment" relates to centres of economic activity that may be located in different Member States. In this respect, it is irrelevant whether this involves a branch office or subsidiary with legal personality. The establishment on the territory of a Member State presupposes the effective and actual conduct of operations for an indefinite period. In a specific case, it will have to be established on the basis of the facts whether an establishment within the meaning of the directive is involved and which national law applies.

If a data controller has several branches in the European Union, this party must ensure that each of the branches conforms to the rules of the country where the branch is located.

For the Dutch pilot we will take in account the rules of the Dutch Data protection act. We will ask test-users permission to collect personal data based on IP address and we will treat this data confidentially within the project. All test-users in the user panel will document their consent through the completion of collaboration contracts with the project. There is an extensive terms & conditions and privacy statement published on the website of npo.nl and this will also be applicable within the pilots.

Cookie regulation

On May 8th, 2012, the Dutch Senate voted to adopt the proposed amendment to the Telecommunications Act, which includes new rules regarding the use of cookies. The new cookie legislation has entered into force on 5 June 2012.

The new legislation requires opt-in consent for all cookies that are stored on and retrieved from the devices Dutch users. Consent may not be inferred from the browser settings of users. The Dutch government and legislature has concluded that browser settings cannot adequately reflect the user's consent for the use of cookies. A way in which a website operator could obtain consent is by presenting users with a pop-up screen the first time they visit the the website. This pop-up screen should clearly inform users about the cookies that are used on the website and should give users the possibility to confirm their consent, for example by ticking a box stating "I accept all cookies from this site".

Within the Dutch pilot we will take into account these cookie rules which are obligatory for all websites and aks permission from test-users to accept cookies if needed.

7.2.2. German pilot

Modern SmartTV devices offer, in addition to receiving the television signal, the ability to access Internet services and content. It is made possible for spectators to access additional web content simultaneously with the current TV program (for example, by the HbbTV standard). Equipment manufacturers also offer various Internet services for SmartTV devices via their own web platforms. For the viewers, the interlocking of the online world and the TV world is often invisible and seamless. Unlike earlier analogue broadcasting conditions, the online connection creates a feedback channel, extending from viewers to the television station, the equipment manufacturers or other third parties. The individual usage of this “back channel” can theoretically be recorded and evaluated.

Television is a key medium of communicating information and a necessary component of independent thought. The right of free access to information is constitutionally protected and is a fundamental condition of a free and democratic society. The collection, analysis and utilisation of user behaviour would affect the exercising of this basic right. Thus, from a data protection and ARD/RBB point of view, the following service requirements must be observed:

1. The anonymous use of Smart TV television services must be ensured. Profiling individual viewing behaviour without informed and explicit consent of the audience is inadmissible.
2. Web and HbbTV services delivered via SmartTV devices are subject to the requirements relevant Teleservices Data Protection Acts (DE: Telemediengesetz). Device manufacturers, broadcasters and all other provider of telemedia must either obtain the appropriate consent of the party/parties concerned or as a minimum observe the following legal requirements:
 - personally identifiable data of the user may only be used provided that this is necessary to provide the services or for accounting purposes
 - no later than at the beginning of use, users must be fully informed of the collection and use of their data
 - only after this step has been taken providers of telemedia may create and analyse user profiles providing that pseudonyms are used and the affected licensees or user concerned has not refused permission
 - such refusals of permission are to be effectively implemented, and in particular stored characteristics (e.g. cookies) must then be cleared . The right to refuse permission for collection of data must be indicated to users. IP addresses and device IDs are not pseudonyms for the purposes of the Teleservices Data Protection Acts (DE)
 - responsible bodies must ensure that use of profile data is not merged with data which can identify the owner of the pseudonym.

3. Compliance with the principle of "privacy by default". It is the responsibility of the manufacturer and supplier of Smart TVs and web services to design the basic settings in such a way that the principle of anonymous use of television is sufficiently taken into account. Communication with web services and the associated two-way communication with device manufacturers, broadcaster or other vendors via the internet is allowed only after full disclosure of the above information and can only be initiated by the users themselves, such as via the use of Red-Button activation in HbbTV. The data stored on the devices data must be subject to the control of the user. In particular, the possibility of management of cookies must be provided to users.
4. Smart TVs and HbbTV broadcasts, as well as other web-services, must have safety mechanisms that protect devices and associated traffic from access by unauthorized third parties.

For the communication and cooperation procedures with test users the following points will be applied:

1. Data protection serves to protect personal data and thereby safeguard the basic right to self-determination of information for all citizens. The type of data to be protected includes all particulars about personal and factual circumstances of an individual.
2. RBB has an appointed data protection officer. This office is currently held by Frau Anja Naujock. It is her role to supervise the adherence to data protection regulations according to RBB's broadcasting treaty and other data protection laws. In exercising her office she is independent and only subject to the law.
3. The data protection officer can be contacted by anyone who wishes to have information about personal data relating to them saved by rbb or is the opinion that his/her privacy rights have been infringed through the processing of his/her personal data by RBB.

The RBB team will approve the terms of use for any services developed by RBB or using RBB content, including information about any privacy and data protection issues of relevance for users. RBB will draw up contracts for users/households recruited to test new services, this will include informing them of any privacy and data protection issues, ensuring these are in keeping with laws and regulations. This can include information on exactly what information will be collected and how, where it will be stored, for how long and who will have access to it. RBB will internally make use of guidelines about saving, accessing, processing, sharing and deleting personal information. Where social media are involved there are existing guidelines at rbb relating to social guidelines and data protection. The RBB team will ensure these are adhered to in the project.

7.2.3. Spanish pilot

The applicable law for any experimentation site located in Spain, such as the Catalan pilot of the TV-RING project, is the Organic Data Protection Law (Ley Orgánica de Protección de Datos, LOPD) published in the BOE n. 298 de 14/12/1999, substituting the old LORTAD. This new law adopted the European directive 95/45/EC and contemplated aspects related with the use of Information Technologies as mean of data transmission. As such, the LOPD applies to the protection of Personal Data, defined as "*any information relating to individuals identified or identifiable*". This includes, but is not limited to the name and address, phone number and e-mail address or a photo or visual representation of each human participant. It also includes any data collected for evaluation and experimentation purposes, if such data is linked to any data that there may be used to ascertain the identity of the human participant.

The LOPD provides that any personal data can only be collected for processing when they are adequate, relevant and not excessive in relation to the purposes for which they were collected or for which they are further processed. Personal data subjected to processing may not be used for purposes incompatible with those for which they were collected. Further processing of personal data for historical, statistical or scientific purposes shall not be considered incompatible.

Furthermore, it will not be kept to identify the interested party for longer than necessary to fulfil the aims for which it was initially collected or registered. The Data Protection Agency and the interested parties will be informed of the corresponding procedure if it is decided to keep the data once the historic, statistical or scientific values have been met in accordance with applicable legislation. Wherever personal data or other data is collected, processed or used in automated form within the TV-RING project at the Spanish pilot, the processing of the data is required to meet specific requirements of the LOPD and also the Catalan recommendation (Recomanació 1/2008 sobre la difusió d'informació que contingui dades de caràcter personal a través d'Internet).

The Spanish pilot will follow the standards policies set forth by the Spanish Agency of Data Protection (<https://www.agpd.es>), the Catalan Authority for Data Protection (<https://www.apd.cat>) as well as the laws of European Union on this matter. Regarding the 95/46/EC adaptation on the Catalan framework for the Barcelona case, the reference is the law “Lei Orgánica de Protección de Dades” (LO 15/1999 de 13/12/1999), jointly with the Catalan Law 32/2010 and other legislation procedures regarding data treatment protection as RD 1720/2007 de 21/12/2007. The involvement of children in the Barcelona experimentation site will be treated following the norms of the Spanish Agency of Data Protection and the Ethical norms established by UNICEF18 and what is established in “Children Participating in Research, Monitoring And Evaluation (M&E) — Ethics and Your Responsibilities as a Manager”, Evaluation Technical Notes No. 1, UNICEF Evaluation Office, April 2002.

In the Spanish pilot, all participants in the user panel will document their consent through the completion of collaboration contracts with the project, which include informed consent clauses (see attachment in ANNEX I).

References

1. **Google.** Google analytics. [Online] 2013. <http://www.google.com/analytics/>.
2. **Pamplona, Pau.** guidelines when referencing. *Guidelines for a good reporting*. 2014, pp. 6-7.

8. Annex I – Informed consent forms

Consentiment informat TV-Ring. Contracte de participació en panel d'usuaris

D'una banda, el senyor Joan Manel Martín, de nacionalitat espanyola, major d'edat, actuant en nom i representació de FUNDACIO PRIVADA I2CAT, INTERNET I INNOVACIO DIGITAL A CATALUNYA, entitat amb domicili a l'adreça Carrer Gran Capità 2-4, Edifici Nexus 1, Barcelona, 08034, Espanya, i NIF G-63262570 (en endavant I2CAT).

I d'altra part, en/na _____, de nacionalitat _____, major d'edat, amb domicili a efectes del present document a _____, _____, proveït de DNI número _____, actuant com a participant (en endavant PARTICIPANT) a l'estudi del projecte TV-RING: Testbeds for Connected TV services amb Grant Agreement 325.209 (en endavant TV-RING).

MANIFESTEN

Descripció de l'estudi

Que el present estudi es realitza en el marc del Projecte TV-Ring (Anella de Televisió - bancs de proves per a serveis de televisió connectats amb HbbTV). TV-Ring és un projecte europeu finançat pel Programa de Suport a les Polítiques TIC CIP (Acord de subvenció 325.209). L'objectiu del projecte és pilotar noves aplicacions i serveis per a TV Interactiva i provar el seu èxit amb audiències diverses.

En la fase de pilot del projecte, una de les tasques a realitzar és avaluar de l'atractiu i la satisfacció dels usuaris amb els innovadors serveis multicàmera en directe i en diferit que està creant Televisió de Catalunya. Una de les actuacions per a generar dades per fer aquesta valoració és un estudi de camp o pilot, que es durà a terme entre el Setembre 2014 i l'Agost del 2015, i inclou un grup d'entre 15 i 20 llars que col·laboraran de manera estable amb el projecte TV-RING al llarg de l'estudi.

La participació en aquest estudi es realitza de manera totalment voluntària, i es pot suspendre en qualsevol moment a petició del PARTICIPANT.

ACORDEN

Compromisos de les parts

I2CAT es compromet a instal·lar de manera gratuïta en el domicili del PARTICIPANT una TV Interactiva model [insertar model] durant la duració del pilot. En cas de que la TV Interactiva tingui una avaria o mal funcionament cobert per la garantia, serà substituïda per part d'I2CAT. Al final del l'estudi (31 d'Agost 2015), I2CAT es compromet a cedir el dret d'ús a perpetuïtat de la TV Interactiva model model [insertar model] a les llars que hagin acreditat la seva participació activa en les accions de testeig, complint amb els compromisos que es detallen a continuació.

El PARTICIPANT es compromet a participar activament en les accions de testeig de les aplicacions, incloent:

- 4 sessions presencials de 2 hores de duració, que es duren a terme en les immediacions de Vic
- L'ús actiu de l'aplicació des de la TV Interactiva instal·lada a la llar, en les ocasions en que es requereixi la opinió de l'usuari, en un màxim de cinc hores al mes de mitjana.
- Després de cada ús de l'aplicació, respondre un breu qüestionari online de satisfacció amb l'aplicació.
- En un màxim de dues ocasions en total, els investigadors del projecte es desplaçaran a la llar del voluntari per veure la televisió amb el voluntari, valorar de primera mà l'experiència de l'usuari, i identificar els aspectes a millorar.

En el cas de que el PARTICIPANT no compleixi reiteradament aquests compromisos, I2CAT es reserva el dret de retirar la TV Interactiva del domicili del PARTICIPANT, i a rescindir aquest contracte de participació sense compensació alguna.