



DELIVERABLE

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D4.2 Portal services

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 through appropriate citation, quotation or both.

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1. INTRODUCTION

With deliverable 4.2 (“Portal Services”) we outline the developed portal services, including: the display proxy, portal engine, player engine, media storage, apps storage services. The actual demonstration of these services is done on the beta version of the new EUscreen portal, available on the below URL:

Link to beta version: beta.euscreen.eu. Under development no uptime guarantee.

The official release of the new portal will be done on the 30th of October 2014 during the EUscreenXL conference in Rome, so it is important to notice that in the period ahead of the release the website is not yet a stable production version.

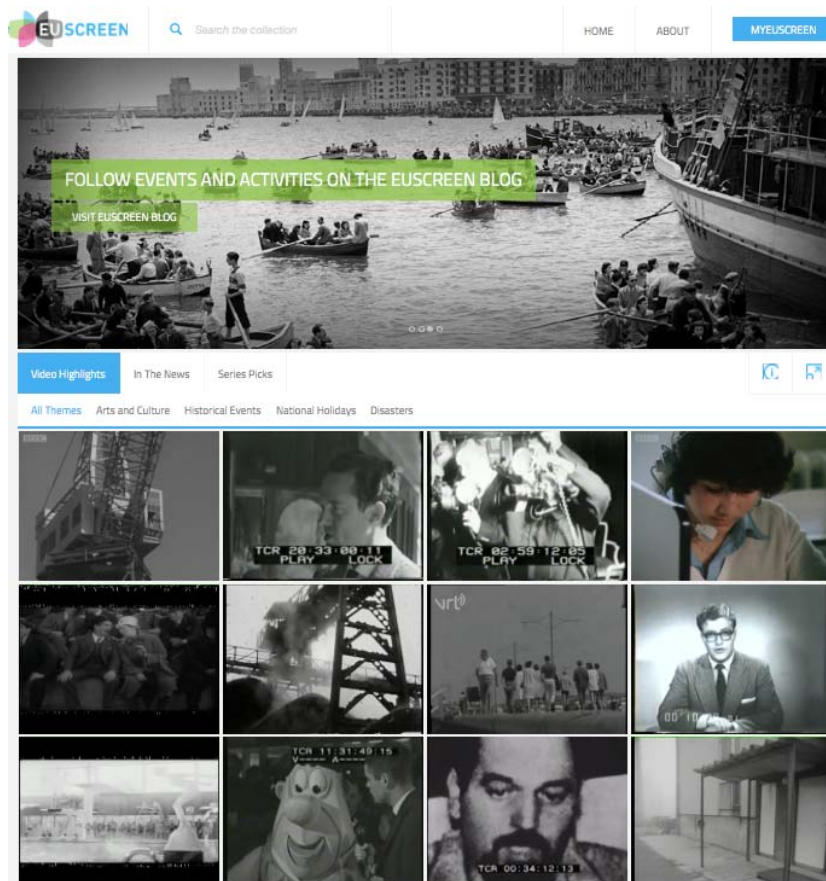
In this document we give a short textual description of the functionalities offered on the new portal. We will describe the following pages:

- Homepage
- Search
- Item page
- About page

Furthermore we conclude the document with an illustration on the way the portal behaves on different devices (responsive design) and insert the technical description of the open development environment (framework) that is used to deploy the EUscreen portal.

2. HOMEPAGE

On the homepage we want to briefly introduce the portal to the general audience and highlight 'featured' items from the EUScreen collection. This is done by an editorial group that selects highlights from the collection and introduces them to the public via a thumbnail image and brief description, which encourages the viewer to watch the video.



Furthermore the page contains tabs that relate EUScreen items to current events in the news and a selection of the different series that are available on the portal.

Top element: Intro and banner

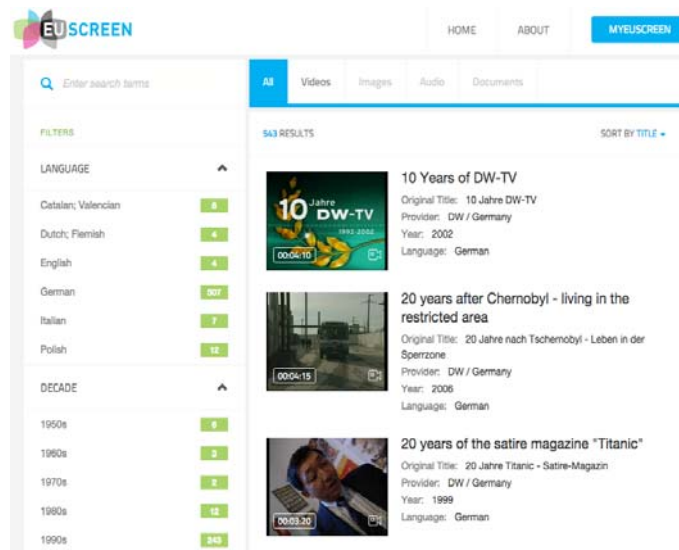
The top of the page consists of the EUScreen logo, the search field and links to the "About" page and the entry to the personalized section of the portal ("My EUScreen"). Below the portal header each section of EUScreen is represented in a rolling banner, where images advertise parts of the portal and change automatically after a time interval (above, currently the "Blog" page link is on display). Clicking on the dots inside them can as well change the banner pictures.

Bottom element: Collection viewer that introduces EUScreen content

The bottom part of the page contains an interactive "collection viewer" element that enables the user to get a quick overview of EUScreen content that we want to introduce, and what we consider to be of interest for the general public. The collection viewer on the Home page displays only videos as this makes the UI design easier and highlights that EUScreen is primarily about video.

3. SEARCH PAGE

A unique selling point (USP) of the EUscreen collection is the fact that it offers **high quality video** from a range of **different European countries** and that this content dates from the **early 1900s to the present day**. It is therefore recommended that filtering on language and filtering on decades should be the two principal ways of filtering and the most easily accessible.



Search results list

A list of found search results is sorted by default by the English title in alphabetical order.

The items in the list display currently a thumbnail + item type (video/image/audio/PDF) and the same basic metadata that is immediately visible on the Item page:

- English title
- Original title
- Provider + provider's country
- Production year
- Language (from Language used metadata field)

The idea here is that the results are not paginated as in the old portal, but more results are loaded as the user scrolls downwards/swipes from bottom up on mobile.

Clicking the item takes user to the corresponding Item page. Here we need to check that there is an easy way to return to the search results. In the desktop version the browser back button works, but on the mobile version this button might not always be visible if the device goes automatically to the fullscreen mode.

Buttons & number of search results

Sorting drop down menu: The menu choice defines in what order the search results appear. The default option here would be "by title, which would display the items in alphabetical order based on English title.

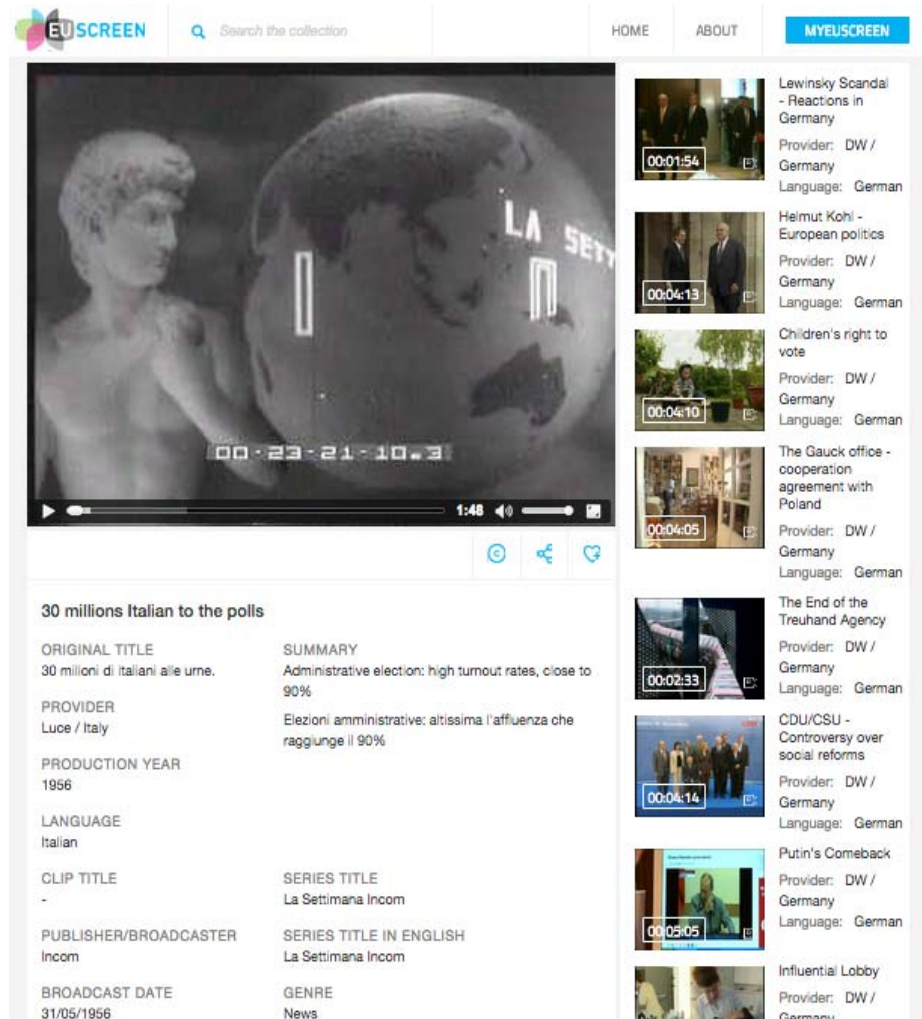
Media type selection: "ALL" option is selected by default (we are using only keyword search in the 1st release) and there is a button for each media type (video/image/audio/PDF). User can filter specific media type or multiple types by clicking the icons.

Number of search results: The number of found search results is shown on the left as a static text.

4. ITEM PAGE

An important aspect of the EUscreen content database is that the content is selected through a fixed and clearly defined '*Metadata and Content Handbook*' (D2.1 and D2.2). This framework applies to all contributors who are proving audiovisual content to the project.

In the Item page, the user can view all the available metadata of an item, both in a short or an extended view. The page also gives the option to share an item with other users, or bookmark it into a personal collection, saved in the user's personal EUscreen account.



The screenshot shows the EUscreen Item Page interface. At the top, there is a search bar and navigation links for HOME, ABOUT, and MYEUSCREEN. The main video player displays a clip from 'La Settimana Incom' showing a man in a suit. Below the video player, the metadata is organized into two columns:

30 millions Italian to the polls	
ORIGINAL TITLE 30 milioni di italiani alle urne.	SUMMARY Administrative election: high turnout rates, close to 90%
PROVIDER Luoe / Italy	Elezioni amministrative: altissima l'affluenza che raggiunge il 90%
PRODUCTION YEAR 1956	
LANGUAGE Italian	
CLIP TITLE -	SERIES TITLE La Settimana Incom
PUBLISHER/BROADCASTER Incom	SERIES TITLE IN ENGLISH La Settimana Incom
BROADCAST DATE 31/05/1956	GENRE News

On the right side, there is a vertical list of related items, each with a thumbnail, title, provider, and language. The items include:

- Lewinsky Scandal - Reactions in Germany (Provider: DW / Germany, Language: German)
- Helmut Kohl - European politics (Provider: DW / Germany, Language: German)
- Children's right to vote (Provider: DW / Germany, Language: German)
- The Gauck office - cooperation agreement with Poland (Provider: DW / Germany, Language: German)
- The End of the Treuhand Agency (Provider: DW / Germany, Language: German)
- CDU/CSU - Controversy over social reforms (Provider: DW / Germany, Language: German)
- Putin's Comeback (Provider: DW / Germany, Language: German)
- Influential Lobby (Provider: DW / Germany, Language: German)

Video player

The most visible element on the page for videos includes basic controls (play, pause, draggable playhead, volume, fullscreen option). Time elapsed and the total duration of the video are also indicated.

Related items

Related items would be displayed with a thumbnail and title mainly. The type of item would be indicated with an icon (video, photo, audio, PDF, maybe also exhibitions and other works that contain or originate from the displayed item).

Clicking a related item would take the user to that item's page.

Item metadata, sharing and bookmarking

The top part of the element displays the title of the clip (only English title, original language title is shown below in small).

Terms of Use, social media sharing and bookmarking buttons are shown on the top right.

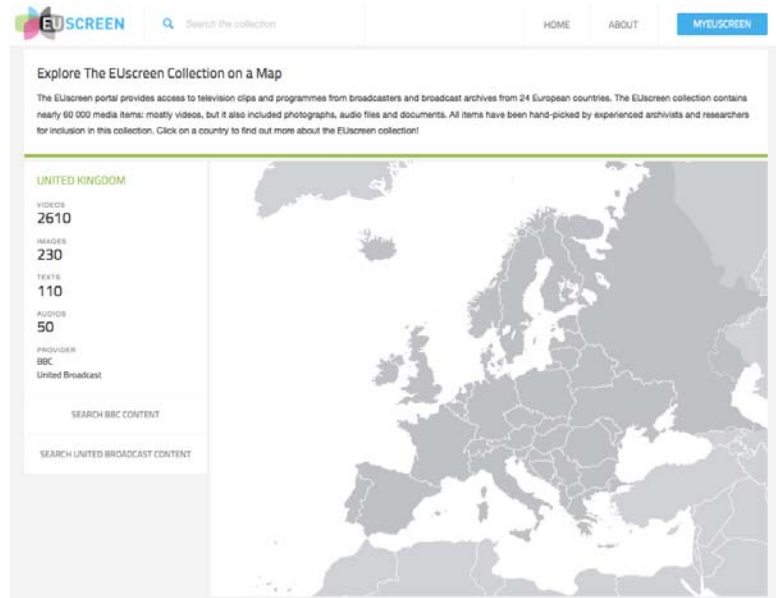
"More info" button reveals all the rest of the metadata.

5. ABOUT PAGE

The “About” page gives users a brief visual overview of the project using maps, infographics and other data visualizations. This communicates key information about the EUscreen mission, its partners and its work in a clear and attractive way.

The page contains a section on:

- Mission statement
- Illustration on map
- Aggregation to Europeana
- List of partners



EUSCREEN CONTENT SELECTION

The EUscreen portal offers free access to thousands of items of archive moving image material. It brings together clips that provide an insight into the social, cultural, political and economic events that have shaped the 20th and 21st centuries. As well as chronicling important historical events, the EUscreen portal allows you to explore television programmes that focus on everyday experience. EUscreen is also intended to be a resource for educators, researchers and media professionals and allow them access to audiovisual content from across Europe.

The EUscreen portal was built by a consortium of European audiovisual archives, academic and technical partners. It has been supported through two projects funded by the European Commission. The EUscreen project ran from 2009 - 2012 and its successor, EUscreenXL, began in 2013 and runs until 2016 under the CIP ICT-PSP support programme.

Map

The Map page for the 1st release is a simple version, which contains an interactive map that shows mainly EUscreen Content Provider countries and how much content is provided by each country. This page will be available only on the desktop/tablet UI, not on the mobile phone version.

AGGREGATION TO EUROPEANA

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[EXPLORE EUROPEANA PORTAL](#)



Aggregation to Europeana

The Content selection and aggregation page aims to give an overview of the EUscreen content selection policy, rich metadata and metadata aggregation to Europeana. This page is aimed more for researchers/experts that deal with audiovisual materials, as well as for the European Commission, as the key goals of the EUscreenXL project include the metadata aggregation for Europeana.

METADATA FACTS BEHIND EUSCREEN













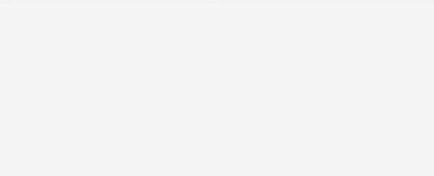
Partners

The Partners page aims to give an overview of the current EUscreen consortium and associate partners as well as offering information about how to become an EUscreen content provider.

EUSCREEN PARTNERS

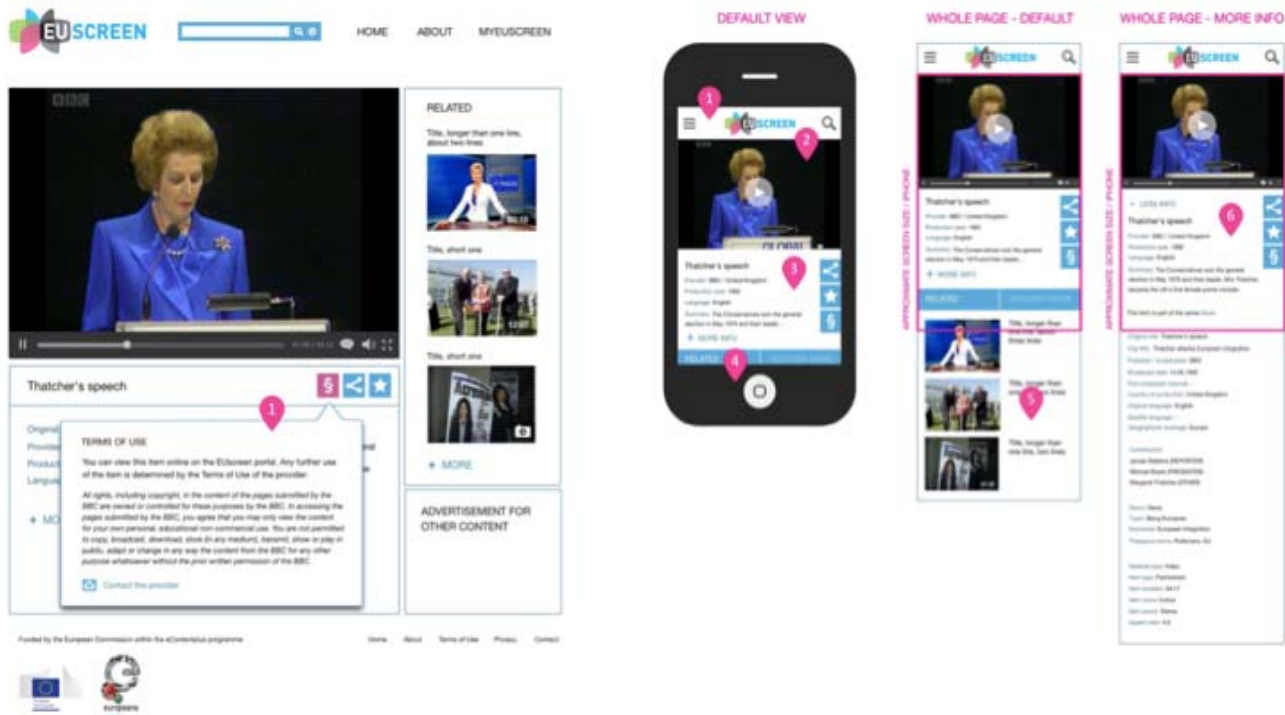
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PARTNERS
ASSOCIATE PARTNERS

6. RESPONSIVE DESIGN

Within the new release we put a lot of effort to convert the streaming infrastructure of the project to the HTML5 standard and make the front-end interfaces adaptable to the type of the device that is being used to access the portal. Below some picture on that illustrate this step.



1 (left) – Next to sharing and bookmarking, the UI provides a special shortcut to inform about the Terms of use for the object.

1 (middle) – The top menu might disappear in mobile devices. Swiping or tapping will bring it back.

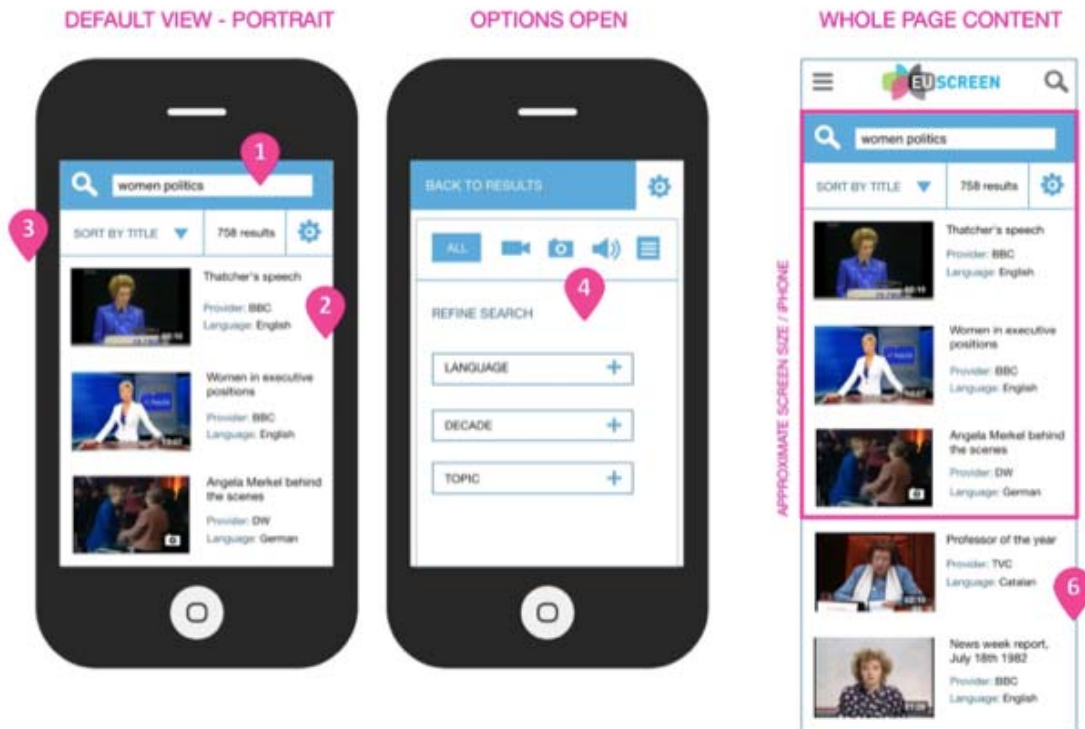
2 – The video area. Videos won't play automatically to protect from unintentional data usage.

3 – Key metadata elements like title, provider, year, language and summary. Option to get 'more info'

4 – Scrolling down will reveal area

5 – Related items view.

6 – The 'more info' that is scrollable after selecting the option.



- 1 – Search field for simple search.
- 2 – Result area for simple search.
- 3 – Swiping from left to right for going back.
- 4 – Options for filtering the search results by media type, language, decade and topic.
- 6 – Additional results are dynamically loaded displayed on scroll down.

7. DISPLAY ENGINE FOR AN ADAPTABLE USER INTERFACE

With the *Display engine* we collectively describe the methods used, that allow us to program the portal in a way that does *NOT* need to take all the different display technologies into account.

The main goal of the display engine used with EUScreen project was supporting the adaptable user interface and also be able to develop multiscreen applications on top of the EUScreen collection. In the following sections we will describe how we have updated the display engine and started with the development of the multiscreen toolkit.

A Springfield Multiscreen Toolkit

The display engine has evolved from last year's version into a new product called the Springfield MultiScreen Toolkit or SMT for short. In parts of the documentation we might refer to it as the toolkit or SMT. The toolkit has evolved as the project progresses addresses the following questions:

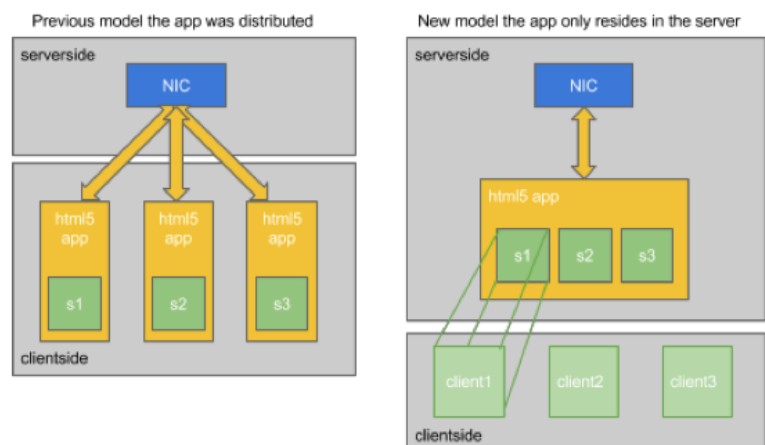
- How do we handle multiple devices (desktop, phones, tablets, TV and HbbTV)?
- How do we display the information streams in different modes?
- How do we handle multiple formats (single/multiscreen, group viewing)?
- How can partners in the project be involved in the development?
- How can we host applications built using the SMT in the cloud?

B Single and multiscreen - a unified model

Instead of having different solutions for single screen and second screen applications we developed a concept where an application is independent of how many screens are involved and can in fact dynamically react to changes in the amount and types of screens attached to the application. In concept the idea is simple but we found out it requires people to make a shift in the way they think about how they view these types of applications.

The big change is to go from the worldview that everybody opens/starts their own application to the concept that viewers join an application already running on the server (image 7). So in the case of the prototype we will deliver for the second year's review that means that there is only one application running and that people who open this channel app will join this application.

This sounds like a slight change but has huge effects on both what we can do and the technical implementation since now the application is able to see and interact with all the users in a unified way.



Server Side Application Model

From the developers point of view this means that

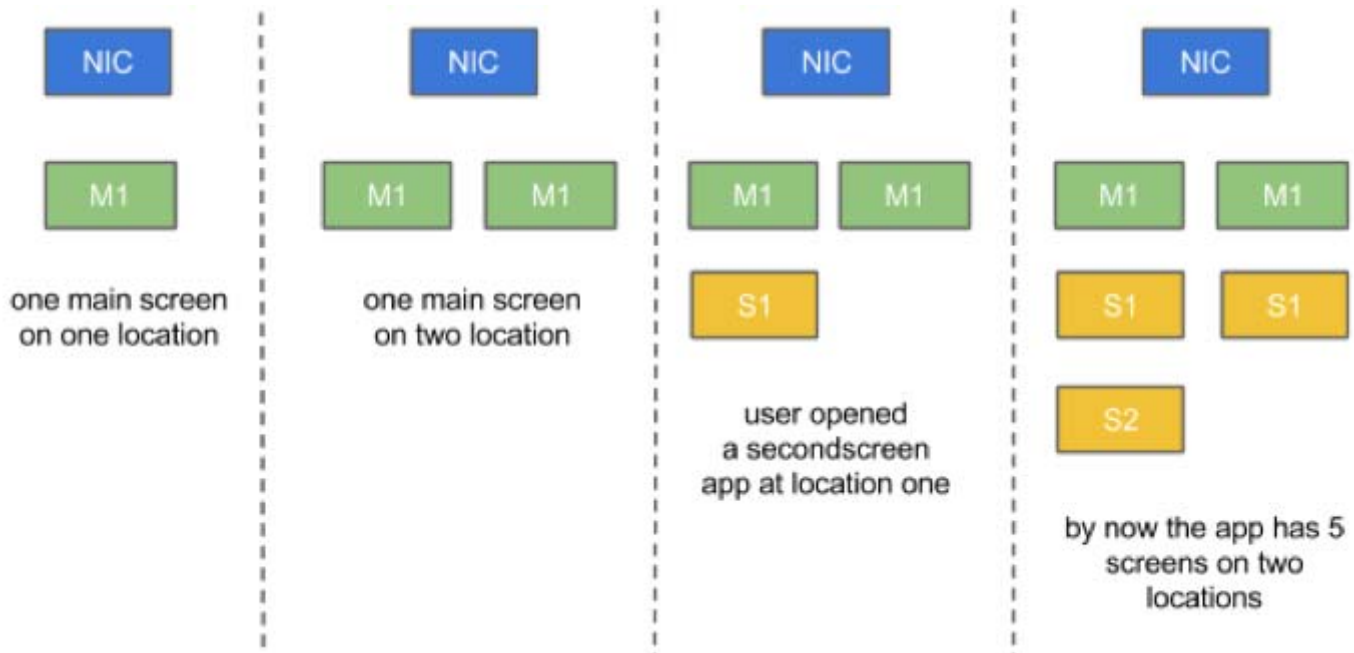
there is only one application that is always running (even if there nobody is watching) and that screens', users' and devices' changes are all just signals to this running application that it can and has to react to. In this way it is possible to share content on real time across different screens and devices. In a classroom or lecture theatre, for example, students will be able to see on their mobile device, tablet etc. exactly what the class leader or lecturer is demonstrating, as he or she is using the portal.

Creating this unified model for the developer does of course mean that the underlying framework (the toolkit) has to resolve many technical communication and synchronization problems since in reality the application is not fully running inside the server but involved many HTML5 browsers at clients, HbbTV clients, remote controls and even gesture based interfaces. From the unified application view this level of abstraction is actually the goal developers should not have to worry about how it's done but should be able to rely on the framework to resolve it.

C Multiple device types

It became clear during the development of the scenarios and during the course of the project that the ability to support mobile devices and tablets is now becoming an integral part of the project. To keep the system as flexible as possible we decided to focus on HTML5 based applications. But within this limitation we again feel it's important that we can have a unified view for the developer and that the framework handles as much as possible in matching the device capabilities to our internal model.

Lifecycle of an application instance where users and devices are joining

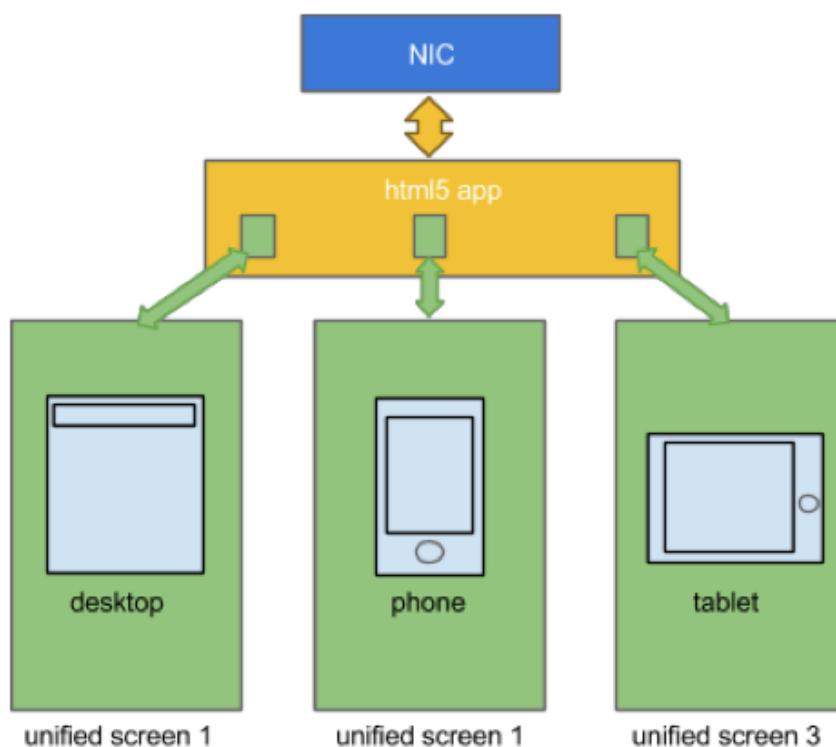


Traditionally one would use adaptive/responsive design using stylesheets to adapt to different screen sizes and browsers. And we use this on the lower levels inside the HTML5 clients but we also need a more generic concept on the application level. From the applications point of view each client (mostly browsers) are just seen as screens with capabilities and this is the abstraction level we want to support.

We distinguish between the following screen capabilities:

- size (pixel count and physical size)
- rotation (is the user holding it in landscape or portrait)
- stylesheet level (what options for visual styles do we have)
- passive or active (is it just a screen or also provides mouse, touch input)
- keyboard support (is there a fixed or optional keyboard)
- brand specific features (special buttons for example)

Each of the screens works with these capabilities as almost a contract (interface) between it and the system. Communication from and to these unified screens is either handled by the framework as part of the abstraction concept (so for example if a state of a button changes in the application the framework will change it on all the screens needed) or is done manually using a simple message back to the server side of the application.

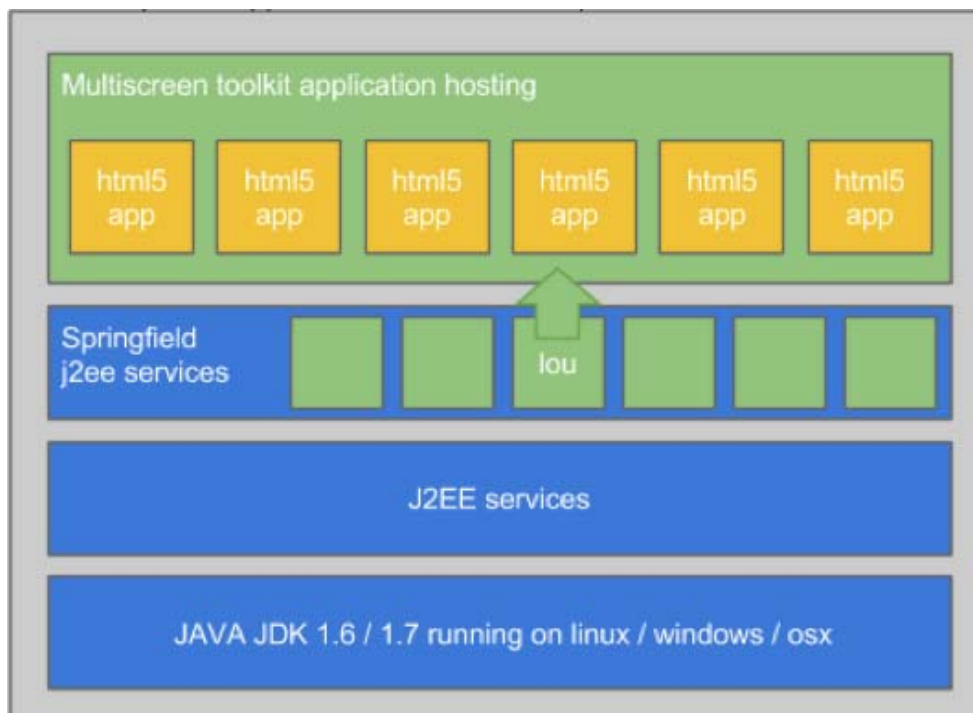


Communication from the application to screens

D Application development

With respect to the aim to create an open development environment we continue the concept of splitting the framework and applications, where as outlined above the framework takes away as much of the groundwork as possible to keep developing for these complex environments. As a side effect it became clear that it would now be possible for partners to also create applications without being involved in the development of the framework and more important the hosting platform we provide for these applications. The design we followed is the traditional model used for applets, servlets, restlets and other programming systems. The name we picked as base class is 'html5application'.

J2EE compatible application server overview



With most of these programming concepts also comes a development model, tools for packaging, distribution and hosting. Clearly it would be out of the scope of this project to invent such a tool chain for our applications so we decided to coopt a well known model that people already know and use in the community and added some special parts to make it work for us. The system we picked was the J2EE [3] programming model that is already used for the Springfield [4] system itself. Developers can program using any J2EE toolchain (we use Eclipse and Tomcat/Apache) use the normal compile and deploy tools (using the JAR and WAR standards).

The main difference is that unlike normal WARs that need to be deployed to a J2EE application server you now deploy the application to a newly designed deployment area inside a Springfield cluster. Partners can still decide in the future to host their own Springfield cluster but they now also have the much easier and better understood model of just writing applications and deploying them on the already available cluster inside the EUScreen project.

8. SUMMARY

In this deliverable we described the most important parts of the portal services. The description of the portal showed the currently operational pages and how they would look on desktops and mobile devices. In a major architectural rethinking, the traditional split of the application in server side backend services and client side front end services was shifted towards more functionality on the server side and an emphasis on abstracting out display capabilities on the client side. This leads to multi screen enabled applications and new possibilities for their use in education. As part of this architecture, the video player engine is as well capable of playing on multiple screens. Application deployment combines well established J2EE 'tool chain' techniques with a new application hosting platform to enable developers to quickly take advantage of the new architecture.