Enhancing Broadcast Television: An example of interactive TV services using mobile devices

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Abstract: The ability to access different technological platforms for information and entertainment increasingly fragments audiences and time of use of different media, so to see reduced interest in the advertising market for television media.

In this scenario, the challenge for traditional broadcasters, should be to turn this threat into an opportunity, by evolving its offerings to create synergies between the different platforms to make richer and more involving experience of the public.

This document describes an entertainment service, accessible from mobile terminals, which accompanies "in parallel" traditional television programming, offering additional services on the display of the most popular smart-phone (e.g. Blackberry, iPhone) and iPad.

The service has been designed and developed on a proprietary and patented named “X2TV®”.

Keywords: Broadcast, Blackberry, iPhone, iPad

1 INTRODUCTION

This document describes an entertainment service, accessible from mobile terminals, which accompanies "in parallel" traditional television programs, offering additional services on the display of the most popular smart-phone (e.g. Blackberry, iPhone) and iPad.

2 The objectives of the service

The fundamental aim is to offer the viewer a richer and engaging experience with a new way to enjoy more multimedia content (images, text, video, etc.) and interactive services related to television, still central in user experience. In this way you can create a closer relationship between television broadcasters and the user in order to know their tastes (with the participation in contests, polls and votes) and improve / adjust production of contents provided and distribute advertising messages profiled by type of user.

In summary the main objectives of the service are:

- Increase the loyalty of viewers / consumers of TV programmes.
- Increase the audience for programmes.
- Fostering awareness of programmes and stimulate word-of-mouth networking, through sharing common tools of the internet (social networking) and mobile.
- Attract interest from new advertisers.
- Create profiled customer base by acquiring personal and behavioural data.
- Collect feedback and suggestions from consumers / viewers, increasing their participation.

3 Description of technology

The technology consists of three main components:

- The client, used by the end users to enjoy the service.
- The server, for transmitting real-time parallel contents.
- Production tools for the selection and creation of parallel content.

Moreover, some additional modules can enrich the functionality of the system:

- Customer profiling, the profiling of users who access the service.
- Analytics, Reporting and analysis of data access.
- Programme scheduler for scheduling broadcasts.
- Advertising for the management of advertising campaigns.

3.1 The Client

The client application for mobile phones (iPhone, Blackberry, Android, ...) can provide additional information and services related to images broadcast on a television program. The client is able to synchronize with a remote server and receive real-time contextual information about what that moment is transmitted on the same television channel.

To confirm to the user the concurrency and context of the information submitted, the client superimposes additional content and services on frames taken from television feed, these frames are sent, together with the content in real time by the transmission server.

The additional content is presented as icons, texts, hyperlinks, images or video superimposed to the frame which they refer to (Figure 1).
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3.2 The Server

The server is a transmission system to send real-time contents to the clients. The server also provides the infrastructure which is used to aggregate, sort, distribute contents and products for providing access to interactive services. Part of the server is the back-end production, which has the capacity to transmit continuously updated content in real time with a close integration between tools for creating content and tools used for publishing and transmitting them.

The back end production is structured so as to aggregate and consolidate content and services in order to be immediately made available to the public. For each program, the system stores both the final content, which is ready to be transmitted, and the unfinished content to be used in production:

- Stop-image.
- Icons and related content.
- Timeline with the sequence of still images to be transmitted
- Multimedia content (web pages, audio / video files, links to external websites)
- Text content
- Interactive services

The structure of the Back-end Production is derived from the cinematographic sector and inherits many concepts from the tools and from the back-end production and from audio / video editing combined with the characteristic features specifically designed for this service. The system functions as the final container of programs produced, but also as a digital archive of contents to be used during the editing phase.

The Back-end transmission, or the Real-Time Push server is the core of the distribution system of contents in real time. Such server is based on high performance technology originally developed for online trading systems that can handle thousands of information per second.

The Back-end access deals with the distribution of the content and is the destination from which the client retrieves the contents.

3.3 Production tools

A production tool, designed and dedicated to this service, has been created in order to speed the editorial process and to better support the production workflow, the sharing and editing of content. The production tool directly recalls and derives from tools commonly used for the editing and for the audio / video editing and was designed to facilitate, by a user-friendly approach, collaboration and use from remote (Figure 4).

Here are some features of the editorial tool:

- Frames editing.
- Editing targeted pages
- Editing of icons and related links
• Timeline editing
• Interactive services editing
• Management of a centralized media library of images, links and notes
• Visualization of the timeline graphics
• Preview of frames and target pages

• Ability to upload video of reference to use as the basis of the timeline
• Capability to automatically extract the key frames from the video
• Connection with external graphics editor to modify images

• Workflow or approval over Frame, Contents, the Timeline and the entire transmission.
• Multi-User support.

4 Conclusions

During 2010 an experimental service will be launched, based on the solutions outlined above, coupled with a prime time program of RAI. The objective of testing is to verify the benefits both in terms of viewers loyalty and audience, the association of multimedia content and interactive applications to linear TV and advertisers’ interest about interactive advertising and communication products exploiting advanced interactivity to motivate high-value commercial activities (click-to-action).

Notwithstanding the interest and attention in spreading the application to a growing number of users and the support in the broader spectrum of platforms and terminals, at the moment the system is suitable for Apple technologies (3G iPhone, 3G, iPod Touch Firmware 3.0 or higher and iPad) Android (firmware 1.5 or higher, the HTC Dream HTC HTC HTC Hero Tattoo Magic Galaxy Samsung Samsung Motorola Spica Milestone) (RIM BlackBerry 9000 Bold BlackBerry 9700 Bold Blackberry 8900 Curve BlackBerry Storm 9500 BlackBerry 9550 BlackBerry 8310 Storm2 Curve BlackBerry 8520 Curve). Other terminals can be added, primarily on the roadmap the port on the Java platform, the support for new Nokia touch screen, the porting for Vodafone 360 terminals, the support for Windows Mobile platform are included.