

A viable approach to deliver television events, having multiple and selectable plots: MultiChannelStory.

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ABSTRACT

In this paper we describe an idea to develop interactive narrative with iTV. We propose a framework to deliver television event, usually dramas or cartoons, having multiple and selectable plots, using the DVB-MHP platform. We define this event as *MultiChannelStory*.

Categories and Subject Descriptors

H.5.1 [Information Interfaces and Presentation]: Multimedia Information Systems – *video, navigation*. I.7.2 [Document and Text Processing]: Document Preparation – *markup languages multi/mixed media, language and systems*

General Terms

Documentation, Design, Experimentation, Human Factors, Languages.

Keywords

Interactive narrative, digital storytelling, media description, interactive TV, digital TV, MHP – Multimedia Home Platform.

1. INTRODUCTION

Digital interactive television is an emerging technology providing new facilities for multimedia content delivery and the migration from analogue to digital TV is an essential change that is widely taking place in television world. It has been deployed in several countries, and represent a real revolution that has driven new challenges for broadcaster, content producers and software developers. This change has two main implications: an impressive increase in the capacity to broadcast more channels in the same bandwidth, and the considerable possibility to send software applications mixed with audiovisual contents, enabling the appearance of new market opportunities in the context of digital TV as it is described in [1]. On the other hand interactive narrative can easily seize the opportunity offered by the new media. It includes character perspective and follows dramatic

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patterns, however it diverges from these roots because interactivity allows viewers to change the plot, enjoying the broad variety of topics and point of views, which are assured by the fantasy of the authors that, at the same time, could present multiple perspectives of the same story [2]. It's clear that with the introduction of digital broadcast over satellite, cable as well as terrestrial networks, new possibility has been opened for software developers and interactivity, in particular, represents a clear shift in the paradigm of television applications. Mean-while a question arise: which kind of new services and interactive contents can be offered to the viewer? The main efforts of researcher are now focused on personalization, specially with EPG, we think that the art of interactive narrative, with its roots in film and theater could be another possible answer. In this paper we propose a simple approach to develop interactive narrative with iTV. We describe a framework to deliver television event, usually dramas or cartoons, having multiple and selectable plots, using the DVB-MHP [3] platform. We define this event as *MultiChannelStory*.

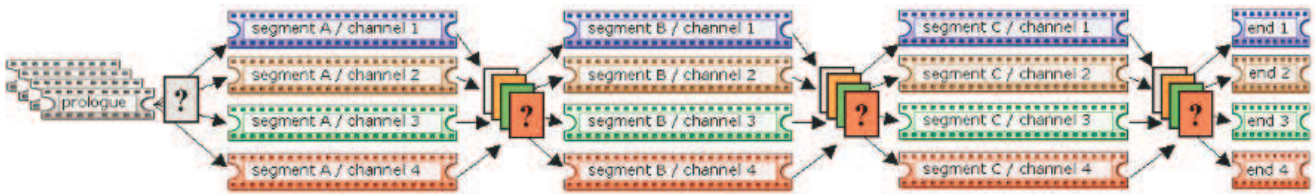
2. MULTICHANNELSTORY

A *MultiChannelStory* is a television program that could have multiple plots and consequently different conclusions, the viewer has the possibility to have his personal vision choosing between several stories linked together. It could be watched more than once in order to encourage the users to see coherent story with a different beginning, a different middle and a different end.

2.1 Explicit choices for the interactivity

There are some typical patterns in interactive narrative, for example every interactive story must address the way the user interacts with it, and also how it in turn responds to the user's actions. In particular the user can indicate his choices within the narrative [4], in two different ways: implicit and explicit. In method of explicit choice, the structure of the story provides specific points at which the user is faced with a limited set of options. The story often pauses while the user chooses, and then resumes based on the choice he made. Instead in implicit choice method, the user's choice-making is closely woven into the narrative and he is not necessarily aware of when he is making a choice or exactly how his actions, are affecting the story, this is the case of some videogames. Explicit choice is obviously, more limited than the other one but it is also the most suitable for real time broadcasting, characteristic of TV. Therefore the structure of a *MultiChannelStory* is based on the method of explicit choice.

2.2 Structure of a MultiChannelStory



In the Figure 1, is showed **Figure 1. Structure of a MultiChannelStory with four available channels** through four channels. After a short common prologue, each channel shows a different plot; in order to optimize the use of every single channel, a *MultiChannelStory* should be developed taking into account that a single event should have a plot with a clear meaning, but in particular a *MultiChannelStory* should be written considering the possible connections between all the available plots.

During the vision of a *MultiChannelStory*, a suitable MHP applications (an Xlet) provides a selection menu with specific items (explicit choices) throughout each advertising breaks, usually every 15/20 minutes. Depending on the user selection the Xlet tunes the corresponding channel where is broadcasted the plot bound to the selected item. A *MultiChannelStory* could be composed at least by two or more single events, it depends on the number of available channels and on the effort of the authors and TV production. The synchronization between plots is granted by the start time, the brake time and the segment time which are the same for every channels. The number of the possible plots is given by the formula:

$$P = [C]^{S+1} - IP$$

Whit:

P = Number of Plots

C = Number of Channels

S = Number of Segment (+1 considering the ends)

IP = Interdicted Plots

For the *MultiChannelStory* showed in Figure 1 we have $4^4=256$ combinations, in production phase the authors should choose which possibilities are interdicted.

For instance, if one of the characters of the story dies in “segment B – channel Y”, the user couldn’t select “segment C – channel K” or “segment C – channel X” where that character is hale and hearty, it automatically means 4 interdicted plots for the specific segment as it showed in the Figure 2.

The total number of interdicted plots is decided by the authors.

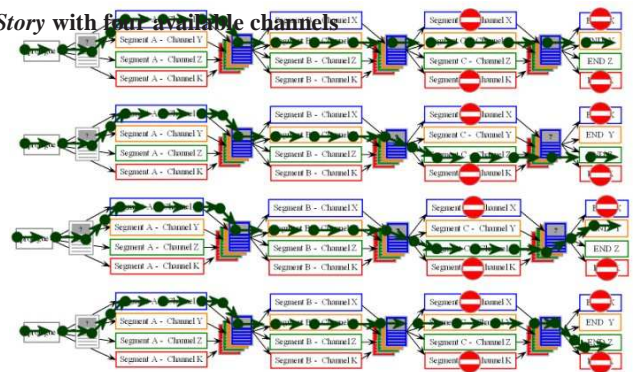


Figure 2. Example of possible plots derived from the second choice

2.3 Representation of the interactive narrative with XML

The structure of the interactive narrative, with specifications of links between channels and segments is described by an XML representation that also contains the URLs of the various DVB events, the items for the selection menu and the scheduled of the *MultiChannelStory*.

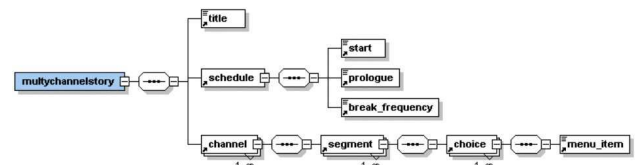


Figure 3. XML Schema of a *MultiChannelStory*

The architecture of the framework is composed by two tiers: local and remote. The local tier is the Xlet installed on the set-top box, it receives the XML representation of the *MultiChannelStory*, parses it, and generates on-the-fly the JavaTV and HAVi-UI [5] graphic components to provide the items of the selection menu and to manage the relative event-handling. The Xlet saves all the selections made by the user into another XML file that is sent back to the remote tier, after the last choice. The remote tier stores this information into a database. During the vision of a *MultiChannelStory*, the remote tier processes data derived by the user’s selections in order to provide some feedback to the viewer, like the items already selected or the number of remaining combinations.

```

- <multichannelstory >
  <title>A wonderful day</title>
  - <schedule >
    <start>21:00</start>
    <prologue>10</prologue>
    <break_frequency>18</break_frequency>
  </schedule >
  - <channel id="X" URL="dwb://13e.1b58.2cd">
    - <segment id="A">
      - <choice >
        <menu_item channel_id="X">Drive home</menu_item>
      </choice >
      - <choice >
        <menu_item channel_id="Y">Follow the girl</menu_item>
      </choice >
      - <choice >
        <menu_item channel_id="Z">Ask the policeman</menu_item>
      </choice >
      - <choice >
        <menu_item channel_id="K">Phone Suzie</menu_item>
      </choice >
    </segment >
    + <segment id="B">
    + <segment id="C">
  </channel >
  + <channel id="Y" URL="dwb://15a.1c34.4fd">
  + <channel id="Z" URL="dwb://11e.1f24.3ae">
  + <channel id="K" URL="dwb://10a.1f21.3ee">
</multichannelstory >

```



Figure 4. XML representation of *MultyChannelStory*

3. CONCLUSION

We are experiencing a simple approach aimed to develop interactive narrative with iTV using the DVB-MHP platform. It would be a possible solution to one of the critical points of the transition process from analogue to digital TV: the need of broadcaster and content producers to develop and deliver new services and applications, able to attract new viewers, with the minimal effort in terms of resources and costs. A future work will focus on the use of MPEG7 metadata to improve the experience of the *MultiChannelStory* vision, for example giving additional information concerning the scene or the related episodes showed in the other channels, allowing the authors to present multiple perspectives of the same plot.

4. REFERENCES

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