

# StoryML: Enabling Distributed Interfaces for Immersive Storytelling

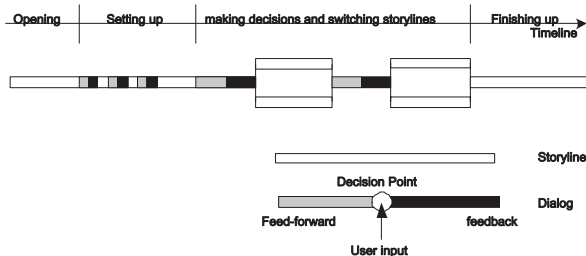
## Introduction

Emerging technologies, such as MPEG-4, DVB-MHP, SMIL, enable delivering interactive multimedia content to the consumers' homes. Using physical interface devices, a more natural environment in which real-life stimuli for all the human senses are used, will give people more feeling of engagement. The work presented here focuses on how to structure the system and content to support distributed interfaces for timed media applications. The carrier for this work is an interactive storytelling application (TOONS) for children (age 8-12) in the NexTV project.

Philips Research is the Project Leader of the NexTV project. NexTV is an IST project partly sponsored by the European Union.

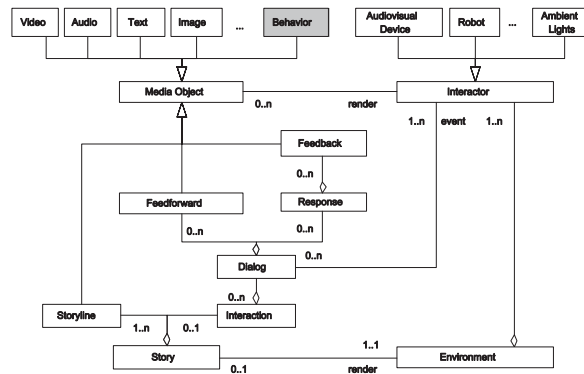
## Requirements

The figure below shows the conceptual model of TOONS. This model consists of storylines and dialogs. The storylines comprise the non-interactive parts in the video stream. The dialogs comprise the part in which the users make decisions to switch storylines. The application will play part of the media on and get user responses from some networked devices in the environment, such as a toy robot, ambient lights and surrounding audio devices.



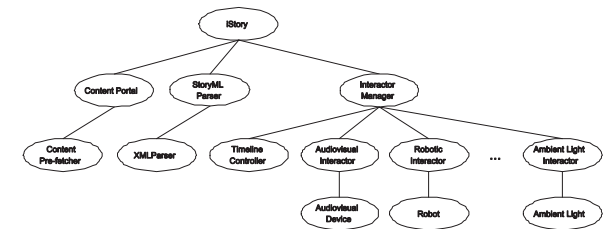
## StoryML

Existing open standards can not take more than one multimedia terminal into account. To account for this problem, an XML based language StoryML is developed. In StoryML, An Interactor is a self-contained entity which has an expertise of data processing and user interaction. An Environment is a dynamic configuration of many Interactors. Storylines, feed-forward and feedback components are all timed media objects. A timed media object a data stream which can be rendered by any of the Interactors. The figure below shows the object-oriented model of StoryML.



## Player

The following figure shows the structure of the StoryML player. For each physical agent, an virtual interactor is connected as its software counterpart so that media processing is decoupled from the physical devices. User interactions can easily switch from the physical device to its virtual counterpart or vice versa. The virtual interactors hide the differences among diverse yet homogeneous devices.



A StoryML player was implemented on a PC, a toy robot and a light. TOONS is then scripted in StoryML and played back by the player.

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**Jun Hu**  
j.hu@tue.nl

Dept of Industrial Design  
Eindhoven University of Technology

Media Interaction Group  
Philips Research Laboratories  
Eindhoven, The Netherlands



## Summary

StoryML plays an important role in presented framework. StoryML allows the separation of the content from the concrete physical devices. A StoryML document specifies abstract media objects at a high level and leaves the complexity to the implementation of the rendering interactors. StoryML supports the automatic mapping of the same document to different environments, or a dynamic environment.