



## Towards an authoring tool for personalizable multimedia content

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# Outline

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- Introduction
- Related Multimedia authoring system
- Objectives
- Our approach: authoring system
- Case study
- Conclusion

# Introduction

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- Motivation

- ⇒ To have the information (multimedia) anywhere and at anytime
- ⇒ Heterogeneity of multimedia services (VoD, Mobile TV, Digital Radio...)

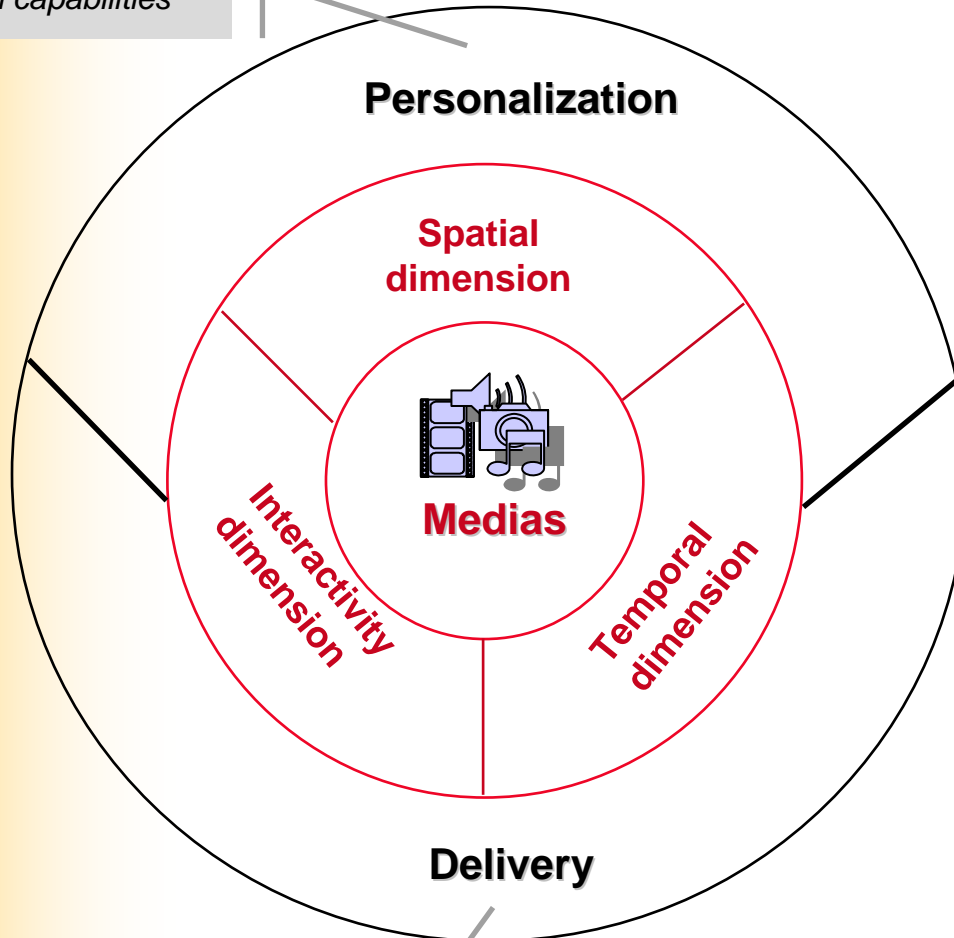
- Problem today

- ⇒ Customized information due to user's preferences, client capabilities and network
- ⇒ Heterogeneity and mobility of devices
- ⇒ Diversity of multimedia scene formats (XHTML, SMIL, SVG, MPEG-4 XMT...)

- Challenge identified by ACM MM Special Interest Group in 2005: Conception of authoring tools

# Introduction

- User preferences
- Terminal capabilities



Layers of multimedia presentation

Authoring Solutions ?

Layer of multimedia service

- Delivery mode (3G, Broadcast..)
- Network characteristics

# Multimedia authoring system

- We distinguish 2 types of authoring system:
  - ⇒ Authoring system for specific multimedia content

Language	Authoring Tool
SMIL	GRiNS, LimSee2
SVG	Inkscape

👉 *Limited to the generation of specific formats presentations*

- ⇒ Authoring system for personalized multimedia content

# Multimedia authoring system

- We distinguish 2 types of authoring system:
  - ⇒ Authoring system for specific multimedia content
  - ⇒ Authoring system for personalized multimedia content

Technique	Authoring System	Supported languages
Document Model	- LimSee3 (INRIA)	- SMIL, XHTML
	- MultiMedia for You « MM4U » (OFFIS-Oldenburg)	- SVG, SMIL, Flash, HTML
MPEG-21 adaptation ( <i>Adaptation Decision - Taking Engine</i> )	-KoMMA (Klagenfurt Univ.)  - MSSA (ENST)	- SMIL  - SMIL

- 👉 *Document Model does not cover all features of some multimedia presentation formats*
- 👉 *ADTE involves adaptation algorithms*

# Objectives

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- To bring a solution in order to allow the author create the personalizable multimedia content
- To help the author (or service provider) to decide the adaptation rules (processes) of the multimedia services

# Our approach



- This tool takes as input:
  - ⇒ The multimedia content prepared in advance by traditional authoring tool
  - ⇒ The Context descriptors

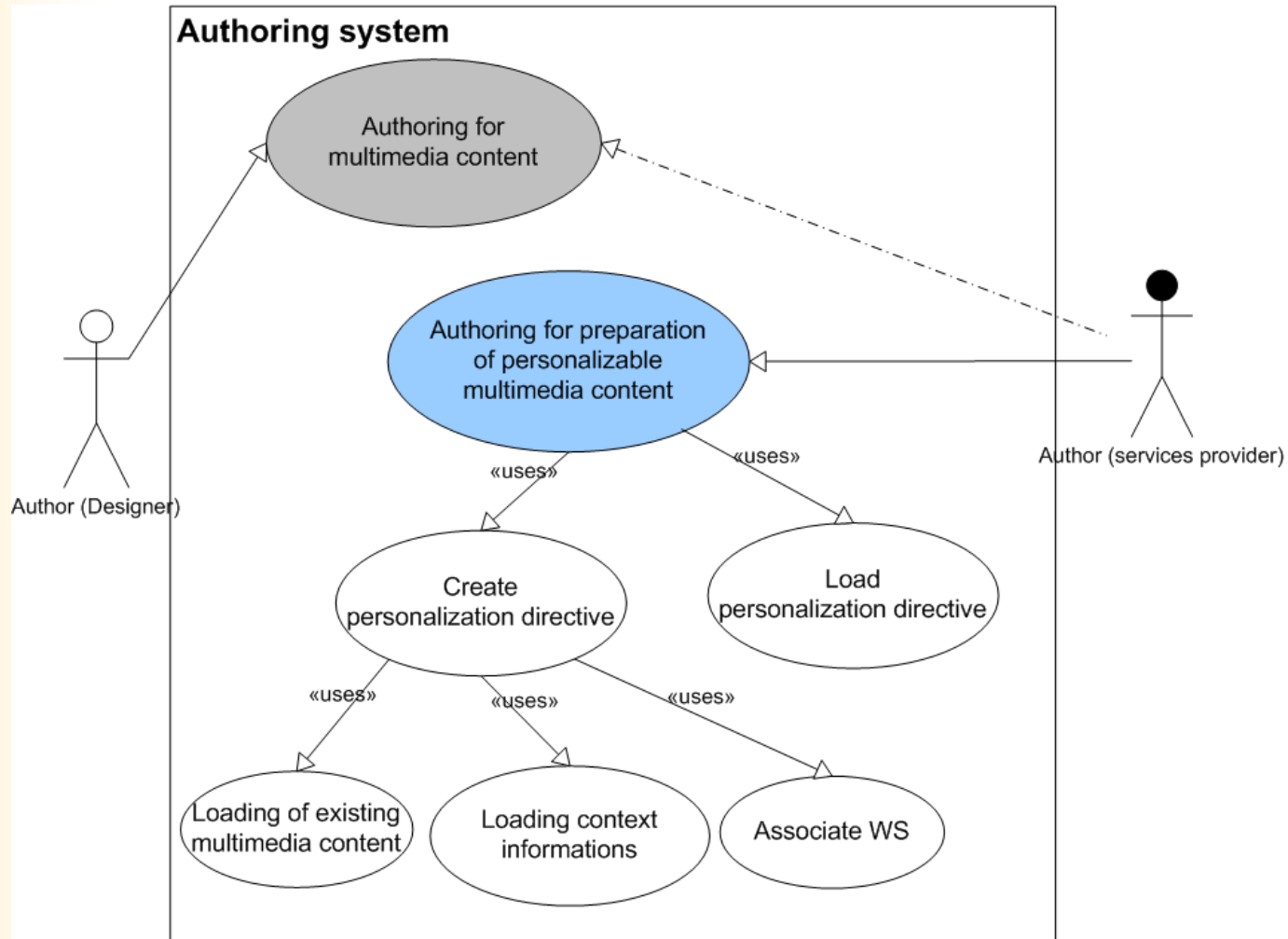
# Our approach

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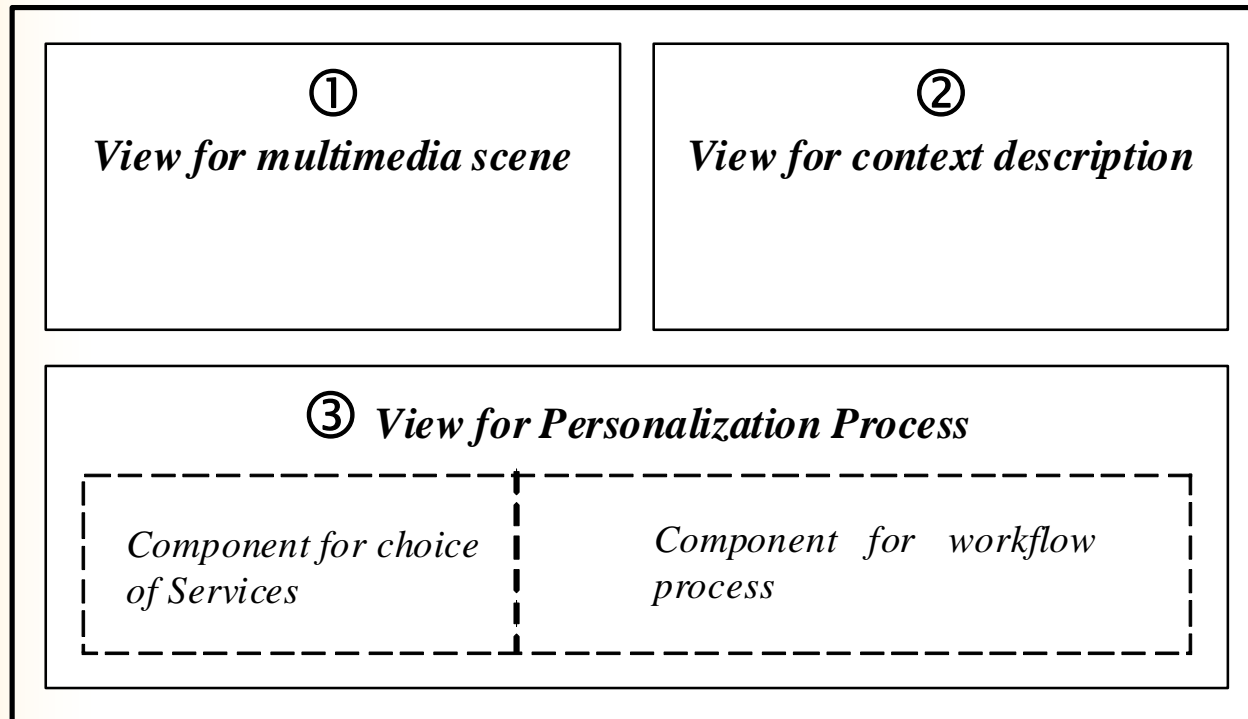
Personalization Directive= [Target, Context, Process]

- The personalization directive is given by a target, the context and the process:
  - ⇒ Target: media element (text, image, audio, and video) or one of three dimensions (spatial, temporal, interactivity).
  - ⇒ Context: criteria of personalization (user preferences, usage environment, metadata information on media elements).
  - ⇒ Process: personalization process (personalization plan) of the initial multimedia content, according to the couple (Target, Context).

# Authoring system

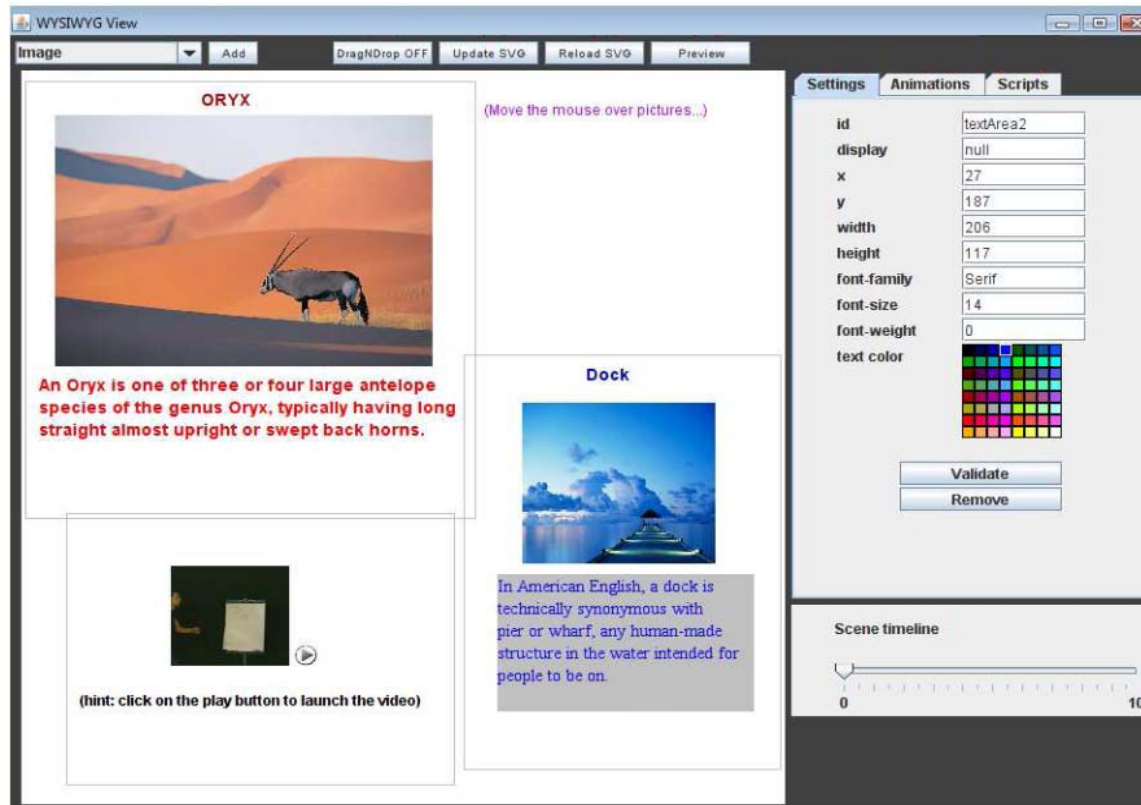


# Authoring system



# Authoring system

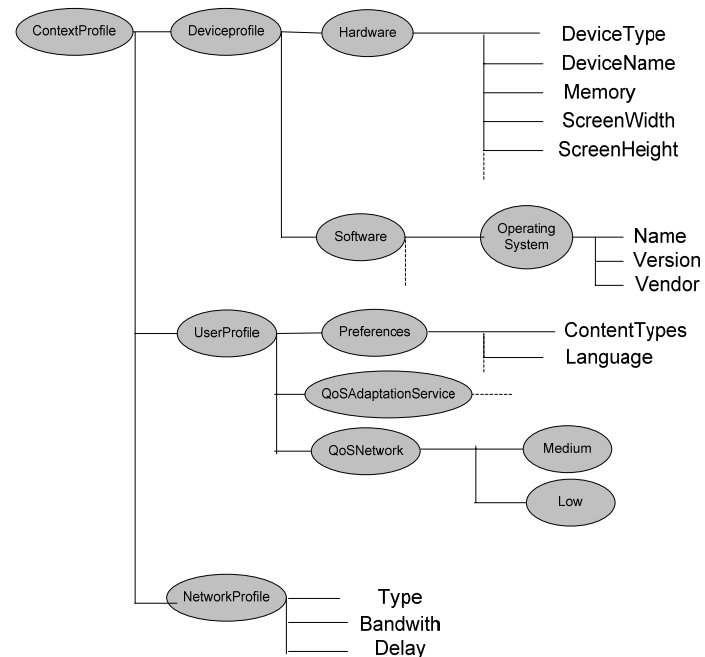
- View for multimedia scene: WYSIWYG view / Tree view
- ⇒ Load the multimedia scene (XML format)
- ⇒ The author selects the media object (image, video, text) that wants to be personalized



# Authoring system

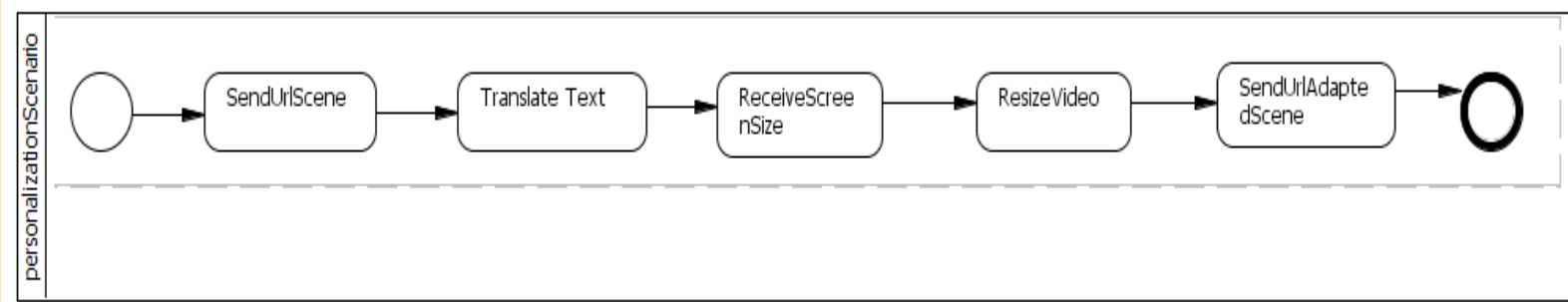
- View for context description: Tree view
- ⇒ Presents the schema definition of the context (user profile + device profile + network profile) ==> criteria of personalization
- ⇒ Enables loading the context descriptor (XML format)

## Structure of context profile representation



# Authoring system

- View for personalization process
  - ⇒ Graphical assistant for the workflow process
  - ⇒ Provides an easy-to-use graphical interface for the author in order to compose workflow of *adaptation/personalization* steps.
- Language of the workflow: BPEL4WS
  - ⇒ BPEL supports the structured programming constructions: if-then-else../ execute the commands in order (sequence, flow)

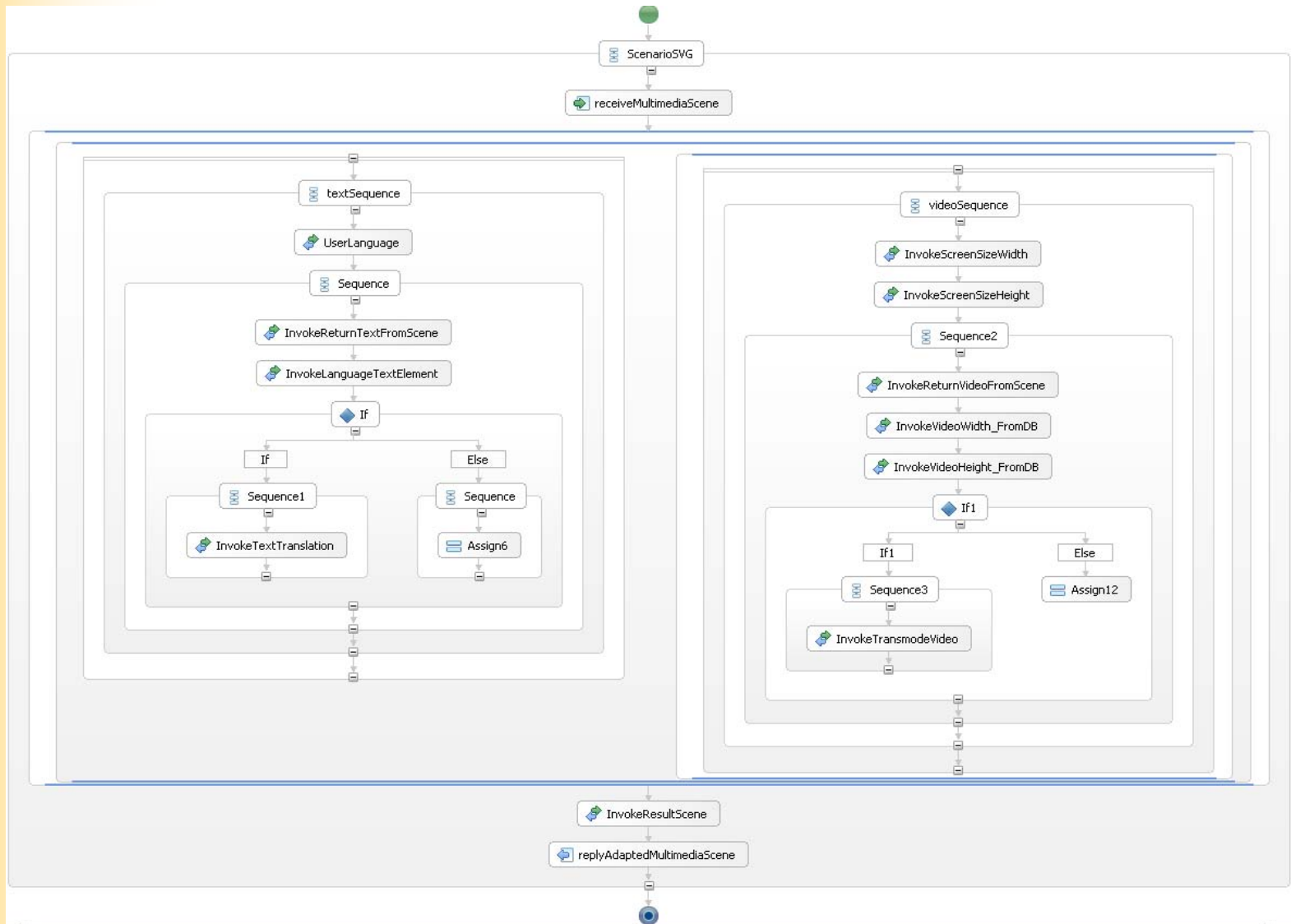


# Authoring system

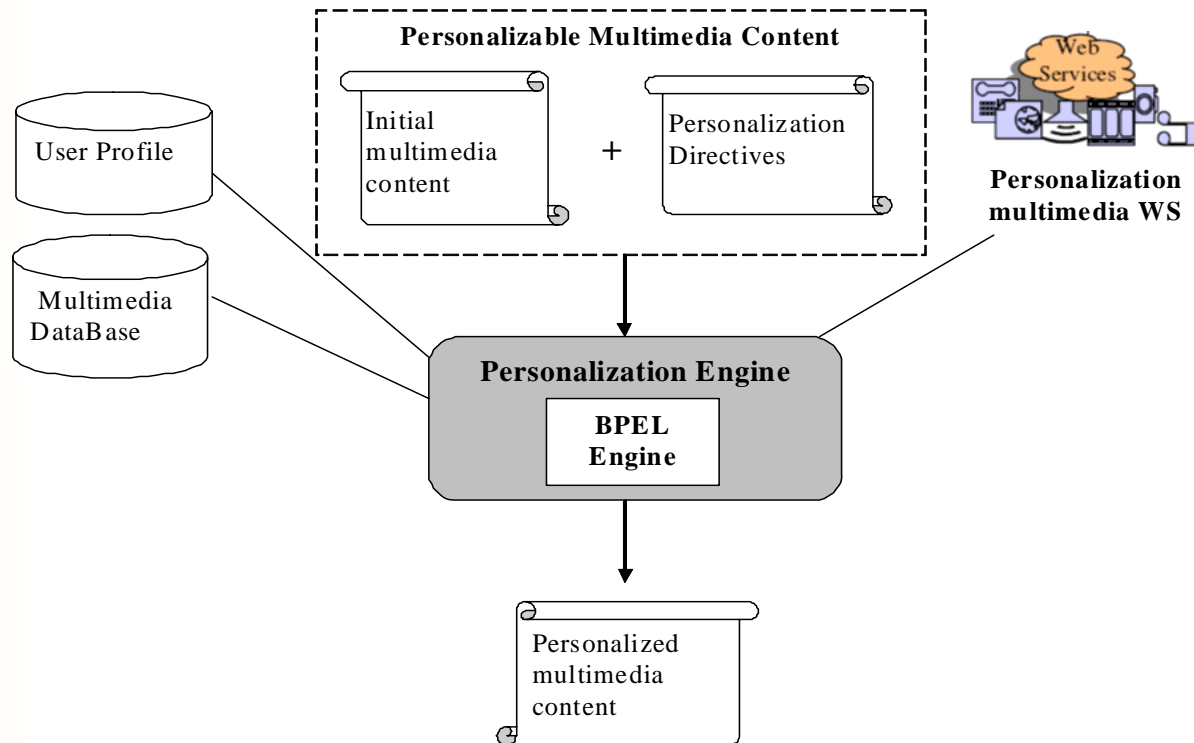
- Elementary operations of personalization are developed as web services
- WS provides a high level of flexibility in deploying and reusing the services

Web Service	Description
GetDeviceCapability	Return device information (screen size, software capabilities...)
GetUserLanguage	Return user language from user profile
GetSizeMedia	Return the size of video from multimedia database
TransformVideo	Resize Video (using FFMPEG Library)
TranslateText	Translate text (Google translator WS)

# Case Study



# Case Study



- Apache ODE (Orchestration Director Engine): execution our process

# Conclusion

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- Summary

- ⇒ New authoring architecture for personalizable multimedia content
- ⇒ Our system is independent of the language of multimedia representation

- Perspectives

- ⇒ Validation of Case study on taking account:
  - Medias semantic dependencies (Video + Title)
  - Interactivity dimension



Thanks for your attention