



A Content Transformation System for the Multimedia Home Platform

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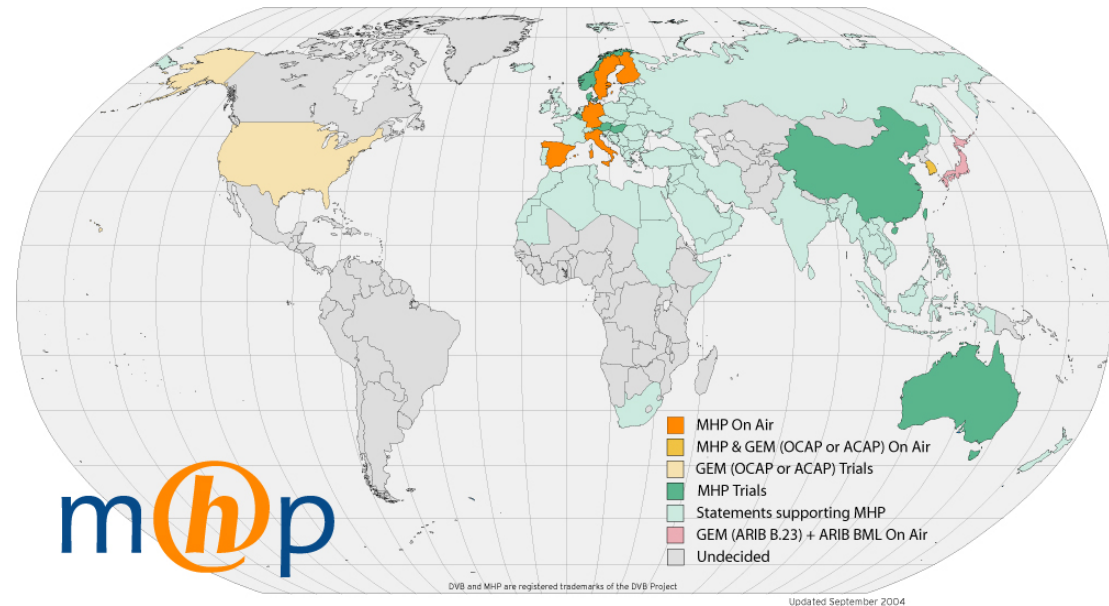
Introduction

- SVG²MHP is the result of a Bachelor project at the Hasso-Plattner-Institute for Software Engineering
- Motivated by a company active in the business of MHP (Multimedia Home Platform) content creation
- SVG²MHP translates SVG documents into Xlets (self-contained applications that run on the MHP)



What is MHP?

- International standard for interactive DVB TV applications
- Xlets – written in Java – are broadcast in parallel to video and audio streams
- applications are executed on end user's Set Top Box
- already adopted by many countries



The happy life of an MHP application developer

- Poor computing power and memory on Set Top Boxes
- Low rendering speed (120ms for a filled polygon with alpha blending)
- Restricted bandwidth
- Only Java 1.1 Graphics (no Java2D!) - additional rendering code necessary:
 - Transformations
 - Paths and curves
 - Grouping of graphics primitives

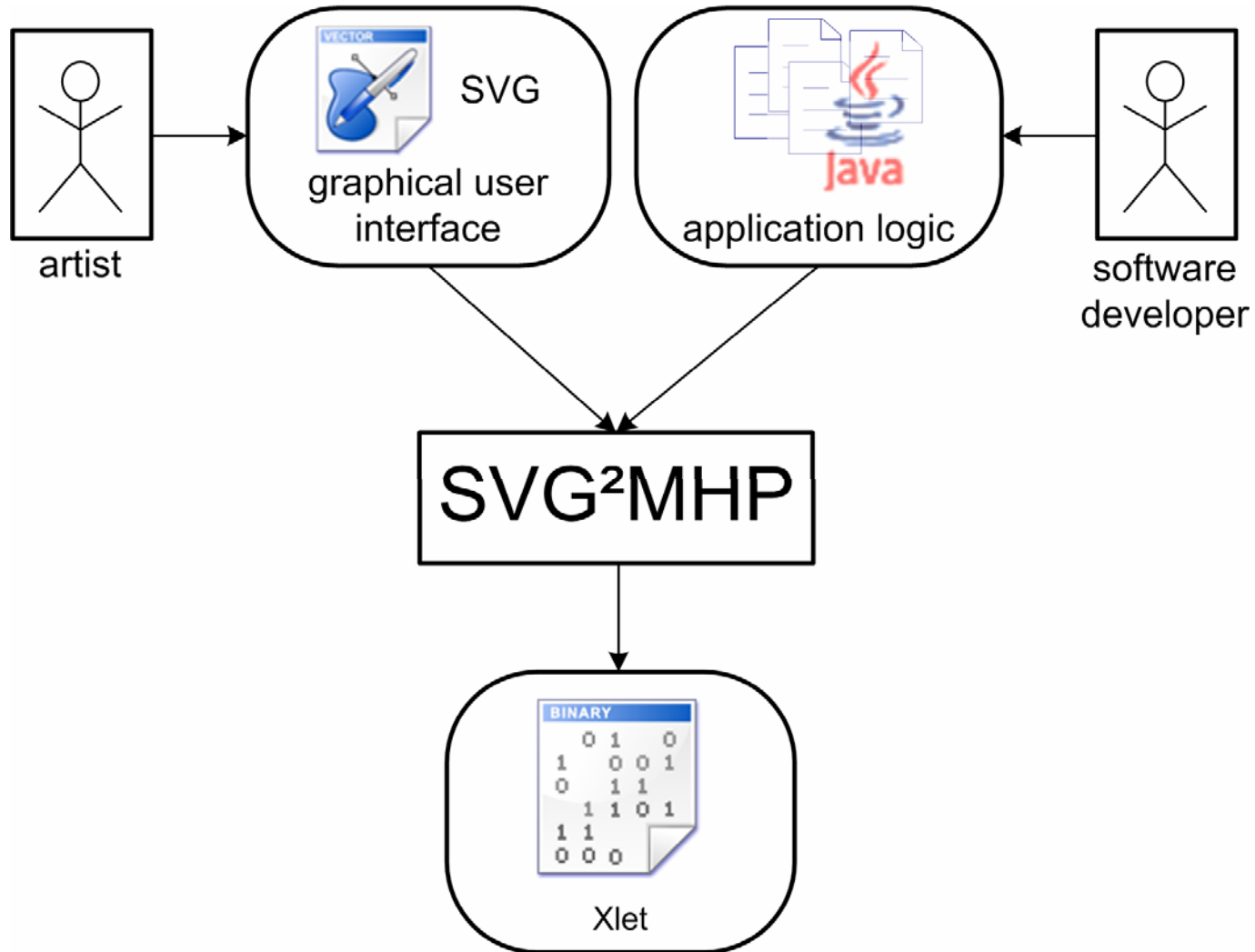


We couldn't adopt a pre-existent SVG viewer (such as Batik's Squiggle)

Motivation for SVG²MHP

- Special requirements of TV applications:
 - Rapid development
 - Bug free
 - Division of graphical user interface and application logic
- Hand-coding Xlets does not meet these requirements
- SVG²MHP addresses these issues:
 - Fast development with standard SVG drawing tools
 - Automatic code generation minimizes number of bugs
 - The application interface and logic are clearly separated and can be developed independently

Generating Xlets with SVG²MHP

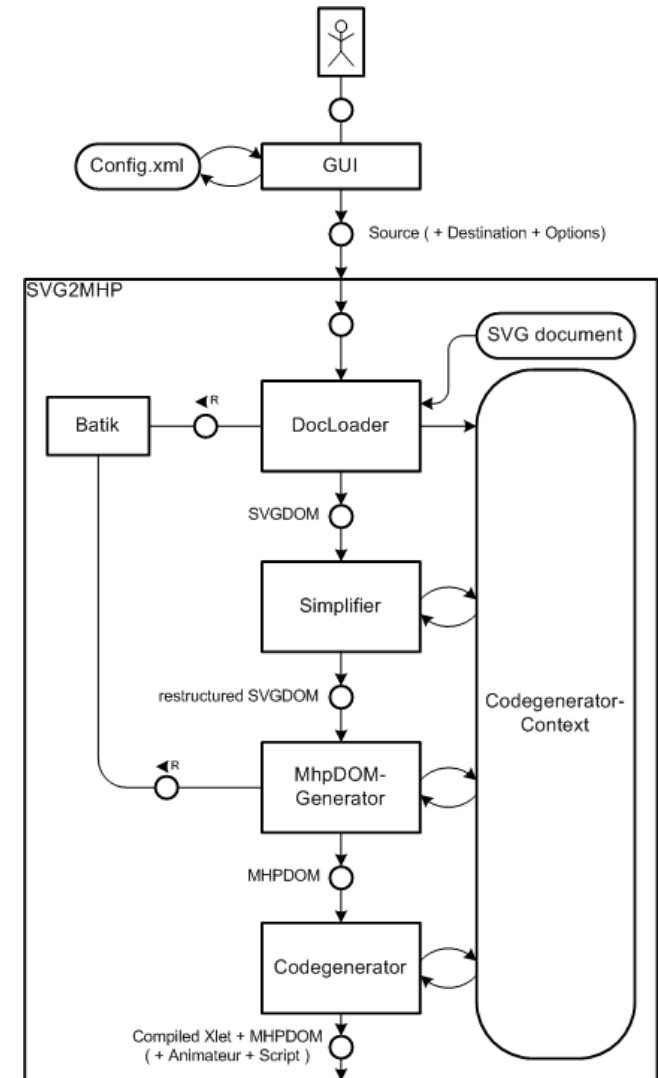


Why SVG as input format?

- Open standard
- XML based
 - Highly extensible through XML namespaces
 - Easily parsable by computers
 - Suitable for automatic content creation
- Supports all graphic objects necessary for TV user interfaces
- Numerous SVG authoring systems available
- Interactivity and animations through scripting and SMIL declarative animations

Architecture

- Uses Apache Batik's SVGDOM
- SVGDOM is reduced to supported elements
- Optional prerasterization step
- Lightweight MHPDOM is generated
- Xlet Code contains only structures necessary for displaying a specific SVG Document



Capabilities

- Aim to support SVG Tiny
 - Rendering support for basic shapes, text, raster images
 - No filters
- Declarative SMIL animations (partial)
- User interaction via remote control
- Scripting using embedded or external Java code
- MHP specific extensions (inline video stream, preliminary support for return channel and stream events)

Demonstrations



Thank you!