



The Rich Media Experience For Mobiles

The MPEG LAsER Standard



LASeR : The Standard for Rich Media Services

▶ Objectives :

- ↳ LASeR is defined as the standard format for mobile interactive streamable rich-media services
- ↳ LASeR has been developed by the same committee as BIFS to overcome BIFS limitations and upgrade the standard to the actual technology landscape

▶ Standardized as MPEG-4 Part 20

- ↳ **LASeR** : Lightweight Application Scene Representation
- ↳ **SAF** : Simple Aggregation Format

▶ Roadmap

- ↳ Final technical V1 spec. October 2005
- ↳ Final technical V2 spec. April 2007
- ↳ Final technical V3 spec together with SVGT1.2 later in 2007
- ↳ Final 3GPP DIMS spec in September 2007, using a subset of LASeR





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LASeR Features



LASeR Scene Description



▶ XML-based Scene Description

- Supports usual graphical functions : path, polygon, gradients, transparency ...

→ Animated Object Graphical Functions

- Transitions, fades, rectangular clipping

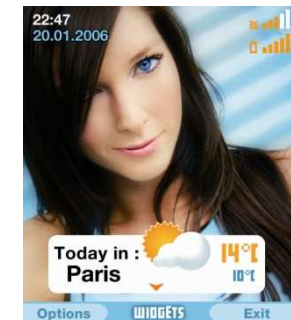
▶ AV Codecs Agnostics

- Audio (AMR, AAC...)
- Video (H.264, H.263, AVC ...)
- Image (PNG, JPEG ...)

→ Hyperlink, Switch, ...

→ uDOM

- Web friendly technology, for integration in browsers
- Allows java and EcmaScript to access the scene



A Fully Compatible SVG1.2 Scene Description Extension

LASeR additional Features: Optimizing Rich Media for Mobile

- ▶ Extends SVG with OpenType fonts
- ▶ Provide a simple way to underline text.
- ▶ Extend SVG with the SMIL media clipping module to allow VCR-like control of media.
- ▶ Provide a clipping by a pixel-aligned rectangle with horizontal and vertical borders, which is crucial to create UI widgets
- ▶ Provide the management of any input device to ease the content adaptation to any particular MMI and terminal.
- ▶ Provide an association of a precise timing model to any attribute.
- ▶ Provide a full screen mode for videos and images.
- ▶ Provide a means to stop non-rendered animations to optimize CPU usage.
- ▶ Easy import of other format (Flash, GIS...)
- ▶ Client/server data management
- ▶ Multi-server / Multi-stream / Sub-Scene support
- ▶ Integrates existing 3GP codecs



LASeR interfaces with OpenType font

Optimizing Interactivity and Mobile Data Delivery

► Dynamic Updates

- Very simple script-like command to realize major functionality at low cost
Insert, Delete, Replace, NewScene, **Add, Save, Restore, Clean, SendEvent, RefreshScene**

► Binary Format

- Bit efficient representation
 - Compression of Scene description
 - Compression of Scene updates
 - Fast data transmission
- Allow small footprint codecs
- Allow fast decoding and rendering



LASeR Feature: Optimizing reliability

- ▶ Provide grace full handling of packet losses
- ▶ Manage redondant data provided for error recovery purposes
- ▶ Extend SVG progressive download error handling mechanism to udpates and to pure streaming scenario
- ▶ Support tune in the middle of a stream (carrousseling)
- ▶ LASeR access unit are well formed:
 - ↪ At the LASeR ML level
 - ↪ At the binary level



LASeR: Optimized Network/Device Usage

- ▶ Device&network friendly update mechanism:
 - As command within the laser language for major functionality
 - Additional use of uDOM/DOM + Ecmascript to update the scene for complex modifications
- ▶ Rich-media transmitted on the same HTTP connexion
- ▶ Device Memory management



LASeR: Optimizing Multi-Device Implementation

- ▶ Self-contained rich-media engine (LASeR client footprint: 75k)
- ▶ Allows applications development through SDK
 - Dedicated (e.g. : Music Player, Adult Content portal, ...)
 - Generic (e.g. : Rich Media Browser, XHTML Plug-in, ...)
- ▶ Easy implementation (small footprint, OTA...)
- ▶ Targeting high end and low end devices



Eg: Available on
High and Low end devices



SAF : Streamable Packaging Format for Rich Media

▶ **SAF: Simple Aggregation Format**

- Based on MPEG standard synchronization mechanisms
 - Synchronize on a frame accurate basis
- New transport format for HTTP delivery
 - Allows download and progressive download (Fast track)
 - Packages Audio, Video, Image, Text... with the Scene

▶ **Realtime and Synchronized delivery of LAsER content**

- Scene Streaming
- Dynamic updates
- Progressive download
- Network agnostic packaging (2.5/3G, DVB-H...)

▶ **Benefits from existing transport / delivery layers depending on synchronization requirements**

- HTTP / File format: 3GP/MP4
- RTP Transport
- Flute



LASeR V2 and V3: An Evolution of LASeR V1

- ▶ V3: Finalising the alignment with SVG1.2
 - uDOM support
 - animation, prefetch, solid-color, textArea/tBreak

- ▶ V2: Add features:
 - Efficiency:
 - Content source switching management
 - Optimization hints
 - Support for complex service authoring
 - Scene format:
 - Text scrolling
 - Independence of the interaction design

- ▶ Ensure a good mapping to CDF
 - By reference
 - By inclusion



LASeR: Integration into the browser

- ▶ uDOM can be used with LASeR v1
- ▶ uDOM will be specified in LASeR v3 (with small extension)
- ▶ LASeR respects the XML processing model
- ▶ DOM Events are part of the LASeR specification
- ▶ Update through LASeR command and scripting are complementary and can be used in parallel without conflict
- ▶ LASeR is integrable into the browser:
 - ↳ As a plugin
 - ↳ Using the uDOM
 - ↳ According to the WICD Mobile CDF profile



LASeR, the Standard Format for Rich-Media on Mobiles

- ▶ LASeR, the Standard Format for Rich-Media Services.

More information at:

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Thank you for
your attention!

