

Cross Platform Development With GStreamer

Lessons from Songbird

Michael Smith, Songbird
October 26, 2010

Introduction

- About me
- About Songbird
- Status of GStreamer on Windows and MacOS
- What areas we need work on

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stephane_pompougnac
by meou9919 (11 months ago)



Songbird: Why use GStreamer?

- Needed cross-platform API for playback
- Open source
- Licensing needed to be fairly liberal
- Wanted something extensible for other media tasks
- Why not others (VLC, QuickTime, ffmpeg...)
- What *don't* we use it for?

Songbird – Why use GStreamer?

- Multiple codec vendors allows us flexibility in licensing
- Documentation: much better than most of the alternatives
- Regular releases: no need to pick a 'random' snapshot
- Other applications using GStreamer on Windows
 - Moovida
 - Tandberg

GStreamer: platform-specific parts

- Core is almost entirely platform neutral (glib)
- Most base elements are platform neutral
- Demuxers, parsers are too
- Sinks and Sources: the core of the issue
- Codecs: often platform specific

Sinks: Windows

- Windows
 - directsoundsink – Sound output
 - dshowvideosink – High-level Video output
 - directdrawsink – Deprecated and buggy
 - wasapisink – Modern Windows Audio API
 - d3dvideosink – Not upstream yet

Sinks: Mac and others

- Mac:
 - osxaudiosink – CoreAudio
 - osxvideosink – OpenGL, Cocoa
- Linux and other unixes
 - Audio: pulseaudio, alsa, oss, and more
 - Video: X, Xv, OpenGL, and more
 - Accelerated hardware sinks for embedded

Sinks: Linux and others

- Most of you are already familiar
- Audio: pulseaudio, alsa, oss, and more
- Video: X, Xv, OpenGL, and more
- Embedded: custom accelerated hardware sinks

Sources

- Windows
 - directsoundsrc
 - wasapisrc
 - dshowvideosrc
 - ksvideosrc
- Mac
 - osxvideosrc
 - osxaudiosrc
- Others
 - v4l2src, pulse, alsa, etc.

System codecs

- What is a 'System Codec'
- Why do we want to use them?
- Quicktime
 - Mac and Windows
 - Problems
- Directshow (windows)
 - Problems
 - Fragmented APIs – DMO, DirectShow, MediaFoundation, etc.

Building GStreamer

- Unix systems – Autotools
- Mac – autotools too (macports)
- Windows
 - Autotools – very poor. Songbird's approach
 - WinBuilds – More recent, works great!
 - WinBuilds done as a separate project – encourage them to be part of the core development group.
- Many Mac, Windows developers turned off by source-only distribution

API Issues

- No show-stoppers, but could be easier
- Mostly around having GStreamer as an application-local rather than system-global component
- Library configuration API via environment variables is a pain
- Documentation on using without GMainLoop is sparse

Conclusions

- GStreamer works well for us – and others
- You can help make it better
- Questions from the audience?

