Vimeo and the Open Source Community
Summary

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2. Architecture
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Contact

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Introduction
Vimeo – About us

Who are we?
• Top 5 Video Site.
• Content Creators.
• Multimedia Hackers.
• Creative Innovators.
**Vimeo – About us**

**What do we do?**

- Transcoding and video hosting at a high level of quality.
- Create educational and entertaining content.
- Video On Demand and tools for professionals.

- Beautiful HD playback
- Powerful privacy settings
- No disruptive ads
- Amazing supportive community
Vimeo – About us

Who uses us?
- Independent artists.
- Small to Large Pros.
- Businesses.
- Regular people!
Architecture
Transcoding

Server 1
- Gearman Daemon 1
- Video Worker 1
- Video Worker 2
- Video Worker N
- Audio Worker
- Mux/Combine Worker

Server 2
- Video Worker 1
- Video Worker 2

…

Server N
- Gearman Daemon M
- Video Worker 1
- Video Worker 2
- Audio Worker

Audio Encode

Chunk 1

Audio Encode

Chunk 2

…”

Chunk N

Combine and Multiplex

Video Upload - Metadata Collector (Caching) - Job Scheduler

Gearman Daemon 1

Gearman Daemon 2

…”

Gearman Daemon N
Audio and video are encoded separately, and then muxed.
Software in action

A Few Awesome Media Projects

• Gearman – Great distributed job server with a simple protocol usable from any language.
• FFmpeg/Libav – First class multimedia toolkit.
• x264 – The Best H.264 encoder around.
• L-SMASH – Our preferred library for MP4 creation and demuxing/info. Rigidly strict to the specs, nice upstream developers, practical and realistic, has fewer LoC than the space shuttle.
Software in action

A Few Awesome Media Projects

• **ffms2** – Offers frame-accurate, and pre-indexed seeking using the libav* libraries, and has an easy-to-use API.

• **FDK-AAC** – Fraunhofer AAC encoder.

• **MediaInfo** – Very good probe tool.

• Many packages for **Go**.

• Many more!
Future Software

- **Daala** – Doing interesting, possibly great things. Definitely worth keeping an eye on.

- **DASH** – Using a Vimeo-flavored L-Smash and lavf combination.

- **x265** – Shaping up well, still not useful in production yet.

- **Opus** – Now available in MP4RA.

- **4k** – !
FOSS
Open Source Policies

Long Term Maintainability and Benefits

• Going against the trend, we do not use Open Source software in bad faith; we contribute bug fixes, features, and at-scale-testing back, and do not violate licenses.

• 3 of 4 members of the transcode team are or were upstream FFmpeg/Libav developers, and all are active open source contributors.

• It is not viable in the long term to fork internally, maintenance-wise, or feature-wise.

• Many things we have needed have been gladly implemented by non-employee Open Source developers who appreciate our contributions and resources.
Collaborating with the people whose code you are benefiting from has benefits for everyone. Being a jerk benefits nobody.
**Good Practices**

- Work with your upstream.
- Report bugs and send patches.
- Release your proprietary software.
  - ✓ *When it makes sense.*
  - ✓ *With an appropriate license.*
- Get your code across as many projects as possible.
- Accept patches.

**Bad Practices**

- Ignoring bug reports.
- Using an Open Source repository as a code dump.
- “Fork and forget”.
- Claiming ownership of a project.
- Complex CLA.
Conclusions
Advice

• Do not be afraid of using Open Source software.

• Do not be shy of admitting you use Open Source software.

• Do not ignore your Open Source community.

• Do not get involved in Open Source politics.
“Not everything that can be counted counts, and not everything that counts can be counted.” - Albert Einstein
Thanks for your attention
Further resources

http://making.vimeo.com/post/101852060824/on-the-fly-image-generation-architecture-and


https://github.com/vimeo/

https://github.com/VFR-maniac/Mp4Opus