Automatic synchronisation of unsynchronised digital recordings

Linux.conf.au multimedia and music miniconf 2014

Jonathan Woithe (jwoithe@just42.net)
1 Talk outline

- The problem
- Post-production resynchronisation
- Towards an automatic solution
- Complications
- Future plans
- Acknowledgements and links
2 The problem

- Recording with multiple digital recorders with no common clock: clock drift
- See “That AV Syncing Feeling” presentation (Jonathan Woithe, LCA2010 Multimedia and Music Miniconf)
3 Post-production resynchronisation

- An insight: clock differences mean that a given data stream is not sampled at the rate it claims when measured relative to the chosen master recorder’s sample rate

- Key concept: synchronisation issues can be fixed through resampling
4 Towards an automatic solution

- Address audio only
- Implement using audiosync utility as test bed
- During recording, generate simultaneous marker sound in all audio recorders
- Audiosync finds markers and sets resampling ratio accordingly
- Quicker than manual identification of common events
5 Complications

- Audio-only: video can’t easily be resampled
- Current form of marker (a clap) is not robust
- Hard to unambiguously identify the marker in noisy audio
6 Future plans

- Devise a more robust marker detector
- Generate a better marker signal
- Implement a marker signal distribution system
7 Acknowledgements and links

7.1 Acknowledgements


7.2 Links

- Audiosync source:

Contacting me:

- jwoithe@just42.net