From manual analogical recording to RadioCo

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CUAC FM 1st studio - 1996

Our History in 2 minutes
CUAC Association

CUAC FM 103.4

- Founded in 1996
- Community Radio
- +430 shows
- +1000 members in 19 years.
- Volunteer management

Our Technological milestones

CUAC FM 103.4

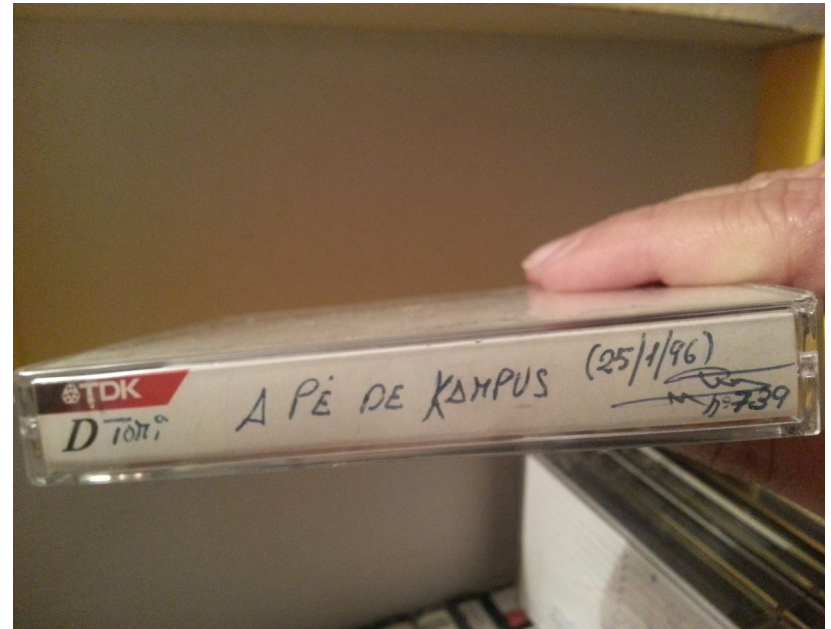- 2004 - Streaming
- 2011 - Mobile Apps
- 2015 - RadioCo

From analogical to digital (1996-2004)

The old times: radio taping

- No community recording protocol.
- Every show recorded on tape at home using an FM receiver.
- Where are those tapes?

Hundreds of tapes still in analogical format

Second period: minidisc

- First digital resources.
- Recording was done at Radio Station on tape.
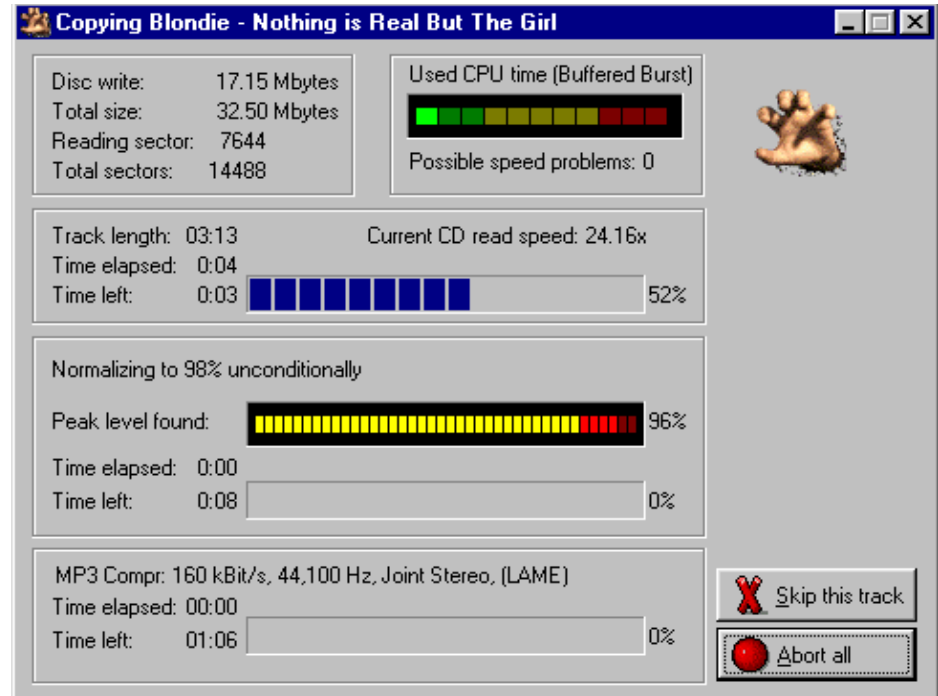- Who has a minidisc nowadays ?

The first computer at CUAC FM (2004-2008)

The beginning of the digital era

- First audio streaming on the Internet. Legal recording 24h/7d
- Audiograbber for show recording :-(
- Storage issues.

100% digital strategy (2008-2014)

Digital Strategy: the challenges

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- Shows were not puntual.
- We use ZaraRadio for broadcasting.
  - We wanted to re-broadcast recorded programs.
- How to start podcasting our radio shows?
- How to organize the audio files arquive?
- How to deal with storage limits ?

Digital Strategy: the solution (I)

- Automatic recording system v1.0
  - Automatic recording and uploading files to the radio station web server with FTP client.
  - Audio recording stops at 57' (we are punctual now!!!)
  - Filenames schema based on weekday and time.
  - Files are online just after the show.
  - Management of re-broadcasting using ZaraRadio.
  - Schedule configured in .txt files
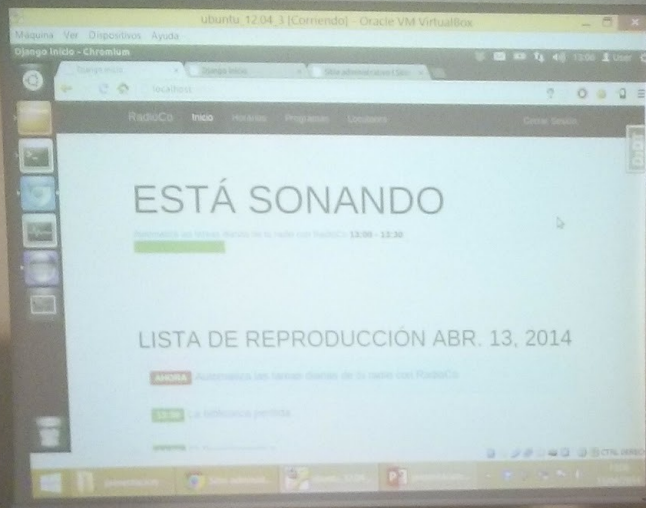 - Time synchronization among computers (NTP)

Digital strategy: the solution(II)

- CUAC FM has its first global strategy to store the audio files.

- Audio files are stored in a web server organized by day and time period.

- The recording system is isolated from the web. Podcast generation is not automatic. Podcast are uploaded by each show using external services. (Ivoox, Podomatic, ITunes)

Digital strategy: the solution (III)

- 2014 - Automatic recording system v2.0
  - CUAC FM migrated all its system to a new server with 6TB of RAID storage and a lot of CPU power.
  - We started to record the streaming in higher quality. (64kbps mono → 192kbps stereo)
  - We deployed a new system, that cuts the streaming file dumps backups at 57' when a live show is scheduled and clones the v1.0 system behaviour.
  - We manage to synchronize all our systems with NTP.

The Age of RadioCo (2015-)

RadioCo: Timeline

- 2013 - A Degree Thesis in Software Engineering at University of Coruña was proposed to develop a software to manage live shows recordings.
- 2014 - Iago Veloso developed RadioCo as his Degree Thesis in collaboration with CUACFM.
- 2015 - CUAC FM deploys RadioCo.

RadioCo: objectives

- We needed a software that:
  - makes easier the programming work. They update the schedule every month → web, apps, automation….
  - publish the information of the shows and the timetable of the radio broadcasting.
  - manages the show recordings and enables automatic podcasting (rss)
  - is Free Software and works fine in low cost hardware.
  - can be managed using a web browser.

RadioCo: on air now

Radioco website:
http://radioco.org/

Cuac FM RadioCo Deployment
https://cuacfm.org/radioco/

RadioCo is Free Software under GPLv3 license. You can use it, distribute it, modify it and share your modifications with the community.

Source code:
https://github.com/iago1460/django-radio
https://github.com/iago1460/radioco

RadioCo: weekly schedule

Manages:
- live shows
- re-broadcasting
- external shows

Show info and podcast available of previous shows

RadioCo: shows information

- Each show updates their description and logo.
- Management can be delegated to different users with different roles in in RadioCo.
- The members of the show can update their personal information and their role in the program. We want to show who is involved in our community radio.

RadioCo Recorder:
Low cost specs

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- RadioCo recorder connects every hour to the web application services and downloads the schedule.

- It records live shows at the defined schedule.

- Encodes and compresses the audio in MP3 or OGG.

- Tags the audio based on the show information.

- Uploads the file to the web server.

- Notifies the server to link the new audio to the podcast RSS and updates the show information.

RadioCo Recorder:
Low cost specs

Sample hardware

- Raspberry Pi 2

- U-Control UCA 222

- Ethernet connection

- Less than 80€

- Low power (0.5W 1.5W)

- Runs on GNU/Linux

RadioCo: Demo

Demo

Future projects

Work in progress thanks to our collaboration with the University of a Coruña (Degree Thesis)

- System for statistics generation and analysis for an IceCast streaming server.

- Digital jukebox for social radio station.

- Internet radio automation software to make syndication easier. (recording audio streaming from internet)

- Membership management for a Community Radio.

Questions ?

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