

# The early days of liquidsoap

David Baelde

Liquidshop 1.0

## Geek Radio (2003)

Two computer science students at ENS Lyon,  
with first-time access to unlimited high-speed internet,  
and a common passion for a slightly elitist programming language.



No user scripts, just streaming compressed files to icecast.

# Savonet (2004)

Expanding into a school project involving 20 students. . .

## Liquidsoap

- ▶ A streaming model allowing sample and track manipulations
- ▶ Access local/remote files, playlists, user requests, queues
- ▶ Basic user scripts, telnet interaction

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## Liquidsoap

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## Other components

- ▶ OCaml bindings
- ▶ Audio file discovery and indexing over network
- ▶ IRC bot

*Il vaut mieux mobiliser son intelligence sur des conneries  
que mobiliser sa connerie sur des choses intelligentes.*

*Jacques Rouxel*

# The OCaml programming language

## Some sociological characteristics

- ▶ Originally a French academic language, commonly used for compilers, scientific computing, proof assistants
- ▶ Used for teaching in French classes prépa., and worldwide
- ▶ Growing use in industry

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## Some technical characteristics

- ▶ Functional, imperative, OO...
- ▶ Rich static types
- ▶ Compiles to fast native code
- ▶ Garbage collected



## Two serious changes

- ▶ The student's radio of Centrale Paris engineering school, only running as a netradio but public and legal.
- ▶ Romain switches their system to liquidsoap, and quickly becomes part of the team.

## Evolving liquidsoap (1/2)

2004	0.1	school project release, not functional
2005	0.2	basic scripts, ML-like syntax
2006	0.3	new syntax, higher-order, transitions
2009	0.9	external encoders, experimental video
2011	1.0	heterogeneous contents, clocks
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David Baelde and Samuel Mimram,  
*De la webradio lambda à la  $\lambda$ -webradio*,  
Journées Francophones des Langages Applicatifs, 2008



David Baelde, Romain Beauxis and Samuel Mimram,  
*Liquidsoap: a High-Level Programming Language for  
Multimedia Streaming*,  
SOFSEM: Theory and Practice of Computer Science, 2011

# Evolving liquidsoap (2/2)

## Coding for the real world

- ▶ Incorporating tons of technologies: LADSPA, LO, OSC, FDK-AAC, FFMPEG, Harbor, RTP, Websocket, SRT, etc.
- ▶ Interfacing with radio automation, loggers, etc.
- ▶ Robustly handling failures, disconnections, etc.

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## Communicating with users

- ▶ Automated documentation, tutorials
- ▶ GNU / Linux magazine France (2007)
- ▶ Answering questions on the mailing list

# New people, new ideas, fun memories



- ▶ Balbinus & Gilou, who were working with FM radios
- ▶ Explaining PL concepts to Subflow netradio
- ▶ Dolebrai netradio for libre music with Frank Rousseau
- ▶ Artists stream silence from Paris to Tokyo and back, and listen to the errors.
- ▶ Some guy records birds on a desert island, streams to the mainland when possible.
- ▶ Sourcefabric's Airtime developer Martin Konečný worked a lot with us, had us invited to their ON2 festival in Berlin, 2010.

# Conclusion

It went quite well :) and it still does!

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It went quite well :) and it still does!

- ▶ a not-too-crowded niche, some nice ideas, a lot of work
- ▶ **radio still feels like magic** despite Spotify, podcasts, etc.

A lot of subprojects are dead, e.g. liGUIdsoap and some audio libs.  
It is better to allow other projects to interface with us.

- ▶ A more mundane advantage of higher-order scripting.

I used to worry a lot about the lack of contributors.

- ▶ It is lucky that Sam and **Romain** are still active.
- ▶ Contributions through scripts should be easier.