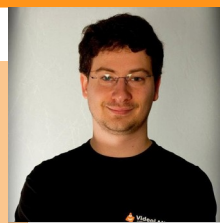
# VLC & Qt

*Jean-Baptiste Kempf*

*Thursday, September 10, 2020*



Jean
Baptiste-
Kempf
•VLC•
I'M EXCITED TO ANNOUNCE THE RELEASE OF VLC 1.0!

VideoLAN
ORGANIZATION

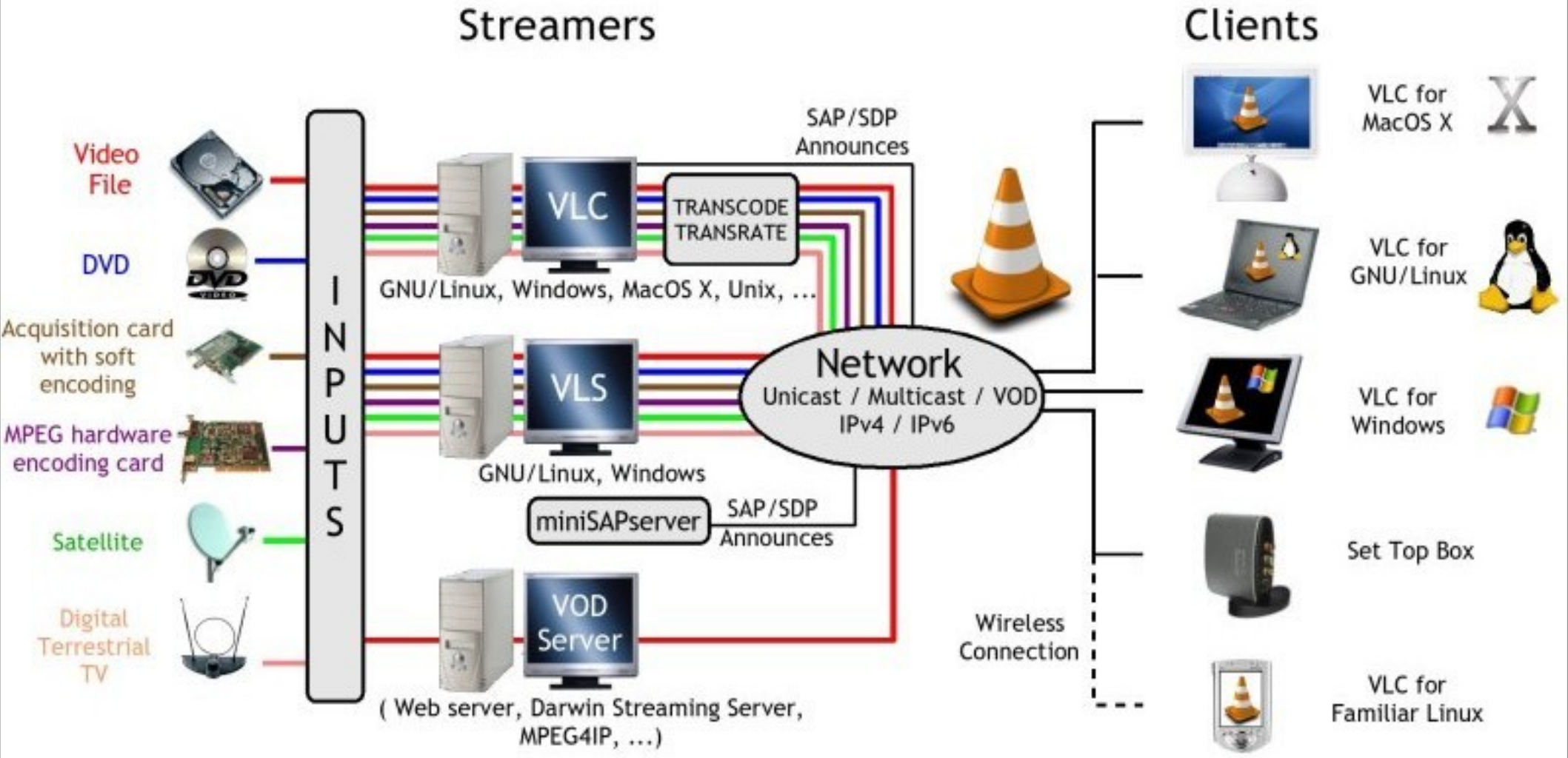
Ecole Centrale Paris

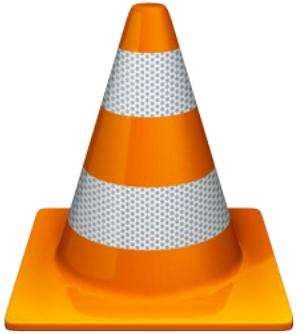
# *Under VideoLAN's umbrella*

- **VLC**
- VLMA (VLC automation)
- VLC Skin Designer
- VLMC (Non-linear video editor)
- DVBlast, Multicat (DVB streaming)

- **libdvdcss** (DVD CSS decryption)
- **libdts**, **libdca** (DTS decoding)
- **libdvbpsi** (MPEG-TS PSI encoding/decoding)
- libdvbcsa (DVB encryption decoding)
- **libbluray**, **libaacs** (BluRay playback)
- x262, **x264**, **x265**

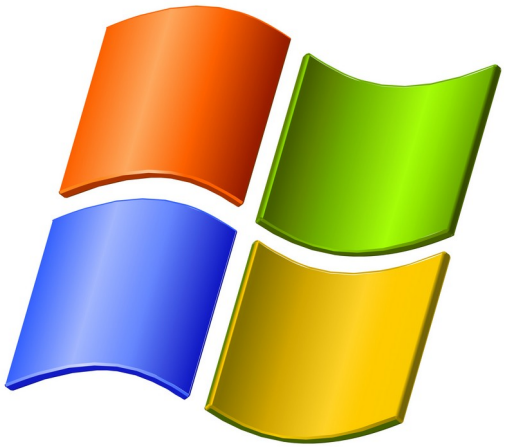
# VideoLAN Streaming Solution



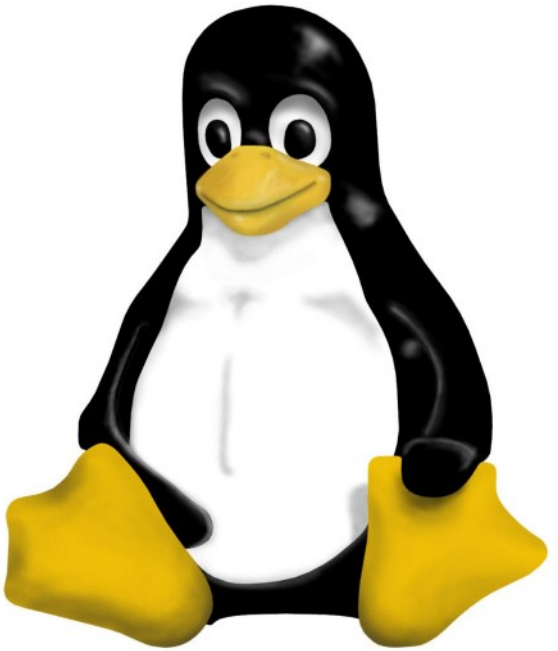


The Cone

DVD
AUDIO/VIDEO
MATROSKA
DIVX
VIDEO
SVCD
VIDEO
MPEG-II
COMPACT
disc
DIGITAL AUDIO
opus
mp3
dts
flac
free lossless audio codec
webm
xvid
codec
DOLBY
SURROUND
AVCHD
VCD
VIDEO COMPACT DISC
VLC



X

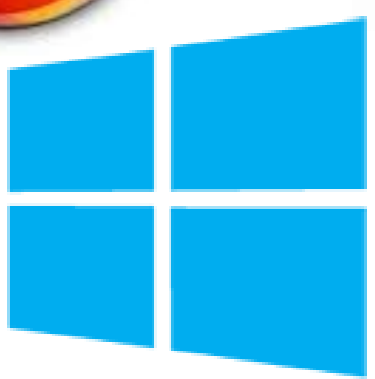


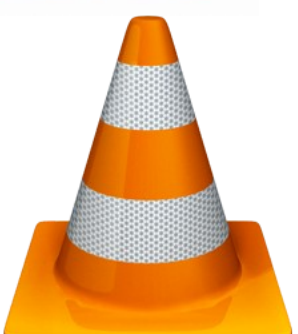
OS/2
OS/2
OS/2
OS/2

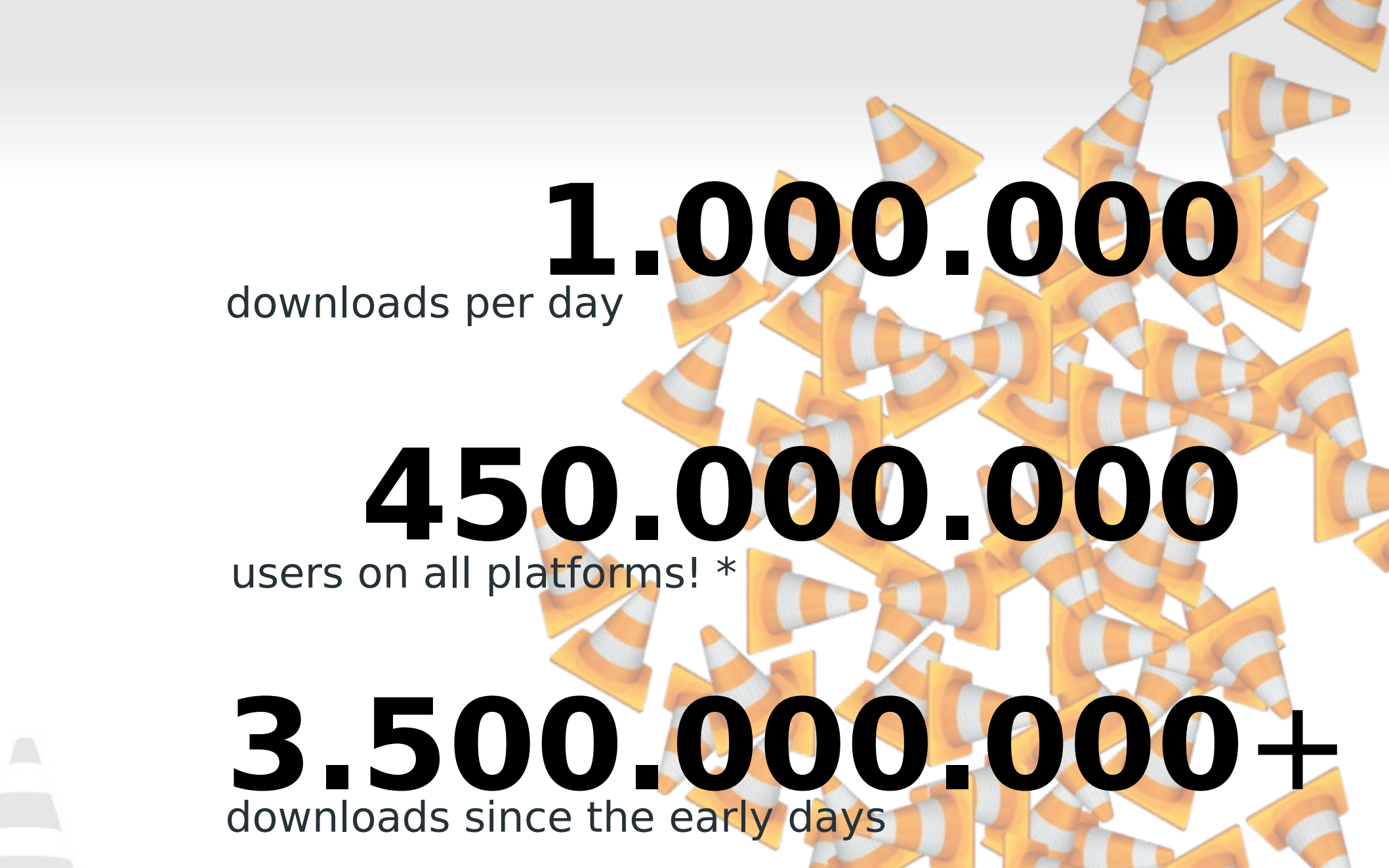
solaris

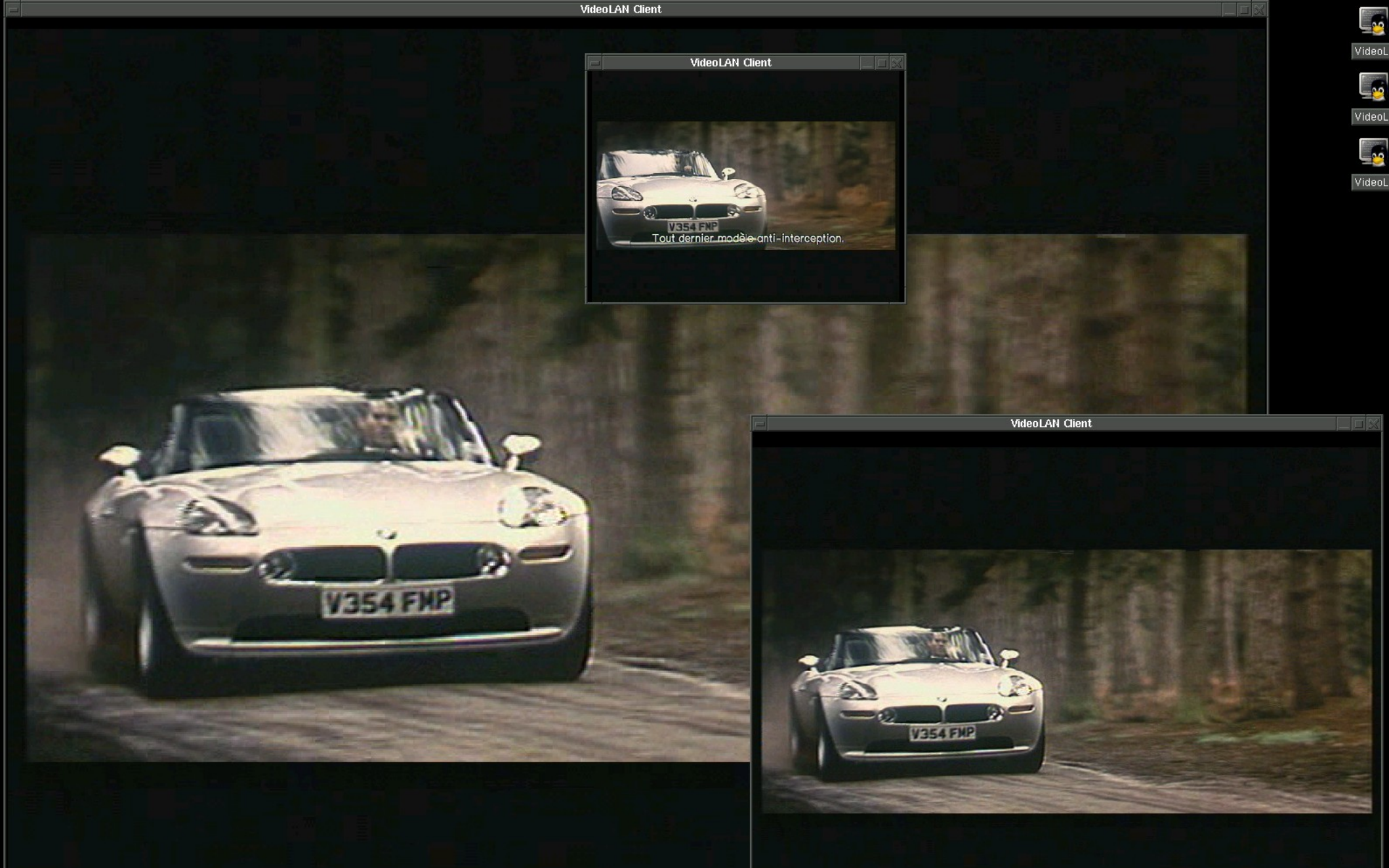
android

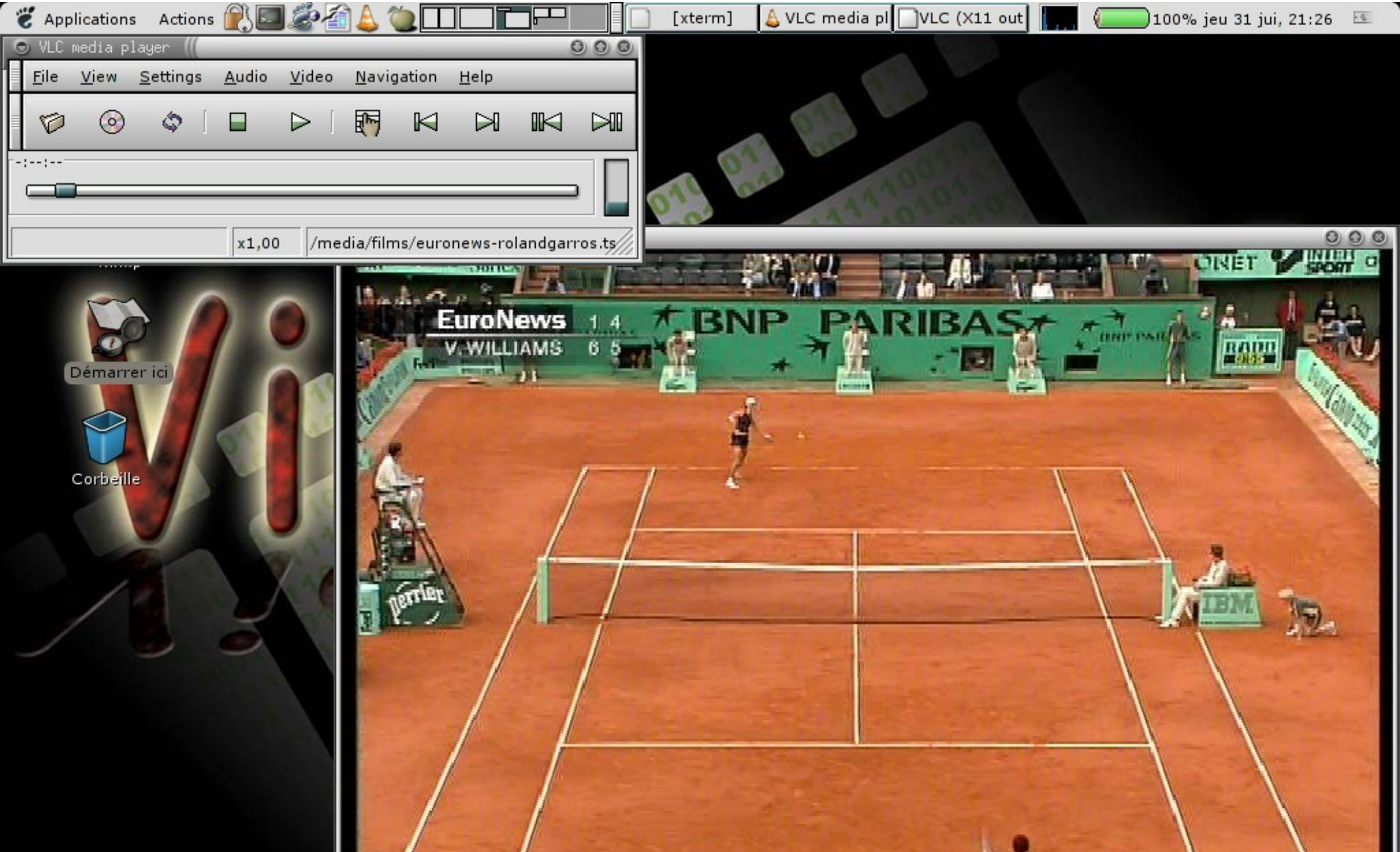
11

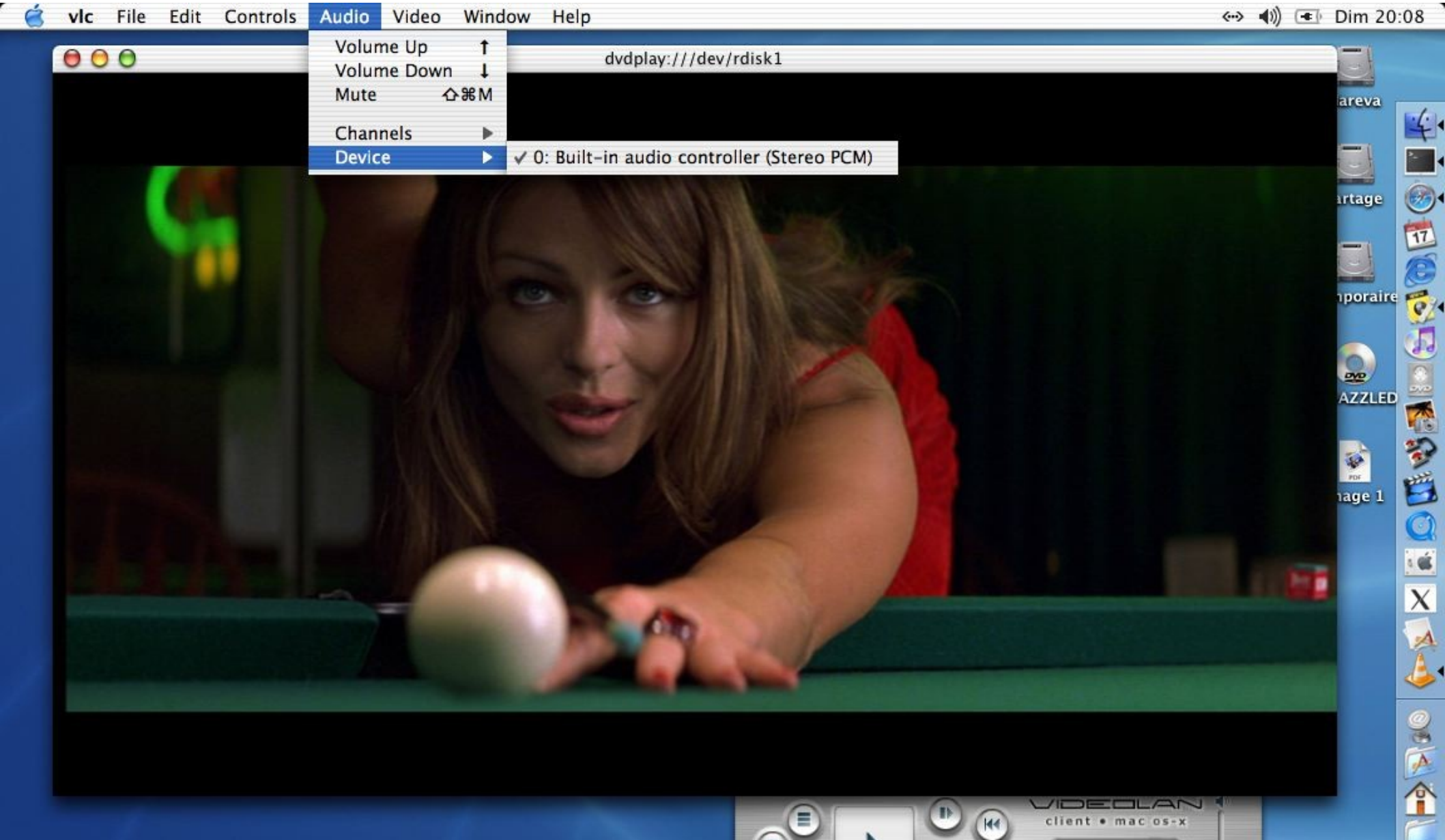


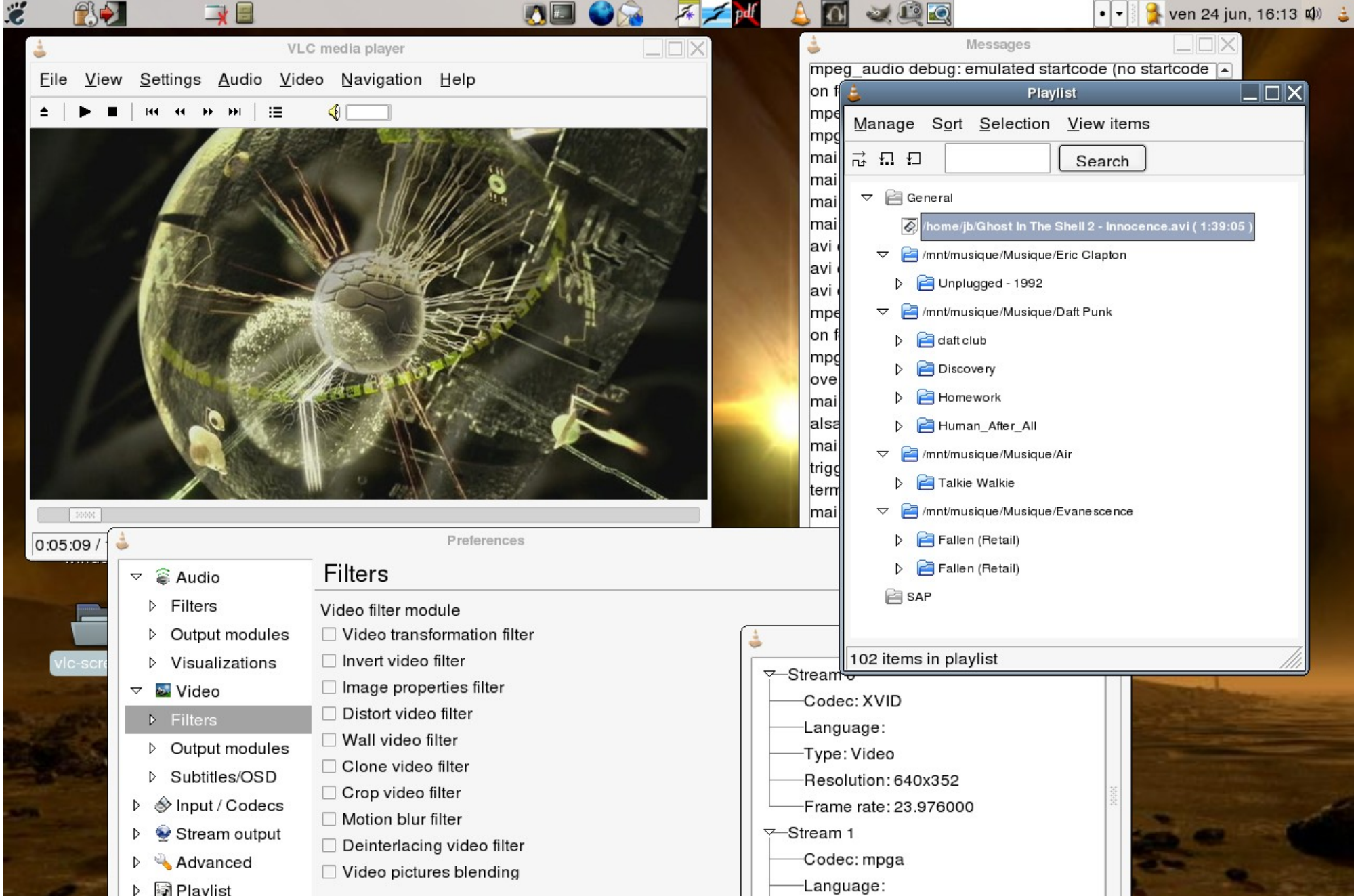


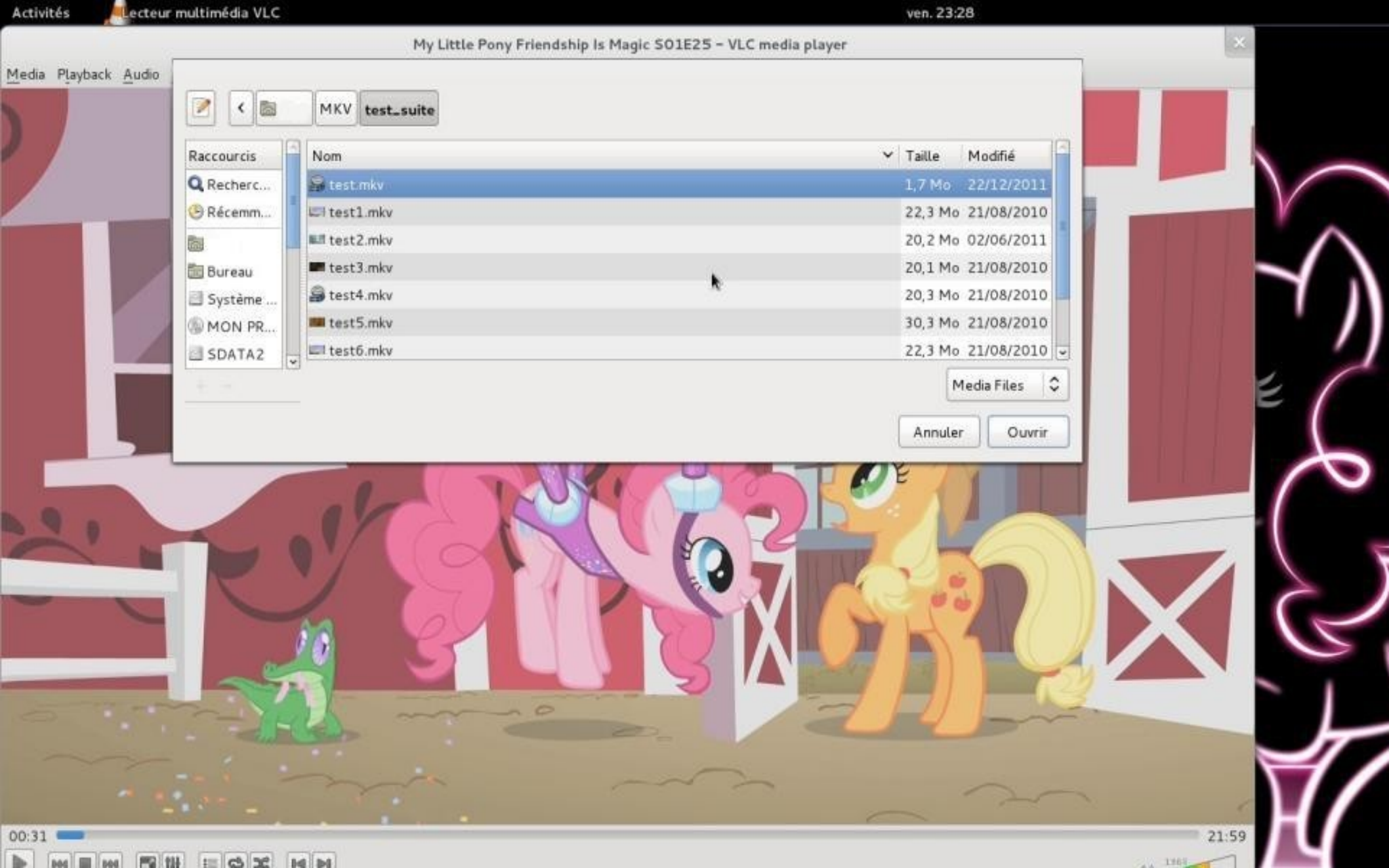

1.000.000
downloads per day
450.000.000
users on all platforms! *
3.500.000.000+
downloads since the early days


VideoLAN Client
VideoLAN Client
V354 FMP
Tout dernier modèle anti-interception.
VideoLAN Client
V354 FMP
V354 FMP
VideoL
VideoL
VideoL


Applications
Actions
[xterm]
VLC media pl
VLC (X11 out
100% jeu 31 jui, 21:26
VLC media player
File
View
Settings
Audio
Video
Navigation
Help
-:--:--
x1,00
/media/films/euronews-rolandgarros.ts
Démarrer ici
Corbeille
EuroNews
V.WILLIAMS
BNP PARIBAS
perrier
IBM


vlc File Edit Controls Audio Video Window Help
Dim 20:08
Volume Up
Volume Down
Mute
Channels
Device
✓ 0: Built-in audio controller (Stereo PCM)
dvdplay:///dev/rdisk1
VIDEOLAN
client • mac os-x


ven 24 jun, 16:13
VLC media player
File View Settings Audio Video Navigation Help
0:05:09 /
Messages
mpeg_audio debug: emulated startcode (no startcode
Playlist
Manage Sort Selection View items
Search
General
/home/jb/Ghost In The Shell 2 - Innocence.avi ( 1:39:05 )
/mnt/musique/Musique/Eric Clapton
Unplugged - 1992
/mnt/musique/Musique/Daft Punk
daft club
Discovery
Homework
Human_After_All
/mnt/musique/Musique/Air
Talkie Walkie
/mnt/musique/Musique/Evanescence
Fallen (Retail)
Fallen (Retail)
SAP
102 items in playlist
Preferences
Audio
Filters
Output modules
Visualizations
Video
Filters
Output modules
Subtitles/OSD
Input / Codecs
Stream output
Advanced
Playlist
Filters
Video filter module
Video transformation filter
Invert video filter
Image properties filter
Distort video filter
Wall video filter
Clone video filter
Crop video filter
Motion blur filter
Deinterlacing video filter
Video pictures blending
Codec: XVID
Language:
Type: Video
Resolution: 640x352
Frame rate: 23.976000
Stream 1
Codec: mpga
Language:


Activités
Lecteur multimédia VLC
ven. 23:28
My Little Pony Friendship Is Magic S01E25 - VLC media player
Media Playback Audio
MKV
test_suite
Raccourcis
Recherc...
Récemm...
Bureau
Système ...
MON PR...
SDATA2
Nom
Taille
Modifié
test.mkv 1,7 Mo 22/12/2011
test1.mkv 22,3 Mo 21/08/2010
test2.mkv 20,2 Mo 02/06/2011
test3.mkv 20,1 Mo 21/08/2010
test4.mkv 20,3 Mo 21/08/2010
test5.mkv 30,3 Mo 21/08/2010
test6.mkv 22,3 Mo 21/08/2010
Media Files
Annuler
Ouvrir
00:31
21:59

# Volunteers

# *Association VideoLAN*

## Creation

- 2009, decided in the VDD '08
- Libre/**Free Software** and **Multimedia**

## Members

- VLC's core developers
- Important members

## Supports

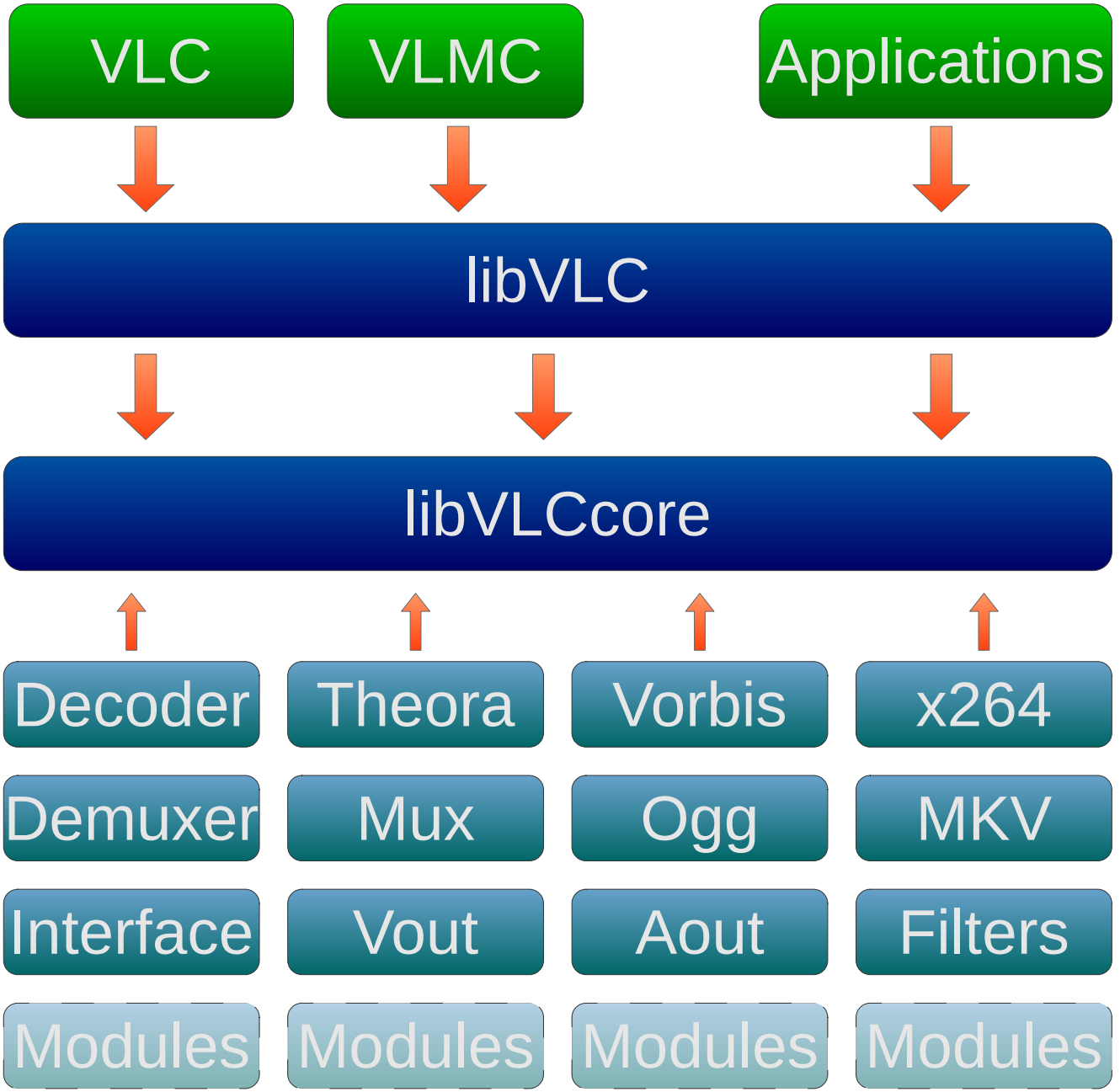
- Hardware for development
- Travel, Servers, Legal
- VideoLAN Dev Days

## Small Core

- **libVLCCore**
- Light
- Memory, Network and Threads handling
- Module loading
- Clock / Synchronization

## Simple Multimedia Framework

- LibVLC
- bindings for C++, C#, Objective-C, Java, Lua, Perl, Python, Node.JS

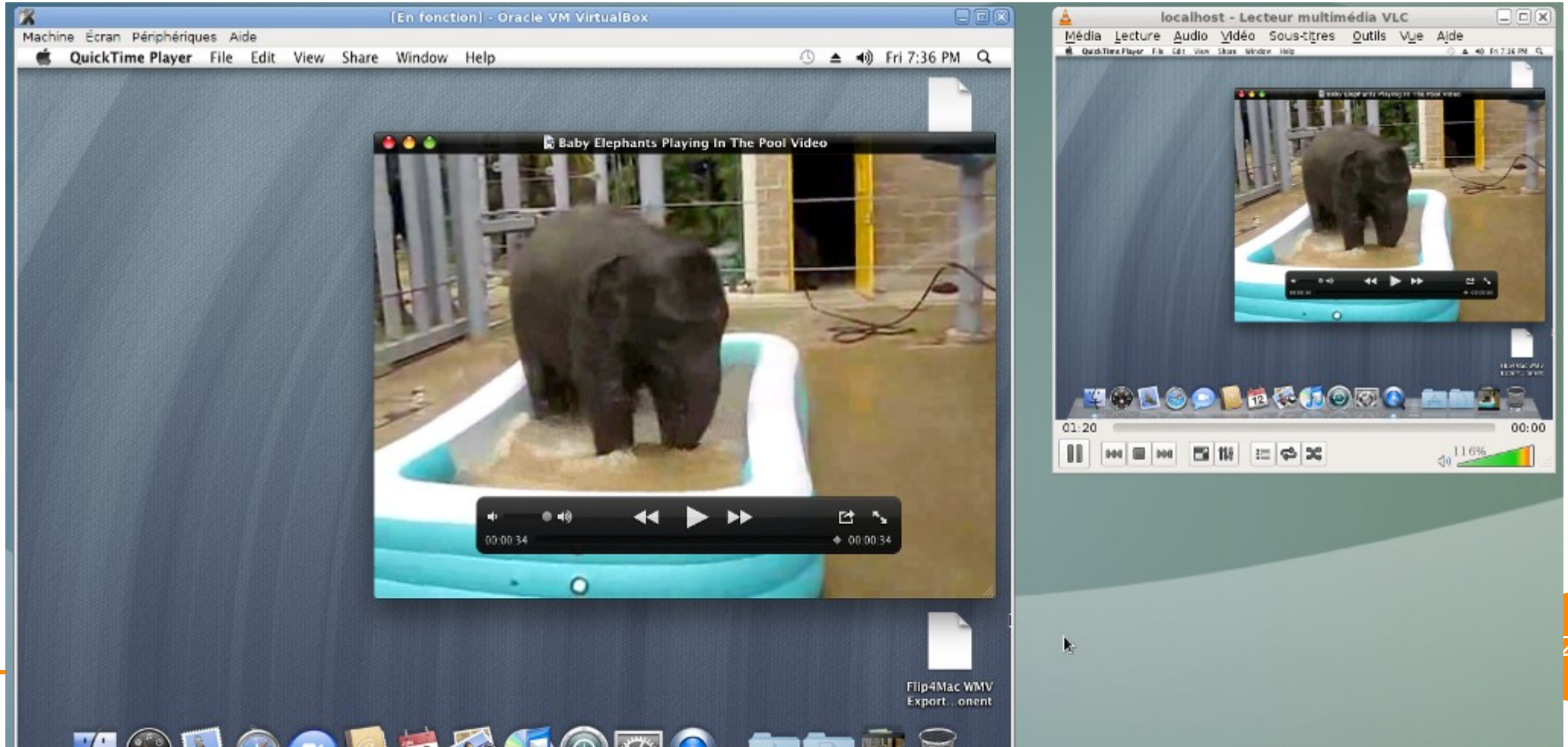

VLC
VLMC
Applications
libVLC
libVLCcore
Decoder
Theora
Vorbis
x264
Demuxer
Mux
Ogg
MKV
Interface
Vout
Aout
Filters
Modules
Modules
Modules
Modules

# C-Object (C--)

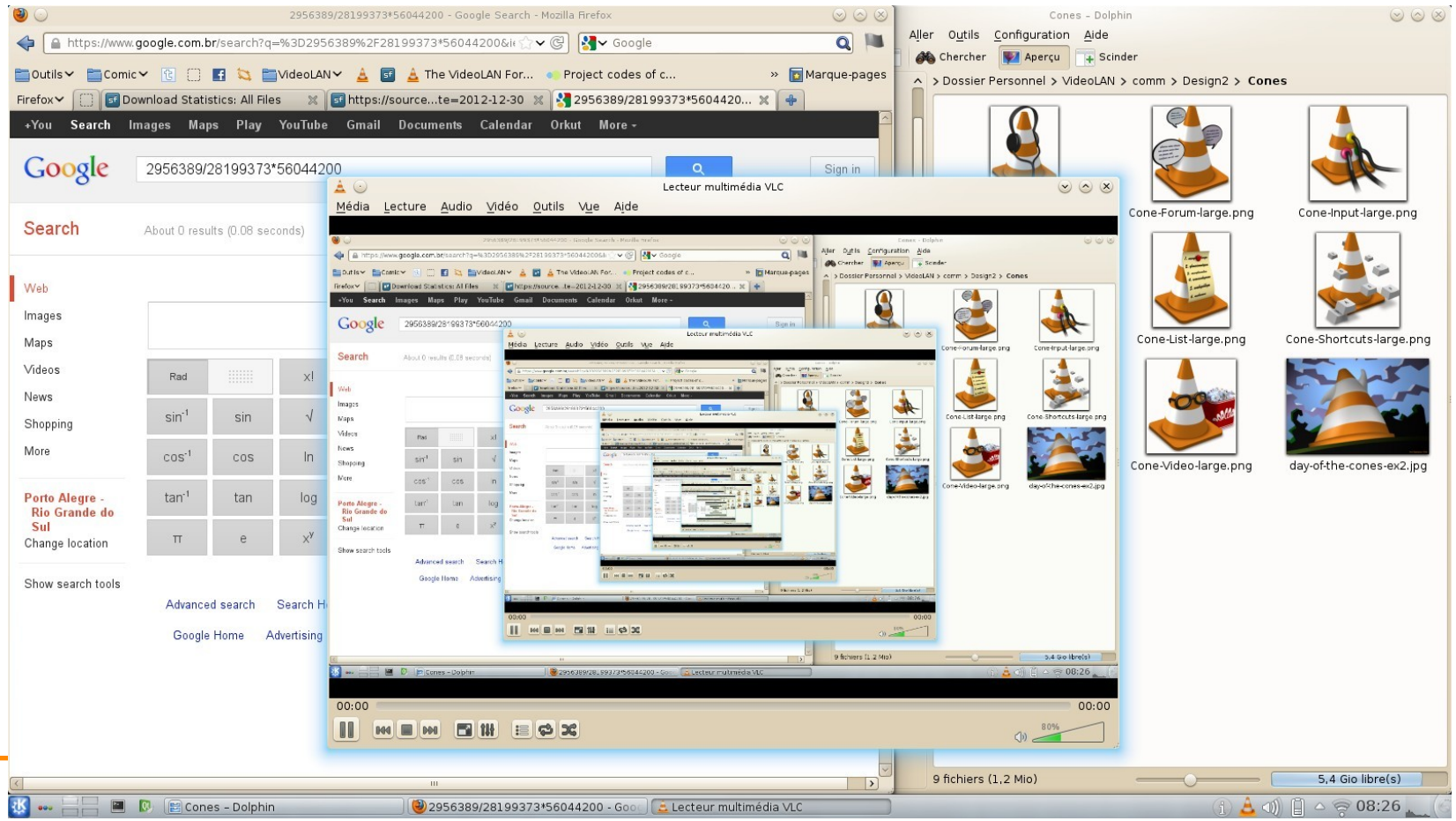
```
struct audio_output
{
    VLC_COMMON_MEMBERS

    struct aout_sys_t *sys;

    int (*pf_start)(audio_output_t *, audio_sample_format_t *fmt);

    void (*pf_stop)(audio_output_t *);

    struct {
        void (*volume_report)(audio_output_t *, float);
        void (*mute_report)(audio_output_t *, bool);
        void (*restart_request)(audio_output_t *, unsigned);
    } event;
};
```

Also C99, C++, Obj-C, ASM, Lua

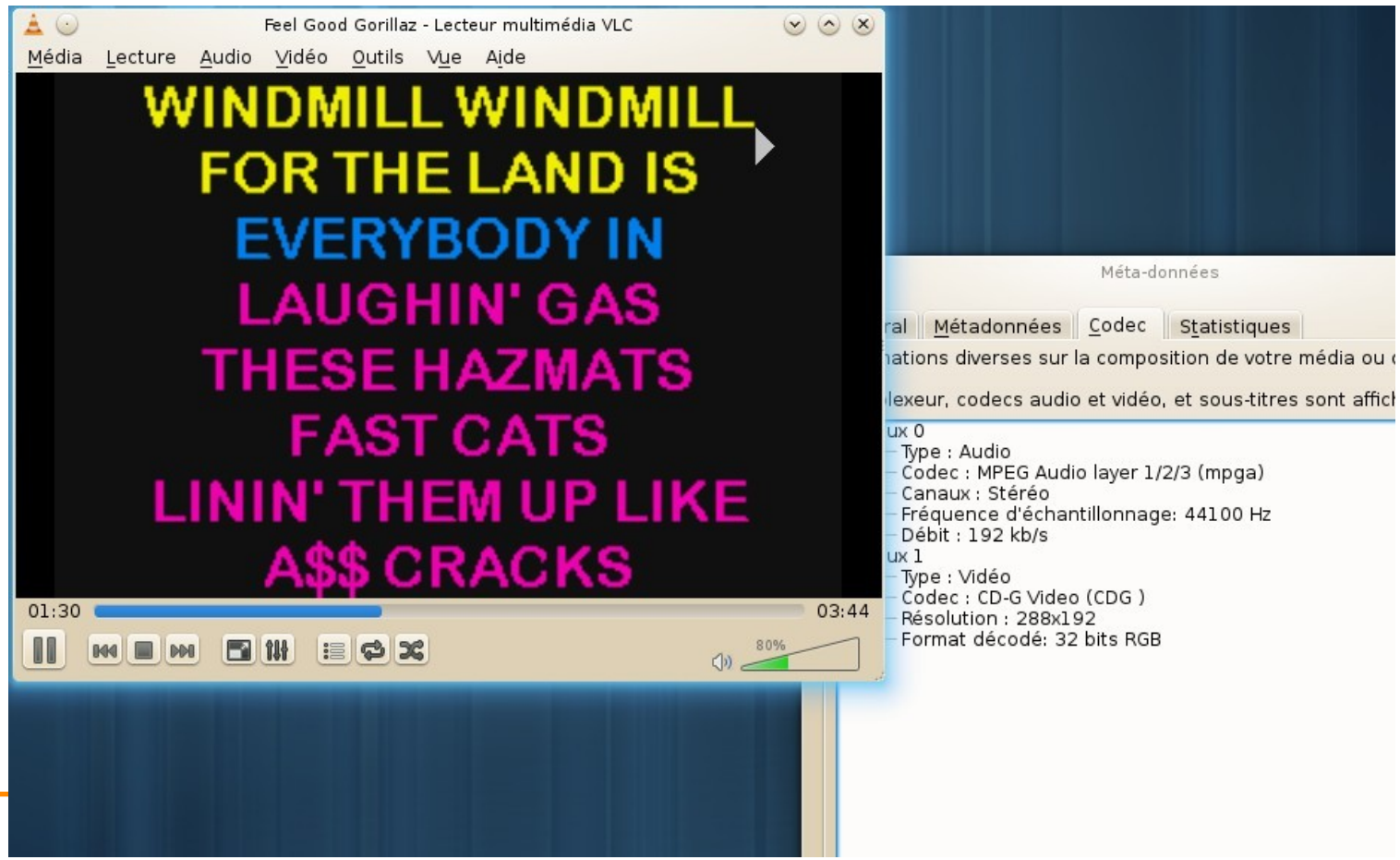
# VNC & Remote Desktop



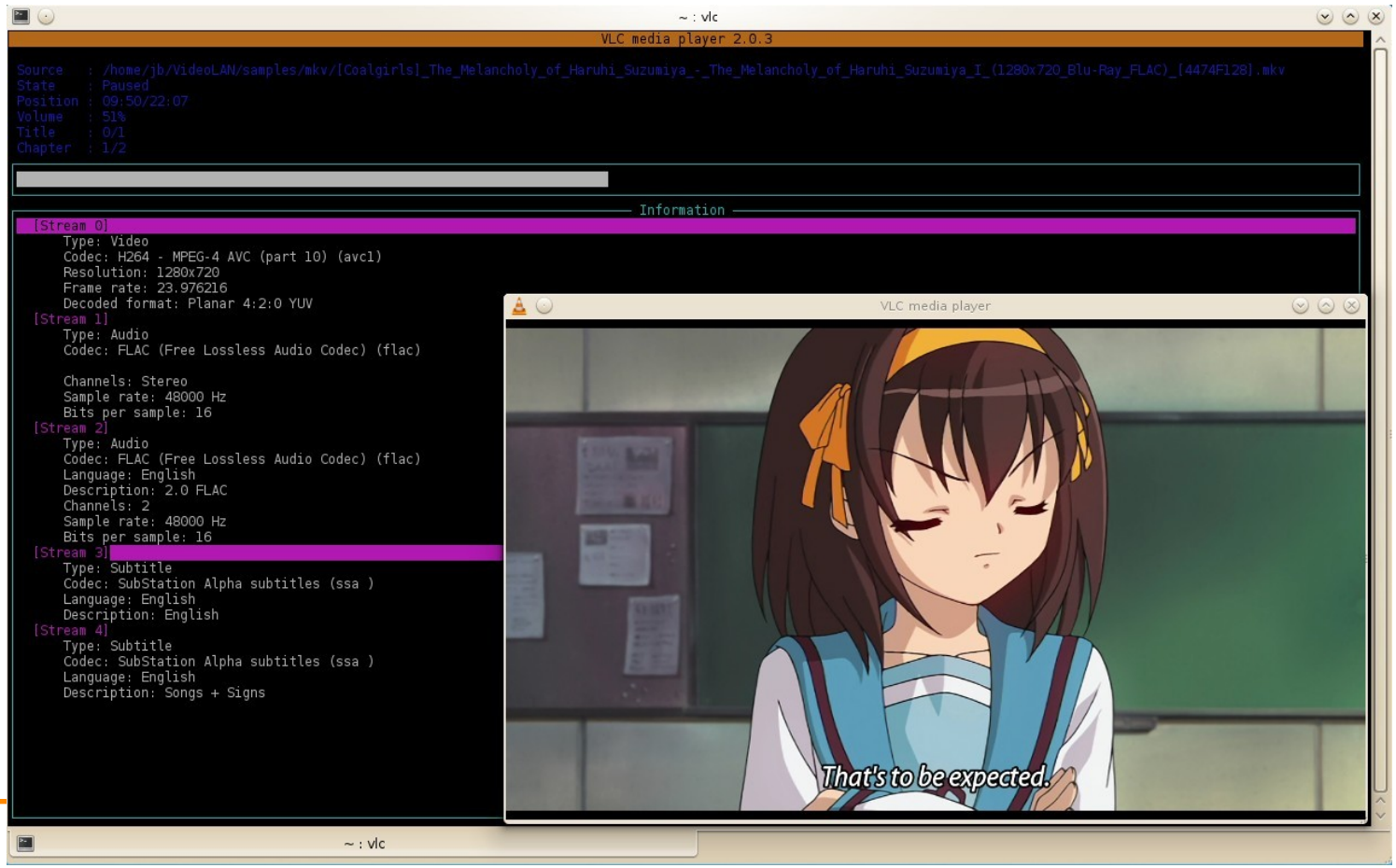
# VLC's screen casting



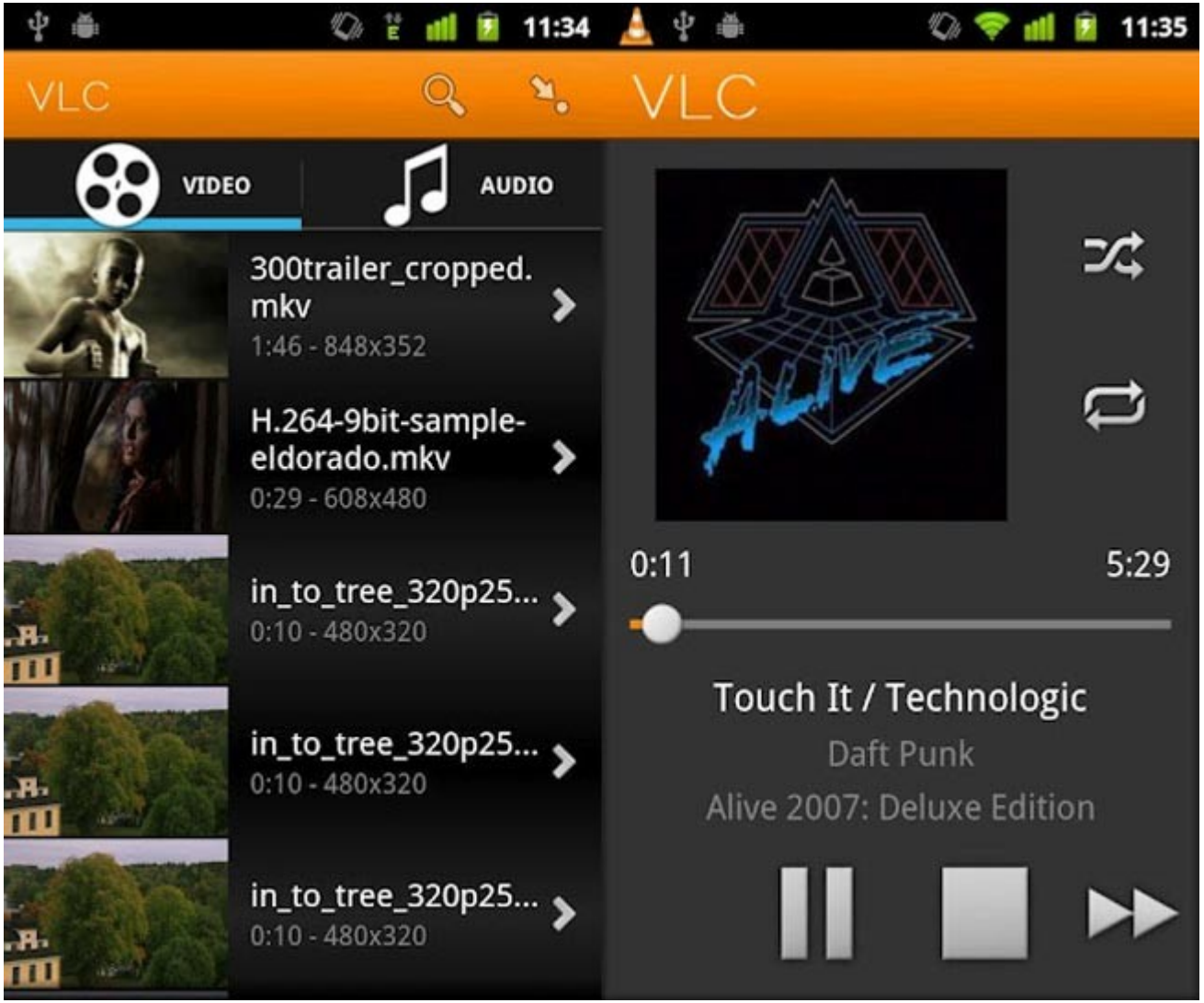
# Karaoke & MIDI

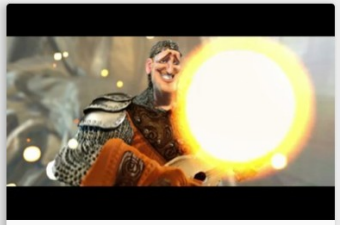


# Console & headless



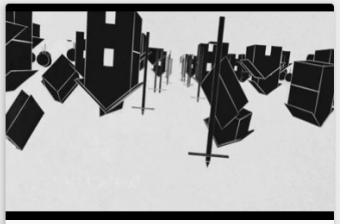
# Libcaca


11:34
11:35
VLC
VLC
VIDEO
AUDIO
300trailer_cropped.mkv
1:46 - 848x352
H.264-9bit-sample-eldorado.mkv
0:29 - 608x480
in_to_tree_320p25...
0:10 - 480x320
in_to_tree_320p25...
0:10 - 480x320
in_to_tree_320p25...
0:10 - 480x320
0:11
5:29
Touch It / Technologic
Daft Punk
Alive 2007: Deluxe Edition



850 METERS.mp4

1min 1280x720



ALB - The Road.mp4

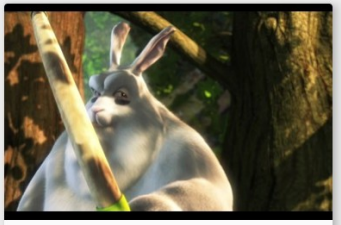
3min 1280x720

Amazonia.mp4

30s / 2min 1280x720

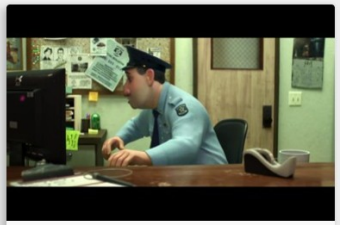
Ambition.mp4

6min 1280x720



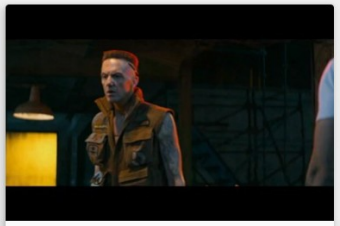
Big Buck Bunny.mov

3min / 9min 1280x720



Big Hero 6.mp4

2min 1280x720

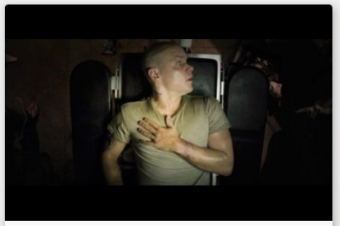


CHAPPIE.mp4

1min / 1min 1920x1080

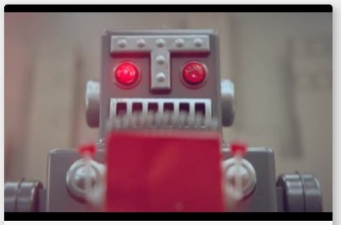
dog_meme_avi_hd720.mp4

28s 1280x720



Elysium.mp4

2min 4096x1716



IDIOTS.mp4

4min 1280x720

Le vent se lève.mp4

1min 1280x720

Mad Max Fury Road.mp4

2min 1920x1080

Offscreen Colonies.mp4

3min / 3min 1280x540

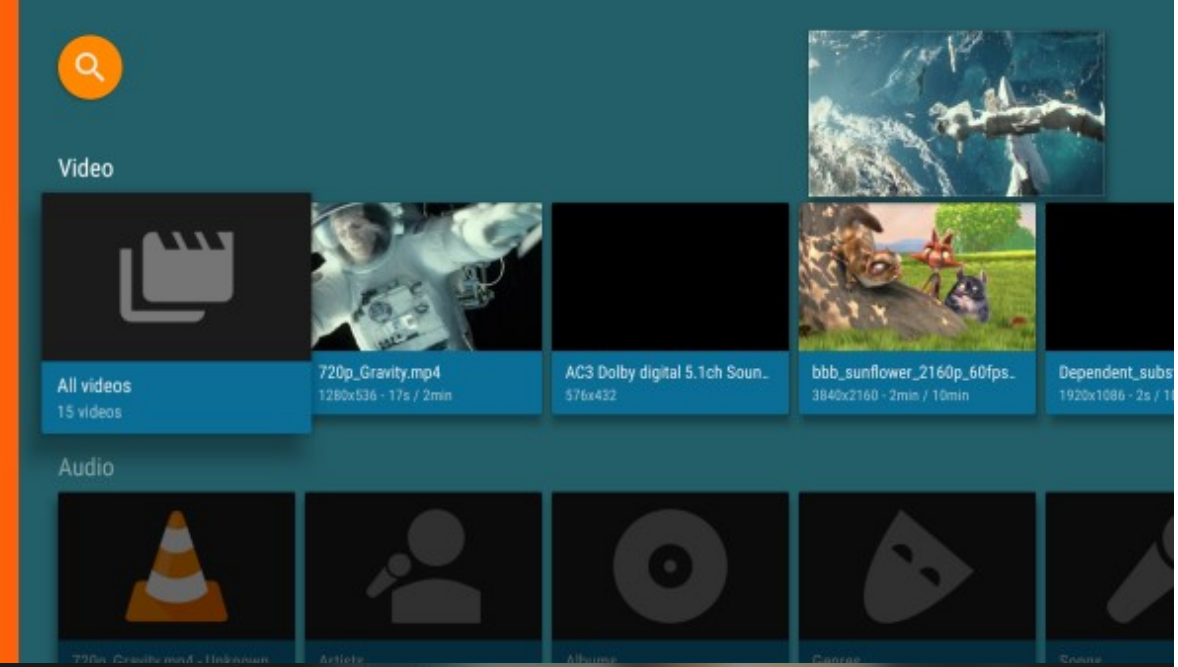
Oggy et les Cafards - 00

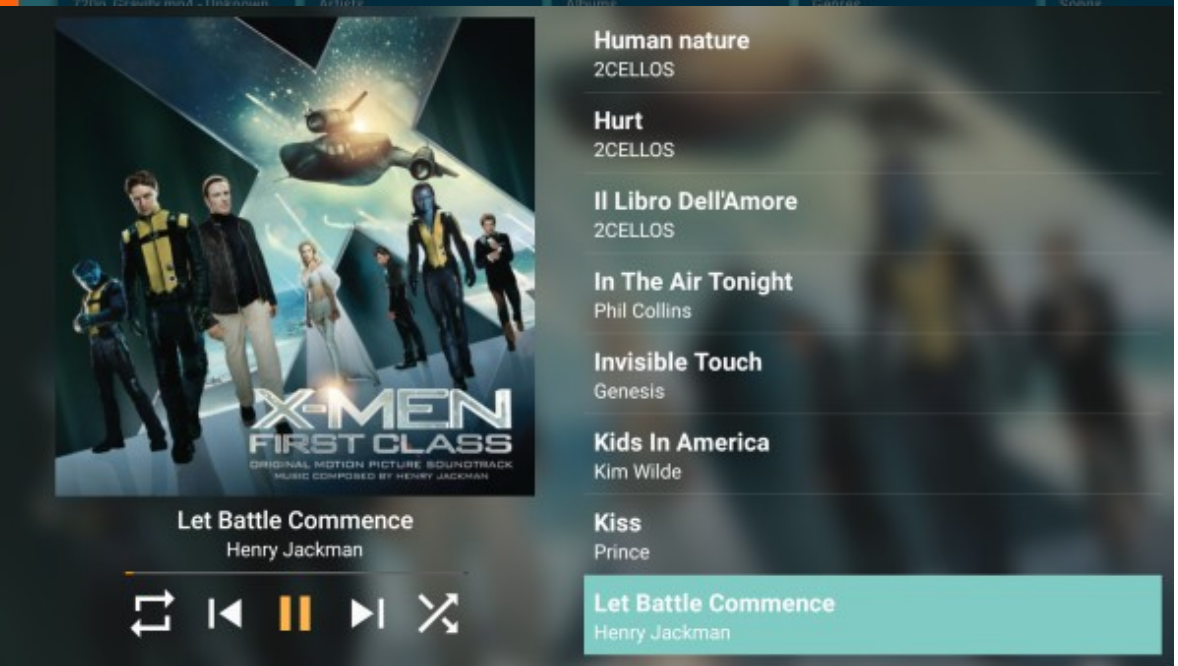
5 videos

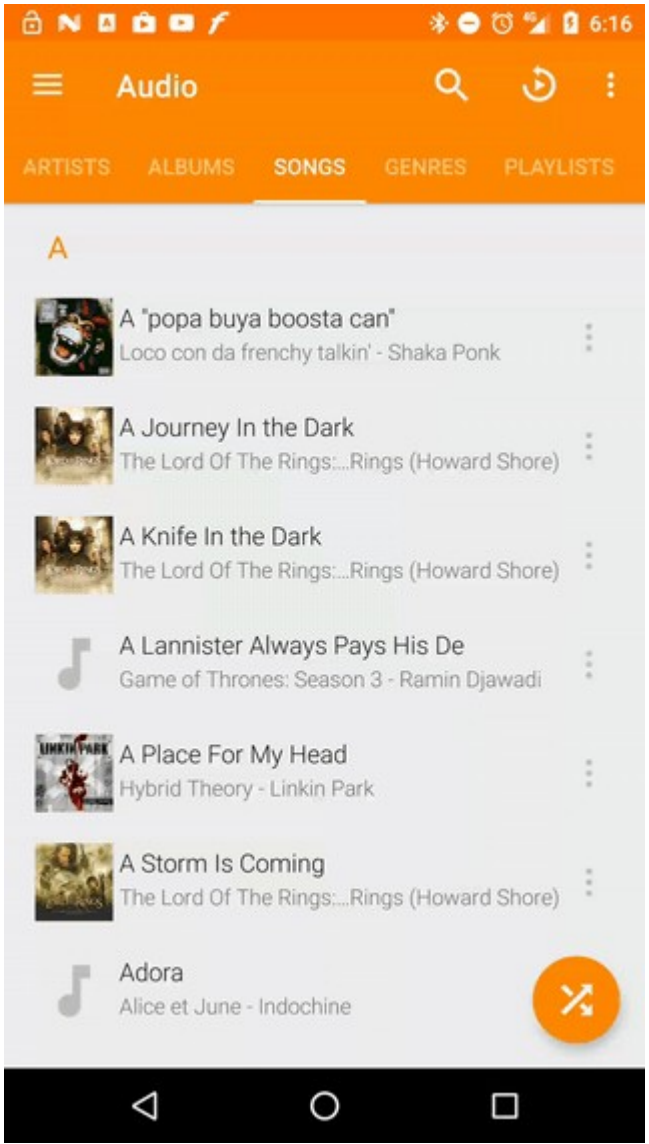
OMEGA.mp4

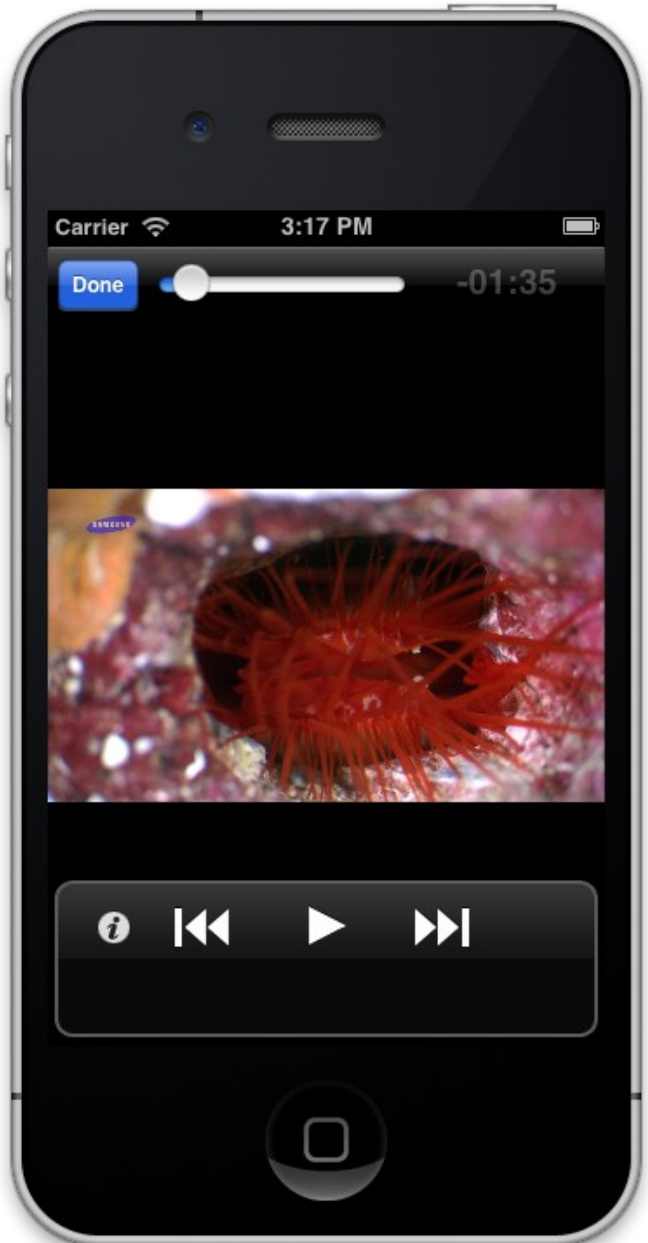
18min 1280x720

# 3.0.0 Android TV



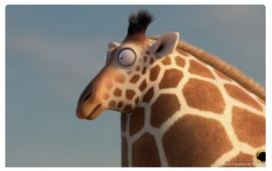




Carrier
3:17 PM
Done
-01:35

Carrier
12:49 PM
100%
About
VLC
Edit
[CCCP]_Mega_Audio_Test
01:12 - 79.9MB - 656x464
[CCCP]_Mega_Lossless_Audio_Test
00:56 - 105.4MB - 672x464
480p_ 2
01:42 - 127.7MB - 720x480
HD
Avril Lavigne - Iris (Feat goo goo dolls) Legendado
04:53 - 83.2MB - 1280x720
Avril Lavigne & Goo Goo Dolls Iris live
05:31 - 14.0MB - 320x240
fernsehkritik83
07:47 - 57.6MB - 640x352

15:05

Video



ROLLIN WILD Giraffe what if animals were round

NEW 00:40

End Game - Trailer

NEW 02:23

Ambition - Trailer

NEW 06:39

Amazing 4K sample (QHD, 120 Mbit s)

00:42

Video | Audio | Playlists | Network | Settings

15:12

Audio

Artists | Albums | Songs | Genres

Unknown Album

Unknown Artist

Free the Universe

Major Lazer

glory - Single

BAND-MAID

GreateST HITs

Stu

Daydreaming / Choose me - Single

BAND-MAID

Toxic Waste

Municipal Waste / Toxic Holocaust

Video | Audio | Playlists | Network | Settings

Detail
9:37
vimeo
21:48
All Files
9:36
Spinning Wheel 1
Test
vimeo
All Files
Music Albums
TV Shows
Now Playing

# All Home Videos

05 Carola Nitz TALK [720p]
**15:17 (253.7 MB)**

bbc_hd_audio_sync
**01:30 (21.3 MB)**

h264_odd_dimensions
**00:04 (396 KB)**

Olli Schulz - Phase [720p]
**04:36 (62.1 MB)**

Spinning Wheel
**04:12 (15.1 MB)**

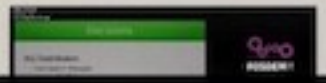
stream_high_pcr_1920x1080p50_10mbps
**05:02 (322.3 MB)**

stream_main_pcr_1280x720p50_5mbps
**05:17 (218 MB)**

tears_of_steel_1080p
**12:14 (583.8 MB)**

underground_train
**00:26 (12 MB)**

vimeo
**21:48 (101.3 MB)**



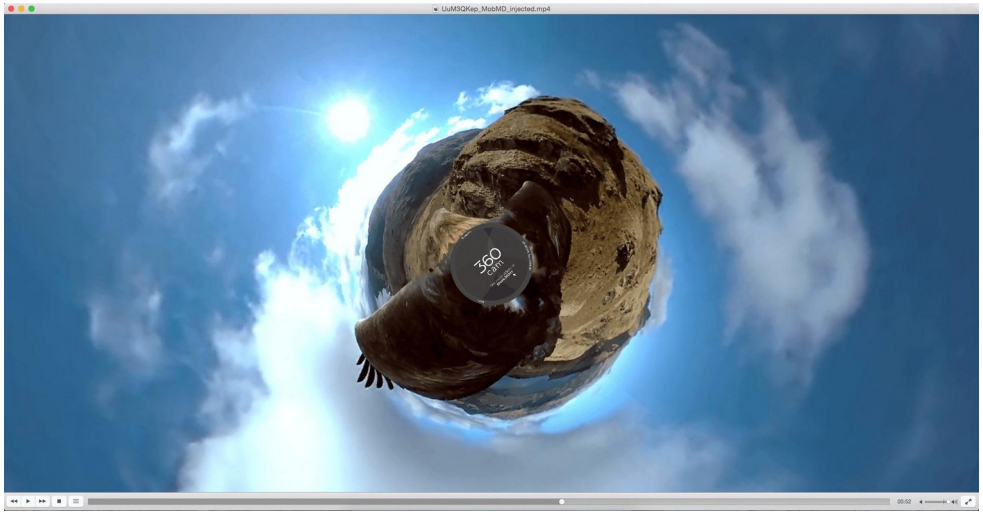
# 3.0 numbers

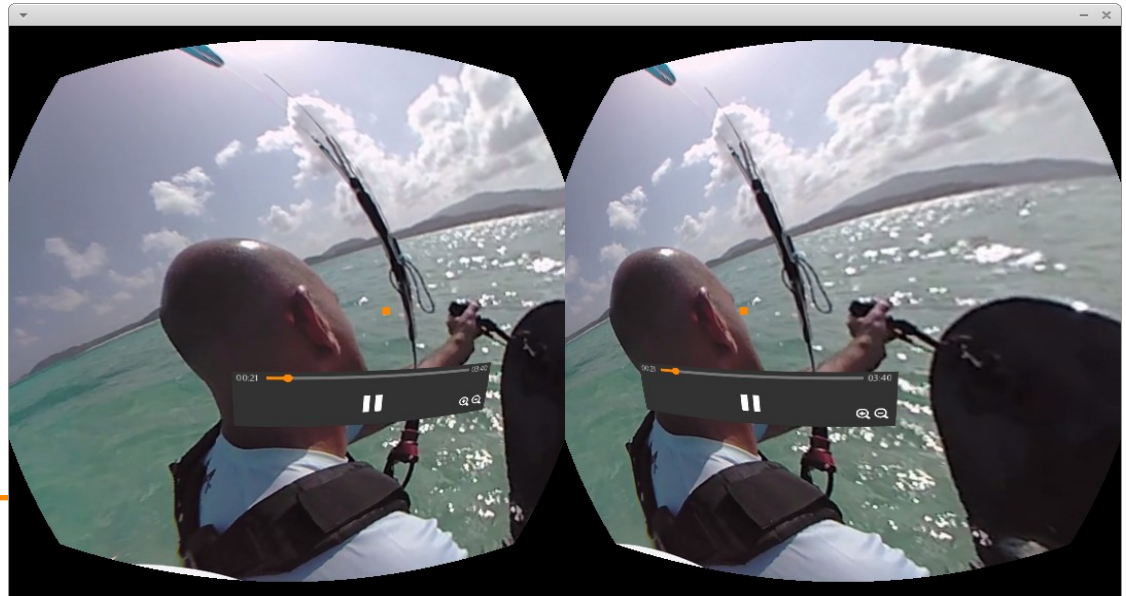
- **Vetinari**
- 18000 commits
  - 3600 Android
  - 2800 WinRT
  - 2300 iOS
- A bit long to come (!)
- One **very** strong release
- Focus on Mobile convergence, as announced, previously
- libVLC, and libVLC++, and bindings
- 1900+ bugs closed

# *3.0 highlights*

- **HW decoding** on by default everywhere
- **360 video** and **3D** Audio
- Network shares browsing (+passwords)
- Common codebase
- **10bits** / 12bits / **HDR** support
- Audio **HDMI** rework passthrough
- **HTTP/2**
- Lots of new formats (adaptive, subtitles)
- OpenGL and Wayland *(part 1)*
- New subtitle rendering stack
- **Chromecast**

# VLC VR

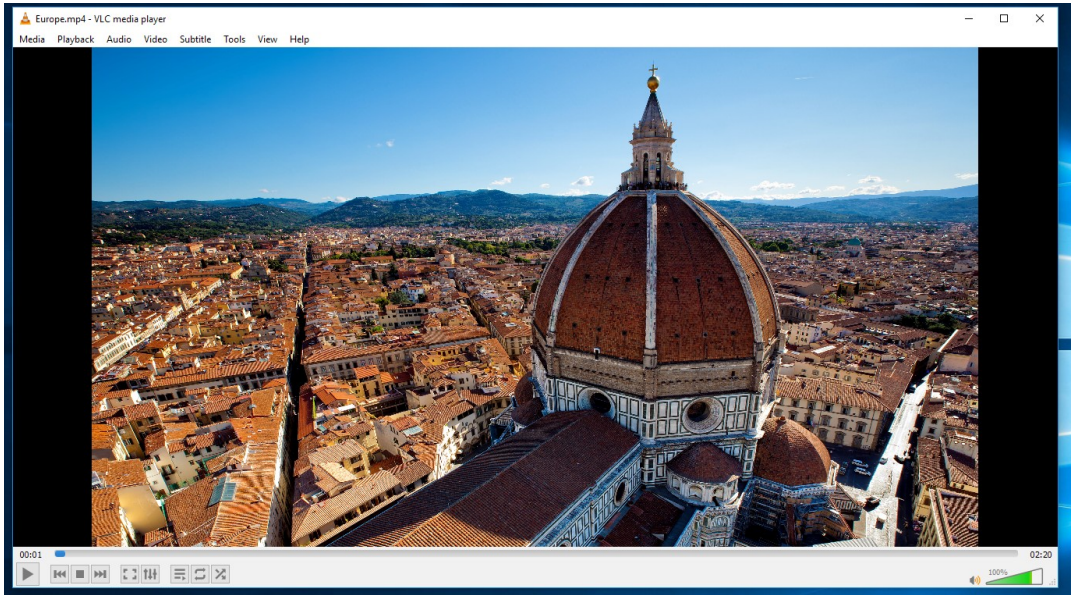




Otto Chriek

- New input/playlist
- **Clock**
- Media Library
- **New Interface**
- New video output architecture
- VR/3D
- Dropping old platforms

# A new UI




## Why a new UI?

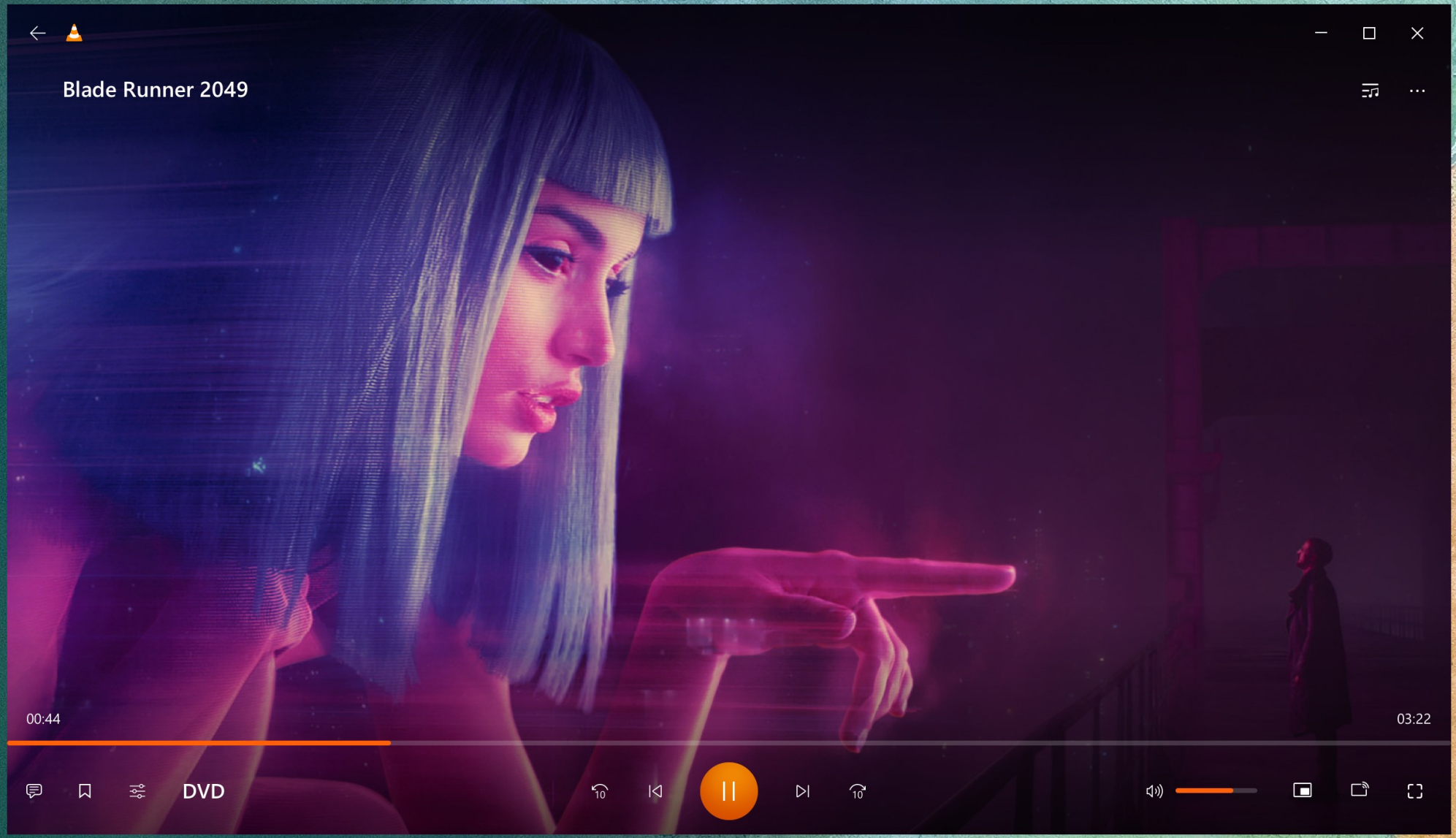
- New usages
  - More audio playback
  - More content oriented *(Netflix & Co)*
  - More connected
- Convergence
  - Android, Android TV, iOS, tvOS
  - Set-Top Box and Other cases without mouse
- More beautiful
- Biggest users feedback

## UX *wchanges without too much backlash?*

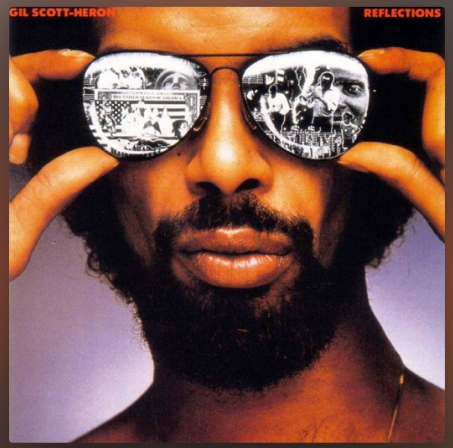
- But, We're not Gnome
  - No usage regressions
  - No feature removal
- Double use cases supported
  - Explorer/Dolphin/Finder → playback
  - Directory of content → playback
- Hierarchy of access
  - Common actions are easier to access
  - Complex actions are hidden under more clicks (3)

Difficult

- Conflicting usages
  - Options
  - Changes is difficult
- Multiple platforms
  - Composition Windows 7 → 10
  - Linux, Wayland/x11, CSD, SSD
- Qt
  - Qt4 is outdated
  - Qt5 and qml is quite slow
  - Video and Qt don't mix well
- Limited resources


Blade Runner 2049
00:44
03:22
DVD

Reflections




## Gun

Gil Scott Heron

10 10

00:44 03:22

VLC Video Music Browse Discover

All Tv Shows Group Playlist

## Continue Watching

**Joker**
01:12:32

**Premier Contact**
01:02:07

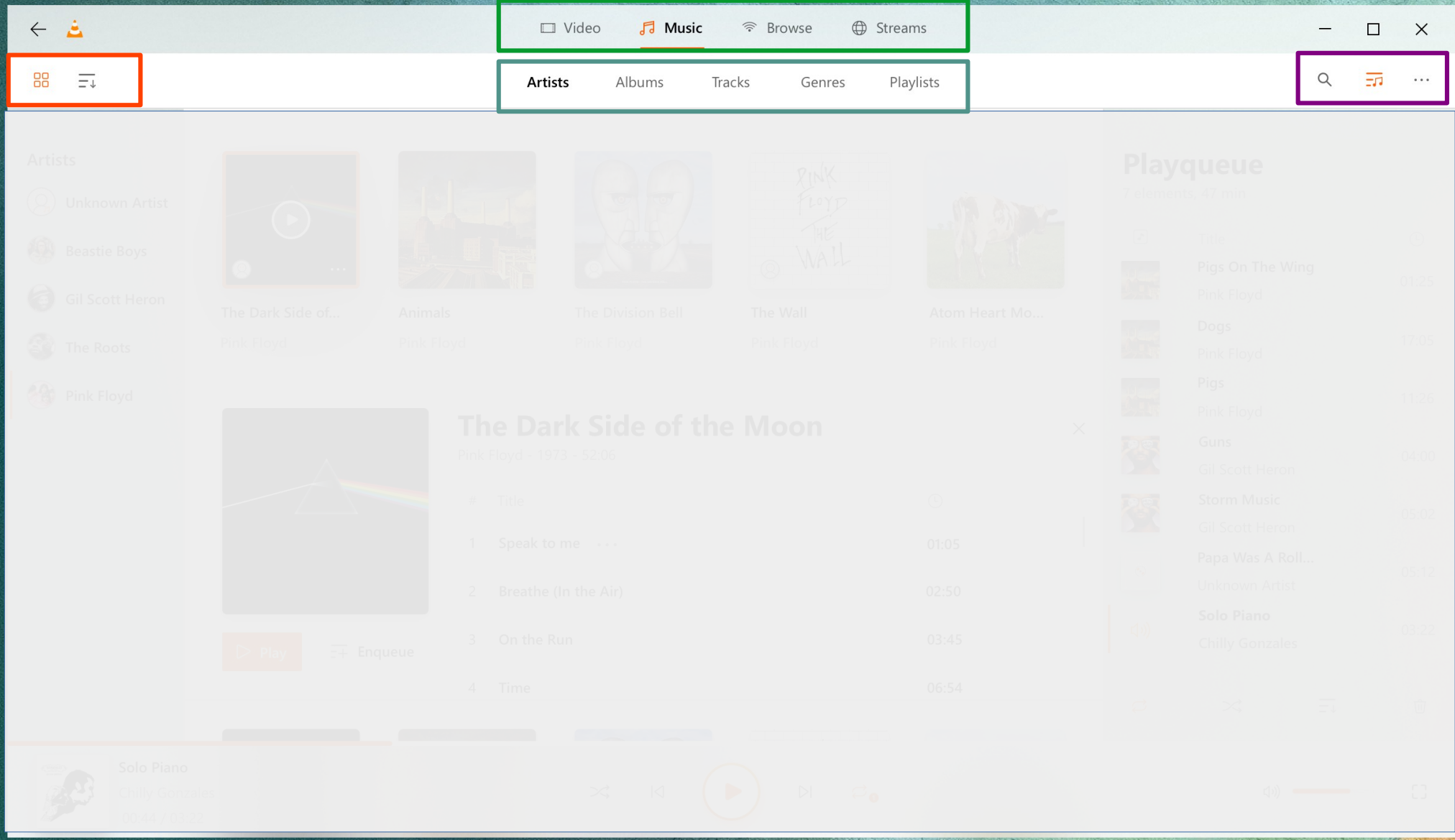
## Videos

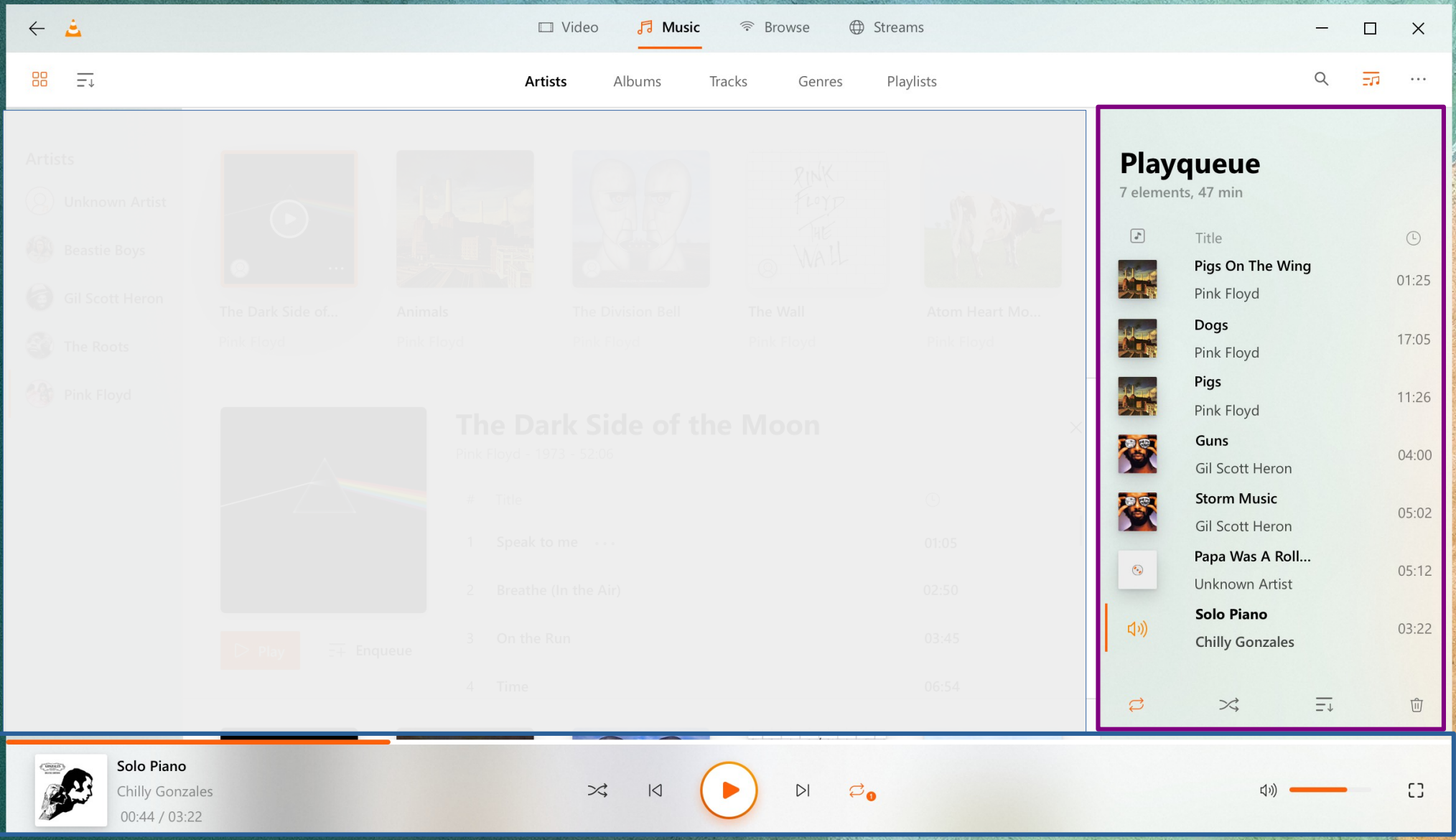
**Blade Runner 2049**
01:12:32

**Shameless - S010 ep 12**
44:10

**The Handmaid's Tale - S03 ep 02**
50:32

**Mon Voisin Totoro**
01:12:32


Video
Music
Browse
Streams
Artists
Albums
Tracks
Genres
Playlists
Artists
Unknown Artist
Beastie Boys
Gil Scott Heron
The Roots
Pink Floyd
The Dark Side of...
Pink Floyd
Animals
Pink Floyd
The Division Bell
Pink Floyd
The Wall
Pink Floyd
Atom Heart Mo...
Pink Floyd
The Dark Side of the Moon
Pink Floyd - 1973 - 52:06
# Title
1 Speak to me 01:05
2 Breathe (In the Air) 02:50
3 On the Run 03:45
4 Time 06:54
Play
Enqueue
Playqueue
7 elements, 47 min
Pigs On The Wing
Pink Floyd
01:25
Dogs
Pink Floyd
17:05
Pigs
Pink Floyd
11:26
Guns
Gil Scott Heron
04:00
Storm Music
Gil Scott Heron
05:02
Papa Was A Roll...
Unknown Artist
05:12
Solo Piano
Chilly Gonzales
03:22
Solo Piano
Chilly Gonzales
00:44 / 03:22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00:44 / 03:22

Video Music Browse Streams

Artists Albums Tracks Genres Playlists

## Artists

- Unknown Artist
- Beastie Boys
- Gil Scott Heron
- The Roots
- Pink Floyd

The Dark Side of...
Pink Floyd

Animals
Pink Floyd

The Division Bell
Pink Floyd

The Wall
Pink Floyd

Atom Heart Mo...
Pink Floyd

Play Enqueue

## The Dark Side of the Moon

Pink Floyd - 1973 - 52:06

| # | Title | |
|---|---|---|
| 1 | Speak to me | 01:05 |
| 2 | Breathe (In the Air) | 02:50 |
| 3 | On the Run | 03:45 |
| 4 | Time | 06:54 |

## Playqueue

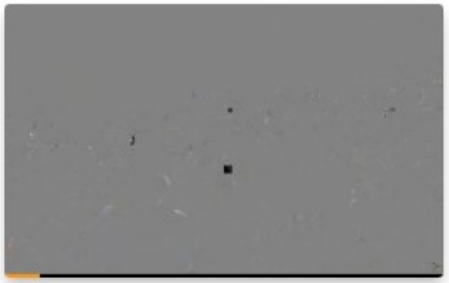
7 elements, 47 min

| | Title | |
|---|---|---|
| | Pigs On The Wing<br>Pink Floyd | 01:25 |
| | Dogs<br>Pink Floyd | 17:05 |
| | Pigs<br>Pink Floyd | 11:26 |
| | Guns<br>Gil Scott Heron | 04:00 |
| | Storm Music<br>Gil Scott Heron | 05:02 |
| | Papa Was A Roll...<br>Unknown Artist | 05:12 |
| | **Solo Piano**<br>Chilly Gonzales | 03:22 |

Solo Piano
Chilly Gonzales
00:44 / 03:22

VLC media player

VLC | Video | Music | Network



MGW-Ace_v2.3.0_ISR_low_latency_with_t
00:51

mrmrssmith.mp4
01:18

recording_with_green_line.mp4
00:07

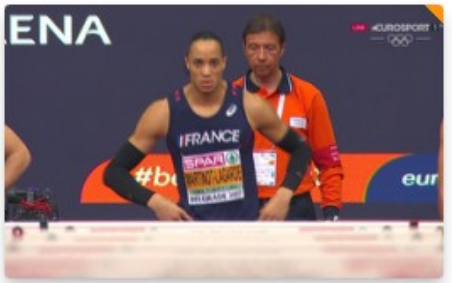
SPTS.TS
01:52

stell_360_Amb_injected.mp4
09:34

test-ts.ts
01:29:42

the-revenant-sample-hevc-hdr-4k.mkv
463:03:17

UHD_DEMO.mp4
01:47




video.ts
00:24

Landscape.mp4
LG
00:13
01:55

Nidarosdomens jentekor & TrondheimSolistene - Arnesen: MAGNIFICAT 4. Et misericordia - VLC media player

VLC | Video | Music | Network

Artists | Albums | Tracks | Genres

Unknown title
Unknown Artist

Loco con da french
Shaka Ponk

MAGNIFICAT
Nidarosdomens jen...

Seven Songs for S
Sebastian Freij

## Playqueue

3 elements, 9 min

| | Title | |
|---|---|---|
| | dddd<br>Shaka Ponk | 00:24 |
| | Seven Songs for Seventh Saga:<br>Sebastian Freij | 02:03 |
| | **Arnesen: MAGNIFICAT 4. Et**<br>Nidarosdomens jentekor & TrondheimSolis | 04:55 |

**Arnesen: MAGNIFICAT 4. Et misericordia**
Nidarosdomens jentekor & TrondheimSolistene
00:30 / 04:55

Thanks!
Questions?
VLC