

VideoLAN Project



A multimedia streaming solution

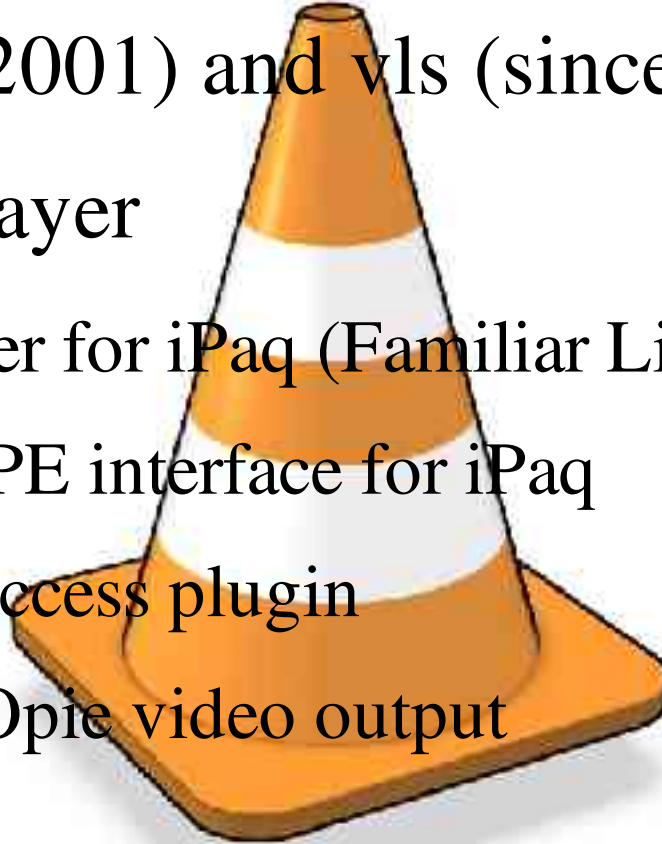
talk by

Jean-Paul Saman

jean-paul.saman@planet.nl

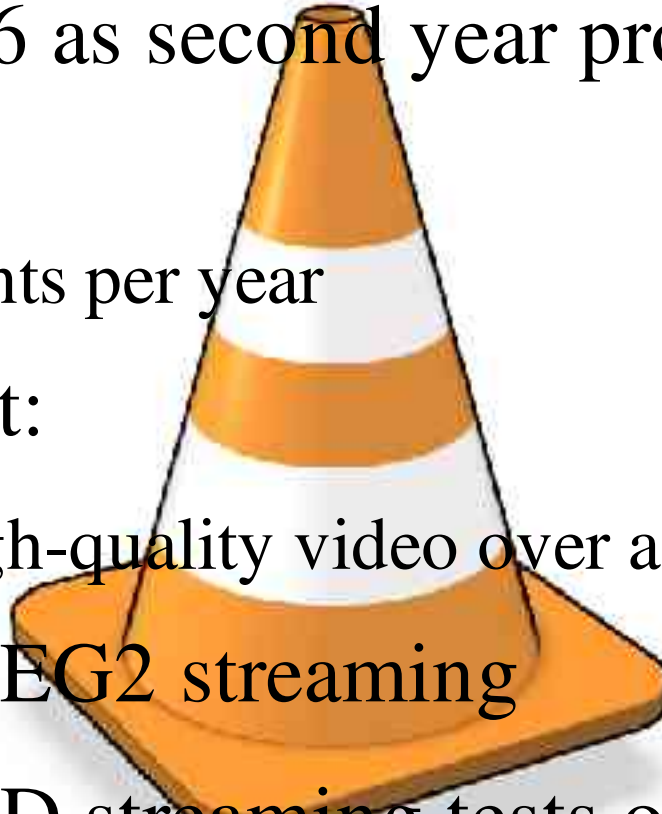
Who am I?

- Member of the videolan core team of developers for vlc (since 2001) and vls (since 2002)
- VLC media player
 - Port maintainer for iPaq (Familiar Linux distribution)
 - GTK+ and GPE interface for iPaq
 - DVB-S/C/T access plugin
 - Maintaining Opie video output
- VLS
 - Dynamic telnet configuration
 - VLS daemon code / TrickPlay architecture code



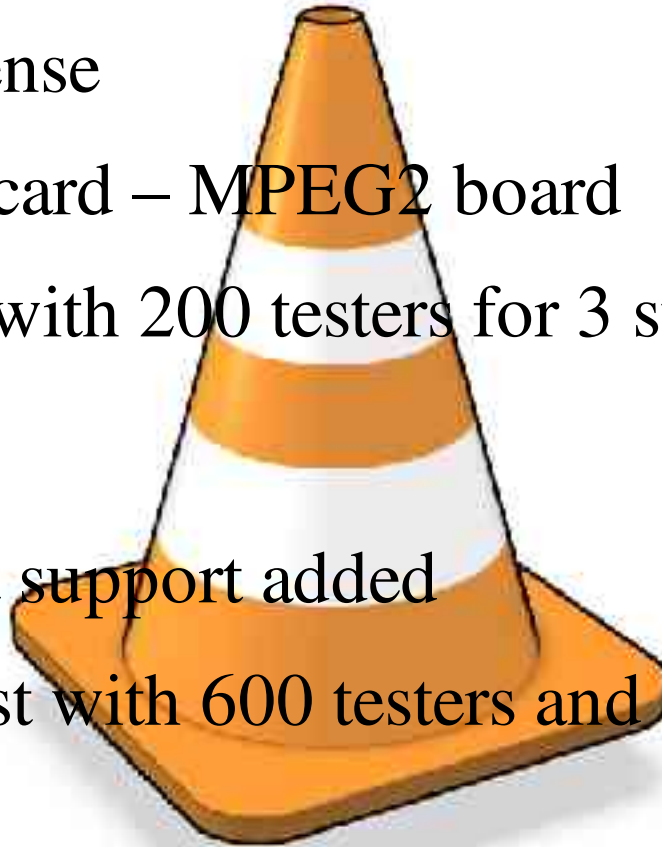
History (1 /2)

- Started in 1996 as second year project on Ecole Central Paris
 - 10 new students per year
- Goal of project:
 - Streaming high-quality video over a WAN/LAN
- 1998 First MPEG2 streaming
- 1999 First DVD streaming tests on ECP campus
 - 30 testers



History (2/2)

- 2001
 - Feb: GPL license
 - Oct: Satellite card – MPEG2 board
 - Nov: big test with 200 testers for 3 streaming channels
- 2002
 - Jan: Multicast support added
 - May: Final test with 600 testers and 15 channels
- 2003
 - Video on demand solution (http, mms, ftp, rtsp, sap, slp)
 - 1000 testers

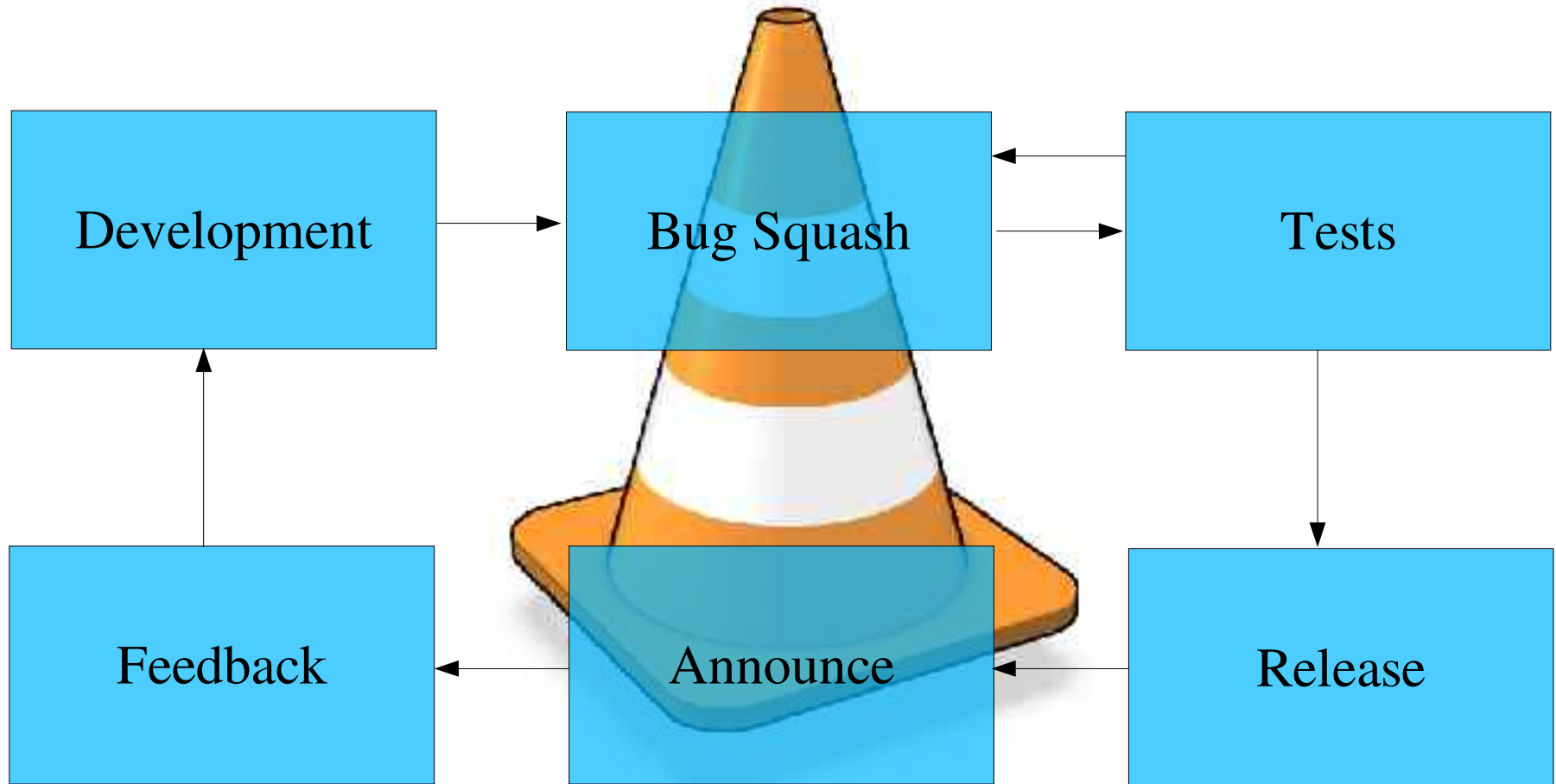


Project Organisation

- External:
 - Ecole Centrale Paris, Partners, External contributors
- Internal:
 - Project manager, Legal team, Network team, VLC team, VLS team, Communications team.
- Team Meetings every week
 - Whole team and subparts (vlc, vls, network, communications, legal)
- Legal entity with its own bank account and:
 - Owns network and network hardware

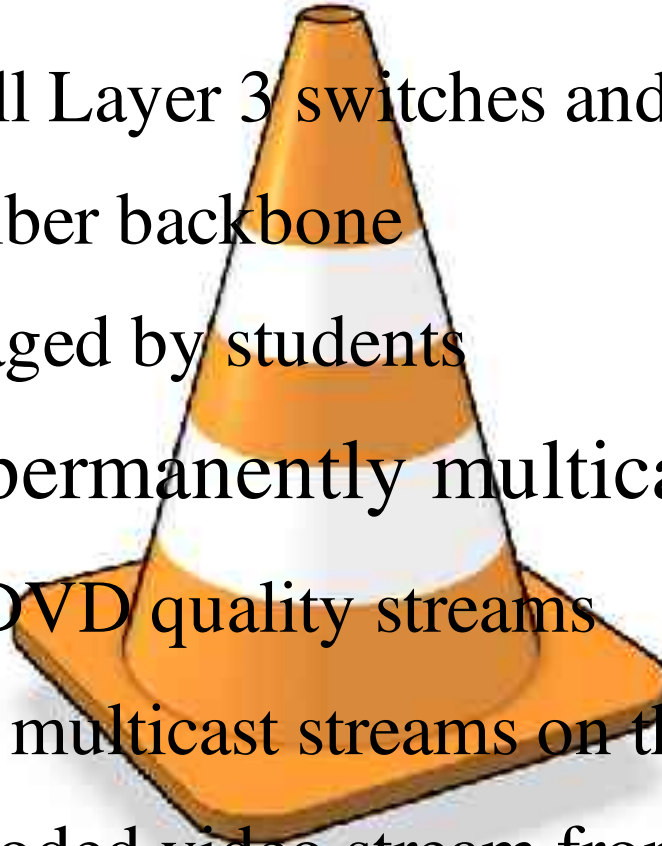


Development cycle



ECP Campus network

- The network consists of 1000 computers
 - 100 Mbits Full Layer 3 switches and routers
 - 1 Giga Bits Fiber backbone
 - Entirely managed by students
- 120 channels permanently multicasted
 - Satellite and DVD quality streams
 - 300 Mbit/s of multicast streams on the backbone
 - Real-time encoded video stream from television camera
- 1000 users of streaming video

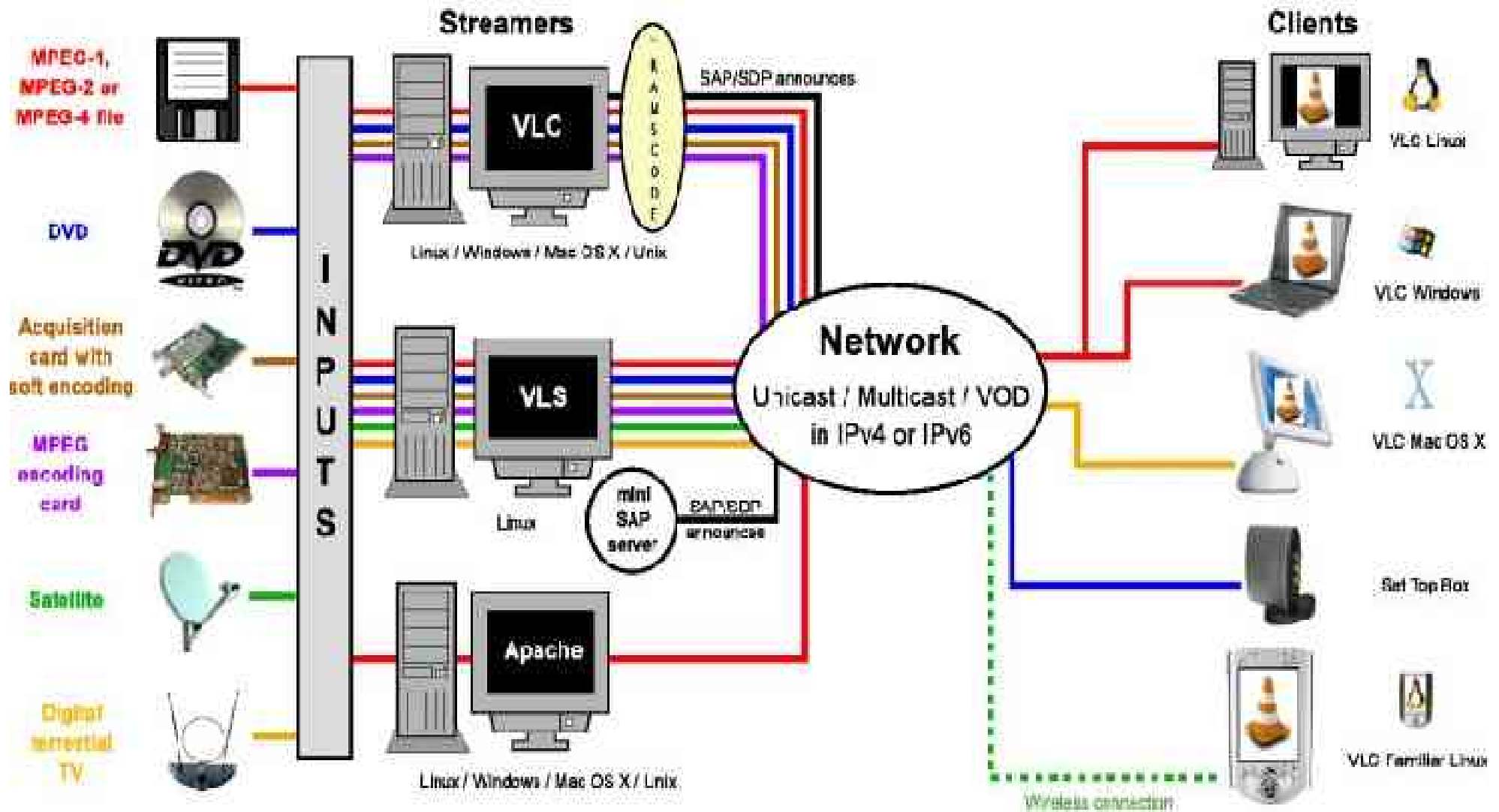


Awards won

- Open Source Merit Award (17 Jan 2004) from Open Source Initiative
- VLC awarded by MacGeneration (20 Sept 2003) During Apple Expo Paris 2003, VLC won the trophy for developers support !
- VLC runner up for Apple Design Award (25 June 2003)
VLC 0.5.3 is runner up for Apple Design Award 2003.
- VLC nominated at the Free Software Trophies! (23 May 2003).
- Linux Challenge: VideoLAN wins (Jan 2002) Videolan is one of the 25 winners of the IBM Linux Challenge for Open Source projects developed by University students.

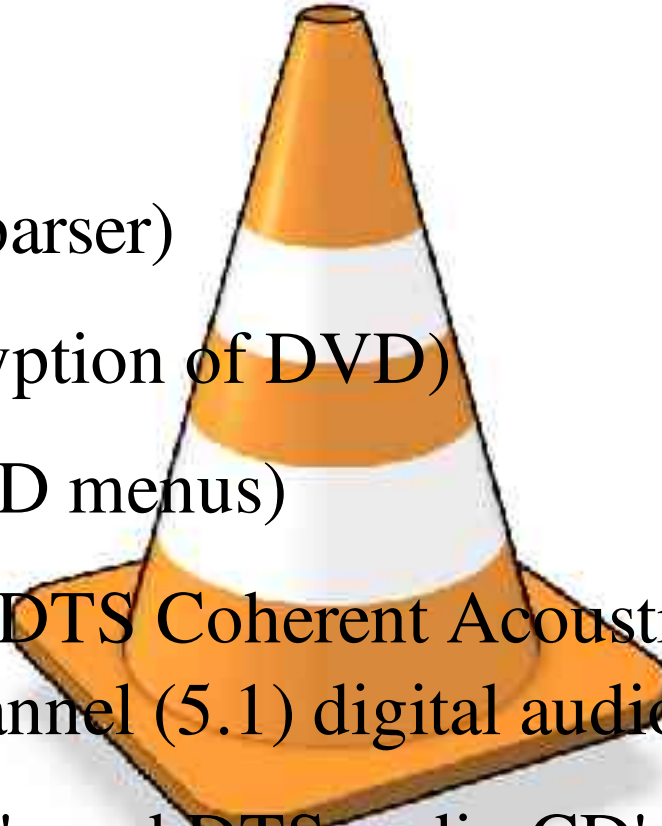


Streaming solution



Sub projects

- VLC Media Player
- VLS
- Libdvbpsi (PSI parser)
- Libdvdcss (decryption of DVD)
- Libdvdplay (DVD menus)
- Libdts/DTSdec (DTS Coherent Acoustics is a high quality multi-channel (5.1) digital audio format)
 - Used in DVD's and DTS audio CD's
 - First Open Source implementation of this codec
- Use of external Open Source projects (ffmpeg, flac, faac, faad, a52, dvdnav, Vorbis, etc.)

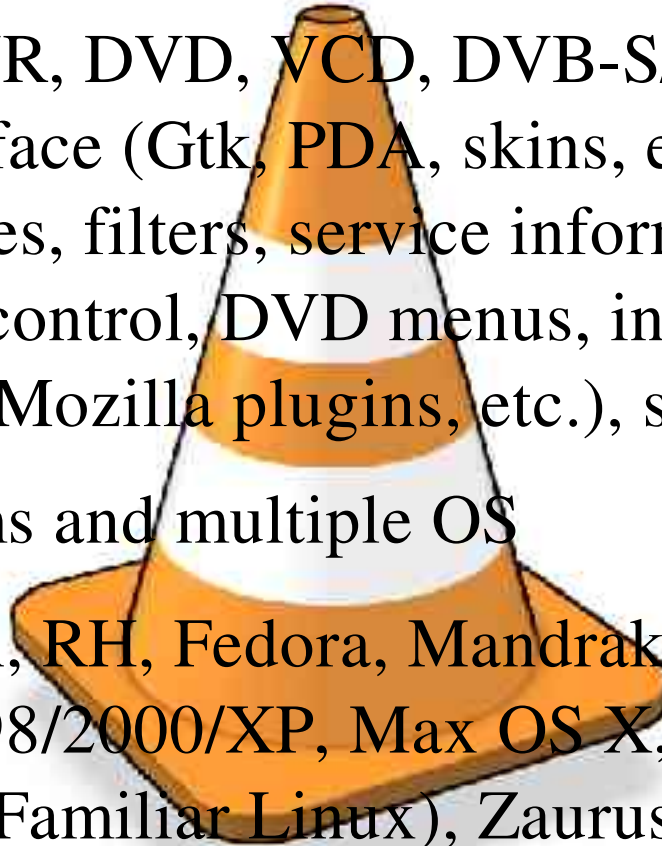


Demo



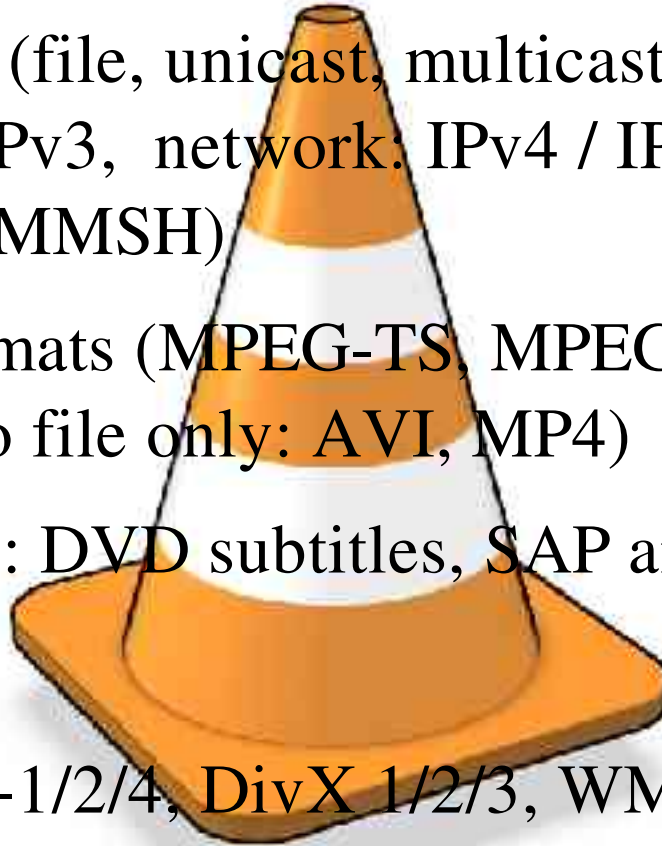
VLC media player (decoder)

- Highly modularized
 - Input (file, PVR, DVD, VCD, DVB-S/C/T, etc.), decoder, interface (Gtk, PDA, skins, etc.), video-, audio output, subtitles, filters, service information (SAP, SLP), misc (remote control, DVD menus, infrared, CPU acceleration, Mozilla plugins, etc.), stream output
- Multiple platforms and multiple OS
 - Linux (Debian, RH, Fedora, Mandrake, Gentoo), Windows 95/98/2000/XP, Max OS X, BeOS, *BSD, Solaris, iPaq (Familiar Linux), Zaurus, Yopy, QNX
- Codec support for:
 - MPEG-1/2/3/4, AC3, DTS, DivX, OggVorbis (Theora, Tremor) and many more



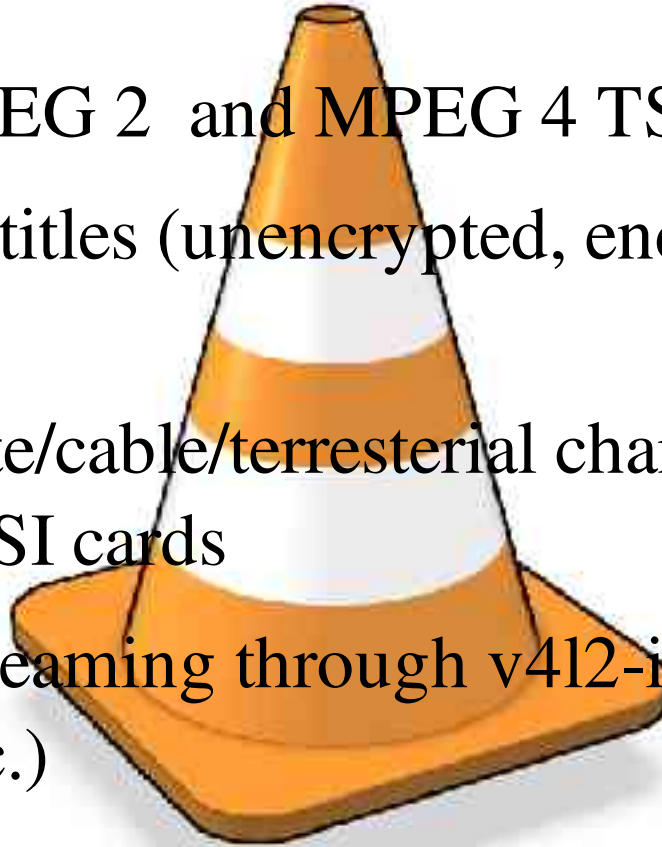
VLC media player (encoder)

- Stream server
 - Stream output (file, unicast, multicast: IGMPv2/IGMPv3, network: IPv4 / IPv6 / UDP / RTP / HTTP / FTP / MMSH)
 - Streaming formats (MPEG-TS, MPEG-PS, Ogg, ASF, MP4, RAW, to file only: AVI, MP4)
 - Miscellaneous: DVD subtitles, SAP announcements
- Transcoding
 - Video: MPEG-1/2/4, DivX 1/2/3, WMV1/2, H/I 263, MJPEG, Theora
 - Audio: MPEG Layer 2/3, AC3, MPEG-4, Vorbis, Flac, Speex



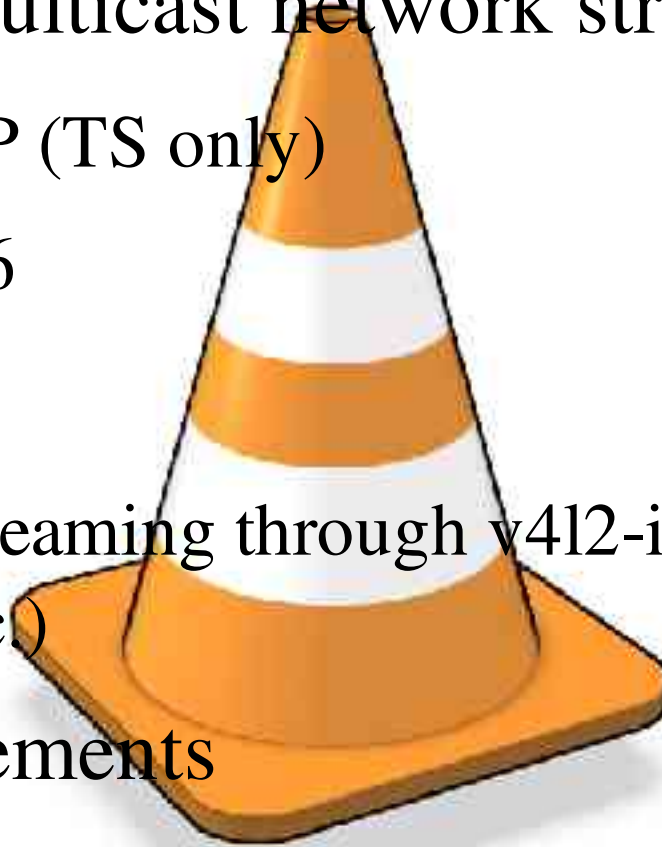
VideoLAN Server (VLS)

- Stream:
 - MPEG 1, MPEG 2 and MPEG 4 TS/PS files
 - DVD and subtitles (unencrypted, encrypted, region coded)
 - Digital satellite/cable/terrestrial channels (DVB-S/C/T) and ASI cards
 - Live video streaming through v4l2-interface (webcams, etc.)



VideoLAN Server (VLS)

- Unicast and multicast network streaming over:
 - UDP and RTP (TS only)
 - IPv4 and IPv6
- Transcoding:
 - Live video streaming through v4l2-interface (webcams, etc.)
- SAP announcements



Streaming Demo



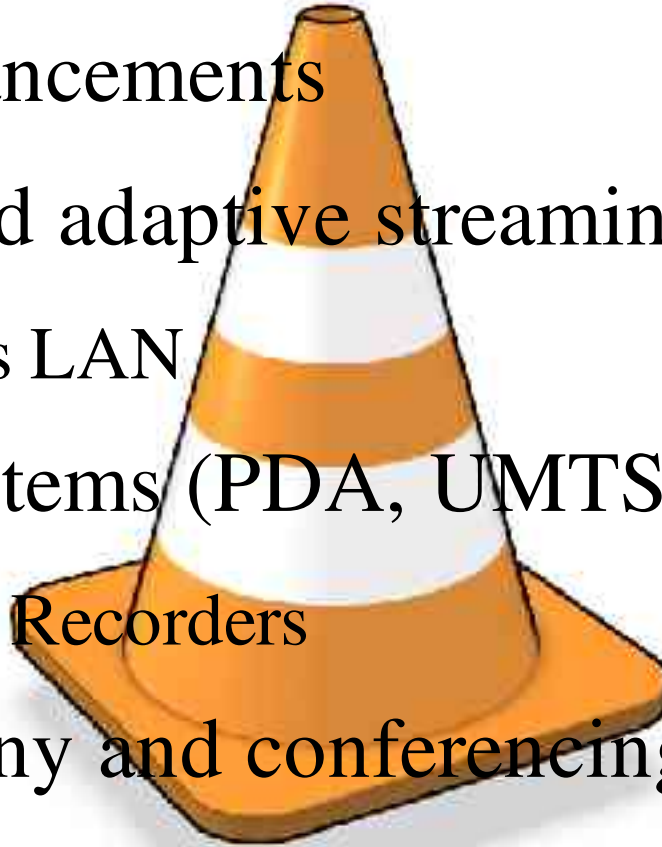
Partners

- Ecole Centrale (supports VideoLAN as a key development project.)
- IBM (donated 2 netfinity servers)
- British Telecom Exact Technologies (contributed IPv6 under GPL)
- AT&T (contributed Multicast support for VLC under GPL)
- SNCF (Hired Samuel Hocevar for working full-time on enhancing VideoLAN client.)
- Others: Extreme Networks, SILICOMP, VTHR, LD.M, Bouygues



Future

- Usability enhancements
- Distributed and adaptive streaming system
 - QoS, Wireless LAN
- Embedded systems (PDA, UMTS, DVR's,)
 - Digital Video Recorders
- Video telephony and conferencing



Questions ?



- Internet site: <http://www.videolan.org>
- Developers site: <http://developers.videolan.org>
- Features: <http://www.videolan.org/vlc/features.html>

