VideoLAN Project

A multimedia streaming solution
talk by
Jean-Paul Saman
jean-paul.saman #at# 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

- Development
- Bug Squash
- Tests
- Feedback
- Announce
- Release
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 accelleration, 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
  - 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)
- Britisch 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