

Digital TV – Digital Video Broadcasting

Patrick Boettcher

DESY Zeuthen, DV

patrick.boettcher@desy.de

Contents

- Introduction
- Terms/Standards
- How DVB works (very basic)
- operating systems and DVB
- examples and future

Introduction

- 1 ½ year ago first DVB-C PCI card
- last year in April first unsupported DVB-T USB box
- huge interest of mine in DVB and kernel developing
- reverse-engineering of the USB driver; when it was completed, I received specifications

Introduction (2)

- dibusb is included in Linux Kernel since 2.6.10
- currently I work on a refactoring of a PCI driver (skystar2)
- if you want to participate in development join linux-dvb@linuxtv.org
- for more information about DVB in general have a look at <http://www.linuxtv.org>

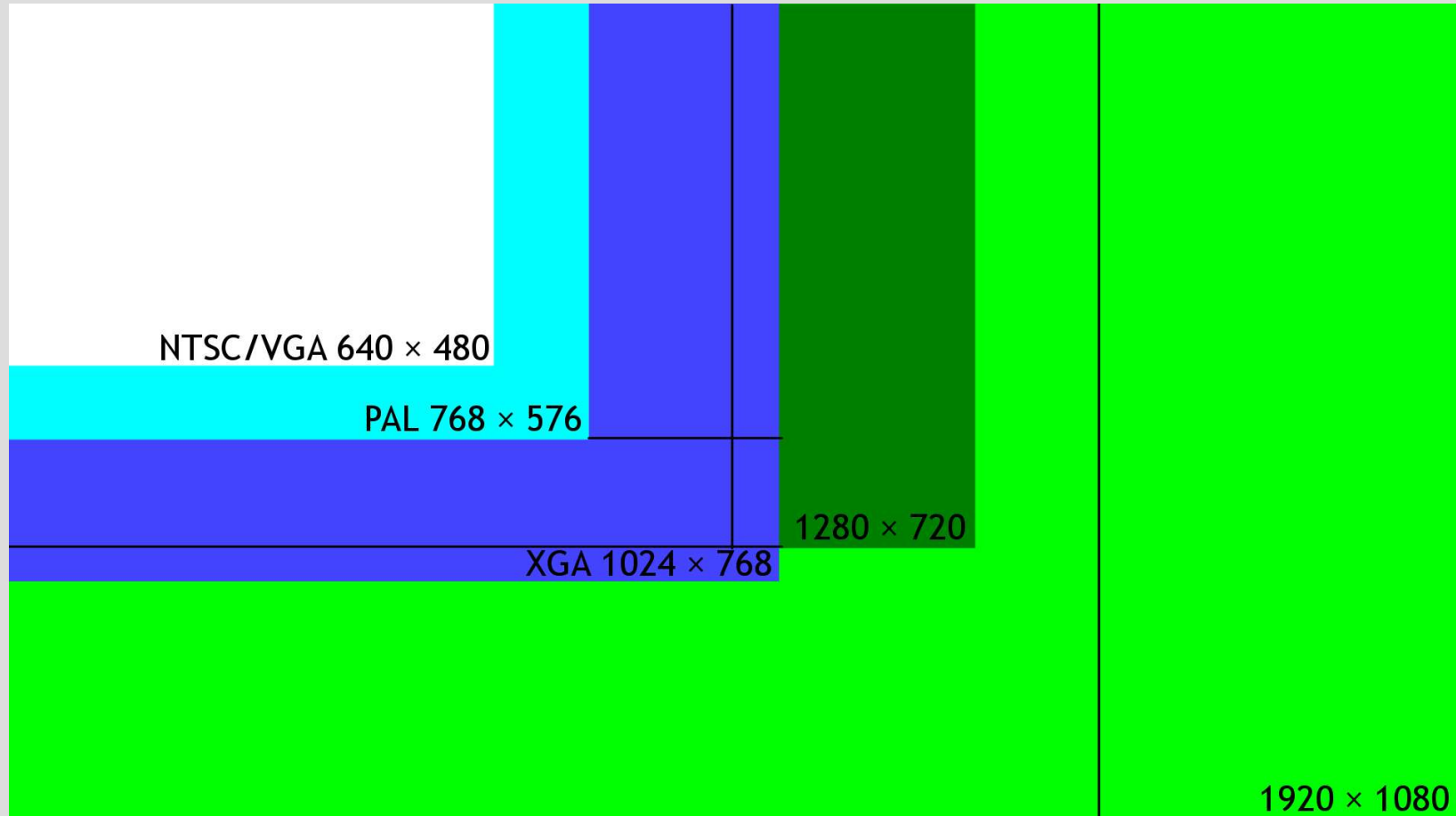
Terms/Standards – Digital TV

- DVB (Digital Video Broadcasting)
 - versus DVD
 - DVB-S/C/T/H (differ in bandwidth)
- ATSC (Advanced Television Systems committee)
USA/Canada
- ISDB (Integrated Services Digital Broadcasting)
Japan

Terms/Standards - Video/Audio

- Video
 - MPEG2 (Moving Pictures Expert Group)
 - MPEG4
 - SDTV/EDTV/HDTV (Standard, Enhanced (no interlacing), High)
- Audio
 - MPEG2 Audio
 - MP3 (well known, but not used in Digital TV)
 - AC3/DD5.1 (Dolby Digital)
 - DTS (Digital Theatre Surround)

Video Resolutions

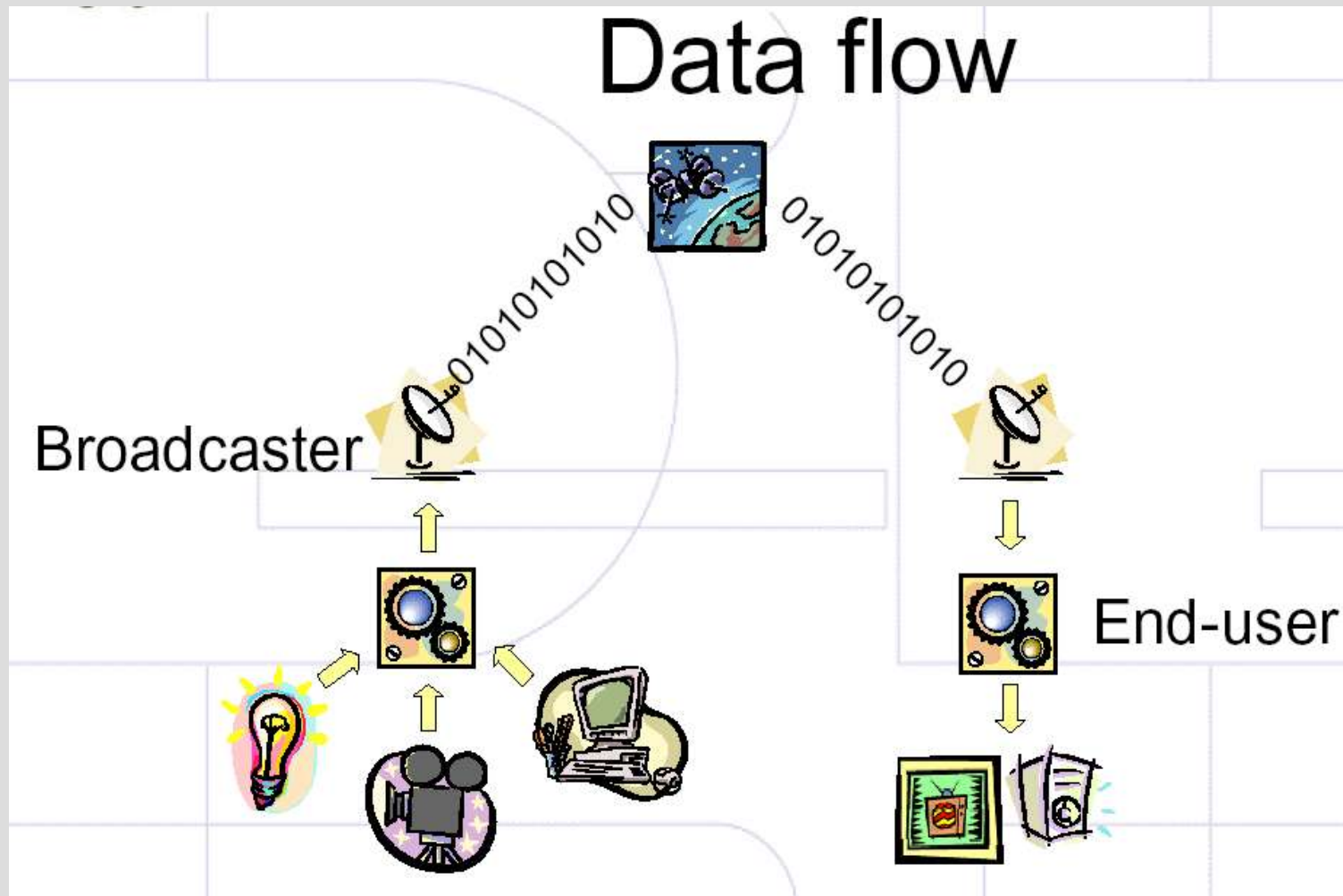


From Wikipedia, the free encyclopedia.

Terms/Standards - Data

- MHP (Multimedia Home Platform)
- EPG (Electronic Program Guide)
- IPoverDVB (Internet over DVB)
- Teletext over DVB

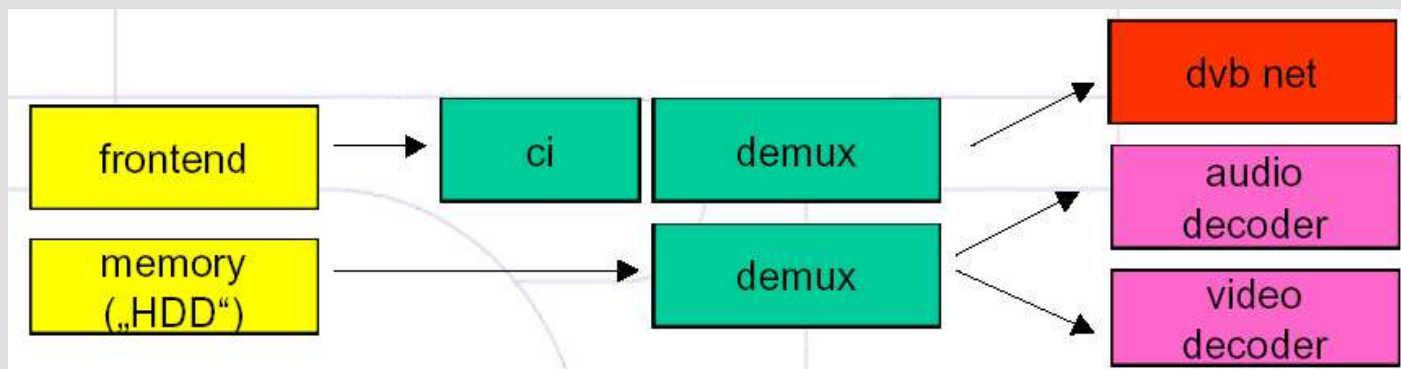
How it works - Hardware



Linux DVB API Version 4 - Michael Hunold

Structure of a DVB device

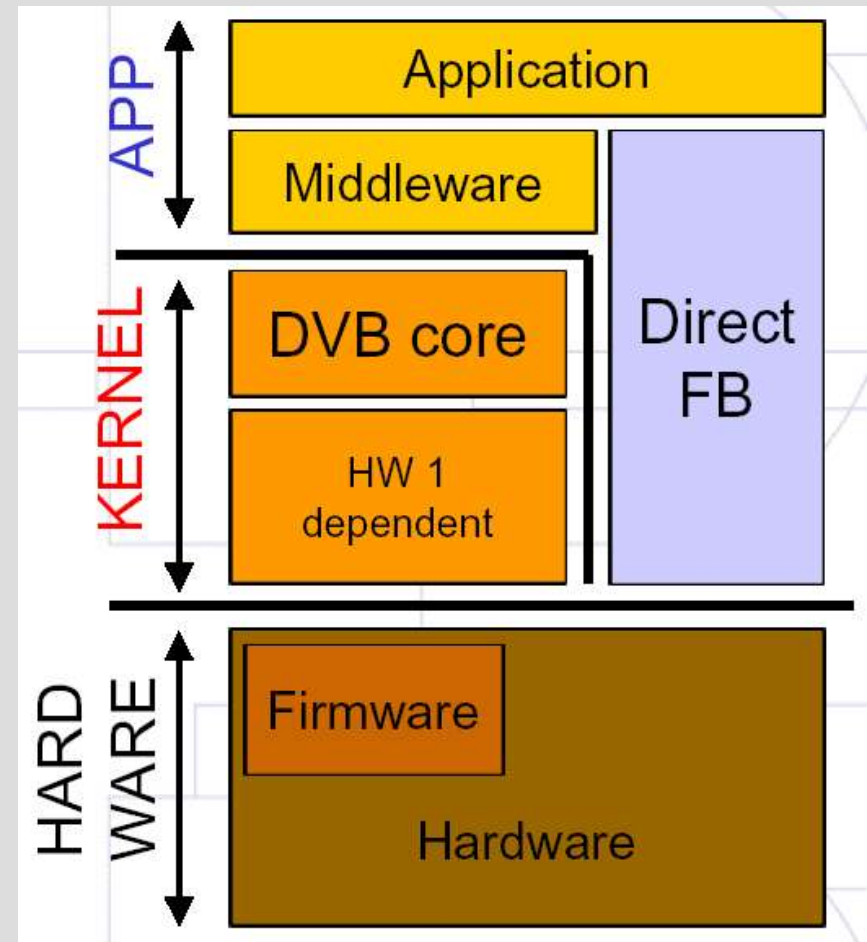
- frontend (appropriate tuner and demodulator (COFDM, QPSK, QAM)) - (hardware)
- demux (hardware or software)
- audio/video/data decoder (hardware or software)



Linux DVB API Version 4 - Michael Hunold

Operating Systems

- Linux DVB API since 1999
- Windows since 2004 (BDA) developers say: "it's not mature"
- Linux is enhancing STBs (working as OS for embedded systems)
- matured STB application for Linux, Kl. Schmidingers 'VDR'



Linux DVB API Version 4 - Michael Hunold

Operating Systems (2)

- very nice driver interface in Linux (not just for DVB devices, but also for USB and PCI)
- windows driver code is much more difficult to read (when doing the same thing)
- because Linux DVB API exists longer, much more applications work together with different devices (currently unbelievable in Windows)

Examples

- small HDTV example
- VDR
- any wishes

Very Near Future

- For the PC: HDTV hardware decoder
- Multimedia Center in the living room (w/o knowing that it is a PC)
- Watching TV everywhere (DVB-T/H)

comments & questions