### Fun with the Linux Desktop

3D-Desktop with XGL/AIGLX and compiz

come2linux, Essen, 9. + 10.9.2006 Hanno Böck, http://www.hboeck.de/



# Why we want fancy desktops?

- Can improve usability (virtual desktop -> side of a cube)
- A nicer system »feels« more usable
- People like MacOS X, there must be a reason



# Linux-Desktop in the past

- Xfree86 very slow develop-ment, rarely new features
- »Nice« stuff only with strange workarounds (kompose, 3ddesk)
- E17 the default desktop for GNU Hurd?



# Xorg

- Spring 2004 license change at xfree86
- Xorg-project forks last version
- Lot's of new development: composite, modularization, xgl, aiglx



## **Composite Extension**

- Renders window-content offscreen
- xcompmgr lets you have shadows and transparent windows
- Not very spectacular, but base for future stuff



### First look on XGL and friends

- Summer 2005, first impressions of XGL, rotating cube
- Around the same time, Luminocity presents wobbly windows



### **XGL**

- David Reveman (Novell)
- Xserver based on OpenGL
- (currently) Xserver on another Xserver
- All cards with DRI



### EGL/XEGL

- Problem: XGL needs already running Xserver
- EGL: direct interface to GL, no Xserver needed
- XEGL: XGL running on EGL
- Not working yet



# Compiz

- Composite and Windowmanager
- Very modular
- Lot's of plugins rotating cube, wobbly windows



### AIGLX

- Kristian Høgsberg, Fedora
- Extension to already existing Xserver
- Same functionality as XGL
- All cards with free drivers



### We need better drivers

- Fast
- Stable
- Full-Featured
- Free!





## Binary drivers suck

- Security, Bugs
- Functionality (Composite, AIGLX, Realtime etc.)
- No/delayed updates for new kernels/xorg, old cards
- Bad for development



#### Intel

- Best free drivers
- Intel released source before card in shops
- BUT: binary interface (DRM, HDCP)



#### **ATI**

- Limited 3D support for all cards before X1300
- No 2D/3D support at all (only VESA) for past X1300
- ATI very uncooperative (dor't even talk to devs)



### r300 and above

- r300-project did very good work on reverse engineering
- with latest versions of mesa (6.5.1) and driver (6.6.2), quite stable on many cards



### **Nvidia**

- Always had their binary-only drivers
- No free 3D-support at all





# Nouveau project

- Working on better nvidia-drivers
- EXA-Support (2D-acceleration) works pretty well
- Promising work, but still a lot to do for 3D
- nouveau.freedesktop.org



### Should I use AIGLX or XGL?

- (personal opinion) use AIGLX if you can, if not use XGL
- AIGLX for all Intel, all ATI below X1300, all SIS, VIA and others (if you have DRI)
- XGL for Nvidia, ATI X1300 and above



### What do I need for AIGLX?

- mesa git-snapshot (6.5.1 to come)
- working DRI (direct rendering)
- xserver 1.1.1 + patches
- compiz from git + patches
- http://people.freedesktop.org/ ~krh/compiz-on-aiglx/



### What do I need for XGL?

- mesa 6.5
- working DRI (direct rendering)
- compiz from git
- XGL from git



#### Gentoo

- Overlay (both aiglx and xgl) at http://www.hboeck.de/item/384
- AIGLX-patches already in (masked) xorg-server-1.1.1-r1
- Full AIGLX-support in portage very soon



#### Ubuntu

- XGL already working quite well in Dapper
- AIGLX-packages for dapper and edgy at:

http://gandalfn.wordpress.com/



### SUSE

- Created XGL, so it's supposed to work
- Look at http://en.opensuse.org/Xgl



### Fedora

- Created AIGLX, but not yet in FC release
- Packages in Rawhide





#### Mandriva

- Announced to support both XGL and AIGLX, depending on what suits better
- Packages in Cooker





## Debian

Don't ask!





### Kororaa

- XGL-LiveCD
- Development stopped due to legal situation with binary drivers
- New version with only free drivers to come soon
- http://www.kororaa.org/



### Questions?

Hanno Böck http://www.hboeck.de

