

Compiled Languages

Normally , used for system software (e.g., operating system) and resource demanding services : C, C++

Pro

-Efficient approach

**-Expressive power (closer
can to computer hardware)**

Contra

**- Interoperability (each service
has to be compiled to target
(device)**

**- Less safer to distribute (it
include harmful code)**

Compiled Languages System Software

- "User Interface Software Tools" (1995, Myers) defines a layered model
- Applications implemented using higher-level tools
- Toolkit: a library of widgets used by applications
- Windowing System: helps user to monitor and control different contexts (input and output functionality)

Applications

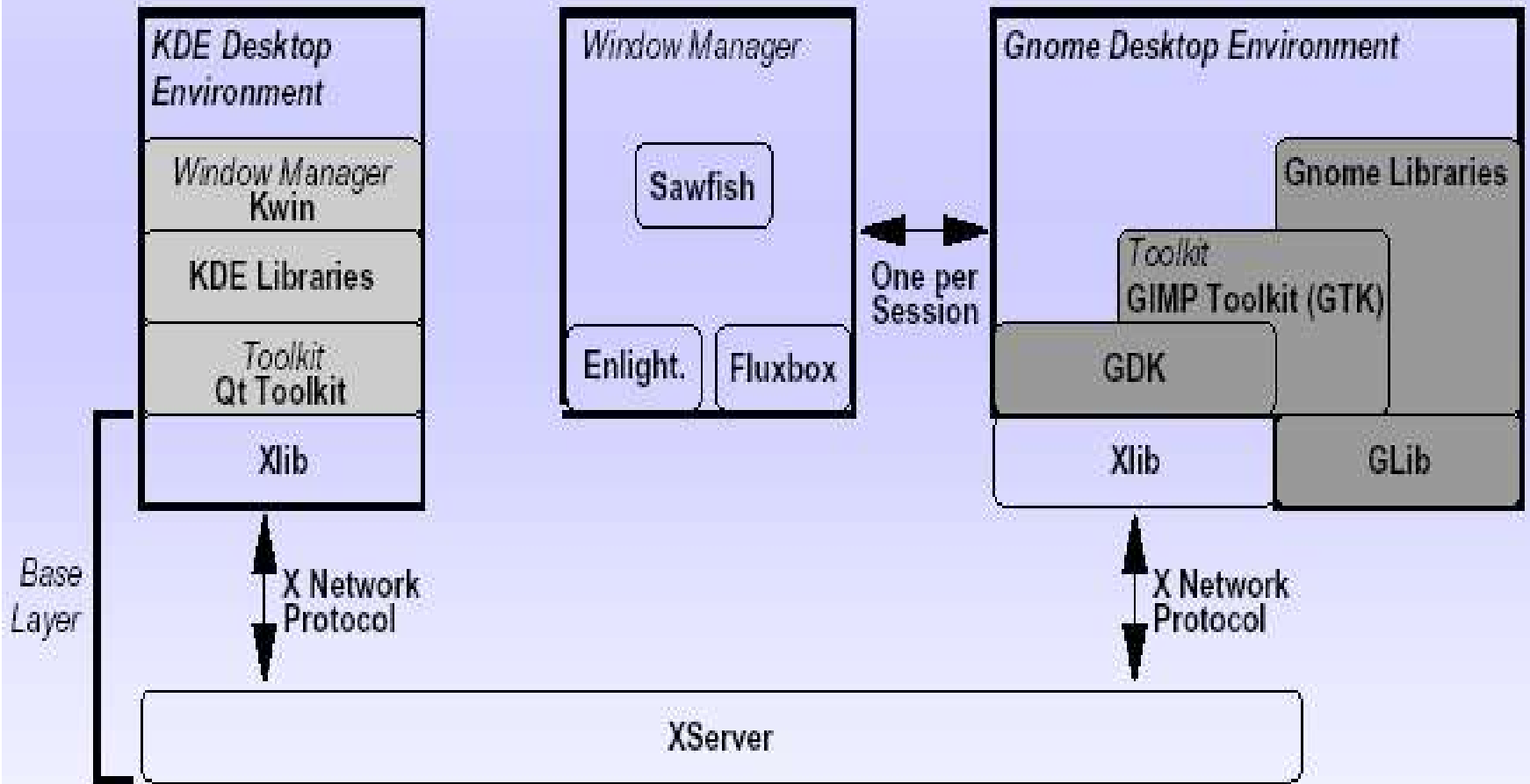
Higher-level Tools

Toolkit

Windowing System

Operating System

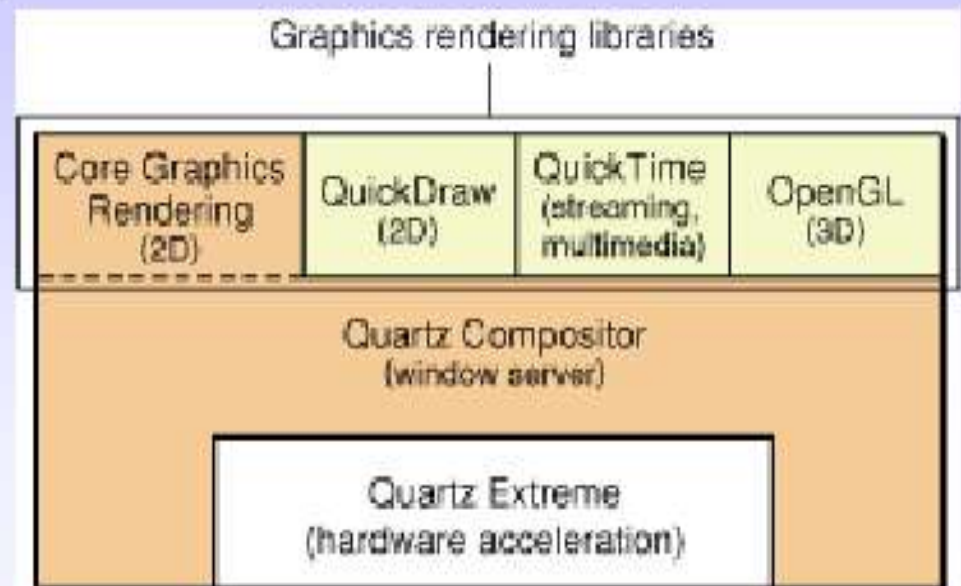
Compiled Languages Windowing System (1/3)



Compiled Languages

Windowing System (2/3)

- X-Window
 - X.org: fonts management, graphics card support, composite functionality
 - Desktop environments: KDE, GNOME (Toolkits + Applications)
 - Window Managers: FluxBox, Sawfish...
- DirectFB
 - XDirectFB: X-Window Support on DirectFB
 - DirectFBGL
- Microsoft Windows
 - DirectX
- Mac
 - Video: QuickTime
 - 3D: OpenGL
 - 2D: QuickDraw



Screenshots – X.org

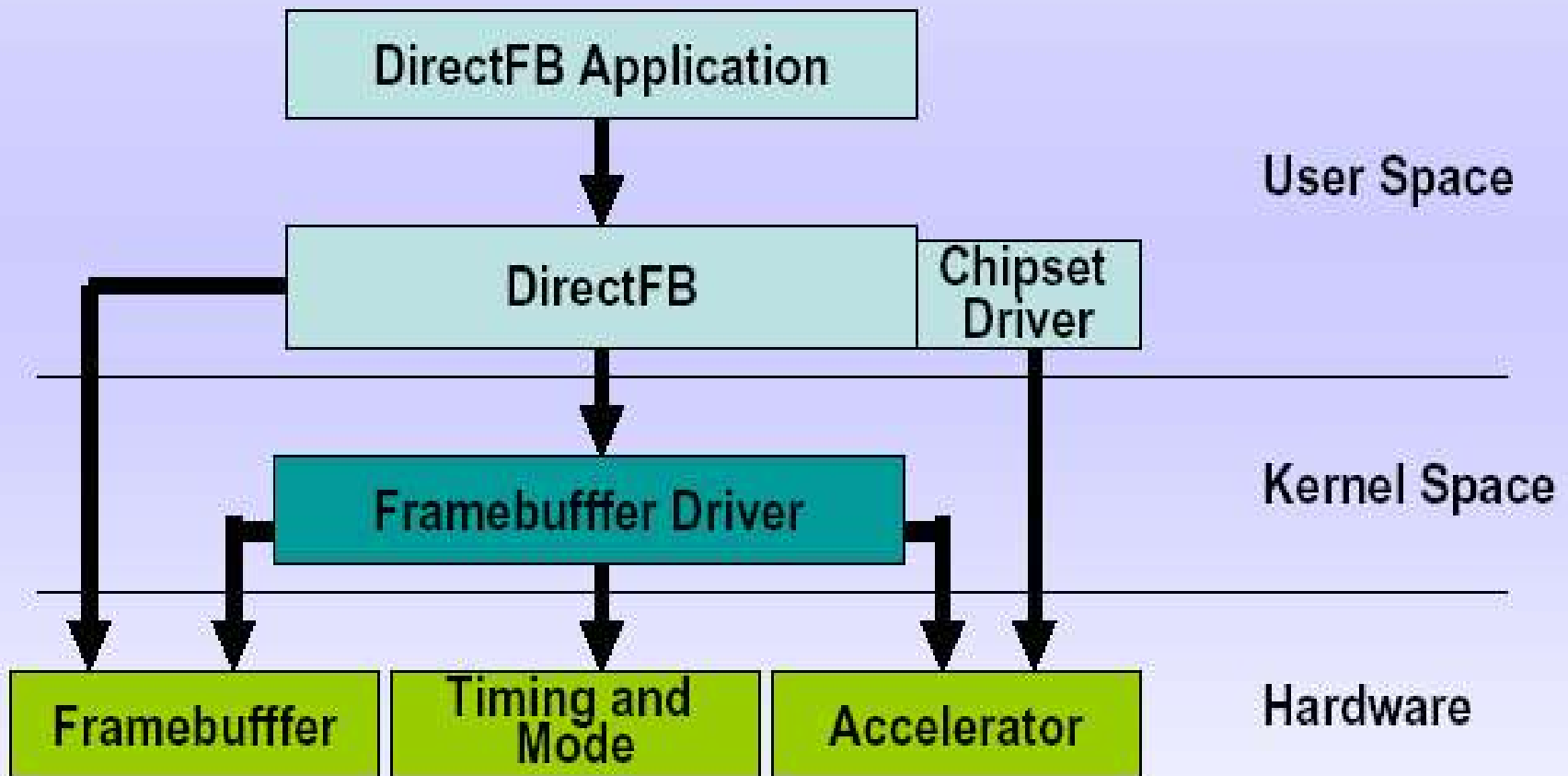


Screenshots – DirectFB



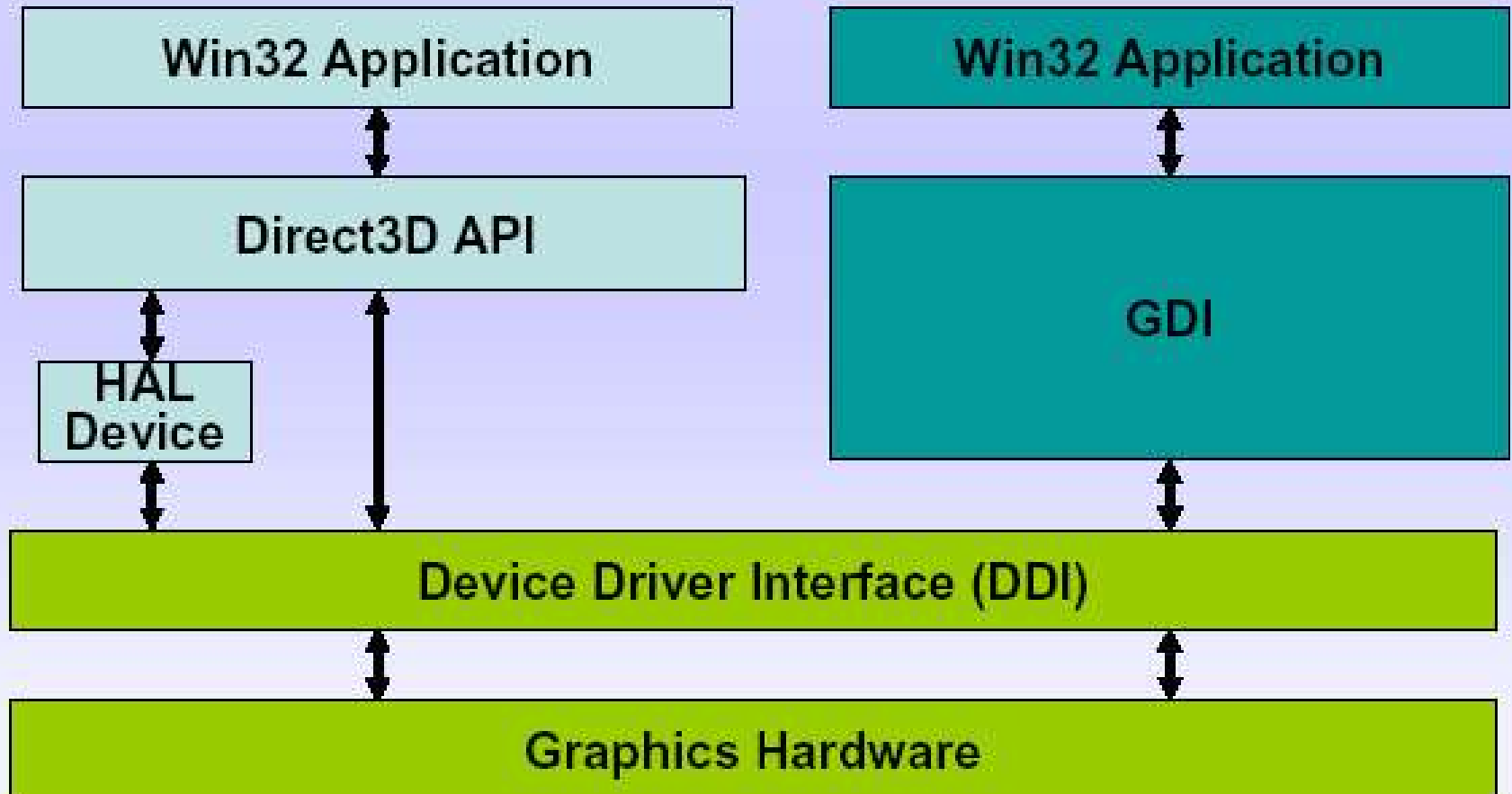
Compiled Languages

Windowing System: DirectFB



Compiled Languages

Windowing System: Direct-X



Compiled Languages Toolkits

- Toolkits provide
 - Interaction: to handle user input
 - Canvas Operations: both rendering region, canvas, and graphics primitives
 - Set of Widgets: predefined user interface elements (e.g., Button)
 - Graphical Layout: to control the location of the widgets
- Examples: QT, GTK
- Virtual Toolkit
 - Device independent Toolkit
 - Mapped to actual Toolkit in the device
 - Example: AWT

Compiled Languages Media Providers

- Audio/Video: Xine, MPlayer
- Television: linuxtv
- Games: SDL
- Other Languages: For example libflash
- 3D graphics:
 - OpenGL
 - OpenGL ES
- Home media platforms: LIMMBO, MythTV