

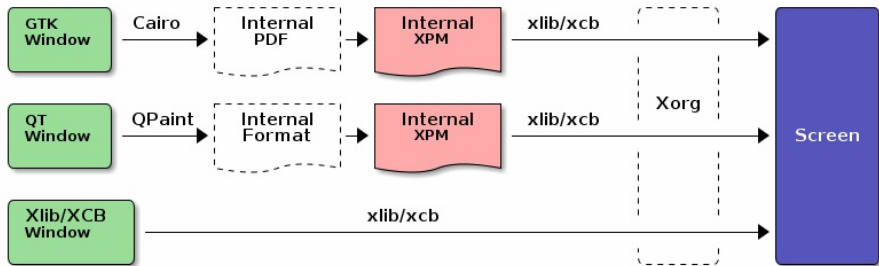
# X Composite



- 
- X.....
  - Composite.....
  - .....
  - Composite.....
  - .....

X

X



X API GTK+ 3.0 Cairo Cairo  
PDF 1.4 GTK 2.0 Cairo xlib xcb  
X QT QPainter X GTK  
QT X

X X GDI+ Quartz  
Device Independence

X (1,1) (0.5, 0.5)

Unix Hater's Handbook X X  
subpixel-level anti-aliasing

xterm urxvt GDI

WMF Quartz PDF X Cairo  
QPainter Firefox Chromium  
X

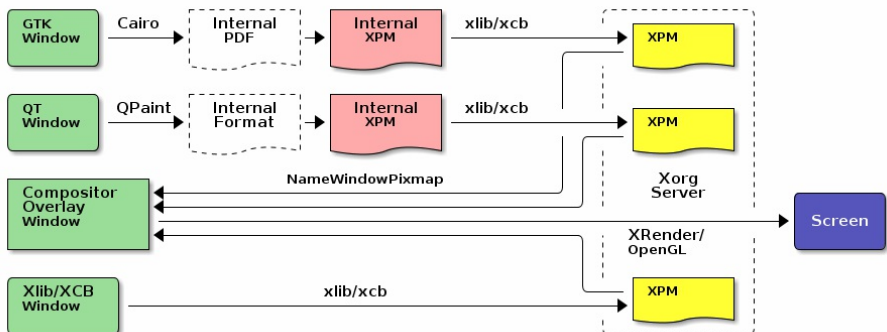
Composite

# 2004 X11R6.8 Xorg Composite The (Re)Architecture of the X Window System Composite X

1. RedirectSubwindows
2. NameWindowPixmap
3. GetOverlayWindow
4. CreateRegionFromBorderClip

## Composite X API

### Composite X



## X Mac OS X

1. X XRender OpenGL/EGL  
X
2. RedirectSubwindows Mac OS X  
X
3. X mapped Windows 7  
Aero Peak
4. Mac OS X OpenGL Surface  
device independent X device dependent X

Cairo QPaint PostScript  
 PDF XPM DPI  
 subpixel layout  
 Mac OS X 10.4 Mac OS X  
 10.5 Retina 2 X X Mac  
 OS X OpenGL Surface

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Composite API X  
 OverlayWindow OverlayWindow

Composite API  
 fcitx, ibus, scim **X**  
 top-level ICCCM/EWMH X

X X XFixes  
 SetWindowShapeRegion API OverlayWindow  
 ShapeInput OverlayWindow  
 OverlayWindow OverlayWindow

- X
- 1.
  2. **X** X

Gnome 3

Gnome 3

Gnome 3

Composite X Mac OS X Exposé

LG3D 3D

Sun Microsystems

LG3D X Event

Interception

XEvIE API

It has been suggested that this extension should not be used because it is broken and maintainerless.

# Composite

Composite

1. Xorg Xorg Wayland  
slide the real story behind Wayland and X

and what's the X server?  
really bad IPC

X

2. X X

X API API IPC — X

Wayland

Wayland X

Wayland

The (Re)Architecture of the X Window

System 2004 Composite X X

OpenGL X

GLX

AIGLX

DRI

KMS

Linux

so you want to build a compositor 2008

Clutter

Composite tutorial Qt

unagi xcompmgr

Master

thesis: Writing an X compositing manager X