X Window System

Client: an application; browser, game, . . .

X protocol

Server: hardware abstraction; monitor, keyboard, . . .
X Window System

- Application
- XCB

Client: an application; browser, game, ...

\[ \text{X protocol} \]

Server: hardware abstraction; monitor, keyboard, ...

Diagram:
- Application
- XCB
- X protocol
- Server: hardware abstraction; monitor, keyboard, ...
X Window System

- Application
- XCB
  - Client: an application; browser, game, . . .
  - X protocol
  - Server: hardware abstraction; monitor, keyboard, . . .
- Device-Independent X (DIX)
- Device-Dependent X (DDX)
X Window System

- Application
- XCB
  - Client: an application; browser, game, . . .
  - X protocol
  - Server: hardware abstraction; monitor, keyboard, . . .
- Device-Independent X (DIX)
- X.Org Device-Dependent X (DDX)
- X.Org video driver (intel, ati, nouveau, . . .)
- Graphics device
X Window System

- Application
- XCB
  
  Client: an application; browser, game, ...
  
  X protocol
  
  Server: hardware abstraction; monitor, keyboard, ...
- Device-Independent X (DIX)
- X.Org Device-Dependent X (DDX)
- X.Org nested video driver (Fall 2010 Capstone)
- Backend X server
X Window System

- Window Manager
- XCB
  - Client: an application; browser, game, ...
  - X protocol
  - Server: hardware abstraction; monitor, keyboard, ...
- Device-Independent X (DIX)
- X.Org Device-Dependent X (DDX)
- X.Org video driver (intel, ati, nouveau, ...
- Graphics device
X Window System

- Compositing Window Manager
- XCB
  - Client: an application; browser, game, . . .
  - Server: hardware abstraction; monitor, keyboard, . . .
  - X protocol
- Device-Independent X (DIX)
- X.Org Device-Dependent X (DDX)
- X.Org video driver (intel, ati, nouveau, . . .)
- Graphics device
X Window System

- **Rootless Compositing Window Manager (your project)**
- **XCB**
  - Client: an application; browser, game, . . .
  - Server: hardware abstraction; monitor, keyboard, . . .

- **Device-Independent X (DIX)**
- **X.Org Device-Dependent X (DDX)**
- **X.Org video driver (dummy driver)**
Primary Goals

Your project:  **X.Org Rootless Compositing Window Manager**

Required Features:

- Support for one of the following native platforms:
  - Mac OS X
  - Wayland
  - X
  - Windows
- Draw X11 windows as native platform windows
- Basic window manager functionality: move, resize, minimize, maximize, close
- Translate native input events into X11 input events
- Well abstracted API for extension to other platforms
Secondary Goals

Your project: **X.Org Rootless Compositing Window Manager**

Extra credit:

- Support for additional platforms
- Advanced window manager functionality:
  - Fullscreen
  - Integration with native virtual desktops
- Other native platform integration:
  - Clipboard
  - Tray icons
- Multitouch
- Accelerated rendering: 2D, 3D (OpenGL/GLX)
Similar Projects

Existing projects with similar goals:

- XQuartz
- XWin

How do they differ from this project?

- Server versus client managed windows
- Ancient codebase predates modern extensions (DAMAGE, COMPOSITE)

Please, help us throw them away in favor of your code!
X Community

Getting help and reporting results

- Us
- Portland X experts (Intel and elsewhere)
- IRC: #xorg-devel, #xquartz
- xorg-devel@lists.x.org,
  xquartz-dev@lists.macosforge.org
Summary

- Join the bearded X gurus (beard optional)
- Hack on an Open Source project
- Do something highly visible

Questions?