GNUstep

Cross-Platform Advantages

The Beginning

- The idea for GNUstep was first proposed by Paul Kunz. He is a scientist at SLAC who created an open source program known as HippoDraw for NeXTSTEP.

  - He wanted to port it to UNIX so he wrote libobjcx which implemented those parts of the API which his program needed.

- libobjcx is not "genetically" related to GNUstep due to issues Paul had with assigning the copyrights for the code to the FSF, but it provided the inspiration for others to start the GNUstep project.

What is it?

- It is a platform independent development environment which works on a wide range of operating systems and hardware. GNUstep does have some aspects of a desktop environment, but we keep those minimal to allow other projects to fill that need.

- An implementation OpenStep (now known as Cocoa)

    - Stable and well established API which has been around for 15 or so years...

        - Wait? Did he say 15? But Apple has only been selling OS X for about half that!

- It is **not** WindowMaker nor is it a window manager.   That being said, we do cooperate with the WindowMaker team to make sure the experience under WindowMaker is as good as it can be.

WINDOW MAKER
YOUR NEXT WINDOW MANAGER

15 Years?

- Cocoa is the successor of OpenStep
  - What's OpenStep?
    - Created by NeXT and Sun in 1994, the OpenStep specification was an open standard for a cross platform API.
      - side-note: OpenStep is known to have been the inspiration for Java. There were even copyright notices in the original Java distribution which mentioned it by name.
    - The only other implementations of OpenStep were those for Solaris and Windows.

What Happened?
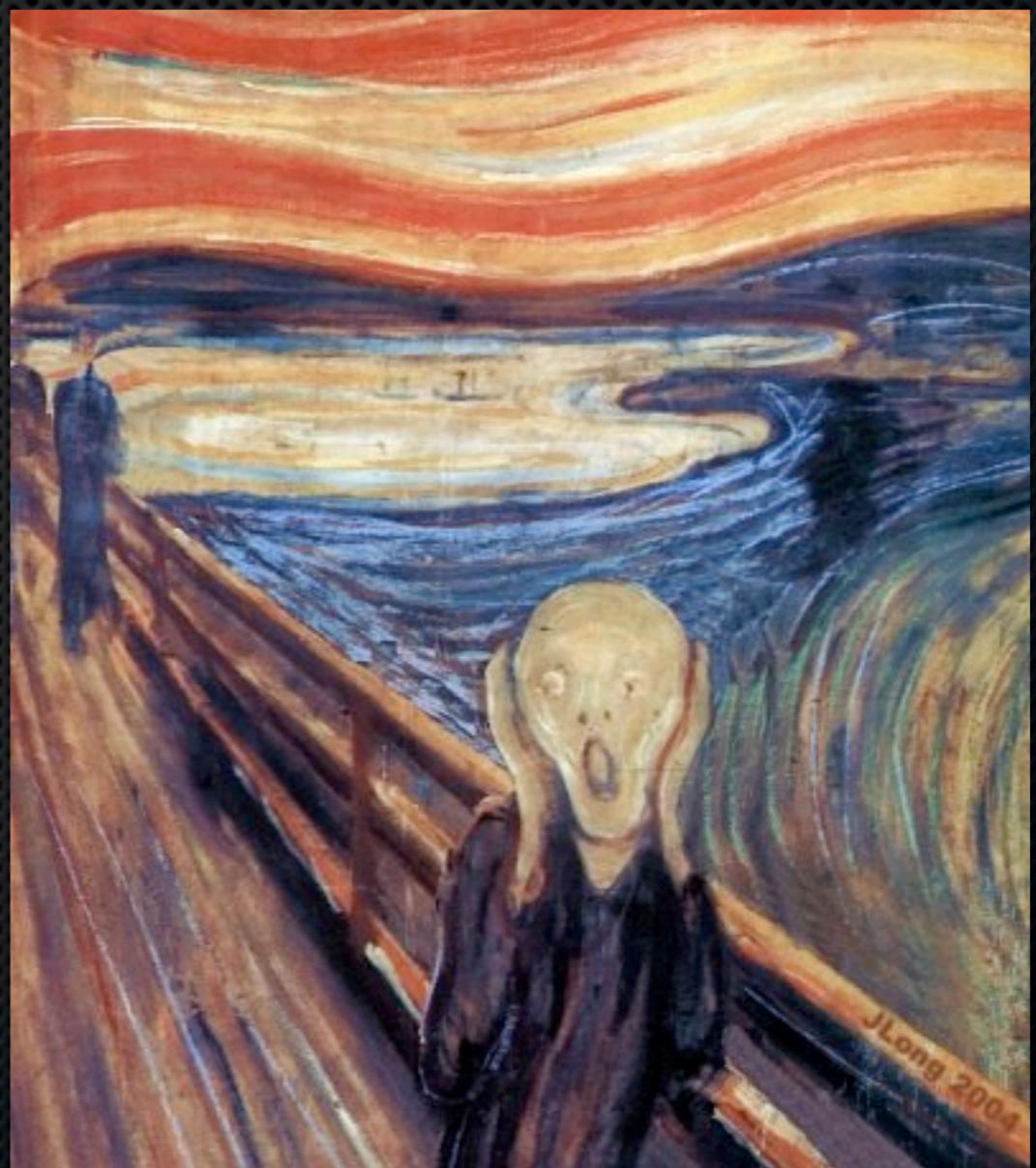
- NeXT was bought by Apple and the Cross-platform capabilities of OpenStep were forgotten.

- OpenStep was rechristened as Cocoa, so Cocoa is, basically, OpenStep 5.0. :)

OMG!!

- We were a little concerned... we didn't want those capabilities forgotten. What to do?

What did this mean for GNUstep?

- GNUstep had to adapt in the following ways:

  - Follow the API changes added to Cocoa by Apple

  - Follow the language changes added by Apple.

  - Remain compatible with OpenStep as well, since there were still (and still are) some companies using it.

  - Work on the widest range of platforms possible. In fact we've borrowed the NetBSD slogan "Of course you can build apps with GNUstep on it..." ;)

GNUstep's Strengths

* Cross Platform

* Easy to use development environment

  * Gorm

  * ProjectCenter

  * DBModeler

  * EasyDiff

Cross Platform

- Currently GNUstep works on the following platforms that we are aware of:

  - GNU/Linux, FreeBSD, NetBSD, OpenBSD, Windows 2000/XP/Vista, Solaris, Darwin, basically any POSIX OS or OS which has a POSIX layer. I'm sure there are more...

  - Supports a wide range of architectures.

Development
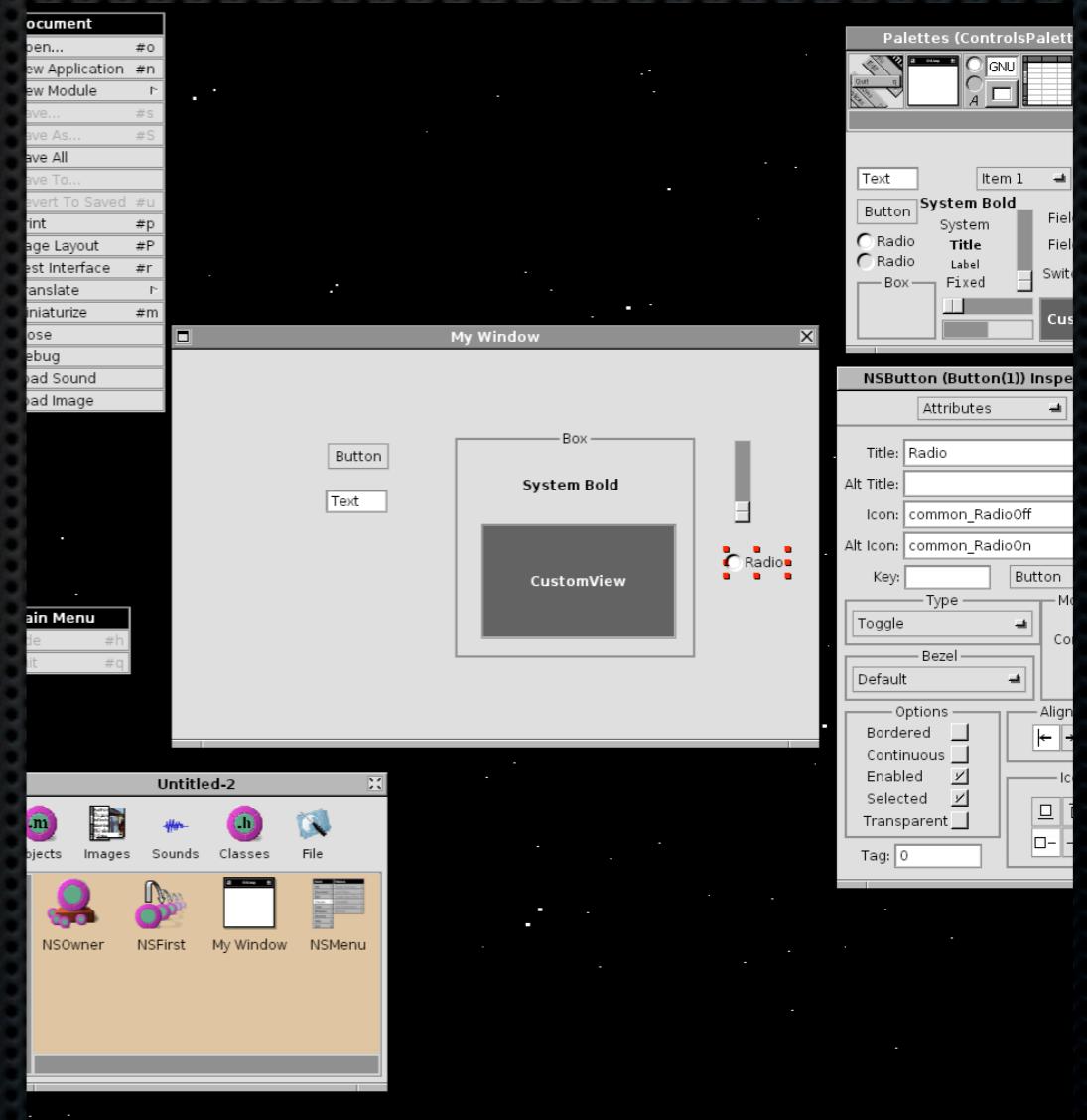
* Development Environment

  * Gorm

    * Graphical GUI builder which is more powerful than other GUI builders currently available in the open source community.

Development

* ProjectCenter

    * XCode/ProjectBuilder equivalent. Currently under heavy development itself. It's maturing very quickly.

* DBModeller

    * Builds O-R mapping for GDL2 database framework.

* GNUstep-make

    * Provides a set of easy to use makefile scripts built on top of the standard make system that simplifies

Gorm

- GORM is the GNUstep/Graphical Object Relationship Modeler

  - Similar to Interface Builder in design and concept.

    - Drag and drop development of GUIs with no code at all

    - Support for Plugins and Palettes to dynamically expand the capabilities of the application at runtime.

    - Short demo.... :)
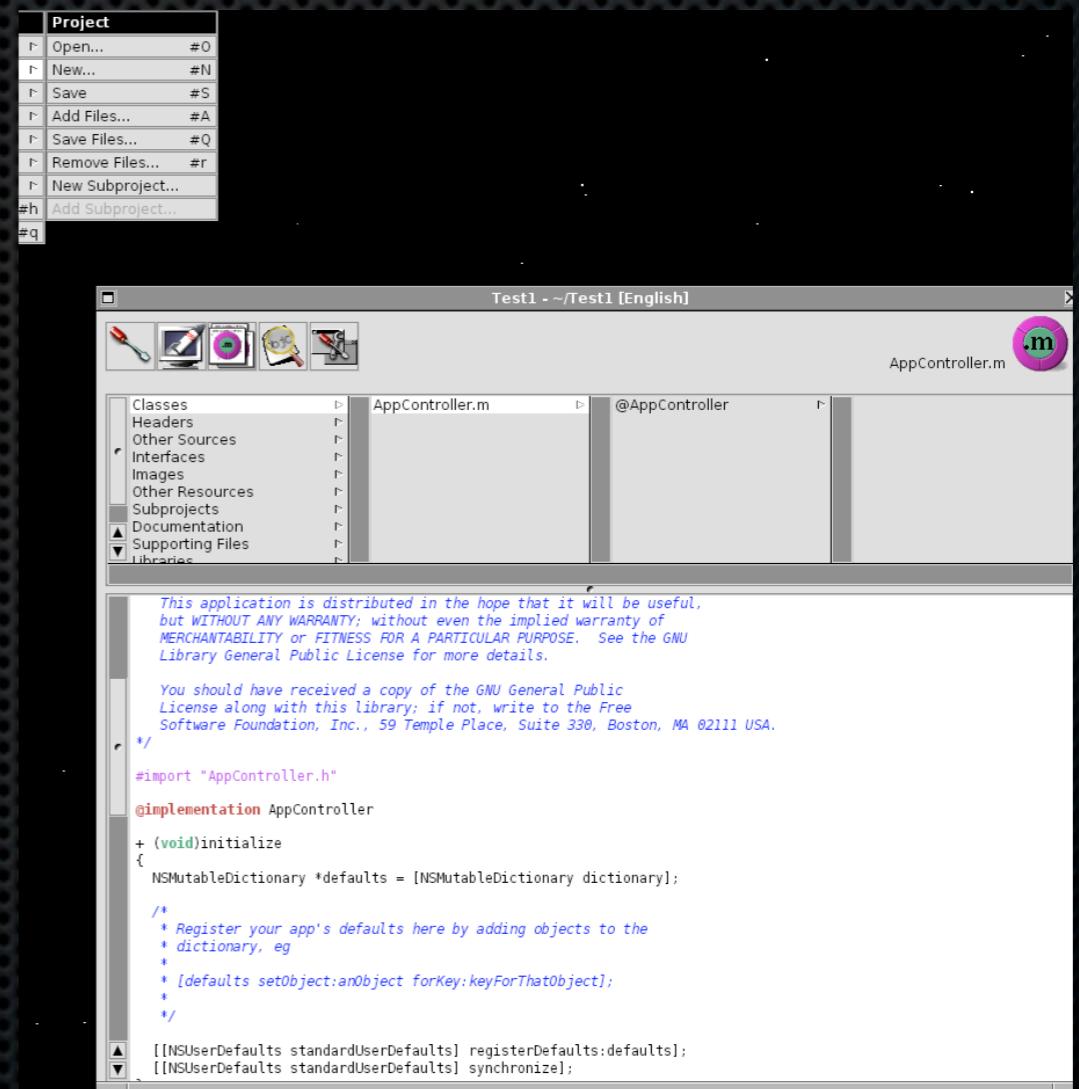
Gorm vs. Glade

- Extendability

  - Gorm offers the ability to add palettes and plugins to extend it's functionality.   Palettes can add new widgets, inspectors, images and sounds to Gorm for use in your application.

 - Gorm is MUCH more than a GUI builder, it is also an "application builder."
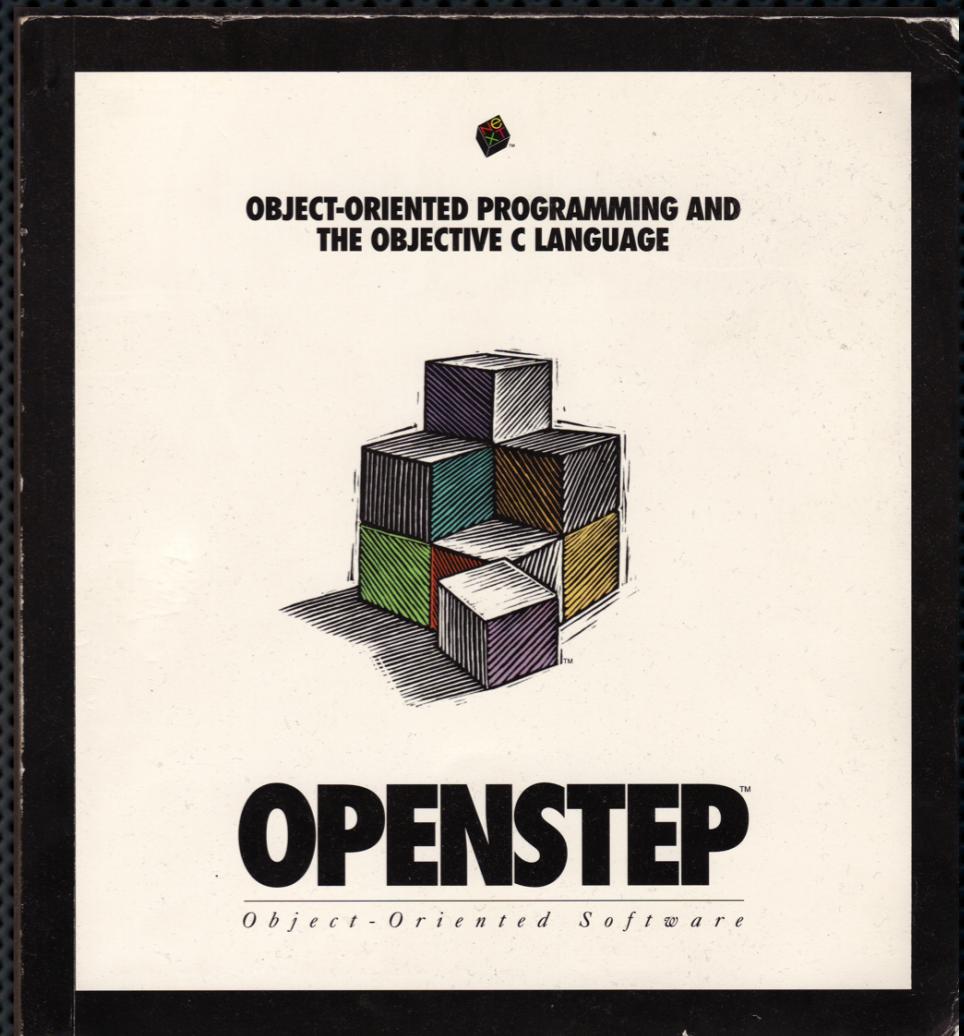
Project Center

- GNUstep's IDE

  - Handles all of the project types GNUstep supports:

    - Applications

      - Gorm or

      - Renaissance based

    - Bundles

    - Frameworks

    - Tools

    - Plugin-based to allow easy expandability

  - Integrated debugger

  - Integrated Editor

  - Short demo.... :)

Language
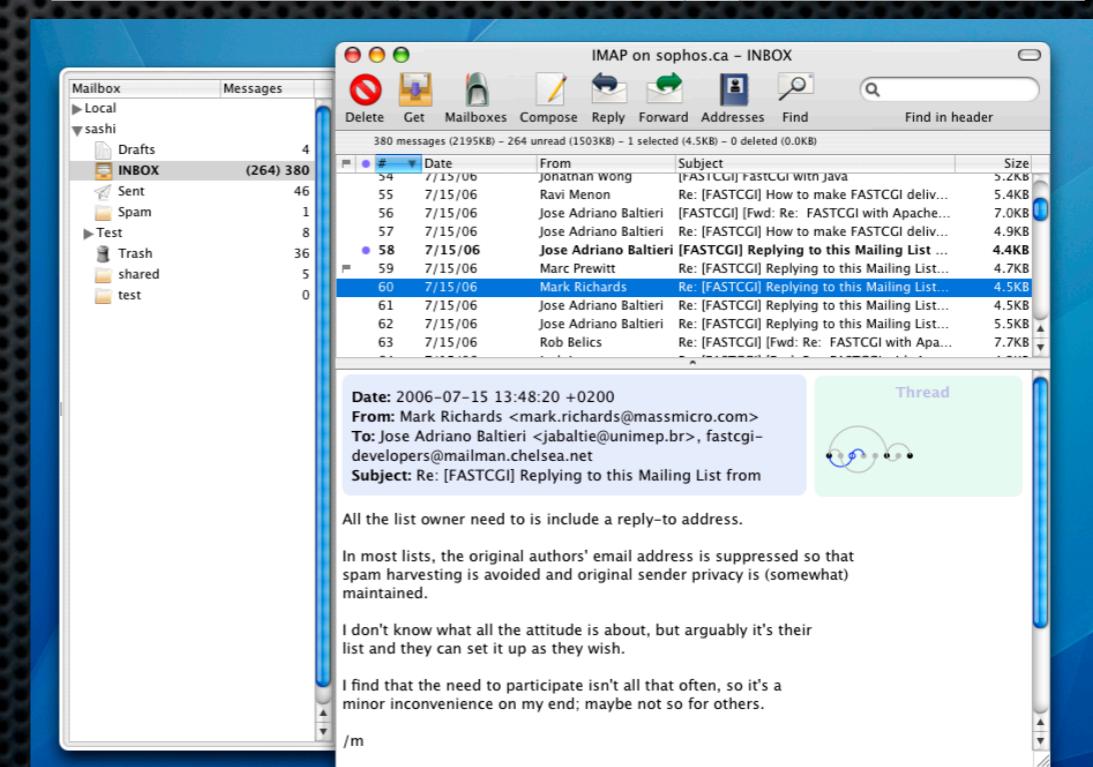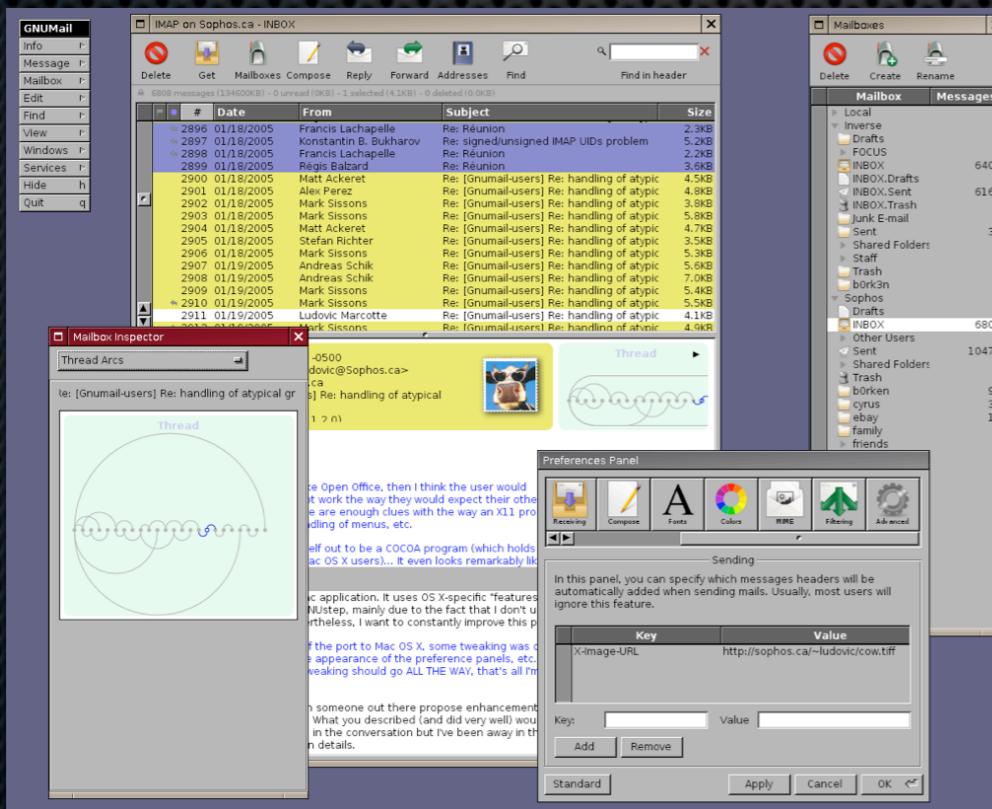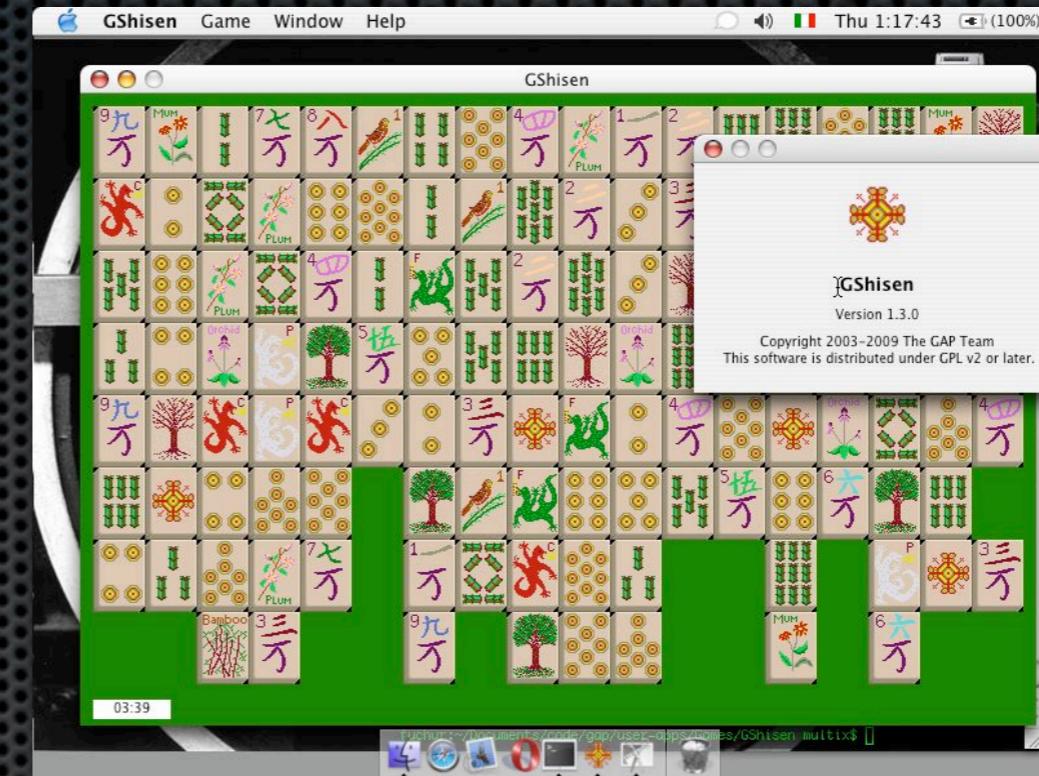
- Objective-C

  - Proper C superset, unlike C++

  - Dynamic

  - Simple and easy to learn and not nearly as scary as those C++ guys want you to think.
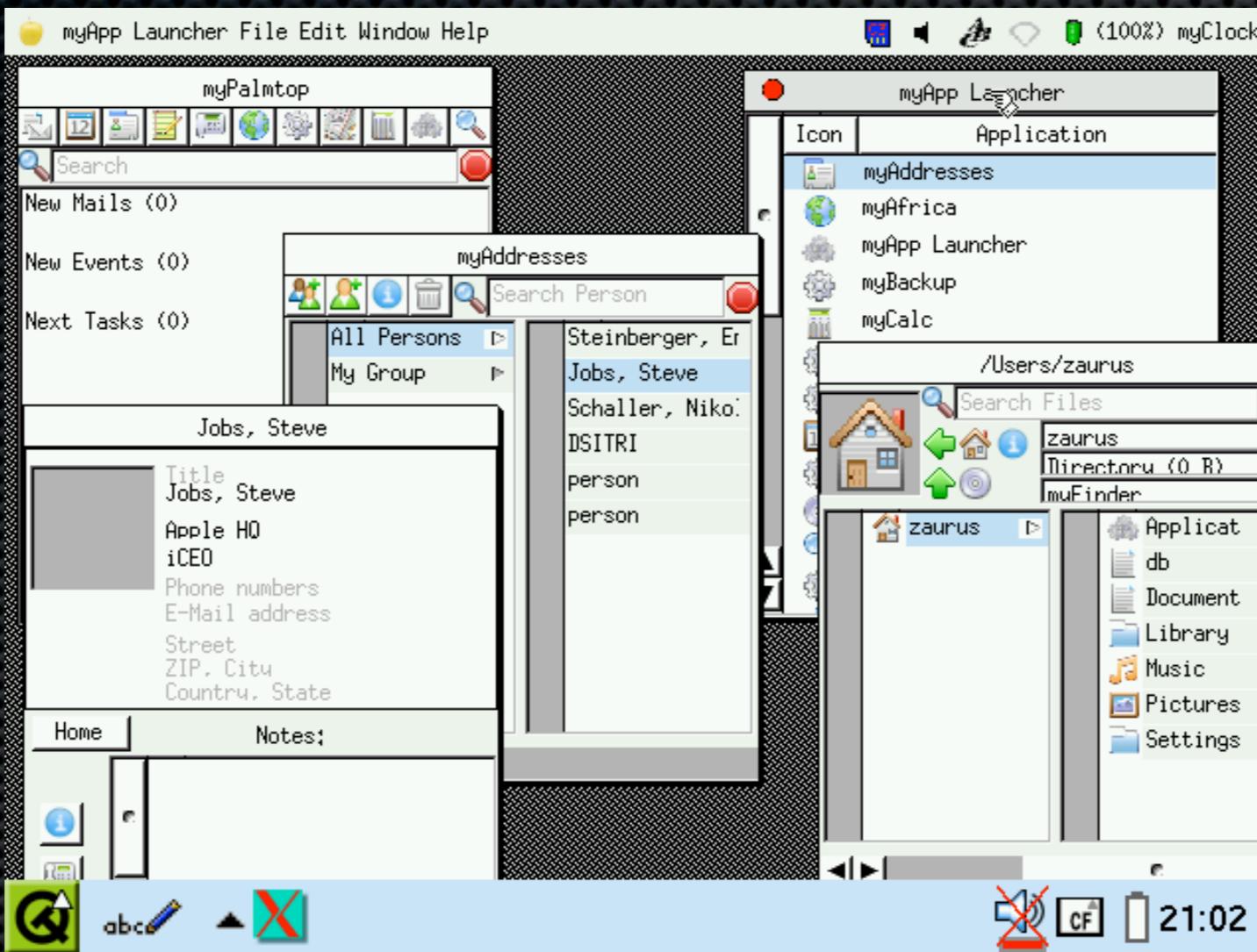
Portability

- Cocoa

  - GNUstep implements a significant portion of the Cocoa APIs.

    - It does not currently implement some of the Core* set of frameworks: CoreAudio, CoreData, etc. It does, however, implement some of the CoreGraphics framework.

  - NIB compatibility - Cocoa .nib files from 10.2 and later are readable by GNUstep... so, when you port, you don't have to change anything.

  - pbxbuild - A tool which can buiild .xcode projects from the command line.   This tool doesn't require integration with Xcode SDKs since it runs on the target platform.

Examples of Portability

More...
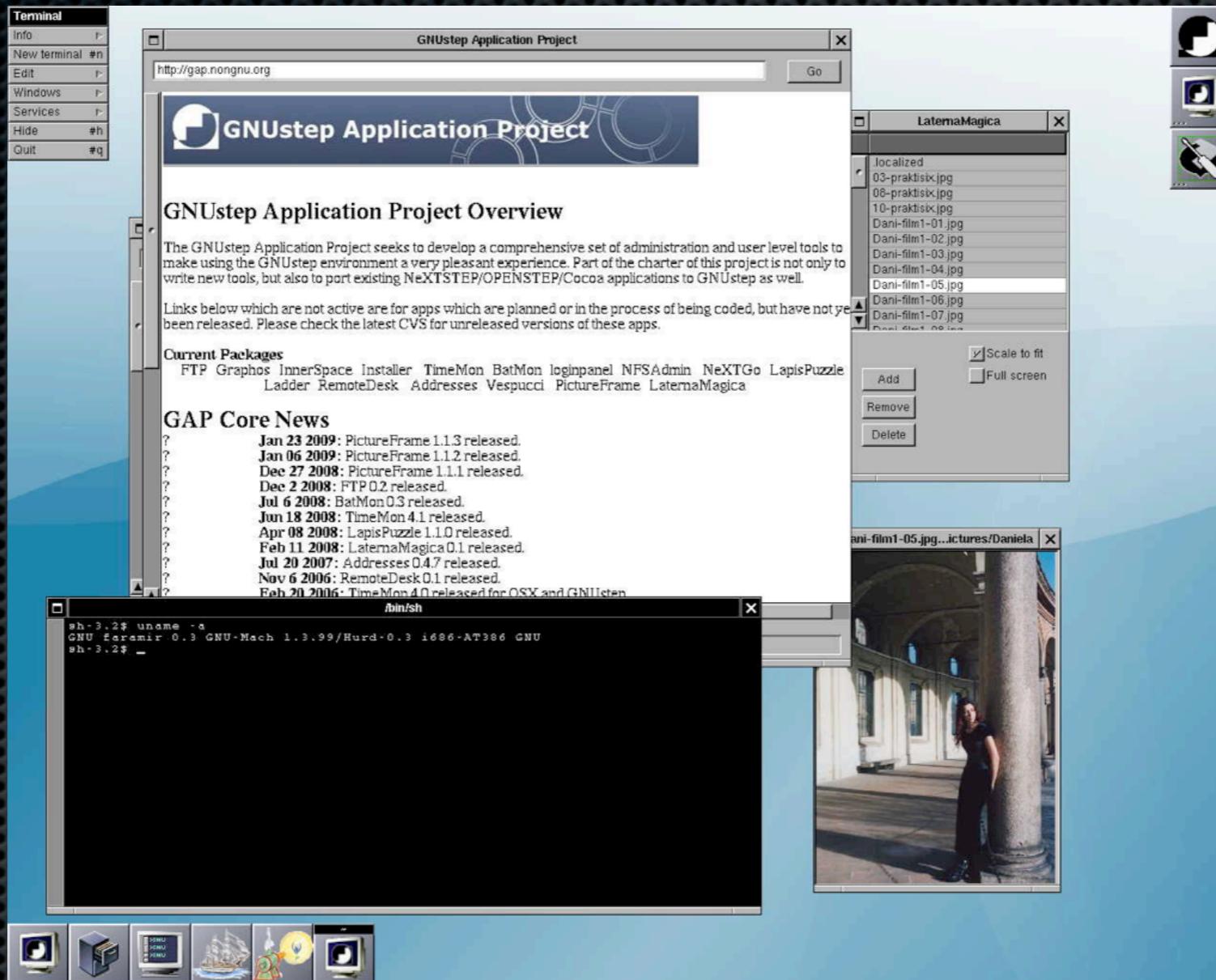
* QuantumStep (GNUstep for embedded systems) on Zaurus... also available for OpenMoko now.

More still…
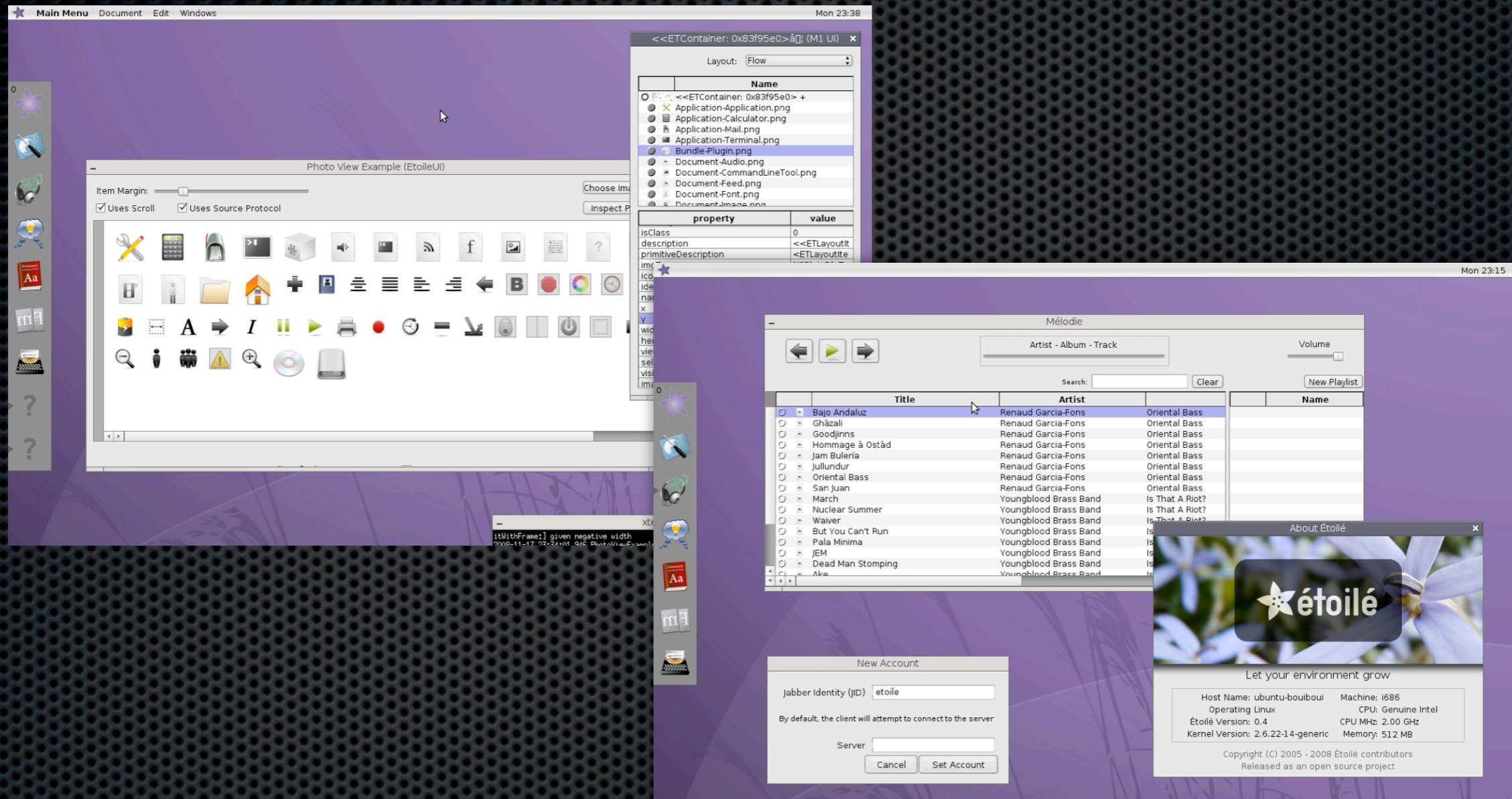
* GNUstep apps running on the Letux 400 (Alpha/Skytone) a MIPS based netbook.

Yet another...
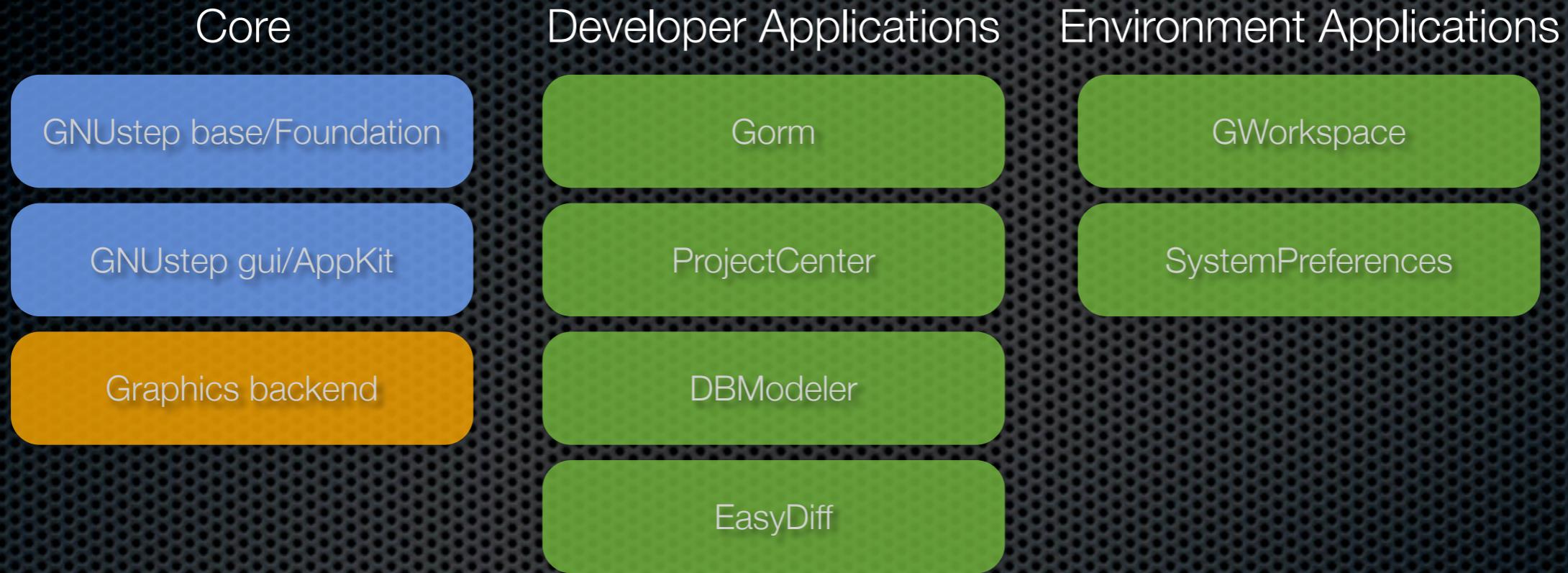
- GNUstep apps running on HURD.   Incidentally, Vespucci is the first web browser on HURD. :)

Theming...
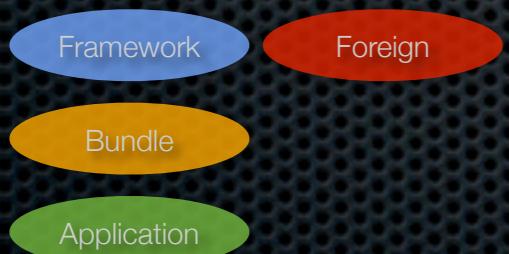
- GNUstep provides an architecture such that any and all of the widgets drawing mechanisms can be overridden at runtime.

GNUstep Components...

| Core	Developer Applications	Environment Applications
GNUstep base/Foundation	Gorm	GWorkspace
GNUstep gui/AppKit	ProjectCenter	SystemPreferences
Graphics backend	DBModeler	
	EasyDiff	

Legend

Framework Foreign

Bundle
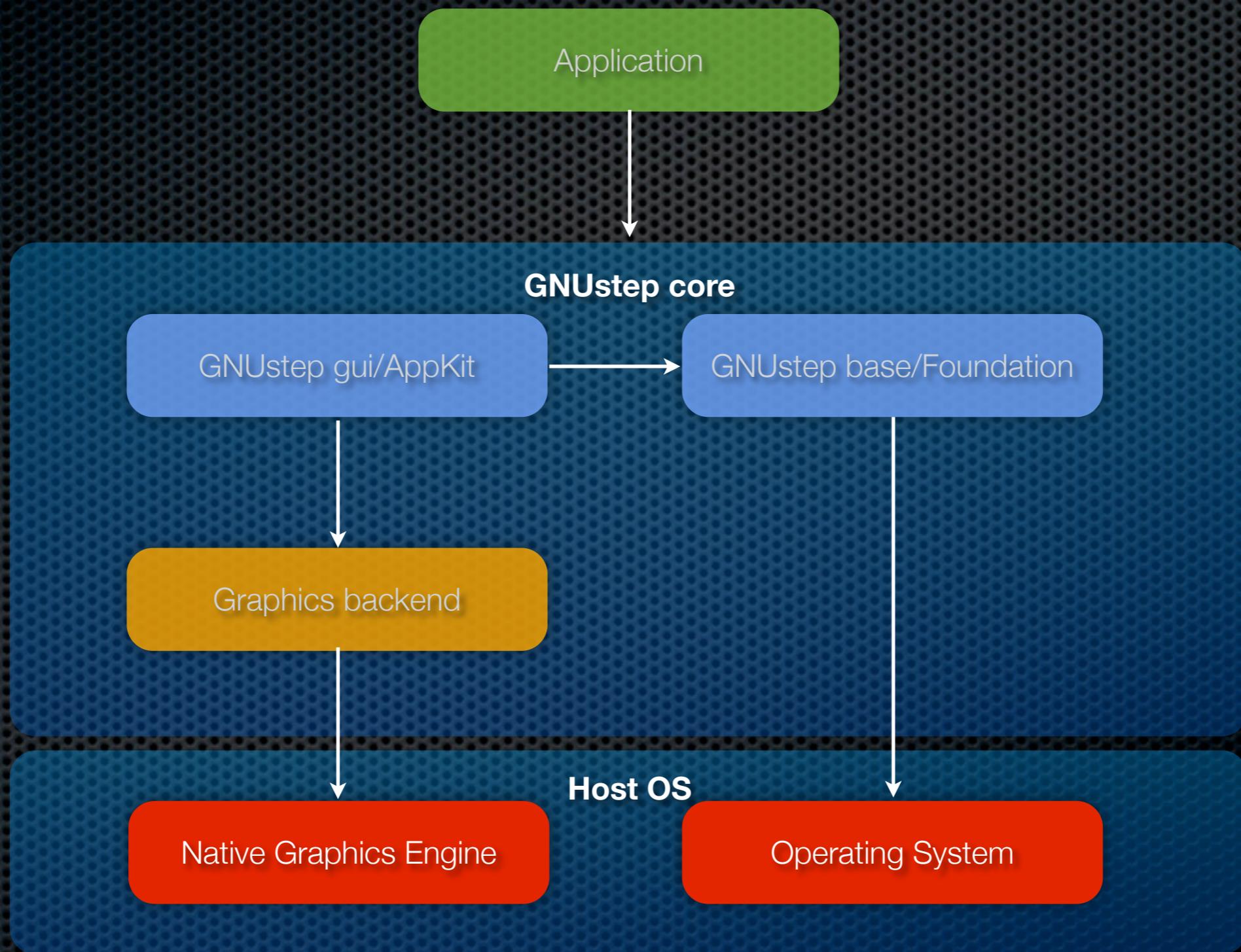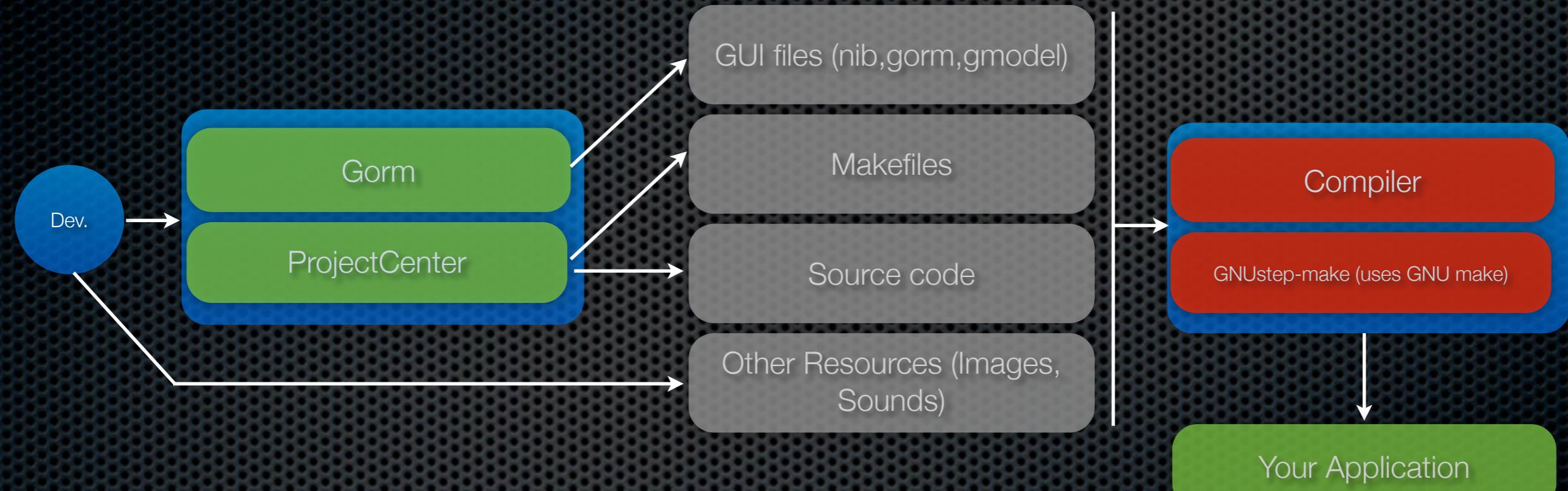
Application

Architecture

Development Process

Related Projects

- GNUstep Application Project - http://gap.nongnu.org/ - Provides a comprehensive set of applications for the GNUstep desktop.

- Etoile - http://www.etoileos.com - Main GNUstep-based desktop effort. This project provides theming, multi-language support, and many new and innovative frameworks.

- Backbone - http://backbone.sf.net - Similar to GAP in that it is a collection of apps.

- Collaboration World - http://www.collaboration-world.net - hosts GNUmail, Pantomime (which is now the MIME handling framework used by Apple), Affiche (a notepad application), etc.

- GNUSTEP Live CD - http://livecd.gnustep.org - Provides a distribution of GNU/Linux (Boo?) with GNUstep + WindowMaker and all of the GNUstep applications set up as the default user environment.

Derivatives of GNUstep

- myStep - an embedded version of GNUstep, maintained by Nikolaus Schaller

- QuantumStep - This represents myStep, plus all of the apps which have been created for myStep.

- SideStep - GNUstep-base/Foundation without using GNUstep make.

- mgStep - lightweight version of GNUstep intended for embedded systems, not actively maintained... myStep used this as a starting point.

Sister Projects

- libFoundation - Built as a "normal library" by some of the GNUstep devs.   This is currently not maintained.

- Cappucino/Objective-J/280-North - This web framework and allows you to develop webapps just like you would on your desktop. :)

- A few others...

Companies using GNUstep

- Testplant - http://www.testplant.com - used GNUstep to port Eggplant to Linux and Windows.

- Orange Concept - http://www.orange-concept.com - eCommStep an eCommerce engine based on GNUstep.

- Brainstorm - http://www.brainstorm.co.uk - mobile applications.

- Turbocat - http://www.turbocat.de

- Seat-1 - http://www.seat-1.com - open source ERP

- IntarS - http://www.intars.at

- and more... :)