GNUstep Historical Information

- NeXT and NeXTSTEP Operating System

- GNU compiler
  Objective-C runtime donated by NeXT

- OpenStep specification, October 1994
  NeXT and Sun publish specification

- NET-Community, July 1995

- libobjects becomes the GNUstep Base Library
  Andrew McCallum

GNUstep Technical Overview

What is GNUstep?

- Free implementation of OpenStep specification
- Development environment
- User environment

OpenStep

- Foundation Kit (GNUstep Base Library)
- Application Kit (GNUstep GUI Library)
- Display Postscript System (Display Ghostscript System)

Development Environment

- GNU compiler and Objective-C runtime library
- GNU debugger
- Interface Modeller
- Project Center

User Environment

- GNUstep Workspace Manager
- Ink.app
- GNUMail.app
- and many others...

GNUstep Base Library
(OpenStep FoundationKit)

Fundamental

- NSObject
- NSString, NSMutableString
- NSValue, NSNumber

Collection

- NSArray, NSMutableArray
- NSSet, NSMutableSet, NSCountedSet
- NSDictionary, NSMutableDictionary

Threads and Mutexes

- NSThread
- NSLock, NSConditionLock, NSRecursiveLock

Exceptions

- NSException, NSAssertionHandler

Date and Time

- NSDate, NSCalendarDate
- NSTimeZone, NSTimeZoneDetail

Archiving and Serialization

- NSCoder, NSArchiver, NSUnarchiver
- NSSerializer, NSDeserializer

GNUstep Base Library (OpenStep FoundationKit)

Storage

- NSBTreeBlock, NSBTreeCursor
- NSByteStore, NSByteStoreFile
- NSData, NSMutableData

RunLoops and Notifications

- NSNotification, NSNotificationCenter, NSNotificationQueue
- NSRunLoop
- NSTimer

Distributed Objects

- NSConnection, NSDistantObject, NSProxy

Miscellaneous

- NSAutoreleasePool
- NSBundle
- NSEnumerator
- NSInvocation, NSMethodSignature
- NSCharacterSet, NSMutableCharacterSet
- NSProcessInfo
- NSUserDefaults
- NSScanner

GNUstep GUI Library
(OpenStep ApplicationKit)

Framework

- NSResponder
- NSApplication
- NSWindow, NSPanel
- NSView
- NSEvent

Controls and Cells

- NSControl, NSCell, NSActionCell, NSMatrix
- NSBrowser, NSBrowserCell
- NSButton, NSButtonCell
- NSForm, NSFormCell
- NSPopUpButton
- NSScroller
- NSSlider, NSSliderCell
- NSTextField, NSTextFieldCell

Specialized Views

- NSBox
- NSClipView
- NSScrollView
- NSSplitView
- NSText

GNUstep GUI Library
(OpenStep ApplicationKit)

Fonts

- NSFont
- NSFontManager
- NSFontPanel

Colors

- NSColor
- NSColorList
- NSColorPanel
- NSColorPicker
- NSColorWell

Images

- NSImage
- NSImageRep, NSBitmapImageRep, NSCachedImageRep, NSCustomImageRep, NSEPSImageRep

Menus

- NSMenu, NSMenuCell

Specialized Panels

- NSHelpPanel
- NSOpenPanel, NSSavePanel

GNUstep GUI Library
(OpenStep ApplicationKit)

Printing
- NSPageLayout
- NSPrinter
- NSPrintInfo
- NSPrintOperation
- NSPrintPanel

Data Links
- NSDataLink
- NSDataLinkManager
- NSDataLinkPanel

Miscellaneous
- NSCursor
- NSPasteboard, NSSelection
- NSScreen
- NSSpellChecker, NSSpellServer
- NSWorkspace

Display Ghostscript System (DPS)

Features

- Full PostScript interpretor
- Page description language
- Device (resolution) independent

Integrated with X Window System

NSDPSContext class

Current Development

Available Platforms

- GNU/Linux on Intel
- Windows NT/95 on Intel(through 3rd party)
- Sun OS and Solaris

GNUstep Base Library

- Fundamental
- Collection
- Threads and Mutexes
- Exceptions
- Date and Time
- Archiving and Serialization
- Storage
- RunLoops and Notifications
- Distributed Objects

Current Development

GNUstep GUI Library

- Frontend, Backend design
- Framework
- Controls and Cells
- Specialized Views
- Fonts
- Colors
- Images
- Menus
- Specialized Panels
- Printing
- Data Links

Display Ghostscript System

GNUstep Interface Modeller

GNUstep Workspace Manager (AfterStep)

Future Development

Platforms

- GNU/Linux on PPC and Alpha
- AIX on RS/6000
- SGI Irix
- HP/UX
- Digital UNIX
- OpenVMS?

GNUstep Base Library

- Unicode
- CORBA compliant distributed objects

Display Ghostscript System

- Multiple execution contexts
- Efficiency tuning

GNUstep GUI Library

- Continued implementation
- Adobe DPS/X Extensions
- Motif GUI Backend
- OS/2 and other GUIs

Future Development

Project Center

GNUstep Database Library

GNUstep 3DKit

User Environment
- Ink.app
- GNUMail.app
- Librarian.app
- Installer.app
- Scheduler.app
- Dictionary.app

Third Party Software

NET-Community

- MediaBook Win32 Backend
- MediaBook 3D Graphics Library
- MediaBook Random Library
- MediaBook Speech Synthesis Library

NeXTSTEP Community

Support Organizations

Ada Core Technologies

- http://www.gnat.com
- GNU Ada

Cyclic Software

- http://www.cyclic.com
- CVS

Cygnus Corporation

- http://www.cygnus.com
- GCC, GNU tools, Kerberos

NET-Community

- http://www.net-community.com
- GNUstep

Red Hat

- http://www.redhat.com
- Linux

Yggdrasil

- http://www.yggdrasil.com
- Linux

Conclusions

GNUstep (OpenStep) Benefits

- Free software
- well-designed, functionally complete specification
- Cross platform
- Maintains look-and-feel of native OS
- Commercial implementations (NeXT and Sun)

GNUstep Drawbacks

- Not complete
- Unofficial implementation
- Objective-C