



ODF Accessibility & UNIX Accessibility - a User's Perspective

Peter Korn
Accessibility Architect
Sun Microsystems, Inc.



Agenda

- ODF Accessibility
 - > What is ODF?
 - > Why do we care?
 - > ODF content accessibility
 - > ODF application accessibility (in Windows - demos)
- UNIX Accessibility
 - > What: Console & graphical GNOME desktop
 - > Where: Solaris, GNU/Linux [Ubuntu, Fedora]
 - > UNIX Accessibility in action (lots of demos)
 - > ODF application accessibility on UNIX
- ODF summary: what is done; what work remains

What is ODF?

- Standard file format for office documents, encoded in XML
 - > Word processing files
 - > Spreadsheets
 - > Presentations
 - > Mathematical equations
 - > Complex vector graphics
- Lots of applications are available which support ODF
- ODF is heavily based on W3C specs., which have gone through an accessibility evaluation in the WAI

Applications Supporting ODF (from <http://wikipedia.org>)

- > Apps supporting text documents:
 - > 11 apps, including AbiWord, IBM Workplace, KOffice, OpenOffice.org, StarOffice, Writely
- > Apps supporting spreadsheet documents:
 - > 6 apps, including Gnumeric, IBM Workplace, KSpread, OpenOffice.org, StarOffice
- > Apps supporting presentation documents
 - > 5 apps, including IBM Workplace, KPresenter, OpenOffice.org, StarOffice
- > Also search tools, filters, converters, etc.

Why are folks adopting ODF?

- To ensure perpetual access to documents they author
 - > Governments, Libraries, Archivists, etc.
 - > Pain of Word*Star to WordPerfect to MS-Word 1.x to MS-Word 9x to MS-Word 200x
- To save money
 - > Mostly OpenOffice.org deployments, in U.S. but more in Europe and elsewhere
- To expand operating system deployment options

Where is ODF being adopted?

- 60,000 desktops in the Executive Branch of Massachusetts gov't starting in 2007
- 80,000 in Extremadura in Spain
- 80,000 in the French Gendarmerie
- 80,000 in the French Tax Agency by end of 2006
- 14,000 desktops in Brazil's post office, growing to 32,000 nationwide

ODF adoption continued...

- Thousands of desktops in the City of Bristol, UK (8th largest city in the UK)
- Belgian Ministry of Justice – 400 now, 4,000 by year end
- 5,000 desktops in Singapore Ministry of Defence; 20,000 by March 2006
- Portuguese Ministry of Education: 15,000 PCs in 1,000 schools

ODF adoption continued...

- All 5,500 branches of Brazilian Banco do Brasil
- 4,500 desktops in Banca Popolare di Milano
- 7,700 desktops at LVM Insurance in Munster, Germany
- 3,500 desktops at Health First in Brevard County, Florida

ODF adoption continued...

- U.S. Library of Congress
- City of Austin, Texas
- Irish Parliament
- Swedish Police dept.
- Municipality of Sarpsborg, Norway
- Postal Service of South Korea
- City of Munich, Germany
- City of Mannheim, Germany
- City of Schwäbisch Hall, Germany

ODF Application Accessibility: Windows

- Today, the apps that run in Windows:
 - > Are at or nearly at 100% keyboard navigable
 - > Support themes for minor vision impairments
 - > Work with StickyKeys, MouseKeys, etc.
 - > Work OK with on-screen keyboards, head-mouse
 - > Aren't supported well by screen magnification
 - > Aren't supported well by screen readers
 - > Aren't supported well by speech control
 - > Aren't supported well by tools to aid those with cognitive impairments

ODF Application Accessibility: UNIX

- Today, two apps that run in UNIX:
 - > Are at or nearly at 100% keyboard navigable
 - > Support themes for minor vision impairments
 - > Work with StickyKeys, MouseKeys, etc.
 - > Are ***incredible*** with on-screen keyboard, single-switch, and head-mouse
 - > Work OK with the screen magnification
 - > Work OK with the screen reader
- Today on UNIX, there aren't options for:
 - > Speech control
 - > Tools to aid those with cognitive impairments

ODF Application Accessibility: Mac

- Today, one app runs on Macintosh:
 - > Is at or nearly at 100% keyboard navigable
 - > Works with StickyKeys, MouseKeys, etc.
 - > Should work with on-screen keyboard, single-switch, and head-mouse
 - > Should work with screen magnification
 - > Doesn't work with the screen reader
 - > Isn't supported well by speech control
 - > Isn't supported well by tools to aid those with cognitive impairments
- Today on Macintosh, we don't have:
 - > Themes for minor vision impairments

How to Improve ODF Accessibility

- Finish file format review, improvements
- Microsoft could support ODF
- Corel WordPerfect could support ODF
- Window AT vendors could support ODF applications
- Creation/improvement of AT tools in UNIX, Macintosh

ODF Accessibility Work Underway

- File format review, improvements (ODF v1.1)
- IBM commitment: IBM Workplace accessible in Windows by 2007
- Ongoing work with Windows AT vendors and ODF
- Multiple ODF “add-in”/plug-ins to MS-Office
- Orca open source, scripting screen reader and screen magnifier for UNIX
- ODF<->DAISY translator in development

ODF Accessibility Timeline

1997	W3C Web Accessibility Initiative begun
2000	Began StarOffice/OpenOffice.org accessibility
2001	Section 508 amendment regulations go into effect
2004	Open source AT ships supporting SO/OOo
2005	Massachusetts ETRM specifying ODF published OASIS ODF 1.0 specification published
2006	OASIS ODF accessibility subcommittee formed OASIS ODF 1.1 specification published
2007	IBM to ship Workplace with Windows accessibility support

ODF Application Accessibility

- StarOffice 8 / OpenOffice.org 2.0
 - > Excellent keyboard navigation
 - > Excellent theme support
 - > Explicit support of accessibility architecture via Java Accessibility API & Java Access Bridge (not well supported by Windows AT)

DEMO

StarOffice 8 / OpenOffice.org 2.0

Theming & Key-nav in Windows

ODF “add-in” to MS-Office

- One of several efforts at extending MS-Office to read/write ODF
- Sun engineering prototype:
 - > Hooks into existing Open/Save/Save-As dialogs
 - > Uses a copy of StarOffice installed on the system to do conversion
 - > Final version may be different (e.g. server-based conversion)
- Works perfectly with Windows AT

DEMO

ODF “add-in” to MS-Office prototype

JAWS & Dragon Naturally Speaking

UNIX Accessibility – What is it?

- Console access
 - > Access to the text-only environment (DOS-like)
 - > Multiple screen readers (screader, yasr, etc.)
 - > Excellent Braille support (BRLTTY)
- Graphical desktop
 - > There are multiple “graphical desktops” available for UNIX
 - > The GNOME desktop today is the accessible one; KDE coming soon; CDE likely never
 - > Multiple readers/magnifiers
 - > Growing ecosystem of other AT, accessibility apps



UNIX Accessibility – Where is it?

- Console access increasingly available everywhere
 - > Some places ship it out of the box: Fedora, Ubuntu
 - > Other places you have to download it
 - > Others will ship it out of the box: Solaris
- Graphical access in GNOME, increasingly available
 - > Part of the formal “GNOME desktop”
 - > AT ships in Solaris 10, more in Solaris 11
 - > AT ships in Ubuntu, Fedora
 - > AT expected soon in RedHat Enterprise Linux

Sun/GNOME Accessibility Architecture Adoption

- Core part of GNOME platform
- KDE/Qt to adopt it in version 4.0
- Adobe Reader 7 for Linux supports it
- Free Standards Group Accessibility Working Group to base accessibility standard around this architecture (members include Sun, IBM, and Adobe)
 - > see <http://www.a11y.org>

Open Source/UNIX Accessibility Timeline

1994	AccessX moves into X on SunOS, DEC UNIX	
1997-8	Built javax.accessibility.* in Swing	
1998	Section 508 amendment signed into law	
2000	Began GNOME, StarOffice, Mozilla accessibility	
2001	Section 508 amendment regulations go into effect	
2003	GNOME 2.4 developer release with AT included Free Standards Group Accessibility workgroup starts	
2005	Solaris 10 ships with accessibility support, AT	
2006	Ubuntu Linux 6.10 ships with accessibility, AT	

Accessible Desktop - UNIX today

- General Accessibility
 - > Keyboard navigation
 - > Theming
 - > Screen reader / Screen Magnifier
 - > On-screen keyboard
 - > Alternative text entry
- Key Applications
 - > StarOffice 8 / OpenOffice.org 2.0
 - > Adobe Reader 7

Basic Desktop UNIX Accessibility

- For people with mild physical disabilities:
 - > Full keyboard accessibility of the desktop (no mouse needed)
- For people with more significant physical disabilities:
 - > Keyboard caplet with a variety of settings for a variety of needs (also known as *AccessX*)
- For people with mild to medium visual impairments:
 - > Theming with a variety of themes (including large print, and high & low contrast themes)

DEMO

GNOME

the UNIX desktop

Assistive Technology for the Blind

- Orca – Open Source, Scripting Screen Reader project led by Sun
 - > Each application and supporting graphical toolkit typically has its own unique user interaction model
- Scripting + Accessibility Architecture = Compelling and efficient access
 - > Custom access to user interaction model
 - > Per toolkit, per application, per window, etc.
 - > “Sub-scripting” provides relatively fast development cycle

How Are We Doing Orca?

- Original prototype created by an engineer who is blind
 - > Entirely in the open source community (GNOME)
- User-Centered Design
 - > Use of Alan Cooper's "Personas" concept
- Orca-Advisors mailing list
 - > Speech, Braille, & magnification users of varying capabilities and backgrounds

Who is Doing Orca?

- Overall project, system design and architecture led by Willie Walker
 - > 16 years experience in UNIX accessibility
- User experience and testing led by Mike Pedersen
 - > Ran the JAWS script writing department
 - > Experience with several screen readers
- Open source collaboration, including:
 - > IBM, Google, Novell, BAUM, Brailcom, ONCE

Orca Status

- Version 1.0 shipped in September
- Good access to the base desktop
- Basic access StarOffice/OpenOffice.org, Evolution, early access to the web via Firefox
- Well-connected with the toolkit and app development teams
- Part of GNOME; next release will be with GNOME 2.18 in March '07

DEMO

Orca

open source, scripting
screen reader/magnifier

Assistive Technology for People with Severe Physical Impairments

- GOK – open source, *dynamic* on-screen keyboard
 - > Developed by the University of Toronto Adaptive Technology Resource Centre
 - > Reaches into running applications, puts their toolbar items, menus, etc. onto a keyboard dynamically
 - > Far more features than anything you can buy for Windows or Macintosh
 - > Single switch, head mouse, & eye-gaze support

DEMO

GOK

the open source
dynamic on-screen keyboard

Assistive Technology for Advanced, Rapid Text-Entry

- Dasher alternative text entry system
 - > Developed by Cambridge University, UK
 - > Designed for head pointer, eye-gaze users
 - > “Typing” speed of 35+ words per minute possible using just eye movement, head movement
 - > Over sixty alphabets/languages supported, easy to create new/specialized ones
 - > Available for Windows & Mac, but on UNIX it does more...

DEMO

Dasher

the open source
alternative text entry system

ODF Application Accessibility

- StarOffice 8 / OpenOffice.org 2.0
 - > Excellent keyboard navigation
 - > Excellent theme support (skins the GTK+ widget set in GNOME)
 - > Explicit support of accessibility architecture via UNO Accessibility API
 - > Export of Tagged PDF
 - > Very usable with UNIX assistive technology

DEMO

StarOffice 8 / OpenOffice.org 2.0

the open source office suite

Enterprise Accessibility Challenges

- Assistive Technology price per machine
 - > Screen reader (JAWS): \$900-\$1,300
 - > Screen magnifier (ZoomText): \$600
 - > Other AT products: variety of prices
- Deployment
 - > Dedicate a system to a use; expensive and wasteful in computer labs
 - > Systems with AT very brittle – don't let non-disabled touch them!
- Assistive Technology upgrades expensive, frequent

Enterprise Accessibility Solutions: Built-in, Supported AT & Thin-Clients

- Supported architecture for accessibility; things no longer brittle
- Huge collection of apps which support the architecture, interoperate on the desktop
- AT from the same vendor as desktop apps (StarOffice, Mozilla, Evolution, etc.) - single source for assistance
- Deliver the AT needed to each and every thin client workstation (or to none of them)
- “Session Mobility”

DEMO

SunRay

accessible thin client solution

Resources

- OASIS Technical Committee for ODF:
http://www.oasis-open.org/committees/tc_home.php?wg_abbrev=office
- OpenOffice.org accessibility site:
<http://ui.openoffice.org/accessibility/>
- UNIX Accessibility links:
 - > Main site: <http://developer.gnome.org/projects/gap>
 - > Gnopernicus: <http://www.baum.ro/gnopernicus.html>
 - > Orca:
http://cvs.gnome.org/viewcvs/*checkout*/orca/docs/doc-set/orca.html
 - > GOK: <http://www.gok.ca>
 - > Dasher: <http://www.inference.phy.cam.ac.uk/dasher/>
 - > FSG Accessibility: <http://www.a11y.org>



ODF Accessibility & UNIX Accessibility - a User's Perspective

Peter Korn
peter.korn@sun.com

