



# The *Sun Java*<sup>™</sup> Desktop System: Basic UNIX<sup>®</sup> Accessibility

**Peter Korn**

**Accessibility Architect**

**Sun Microsystems, Inc.**



# The *Sun Java Desktop System*

- A compelling desktop alternative to Windows
- Built on top of open source GNOME, running on either Solaris 10 or GNU/Linux
- Includes a comprehensive suite of powerful desktop applications:
  - StarOffice: reads/writes Microsoft Word, Excel, PowerPoint
  - Mozilla web browser
  - Evolution e-mail and calendaring – can use Exchange server
  - Instant messaging support for all of the IM services
  - Full support for Java applications
- Part of Solaris 10, which is now a free download!

# A guided tour of Accessible JDS

- Familiar *Launch* menu
- Network Places
- Evolution e-mail and calendaring
- Mozilla web browser
- StarOffice 7
- Accessories: calculator, text editor, dictionary, etc.
- Games!
- PDF & Postscript viewers
- Instant messenger: AIM/ICQ, Yahoo, MSN, IRC, etc.
- Multimedia: CD-player, sound recorder, digital camera capture, Macromedia Flash, Real Player, video conferencing

# Basic Accessibility in the *Sun Java Desktop System*

- For people with mild physical disabilities:
  - Full keyboard accessibility of the desktop, using familiar Windows keyboard commands
- 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)

# Assistive Technology in the *Sun Java Desktop System*

- For people who are legally blind:
  - *Gnopernicus* screen reader/magnifier – commercial quality assistive technology
  - Screen reading with software text-to-speech
  - Screen magnification to 16x, smoothing, other features
  - Refreshable Braille support for many different displays
- For people with severe physical disabilities:
  - **GOK dynamic** on-screen keyboard
  - Far more features than anything you can buy for Windows or Macintosh
  - Single switch, head mouse, & eye-gaze support

# Accessibility from the Start: Accessible Login

- Virtually every accessibility feature of the desktop, available at the initial login prompt
- Flexible and powerful – configurable by your system administrator for your enterprise's needs
- Functionality available at login time:
  - Full keyboard navigation of the login screen
  - AccessX suite: Sticky Keys, Slow Keys, Bounce Keys, etc.
  - Theming
  - Partial screen magnification
  - Software text-to-speech
  - Braille support
  - Dynamic On-screen keyboard

# Sun Accessibility effort, goals

- Ensure that all Sun products and technologies are accessible to people with disabilities
- Make it very easy to build accessible products on top of Sun technologies
- Effort driven by four themes:
  - *Built-in vs. Bolt-on*
  - Evolution of screen access technologies
  - Formal division of responsibility in accessibility
  - Open source accessibility

# First big theme:

## *Built-in vs. Bolt-on*

- Working with mature platforms means accessibility comes late to the table, is never really part of the underlying design
- Working with young platforms means making a gamble - will the platform be important enough in the future?

# Second big theme: Evolution of screen access

- First generation - access to TTY systems [primitive]
  - Magnification as a special video card
  - Access to text in the video buffer (C/PM and DOS access)
- Second generation - access to the GUI [brittle]
  - Video buffer re-direction & re-rendering for magnification
  - Off-Screen Model for screen reading
  - Patches in the OS for on-screen keyboard, other access
- Third generation - access via an API [flexible, rich]
  - Magnification still needs video buffer re-direction
  - Screen reading direct to the API
  - On-Screen keyboard can be much more dynamic
  - Products for cognitive impairment can be system-wide

# Third big theme: Formal division of responsibility

- First & second generation, AT had to do everything
  - Get the text, determine context (from buffer or OSM)
  - Magnify the text
  - Special-case applications (MS-Office, Internet Explorer)
  - Create specialized drivers for specialized hardware
- The climate has changed
  - Greater awareness of people with disabilities
  - Laws worldwide requiring accessibility
- Sun proposal: divide the work into three pieces:
  - Platform: define, implement accessibility architecture
  - Application: support the platform accessibility arch.
  - AT: focus on the user experience

# Fourth big theme: Open source accessibility

- All source code available for examination
- AT developers can fix their own bugs, release their own patches
- AT may be open source too
- Vendors and users can control their own destiny

# Problems People Face

- Assistive Technology price per machine
  - Screen reader (JAWS): \$900-\$1,100
  - 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

# *Sun Java Desktop System* **Accessibility Benefits:**

- Supported architecture for accessibility; things no longer brittle
- AT from the same source as desktop apps (*StarOffice, Mozilla, Evolution, etc.*) - single source for assistance
- Part of Solaris 10, now a free download

# What this Means for People with Disabilities



- Solaris 10 released January 31<sup>st</sup>, 2005
- Over 63,000 copies of Solaris 10 downloaded; Over 830,000 installed, and registered
  - (more than 20,000 new accessible systems/day)
- That means we are rapidly are closing in on 1 million accessible desktops...
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**Peter Korn**

**[peter.korn@sun.com](mailto:peter.korn@sun.com)**

