

Haiku, a desktop you can still learn from

No, you didn't steal all our ideas yet ;-)

François Revol
revol@free.fr



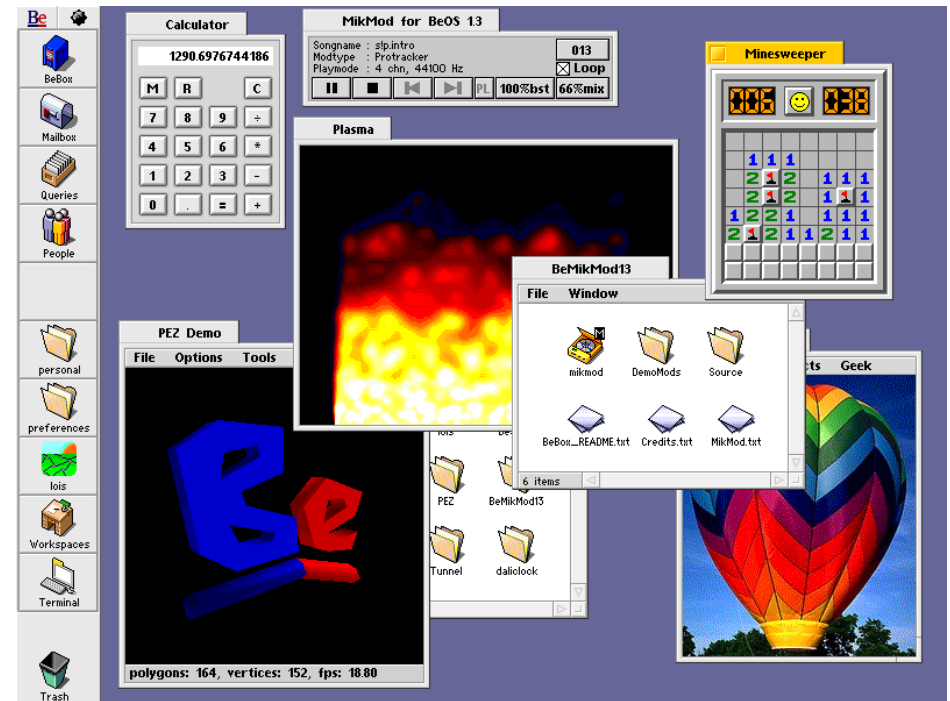
Haiku?

- Free Software Operating System
- Inspired by BeOS
- We use our own kernel & graphics server
 - Pros: We control the whole stack
 - Cons: Much harder porting Linux & X11 stuff
- C++ API



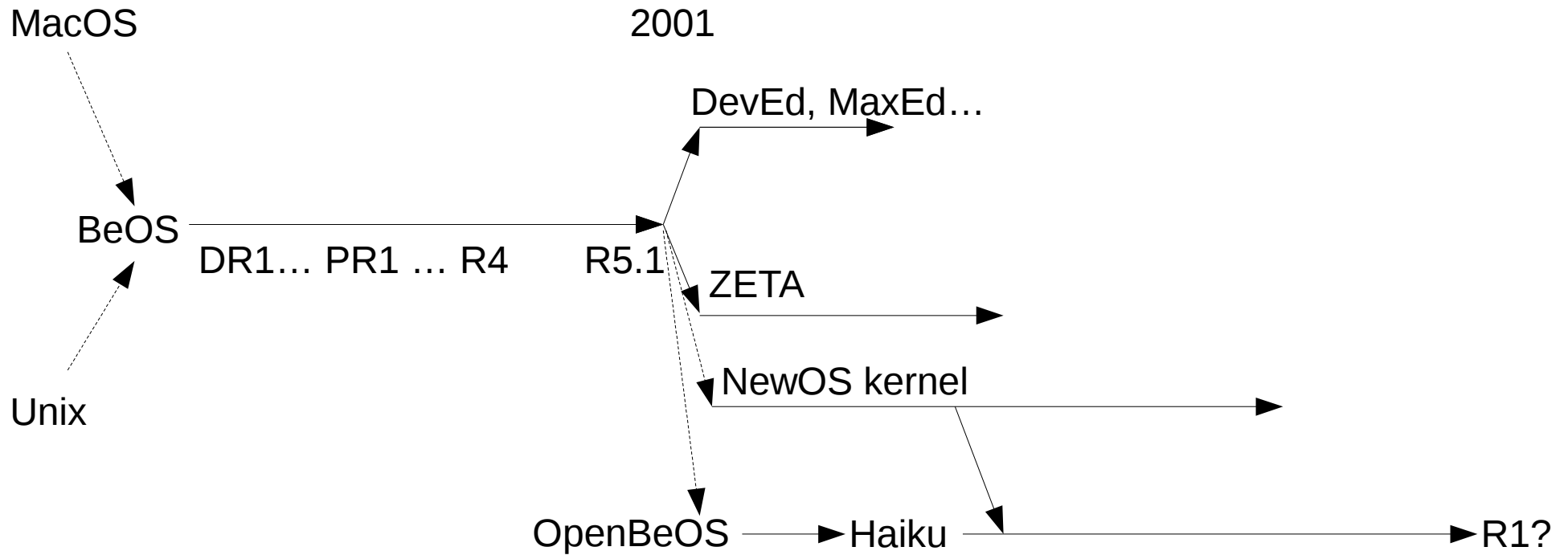
The Haiku desktop inspiration

- Inherited from BeOS
- Goes waaay back!
- Oh look! A Dock!
 - Later changed to DeskBar



Haiku genealogy

- Poke levenz.com 😊



“This looks like 1990 stuff to me”

- Ok, no fancy bubblegum whizzbang
- But that’s faster 😊
- There’s more to it...



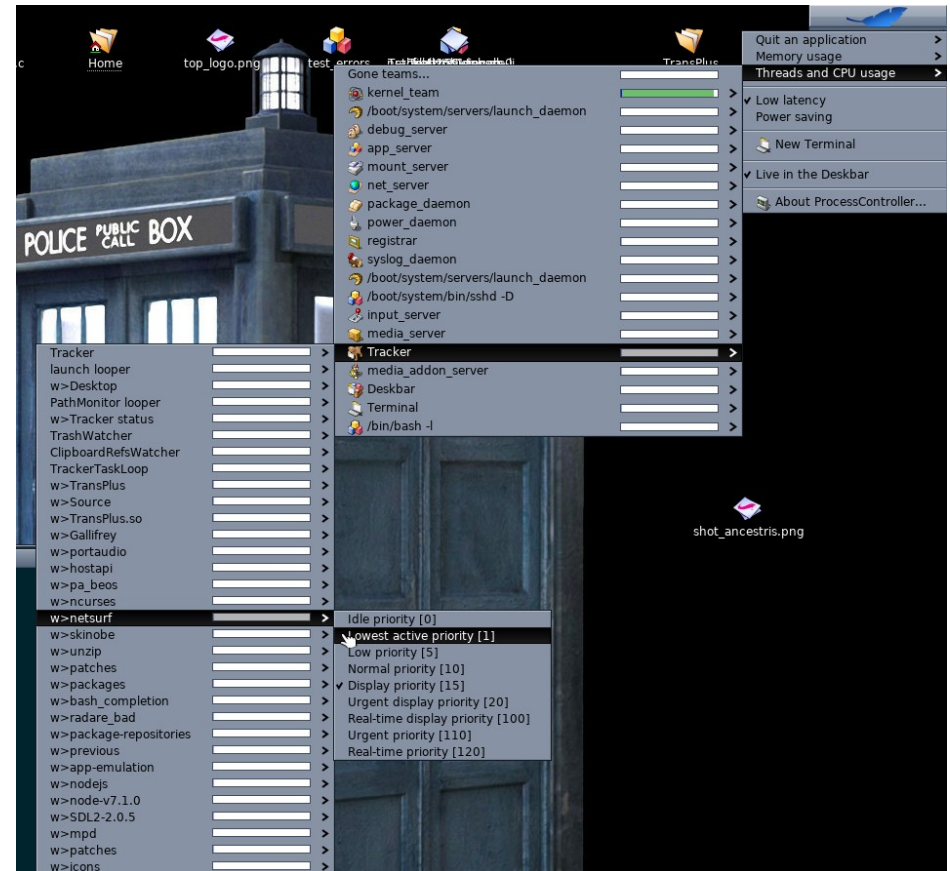
Modern features in Haiku \o/

- Some stuff BeOS didn't have...
- Layout support
- L10n / I18n

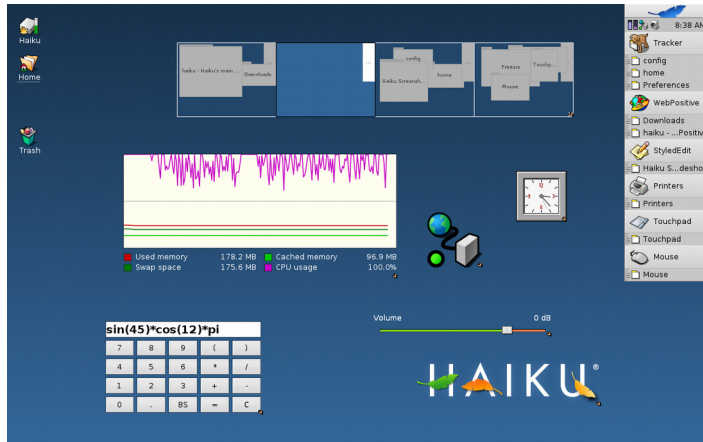


Multithreaded app design

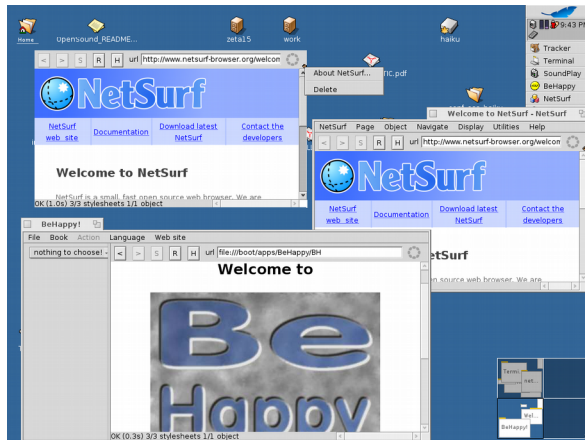
- App has several messaging Looper threads
 - Main thread: BApplication
 - One thread per BWindow
- app_server
 - 1 drawing thread per window
- Pros: Responsiveness
- Cons: Correct app design is harder



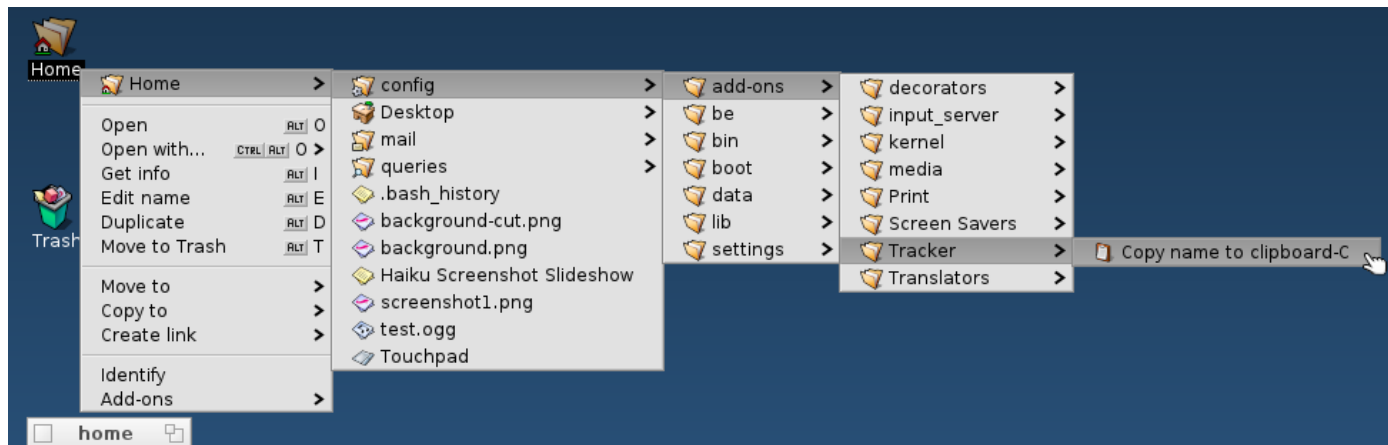
Replicants



- Apps can provide BViews to others
- Host not limited to Tracker
 - BeHappy doc browser



X-ray navigation

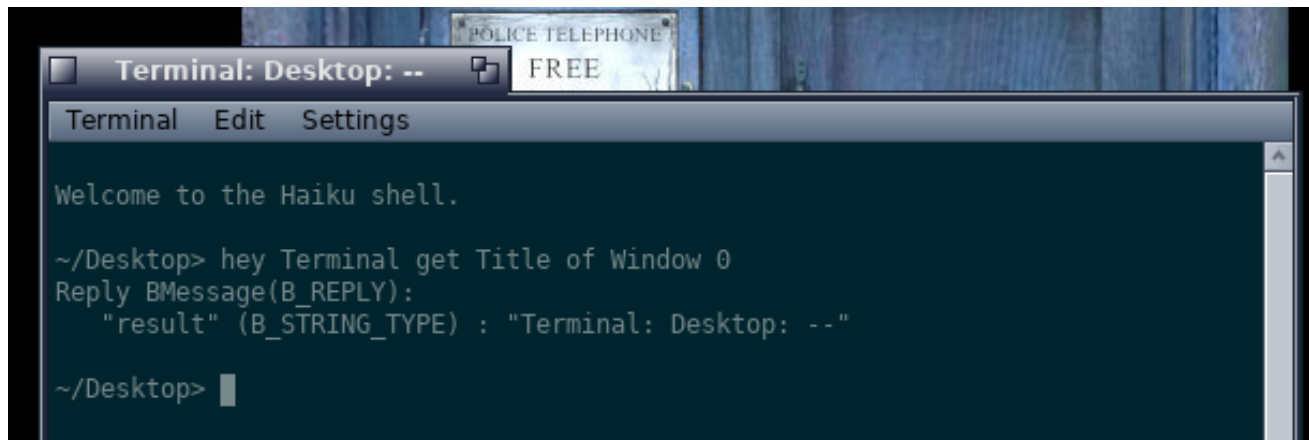


- Saves lot of window opening/closing
- Also for Copy/Move



Scripting API

- Handlers report supported suites
 - Not unrelated to Intents on Android 😊
- Provides GUI controls introspection

A screenshot of a Haiku terminal window. The window title is "Terminal: Desktop: --" and it has a "FREE" button. The terminal content shows a welcome message and a script execution. The script sends a message to the terminal window to get its title, and the response is "Terminal: Desktop: --".

```
Terminal Edit Settings
Welcome to the Haiku shell.
~/Desktop> hey Terminal get Title of Window 0
Reply BMessage(B_REPLY):
  "result" (B_STRING_TYPE) : "Terminal: Desktop: --"
~/Desktop> █
```



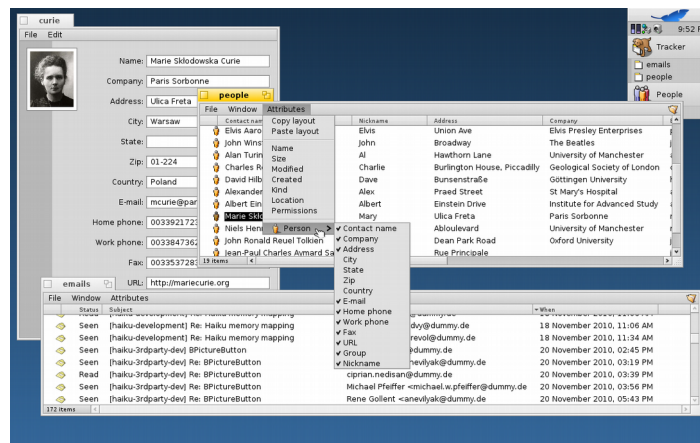
Node monitoring

- Like inotify but 20y ago
- Yeah, well, Linux didn't invent it ☺
- Kernel sends BMessage archives to looper



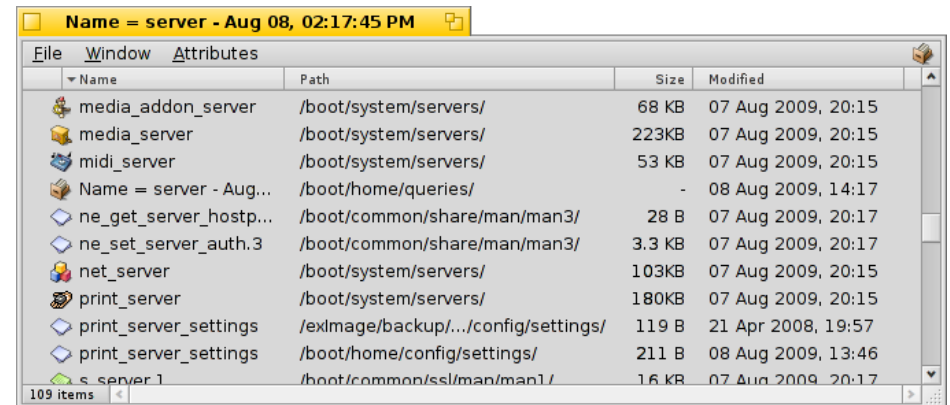
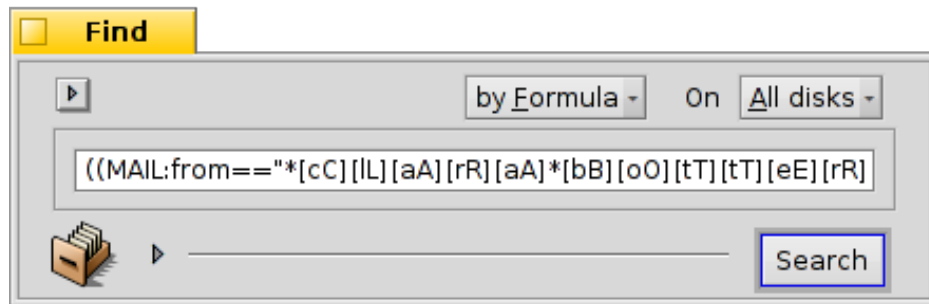
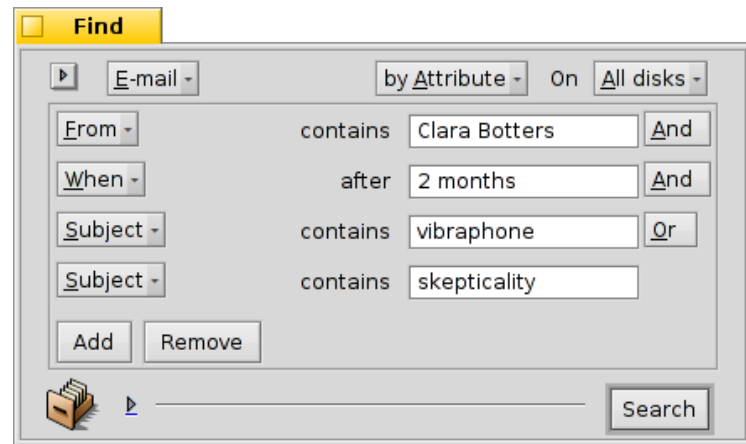
(Extended) Attributes

- Typed
- Indexable
 - By the fs (no updatedb...)
- Used for
 - Emails, Contacts
 - MIME Type, HVIF icons
 - Apps...
- Xattrs exist in *nix
 - XDG std but no common API
 - Each fs has its own
 - Nobody cares
 - cf. DC2011



(Live) Queries

- opendir() like syscall
- Handled by the fs
- Optional Handler arg
 - Change notifications



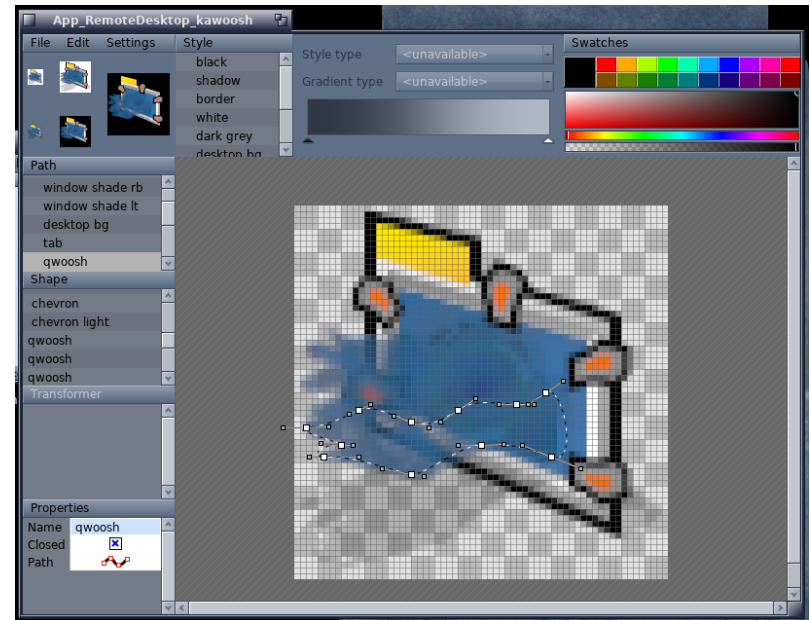
MIME Database

- Apps declare their supported types in resources
 - Copied to xattrs, indexed & queried to find apps...
- Apps have their own MIME signature
 - application/x-vnd.Foo-bar
 - Equivalent to Reverse DNS app naming in XDG
- Clipboard & Drag-n-Drop propose a list
- Abused for URI schemes
 - application/x-vnd.Be.URL.foo
 - XDG does the same with [x-scheme-handler/foo](#)



HVIF Icons

- BeOS used bitmap icons
 - Stored in xattr (in small_data section of inode)
- ZETA tried putting SVG there, sloooow
- Haiku Vector Icon Format
 - Size-optimized icon vector format
 - Gradients & transparency
 - Icon-O-Matic has SVG import/export



Packaging

- Brand new package manager
- Packagefs + package_daemon
 - Read-only union mount of packages content
 - Atomic package updates
- Some similarities with GNU Guix
- Installing = copying 200 files and that's it!



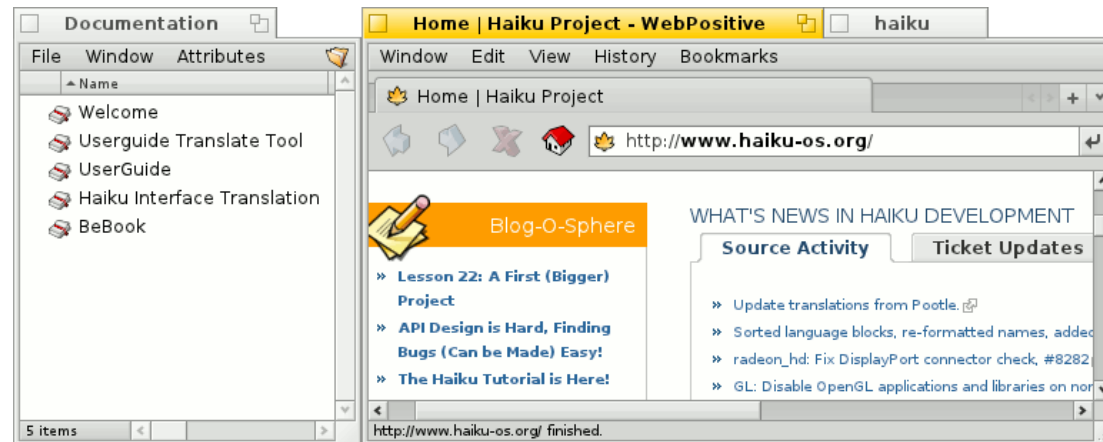
Workspaces

- Up to 32
 - Bitmap on BWindow
- Each can have different resolution & wallpaper



Stack & Tile

- Group windows by topic
- Makes use of window tabs



Thanks!

- So, what do you want to take from us?
- Questions?

