Haiku, one package at a time

We now package everything, including kitten 😺

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Haiku?

- Not only japanese poetry
- Free Software Operating System
  - Inspired by BeOS
  - Designed for the desktop
  - Lightweight and simple to use
- Started in 2001
- R1/alpha4 almost 2 years old

So what's new?

- Still some bugs but less
- A lot of new stuff
  - WebPositive (Spoilers!)
- And a shiny brand new packaging system that packs bonzaï-kitten *
- And what more to ask for? (patches!)

* no animal has been harmed during development

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β-blockers

- Now 49 tickets for R1/beta1
- Package management was considered a blocker
  - 2 devs were employed by Haiku, Inc.
  - Now mostly implemented
  - However, might need an alpha5 since it's brand new
- Only 1 blocker ticket left! 😼

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WebPositive

- Adrien Destugues ([PulkoMandy](#)) employed currently
- Integration with Services Kit
- Updates to WebKit
  - Had to merge several WIP branches with upstream
  - Now tested with BuildBot
- New support for the <video> tag 😻

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Packages: The Great Relocation

- <u>Before:</u> `installoptionalpackage` + zip files
  - Just a hack

- <u>Why package properly?</u>
  - Standardize the procedure
  - Centralize repositories
  - Simplify
  - Automate
    - Multiple architectures
    - Upgrades

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Unpacking archives to disk is tacky

- It takes time to unarchive files that might never be used

- Installing from already unarchived takes too much time

- Merging user changes to packaged files with upgrades

  - "Fear is the path to the dark side. Fear leads to anger. Anger leads to hate. Hate leads to suffering." 😿

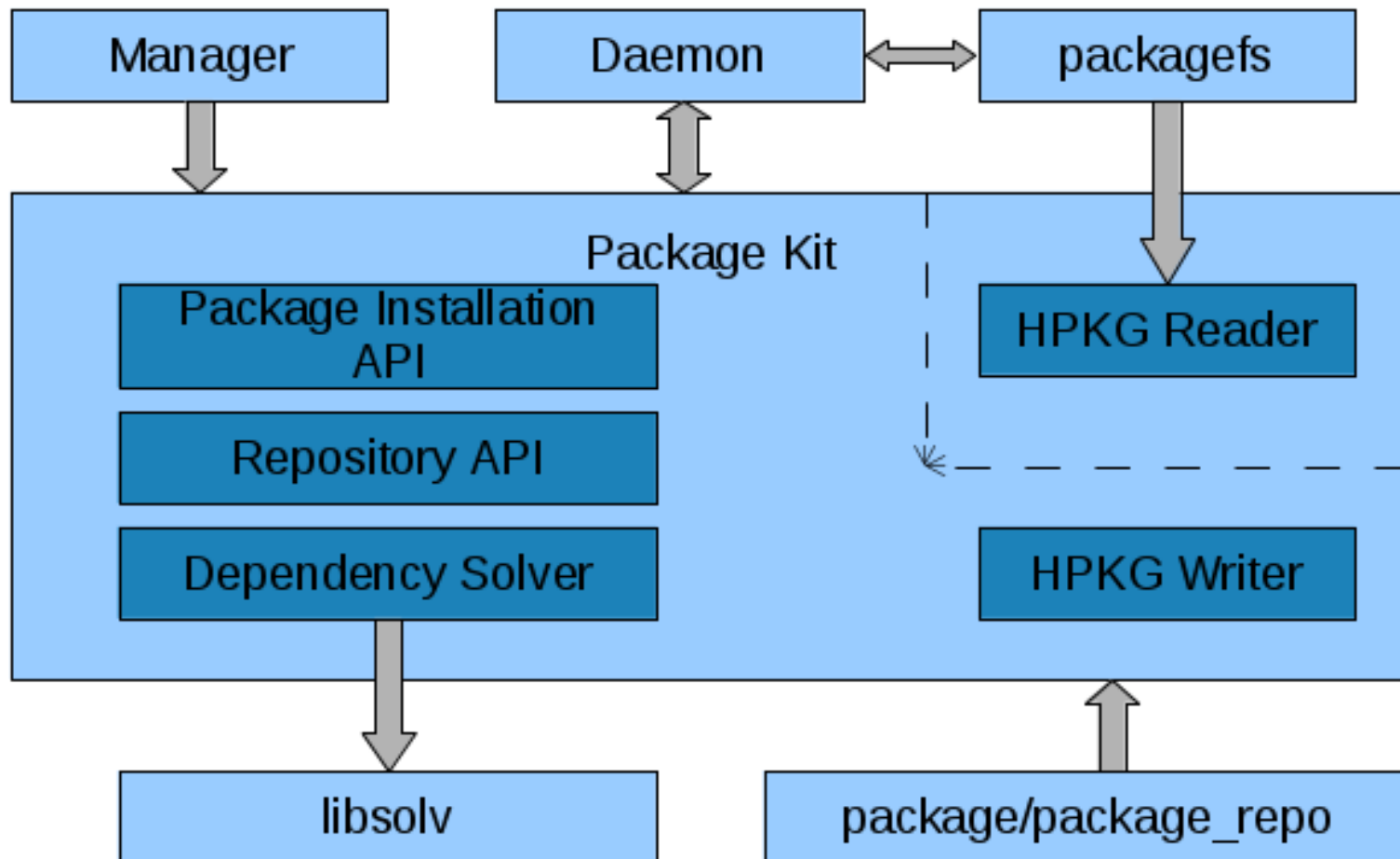RMLL MONTPELLIER 2014

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Infrastructure

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`mount -t packagefs`

- ## Command line tools for creating packages

  - `package` & `package_repo`

- ## Active packages contents made visible by the `packagefs` virtual filesystem

  - Mounted on `/boot/system` & `/boot/home/config`

  - Read-only mounts

    - Hence some applications must be fixed

- ## Package Kit API

  - Dependency solver(s)

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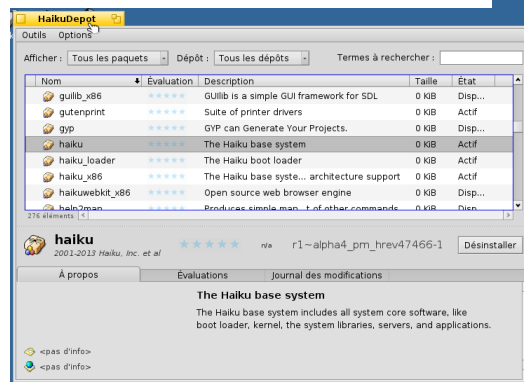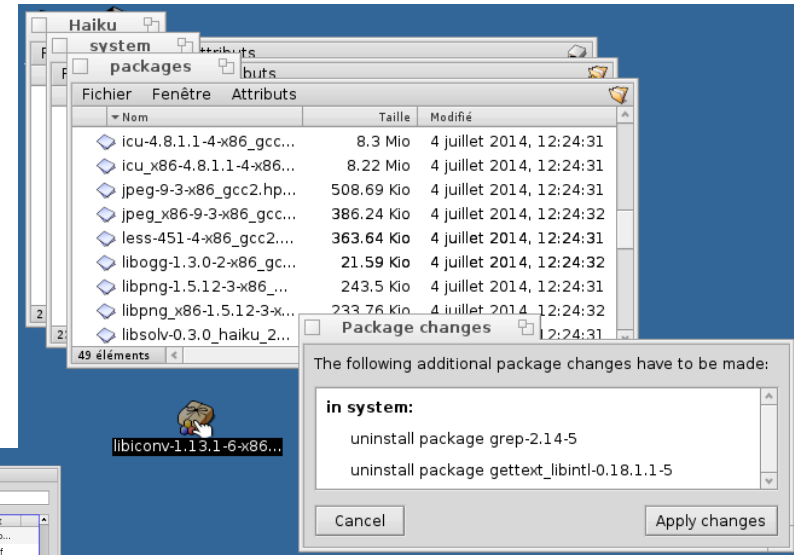Du 5 au 11 juillet 2014

package daemon

- `package daemon` handles dependency chains and publishing
  - Monitor active packages folders
  - Verifies dependencies
  - Prompts user
- Package Manager
  - `pkgman`
  - HaikuDepot

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Software Installation Locations

- **Two `packagefs` mountpoints (= `$PREFIX`)**
- **`/boot/system` (system-wide)**
- **`~/config` (user-installed)**
- **Not exactly union-mount with /boot (no white-list)**
  - For performance reasons
- **"Shine-through" directories from /boot**
  - `packages/ settings/ var/ cache/`
  - `non-packaged/` (`$PREFIX` for manual install)

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Software Installation

- ## Manual

  - `mv foo-1.2.3-1-x86.hpkg /system/packages/`

  - `package_daemon` monitors and will check dependencies and ask `packagefs` to publish

  - last consistent state of package activations cached in `packages/administrative/activated-packages`

- ## Via a package manager

  - Multiple repositories

  - Transactions (bootloader can select previous states)

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Multiple install location

- ## Packages must be built with fixed paths
  - ### Mostly because of *nix package traditions
- ## Each package has its own $PREFIX in a dynamic dir

```
/boot/system/package-links/openssh-5.8p2-1/

    .self     -> ../../../home/config

    .settings  -> ../../../home/config/settings/global

    haiku     -> ../..

    lib:libssl  -> ../..
```

- ## Also allows supporting incompatible packages

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Packages

- ## Naming scheme
  - foo_bar-version-rev-arch.hpkg
- ## HPKG format
- ## Manifesto file `.PackageInfo`

  ```
  name            foo_bar

  Version         1.2.3-1

  architecture       x86_gcc2

  summary         "Bonzai Kitten" …
  ```

  - Also mention licence, provides, dependencies …

Repositories

- <u>Two official repositories</u>
  - Haiku
  - HaikuPorts
- <u>Standardized paths</u>
  - /haiku/master/repo/$(pkg_arch)/$(haiku_ver)_$version
- <u>Different instances</u>
  - Snapshots
  - Releases
  - Current

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Recipes

- <u>Port system: `haikuporter`</u> (<u>builds in `chroot`</u>)

- <u>Gentoo ebuild like</u>

  - Port hierarchy (foo-bar/package)

  - Recipe syntax (bash)

    ```
    SUMMARY="Packaged cats"

    DESCRIPTION="Cats kept in safety" …

    PROVIDES="
    ```

    - `bonzaikitten = $portVersion`
      `cmd:packcat = $portVersion"`

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Spoilers

- [Wibbly Wobbly Timey Wimey...Stuff](#)

- You already were in SC002 this afternoon, right? 😺
  - Bring your own laptop with VirtualBox preinstalled!

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So, does it works?

- Still needs debugging
- But for now it scales quite well for a desktop OS
- Not reason anymore not to package your software ...
  - For Haiku of course

References

- https://dev.haiku-os.org/wiki/PackageManagement
- http://bb.haikuports.org/haikuports/wiki/HaikuPorterForPM/

- Thanks for watching
- Questions?

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