pkgng: replacing pkg_install

Baptiste Daroussin
bapt@FreeBSD.org

FreeBSD Developer Summit
BSDCan 2011
Ottawa, Canada
May 11th 2011

Problems with pkg_install

Hard to maintain

lack of features:

- no binary upgrade
- missing metadata
- no real reverse dependency calculation
- no management for configuration files

Known to be broken features: custom prefix

Dirty workaround: +REQUIRED_BY

Doesn't match the level of features of the ports

slow

Goals of pkgng

Simple maintainable code

Compatibility with the port infrastructure

Feature set on par with pkg_install
(not the broken ones)

Have modern package management features:

- repositories
- search
- binary upgrades
- ...

Do not reinvent the wheel

What changes

New backend

New package format

New repository format

New design: libpkg

New frontend

New backend study

Why:

- No fast complex querying
- +REQUIRED_BY

Candidate:

- New flat files
- cdb
- bdb (1.85 from libc)
- sqlite
- some Ancient Ones magic mixing candidates

Winner:

SQLite

New package format

What remains:

- Tar format
- Compressed (but with new xz option by default)
- +<name> for special files

What changes:

- No more: +DESC, +COMMENT +CONTENT
- New +MANIFEST file in plist format containing all the metadata
- Full path for files
- New +*UPGRADE scripts
- New +PRE +POST scripts
- New configuration files support: *.pkgconf

+MANIFEST

Contains all the metadata concerning a package

- @name
- @origin
- @version
- @arch
- @osversion
- @www
- @comment
- @flatsize
- @option
- @dep
- @conflict
- @maintainer
- @exec
- @unexec
- @prefix
- @file
- @user (?)
- @group (?)

New repository format

Bunch of packages with no mandatory hierarchy

New metadata file: repo.txz containing

- sqlite database
- RSA signature file

Database content:

- all metadata from the packages
- sha256 digest of each packages
- sizes of the package: flat and compressed

Self hosting:

No ports tree required to build or to use it

New frontend: pkg

One cli to rule them all: pkg

sub-commands:

- register: to register package from the ports
- info: query information from local db
- delete: remove installed packages
- create: create binary package in a chroot
- which: find which package owns a file
- update: fetch a new version of the remote db
- upgrade: proceed a full upgrade of the packages
- add: install or upgrade a given package
- search: query the remote db
- repo: create a package repository

What will change for porters

Integration steps :

1: nothing (compatibility really works)

2: cleanup

- no need to ${CAT} ${PKG_MESSAGE}
- no need to duplicate post-install scripts

3: possible fakeroot for better QA

- pkg register supports fakeroot (-i inputdir)
- only files in plist will be installed for real
- expect more cleanup and less patches for porters

Guilty list

NetBSD's pkgin: it all started there

Julien Laffaye: Co-author from the begining

Philippe Pepiot: Huge contribution

All contributors and reviewers

PKGNG: Thanks

Questions ?