Gentoo/Alt:Prefix

Gentoo on a different level

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Why Prefix

Gentoo/Outlaw

Gentoo for Mac OS X

- ppc-macos: try and survive having outdated tools

- prefix: build a complete userland

Gentoo/Alt:Prefix

"I am an outlaw, I was born an outlaw son..." – Eagles

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Haunted ppc-macos

- package.provided
- outdated (development) tools
- failing core dependencies
- non-GNU (up-to-date) core utilities

"ppc-macos est mort, vive ppc-macos!"

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Wish list

- no package.provided lies and horror
- "upgrade" OS provided stuff
- get `mutt` and `vim` out-of-the-box

"Father, why are we hiding from the police?"

Prefix = offset

- Rely on a bare minimum (kernel)
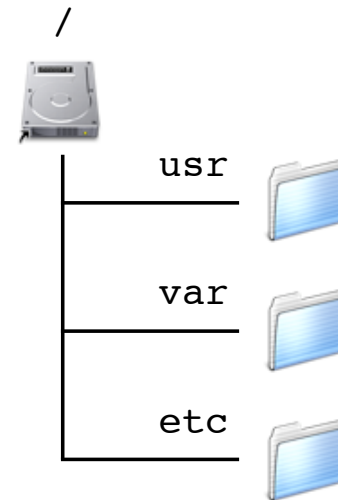- Install into an offset (no conflicts)
- Fully managed by Portage

"because they use emacs son, and we use Vi"

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Prefix for Dummies

/

- Gentoo Linux uses /usr, /var, /etc ...

- Most OSs use those too: Solaris, Mac OS X, *BSD ...
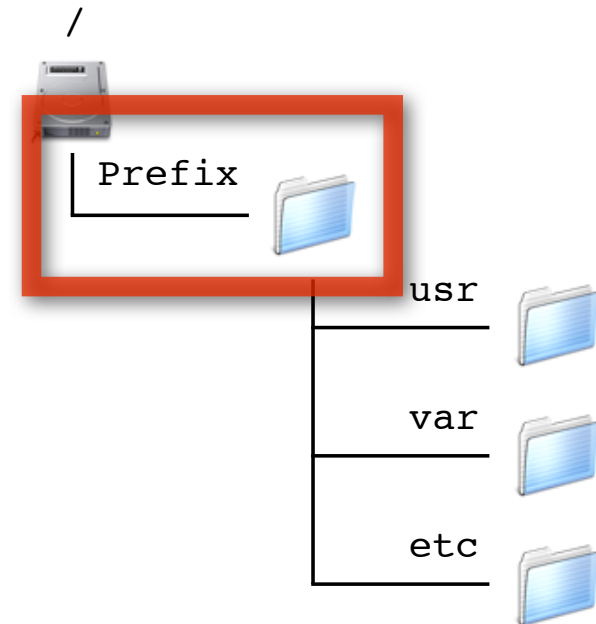
usr

var

etc

"One Prefix to Rule Them All"

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Prefix for Dummies

/

Prefix

usr

var

etc

Avoid conflicts, use an offset

"One Prefix to Rule Them All"

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Prefix' History

Early Days

- Michael Haubenwallner makes patch
- Brian Harring forks off a branch
- Kito Danya Dietrich engineers first version

"Once upon a time..."

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Dark Ages

- Developers leave or disappear

    - knowledge vaporises

- Nothing happens

"... things that should not have been forgotten, were lost ..."

Golden Age

- A "rebirth" of Prefix

- tree updates (scripts)

- Portage fixes, entire rewrite

- contributing participants

"Halcyon & On & On" – Orbital

The *Facts*

Technology

- `prefix` branch of Portage

- very close to `trunk`

- merges succeed ~95% of the time (hi genone!)

"99% of all statistics are made up"

Infrastructure

- Prefix Portage tree on overlays.g.o

- Tools patched for SVN (repoman!)

- User overlays through `layman`

"Prefix, Just Do It"

Supported archs

- ppc-macos
- x86-macos
- sparc-solaris
- x86-solaris
- amd64-linux
- x86-linux
- ia64-linux

"Life is all about choice"

Toolchain

- Use of `gcc-config` and `binutils-config`

- Darwin: odcctools linker, Solaris: GNU binutils

- GNU coreutils, patch, diff, findutils

"GNU is Not Linux"

The Details

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Prefix Portage

- Prefix offset addition
  - clean diff, just `prefix+"path"`
- No root privileges
  - mostly unnecessary in prefix
  - allows user installations

"Got root? No."

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Prefix Offset

- In ebuilds `econf` does `--prefix=${prefix}/usr`

- Illogical in prefix idea, why `usr`?

- Good idea for back/forward compatibility, avoids problems (shells, coreutils)

"Usually the first thought is right"

Prefixed Ebuilds

- The offset itself `EPREFIX`

- Two conveniences:

  - `EROOT=${ROOT}${EPREFIX}`

  - `ED=${D}${EPREFIX}`

- `econf, dosym`, etc. are prefixed

"us is not schizophrenic!"

Ebuild pitfalls

Double Prefixes

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- Autotools help, but

- packages are broken (makefiles)

- packages don't use autotools

"Seeing double?"

Prefix tools

- Hardcoded paths prevent finding

  - tools

  - headers

  - libs

- Program prefixes (gnumake, gmake)

"The Devil is in the Details"

Prefix awareness

Find config files in prefix

Use tools/resources from prefix

"Be Prefix!"

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Prefix scripts

- Scripts need to "Think Prefix"

    - shebang `#!/usr/bin/ruby`

    - encoded paths

    - gcc–config, eselect, layman, ...

"Think Prefix™"

Conclusions

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Gentoo Prefix

- Gentoo system in an offset

- Unprivileged install

- Enabling technique

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"Going places no Gentoo has gone before"

Questions?

Thanks for your attention

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