An early review of the /usr-move

Helmut Grohne

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Why do we have /usr?

- Because the first disk was too small.
- Before we had initrd, / served both as /boot and initrd.
- In early times, /usr was mounted after initrd.
- Distinction into / vs. /usr is no longer useful.
Why merge /usr?

- Strong disagreement on importance of arguments
- Consistency
- Compatibility
- Read-only OS
How to merge `/usr`?

- Most distributions merged via aliasing symlinks.
  - `ln -s usr/bin /bin`
- Symlinking farms
What is aliasing?

- Files now have two names.
- Like pointers: Rust forbids two mutable pointers.
Aliasing problems

- dpkg looses files in rare circumstances.
- File move moratorium by CTTE
Freexian

- Developer survey
- Pay Helmut to fix dpkg
Proposal vs. debian-devel@lists.debian.org
Why not just move all the files to /usr instead?
Why not just move files to /usr?

- dpkg can loose files when using Replaces.
- dpkg triggers may fail to activate.
- Diversions may stop working.
- dpkg alternatives may cease to work.
- dpkg statoverrides may not apply.
- Empty directories may disappear.
- Multi-Arch: same packages may loose files.
- debootstrap may break.
- Debian Installer may break.
Move anyway and mitigate problems
Work around problems using maintainer scripts
Scan for (potential) problems
Long-tail first
/usr-move preparation

✓ Adapt debootstrap
✓ Implement the Debian /usr-merge analysis tool (dumat)
✓ Provide tooling
  ✓ dh_installsystemd and dh_installudev install to /usr
  ✓ dh_movetousr
/usr-move transition

✓ Send patches for latent problems
✓ /usr-merge the Debian Installer
✓ binNMU automatically convertible packages
✓ Send patches for packages relevant to debootstrap
✓ Send patches for packages that cannot be auto-converted
✘ Upload debootstrap set
✘ NMU remaining packages
✘ Write release-notes
Unforeseen problems

- Diversion mitigation didn’t work as sketched.
  - molly-guard was broken for months.
- Conflicts do not prevent concurrent unpack.
- Multiple diversions outside maintainer scripts escaped analysis.
  - piuparts broke repeatedly.
  - Multiple image builders affected.
- Debian Installer was unmerged and broke.
- Lots of interaction with the 2038 transition
- Frequency of undeclared file conflicts
Reception

- Initially heated discussions are much calmer now.
- Positive feedback about data-driven analysis
- Many cooperating maintainers
- Volunteers joined the work
- Communication is hard
  - Too much content and detail
  - Request for more updates
  - Too complex
- Tolerance when things didn’t work out
- Why are we not done yet?
Where are we now?

May 2024:

- 220 uploads Build-Depends: dh-sequence-movetousr
- 130 patches in the BTS
- 110 no-change uploads
- 22 FTBFS
- 5 coordinated uploads for debootstrap

https://subdivi.de/~helmut/urmove.ddlist
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