

# Build Infrastructure

2011-10-06 DevSummit WG

# Portability

- Build makes many FreeBSD assumptions
  - Can not build on Linux, Mac OS X, etc ...
- Limited flexibility for source upgrades
  - Convoluted/unportable bootstrap stage

# Cross-build

- No external toolchain support
  - Always need to build tools first
- No integrated image creation
  - An install to stage is all you can do
- Need to “enter” cross-env.
  - Breaks building host tools; is awkward

# Privilege

- Object tree under root-owned `/usr/obj`
- Root-owned `/etc/make.conf` interference
- No non-root install for staging
- Making an images needs `mdconfig` & `mount`

# Performance

- Many targets per directory (obj, depend, all)
- Many iterations over tree (multiple phases: bootstrap, buildtools, crosstools, includes, libraries, depend, everything, install)
- Even rebuilding make first
- universe/tinderbox takes many hours

# Action Items

- Create wiki to document work
- Import bmake(1)
- Add support for bmake in source tree
- Introduce HOST\_CC et al, and eliminate buildtools target
- Define what a build environment is and provide tooling

# Action Items (cont'd)

- Eliminate bootstrap and crosstools from build
- Use compiler generated dependencies and eliminate depend target (in leafs)
- Add directory dependencies (jbuild?)
- Add manifest-directed build to create images

# Action Items (cont'd)

- Add bmake(1) compatibility to ports
- Move make(1) to ports (if applicable)
- Remove make(1) from source
- For 10.0: create FreeBSD 10.x buildenv packages (various OSes)



# Build environments

- /head is too fluid for a stable build environment (i.e. package)
- Needs auto-upgrade using obj tree (akin to bootstrap tools)?
- Use tool versions to avoid rebuilding?
- Note that /usr is a native build environment