



Challenges of rolling with OpenWRT

It's harder than it looks

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Who are we

- Czech domain registry
- Turris Omnia router maintainers
 - ARMv7, 8G eMMC, 1-2G RAM
- building self-updating routers based on OpenWRT
 - currently about 3 years of updates
- updating on per package basis



Our needs

- packaged software
- images based on some list of packages
- consistent builds
- fast rebuilds of fixes
- reinstall everything that is needed



Consistent builds

- some packages auto-detects some features
- builds are based on common staging dir
 - imagine highly parallel build
 - imagine rebuilding one package
- correct solution - per app staging dirs
 - breaks a lot
- our current workaround is make `dirclean` before build
 - and luck :-)



Reinstalling what is needed

- OpenWRT is mainly building rootfs
- we are using packages to do updates
- imagine you need to update OpenSSL
 - it changed it's API/ABI slightly
 - everything rebuilds fine
 - only one package changed the version
 - opkg/updater will update it
 - your curl, wget and others will stop working



Reinstalling what is needed

- correct solution
 - track built versions
 - track API/ABI
 - change package revision whenever needed
 - do all of it automatically
- our current workaround - manual testing + grep + sed
 - kinda hard and crazy to do it in make



Image creation and updates

- We "manage" system remotely through packages
- List of packages to be installed
 - Base system
 - User lists (ex.: openvpn, nas, lxc)
- Originally: "y" packages ⇒ list to be installed
- New approach: build all packages and use custom list



Image creation and updates

- Rootfs created using opkg/updater
- But konfigured by Kconfig
 - Not complete dependencies
 - Not complete resolution
- Correct solution?
 - Build all packages
 - Extend Kconfig
 - Choose only required packages



Dreaming about perfect world

- building individual packages one by one
- have packaged staging dirs for every package
- building rootfs from packages
- changing one package trigger rebuild of others
 - including revision change if needed

⇒ put everything into OBS (Open Build Service)

