# Flatpak – A new way to distribute applications

Matthias Clasen Red Hat

# Distributions do important work

- Easy to install and update
- Security updates
- Testing
- License compliance
- Single point of trust

#### Downsides of the distribution model

- Middleman between developers and users
- Non-free apps are left out
- Fragmentation: deb vs. rpm
- "Fringe" apps don't get packaged
- Less used apps get little or no testing



# For application developers

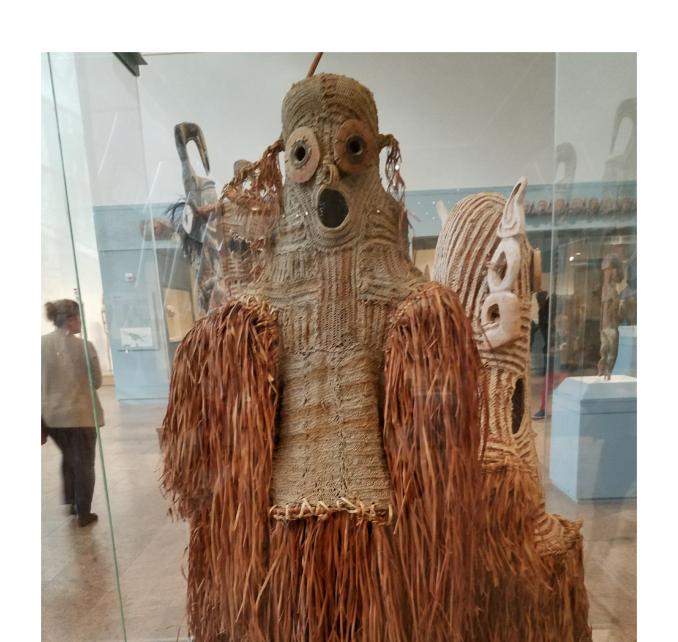
- No control over updates
- No control over dependencies
- No direct contact to users
- Multiple targets: Fedora, Ubuntu, Debian,...



# Main goals

- Cross-distribution deployment
- Sandboxing
- Invisible to the user
- Directly connect users and app developers

#### How does it work?



#### How does it work?

- Namespaces
- Cgroups
- Seccomp

# Dependencies are bundled

- Users and testers run exactly the same binaries
- Developer has full control over versions

# Runtime / Application split

- Don't want to bundle everything
- Common stack of libraries in /usr
- The app itself and the bundled parts in /app

Examples: freedesktop runtime, GNOME runtime

# **Build support**

- SDK counterpart to runtime
- flatpak-builder utility
- GNOME Builder integration



#### Ostree

- Used for installation and updates
- Used for local storage
- Automatic deduplication
- Atomic updates

# **Appstream**

- Widely used and accepted
- Apps ship their own appdata
- Combined into a single xml file in a branch

# Sandboxing

- Traditional Unix security
- Modern security

#### **Portals**

- Safe way to get out of sandbox
- Safety by user interaction

Examples: FileChooser, OpenURI, Print, Sharing

#### OCI

- Repositories
- Build system integration
- Security checks

# Roadmap

- A stable runtime
- Fedora runtime
- Apps as Flatpaks for atomic Workstation

# Case study: Recipes



# Early testing

Oct 28 receive first mockups

Oct 30 first commits in git, already include a Flatpak manifest

Oct 30 first Flatpak bundle available as release on github

**Dec 4** another Flatpak bundle available on github

**Dec 5** Flatpak repository hosted on github

**Dec 15** first tarball release on download.gnome.org

...not packaged in distributions yet

# Sandboxing

- Using Portals
  - File chooser portal for selecting images
  - Account portal for getting user information
  - OpenURL portal for handling links
  - Print portal for printing
  - Notification portal for notifications
- What is missing: Sharing

# Bundling

- Using GNOME runtime
- Bundling gnome-autoar and gspell
- Git submodules: libgd, libglnx

# Things to keep in mind

- Name-prefix all exported files
  - Desktop file
  - D-Bus service file
  - GNOME shell search provider
  - Icons
- Store files in \$XDG\_DATA\_HOME

### Demo time!



# Questions?

#### References

Flatpak:

Website: http://flatpak.org

Code: https://github.com/flatpak/flatpak

List: http://lists.freedesktop.org/archives/xdg-app

IRC: #flatpak on freenode

• Recipes:

Website: https://wiki.gnome.org/Apps/Recipes

Code: https://git.gnome.org//browse/recipes/

