Listaller

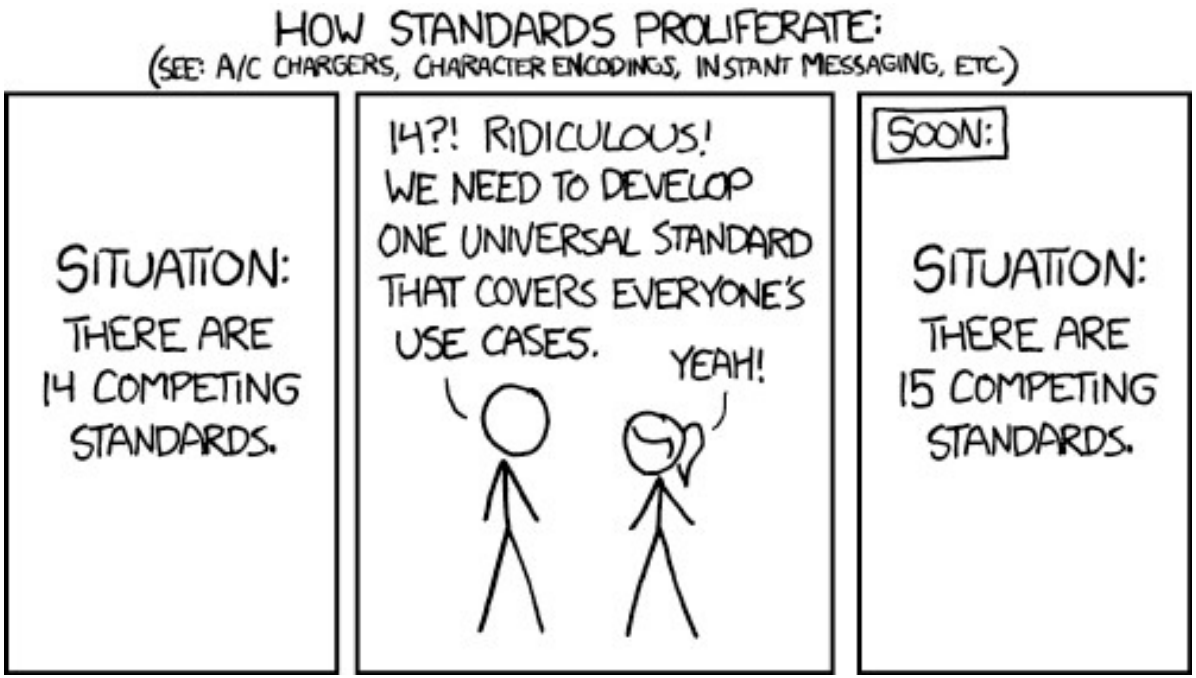
A simple and secure way to distribute 3rd-party applications

Matthias Klumpp

mak@debian.org

matthias@tenstral.net

XKCD 927


HOW STANDARDS PROLIFERATE:
(SEE: A/C CHARGERS, CHARACTER ENCODINGS, INSTANT MESSAGING, ETC)
SITUATION: THERE ARE 14 COMPETING STANDARDS.
14?! RIDICULOUS! WE NEED TO DEVELOP ONE UNIVERSAL STANDARD THAT COVERS EVERYONE'S USE CASES.
YEAH!
SOON:
SITUATION: THERE ARE 15 COMPETING STANDARDS.

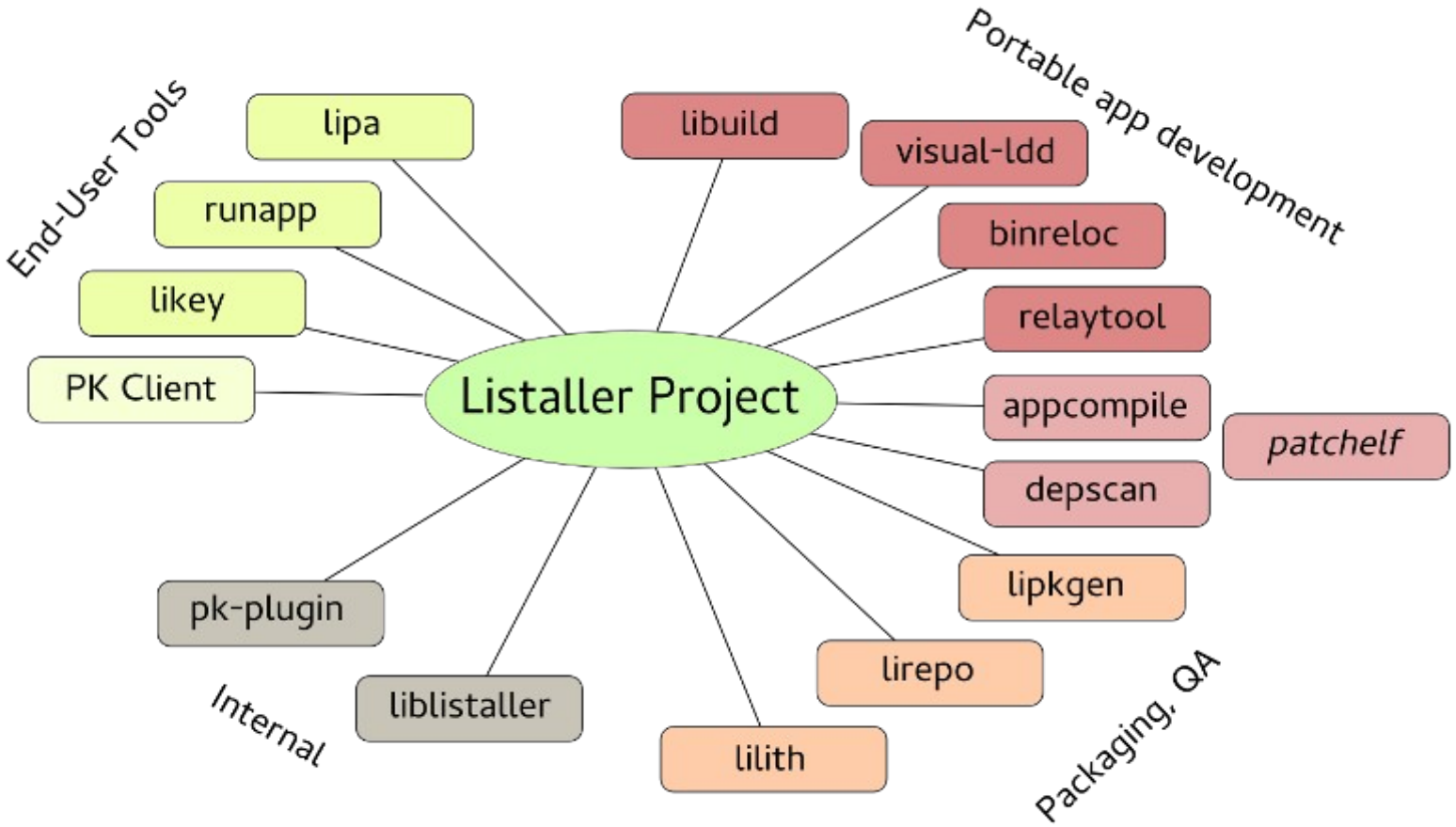
Why?

- People want to have new software which is not available in the distribution's repositories
  - Distributor resources are limited: Can't backport everything
- 3rd-party repositories („PPAs“) are insecure and can potentially break the system or distribution upgrades
- PPA software is set equal to software reviewed by the distributor, while coming from a potentially malicious source
- PPAs are distribution-specific: Lots of PPAs for new software are available for Ubuntu, but not Fedora, Debian, ...

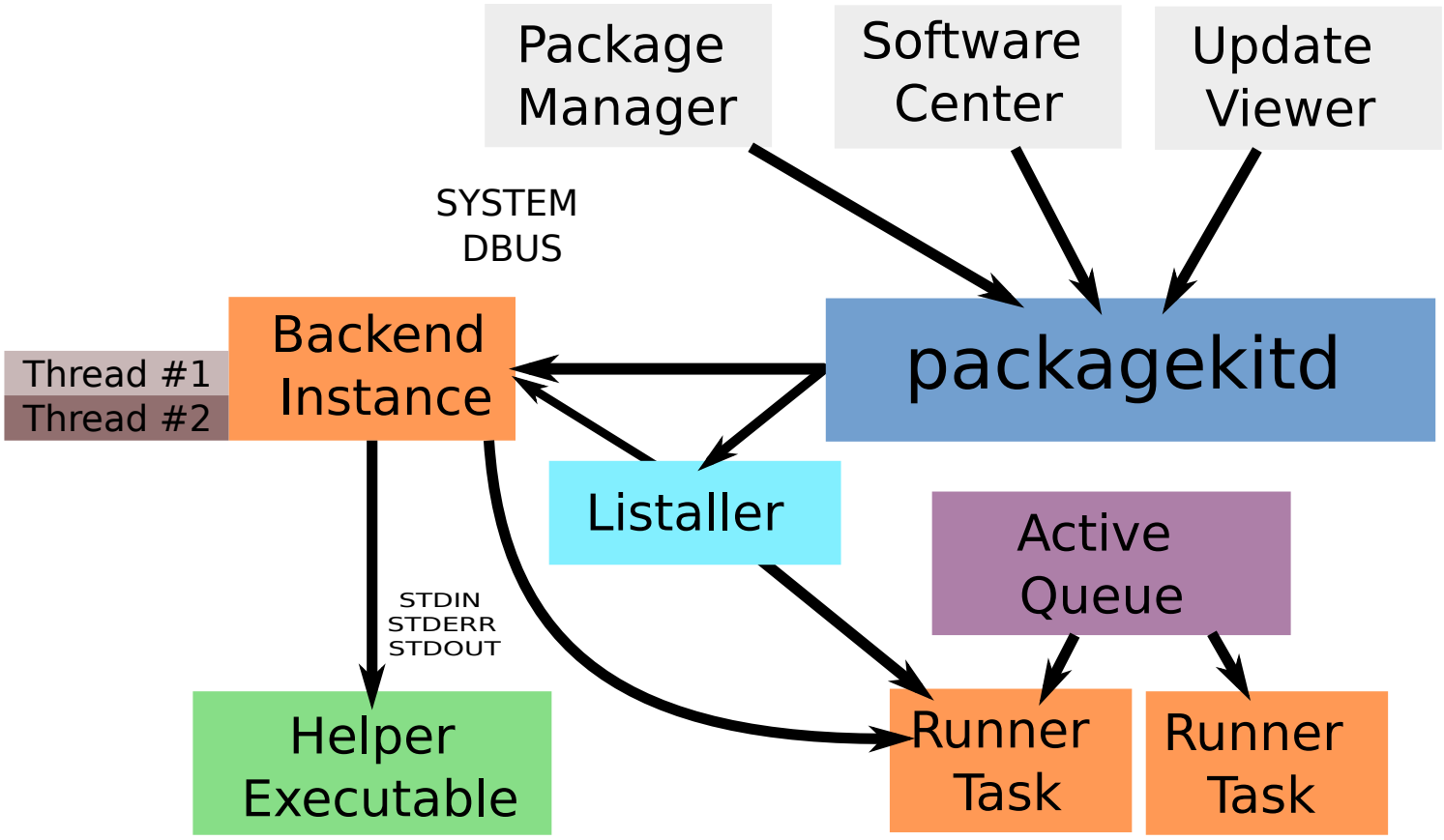
Listaller Goals

- System integration
  - The user should not notice that Listaller is used when installing apps
  - Listaller apps should integrate seamlessly with the system
  - Software updates should be retrieved using the same UI as the system itself
- Cross-distro and -desktop compatibility
- Simplification
  - No catch-all solution, Listaller should cover the most common use-cases. Native distribution packages should cover the remaining cases
- Security
  - Signatures, security hints database, sandboxing, ...
- Developer tools
  - Provide helpers for developers to make their apps run on multiple distributions
  - Make packaging as simple as possible, reduce possible error sources

Listaller consists of many tools



PackageKit & Listaller



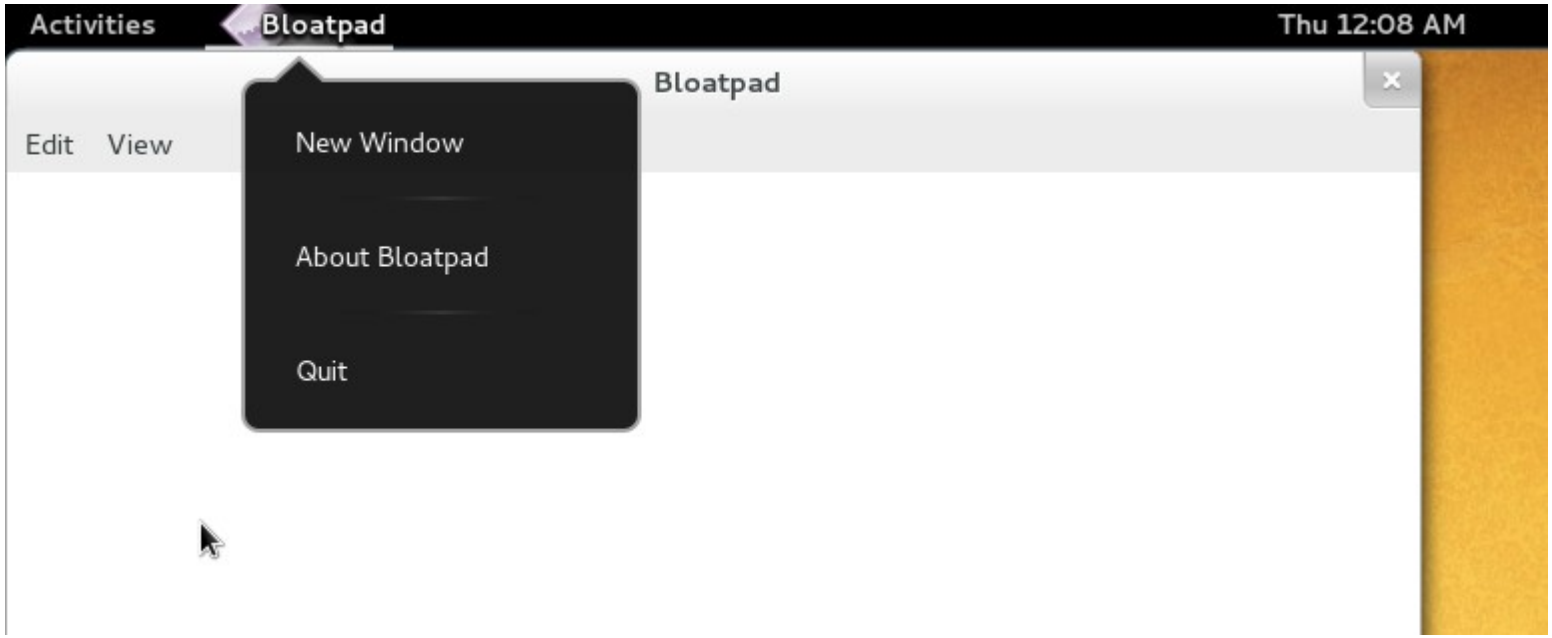
Components

- Upstream projects (GTK+/Qt/...) can ship component definitions, defining which public interfaces they provide

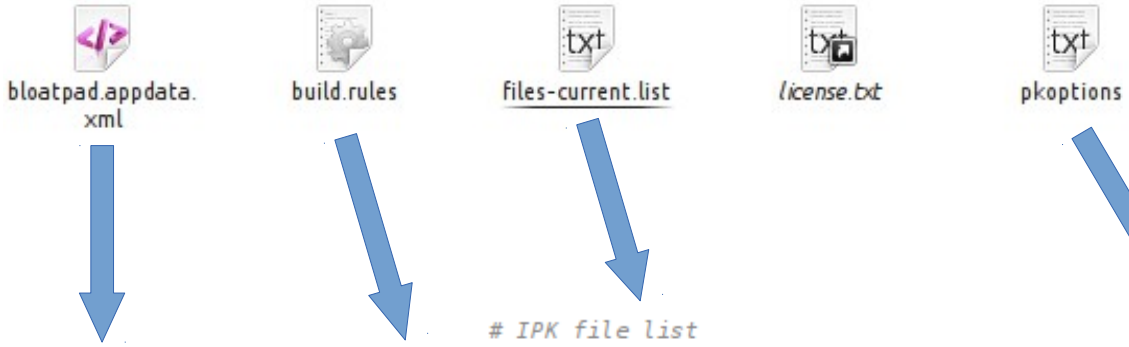
```
# GLib C utility library

ID: GLib2
Name: GLib 2.0
Version: 2.36
Libraries: libgio-2.0.so.0
 libgobject-2.0.so.0
 libglib-2.0.so.0
Binaries:
 gdbus
 gio-querymodules
 glib-compile-resources
 glib-compile-schemas
 gresource
 gsettings
```

Utopia packaging example

Let's package Bloatpad!



Write some config




```
<?xml version="1.0" encoding="UTF-8"?>
<application>
 <id type="desktop">Bloatpad.desktop</id>
 <name>Bloatpad</name>
 <summary>A bloated text editor</summary>
 <description>
  <p>
   Bloatpad is awesome!
  </p>
 </description>

 <url type="homepage">http://bloatware.org/bloatpad</url>
 <project_license>GPLv3+</project_license>
 <release date="2014-02-01">
   <version>1.41</version>
 </release>
</application>
```

```
#!/usr/bin/
# -*- mode:

compile:
»       app

strip:
»       -ap

binary: com
```

```
# IPK file list
:: %INST%
usr/local/bin/bloatpad
../../bloatpad_data.file
:: %INST%/config
usr/local/etc/bloatpad
:: %INST%/data
usr/local/share/info/bp.info
:: %LIB_PRIVATE%
usr/local/lib/*.so.*
usr/local/lib/*.so
:: %APP%
usr/local/share/applications/Bloatpad.desktop
```

```
Version: 2.0

AutoFindDeps: true
FilesRoot: %INSTDIR%
```

Create package!

```
earth@sun:~/Development/Bloatpad$ lipkgen -b --sign
```

- Runs depscan
- Detects required components: GTK+3 (>= 3.12), GLib2 (>= 2.36), Xorg, gnome-icon-theme, GStreamer1.0 (>= 1.0)
- Generates package structure, signs package
- Runs lilith:

```
W: icon 'bloatpad.png' has wrong size: 64x52 instead of 64x64
W: missing ';' in 'bloatpad.desktop' Categories field
I: desktop-file 'Bloatpad.desktop' is missing keywords!
I: no upstream author defined
```

User installs package

```
earth@sun:~$ pkcon install-local Bloatpad-1.0_amd64.ipk
earth@sun:~$ lipa -i Bloatpad-1.0_amd64.ipk
```

- Our user runs KDE
- Listaller will search for native packages declaring the missing components and install them

User runs application

```
earth@sun:~$ runapp bloatpad
```

- Application is run by specifying it's desktop-filename as argument to runapp
- Runapp will take care of sandboxing the application, or warn about missing dependencies
- Will soon support DBus-activated applications as well

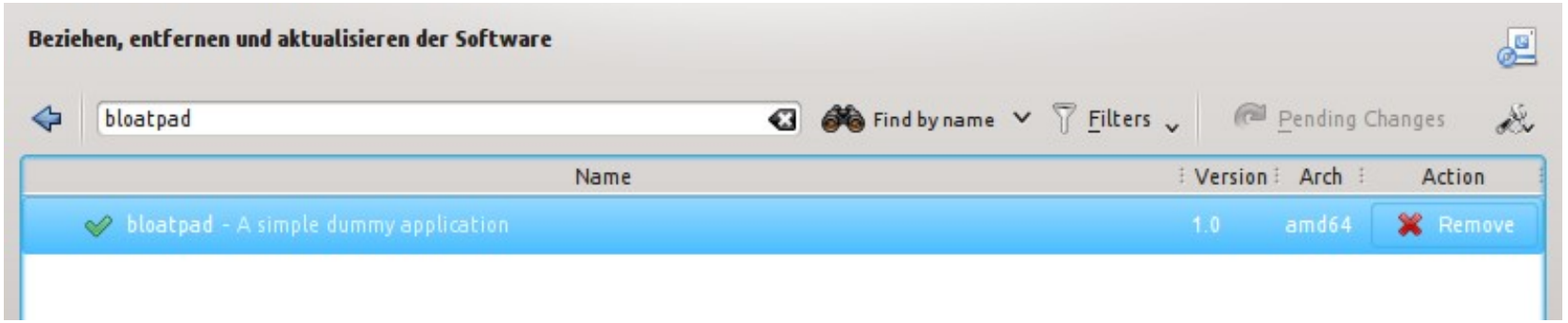
Developer creates update

```
earth@sun:~$ lirepo -a Bloatpad-1.2_amd64.ipk
```

- Add new releases to the update repository
- Also allows cross-distro application repositories („AppStores“), but users need to add these manually

User removes Bloatpad

Apper



Thank you for your attention!