# Deep Freeze

## building better stand-alone apps with Python

Ryan Kelly

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# Freezing

Python has excellent support for distributing stand-alone applications.

Great tools: py2exe, py2app, cx-freeze,
bbfreeze, PyInstaller

Stop…

Demo Time!

# The thing about build tools...

- They're not the coolest thing to work on

- You hack them up until they work

- then fear to touch them in case they *stop* working

- we tend to suffer alone

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- A frozen Python app, running from a USB drive

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SOFTWARE DEPLOYMENT HELL

# Some Handy Tools

| | |
|---|---|
| - Esky: | easy automatic updates |
| - Signedimp: | verified code loading |
| - Myppy: | portable binaries |

Stop…

Demo Time!

# Esky

Simple, robust framework for automatic updates.

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*Not* another freezer module.

Under the hood it uses py2exe, py2app, etc.

Adds some extra data and structure.

```
app = esky.Esky(sys.executable,”https://updates.com/”)
app.auto_update()
```

```
app = esky.Esky(sys.executable,”https://updates.com/”)
newver = app.find_update()
if newver is not None:
   if prompt("Install new version %s?" % (newver,)):
      app.install_version(newver)
      alert(“Installed version %s” % (app.version,))
app.cleanup()
```

# Updates are easy...right?

Check server, download tarball, extract.

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But what if...

* the power goes out?
* the user quits your app?
* the user starts your app again?

The tyranny of Murphy
is the penalty for hubris

-xkcd

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A delicate sequence of atomic renames and deletes.

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On some platforms, there can be a two-step danger window if you:

- change python version
- change py2exe version
- change esky version

Stop…

Demo Time!

# Signedimp

A PEP-302 Import Hook for verifying imports:

- each item on sys.path contains a signed manifest file
- meta-path import hook contains the public key
- each import is verified before being loaded

Quis custodiet ipsos custodes?

signedimp.tools.sign_py2exe_app(path)

signedimp.tools.sign_py2app_bundle(path)

signedimp.tools.sign_cxfreeze_app(path)

WARNING

Civilian Crypto Code

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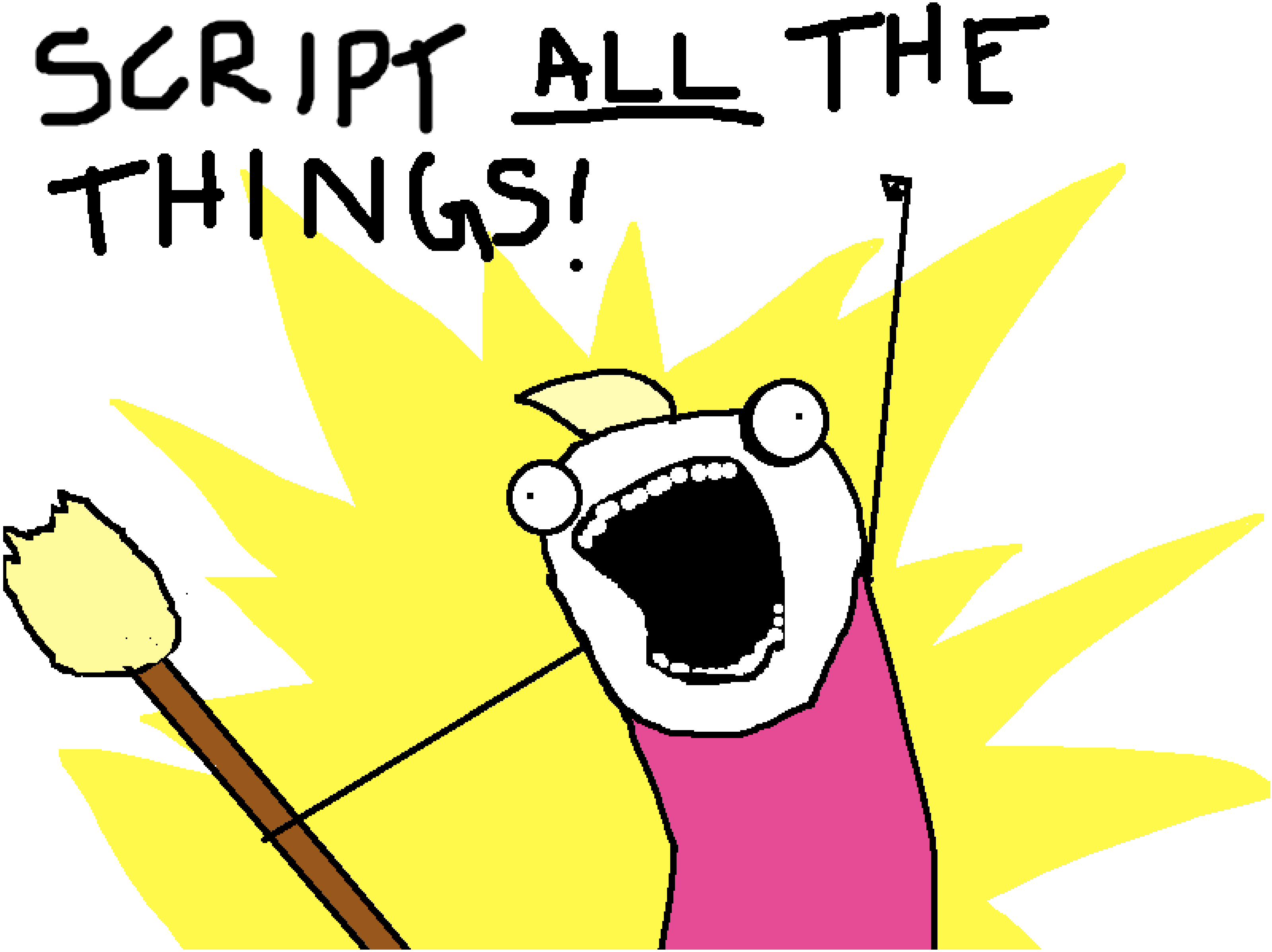
This makes me uncomfortable


SCRIPT ALL THE THINGS!

# Myppy

- “Make You a Portable Python”

- Operates a lot like a virtualenv

- Compiled from source, using repeatable set of recipes

Stop…

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# Myppy's Secret Sauce

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On Windows: ...?

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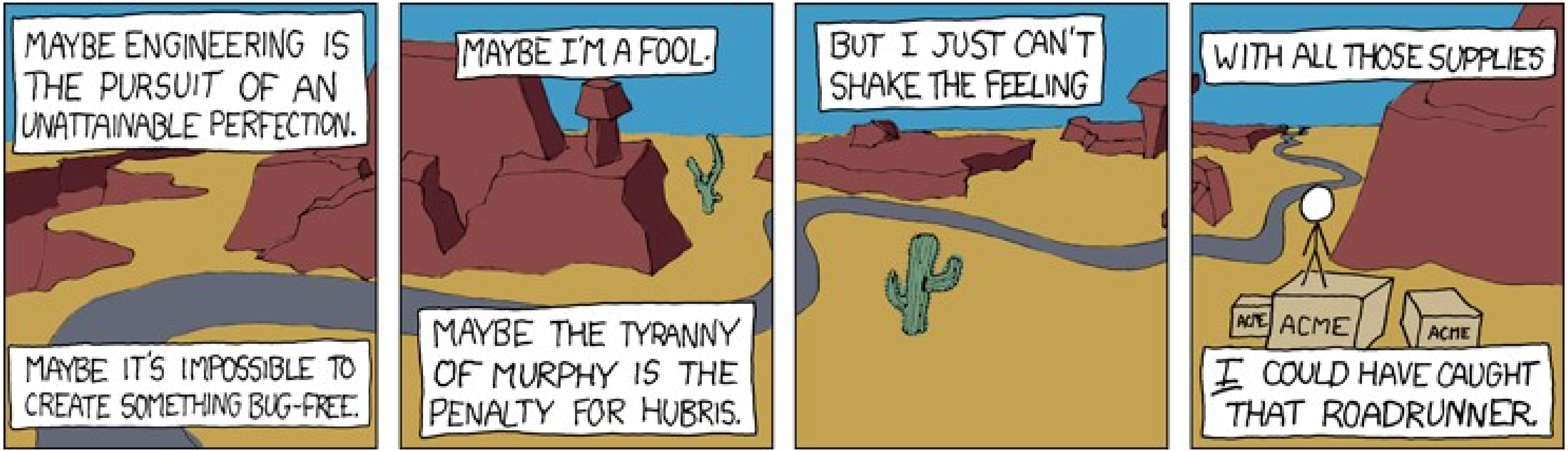
# So: What Now?

- Seeking Collaborators
- Let's not suffer alone
- Many people here have their own scripts and tricks
    - Care to share?

http://github.com/rfk/esky
http://github.com/rfk/signedimp
http://github.com/rfk/myppy


MAYBE ENGINEERING IS THE PURSUIT OF AN UNATTAINABLE PERFECTION.
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http://xkcd.com/319/

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