Next Gen Tooling
(For Release Engineering)

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Today's Topics

1. Background
   a. What is:
      i. Release Engineering
      ii. An Operating System
      iii. An application
      iv. A package
      v. A Distribution
   b. Fedora Rings

2. Build Tooling Today

3. Build Tooling Tomorrow
Background
What is Rel-Eng?

- From Wikipedia
  - "is a sub-discipline in software engineering concerned with the compilation, assembly, and delivery of source code into finished products or other software components"

- Goal (surely you jest):
  - Maintain sanity in the pipeline of source code to something consumable
    - Produce/maintain tooling to facilitate in that goal

- [https://fedoraproject.org/wiki/ReleaseEngineering/Philosophy](https://fedoraproject.org/wiki/ReleaseEngineering/Philosophy)
What is an Operating System?

- "software that manages computer hardware and software resources and provides common services for computer programs"

  (also from Wikipedia)
What is an Application?

- “set of computer programs designed to permit the user to perform a group of coordinated functions, tasks, or activities. Application software cannot run on itself but is dependent on system software to execute.”

- (also from Wikipedia)

- Thing to note and think about: “is dependent on the system software to execute”
What are Packages?

- Build artifacts that can be consumed and used
  - What “consumed” and “used” will vary based on content vs code and end delivery format/mechanism
    - (Fonts, Icon sets, qcow images, rpm-ostrees, etc)
- What about things that aren't rpm?
  - pip, gem, npm, maven, etc.
What is a Distribution?

“an operating system made as a software collection based on the Linux kernel and, often, on a package management system.”

(Also from wikipedia)

What does this mean today vs yesterday?

- Distros used to be one-stop-shop
- Today it's the base layer where some things come from the distro but not all
Thinking about Fedora

- Where does the Operating System end and the Application begin?
- What if those things weren't tightly coupled?
  - Docker, Rocket(rkt), xdg-app, $other(?)
- Examples:
  - Android
  - iOS
  - FirefoxOS
  - ChromeOS
Fedora Rings!

FEDORA.NEXT RINGS MODEL CONCEPT

SPRING 2015

BASE DESIGN AS RPM-OSTREE WITH SERVER, CLOUD, AND WORKSTATION AS OVERLAYS; SUBCOMPONENTS PROVIDED VIA CONTAINER TECHNOLOGIES
Fedora Rings?

- What does Fedora Rings mean to RelEng?
  - We need to be able to adapt more rapidly for build artifact delivery (things change faster than they used to)
  - Still need to make sure the Operating System doesn't turn into the wild west.
    - Rel-Eng criteria still need to be met
      - Reproducable
      - Auditable
      - Definable
      - Deliverable
Tooling Today
Today

- (Yesterday too)
- Koji
  - RPM-centric
  - ImageFactory Integration
  - LiveCD Creator
- Pungi
- Lorax
- Bodhi
- Wild West: COPR
Tooling Tomorrow
Tomorrow

- Koji 2.0
  - Content Generator Centric
    - RPM Builds being a first class Content Generator
  - Live Media Creator
  - Secondard Arches in mainline Koji
- Pungi4 (Might go away? Maybe???)
- Layered Image Builds for Containers
- Fedora Atomic Two Week Releases
- Wild West: COPR/DOPR/$Other?
Atomic Two Weeks

Diagram showing the build, test, release, and present stages of a project, with various steps and processes involved.
Layered Image Build

Koji

OpenShift

DistGit

FedPkg

OSBS
What Next?

- Containers
  - Supporting alternate container formats
    - Rocket (rkt)
    - runC
    - Freight agent
    - $other?
  - Atomic Workstation
  - Nulecule Apps
    - Multi-Container
  - $NewHotness
Questions?

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