Desktop Linux Management @ FB
FOSDEM 2021
Desktop fleet primer
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Provisioning & Management
Upstream collaboration
Desktop Fleet Primer
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What do we manage?

- Employee devices
- Mostly laptops, some desktops
- Mostly macOS and Windows, some Linux
Desktop fleet primer

How does it work?

- Client Platform Engineering manages the bare metal experience of the fleet
- OS as a platform
- Individual teams can layer their own configuration
- Built on an Open Source foundation
- Chef, rpm/yum/dnf, chocolatey
Desktop fleet primer

How does it work?

- Community sets the direction
- We move fast; open source often moves faster
- Reuse, don’t reimplement
- Sharing our code means sharing the maintenance and having others extend it
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History

- Started as a grassroots efforts
- Configuration management implemented as best effort
- Pivot to first-class Fedora support
- Branching out to CentOS Stream
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Why Fedora?

• Align with the server fleet (CentOS Dojo 2020)
• Reuse existing tooling and infrastructure
• “Four Foundations”: Freedom, Friends, Features, and First
• Two-way conduit for collaboration
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Why /not/ Fedora?

- Fast-moving with short support period (2x6 months + 1 month)
- Fix forward vs backporting security updates
- Third-party vendor support
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Why CentOS Stream?

• Stable rolling release
• Binary compatibility
• Security updates
• Close relationship with Fedora, including EPEL
• Hyperscale SIG
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Kickstart

- We traditionally do PXE network installations
- Transition to self-service imaging
- Modular kickstart builder
  - Prototype on GitHub: michel-slm/luks-kickstarts
  - Lorax PR 1047 to fix mkksiso EFI boot
- Chef bootstrap
  - GitHub: facebookincubator/go2chef
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Packaging

- Standard Fedora repos
- Vetted partial mirror of internal repo
- RPM Fusion
- Flatpak
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Major OS upgrades

- Fedora
  - beta testing
  - dnf system-upgrade
  - GNOME Software
- CentOS
  - Reimage
- Push notifications
- Btrfs motivation: snapshots
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Minor upgrades

- dnf-automatic
- sharding for internal packages
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Chef

• Chef for config management
• Philosophy: https://tinyurl.com/mgxb923
  - Layered configuration through attribute-based APIs
  - Separation of policy and mechanism
  - Idempotency
  - Configuration as programming
• Cookbooks in source control
• Develop locally, test on real machines
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Chef

- Documentation, best practices and tooling
  - GitHub: facebook/chef-utils
  - GitHub: facebookincubator/go2chef
  - GitHub: facebook/taste-tester

- Cookbooks
  - GitHub: facebook/IT-CPE
  - GitHub: facebook/chef-cookbooks
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Chef example: screensaver

```chef
node['cpe_dconf']['settings']['screensaver'] = {
  'org/gnome.desktop/screensaver' => {
    'lock-enabled' => true,
    'lock-delay' => {
      'value' => 'uint32 0',
      'lock' => false,
    },
  },
  'org/gnome.desktop/session' => {
    'idle-delay' => 'uint32 600'
  }
}
```
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Chef example: flatpak

```
node.default['cpe_flatpak']['ignore_failure'] = true
node.default['cpe_flatpak']['manage'] = true
pkgs = %w{
  com.spotify.Client
  com.obsproject.Studio
}

pkgs.sort.each do |pkg|
  node.default['cpe_flatpak']['pkgs'][pkg] = 'flathub'
end
```
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Current status

- Fedora
  - Support policy aligned with upstream (33 and 32 supported)
- CentOS Stream
  - Evaluation
  - Targeting full support this year
  - Hyperscale SIG
Upstream collaboration
Upstream collaboration

- Fedora Changes
  - BtrfsByDefault (F33)
  - BtrfsTransparentCompression (WIP, F34)
  - EnableSystemdOomd (WIP, F34)
  - RPMCoW (WIP, F34)
- Internal group of packagers
  - We package FB open source projects
  - We try and get software dependencies into EPEL
- EPEL Packagers SIG
Thank you!
Questions?
FACEBOOK Infrastructure