DEVELOPING RHEL OPEN SOURCE WAY

Luděk Šmíd
Senior Manager, PnT Program Management
January 25th, 2019
AGENDA
DEVCONF.CZ, 2019

What is RHEL?

Working with upstream

Impact of the Open Source development model

Wrap up
Open-source software

Open-source software (OSS) is a type of computer software in which source code is released under a license in which the copyright holder grants users the rights to study, change, and distribute the software to anyone and for any purpose.

Open Source and Business Models

- Support and services
- Advertisement partnerships
- Paid additional features
- SaaS
Open Source and Business Models

- Support and services
- Advertisement partnerships
- Paid additional features
- SaaS

- And 14 more mentioned at
  https://en.wikipedia.org/wiki/Free_and_open-source_software
Linux distribution

A Linux distribution (often abbreviated as distro) is an operating system made from a software collection, which is based upon the Linux kernel and, often, a package management system.

Most of the included software is free and open-source software made available both as compiled binaries and in source code form, allowing modifications to the original software.

[https://en.wikipedia.org/wiki/Linux_distribution](https://en.wikipedia.org/wiki/Linux_distribution)
Red Hat Enterprise Linux

An enterprise grade Linux distribution with Support and Services business model.
Scale of RHEL

# of SRPMs in major releases

<table>
<thead>
<tr>
<th>RHEL Version</th>
<th>SRPMs</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.10 AS</td>
<td>867</td>
</tr>
<tr>
<td>5.11 Server</td>
<td>1272</td>
</tr>
<tr>
<td>6.10 Server</td>
<td>1821</td>
</tr>
<tr>
<td>7.6 Server</td>
<td>2192</td>
</tr>
<tr>
<td>8.0 Beta</td>
<td>2265</td>
</tr>
</tbody>
</table>
Scale of RHEL
Bugs fixed in minor releases

Red Hat Enterprise Linux - bugs CLOSED ERRATA by year

- Red Hat Software Collections
- Red Hat Enterprise Linux 7
- Red Hat Enterprise Linux 6
- Red Hat Enterprise Linux 5
- Red Hat Enterprise Linux 4
- Red Hat Enterprise Linux 3
WORKING WITH UPSTREAM
Upstream

In software development, upstream refers to a direction toward the original authors or maintainers of software that is distributed as source code, and is a qualification of either a bug or a patch.

https://en.wikipedia.org/wiki/Upstream_(software_development)
KEEPING UP WITH UPSTREAM
From Upstream to RHEL

1000s of upstream projects
Working with Upstream

- Upstream first policy
- Influencing upstream
- Rebasing vs patching
DRIVING CHANGE IN UPSTREAM
...can be (relatively) easy.

- Kernel
- Kubernetes
- ...and many many others.
...can be hard.

- SELinux
- SystemD
- GNOME 3
...or even harder.

- Docker
IMPACT OF FOSS DEVELOPMENT MODEL
INFLUENCE

- Red Hat influences upstreams

<table>
<thead>
<tr>
<th>By changesets</th>
<th>By lines changed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Most active 4.20 employers</strong></td>
<td></td>
</tr>
<tr>
<td>Intel</td>
<td>1328 9.6%</td>
</tr>
<tr>
<td>Red Hat</td>
<td>1170 8.4%</td>
</tr>
<tr>
<td>(None)</td>
<td>962  6.9%</td>
</tr>
<tr>
<td>(Unknown)</td>
<td>764  5.5%</td>
</tr>
<tr>
<td>Linaro</td>
<td>647  4.7%</td>
</tr>
<tr>
<td>AMD</td>
<td>645  4.7%</td>
</tr>
<tr>
<td>IBM</td>
<td>627  4.5%</td>
</tr>
<tr>
<td>Huawei Technologies</td>
<td>494  3.6%</td>
</tr>
<tr>
<td>Google</td>
<td>484  3.5%</td>
</tr>
<tr>
<td>Renesas Electronics</td>
<td>449  3.2%</td>
</tr>
</tbody>
</table>
RHEL and FOSS

- Upstream first policy
- kABI/ABI promise
- RHEL Life Cycle and maintenance
RHEL Program Team Evolution

- Subsystem teams to handle individual technological areas
- Distributed decision making
- Transformation from Waterfall to Agile
WHY?
Why Open Source development model?

- Superior development model
  - Collaboration
  - Transparency
  - Peer review
  - Release Early and Often
  - Competition
THANK YOU

plus.google.com/+RedHat
linkedin.com/company/red-hat
facebook.com/redhatinc
twitter.com/RedHat
youtube.com/user/RedHatVideos