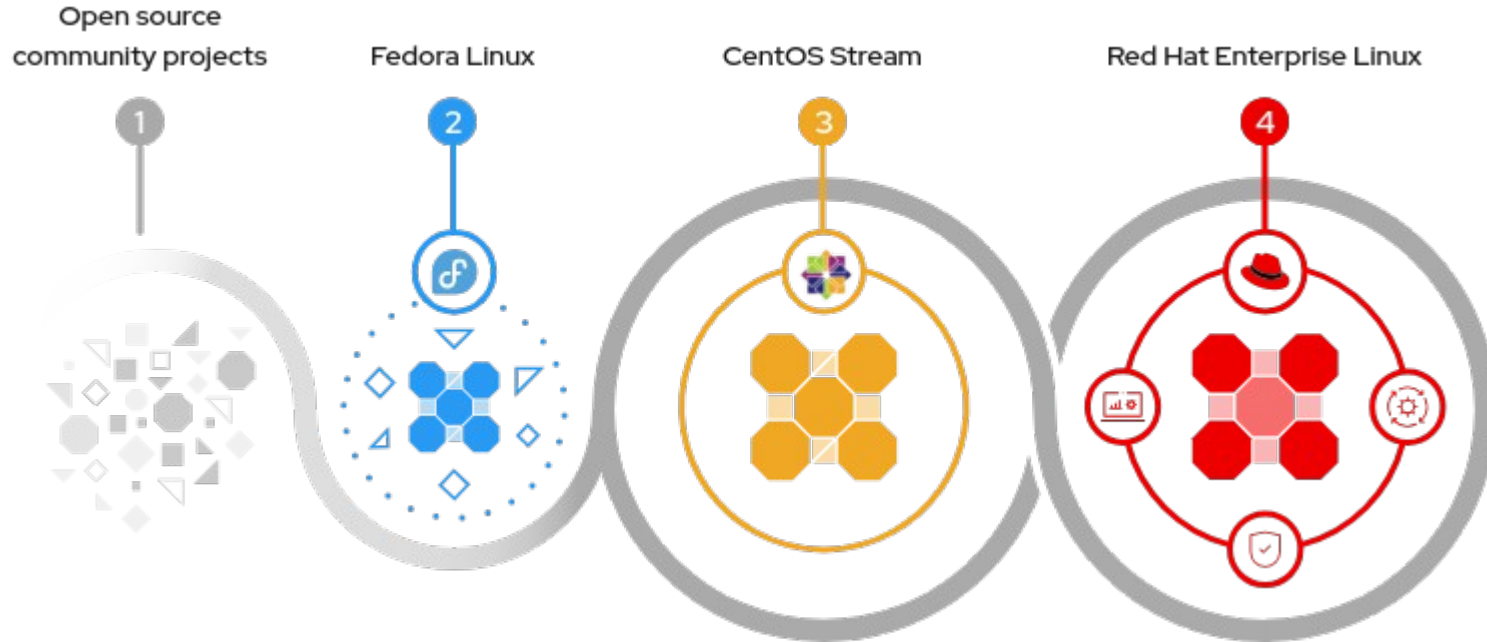# EPEL 10 and Ceph

Enabling Ceph on the next version of Enterprise Linux

Presentation Goals

- Understand how EPEL fits into Enterprise Linux ecosystem.

- Scope out work to enable Ceph to ship on el10 as the primary platform.

  – What that means

  – How we get there
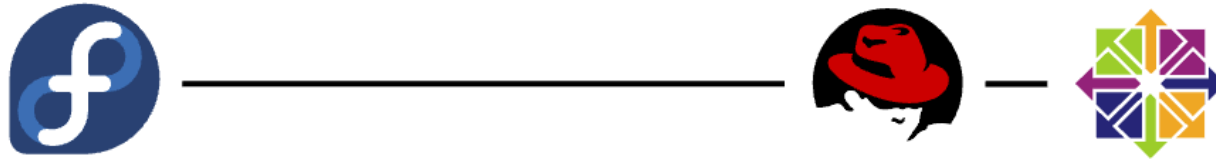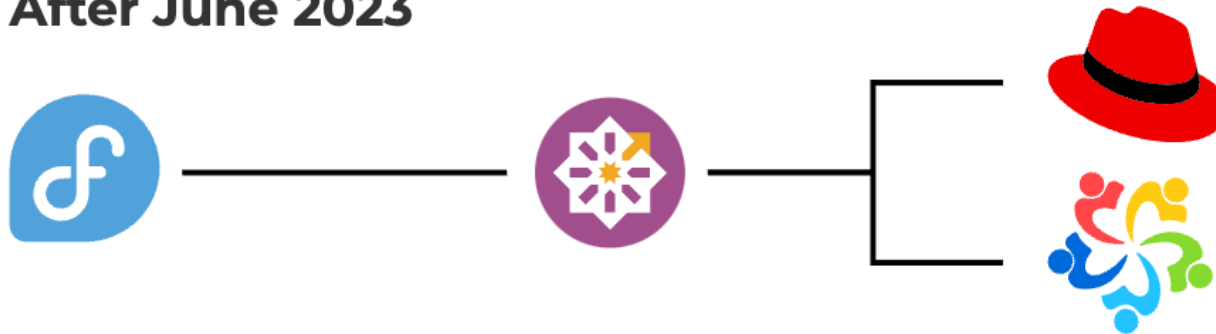
Red Hat's "Enterprise Linux" ecosystem

Open source community projects — Fedora Linux — CentOS Stream — Red Hat Enterprise Linux

https://www.redhat.com/en/topics/linux/what-is-centos-stream

Pre-CentOS Stream (2004 - 2019)

After June 2023

original by @carlwgeorge@fosstodon.org; adapted for AlmaLinux

https://wiki.almalinux.org/Comparison.html

What is EPEL?

- Extra packages for Enterprise Linux

- Hosted in the Fedora Project
    - Copies (backports) of Fedora packages
    - but for *Enterprise Linux*, not for Fedora Linux!

https://docs.fedoraproject.org/en-US/epel/

Why EPEL?

- RHEL often lacks packages we need for Ceph.

- **EPEL gives you** a place to promote, support, and benefit from **packages that exist in Fedora that Red Hat did not include in RHEL**.

How do I get a package into EPEL?

Look for the "EPEL package request guide" in Fedora docs.

https://docs.fedoraproject.org/en-US/epel/epel-package-request/

But what if I **really** need that package?

You can package it and maintain it yourself!

Start by **becoming a Fedora packager**, and that will lead to maintaining the package for EPEL.

(This is how I got started in Fedora!)

I can't do packaging, how else can I help?

You can also **test the `epel-testing` packages** before they are released to assure their quality. We use Bodhi as a platform to manage updates and quality assurance, and **you can use it to report your testing!**
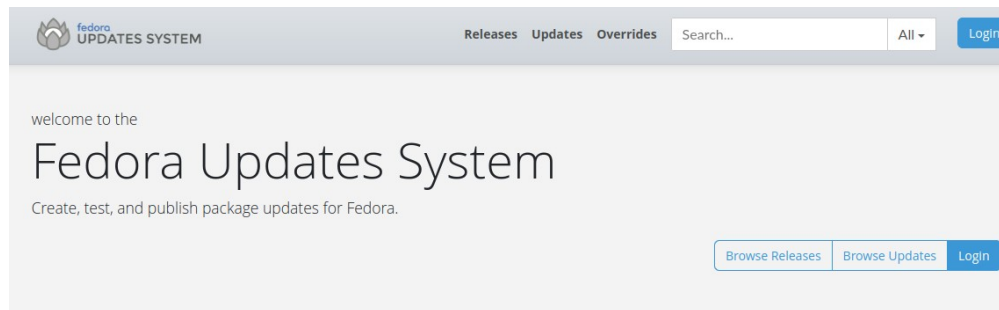
What does Ceph use in EPEL?

Many **runtime** dependencies.

Many more dependencies at **build time**.

What does Ceph use in EPEL?

In `quay.io/ceph/ceph:v19.2.0` container image:

- `abseil-cpp`

- `gperftools-libs`

- `libarrow`

- `liboath`

- `libunwind`

- `luarocks`

- `parquet-libs`

- `re2`

- `thrift`

- `grpc`

- 35 python libraries (eg asyncssh)

Where is 10?

- CentOS Stream 10: early CI builds available
  - `quay.io/centos/centos:stream10-development`
- Alma 10: snapshots available
- RHEL 10: future

- EPEL 10: available now

What's available in el10?

- GCC 14.2.1
  - (no alternative gcc toolsets yet)
- Kernel 6.11.0
- Python 3.12

Bringing up a new EPEL version

1) Set up the new el10 environment

2) Run Ceph's `./install-deps.sh`, note failures

3) Record the missing packages

4) *Package them*

5) Go to Step 2 above

Sharing with the world

- https://github.com/ktdreyer/ceph-el9

Development workflow

Local dev environment $\rightarrow$ fedora copr $\rightarrow$ EPEL

Enabling Ceph on el10: Beyond EPEL

Beyond EPEL: road to full el10 support

- CentOS Storage SIG (`nfs-ganesha` comes from here)

- Ceph integration bugs

- el10 in Sepia lab

- `Containerfile FROM` statement

- Teuthology qa YAML changes

CentOS Storage SIG

- Community build system, packaging, wiki

- **Alternative to EPEL** – provides more flexibility, control, and complexity.

- nfs-ganesha comes from here

- Future collaboration?

Ceph integration bugs for el10

- Haven't gotten far yet

- OpenSSL API change: https://tracker.ceph.com/issues/68059

el10 in Sepia lab

- Will require Fog administrator work

- CentOS Stream 10 on old hardware:

  - `Fatal glibc error: CPU does not support x86-64-v3`

  - Alma Linux 10 has reversed this requirement for now

el10 in Containerfile

ceph / ceph

<> Code   ⑂ Pull requests 962   ⊙ Actions   ⊞ Projects 1   ▭

⑂ main ▾   ceph / container / **Containerfile** ⧉

Code	Blame

```
1    ARG FROM_IMAGE="quay.io/centos/centos:stream9"
2    FROM $FROM_IMAGE
```

el10 testing in Teuthology

- Test suites are a series of YAML files and symlinks

- Ensuring this all works on quay.ceph.io

Citations

- instagram.com/thefedoraproject/p/CkRXZFmuIOZ