

# Building the future with CentOS Stream

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Red Hat Mini Theater @ SC21

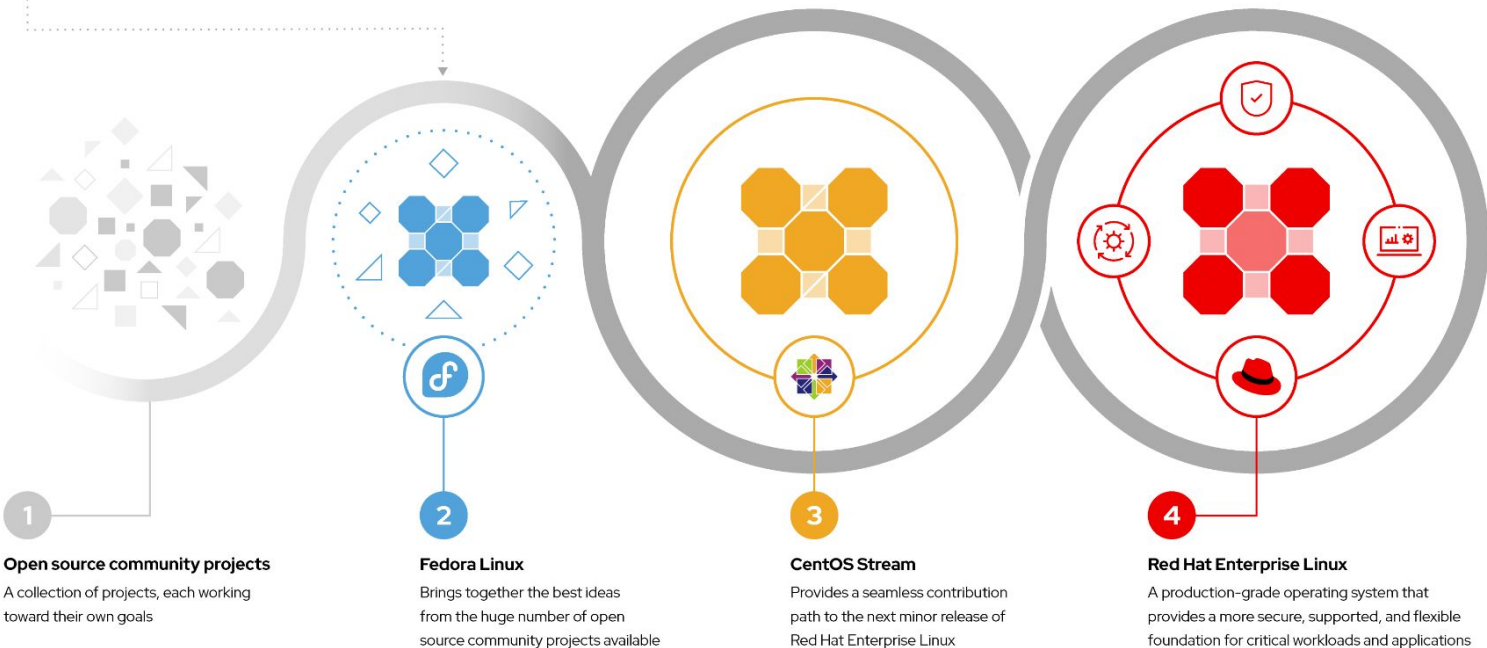
# Agenda

- CentOS Stream
- Hyperscale SIG
- Get involved

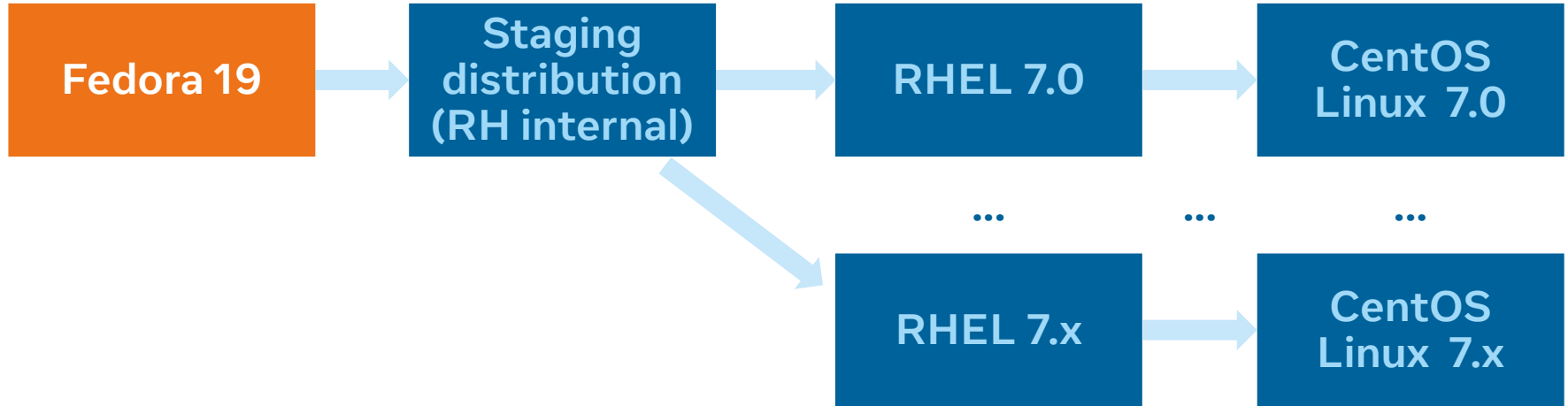
CentOS Stream



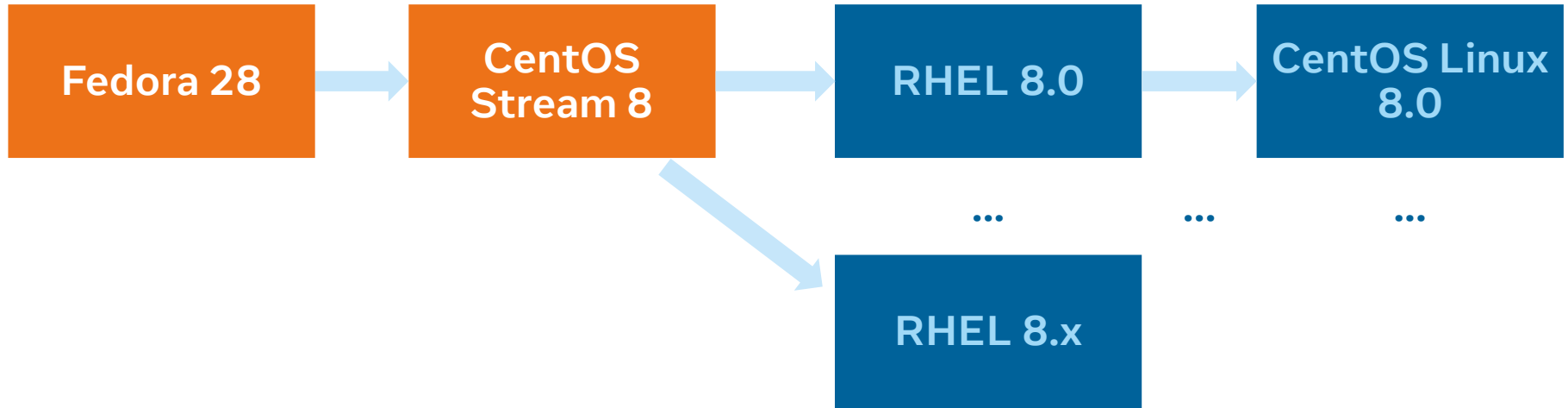
**Contributions** flow among all elements of the ecosystem; however, there is a stronger connection between CentOS Stream and Red Hat® Enterprise Linux®. They each contribute to the other while also ensuring that new code is submitted as far upstream as possible; and, ideally, directly into the relevant open source community projects.



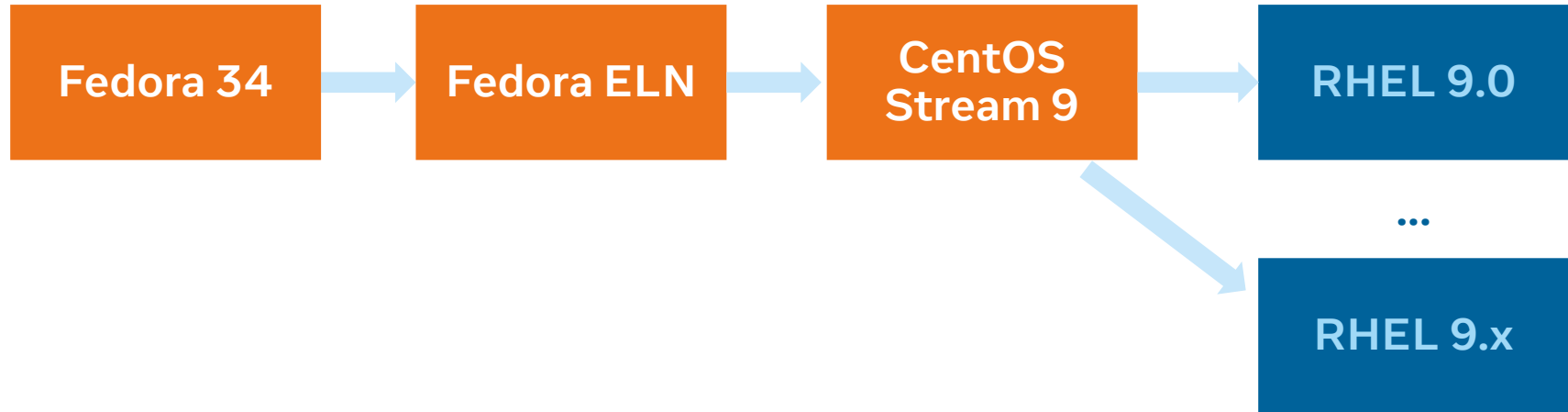
# CentOS Linux 7



# CentOS Linux 8 and CentOS Stream 8



# CentOS Stream 9



# Fedora

- Influences the next CentOS Stream major release
- File and fix bugs, maintain packages, drive Changes, etc.
  - <https://src.fedoraproject.org>
  - <https://fedoraproject.org/wiki/Changes>
- Change proposals
  - F33: Btrfs by default
  - F34: Btrfs with zstd compression by default
  - F34: systemd-oomd by default
  - F35: Btrfs by default for Fedora Cloud
  - F36: fsverity RPM support
  - F36: DNF RPM Copy-on-Write

# Fedora EPEL

- Additional packages for RHEL and CentOS based on Fedora
- <https://fedoraproject.org/wiki/EPEL>
- EPEL Packagers SIG
  - Streamline the process to add packages to EPEL
  - Tooling improvements
  - Collective maintenance
  - <https://fedoraproject.org/wiki/EPEL/Packagers>

# Fedora ELN

- Continuous rebuild of Rawhide with the CentOS macros and toolchain
- Assists in the bringup of the next CentOS Stream major release
- ELN SIG
  - Enablement work to make ELN easier to consume
  - Extending to cover more packages via eln-extras
  - <https://github.com/fedora-eln>
- Continuous testing and integration pipeline
  - Find and fix bugs long before they even make it into CentOS Stream
  - Identify policy and package changes early on

# CentOS Stream 8

- Continuously delivered distribution tracking the next minor release of RHEL
- File and fix bugs: <https://bugzilla.redhat.com>
  - Product: Red Hat Linux Enterprise 8
  - Version: CentOS Stream
- Follow development and send pull requests
  - <https://git.centos.org>
- Drive change via Special Interest Groups (SIGs)
  - Building blocks of the CentOS community
  - <https://wiki.centos.org/SpecialInterestGroup>

# CentOS Stream 9

- Being developed right now, in the open
- File and fix bugs: <https://bugzilla.redhat.com>
  - Product: Red Hat Linux Enterprise 9
  - Version: CentOS Stream
- Follow development and send pull requests:
  - <https://gitlab.com/redhat/centos-stream>
  - <https://kojihub.stream.centos.org>
- Download and test daily composes:
  - <https://composes.stream.centos.org/production>
- Available on the mirror network
  - <http://mirror.stream.centos.org/9-stream/>

Hyperscale SIG

# Hyperscale SIG

- CentOS Stream focus
- Large scale deployments (server, cloud, workstation)
- Foster cross-company collaboration on packaging and tooling
- Bring in-house development out in the open
- Open to anybody interested in working in this space
- <https://wiki.centos.org/SpecialInterestGroup/Hyperscale>
- #centos-hyperscale on Libera.Chat

# Faster-moving package backports

- Updated backports of distro packages
- Feature enablement, closely tracking upstream development
- Drop in replacements for distro packages
- Stable and targeting production use
- Delivered as a dedicated repository
  - dnf install centos-release-hyperscale
- Available packages
  - <https://cbs.centos.org/koji/packages?tagID=2249>
  - dracut, dwarves, grep, less, libvirt, meson, mtr, ninja-build, pykickstart, rasdaemon, systemd, tpm2-tss, tpm2-tools, util-linux, ...

# systemd

- Actively maintained systemd backport
- Running in production at FB
- Tracking latest upstream stable release
  - Staging repo: <https://pagure.io/centos-sig-hyperscale/systemd>
- Based on the Fedora packaging
  - <https://git.centos.org/rpms/systemd/tree/c8s-sig-hyperscale>
- CI/CD pipeline to build and test daily snapshots
  - Keeps the staging repo in sync
  - Builds and tests dailies for the latest git master
  - <https://pagure.io/centos-sig-hyperscale/systemd-releng>

# libvirt

- Actively maintained libvirt backport
- Tracking upstream stable releases
- Based on Datto's branch of Fedora packaging
  - <https://git.centos.org/rpms/libvirt/tree/c8s-sig-hyperscale>
- Refreshed periodically

# LLVM12

- Non-modular LLVM 12 build
- llvm, clang, lld, lldb (+ mesa)
- Modular LLVM 12 eventually landed in CentOS Stream proper...
- ...and later in RHEL 8.5
- [https://bugzilla.redhat.com/show\\_bug.cgi?id=1952248](https://bugzilla.redhat.com/show_bug.cgi?id=1952248)
- <https://reviews.llvm.org/D101972>

# Policy and configuration alternatives

- Modifications of distro packages to enable alternative options
- Meant to be backward compatible and minimize changes
- Example: iptables
  - Only supports nftables in CentOS Linux 8
  - Rebuild to enable the legacy iptables backend as an alternative

# Large-scale testing

- Provide a way to test distro-wide changes in production settings
- Example: DNF/RPM Copy-on-Write
  - <https://fedoraproject.org/wiki/Changes/RPMCoW>
  - Requires patched packaging stack
- Currently deployed in production at FB
- Delivered as a dedicated repository
  - `dnf install centos-release-hyperscale-experimental`

# Work in progress

- Kernel
  - LTS-tracking upstream kernel
  - Feature enablement: btrfs, cgroup2, BPF
- Btrfs
  - Installer support
  - Userspace enablement
  - Transactional updates
- Container images: <https://quay.io/centos hyperscale/centos>
- Cloud images
- <https://pagure.io/centos-sig-hyperscale/sig/issues>

Get involved

# Get involved

- Read and contribute to the blog: <https://blog.centos.org>
- Join the mailing list: [centos-devel@centos.org](mailto:centos-devel@centos.org)
- Attend a meeting: <https://www.centos.org/community/calendar>
- Join a SIG: <https://wiki.centos.org/SpecialInterestGroup>
- Report or fix a bug: <https://bugzilla.redhat.com>
- Maintain a package in EPEL: <https://fedoraproject.org/wiki/EPEL/Packagers>
- Contribute to Fedora: <https://fedoramagazine.org/how-to-contribute-to-fedora>

Questions?

Thanks!