

Hands on with Fedora CoreOS



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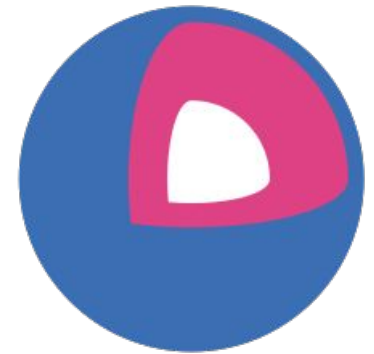
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Today's Talk

- What is Fedora CoreOS?
- Lab Overview

What is Fedora CoreOS?



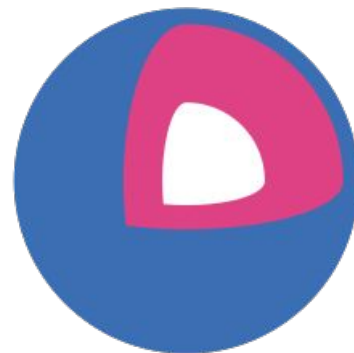
Features: Automatic Updates

- Fedora CoreOS features Automatic Updates by default
 - Automatic updates → Reliable updates
 - Extensive tests in automated CI pipelines
 - Several update streams to preview what's coming
 - Users run various streams to help find issues
 - Managed upgrade rollouts over several days
 - Halt the rollout if issues are found
 - For when things go wrong
 - rpm-ostree rollback can be used to go back
 - future: automated rollback
 - based on user specified health checks



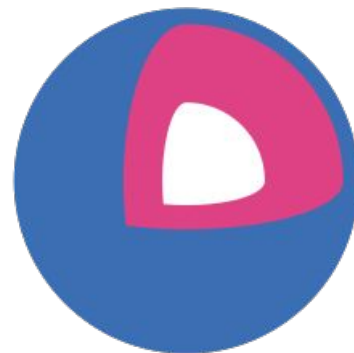
Features: Automated Provisioning

- Fedora CoreOS uses [Ignition](#) to automate provisioning
 - Any logic for machine lifetime is encoded in the config
 - Very easy to automatically re-provision nodes
 - Same starting point whether on bare metal or cloud
 - Use Ignition everywhere as opposed to kickstart for bare metal and cloud-init for cloud



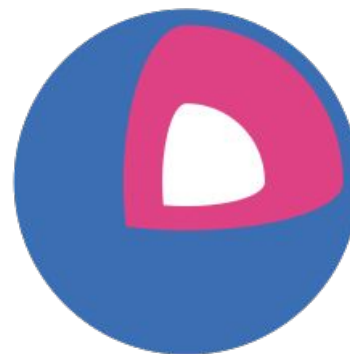
Features: Cloud Native & Container Focused

- Software runs in containers
 - podman or moby engine container runtimes
- Ready for clustered deployments
 - Spin up 100 nodes and have them join a cluster
 - Ignition configs used to automate cluster join
 - Spin down nodes when no longer needed
 - Spin up nodes again when load increases
- Offered on (or for) a plethora of cloud/virt platforms
 - Alibaba, AWS, Azure, Azure Stack, DigitalOcean, Exoscale, GCP, IBM Cloud, Nutanix, Openstack, QEMU/KVM, VirtualBox, VMWare, Vultr



Features: OS Versioning & Security

- Fedora CoreOS uses RPM-OSTree technology
 - “Like git for your Operating System”
 - **36.20220505.2.0** - ad362a9
 - A single identifier tells you all software in that release
 - Uses read-only filesystem mounts
 - Prevents accidental OS corruption (rm -rf)
 - Prevents novice attacks from modifying system
- SELinux enforcing by default
 - Prevents compromised apps from gaining further access



What's in the OS?

- Latest **Fedora Linux** base components (built from RPMs)
- Hardware support
- Basic administration tools
- Container engines: podman, moby
- Sometimes different policy decisions
 - based on target user base

Multiple Update Streams

Fedora CoreOS is available across 3 different release streams:



Stable

v 35.20220424.3.0
JSON — 2 days ago

The Stable stream is the most reliable version of Fedora CoreOS. Releases are battle-tested within the Testing stream before being promoted.

Show Downloads



Testing

v 36.20220505.2.0
JSON — 2 days ago

The Testing stream contains the next Stable release. Mix a few Testing machines into your cluster to catch any bugs specific to your hardware or configuration.

Show Downloads



Next

v 36.20220507.1.0
JSON — 2 days ago

The Next stream represents the future. It provides early access to new features and to the next major version of Fedora. Run a few Next machines in your cluster, or in staging, to help find problems.

Show Downloads

Multiple Update Streams

- Offered update streams with automatic updates
 - **next** - experimental features, Fedora major rebases
 - **testing** - preview of what's coming to stable
 - point in time snapshot of Fedora stable rpm content
 - **stable** - most reliable stream offered
 - promotion of testing stream after some bake time
- Goals
 - Publish new releases into update streams every two weeks
 - Find issues in next/testing streams before they hit stable

None of this happens without... Passing Tests!

✔	⚙	kola-aws	13 hr - #325	4 days 0 hr - #312	1 hr 11 min
✔	⚙	kola-azure	13 hr - #80	12 days - #57	45 min
✔	⚙	kola-gcp	13 hr - #169	3 days 14 hr - #164	15 min
⋮	⚙	kola-kubernetes	N/A	N/A	N/A
✔	☁	kola-openstack	13 hr - #340	1 day 10 hr - #337	45 min

Lab Overview



Lab Overview

- Provisioning with Ignition/Butane
- Booting Fedora CoreOS for the first time
- Running provisioning scripts and containers on boot
- Understanding how updates work
- Performing rollback when needed

Self Guided Lab

<https://docs.fedoraproject.org/en-US/fedora-coreos>

Thank you!

Get involved!

- Web: <https://getfedora.org/coreos>
- Issues: <https://github.com/coreos/fedora-coreos-tracker/issues>
- Forum: <https://discussion.fedoraproject.org/tag/coreos>
- Docs: <https://docs.fedoraproject.org/en-US/fedora-coreos/>
- Mailing list: coreos@lists.fedoraproject.org
- IRC: libera.chat #fedora-coreos
- Matrix #coreos:fedoraproject.org

Go checkout the tutorials:

- <https://docs.fedoraproject.org/en-US/fedora-coreos/tutorial-setup/>