Migrating from CentOS 7 & Mythbusting Linux on Microsoft Azure

benny Vasquez
Chair, AlmaLinux OS Foundation

Claus Wieser
Azure Linux team

AlmaLinux

hi, I’m benny

- Many years as a sysadmin
- Many years as a community builder
- Many years around open source
- Many years as a lover of Star Wars
- Many years as a lover of Sci-Fi

social.linux.pizza/@benny
@bennyvasquez
benny@almalinux.org

AlmaLinux

hi, I’m Claus

- I’m a dinosaur, 30+ years in IT, 29 years at Microsoft
- Involved in Open Source for the last decade
- CrossFitter / coach … did you know CF is Open Source?
- Recovering Fallout addict
- South Park fan!

linkedin.com/in/claus-wieser/
clausw@microsoft.com

AlmaLinux

In the beginning, there was dog…

Linux is the #1 operating system in Azure today

Linux-based images comprise

of Azure Marketplace offerings

of VM cores in Azure run Linux

Microsoft works closely with all major distro vendors & communities

Red Hat
KALI
CANONICAL
SUSE
AlmaLinux
debian
fedora
CentOS
Rocky Linux™
FLATCAR
archlinux
ORACLE LINUX
FreeBSD

Open source is an integral part of Microsoft & Azure

60K+

Unique open-source components

30K+

Microsoft employees have GitHub accounts associated with Microsoft identity

7.6K

Github repositories across Microsoft and Azure orgs

Microsoft is active in a broad range of open source projects and communities

Linux

- Linux Kernel
- Linux Integration Services
- IPE
- LISA testing framework
- Azure Linux
- SONiC
- SMB3/CIFS & NFS
- Systemd
- Rysnc
- Garnet
- Confidential Containers

Cloud Native

- Moby & Kubernetes
- Dapr & OAM
- Akri
- Helm & CNAB
- Cilium
- Istio
- KEDA
- Flatcar
- Inspektor Gadget
- Headlamp

Data + AI

- Spark & YARN
- PostgreSQL
- Pandas
- TensorFlow
- ONNX

Languages & Dev tools

- VS Code
- Terminal
- Git/Github
- Node.js
- Python
- Rust
- Go
- PHP
- Java (OpenJDK)

Web

- TypeScript
- Webpack
- Babel
- Vue.js
- Bootstrap
- Svelte

CentOS end-of-life (EOL) Overview

What is CentOS?

CentOS (Community Enterprise Operating System) is a free and open-source community supported operating system based on Red Hat Enterprise Linux (RHEL). CentOS is one of the most widely used Linux distributions.

What is the CentOS end-of-life (EOL)?

In September 2019 Red Hat announced its intent to sunset CentOS and replace it with CentOS Stream, a new, upstream platform for the CentOS community. CentOS 7 and 8 are the final releases of CentOS Linux. The end-of-life dates for CentOS 7 and 8 are:

- CentOS 8 – December 31st, 2021
- CentOS 7 – June 30th, 2024

What does this mean for customers running CentOS?

Customers running CentOS will have to migrate to a new operating system to continue receiving security updates, patches, and new features. After the EOL date, CentOS will no longer receive security updates, bug fixes, or other updates, which means that any vulnerabilities or issues that are discovered will not be patched. This can leave workloads open to security threats and other problems.

Migration considerations

Retaining compatibility with CentOS

Do you want to continue using a Linux distribution that is compatible with CentOS?

Community vs commercial distribution

Do you want to continue using a community supported (unpaid) distribution or move to a commercial (paid) distribution?

Migration path

Do you want to convert in place, redeploy to new VMs, or modernize with PaaS?

Migration options for CentOS customers

On-Premises

Convert to new Linux distro and stay on-premises

Leverage Azure Arc to manage workloads on-premises

Convert to new Linux distro before deploying workload to Azure

Move to Azure

Lift and shift workload to VM in Azure and then convert to new Linux distro

Redeploy workload on new VMs in Azure with new Linux distro

Modernize on Azure with PaaS solutions

In Azure

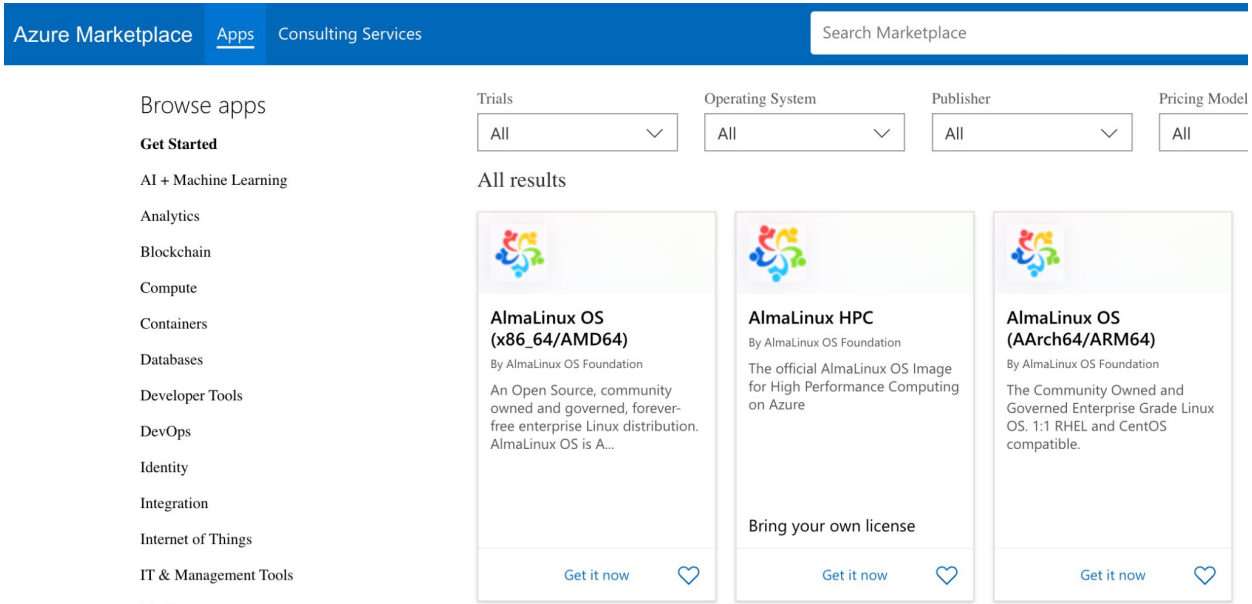
Convert in place to new Linux distro

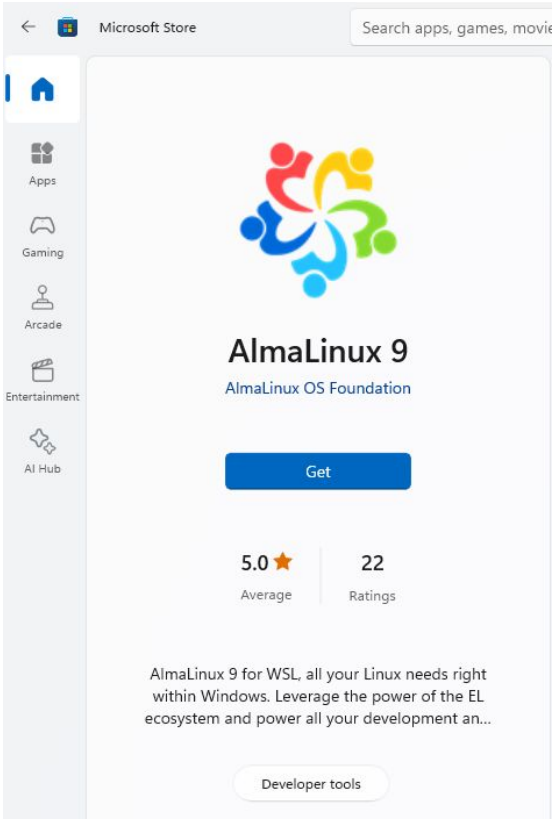
Recommended by Microsoft

Redeploy workload to new VMs with new Linux distro

Modernize in Azure with PaaS solutions

Microsoft Azure



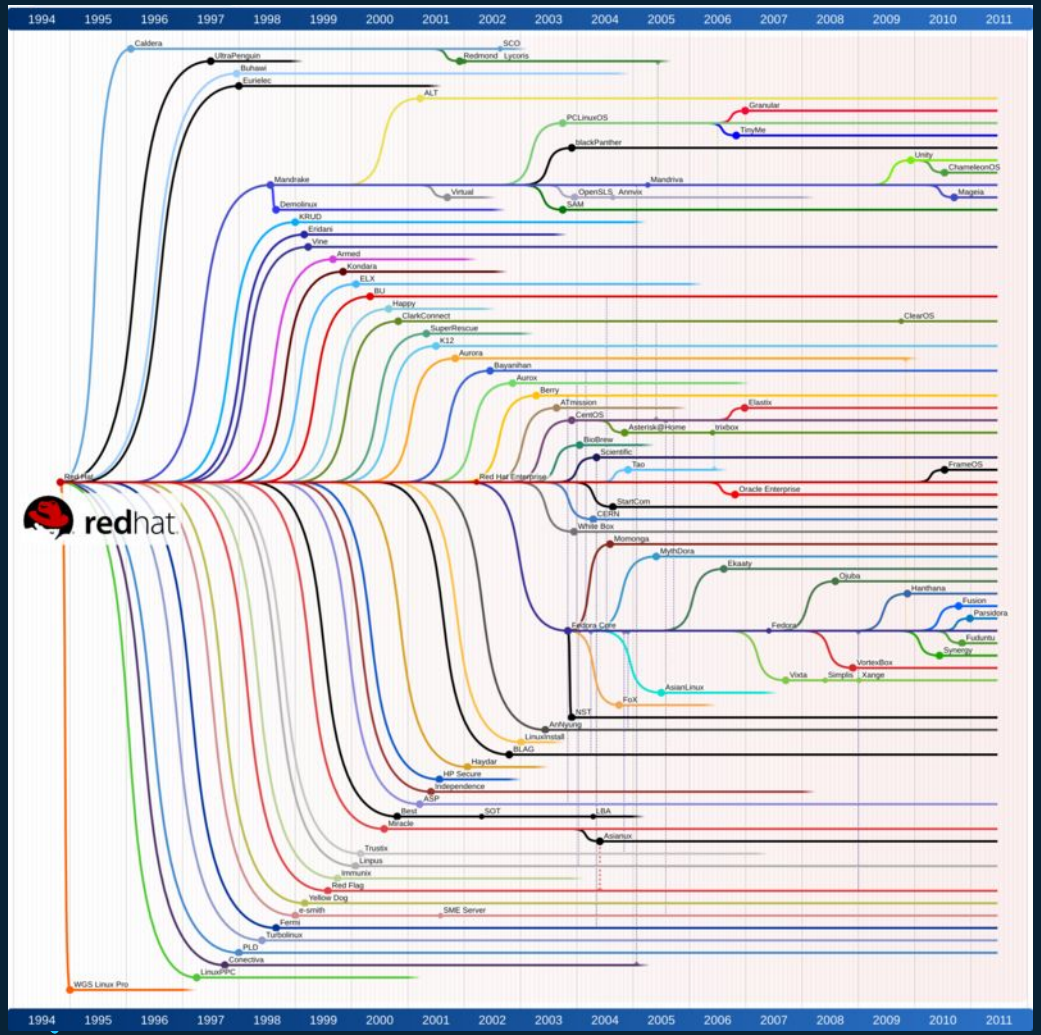


Get started on Azure:
https://aka.ms/almalinux

CentOS EOL guidance:
https://aka.ms/centoseol

Microsoft Azure

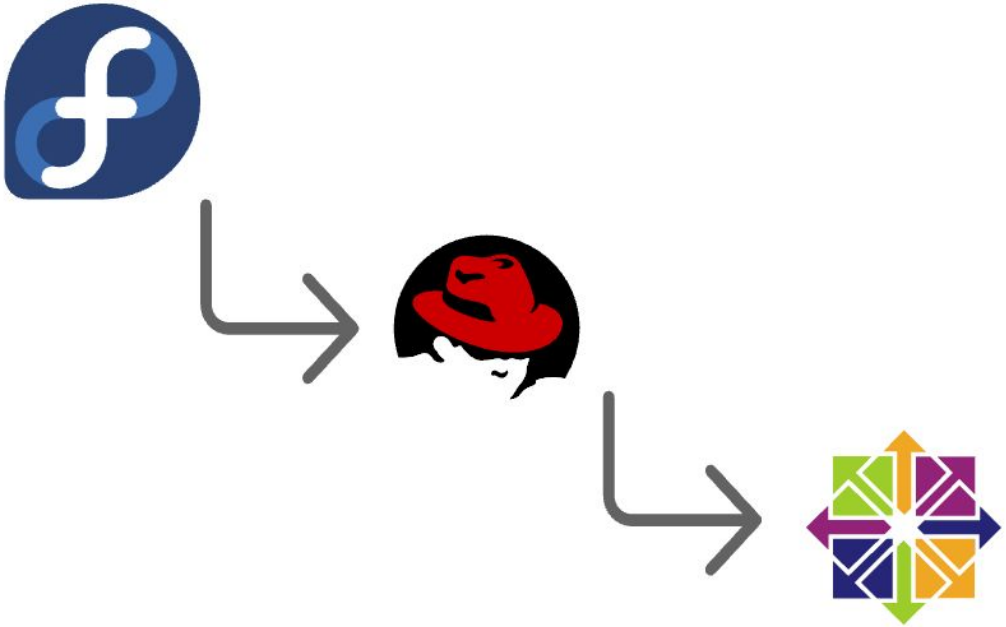
AlmaLinux’s history



By Andreas Lundqvist, Donjan Rodic - http://futurist.se/gldt/, GFDL, https://commons.wikimedia.org/w/index.php?curid=18201795

https://en.wikipedia.org/wiki/Red_Hat_Enterprise_Linux_derivatives

2004 - 2019



CentOS Download About Community Documentation Help

[CentOS-announce] Release for CentOS Linux 8 and CentOS Streams

Karanbir Singh

kbsingh at centos.org

Tue Sep 24 16:38:36 UTC 2019

- Previous message: [CentOS-announce] CESA-2019:2729 Critical CentOS 7 firefox Security Update
- Next message: [CentOS-announce] CEBA-2019:2871 CentOS 7 tzdata BugFix Update
- **Messages sorted by:** [date] [thread] [subject] [author]

We would like to announce the general availability of CentOS Linux 8 and the new CentOS Stream, on all architectures.

CentOS Linux 8

This is the first release for CentOS Linux 8 and is version marked as 8.0-1905, derived from sources published by Red Hat, delivered via git.centos.org

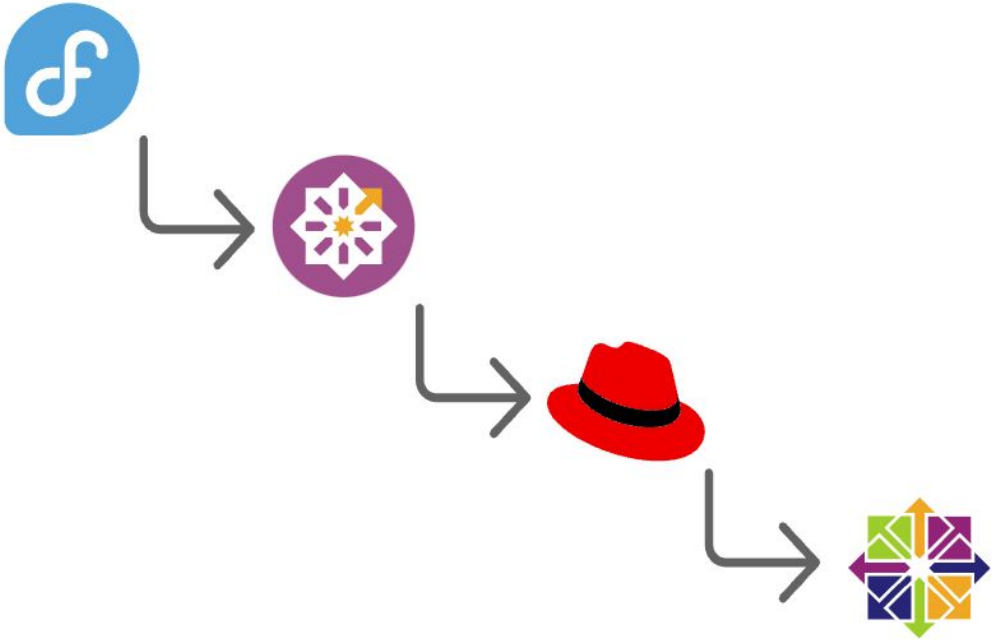
First, please read through the release notes at : http://wiki.centos.org/Manuals/ReleaseNotes/CentOSLinux8 - these notes contain important information about the release and details about some of the content inside the release from the CentOS QA team. These notes are updated constantly to include issues and incorporate feedback from the users and should be the first port of call for anyone looking to use CentOS Linux 8.

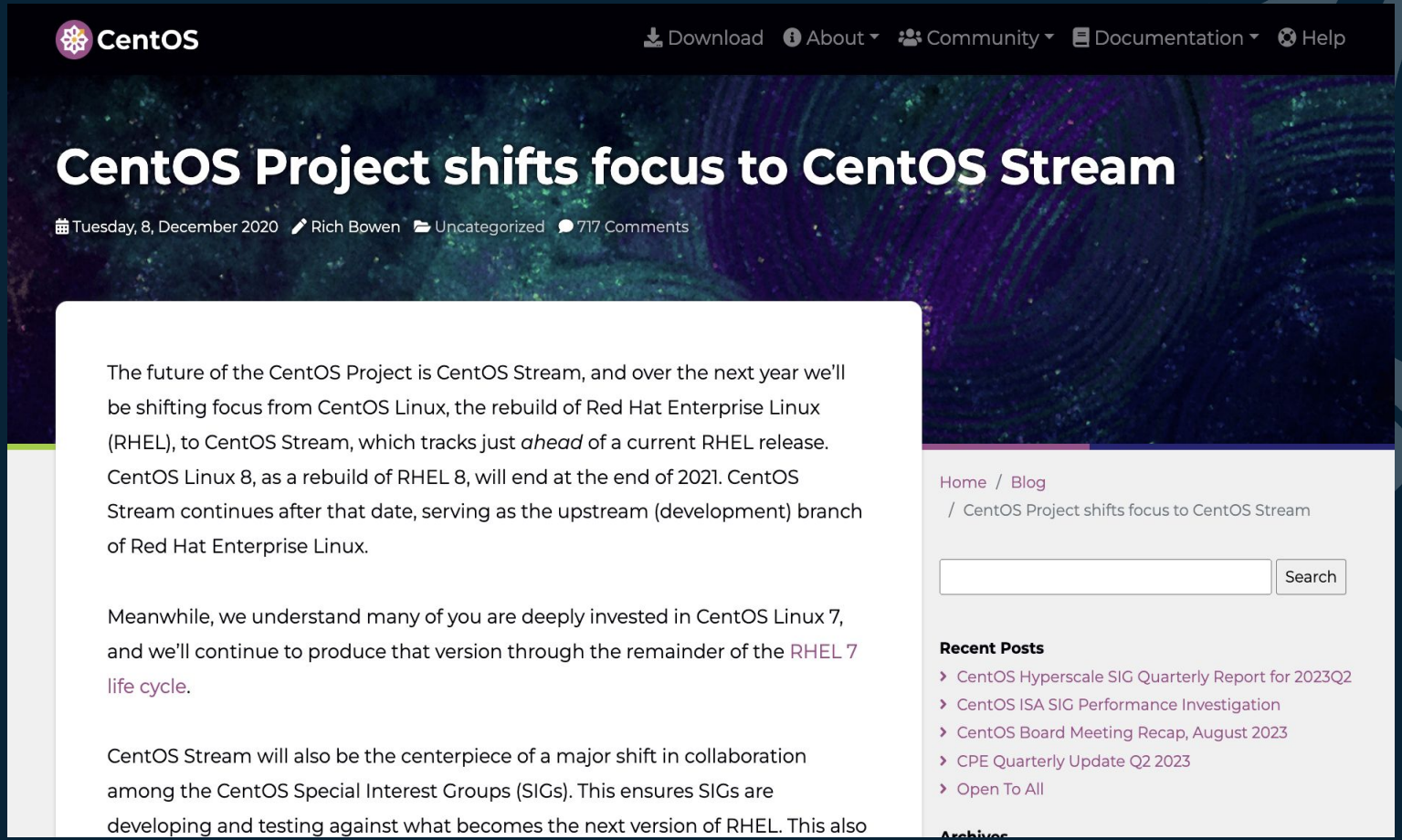
CentOS Stream

When the CentOS Project announced it was joining forces with Red Hat in January 2014, we put an emphasis on how the new relationship would “(drive) forward development and adoption of next-generation open source

AlmaLinux

2019 - 2020





AlmaLinux

https://blog.centos.org/2020/12/future-is-centos-stream/

Jan 14, 2021 5:09:43 AM

AlmaLinux is born!!

Igor Seletskiy
Igor Seletskiy is a renowned expert in the web hosting and cybersecurity industry, with over two decades of experience. As the CEO and founder of CloudLinux, he has been instrumental in developing cutting-edge security solutions for shared hosting providers. Igor is also the driving force behind Imunify360, a comprehensive, automated security suite designed to protect Linux web servers. His expertise and innovative approach make him a trusted voice in the field, offering valuable insights on the critical role of web hosts in ensuring WordPress website security.

Open-source

Alma means “soul” in many Latin languages, including Spanish and Italian. The word comes from the Latin word almus, which means “nourishing, kind”.

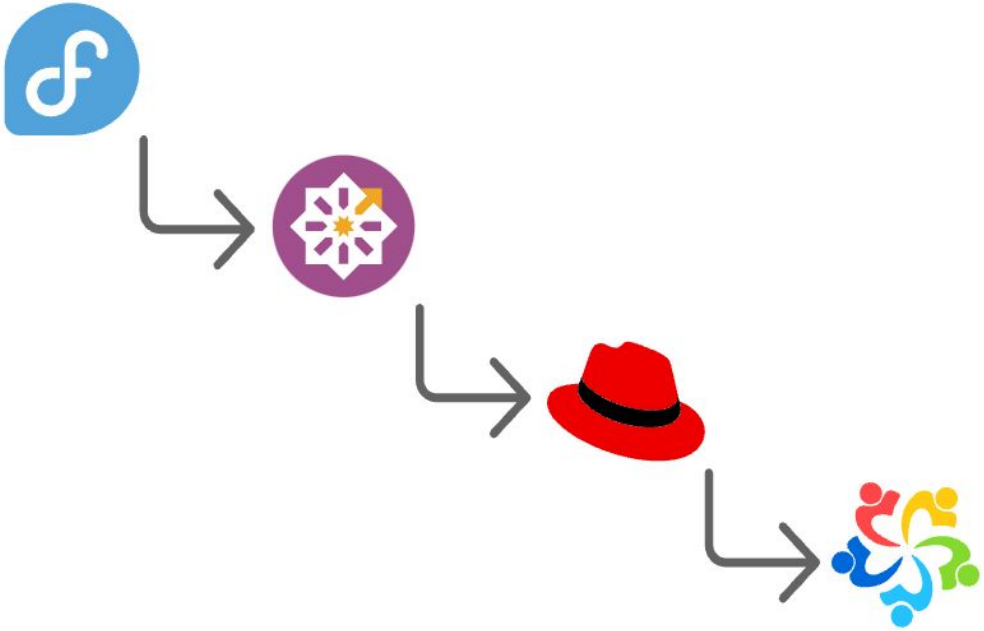
A soulful community

No tech community is as soulful and as passionate as the Linux community. It is a caring, collaborative, nourishing community that turned the efforts of an individual into software that powers the world.

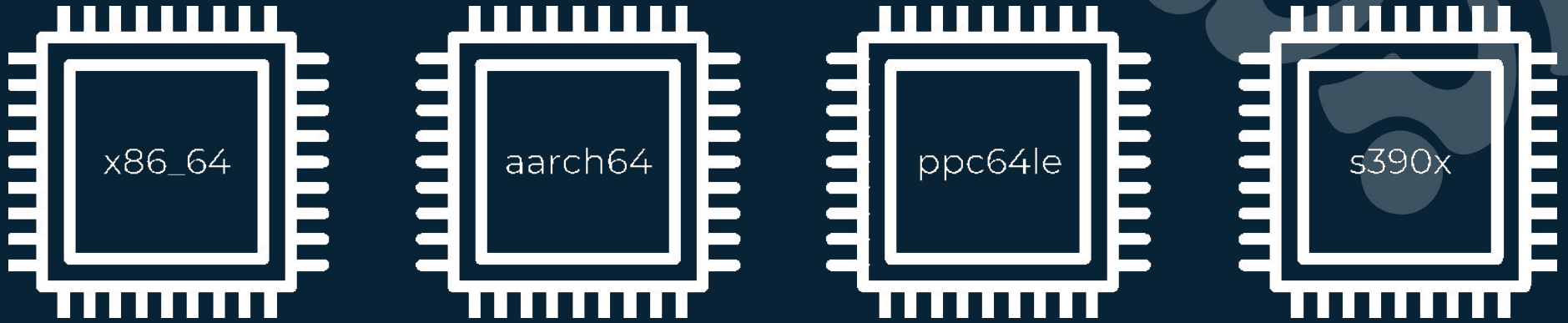
The story of Linux starts with the personal story of Linus Torvalds who, in 1991, announced that he was developing a free UNIX-like kernel for x86 machines – a kernel he called Linux. A kernel for the community.

Developers quickly saw the potential of a free, open-source UNIX kernel. Step by step, members of an incredibly passionate

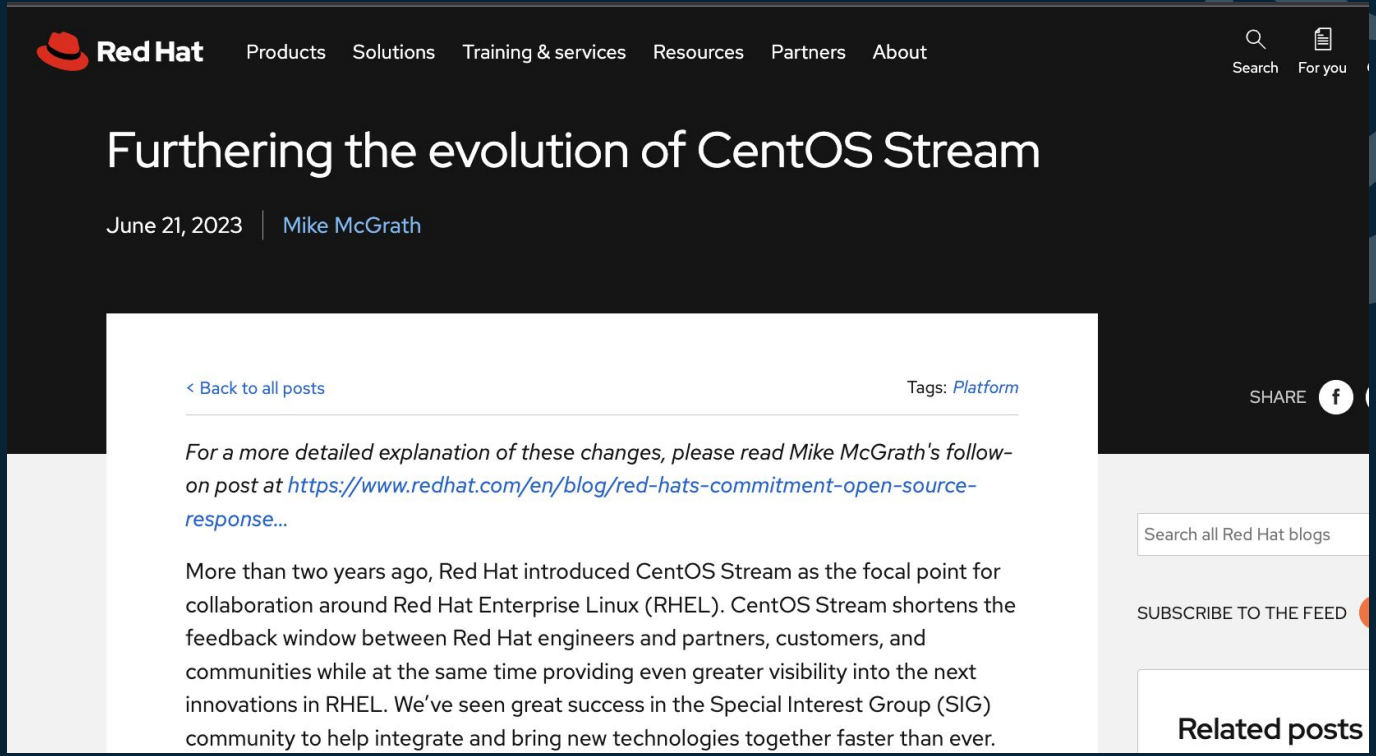
Mar 2021 - Jun 2023



Supported Architectures



June ‘23: no more sources



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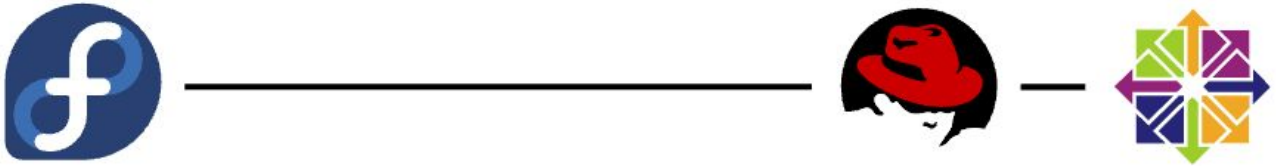
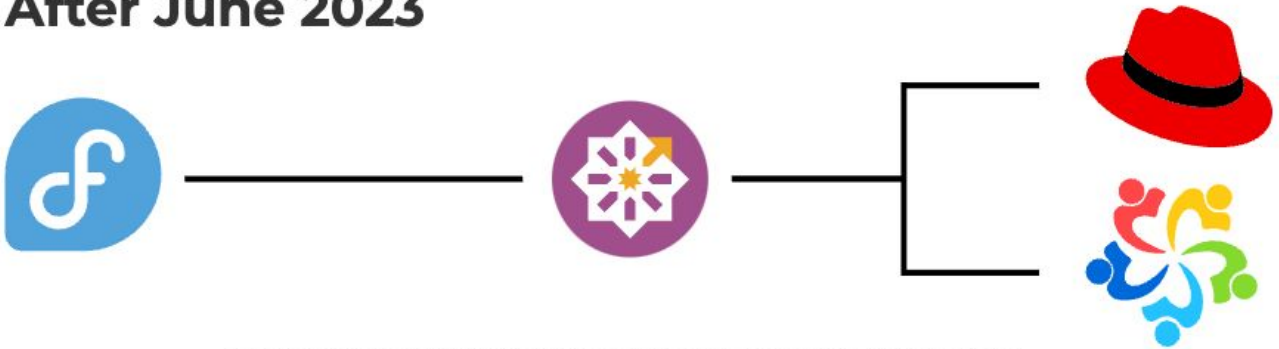
https://www.redhat.com/en/blog/furthering-evolution-centos-stream

Pre-CentOS Stream (2004 - 2019)



After June 2023



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

RHEL compatibility = freedom for AlmaLinux

AlmaLinux Blog Wiki Resources Shop Download

Welcome new repositories for AlmaLinux OS: Testing and Synergy

Andrew Lukoshko
Release Engineering Lead

Thu Aug 24, 2023

Hello, Community! Since AlmaLinux OS has shifted its direction to RHEL compatibility, we can now provide additional content for our community. For that reason, two additional repositories have been added - **Testing** and **Synergy**. Today, we are announcing that both repositories are available for AlmaLinux OS 8 and AlmaLinux OS 9.

Testing Repository

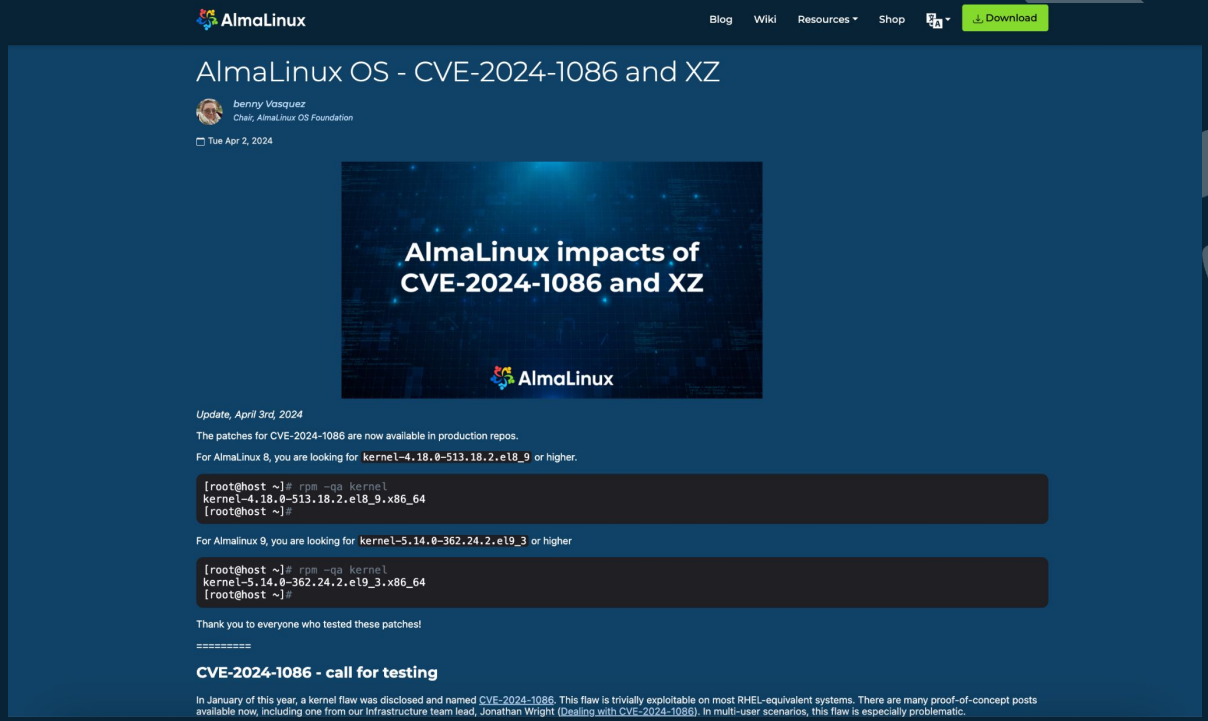
As we mentioned last week, the Testing repository contains security updates that AlmaLinux OS is now able to release without waiting for the patches to be released upstream. As these packages require additional testing before being released, we invite the community to help test them and provide feedback.

AlmaLinux

https://almalinux.org/blog/new-repositories-for-almalinux-os-synergy-and-testing/

RHEL compatibility = freedom for AlmaLinux

Patching critical flaws outside of upstream



AlmaLinux Blog Wiki Resources Shop Download

AlmaLinux OS - CVE-2024-1086 and XZ

benny Vasquez
Chair, AlmaLinux OS Foundation

Tue Apr 2, 2024

AlmaLinux impacts of CVE-2024-1086 and XZ

AlmaLinux

Update, April 3rd, 2024

The patches for CVE-2024-1086 are now available in production repos.

For AlmaLinux 8, you are looking for `kernel-4.18.0-513.18.2.el8_9` or higher.

```
[root@host ~]# rpm -qa kernel
kernel-4.18.0-513.18.2.el8_9.x86_64
[root@host ~]#
```

For Almalinux 9, you are looking for `kernel-5.14.0-362.24.2.el9_3` or higher

```
[root@host ~]# rpm -qa kernel
kernel-5.14.0-362.24.2.el9_3.x86_64
[root@host ~]#
```

Thank you to everyone who tested these patches!

=========

CVE-2024-1086 - call for testing

In January of this year, a kernel flaw was disclosed and named CVE-2024-1086. This flaw is trivially exploitable on most RHEL-equivalent systems. There are many proof-of-concept posts available now, including one from our Infrastructure team lead, Jonathan Wright (Dealing with CVE-2024-1086). In multi-user scenarios, this flaw is especially problematic.

https://almalinux.org/blog/2024-04-02-xz-and-cve-2024-1086/

RHEL compatibility = freedom for AlmaLinux

Renewing support for upstream deprecated hardware

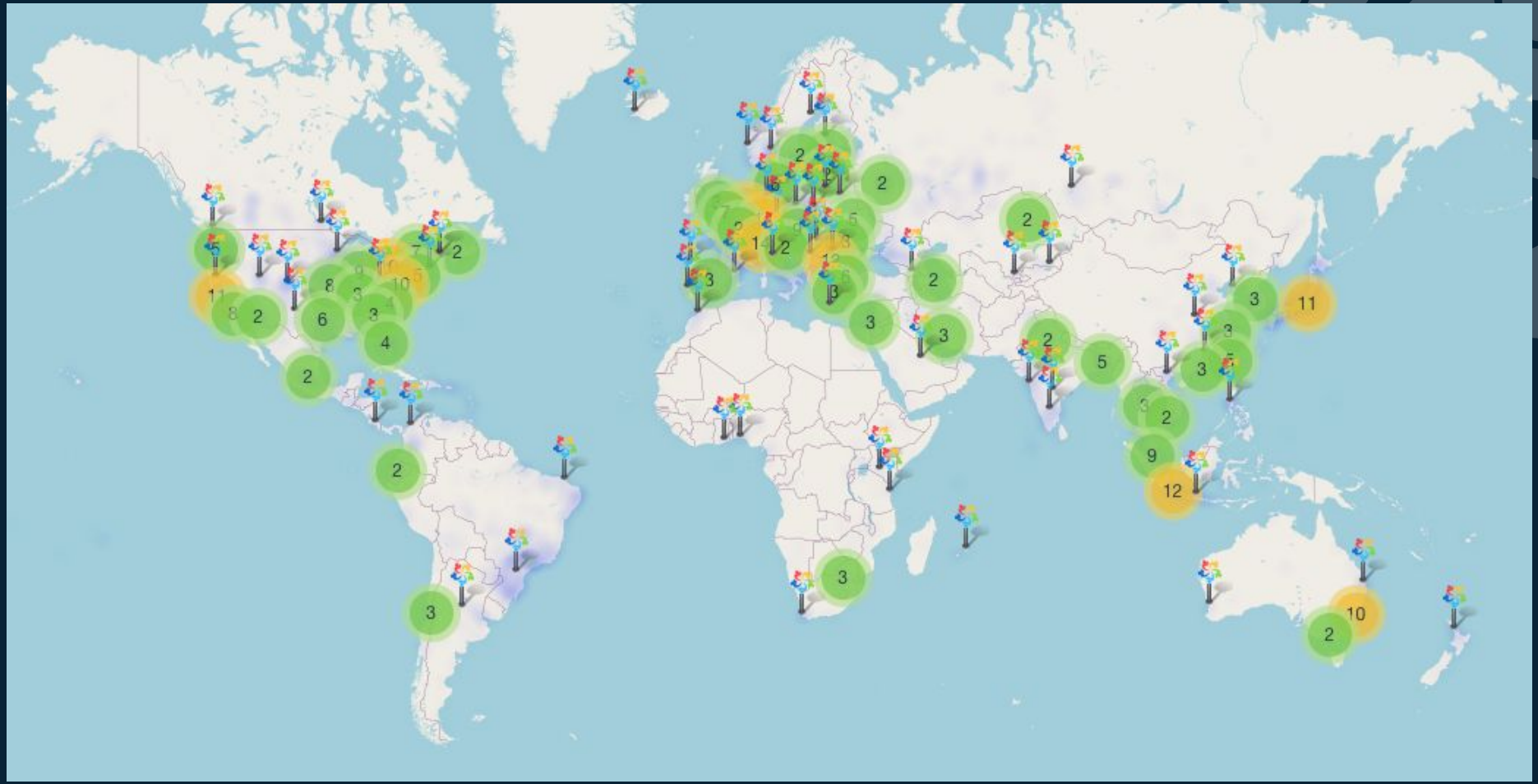
- **aacraid** - Dell PERC2, 2/Si, 3/Si, 3/Di, Adaptec Advanced Raid Products, HP NetRAID-4M, IBM ServeRAID & ICP SCSI
- **be2iscsi** - Emulex OneConnectOpen-iSCSI for BladeEngine 2 and 3 adapters
- **hpsa** - HP Smart Array Controller
- **lpfc** - Emulex LightPulse Fibre Channel SCSI
- **megaraid_sas** - Broadcom MegaRAID SAS
- **mpt3sas** - LSI MPT Fusion SAS 3.0
- **mptsas** - Fusion MPT SAS Host
- **qla2xxx** - QLogic Fibre Channel HBA
- **qla4xxx** - QLogic iSCSI HBA

Provide feedback on this list:
https://almalinux.discourse.group/t/re-adding-support-for-older-hardware/3851/2

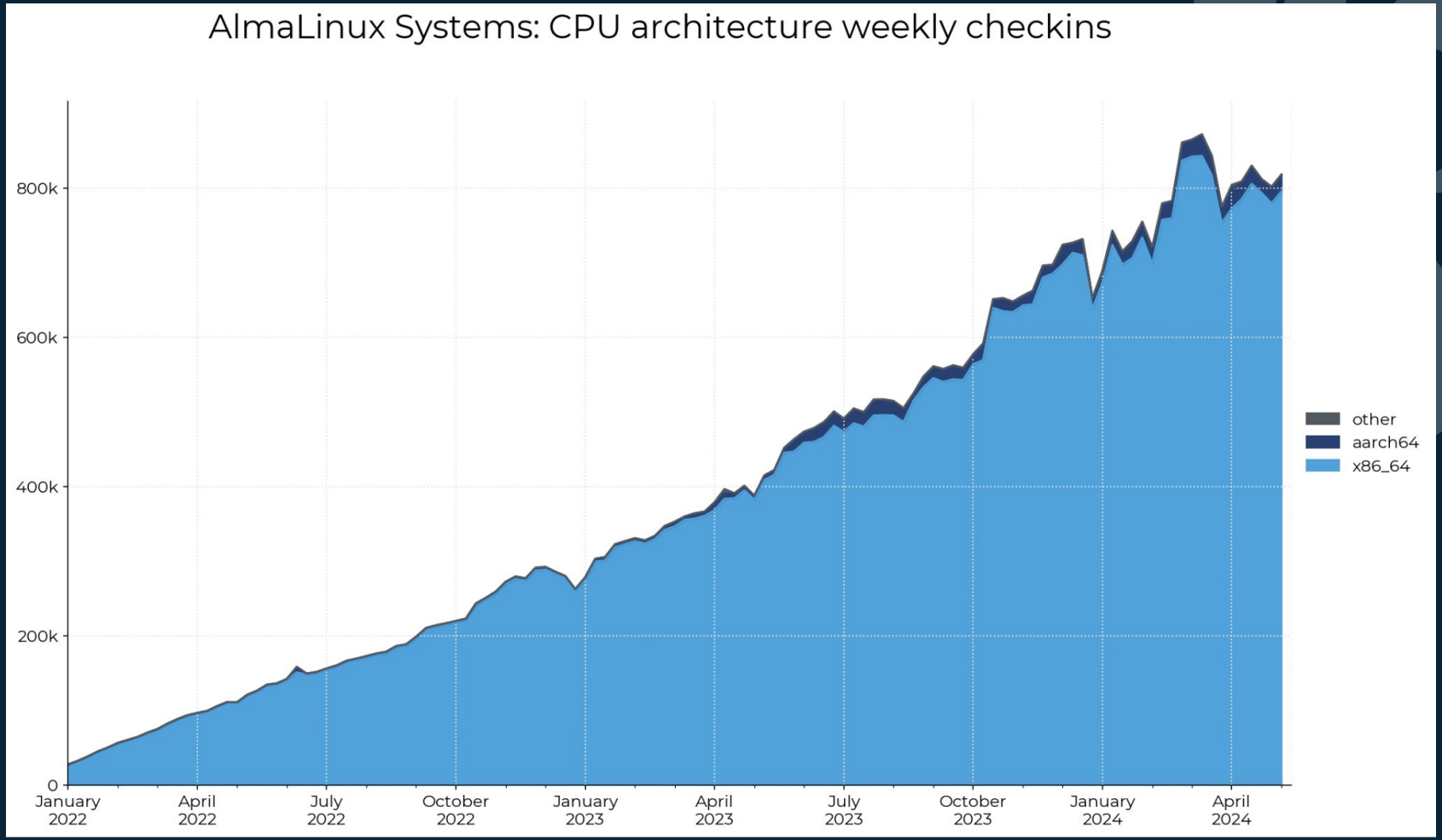
https://almalinux.org/blog/2024-05-06-announcing-94-stable/
https://almalinux.org/blog/2024-05-28-announcing-810-stable/

The Community

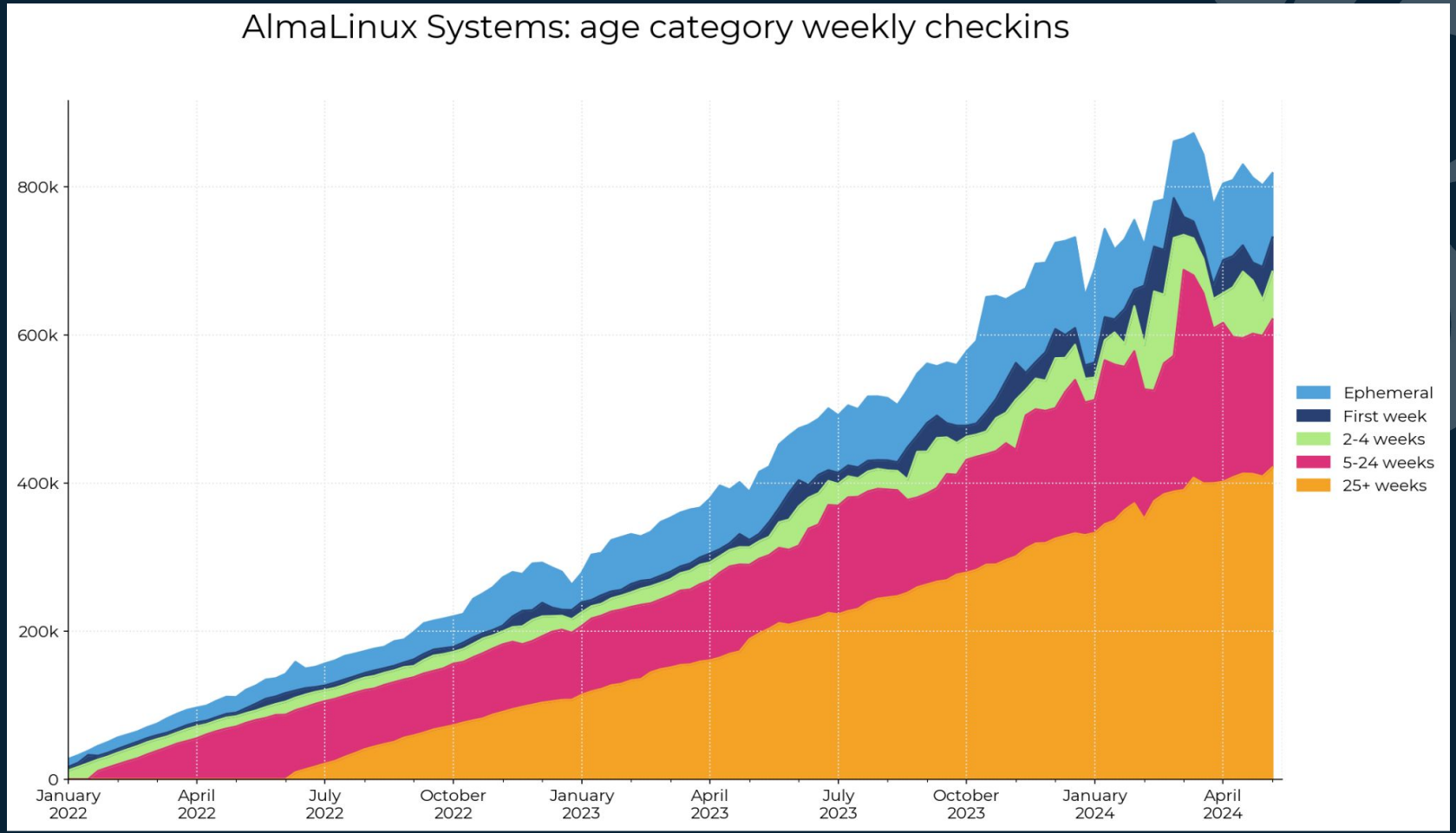
The first mirrors



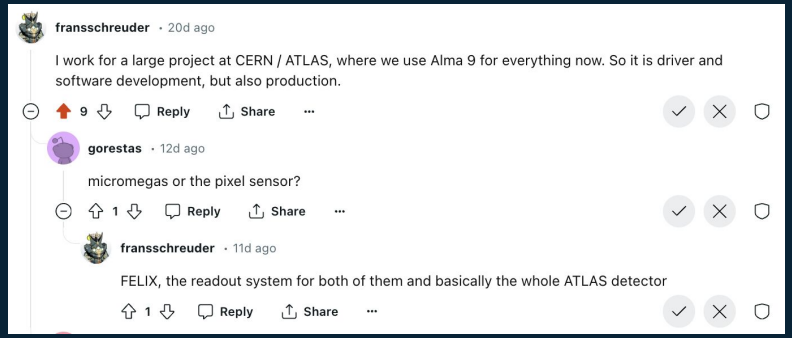
AlmaLinux

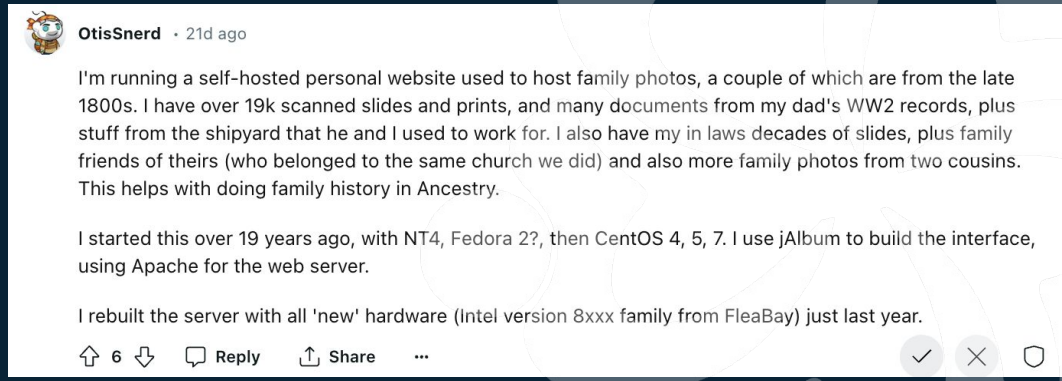

AlmaLinux Systems: CPU architecture weekly checkins
800k
600k
400k
200k
0
January 2022
April 2022
July 2022
October 2022
January 2023
April 2023
July 2023
October 2023
January 2024
April 2024
other
aarch64
x86_64

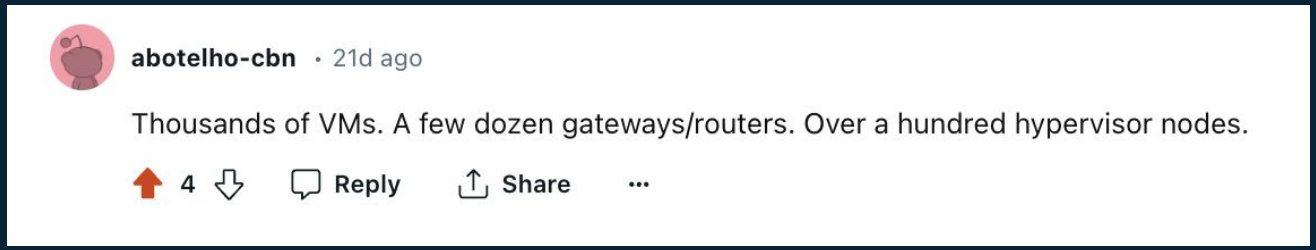
AlmaLinux

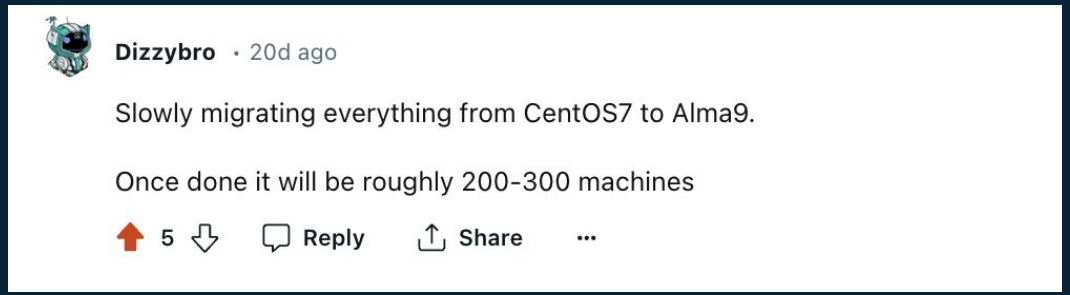

AlmaLinux Systems: age category weekly checkins
800k
600k
400k
200k
0
January 2022
April 2022
July 2022
October 2022
January 2023
April 2023
July 2023
October 2023
January 2024
April 2024
Ephemeral
First week
2-4 weeks
5-24 weeks
25+ weeks

AlmaLinux


fransschreuder • 20d ago
I work for a large project at CERN / ATLAS, where we use Alma 9 for everything now. So it is driver and software development, but also production.
9 Reply Share
gorestas • 12d ago
micromegas or the pixel sensor?
1 Reply Share
fransschreuder • 11d ago
FELIX, the readout system for both of them and basically the whole ATLAS detector
1 Reply Share


OtisSnerd • 21d ago
I'm running a self-hosted personal website used to host family photos, a couple of which are from the late 1800s. I have over 19k scanned slides and prints, and many documents from my dad's WW2 records, plus stuff from the shipyard that he and I used to work for. I also have my in laws decades of slides, plus family friends of theirs (who belonged to the same church we did) and also more family photos from two cousins. This helps with doing family history in Ancestry.
I started this over 19 years ago, with NT4, Fedora 2?, then CentOS 4, 5, 7. I use jAlbum to build the interface, using Apache for the web server.
I rebuilt the server with all 'new' hardware (Intel version 8xxx family from FleaBay) just last year.
6 Reply Share

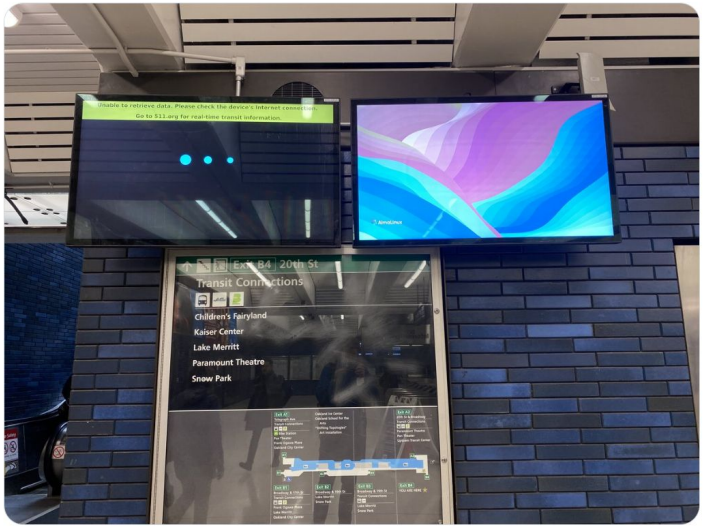

abotelho-cbn • 21d ago
Thousands of VMs. A few dozen gateways/routers. Over a hundred hypervisor nodes.
4 Reply Share


Dizzybro • 20d ago
Slowly migrating everything from CentOS7 to Alma9.
Once done it will be roughly 200-300 machines
5 Reply Share

AlmaLinux

benarent
@benarent

BART runs on AlmaLinux

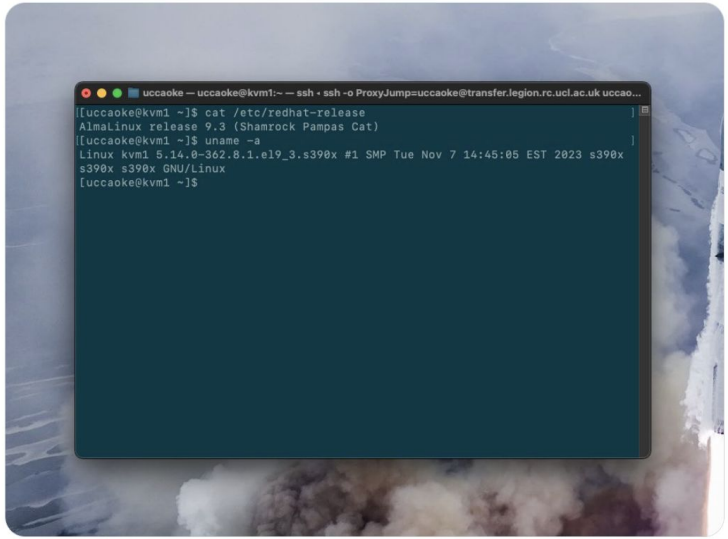


5:44 PM · Mar 1, 2024 · **1,512** Views

1 8 24

Dr Owain Kenway
@owainkenway

Thanks to my amazing team and help from @IBM, we are now live - yes, we have @AlmaLinux 9.3 for #LinuxOne running on Vindicator:



11:26 AM · Mar 15, 2024 · **721** Views

AlmaLinux

Getting to AlmaLinux

AlmaLinux

Migrating to AlmaLinux

AlmaLinux Deploy

AlmaLinux

Getting to AlmaLinux: Migrating

- CentOS 8
- CentOS Stream 8, 9
- Oracle Linux 8, 9
- RHEL 8, 9
- Rocky Linux 8, 9
- Virtuozzo Linux (VZLinux) 8, 9

AlmaLinux Deploy

github.com/AlmaLinux/almalinux-deploy

Migrating: AlmaLinux Deploy

```
$ curl -L -O https://lnx.rocks/almalinuxdeploy
$ sudo bash almalinux-deploy.sh
  <insert waiting>
$ sudo reboot
```

Upgrade WITHOUT migrating

Project ELevate

AlmaLinux

Two options

- CentOS 8
- CentOS Stream 8, 9
- Oracle Linux 8, 9
- RHEL 8, 9
- Rocky Linux 8, 9
- Virtuozzo Linux (VZLinux) 8, 9

AlmaLinux Deploy

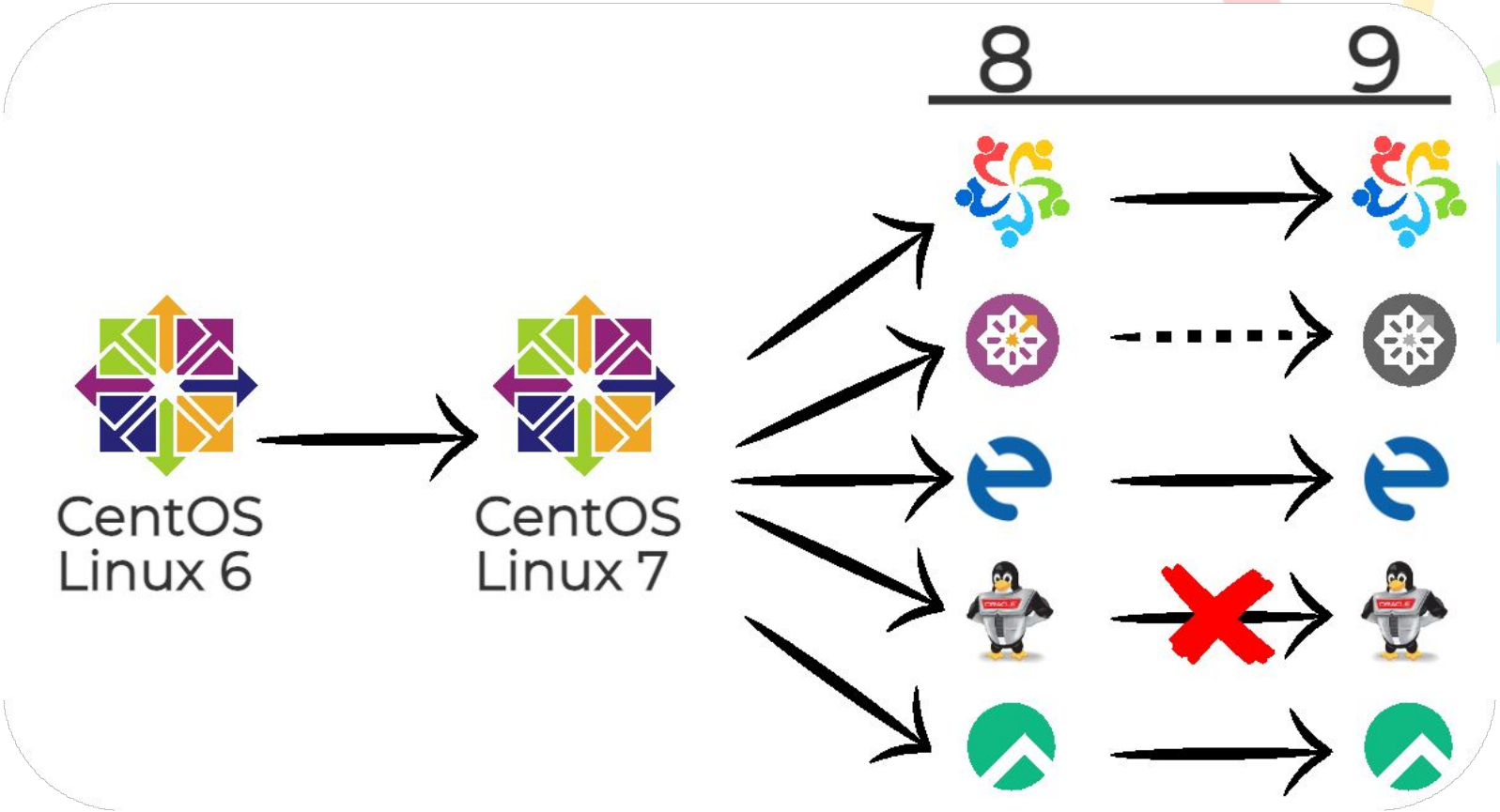
github.com/AlmaLinux/almalinux-deploy

- CentOS 6
- CentOS 7
- Between major versions

Project ELevate

almalinux.org/elevate/

Upgrading: Project ELevate



AlmaLinux

Upgrading: Project ELevate

1. Update your system and reboot
2. Install the `elevate-release` package
3. Install the package and meta data for the OS you want to end up on
4. Run the pre-upgrade check
   a. Fix any problems
   b. Known problems: wiki.almalinux.org/elevate/ELevate-frequent-issues.html
5. Run the upgrade
6. Reboot

See a full demo: youtube.com/watch?v=VzI9QxG5mvo

Upgrading: Project ELevate

Most common question:

But will it really work?!

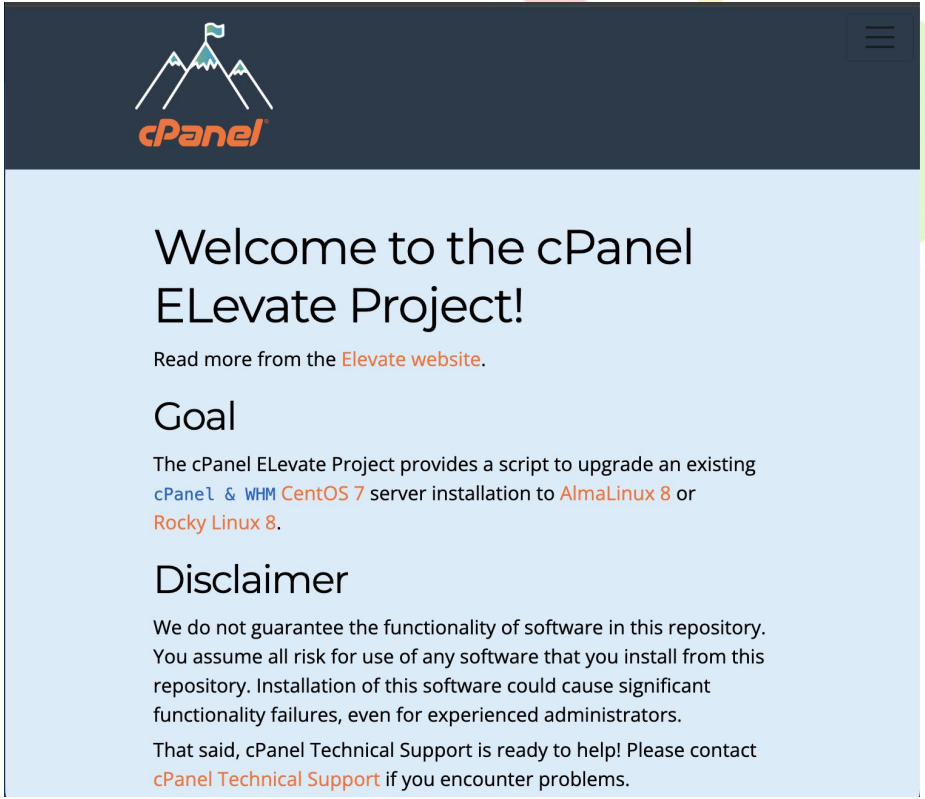
Upgrading: Project ELevate

Most common question:

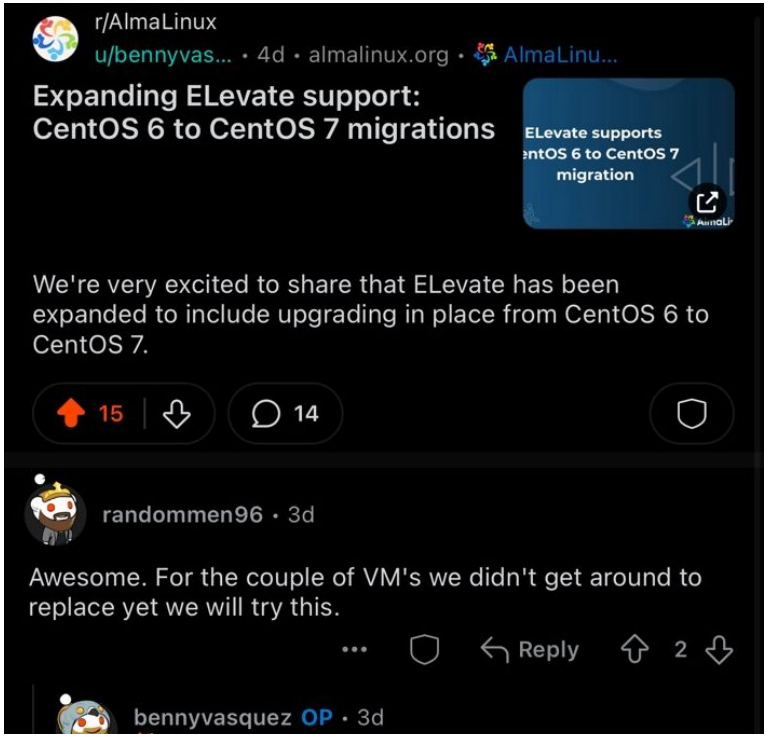
But will it really work?!

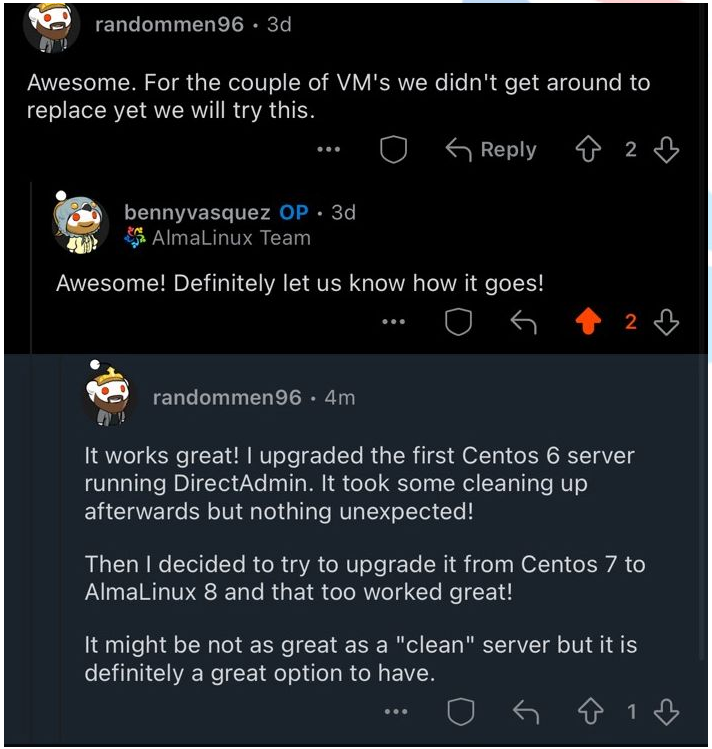
YES!

Upgrading: Project ELevate



AlmaLinux


r/AlmaLinux
u/bennyvas... • 4d • almalinux.org • AlmaLinu...
Expanding ELevate support: CentOS 6 to CentOS 7 migrations
ELevate supports CentOS 6 to CentOS 7 migration
We're very excited to share that ELevate has been expanded to include upgrading in place from CentOS 6 to CentOS 7.
15
14
randommen96 • 3d
Awesome. For the couple of VM's we didn't get around to replace yet we will try this.
Reply
2
bennyvasquez OP • 3d


randommen96 • 3d
Awesome. For the couple of VM's we didn't get around to replace yet we will try this.
Reply
2
bennyvasquez OP • 3d
AlmaLinux Team
Awesome! Definitely let us know how it goes!
2
randommen96 • 4m
It works great! I upgraded the first Centos 6 server running DirectAdmin. It took some cleaning up afterwards but nothing unexpected!
Then I decided to try to upgrade it from Centos 7 to AlmaLinux 8 and that too worked great!
It might be not as great as a "clean" server but it is definitely a great option to have.
1

Upgrading: Project ELevate

- Used by major corporations to upgrade 100,000+ devices
- Consistently tested and improved by the greater community
- Easy to test and customize to meet your needs

Getting to AlmaLinux: Two options

- CentOS 8
- CentOS Stream 8, 9
- Oracle Linux 8, 9
- RHEL 8, 9
- Rocky Linux 8, 9
- Virtuozzo Linux (VZLinux) 8, 9

AlmaLinux Deploy

github.com/AlmaLinux/almalinux-deploy

- CentOS 6
- CentOS 7
- Between major versions

Project ELevate

almalinux.org/elevate/

Get help!

chat.almalinux.org/almalinux/channels/migration
almalinux.discourse.group/

AlmaLinux

Questions?

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AlmaLinux