



Introducing Fedora Hummingbird

A new Linux for Builders

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The State of Software in 2026

Four Generations of Linux

Unix → Linux

Commodity Intel hardware paired with Linux.

The Win:

RHEL thrives on enterprise hardware deals and long-term support contracts.

Bare Metal → VMs

VMware, KVM, and hypervisor consolidation.

The Win:

RHEL thrives as VMs are sticky and rarely migrate between organizations.

Containers / Cloud

Docker, Kubernetes, CI/CD, and cloud-first workflows.

The Win:

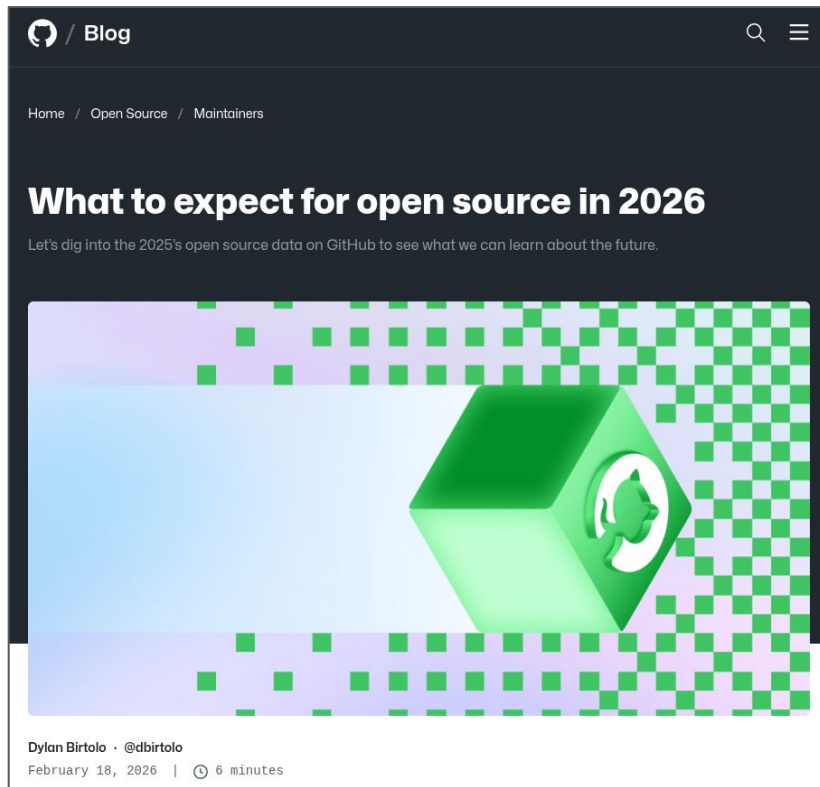
RHEL adapts via UBI, enabling redistribution and cloud-native CI/CD.

AI-Native

Vibe coding, LLM agents, Siri 2.0, Claude Code, Cursor, Goose.

Even if 1% of new software is useful, there's also going to be bad software (CVEs, exploits, etc)

With each generation, more software was written and consumed, faster and faster



The Good

“AI has had a major role in accelerating global participation over 2025. It’s created a pathway that makes it easier for new developers to enter the coding world by dramatically lowering the barrier to entry. It helps contributors understand unfamiliar codebases, draft patches, and even create new projects from scratch. Ultimately, it has helped new developers make their first contributions sooner.”



The Bad: CVE Tsunami



Alex Albert

@alexalbert__

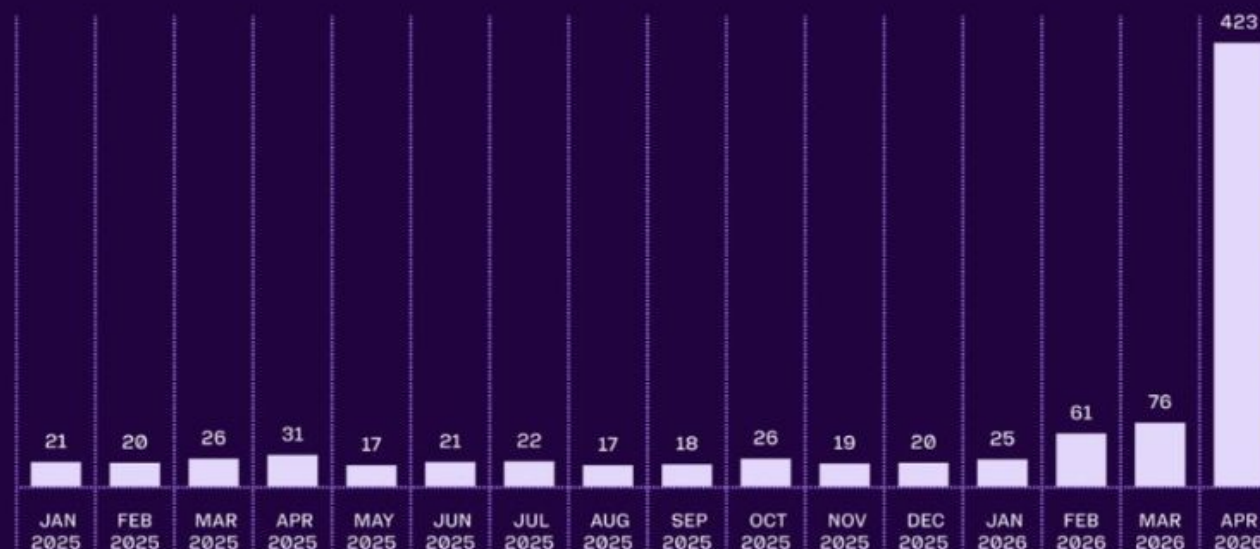
Follow



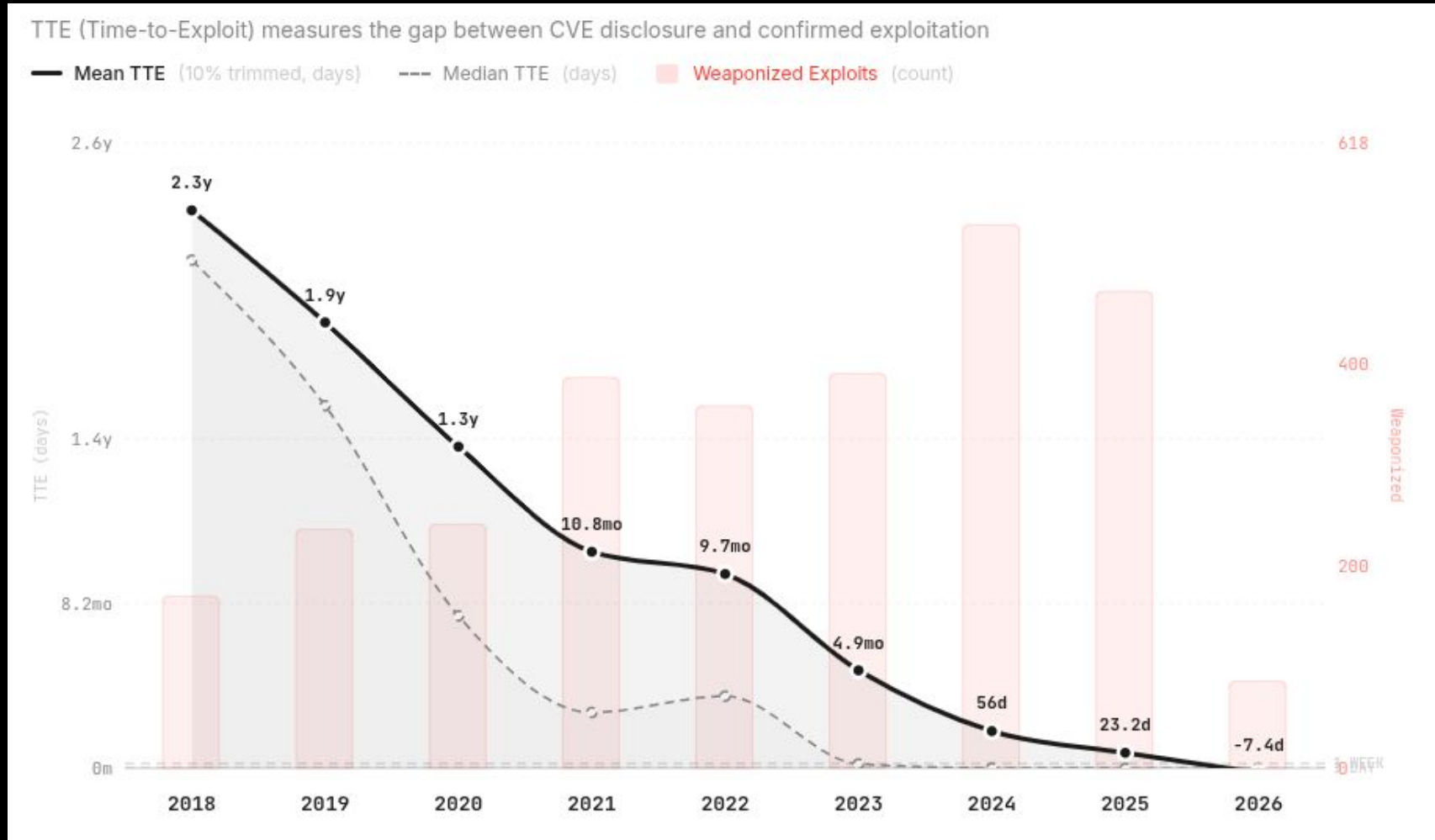
With the help of Claude Mythos Preview, the Firefox team fixed more security bugs in April than in the past 15 months combined.

Firefox Security Bug Fixes by Month

All Sources • All Severities



The Ugly: Faster Time to Exploit



Source:

<https://zerodayclock.com/>

| The Ugly: Dirty Frag (CVE-2026-43284)

27 hours 44 minutes from public disclosure to patched image available.
Steps 7–11 were fully automated (no human)

1. Public disclosure: 2026-05-07 2:18 PM ET, first commit to github.com/V4bel/dirtyfrag (embargo broken by third party, forcing full disclosure before any patch existed in distros)
2. Mainline kernel patch: 2026-05-05 12:38 AM ET, commit `f4c50a4034e6` merged by Steffen Klassert (pre-dated disclosure — prepared under embargo)
3. CVE assigned: 2026-05-08 3:21 AM ET, CVE-2026-43284 published by MITRE (reserved 2026-05-01)
4. Koji build: 2026-05-08 12:55 PM ET started, 2:54 PM ET completed. Fedora kernel maintainers ([jforbes](#)) backported into kernel-7.0.4-100.fc43
5. Bodhi update: pushed to Fedora 43 updates repo
6. Hummingbird S3 cache sync: mirrored from Fedora to koji-s3-cache.hummingbird-project.io
7. Renovate lockfile refresh: detected new kernel, updated `rpms.lock.yaml` from 6.19.14 → 7.0.4, opened MR !7448
8. Automerge: MR !7448 merged automatically at 6:02 PM ET, zero human intervention
9. Konflux/Tekton build : rebuilt quay.io/hummingbird-community/bootc-os:latest (image Created: 2026-05-08 6:02 PM ET)
10. Downstream GHA rebuild: rebuilt quay.io/crunchtools/fhl.dc2.crunchtools.com:latest on top of new base
11. bootc upgrade + reboot: 2026-05-08 6:02 PM ET, atomic update, VM running patched kernel

Source:

Crunchtools aka me

More software, more CVEs, faster exploits
Are you concerned yet?

The Solution



“I need to bring more software into production!”

“You’re in luck, that’s my day job.”



– *Scott McCarty, Stef Walter, Red Hatters*



Red Hat’s job is to build coherent things from wild progress.



Open Source has always been evolutionary

Move fast, with peace of mind

Fedora Hummingbird Linux

- Rolling release, follows upstream-stable versions
- ARK: Always Ready Kernel
- Built by Hummingbird "Lights-out" factory
- Free, no registration, no subscription
- Extension channel for free/non-open source software

First question for Builders



Is your priority latest capabilities or reliability?

Fast

Fedora Hummingbird Linux

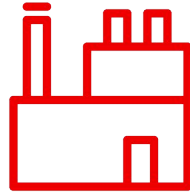
- Great for Builders working on their own
- Wide selection, latest releases: Python, Ruby, Node, etc
- No re-platforming required to add support

Stable

Red Hat Enterprise Linux

- Great for Builders in an IT-managed environment.
- Great for teams with existing vendor relationships
- Industry leading stability

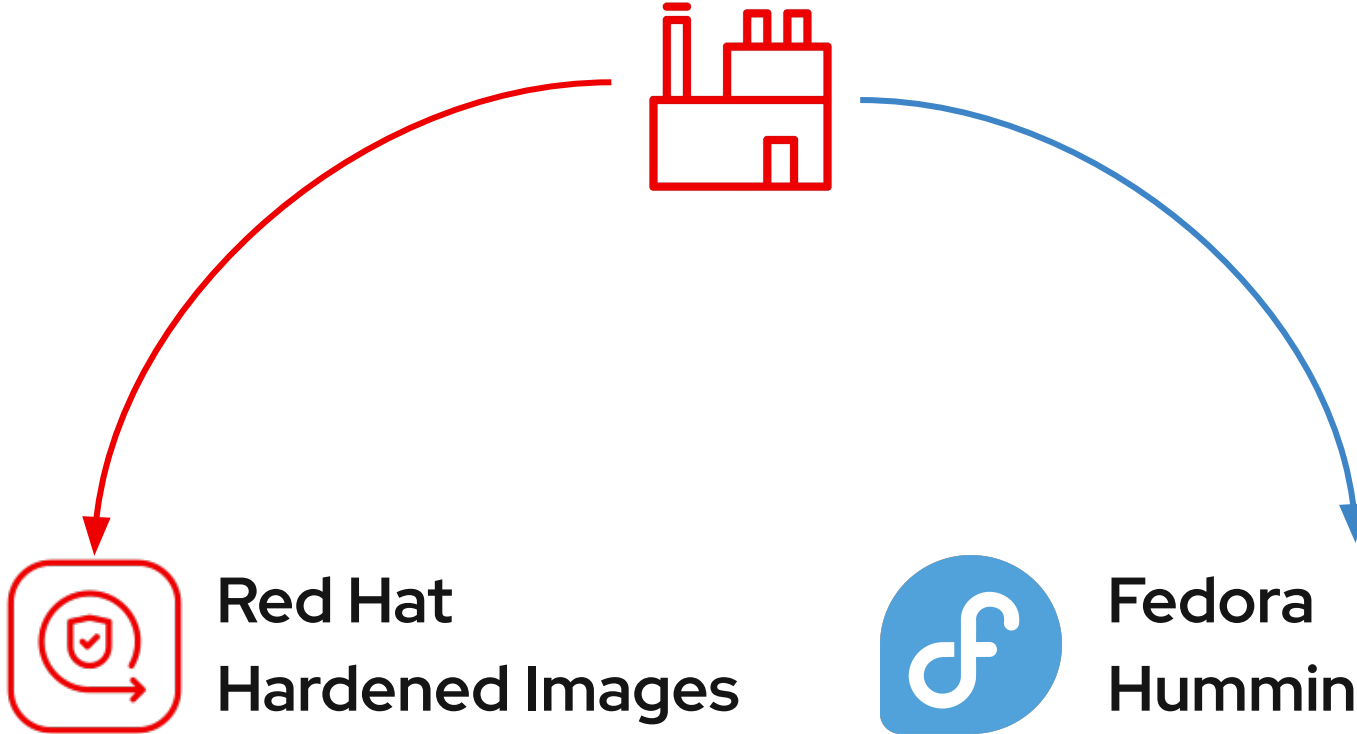
Hummingbird Factory

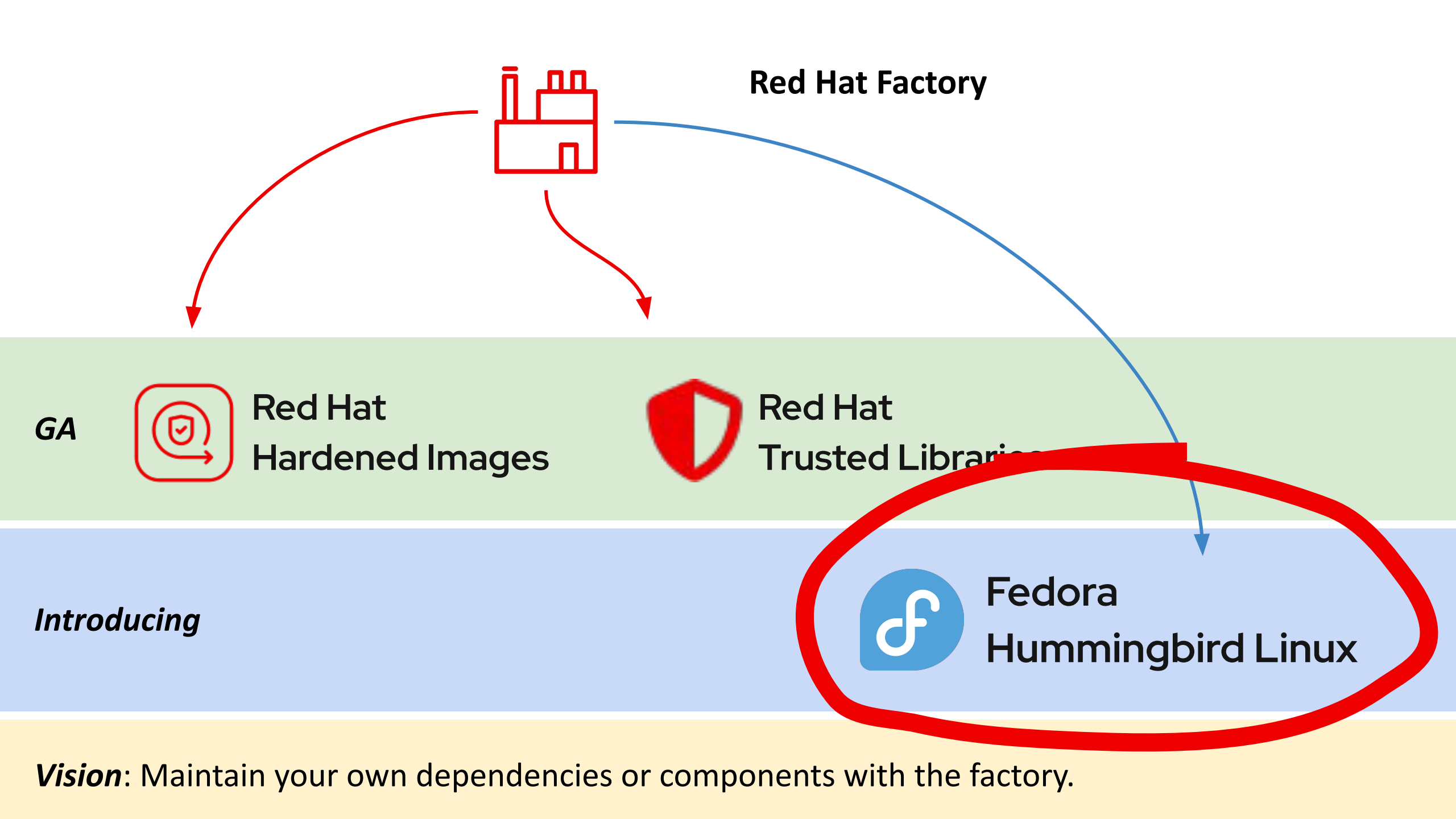


Red Hat
Hardened Images



Fedora
Hummingbird
Linux





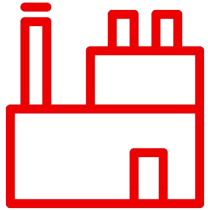
Why Fedora?

- ✓ Community-driven development produces the best ideas
- ✓ Needs space to grow into what it can be
- ✓ **Sharing, collaboration and redistribution is encouraged**

"If you want to build a ship, don't drum up people to collect wood and don't assign them tasks and work, but rather teach them to long for the endless immensity of the sea."

- Antoine de Saint-Exupery





Hummingbird Factory is built Agenticallly

New project, started while AI is mainstream

Now:

- Up to 1000 autonomous MRs per week delivered as container images
- Claude or Cursor used as first step in any task
- Agents running autonomously in Openshift:
code review, failure analysis, ...
- **Responsible AI**: Agent created code reviewed by humans
Deterministic automation runs without humans

Next:

- Full Agentic workflow to service customer requests for new images
- Integrate specialist agents and further review agents:
like merge conflict, tech writer, user design, testing
- **Red Team** attacking our Agentic pipelines



Hummingbird Factory Agentic Vision

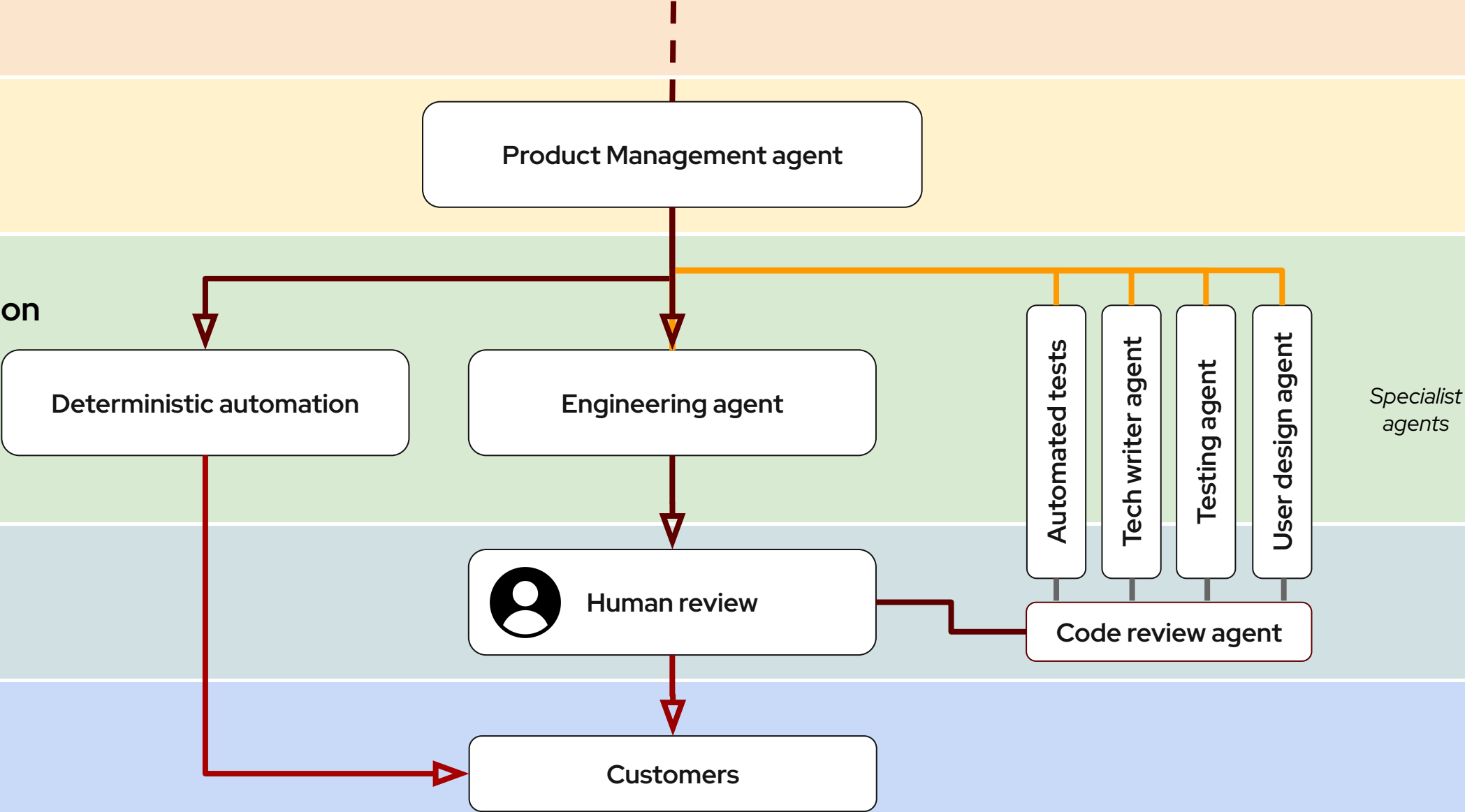
Request

Analysis

Implementation

Review

Delivery



Technical Details

Hummingbird Capabilities

- ✓ **Zero Known CVEs:** Hardened container images with full SBOMs.
 - ✓ **Universal:** Runs on Fedora Hummingbird Linux, RHEL, or OpenShift
 - ✓ **Frictionless:** Free pulls, no registration required.
-

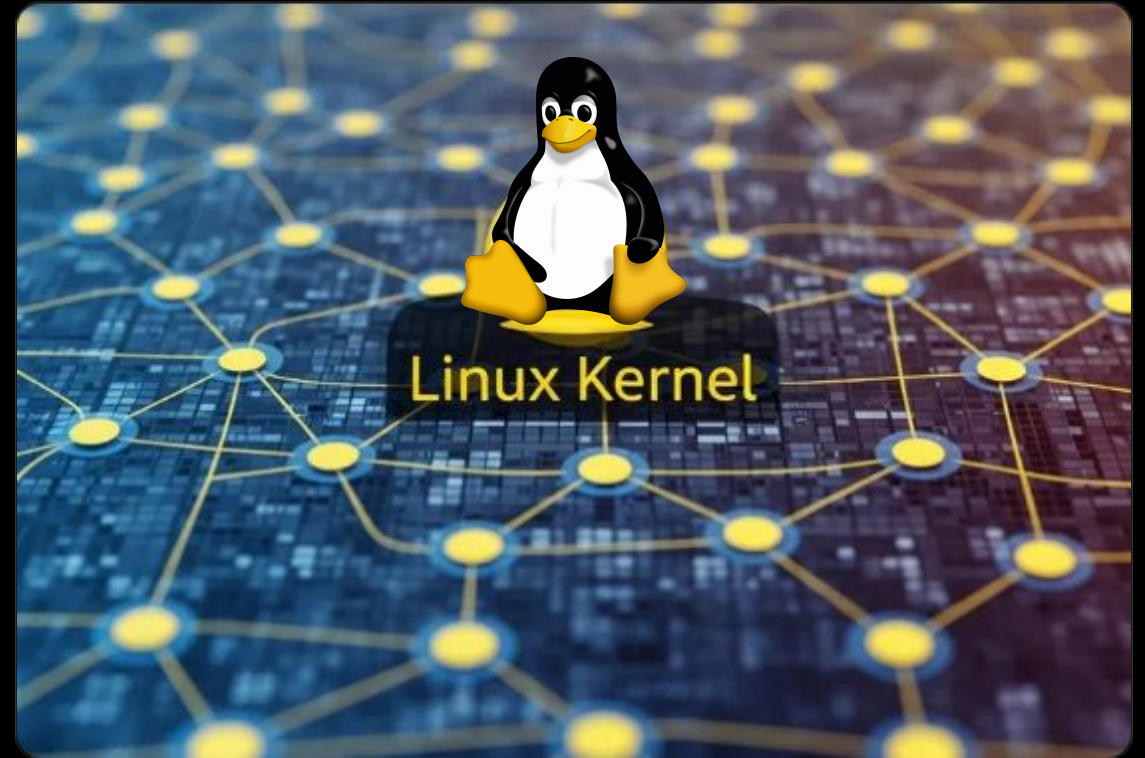


"The FROM line in the Containerfile is the first Linux decision a Builder makes."

We are closer to this vision than we think. Engineering has used ARK in Fedora for years.

“Engineering has a fast moving kernel called ‘Always Ready Kernel’ ... it’s been in use for years in Fedora.”

- Stef Walter



CKI Project

Continuous Integration

Used in Fedora

Deployment Ready

Linus' Tree

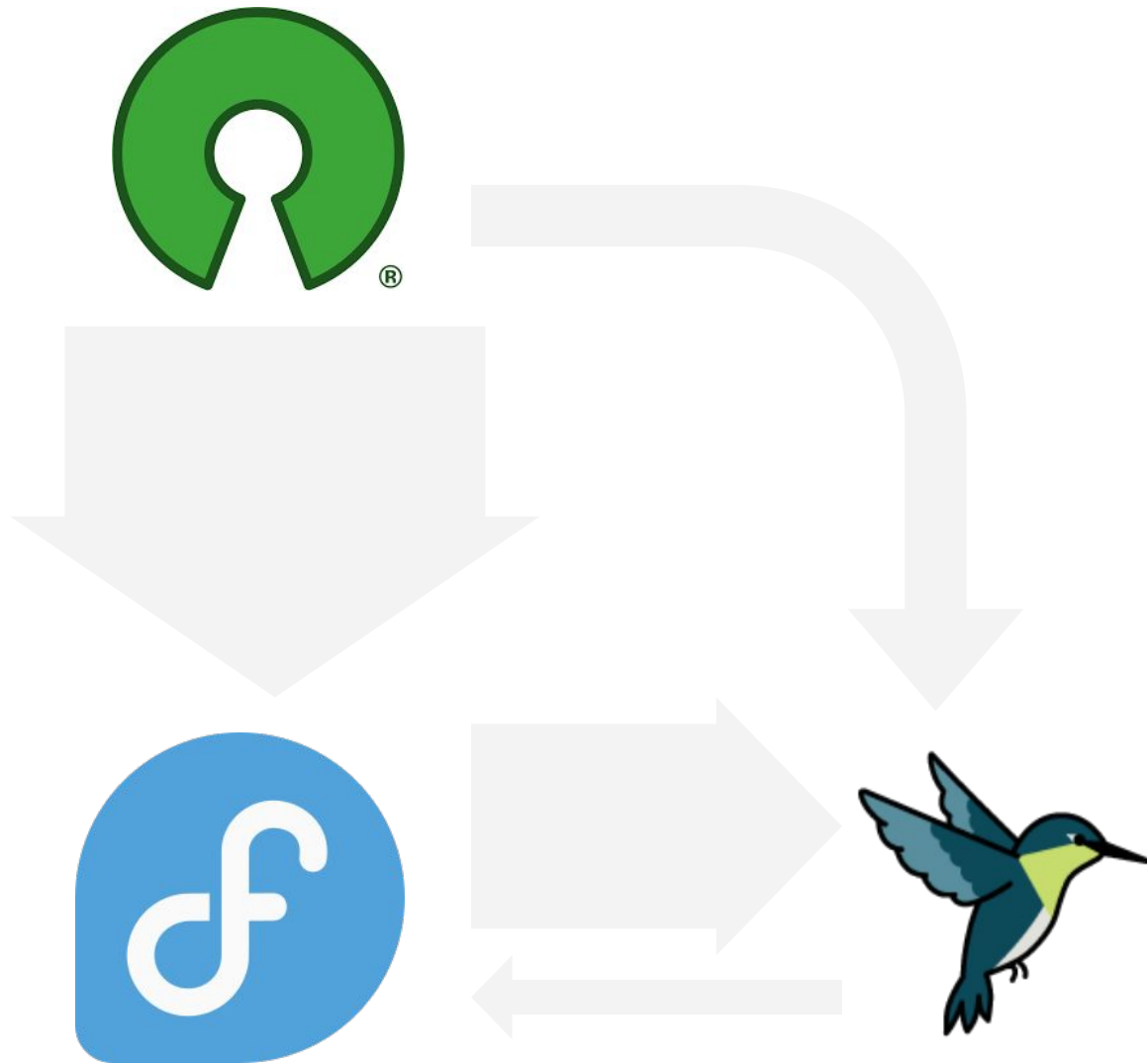
Mainline source

ARK

The "Fast" Kernel

| Dirty Frag (CVE-2026-43284) Demo

```
[fatherlinux@fhl dirtyfrag]$ ls
README.md  assets  exp  exp.c
[fatherlinux@fhl dirtyfrag]$ uname
Linux
[fatherlinux@fhl dirtyfrag]$ ./exp
dirtyfrag: failed (rc=4)
[fatherlinux@fhl dirtyfrag]$
```



Backfill Content into Fedora Hummingbird Linux

1. Hummingbird pulls RPMs from Fedora updates.
2. If an RPM is not recent enough in Fedora, or not in Fedora at all: build directly from upstream.
3. If Hummingbird diverges: seek to automatically (via Pull Requests) contribute back to Fedora.

Hummingbird AI Skills

[Project Hummingbird](#) builds and publishes minimal, distroless OCI container images. This repository hosts **AI skills** – installable agent extensions that let your AI assistant navigate and use those images without any manual setup. Each skill instructs the agent to query the live catalog API rather than relying on stale embedded data, so answers are always current. Works with Claude Code, Cursor, Windsurf, Copilot, Goose, Gemini CLI, and [18+ other agents](#).

```
Hummingbird AI Skills
→ ~ claude
 Claude Code v2.1.121
Sonnet 4.6 (1M context) · API Usage Billing
/Users/valentinrothberg

Using Sonnet 4.6 (1M context) (from .claude/settings.json) · /model to change

> Tell me about Red Hat Hardened Images!

• Let me invoke the hummingbird skill to give you accurate, up-to-date information on this topic.

• Skill(hummingbird)
  └─ Successfully loaded skill · 2 tools allowed

• Let me pull live data from the catalog to give you a complete picture.
```

Build an image

Create custom system images with your preferred configurations, packages, and settings. Build images for different target environments and deployment scenarios.

1 Base settings

3 Advanced settings

4 Review

Base settings

Your selections below may automatically add required configurations in subsequent steps.

Details

Enter a name and description to identify your deployment-ready image.

Name *

Description

Image output

Select the release, architecture, and a target environment to build your image. Learn more about [Deploying and managing RHEL systems](#).

Image type *

☐ Package mode☒ Image mode

RHEL image mode treats the entire operating system as a single, immutable container image that is updated atomically

Image source *

Architecture *

[Back](#)[Next](#)[Review image](#)[Cancel](#)

Fedora Hummingbird Linux

The whole OS

Proof of Concept

```
quay.io/hummingbird-community/bootc-os
```

```
$ cosign download sbom --platform linux/amd64  
quay.io/hummingbird-community/bootc-os:latest
```



The Red Hat Hardened Images team wants to hear from *you!*



Help shape what comes next.

Scan the QR code or go to:

red.ht/userfeedback

Share your pain points, experiences, and ideas.

Visit the UX team at the RHEL booth



Thank you



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