KubeCon CloudNativeCon North America 2026

#KubeCon #CloudNativeCon

Harbor Project Maintainer update

Rani Chowdary (ARM)
Vadim Bauer (8gears)
Orlin Vasilev (SAP)



KubeCon CloudNativeCon
North America 2026

Feature News 2.16

Vadim Bauer



Harbor v2.16

307
PULL REQUESTS

50
FIRST-TIME CONTRIBUTORS

2
CPU ARCHITECTURES: AMD64 + ARM64

Custom project roles
Build roles from permissions

Configurable Proxy Cache
Repository filter, stale serving, referrers

Valkey replaces Redis
Valkey is now the cache backend

Multi-arch images
amd64 and arm64

PostgreSQL 18
Bundled database image moves to PG 18

Hardening
Webhook egress policy, CSRF, size limits

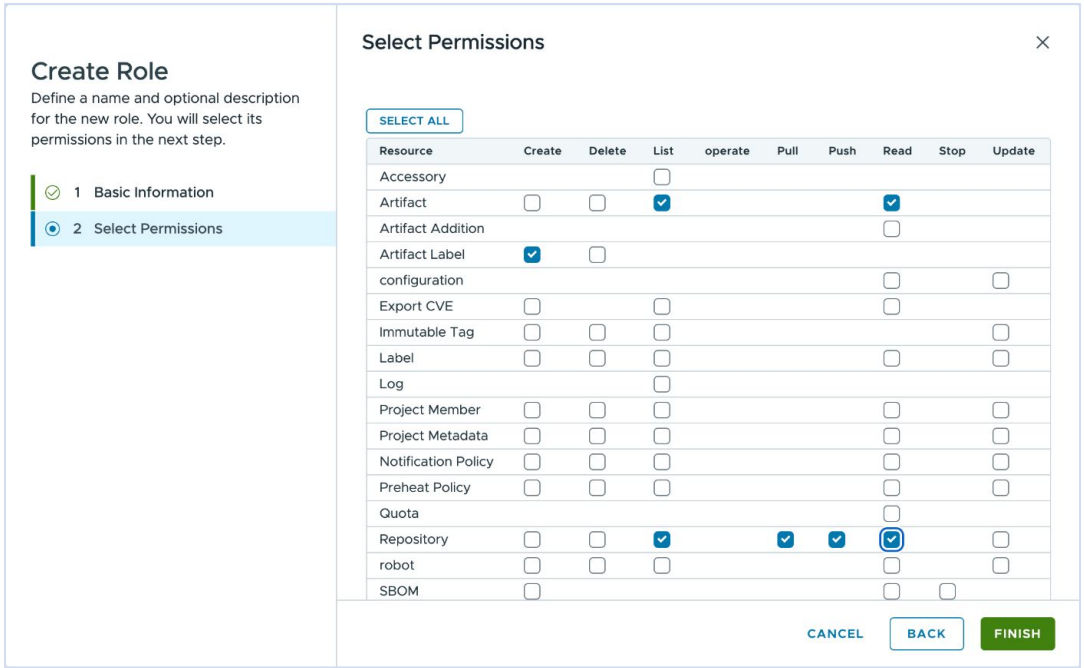
Custom Project Roles

Pick permissions: per resource and action: create, list, read, update, delete, push, pull, stop

Assign like built-ins: to users and groups in any project

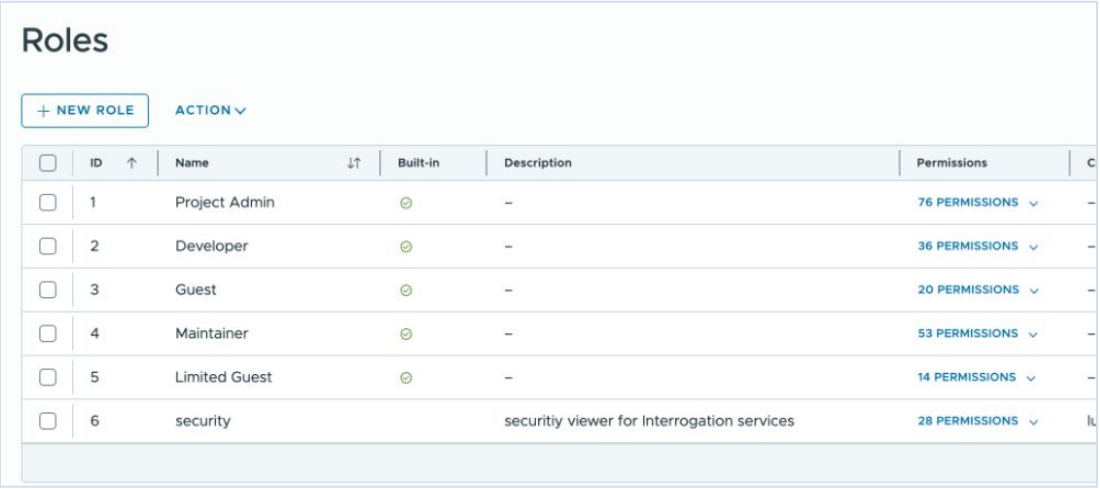
Built-ins unchanged: still resolved in code; only custom roles live in the database

Audited: role create, update and delete land in the audit log

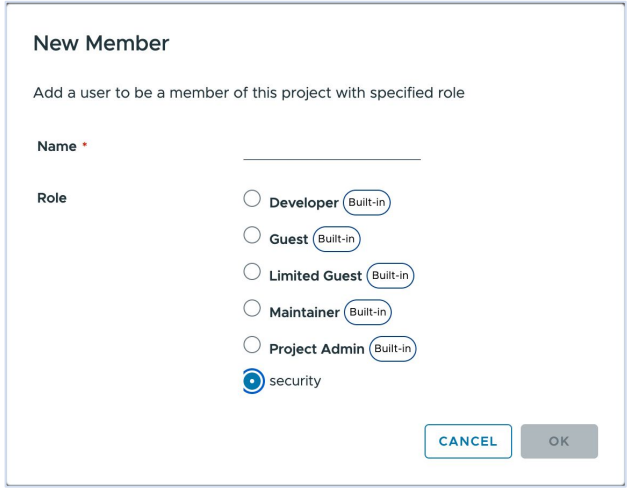


Closes issue #18124

Roles Next to the Built-ins

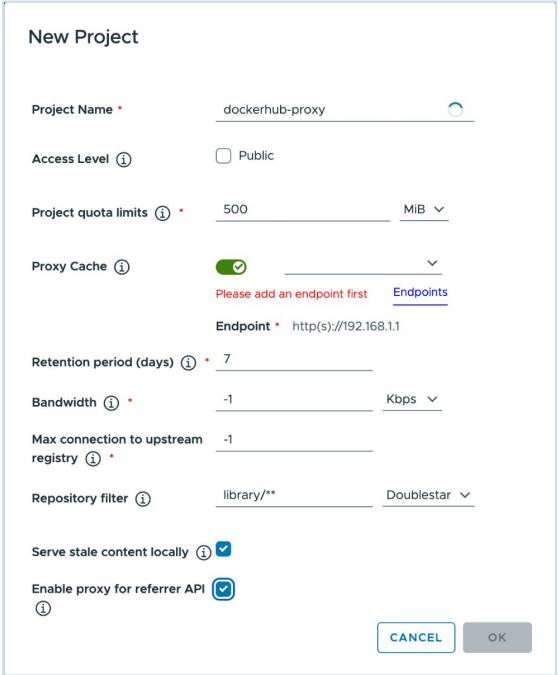


Administration › Roles built-in and custom roles side by side, with permission counts and creator



Project › Members custom roles offered next to the built-ins

Proxy Cache, Fully Configurable



Repository filter

only allowed repositories are proxied; everything else is denied before Harbor calls upstream

Serve stale content locally

keep serving cached artifacts when the upstream is unreachable or has removed them

Referrers API through the proxy

signatures and SBOMs from upstream, paged and merged with local referrers

Retention at creation

set the cleanup policy in the same dialog

Cache hit/miss metrics

see what the cache actually saves

Under the Hood

Platform

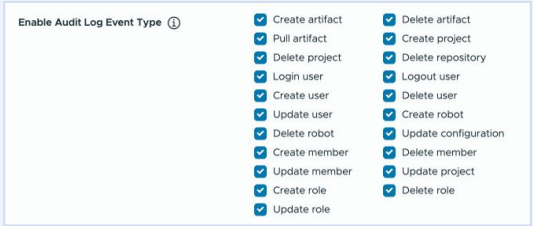
- Valkey replaces Redis
- amd64 + arm64 images
- PostgreSQL 18
- Go 1.27, Angular 21, Clarity 18
- Event-based replication on its own high-priority queue

Security

- Webhook egress policy levels + allowlist
- Go CrossOriginProtection replaces gorilla/csrf
- Size limits on manifests and audit payloads
- Stricter token and blob-mount checks
- Proxy-cache poisoning fix

Operations

- Failed tasks show the error and job log tail
- New audit events for members and roles:



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Harbor on ARM

Rani Chowdary



Arm in the Cloud-Native Ecosystem

From everyday devices to cloud infrastructure - enabled by open-source software

01 COMPUTE

Arm Architecture

From smartphones and connected devices to Neoverse-based cloud CPUs

02 SOFTWARE

Cloud-native stack

Linux · Kubernetes
Containers · OCI

03 COMMUNITY

Upstream Collaboration

Native CI · Dependencies
Packaging · Releases

HARBOR 2.16 **Upstream Arm64 enablement in Action**

Unparalleled Software Ecosystem

22 M

Developers on Arm, for Arm

15 Yrs

of Software Investment

95%

CNCF Projects Support Arm

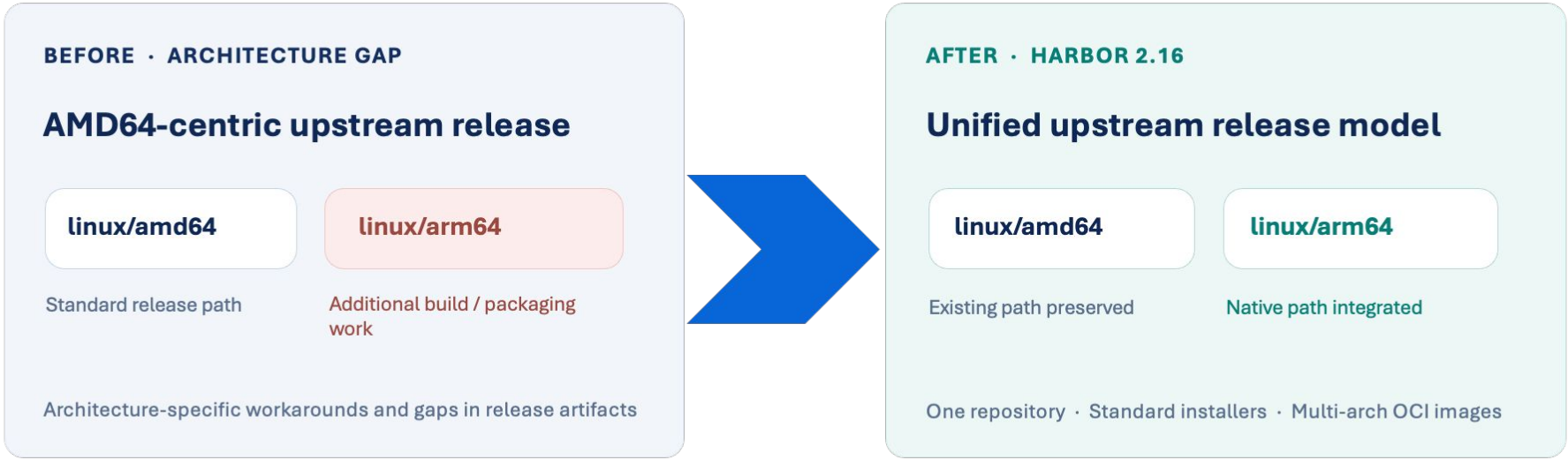
1000+

OSS & ISVs Building on Arm

Public © 2025 Arm

Harbor 2.16: From Architecture Gap to Upstream Support

One upstream registry. Native support for Amd64 and Arm64.

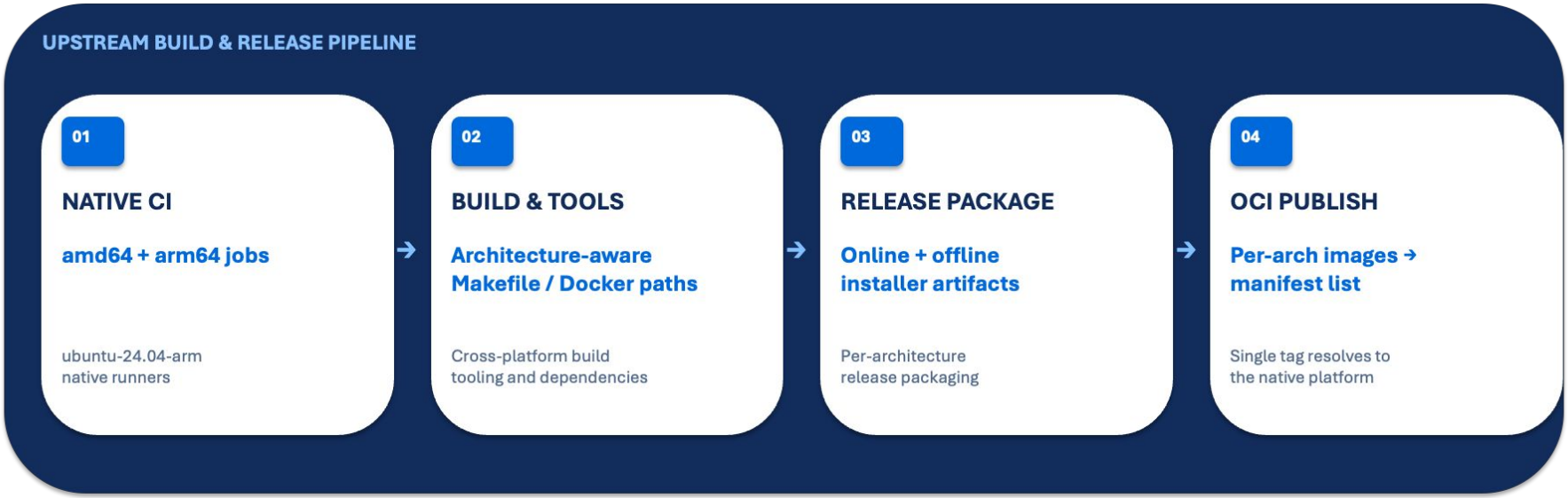


WHAT CHANGED UPSTREAM

Native CI → Architecture-aware builds → Release packaging → OCI publishing

One Upstream Harbor. Two Architectures.

PR #22311 · Architecture support across the entire delivery pipeline



linux/amd64 · existing path preserved

linux/arm64 · native path added

One repository • One release model • Multi-architecture OCI manifests

Multi-Arch Is More Than a Build Flag

Two real upstream failure modes — and the engineering fixes that made ARM64 release-ready

01 DEPENDENCY PARITY

VALKEY · PR #23282

FAILURE MODE

Photon OS had no ARM64 Valkey package.
The image build could not use the AMD64 install path.

UPSTREAM FIX

Multi-stage ARM64 source build with TLS; keep the AMD64 package path unchanged.

Rani / Arm

02 OCI PUBLISHING

PHOTON BASE IMAGE · PR #23334

FAILURE MODE

AMD64 and ARM64 jobs pushed the same tag.
Last writer could replace the other architecture.

UPSTREAM FIX

Publish per-architecture images, then create one multi-platform manifest for the shared tag.

Vadim / Harbor

RELEASE READINESS = DEPENDENCY PARITY + CORRECT MULTI-ARCH PUBLISHING

Harbor on Arm: What Comes Next?

From native enablement to sustainable upstream support

01

VALIDATE

Keep Arm64 release-ready

Native CI • dependency parity
installer and image validation

02

MEASURE

Understand real workloads

Push / pull throughput • concurrency
CPU and memory efficiency

03

IMPROVE UPSTREAM

Make support sustainable

Deployment guidance • compatibility fixes
ongoing maintainer collaboration

A REPEATABLE UPSTREAM ENGINEERING APPROACH

ASSESS
Architecture + deps

›

BUILD & TEST
Native ARM64 CI

›

MEASURE
Representative workloads

›

UPSTREAM
Release + maintain

Harbor 2.16 proves the model: one upstream project, native Amd64 + Arm64.

Future areas to explore with the Harbor community not announced Harbor 2.17 commitments.

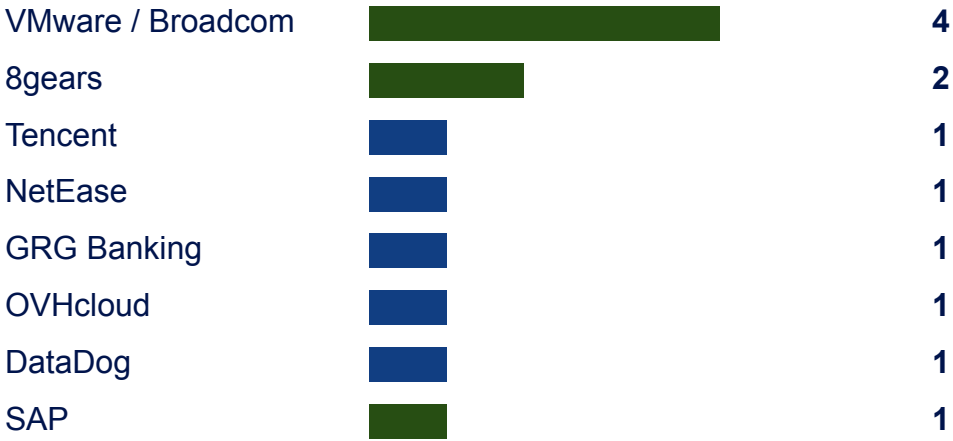
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Community Overview and Metrics

Orlin Vasilev



Who Maintains Harbor



1,131

Organizations contributing in the past year

8

Companies represented among maintainers

Sources: goharbor/community MAINTAINERS.md · LFX Insights › Contributors

GitHub star history

github.com/goharbor/harbor

KUBECON EU AMSTERDAM · MAR 2026

27.8k

→

TODAY · NOV 2026

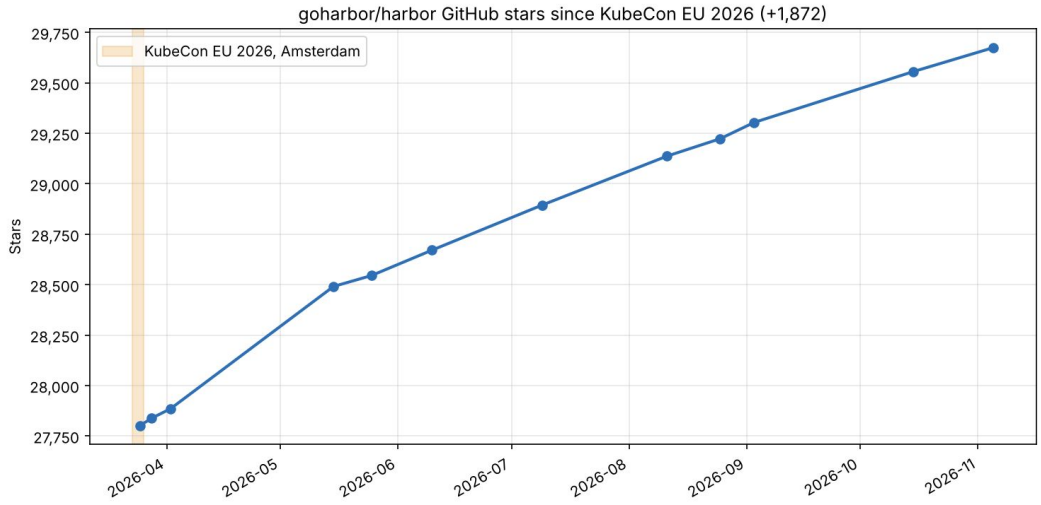
29.7k

Contributors

498

Forks

5.4k



Pull Requests and Issues

PRs opened

1307

PRs merged

640

Active contributors

649

Issues opened

442

Issues closed

267

Open today · goharbor/harbor

711 open issues

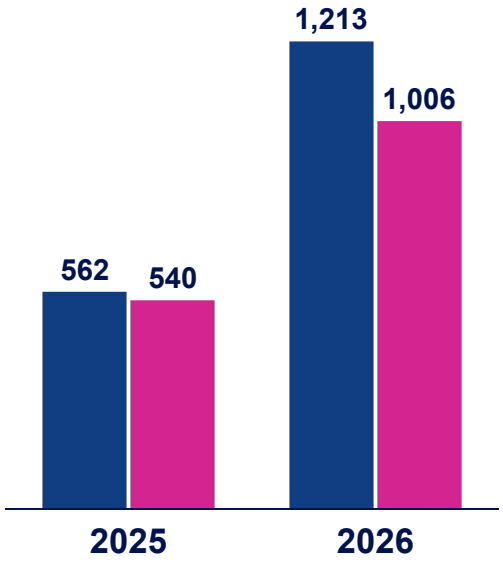
253 open PRs

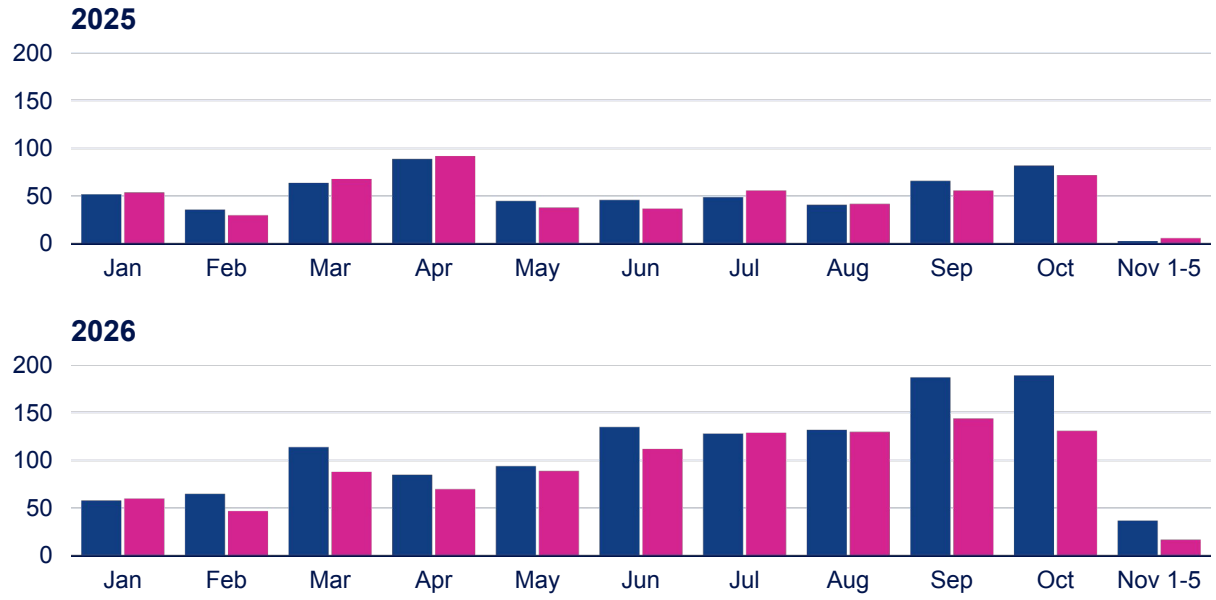
10,872 PRs closed all-time

Sources: LFX Insights › Development, Contributors · github.com/goharbor/harbor

Pull Requests: Opened vs Closed

Opened +116% · closed +86% · net backlog +22 (2025) → +207 (2026)





Source: GitHub search API · goharbor/harbor · Jan 1 – Nov 5 each year

Pull requests: 2025 vs 2026

AI-ASSISTED CONTRIBUTIONS

More PRs than reviewers

AI makes opening a PR fast. Reviewing it still takes a human. We need time, patience and help.

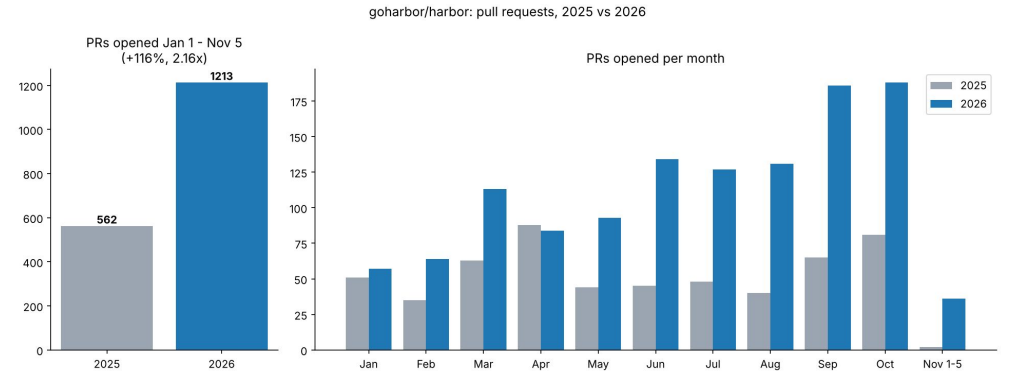
HOW YOU CAN HELP

- Review a PR, even as a non-maintainer
- Keep PRs small and tested
- Be patient when replies take a few days

2025 → 2026

562 → 1,213 +116% · 2.16×

PRs opened, Jan 1 – Nov 5



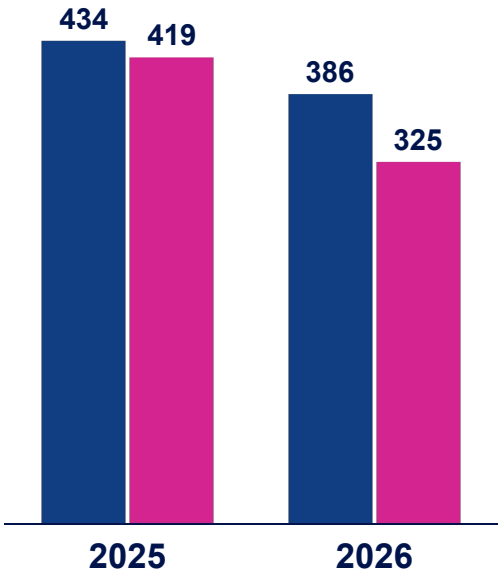
PRs closed per PR opened
0.97 → 0.85

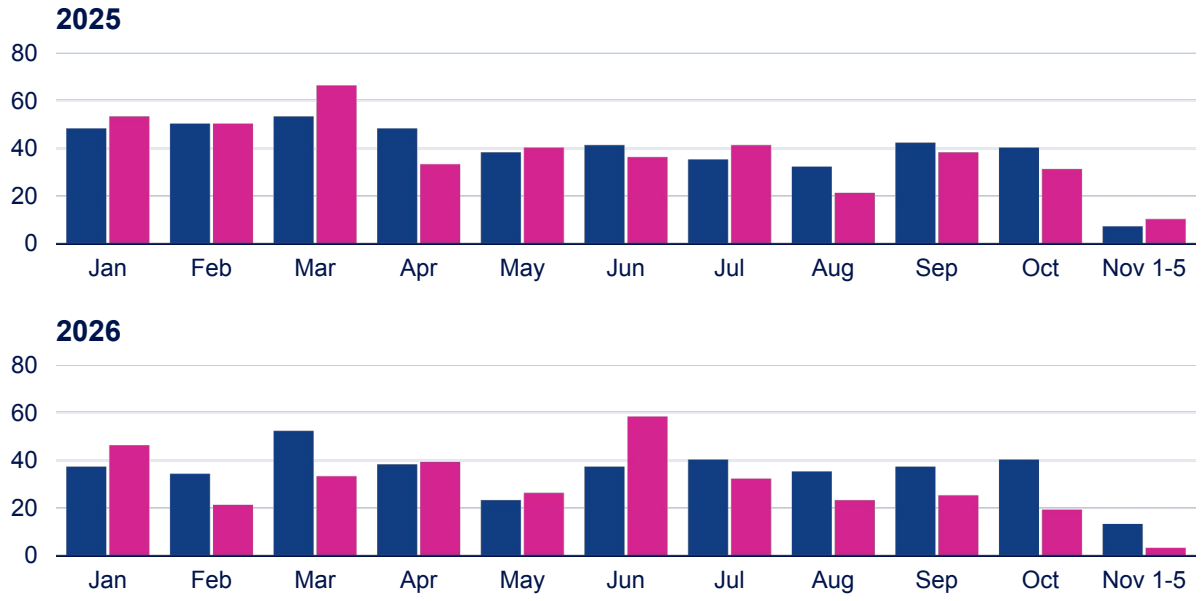
Median first response
2 h → 5 h

Open PRs today
253

Issues: Opened vs Closed

Opened −11% · closed −22% · net backlog +15 (2025) → +61 (2026)





Source: GitHub search API · goharbor/harbor · Jan 1 – Nov 5 each year

Review and Merge Time

Medians are about a day or less · 921 PRs opened by people

METRIC	MEDIAN	75TH PERCENTILE
Maintainer response time	14.7 h	3.5 days
Time to first review	10.7 h	3.0 days
Merge lead time (opened → merged)	21 h	5.1 days
Time to close a PR	37 h	11 days

goharbor/harbor · PRs opened in the last 12 months, excluding Dependabot and Copilot PRs

With Bot PRs Included

MEDIAN	PEOPLE · 921 PRS	ALL PRS · 1,247
Maintainer response time	14.7 h	23 h
Time to first review	10.7 h	22.7 h
Merge lead time (opened → merged)	21 h	27.6 h
Time to close a PR	37 h	93 h (3.9 d)

11.7 days
Median time to merge a Dependabot or Copilot PR, after a median 3 days to a first look

53%
of PRs opened by people got any maintainer response (490 of 921); 260 are still open

~62 days
Median time to close a PR without merging it

goharbor/harbor · PRs opened in the last 12 months · response and review medians count only PRs that got one

COMMUNITY · MAINTAINERS

Welcome, new maintainers



Prasanth Baskar

@bupd

8gears | Since Aug 2026

- Maintainer of harbor-cli and mentor to its contributors
- Security fixes, Go toolchain bumps and release backports
- CNCF Ambassador



Chenyu Zhang

@chlins

VMware | Since Oct 2026

- Contributor since 2019 · 380+ merged PRs, 1,600+ reviews
- Replication, P2P preheat, Valkey migration, perf testing
- Leads AI model artifact support (CNCF ModelPack)



Outlook 2.17

Vadim Bauer

Model Sync: Hugging Face to OCI

Models next to images

pull from Hugging Face, store as OCI artifacts in Harbor, then scan, sign and replicate them

Policy per model

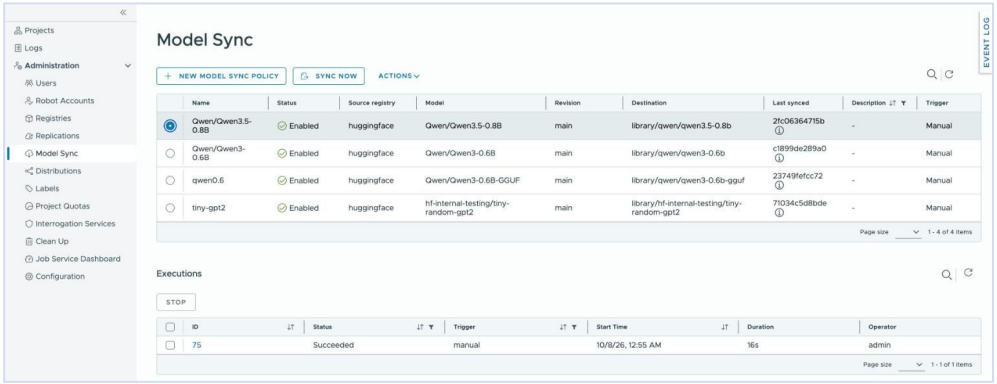
model, revision, include and exclude filters, destination project

Resolve before you sync

preview revision, digest, license and the matched files

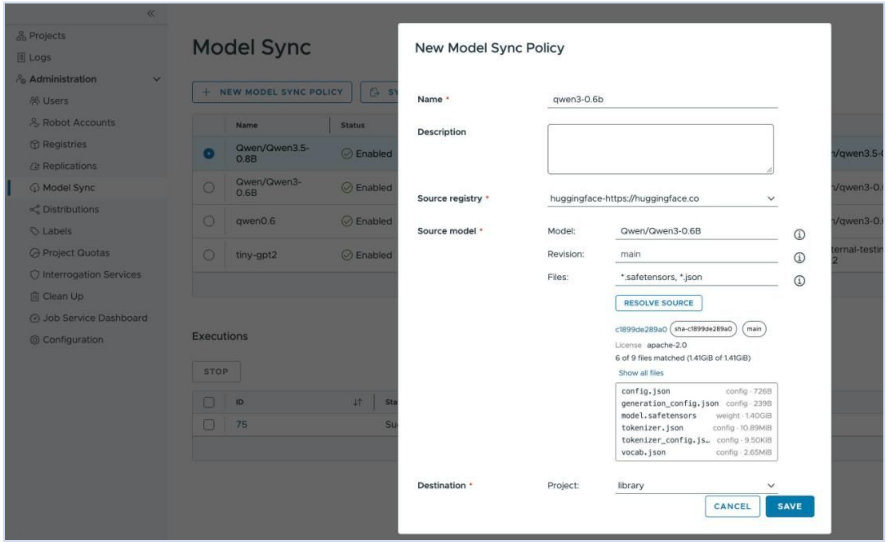
Deterministic

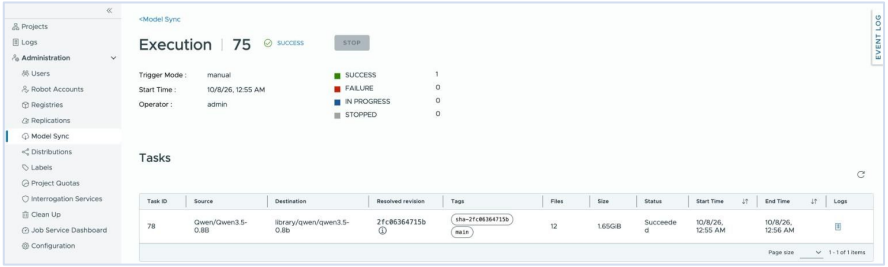
same revision and filters give the same digest; a rerun is skipped



Proposal goharbor/community#297 · prototype goharbor/harbor#24318 (Option A)

Model Sync





Administration › Model Sync

policies, executions and task logs on their own page

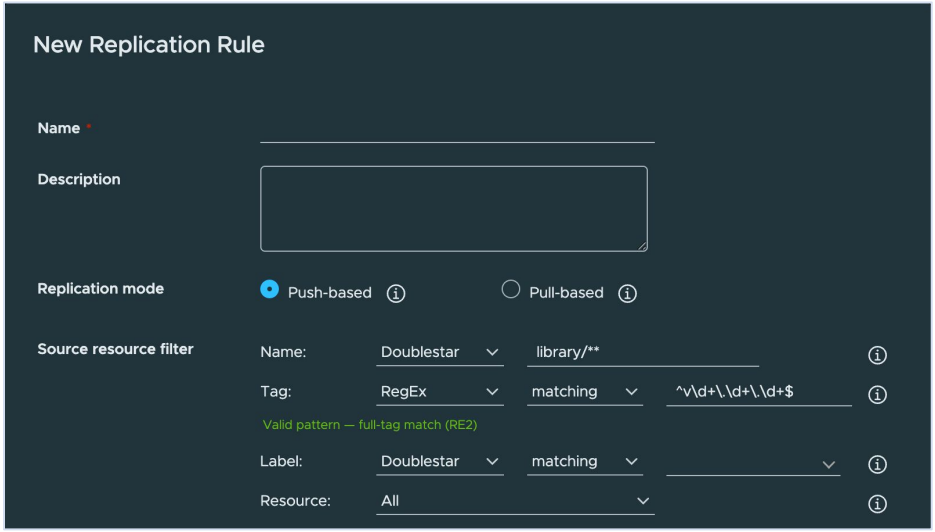
Runs on the replication engine

same transfer, jobs and execution history; no second pipeline

Pinned and traceable

each task records the resolved revision, tags main + sha-..., files and size

RegEx Next to Doublestar



Already in v2.16: the proxy cache repository filter uses the same regex | doublestar choice

One rule instead of four

^v\d+\.\d+\.\d+$ replaces v1.?.?, v1.?.??, v1.??.?, v1.??.??

Engine picker per field

Doublestar stays the default; existing rules are unchanged

Safe by design

Go RE2: linear-time matching, invalid patterns rejected on save

Everywhere, step by step

retention + immutability, then replication, then P2P preheat

Proposal goharbor/community#298 · builds on community#221 and harbor#18723

Proposals: We Want Your Feedback

Model Sync

Pull AI models from Hugging Face into Harbor as OCI artifacts; prototypes harbor#24318 (own page) and #24319 (in replication)

github.com/goharbor/community/pull/297

RegEx next to Doublestar

Pick RegEx or Doublestar per filter in retention, immutability, replication and preheat

github.com/goharbor/community/pull/298

Pluggable Scanner Spec v1.3

Beyond CVEs and SBOM: lint, license, secrets, malware, policy, attestations; chain analyzers so one feeds the next

github.com/goharbor/community/pull/285

Selective Scan All

Limit scheduled Scan All to selected projects or repositories (harbor#22266)

github.com/goharbor/community/pull/267

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06 · JOIN US

Get Involved

ContribFest

Tuesday · 80 minutes hands-on with maintainers. Bring your first PR.

Project Pavilion

Hall 5 · Tuesday to Thursday. Demos and deployment questions.

Community Meeting

Open to everyone, scheduled via LFX Project Control Center.

Scan to join the community

goharbor.io/community · github.com/goharbor

