PROJECT CALICO COMMUNITY MEETING

Meeting Details

An open community meeting for maintainers, contributors, users, and anyone interested in Calico, to connect, share ideas, and help shape the direction of the project.

We meet on the second Wednesday of every month at 9am Pacific Time. Join us!

Useful links:

- [Calendar](#)
- [Zoom video conference link](#) (ID: 270 294 702 Passcode: 77777)
- [Code of conduct](#)

Next Meeting

Anyone can add candidate agenda topics for the next meeting. If there's a topic you have a demo, or a topic you would like to present or just explore with others in the meeting, then feel free to add it.

Meeting Minutes

Sep 11th, 2024

- v3.29.0
  - Code freeze soon!
  - Shipping October.
  - Tiers merged
    - Tiers was an Enterprise feature which has been open sourced
      - Generic way to organise policy
      - Similar to ANP/BANP but more generic
      - But Calico-only
    - Admin Network Policy in progress
      - This is a new k8s API we're going to support
      - These are rules which are run **before** k8s network policy
      - Code mostly in, need to check against conformance tests
      - With ANP users can create non-namespaced policy
      - Allow/Deny/Pass actions
        - Pass = packet goes to "normal" k8s network policy

- - - Some discussion over what to do if there are no matches
        - Calico has an implicit Pass at the end of Tier
        - Mazdak not quite sure what k8s spec expects
      - Baseline Admin Network Policy in next release
        - Rules which are run **after** k8s network policy
      - What changes will be needed for VPP? [Nathan]
        - policy information now includes policy name and tier name
        - So some changes needed for VPP
          - Nathan will discuss with Mazdak offline
          - Examples available
    - Adding Loadbalancer IPAM
      - Previously we relied on MetalLB to do the IPAM, while calico announced it
      - Users want a single solution
    - nftables support
      - tech preview
      - distros starting to ship with nftables by default
    - [Full list of merged PRs](#)
    - Sometime in October
  - VPP
    - Tracking the multinet KEP
- Will be at Kubecon NA in November
  - Casey giving a talk with Dan Winship (RH)

Aug 14th, 2024

🛎 Check-in / sneak peeks

- 3.28.1
  - IP reservation and BGP filters added to etcd migration
  - Updated K8s dependencies to 1.28.12
  - Disable checksum offloading for VXLAN devices
- 3.29 still WIP (expected in November, we think)
  - Adding nftables support
    - Already have iptables compatibility with nftables, this will include native nftables support.
  - Tiers possibly being added in this version
    - Tiers will be used to support the new K8s AdminNetworkPolicy and BaselineAdminNetworkPolicy functionality
- VPP
  - Chased down CI bug
  - Focusing on optimization
    - Hoping to have merged by 3.29

- Operator
  - Nothing to report
-

🔥 Hot Issues

🤑 Calico heroes

July 10th, 2024

🛎️ Check-in / sneak peeks

- 3.27.4 release (July 9th)
  - eBPF
    - Bpftool updated to v7.4 to fix a rare issue in few distributions where XDP programs would cause excess CPU usage.
  - Golang version update (1.22.5) to address CVEs.
- 3.28.1 release will follow (Expected to be early next week)
  - This release will offer the same fixes as **v3.27.4** for the 3.28 branch
- Next version 3.29 is in the works (Expected to be released someday in Oct)
  - In this coming release we are going all out on Nftables, its going to be the fourth dataplane that Calico supports. This release will specifically work on nftables compatibility.
- VPP
  - Docs improvement for adoption and usecases
  - Support for YAML based installation process ***A community request***
  - Interesting ask recently from CU - different VPP config on different nodes
    - Perhaps config like FelixConfig (which can do per-node config)?
    - Or like Ippool?
      - Which can have selectors, and use the same config for (say) a whole rack
      - And ippools are manageable via Installation now

🔥 Hot Issues

- Uninstallation of Calico https://github.com/tigera/operator/issues/3413

🤕 Calico heroes

June 12th, 2024

No notes recorded

May 8th, 2024

🛎️ Check-in

- v3.28
  - Releasing in process
  - Optimizing policies in cases with many policies that apply to multiple pods
- V3.29
  - Quite a ways out
  - Working on POC with nftables - https://github.com/projectcalico/calico/pull/8780
- Operator
  - Nothing to report
- [VXLAN not working when tunnel address is borrowed calico/6160](#)
  - Reasonably straightforward to fix, just need the time to fix it
- If you've got questions please join us in the Calico Users slack at https://slack.projectcalico.org/

April 10th, 2024

Check-in

- v3.28
  - looking good at the moment,
  - its in test currently
- Profiling tools coming!
  - In github at present - not going to be in v3.28, but soon
    - Announcement soonish
    - in felix
    - timeline of CPU and memory
    - linkable to grafana
- Operator
  - updates to the ippools controller (coming in v3.28)

- ○ Erik added CSI nodedriver anti-affinity to stop it going onto fargate nodes
  - ■ To address [Bug](#) from user
- ○ Overrides to set affinity, some need to add container name, updating comments to make that clear
- VPP
  - ○ Still deep into hardening
  - ○ PreDNAT policy not supported, on the backlog
  - ○ Failsafe policy support for CIDRs
    - ■ Forgot to implement
    - ■ Will go into 3.26+
  - ○ Still involved in Multinet KEP
- Shaun engaging with sig-network
  - ○ Looking at KEPs
    - ■ Admin network policy
    - ■ DNS policy

Community Heroes:

- user [mihivagyok](#) submitted several operator PRs
  - ○ fix for migrating from manifest to operator install
    - ■ One more that hasn't been merged yet, Erik still needs to review it again.
  - ○ fix security context for apiserver

March 13th, 2024

Check-in / sneak peeks

- v3.28
  - ○ Adding the ability to have >1 ippool in the Installation at install time
    - ■ Operator will now manage ippools!
    - ■ operator PR 2658
  - ○ (Fixing) calico v3 resources don't play nice with kuberentes garbage collector
    - ■ non-unique UID for v3 resource ends up being used
    - ■ calico PR 8586
  - ○ operator work to make migration to BPF mode quicker
    - ■ ordering improvements - to change minutes of disruption to seconds
  - ○ ipv6 in BPF moving to GA
    - ■ includes dual stack support
  - ○ Optimisations in Felix

- - - - ■ to share chains between pods on same node
      - ■ aimed at ultra scale users, improving apply time
        - ● with 200-300 policies per pod
      - ■ most users won't notice
    - ○ Opt in gate for delaying pod startup until networking and policy is applied
      - ■ Previously pods could startup and fail to connect.
        - ● They *should* retry and the retry should succeed
        - ● But not all apps do that
      - ■ Local policy only initially (no guarantee that pod on the far end is up)
      - ■ May look at options for doing that in future?
    - ○ Due in Mid April
- ● CalicoCon
  - ○ Nathan is going!
  - ○ And Shaun and Tomas
  - ○ March 19, 2024 Courtyard by Marriott Paris Porte de Versailles, France
  - ○ https://www.tigera.io/lp/calicocon-2024/
- ● VPP
  - ○ Focusing on testing/performance
  - ○ and Hardening up
  - ○ Watching the Multi-Net KEP, trying to contribute as much as possible
    - ■ Reaching the point of go/no-go discussion
- ● Operator:
  - ○ A few issues in the operator repo around Windows
    - ■ Pedro has been pinged
  - ○ Some other minor issues
    - ■ Seems to be a lot of Migration work
  - ○ now have multiple controllers on single resource (Installation)
- ● 3.26 and 3.27 now certified with Openshift!
  - ○ We had fallen behind on this work in the past
  - ○ We need to add automation to not fall behind in future.

February 14, 2024

🔔 Check-in / sneak peeks

- ● v3.27.1
  - ○ Coming really soon - this week or next!
  - ○ Windows BGP on Operator
  - ○ non-priviledged mode
  - ○ iptables version update to v1.8.8
  - ○ Don't get MTU from Down interfaces
  - ○ Misc BPF fixes

- Sneak peek v3.28
  - Expected in late March
  - eBPF dual stack support
  - Enable multiple ippools at install time
  - Making Calico policy more compatible with gitops
  - eBPF enablement with operator smoother
  - iptables optimisations?
  - delay pod readiness until policy is applied
- Operator
  - PR from external contributor to fix some migrations from manifest install
    - to handle nodes being "broken" and typha scaling
    -
- VPP
  - Happy to be GA!
  - Working less on new features, and more on stability
    - Supporting benchmarks
    - improving install
    - OIWS support
    - VCL
    - bugfixes
    -
- CalicoCon and Kubecon EU
  - CalicoCon
    - March 19, 2024 Courtyard by Marriott Paris Porte de Versailles, France
    - https://www.tigera.io/lp/calicocon-2024/

🔥 Hot Issues

- calico-apiserver memory leak in v3.27.0
  - https://github.com/projectcalico/calico/issues/8383
  - Fix is merged and ready to ship in v3.27.1
- issue with new operator uninstall code
  - helm template (in Argo) was rendering the uninstall job too at install time.

January 10, 2024

🛎️ Check-in / sneak peeks

- v3.27.0
  - Is out now, a little later than previously suggested
  - Windows HPC

- - eBPF IPv6 will be tech-preview. A few CTLB issues, likely fixed in a future patch release.
    - Golang update 1.21.4
    - VPP GA
    - Performance improvements in calico-node (Felix)
      - Improved some algorithms from $O(n^2)$ to $O(n)$ or better
        - 5-10x reduction in CPU usage in normal sized clusters, 50-100x in large clusters (1000s of nodes/policies)
    - Bug with sysctl tuning plugin, expect to be fixed in a later patch release
  - Sneak peek v3.28
    - eBPF IPv6 support GA

🔥 Hot Issues

- https://github.com/projectcalico/calico/issues/7332 - mentioned in the sig-windows meeting this week (windows prestop hooks)

November 08, 2023

🛎 Check-in / sneak peeks

- v3.27.0
  - Release on Nov 17th
  - Windows HPC testing in progress
  - eBPF IPv6 will be tech-preview. A few CTLB issues, likely fixed in a future patch release.
  - Golang update 1.21.4
  - VPP GA
- v3.26.4
  - Library / CVE updates. New golang version 1.20.11
- Operator
  - A few panic fixes merged
  - Include sysctl tuning plugin - in review now
  - CSI DaemonSet - configuring requests/limits fixed
  - Starting work for setting the felix config at install time for the helm charts
    - Possibly will make it into v3.27.0
- VPP
  - OpenShift fixes / corner cases
  - v6 BGP filter support

- GA in v3.27 (shortly after due to chicken/egg)

🔥 Hot Issues

- [8025](#) - nft tables panic caused by what seems to be an outdated version

October 11, 2023

🛎️ Check-in / sneak peeks

- Just released 3.26.3
  - Might be confusing since we skipped 3.26.2!
  - Small issue during release tagging resulted in us skipping the ".2"
  - Bug fixes and CVE fixes
- 3.27.0
  - Still on track for end-October
  - Targeting VPP GA
  - In bugfix and testing phase right now
- Operator
  - Support for "helm uninstall" for operator has been merged to master will be in 3.27
  - Improvements to iptables -> eBPF mode procedure to be non-disruptive.
    - Targeted for v3.28
- VPP
  - Hardening for GA!
  - Flow hashing configuration exposure on Services
  - Openshift fixes almost done
- General
  - Bunch of performance improvements for very large scale deployments (1000's of policies)

🔥 Hot Issues

- [8071](#) - Issue with VXLAN manager. Race condition
- [8016](#) - Issue with non-privileged / non-root mode in some environments
- [7987](#) - Enhancement for IPAM GC to clean up small blocks (currently runs when there is a large percentage of addresses that need to be removed)

September 13, 2023

🛎️ Check-in / sneak peeks

- v3.25.2 released earlier this month
  - Bug fixes / updates to libraries.
- v3.26.2 is scheduled
  - Bug fixes, libraries updates
  - End of September
- v3.27.0
  - Previously aiming for a small release in early September
  - Combining with v3.28.0 instead and moving to end of October
  - HPC Windows support
  - Azure overlay networking support
  - IPv6 eBPF support (single stack only)
  - VPP GA
- v3.28.0 is thus pushed out until next year.
- Operator
  - Changes to add a clean up mode (still outstanding)
  - Recently put in a giant refactor PR. Anyone developing in the operator should rebase.
  - Operator support for installing the CNI plugin in windows (coming with windows HPC support). Will no longer need the scripts to install zip files
- BPF
  - Fixes for issues with libbpf on specific kernel versions (primarily CentOS 9)
  - Rolling out this fix to v3.25+

🔥 Hot Issues

- Aforementioned libbpf issues (Matt doesn't remember the number)
- #7972 - concurrent map access issue - cyclinder taking a look
  - This one needs a closer look
-

August 9th, 2023

🛎️ Check-in / sneak peeks

- v3.27.0
    - Aiming for a small release in the end of August/early September
    - Marquee features should be:
        - HPC support for Windows
        - Overlay networking support in AKS with the Azure CNI
- v3.25.2
    - Still updating libs and checking for CVE issues
- VPP
    - Chasing down the last bugs
        - Disabling/enabling wireguard causes routing issues
        - KIND and DNS not working properly
        - Checksum issue on KIND

July 12th, 2023

🛎️ Check-in / sneak peeks

- v3.26.1 has been released - couple of weeks ago
- v3.25.2 is in progress - fixing CVEs from imported libraries
- v3.27.0 - smaller feature set, this is mostly packaging / tooling fixes at the moment.
    - Pushing date back since it's a small payload and the team is working on tests, stability, tooling, etc.
    - Looking to add some more things:
        - Overlay networking support in AKS
        - Host process install for Windows
- Operator
    - Improvements to migration from manifest-based installs (old news)
    - Helm install issues
- Working on IPv6 support for the eBPF data plane
- VPP
    - v3.26.0 release is out! Less than two weeks after the Calico release, hooray!
    - Documentation improvements
    - Tackling long standing bugs
        - e.g., wireguard enable / disable oddities

🔥 Hot Issues

- 7845 - Issue regarding IP pools initialized at install time
  - https://github.com/projectcalico/calico/issues/7845
  - Complications due to validation to prevent overlapping/bad IP pools from being created. Need to figure out the proper place to put this logic
  - Possibly new controller set up by the operator to handle all of these validations before finalizing things for Calico to use.
  - We have made some progress with this by decoupling encapsulation from the IP pools and moving it into the Felix configuration.
- 7839 - IPAM GC gets stuck when you delete 100 nodes and 3-5k pods at the same time
  - https://github.com/projectcalico/calico/issues/7839
  - Working on understanding why this occurred
- Misunderstandings around translating helm install options to the operator installation configuration.
- Helm uninstall
  - Helm does not have ordering which has it remove things before it removes finalizers so some resources are never deleted and now things are stuck.
  - Pre deletion hook is likely the best solution but still needs to be tried
  - WIP PR: https://github.com/tigera/operator/pull/2662
-

June 14th, 2023

🛎️ Check-in / sneak peeks

- v3.26.1
  - Fixes:
    - Issues building open stack artifacts
    - Permission issues for BGP filters
  - Imminent! 🤞
- V3.25.2
  - Next couple of weeks
  - CVE fixes
- v3.27.0
  - in next month or so
  - Windows host process installer (HPC) release going to be GA 🎉
- BPF - were working on ipv6 support but not sure which release yet
- VPP
  - working on v3.26 release

- - service annotations to specify load balancing algorithm
    - Openshift enabled in CI
      - working through issues
    - Adding BGP Filters to match iptables dataplane
      - VPP uses gobgp
    - Release probably end of this week

🔥 Hot (warm) issues

- Issue 6907
  - Using BPF in Rockylinux
  - still investigating, having trouble reproing, despite many users commenting
    - Please jump in and share info about your setup if you're seeing this
-

🤕 Calico heroes

-

May 10th, 2023

🛎 Check-in / sneak peeks

- v3.24.6
  - Coming soon - this week, maybe next week.
  - Library updates for CVEs, in validation now
- v3.26.0
  - A few issues with testing infrastructure, so have held it back a little bit. A couple more weeks.
  - On the bright side, a few more bug fixes have made it in as a result.
- Operator
  - A few community PRs going in
    - Migration for Typha affinity from manifest installs - [2598](#)
    - Configurable /etc/calico host directory - [2518](#)
  - Adding VPP to the operator
    - Still discussing internally
    - Currently leaning towards holding off for now
      - Decouple the VPP release from our operator and Calico releases
    - Workaround for VPP support in OpenShift is to add the VPP manifests to our install instead of adding the component to the operator. Need to explore if this will work for VPP.
    - Integration points w/ OpenShift

- - - We pull the [platform CIDRs from the Network API](#)
    - [Update status with CIDRs, MTU](#)
    - Some custom configuration
- VPP
  - Addressing reported issues, mainly on host endpoints
  - Targeting release, generally 2-3 weeks after the Calico release

🔥 Hot (warm) issues

- Operator reference docs out of date

🦸 Calico heroes

- Operator PRs Welcome!
  - uhthomas - [Configuration of host mount path](#)
  - Tamas-Biro1 - [migrate Typha pod affinity and anti-affinity](#)
- skmatti - [skip node annotations if in policy only mode](#)

April 12th, 2023

🛎️ Check-in / sneak peeks

- v3.25.1 is out!
  - Mismatch between FIPS requirements and some older versions
  - v3.25.2 is probably coming soon
  - Routing table scalability issues resolved - can now run many more pods per-node. Hooray!
- v3.26.0
  - Expected later this month. Next few weeks.
  - Windows server 2022 support
  - Openstack Yoga support
  - Big improvement to IPAM GC to reduce the memory footprint
- v3.24.6
  - BIRD improvements, other bug fixes that are already in v3.25 / v3.26
  - Coming right after v3.26.0
- eBPF
  - Improvement to speed of loading eBPF programs, refactor under way. Should reduce CPU and memory usage even more.
- Operator
  - Waiting on a Calico release for v3.24 series for fix to csi-daemonset tolerations.
    - This fix is already in v3.25 though

- - Looking into reducing the number of updates the operator makes to the Kubernetes API.
  - VPP
    - Focusing on performance optimizations for v3.26, aiming for shortly after.
    - Openshift install
  - Docs
    - Moved to a new place - no more docs in projectcalico/calico
    - Docs are now at github.com/tigera/docs
    - Links should continue to work though
- Community survey up on the [website](#) - please fill it out!

🔥 Hot issues

- Created an issue to discuss configuration - [#7497](#)

🤠 Calico heroes

- [@dilyevsky](#) - https://github.com/projectcalico/calico/pull/7433

🤪 Q & A / Stump the maintainer

- Issues with the operator helm chart, should they be opened against the operator or Calico?
  - Currently, issues will be routed to Calico
  - Eventually, we want to move the operator helm charts to the operator repo

March 8th, 2023

🛎️ Check-in / sneak peeks

- V3.25.1 release is soon
  - Bug fixes
  - s390x fixes
- v3.24.6 to come next with some fixes
  - CSI node driver has different tolerations that needed to be updated (different than calico-node)
- v3.26.0 expected toward the end of the month
  - Features being added are concrete yet
  - Openstack new version support (yoga)
  - Windows new version support
- Operator

- - PSPs needed in older versions of K8s. Needed to backport support
- eBPF
  - Speeding up dataplane programming (prerequisite for adding IPv6 support)
  - Added capability to dump out counters and policy, making BPF diagnosable like iptables has available.
- VPP
  - Released v3.25 and v3.25.1
  - Targeting for GA
    - CI and automated builds
    - Integrating with the FV tests
    - Exploring supporting Openshift and in CI
    - Features
      - Performance improvements
  - Following up on memif talk, exploring TCP performance improvements
- Been spending some time dealing with shorter lived tokens and the TokenRequestAPI

🤠 Calico heroes

- Uhtomas (on github) https://github.com/tigera/operator/pull/2518
  - The user found that they needed a mount path configurable and instead of just requesting the feature for the path to be configurable, they put up a PR with what they thought would work.

😜 Q & A / Stump the maintainer

Feb 8th, 2023

🛎️ Check-in / sneak peeks

- VPP
  - Working on stabilizing the release, running a little behind
  - Just a few bugs away from releasing

  - Blog post released! 🎉
    - High throughput Kubernetes cluster networking with the Calico/VPP dataplane and accelerated memif
- Calico OS 3.25 is out!
  - https://docs.tigera.io/calico/3.25/release-notes/

🛎️ Calico 3.24 check-in

- There will be patches for Calico OS 3.24

👀 Calico v3.26 sneak peek

- Separating calico-node from CNI service account, using rbac
- BGP filtering changes (more control)
- Support for Windows server 2022
- Failsafe ports are getting reworked to offer more capabilities.
- New Documentation site is up!! https://docs.tigera.io/
  - Your one stop shop for everything related to Calico!

🦸 Calico heroes

🤪 Q & A / Stump the maintainer

- VPP release
  -
- When Calico for windows host process installer will go to the general availability phase?
  - We were waiting for Kubernetes to GA it first, now that it is GA upstream. So anydays now.

Jan 11th, 2023

Happy New Year!

🛎️ Check-in / sneak peeks

- v3.25 status update
  - Cutting the release as we speak, a bit delayed due to last-minute fixes.
  - Upgrade improvements for very large clusters
    - Changes to Typha / calico-node rolling update
- v3.26
  - A number of features that were pushed out of v3.25 so we could focus on product stability
    - Separate cni / calico-node service accounts and RBAC
    - New external network API
    - BGP filtering
  - Still early days so scope is still changing
- 3.23 / 3.24 patch releases

- No exact timeline yet, but have a few fixes pending
- Fixes will be in v3.25 though
- eBPF
  - Mainline working on bug fix / stability - many showing up in v3.25
  - topology aware hints for eBPF kube-proxy implementation
- VPP
  - Release branch being cut very soon - similarly delayed by last-minute fixes
  - First POC FV tests - logic split between calico / vpp repos at the moment
- Nomad integration
  - Working cross node communication
  - Next step is getting label-based policies working
    - See if the CNI plugin includes any label / tag metadata - e.g., add a log line to print out the env vars and CNI config struct.
    - If it does, we can just merge that into Calico's WorkloadEndpoint
- Operator
  - Prometheus discovery Service to headless, reduce number of iptables rules
  - A few patch releases recently out

🦸 Calico heroes

- @cyclinder
  - dove into Linux kernel code and figured out that IPv6 VXLAN is only supported on kernel v3.12+: https://github.com/projectcalico/calico/issues/6877 and submitted a PR to update docs with this information: https://github.com/projectcalico/calico/pull/7150

Dec 14th, 2022

🛎 Check-in / sneak peeks

- v3.25
  - Release is going to be later than expected. Looking to be around December 22
  - scale improvements
  - Health reporting improvements and configuration for those
  - VPP work on scale improvements
    - Small issue with previous PR, the fix has been submitted
    - Improving and automating CI
    - Improving stability
    - Added support for BGP secrets (also backporting to v3.24)
    - Improve and rationalize API (which affects installation)
      - Allows customizing interface specs for workloads

- v3.26
  - Features promised for v3.25 that didn't make it are going to be in v3.25
  - BGP improvements
    - Adding import and export filters (Shaun thinks 😄)
  - Separate permissions for calico/node and CNI
- VPP

🔥 Hot issues

- [4509](#) Connect time load balancer issue: Recover when a UDP backend goes away

🥷 Calico heroes

⚒️ Demos

Nov. 9, 2022

🛎️ Check-in / sneak peeks

- Calico v3.25.0
  - Scheduled to land by the end of the year.
  - Small release
    - Looking to introduce some new selector expressions
      - Stepping stone to AdminNetworkPolicy
      - Select pods that share the same label that I have.
    - Windows HostProcess container-based install in AKS
    - Various smaller bugfixes
      - Full set of PRs:
        https://github.com/projectcalico/calico/pulls?q=is%3Aopen+is%3A
        pr+milestone%3A%22Calico+v3.25.0%22
- Calico v3.24 patch releases
  - v3.24.4
    - Issue with IP autodetection selecting VXLAN / Wireguard interfaces. Fixed in this patch.
  - v3.24.5
    - Fixes a BPF issue with a leaky map
  - v3.24.3
    - Fixes bug in calicoctl patch logic for annotations / labels.
- v3.23 patch releases are similar to v3.24 patch stream
  - Also updates to libraries to keep on top of CVEs.

- Operator / helm
  - Topology spread constraints (for typha and apiserver) configurable within the next operator release
- VPP
  - Improving code quality, polishing the beta in approach to GA
  - Scale testing optimizations. Removing direct watches, instead using updates from Felix (via Typha).
  - CI improvements
    - CodeQL, DependaBot, etc.
  - Move to a single configuration map to control per-pod interface configurations.
  - GA Tracker issue: https://github.com/projectcalico/calico/issues/4610

🔥 Hot issues

- https://github.com/projectcalico/calico/issues/6935 (main driving force behind v3.24.5)
- https://github.com/projectcalico/calico/issues/6927 (main driving force behind v3.24.4)

🦸 Calico heroes

- Casey is a villain
  - The road to hell is paved with good intentions.

🛠️ Demos

- GTSM support - Generalized TTL Security Mechanism
  - Protection against DDoS attack, rejects packets with invalid / unexpected TTLs
- Coming in v3.25.0

Sept 14th, 2022

🛎️ Check-in / sneak peeks

- Calico v3.25 is the next release
  - AdminNetworkPolicy
  - Ironed out a few details for other features as well.
    - New selector expressions in NetworkPolicy, one of the steps towards ANP.
      - Select workloads that share a label with me
  - Windows HostProcess containers
    - Currently in Tech Preview
    - Looking to bring that to GA since Microsoft GA'd support for it recently.

- ○ Smaller BGP features
  - ■ GTSM support - TTL
  - ■ https://www.rfc-editor.org/rfc/rfc5082
- v3.24.2 patch release
  - ○ Bugfix for IPAM checking capabilities.
  - ○ Helm chart image pull secrets bug fix
  - ○ kube-controller health check improvement
- v3.24.1 fixed some build issues
- Operator
  - ○ Migration work coming
    - ■ Ability to migrate NodeSelector and Affinities (and tolerations I think) https://github.com/tigera/operator/pull/2096
- VPP
  - ○ Support for multi-net, integration with Multus
  - ○ Focus on code quality
    - ■ Wireguard,
    - ■ Adding tests, CI
  - ○ Adding RPF checks
  - ○ Scale
    - ■ Removing some watchers and instead going through Felix
- OpenStack build
  - ○ Had an issue with the previous release and master builds of packages
  - ○ Fixed these recently.

🔥 Hot issues

- EKS / Helm issues:
  - https://github.com/projectcalico/calico/issues/5636
  - We should write our own EKS instructions, update the EKS docs to link to us.
-

🤯 Calico heroes

- muff1nman
  - Fixed VXLAN enablement for IPv6. Flag was incorrectly applying to both IP families instead of just IPv4 like it should have been.
- fasaxc
  - A whole spree of performance improvements over the last couple of weeks

🛠️ Demos

Splitting IP pools - available in Calico v3.24.0+

Aug 10th, 2022

Matt running the meeting :)
Attendees: Laurence, Pedro, Parth (Big Cat yay), Tomas, Erik, Walter (Big Cat yay), Nathan (Calico VPP integration), Andy (Calico VPP integration)

🛎️ Check-in / sneak peeks

- v3.24 release, expected any day now
    - Release branches are cut
    - Expanding IPv6 to include wireguard
    - IPAM block affinity available in read only API
    - Operator updates:
        - PodSecurityPolicy transition to PodSecurityStandards
        - Allow more installation flexibility for labels, affinity, toleration setting
- Patch releases
    - [v3.20.6](), [v3.21.6](), [v3.22.4](), [v3.23.3]()
    - CVE fixes mostly, check release notes for details
- v3.25 still discussing expected features
    - Sneak peek Calico support for Admin Network Policies
- Operator updates
    - Add status to controlling resources for the operator
- eBPF update
    - Improved diagnostics
        - policy dump
        - Counters for errors hit
        - Counters for rules hit and will show up in policy dumps (expected in v3.25)
        - Hopefully filters for policy dumps
    - Upgrades more seamless
    - Issue around connect time load balancer when DNS or service moved to a different IP. Almost done with a fix for the issue. (expected in v3.25)
    - IPv6 support being worked on
    - IPv4 options (expected in v3.25)
- VPP updates
    - Multiple network support being worked on
    - Expect update to follow v3.24 Calico release by a week

- Some Felix updates that will probably be in v3.25
- Verifying wireguard with IPv6 support

🔥 Hot issues

- Upgrade issue moving to v3.23 from an old version that didn't have fields specified
    - Empty encapsulation modes caused issues when upgrading
        - Fix expected in next round of patch releases
        - https://github.com/projectcalico/calico/issues/6442

🤑 Calico heroes

- Shout out to the Big Cats that joined the community meeting
- Cyclinder has been making some small updates and keeping us honest

🛠️ Demos

- IPv6 Wireguard
- Operator component configuration changes

May 11th, 2022

🛎️ Check-in / sneak peeks

- v3.23 released yesterday:
    - IPv6 VXLAN support added
    - VPP data plane is now beta
    - CSI support for Istio
    - Azure BYOCNI integration
- helm
    - v3.23 requires namespace to be specified, some upgrade steps required
- eBPF
    - Newer distros are moving to cgroup v2, which means CTLB doesn't get installed correctly. Fixes are coming and will be backported - also if no CTLB the host will be able to access services
- VPP, beta YAY
- Operator
    - IPv6 migration support in v3.23
    - Next release is planned to have a typha anti-affinity to spread replicas across zones

- Currently reporting the wrong status of some pods, reported in [Issue 1950](#) fix in this [PR 1951](#)
- CCO-L2-AZURE course releasing soon

🔥 Hot issues

- eBPF services not working v3.22 (fix identified and a patch is coming, v3.23 includes patch)
    - PR [6056](#)
- Helm chart issue in v3.23.0 (will patch)
    - PR [6062](#)

🤠 Calico heroes

- SheererJ for great work on improving auth token use by Calico, [PR 5910](#), THANK YOU!
- Yunhong Jiang Calculation graph improvements -
    - https://github.com/yunhjiang

🛠️ Demos

- None this week

Apr 13th, 2022

🛎️ Check-in / sneak peeks

- v3.23 in final stages, targeting a release this month (~25th)
  - Going through final code and test updates, code freeze target early next week
  - Noteworthy feature updates:
    - Adds IPv6 support for VXLAN
    - Updated storage configuration (?)
    - VPP going to beta status
    - Improvement to IPAM prometheus metrics
    - Operator helm chart updates to be more idiomatic with configurable namespaces
- Operator updates
  - Will support migrating IPv6 clusters to the operator
  - Additional options being worked on:
    - Typha affinity / selectors
    - Selector for calico-node
- eBPF updates
  - Incoming cgroupv2 issue needs a fix for newest CRI versions
    - eBPF assumes access to the root cgroup which is not guaranteed
  - Starting work on IPv6 support
  - Enhancements coming on BPF tables sizing
- VPP updates
  - Working on bugfixes for beta status, getting close to a stable 100% green CI
  - Experimental work ongoing on exposing multiple networks to pods

🔥 Hot issues

- #5684 - Under investigation, service account token related
- #5760 - Connectivity issue after upgrade - needs further investigation
- #5803 - node-exporter functionality integration in Calico - may not be ideal to duplicate already existing functionality
- #5851 - Needs more information
- #5819 - Trying to use an IPv6 /110 prefix which is too large. The CRD should validate the prefix length.
- #5855 - CoreDNS unable to resolve external domains - needs more information
- #5859 - Source IP is being NATed - kube-proxy limitation.
- There was a wireguard bootstrap race condition that could cause nodes to be unable to talk to typha. The fix will be available shortly.

🤩 Calico heroes

🛠️ Demos

Hedi Bouattour demonstrated experimental features in the VPP dataplane that allow pods to be connected to several independent, isolated networks!

Mar 9th, 2022

🛎️ Check-in / sneak peeks

- v3.22.1 released last week
  - Bug fixes:
    - Rebalancing for typha on large clusters fixed
    - Wireguard deadlock on startup fix
    - ipset for IPVS compatibility
  - Base images updated to UBI 8.5 and fixes CentOS repository
- v3.23.0 coming, current targeting mid-April:
  - BGP features (e.g. GR timer, passwords) coming to peers within cluster
  - AdminNetworkPolicy API alpha in next K8s release, so we are aiming to have some early access/alpha implementation to match
  - NetworkPolicy Status KEP -> some early access support/implementation
  - VPP aiming for beta
- Docs improvements for v3.23.0 will default to Operator instructions with the older manifest instructions still available
- Alara Ozturk announced the Calico Big Cats ambassador program! You can find it on our website.

🔥 Hot issues

- Issue triage:
  - #5664 - IPAM generating excessive API load bug
  - #5727 - Wireguard doesn't support IPv6 - this is an enhancement
  - #5725 - Support pluggable /opt/cni/bin/ - skip-cni-binaries does exist - Casey Davenport updated the issue
  - #4857/5712 - issue with "unauthorized" nodes unable to start pods after running stable for a significant period - still investigating
  - #5649 - Helm can now be installed in a namespace

🤠 Calico heroes

- Aceralon/Joseph Gu - etcd + k8s + CNI version updates - **THANK YOU!**
  https://github.com/projectcalico/calico/pull/5466

🛠️ Demos

- Matt Leung demoed BGP password and GR timers being available on a fullmesh in v3.23.0!

Feb 9th, 2022

🛎️ Check-in / sneak peeks

- v3.22 released, Jan 28th
  - Relatively small features, due to holidays and repo restructuring
  - Convert Kubernetes Policies to Calico Policies
    - https://github.com/projectcalico/calico/pull/5307
  - 1st release from mono repo
  - Release artifacts all now on github.com/projectcalico/calico
  - Added node IP auto-detection based on K8s IP address on the node
    - https://github.com/projectcalico/node/pull/1242
  - Support dual-stack host-local
    - https://github.com/projectcalico/calico/pull/5313
  - https://projectcalico.docs.tigera.io/release-notes/
- VPP
  - Didn't make v3.22.0 as beta, happy with the progress. Finding a few issues.
  - VPP team working on closing the issues.
  - Fixing end-to-end tests and cyclonus tests
  - Beta possibly in v3.22.1 or v3.23.0
- v3.20.4 and v3.19.4
  - Saw UBI image updates to address CVEs
  - v3.21 v3.22 did not have the CVEs
- v3.23 Date and scope TBD
  - Thinking about
    - IPv6 VXLAN and maybe wireguard
    - Kubernetes deprecations:
      - Flexvolume, PodDisruptionBudget, Endpoints slices (still using v1beta)
    - New Kubernetes APIs

- - - AdminNetworkPolicy, like GlobalNetworkPolicies but also a bit different (functionality and syntax)
      - NetworkPolicy status
    - BGP improvements
      - Node mesh: BGP password and configuring graceful restart timers
- Operator
  - Updates corresponding to v3.22 (Dual-stack host-local, K8s IP auto-detection)
  - Prevent calico-node from running on AWS Fargate nodes
  - TigeraStatus resource will only be deleted once if needed, previously the existence of the resource was not tracked so the operator would keep trying to delete it.
  - Fixed migration of IPTablesBackend when set to Auto

Jan 12th, 2022

🛎 Check-in / sneak peeks

- Patch release v3.21.3 being cut as we type -> mainly a highly recommended bugfix for Typha stalling issue (more detail below)
- v3.22 is approximately 2 weeks away from release:
  - Several bugfixes
  - Features:
    - VPP Beta
    - calicoctl Kubernetes NP -> Calico NP conversion
    - Kubernetes InternalIP autodetection method
    - Auto-HEPs have additional node IPs (learned from k8s node)
    - Dual-stack support for host-local IPAM
      - Casey needs to ensure that we relax validation on hostlocal and IPv6 and add the additional config to HostLocal CNI config when IPv6 is being used.
- VPP dataplane status:
  - Operator install with VPP coming soon!
  - Working on CI and manual test for this
  - FOSDEM session coming up!

🔥 Hot issues

- https://github.com/projectcalico/calico/issues/5173
  - This is the issue that caused the need for v3.21.3, it came down to a bug in client-go.
- https://github.com/projectcalico/calico/issues/5410

- ○ Marked as bug
- https://github.com/projectcalico/calico/issues/5398
    - ○ Next release will resolve by bumping go version
- https://github.com/projectcalico/calico/issues/5363
    - ○ Possibly just network connectivity
    - ○ Chris Tomkins will see if something exists to check existing basic reachability
- https://github.com/projectcalico/calico/issues/5356
    - ○ SELinux or permissions?
- https://github.com/projectcalico/calico/issues/5352
    - ○ Signs suggest not calico
- https://github.com/projectcalico/calico/issues/5227
    - ○ Something we could look at. Dikastes continues to run blocking pod shutdown
- For anyone wanting to make some changes to Calico we have a good-first-issue label that can be used to find an issue to get started updating the Calico code base.

🤠 Calico heroes

- Manuel Buil - Dual-stack for host-local plugin PR - THANK YOU!
- Stanislav Kolenkin - first CCO-L2-EBPF course finisher! CONGRATS!

⚒️ Demos

Explored the new repository layout -
- "everything" is now in projectcalico/calico
- individual components can still be made, but it's also possible to kick off a full build
- still some bits (e.g. some docs) to do
- more info/detail to follow from Chris Tomkins Casey Davenport

Dec. 8th, 2021

🛎️ Check-in / sneak peeks

- VPP operator PR
    - ○ Last comment re: FelixConfiguration Src/Dst check disabling
    - ○ Ideally, we move to setting this via API not via env var
        - ■ But, infra doesn't exist in operator yet
    - ○ EKS moving to remove the necessary IAM permissions
    - ○ For now, let's remove that env var and have users set it by hand
- VPP - Host policy coming to VPP very soon using current release version
- VPP - Performance improvements coming aligned with forthcoming Calico version
- VPP - Aloys presented a proposal about a new potential networking model supporting additional L3 networks

- Calico v3.22
  - Targeting late Jan
  - Refactor repository structure, to improve developer experience
  - VPP beta
  - Tool to convert Kubernetes policies to Calico policies
  - Bug fixes and other smaller enhancements

🔥 Hot issues

🥷 Calico heroes

- New IP autodetection work
  - https://github.com/hanamantagoudvk !

🛠️ Demos

- casey / shaun - developer improvements

November 10, 2021

🛎️ Check-in / sneak peeks

- v3.21 is out! Release notes
  - Service ingress policy and windows dataplane support
  - BGP Improvements: prefix advertisement toggle per IP pool
  - BGP status API
  - Run as non-root
  - IP reservation API: block certain IPs from being used for automatic allocations
  - Known issues:
    - OpenStack packaging issue
    - v3.21.1 in next week or so to fix
- v3.17/v3.18 patch releases with CVE fixes.
- v3.22 likely next year
- Operator:
  - v3.21: Typha auto-scaler change; always leave at least one node without a Typha if possible.
  - Can now manage CRDs (behind feature flag)
- VPP:
  - Host policy support in progress
  - Working on v3.21 support

- ○ Working on memif performance
- ○ Envoy integration
- ○ Operator PR: Casey promises
- ● Calico Live survey
  - ○ https://www.surveymonkey.co.uk/r/DLG9FKW

🔥 Hot issues

Did some triage

🤠 Calico heroes

- ● [Shaun] Peter Salanki - for help diagnosing eBPF issues and testing
- ● [Erik] Steve Hipwell - for submitting PR to update to system critical priority classes
  - ○ https://github.com/tigera/operator/pull/1473
  - ○ Add to operator deployment?
  - ○ https://github.com/stevehipwell
  - ○ Should we add to the operator itself?

🛠️ Demos

- ● Matt: service-based policy at ingress

Sept 8, 2021

🛎️ Release check-in / sneak peeks

- ● V3.21
  - ○ Targeting end of October
  - ○ Adding more Service NetworkPolicy features, ingress and Windows support
    - ■ Switching to v1 from v1beta1
  - ○ Working on running Calico as non-root (with some limited capabilities)
  - ○ Looking to remove portmap plugin dependency
    - ■ 1st bit of work for this has been merged
  - ○ Auto Host Endpoint controller improvements
    - ■ Add additional IP addresses to Endpoints?
  - ○ Docs update:
    - ■ Operator will be come preferred installation method
  - ○ May still see some changes to this list
- ● ARM work
  - ○ Started with adding an arm node to a eBPF cluster
  - ○ Changes are merged for operator
  - ○ Changes still in progress for API server

- ○ Need to still update Calico to support multi-arch on quay
- KubeCon talk in October:
  - ○ KubeCon Calico/VPP: Using Calico's Pluggable Dataplanes for Fun and Fast Networking
- Open Networking & Edge Summit 2021:
  - ○ "Low Trust Edge Network? No Problem - Get Great Performance and Security Using Calico, VPP, and WireGuard"
- VPP updates
  - ○ New release to go with Calico v3.20
    - ■ Kind support
    - ■ Service based Policy
    - ■ Changed buffers with large MTUs
  - ○ Next release
    - ■ Getting rid of port map plugin
    - ■ Working on integration with operator
    - ■ Multi-interface support work
    - ■ Memif support

🔥 Hot issues

- Autoscaling clusters to a few nodes (<3) is problematic with typha because typha can't be evicted since there are no nodes that can accept typha.
  - ○ Related issue upgrading nodes in clouds with small clusters can see the same where a new node replacement might see typha deployed but then the old node can't be deleted because typha can't be evicted.
  - ○ This is https://github.com/projectcalico/calico/issues/4695 and https://github.com/tigera/operator/issues/1441
  - ○ Discussed whether directing typha to particular nodes is a good path forward.
  - ○ Discussed tolerations in a bootstrapping scenario - this is related to why typha is so tolerant
  - ○ What we should maybe do
    - ■ Add toleration configuration to operator API
    - ■ Look for safer typha toleration default
    - ■ Consider reducing Typha scale on small clusters
- BPF issue 4509 - routing not updated when coredns rescheduled - Shaun to take another look.

🤴 Calico heroes

- ●

🛠️ Demos

Aug 11, 2021

🛎️ Release check-in / sneak peeks

- Calico 3.20 released July 30th!
  - IPAM GC improvements
  - Prevented scheduling of pods to nodes being updated
  - Support for configuring BGP GR timers
  - eBPF DP now supports some rules in XDP
  - Policy for services in some scenarios
  - Golang API
  - Helm chart published
  - Extended Wireguard support for AKS with Azure CNI
- VPP:
  - Working on 3.20 calico/vpp release which should include :
  - EKS/AWS interrupt mode polishing
  - Hostport fixes
  - AKS support
  - Support for multiple interfaces
  - Memif (packet interfaces) & VCL (VPP hoststack) support
- Operator:
  - Planning a future switch to using system-*-critical priority classes for Calico pod scheduling as this is available in non-"kube-system" namespaces in K8s since K8s v1.17.

🔥 Hot issues

- Termination grace period issue (https://github.com/projectcalico/calico/issues/4518) fix in 3.20 and backported to 3.19 (released)/3.18/3.17/3.16
- [question (jay, amim, friedrich)] Windows , vxlan, bgp, calico-node ps1

🦸 Calico heroes

- Joaquin Menchaca - for blog posts
  - AKS with Calico Network Policies
  - 🎥 AKS with Linkerd Service Mesh
  - AKS with Istio service mesh
- Mark Hindess - thank you for the support with the stateful set issue!

🛠️ Demos

- v3.20 service policy

July 14, 2021

🛎️ Release check-in / sneak peeks

- Calico v3.20:
  - Status: still expected mid-late July
  - Work continues.
    - BGP status to be exposed via API server
      - Open bug with apiserver and Network policy - hoping to fix
    - IPAM GC
      - Code is in, in kubecontrollers, removes leaked IPs
    - calico-node will mark nodes as unavailable when it's not running (better e.g. for upgrades)
    - Helm chart repository is in master docs already, but not officially! Working fine.
    - Make BGP graceful restart timer configurable - will be in OSS
      - maxRestartTime field in BGPPeer
    - Services in NetworkPolicy - egress to API server
  - Web site has been updated!
    - Please report any breakages (#website in Calico Users Slack) :)
- ARM64 BPF work
  - PR up to enable cross-compilation https://github.com/projectcalico/node/pull/1044
  - Should work :)
  - Feedback welcome

🔥 Hot issues

- CRIO bugs (CRIO not calling teardown on containers in certain scenarios)
  - fix still in the works upstream
  - Still pending testing
  - Also working on Calico-side mitigation (garbage collection)
- Non-Calico CNI loss of connectivity during termination grace period
  - Side effect of a different fix in v3.16 (pods stuck in terminating state would keep their IPs).
  - Fix in master, committed for v3.20.
  - Being backported to 3.16+

-

🤠 Calico heroes

- Nikola Sepentulevski - great [LinkedIn blog post](#) about Non-Calico CNI loss of connectivity during termination grace period ([GH issue 4518](#))
- Igor Zhivilo - informative post ["Network policy and Calico CNI to Secure a Kubernetes cluster"](#)
-

🛠️ Demos

- None

Anyone have any ideas for how we can make this meeting more useful? Feedback to Chris please.

June 9, 2021

🛎️ Release check-in / sneak peeks

- Calico 3.19.1
  - Released mid-May, bugfix for long service account names (>63 characters)
- Calico v3.20
  - Expected mid to late July
  - Continuation of removing calicoctl requirement:
    - BGP status to be exposed via API server
  - IPAM garbage collection improvements:
    - continuous rather than relying on deletion
    - releasing of empty blocks that are being held
  - calico-node will mark nodes as unavailable when it's not running (better e.g. for upgrades)
  - Helm chart repository to simplify the process
  - NP/Service - probably starting with NP for egress to API server
- eBPF
  - do-not-track policy coming, but maybe not in 3.20
- VPP
  - 3.19.1
    - matching release coming soon
    - Fix for IPSec when MTU larger than buffer size
    - Patch to enable interrupt mode on AWS
    - Additional drivers for vmxnet3 and Mellanox

- - - Performance improvement for Wireguard
    - 3.20
      - working on support for memif
      - Also working on VCL support (a.k.a using VPP hoststack)
- Operator
  - 3.19 image patched with imagePrefix feature
  - Node startup timeout extended
- New Calico course
  - tigera.io/lp/calico-certification / tigera.io/free-training-resources
  - New "Certified Calico Operator: AWS Expert" course

🔥 Hot issues

- Crio bug: not calling teardown in several cases
  - Fix in progress upstream
  - Calico working on mitigations for this type of bug
- VXLAN offloading bug
  - Picked to v3.19, it'll be in v3.19.2 and v3.20
  - Detect kernel of affected versions and disable offload in those cases

🦸 Calico heroes

- Marc Crebassa - aalaesar (on Github) - ARMv7 build infrastructure
- Holger Winkelmann - kicking the tires on VPP

🛠 Demos

- Song - new NetworkUnavailable taint

May 12, 2021

🛎 Release check-in / sneak peeks

- Calico v3.19
  - VPP work
  - Containerd work
  - API server
  - eBPF work and integration with operator
  - Patch release coming end of next week
    - Bug fix with Service account names (issue with long names)
- Calico v3.20
  - Calicoctl removal work (not really removing calicoctl)
    - Enable manipulation of Calico resources with kubectl

- - Node rolling behavior (stop pod scheduling)
- VPP
  - Tech preview in v3.19
  - EKS support for interrupt mode with DPDK in next release
  - Exposing packet processing interfaces in pods
  - Bug fixes too
- Operator
  - Update to migration code to ignore old resources that are being deleted (they have a deletion timestamp)
  - Added requiredWhenScheduling affinity for typha. The recommendation is to NOT use required affinity unless you know what you are doing as you could potentially break your cluster if you don't have enough typha pods.

🔥 Hot issues

- cri-o bug update
  - Fixes going through upstream
- Bug with calico not respecting termination grace periods, reverted changes for respecting grace periods.

🥷 Calico heroes

- Aloys, Nathan, Lance, Chris for getting VPP tech preview working
- Paul for submitting https://github.com/tigera/operator/pull/1289
  - Migration update to ignore resources with deletion timestamp
- Wojciech for submitting https://github.com/tigera/operator/pull/1286
  - Adding requiredWhenScheduling affinity for typha

🛠️ Demos

- Calico API server and usage of kubectl for editing Calico resources

Apr 14, 2021

🛎️ Release check-in / sneak peeks

- V3.19:
  - Likely this month, experienced some delays (late week 19th, early week 26th)
  - Tech preview:
    - VPP dataplane
    - K8s NP endport field support (alpha in K8s)
    - Remove dependence on calicoctl 🔥 🔥

- ○ Run calico/node unprivileged
- ○ containerd support for Windows
- ● VPP:
  - ○ Now runs in a separate daemonset
  - ○ Bugfixes to improve behaviour on EKS, EC2, GCE
  - ○ Some other improvements, inc DPDK support on EKS
- ● Operator:
  - ○ More eBPF dataplane configuration exposed:
    - ■ Volume mounts
  - ○ Amazon EKS manifests now use an operator based install

🔥 Hot issues

- ● CRI-O 😭bugs (not calling CNI plugin for teardown correctly, causing IPAM leak and potentially any other resource - affects Openshift):
  - ○ https://github.com/cri-o/cri-o/issues/4719
  - ○ https://github.com/cri-o/cri-o/issues/4727
- ● Termination grace period not being honoured (traffic blocked instantly on termination if using a non-Calico CNI):
  - ○ https://github.com/projectcalico/libcalico-go/pull/1397

🤑 Calico heroes

- ● 🤩🤩Ricardo Katz - endPort support (alpha feature in k8s)
  - ○ https://github.com/projectcalico/felix/pull/2754
- ● 🤩🤩Matt Fenwick - empty port parsing fix.
  - ○ https://github.com/projectcalico/libcalico-go/pull/1370
- ● 🤩🤩Lance Robson - helping Aloys and the VPP team!

🛠 Demos

- ● Matt Fenwick - Cyclonus

❓ AOB

Mar 10, 2021

🛎 Release check-in / sneak peeks

- ● V3.19.0
  - ○ Tentatively mid-April.
  - ○ Hoping to reduce calicoctl dependency
  - ○ VPP dataplane integration preview

- ○ Calico-node non-root/reduce privileges
- ○ Some Windows improvements TBC
- ● V3.18
  - ○ Released 22nd Feb.
  - ○ V3.18.1 patch release coming.
- ● v3.17 / v3.16 patch releases
  - ○ Felix -> Typha updates for TLS v1.2
  - ○ Fix a flannel to Calico migration
- ● Operator
  - ○ Adding special migration code to handle scenarios with just a few nodes where there isn't enough room for all typhas to be deployed
  - ○ Adding operator configuration for typha prometheus
- ● VPP improvements
  - ○ Making it deployable with Operator
  - ○ DSR support
  - ○ Consider Maglev NLB
- ● Calico Cloud
  - ○ [Learn more](#)
  - ○ [Try it out](#)

🔥 Hot issues

- ● [2923](#) - Support using kubectl for Calico resources
- ● eBPF mode, in EKS, with AWS VPC CNI, pod attached to secondary ENI, node port, load balancing chooses local pod: connection dropped due to RPF check mismatch.

🧑‍🎤 Calico heroes

- ● Lars Ekman - diagnosing upstream issues!
- ● kgtw/Chris G - improvements to failsafe handling

⚒️ Demos

- ● Per-node Certificates for calico/node -> Typha

Feb 10, 2021

🛎️ Release check-in / sneak peeks

- ● v3.18.0

- - - Expected in the next week and a half
    - Service advertisement for LBs and controlling restricting nodes advertising
    - eBPF Host Endpoints
    - IPAM metrics exposed through prometheus
    - New calicoctl ipam check command available
    - Helm Chart available
- v3.15.4, 3.16.7, 3.17.2
    - Fix upgrade issue with etcd to kdd migration, where some namespaced resources were not migrated.
- 3.17.2
    - CVE fixes
- Next v3.17 patch release
    - Will include IPAM migration fix (localhost to Calico IPAM)
- Talk from Aloys and Casey about VPP and wireguard (link to be added later)
- VPP
    - v0.12
        - Auto MTU support
        - Interrupt mode default now, better CPU usage
        - Full support for Policies
        - Draft PR for inclusion on docs
    - Looking at integration with operator
    - Looking at Load balancing integration
- Operator v1.15 (Calico v3.18)
    - Per-node certificate capabilities, uses k8s CSR capabilities.
    - New ImageSet resource, can specify images.
    - Ability to specify tolerations for kube-controllers.
    - Configurable Typha affinity to prefer scheduling to certain nodes.
- Other stuff
    - Operator API documentation improvements - better auto-generation (!)
    - Operator images automatically built from tags, was broken, is now fixed.

🔥 Hot issues

- eBPF mode and DNS and conntrack (might not be eBPF specific)
    - Node local DNS cache may cause problems with Host Endpoint policy
-

🤠 Calico heroes

- Turk for fixing operator release
    - Villain Erik for breaking it (and fixing it again)
- Shaun for getting IPAM check command of calicoctl off the ground and Casey for polishing it.

- Casey for cleaning up Host Endpoints when a Node is deleted

🛠️ Demos

IPAM metrics

Jan 13, 2021

🛎️ Release check-in / sneak peeks

- **v3.18** (mid-Feb)
  - Service Advertisement: Advertise LB IP addresses
  - Service Advertisement: Exclude nodes from advertisement
  - BPF: host endpoints
  - IPAM diagnostics
- **v3.16.6**
  - "Rebuild" with CVE fixes for SSL
- **Operator:**
  - Ability to reference image by digest
  - Tolerations control to go with node selectors
  - Typha affinity
- **VPP**
  - v0.11
  - Policy
  - k8s policies supported, working on Calico policies
  - Fixes:
    - containerd compat
    - Calico v3.17.1
  - Coming up:
    - Full policy support
    - Maglev lb
    - Operator integration?
    - FOSDEM talk Feb 7th (Tech dexep dive)
    - Interrupt mode (avoid busy loop); good numbers with wireguard and IPsec
- "Certified Calico Operator Level 1" training course now live and open to the public
  - https://academy.tigera.io/
  - 3k+ students so far
  - Feedback welcome!

🔥 Hot issues

- API server heartbeat issue:

- ○ API machinery v1.19.x released with fix
- ○ Calico updated to pull in the fix (on master); will be in v3.18
- ● "Calico - Magical Girls Running Cat Cafes" Game issues 🤣
  - ○ Capybara quest softlock#4282
  - ○ Secret of the witching woods quest glitch calico#4285
  - ○ Dapper doves do dastardly deeds quest not working calico#4286

🤑 Calico heroes

[Casey] Reza: continued development in improving calicoctl
- ● --context
- ● -A

[Casey] Rikardo Katz - Kubernetes NetworkPolicy port-range support
  https://github.com/projectcalico/kube-controllers/pull/600

[Shaun] Arian: Developing an admission controller for stateful set IP allocation

[Erik] moycat (github user): Found bug in operator around IPv6 enabling and put up PR to fix it.
  https://github.com/tigera/operator/pull/1038

[Brad] Shoutout to Casey for fixing HEP cleanup

🛠️ Demos

Richard Kovacs: Route Reflector controller
https://mhmxs.blogspot.com/2020/12/autoscaling-calico-route-reflector.html

Dec. 9, 2020

🛎️ Release check-in / sneak peeks

- - Calico v3.17
    - - Auto MTU
    - - v3.17.1 patch this week:
        - - src/dest check fix
        - - kube-controllers running non-root
        - - Bpf node port fix for host-networked pods
- - Calico v3.18
    - - Auto MTU for running pods
    - - Service advertising for LoadBalancer IPs
    - - Control which nodes we advertise service IPs from
- - Kubecon talk on VPP integration
    - - The recording is up:
        https://www.youtube.com/watch?v=tPnqFx32rW4&list=PLj6h78yzYM2Pn8RxfLh2qrXBDftr6Qjut&index=127

- Free Calico training is available now: academy.tigera.io
- VPP released 0.10
    - Wireguard support
    - Alpha policies support
    - Auto driver detection
    - Working on k8s testing
    - MTU updates
- Operator
    - Patch resources instead of updating
    - Opt-in image registry
    - node-selector/tolerations changes

🔥 Hot issues

- Upstream API server heartbeat fix merged to 1.19 (not released yet)
    - Not in Calico release yet
- eBPF nodeport forwarding with loadbalancers
    - Traffic flows but LBs fail health checks
- Leaking pod IPs

🤠 Calico heroes

- Steve Harris: helping us diagnose eBPF issues, getting us traces

🛠 Demos

Nov. 11, 2020

🛎 Release check-in / sneak peeks

- Patch releases **v3.16.5**:
    - Fix for etcd mode after compaction
    - Install issue for CNI plugin
- v3.17
    - Next week
    - Automatic MTU support(!) 🎉
    - Windows: BGP and extra platforms (Rancher, Openshift)
    - Service advertisement loop prevention
- Kubecon talk

- - https://kccncna20.sched.com/event/ekCQ/all-you-can-eat-networking-kubernetes-goodness-for-the-hungriest-workloads-aloys-augustin-cisco-casey-davenport-tigera
  - Aloys and Casey
  - Nov 17th, 2:55pm ET
- VPP
  - v0.8.2 Reconciliation + perf tweaks
  - Policy implementation in progress
  - Service IP NAT perf improvements
  - Hoping for release before end of year
  - Auto MTU integration after v3.17 ships?
- Operator
  - Nothing today
  - Focus is on migration (from manifest installs to operator)

🔥 Hot issues

- BPF + AWS NLB/EKS
- Updated supported versions of Istio

🦸 Calico heroes

- [Casey] Aloys - awesome job on KubeCon talk!

🛠️ Demos

- [Erik] Manifest -> Operator migration

Oct. 14, 2020

🛎️ Release check-in / sneak peeks

- v3.17 in progress, eta mid-late november
  - Windows BGP networking support
  - Additional platform support (openshift, rancher)
  - Auto-MTU calculation
- v3.16.x patch releases
  - Kdd migration fixes
  - BGP password support
- Now in master: migrating manifest-based installation to operator-managed
  - Parse config from existing resources, update the Installation resource accordingly, or block if incompatible, reporting through tigerastatus

- Any feedback from community, especially on if it starts a migration but fails, is welcome!
- VPP
    - Working on implementing calico networkpolicy (eta 2-3 weeks)
    - Prepping for kubecon talk
        - Around kube-benchmarker

🔥 Hot issues

- Same APIServer connections as last week
  https://github.com/kubernetes/kubernetes/issues/87615
    -

🤑 Calico heroes

- (casey nominates) weizhoublue
    - For digging in and submitting a fix for a weird panic caused by bad logic in our ipv6 to bigint conversion code
- (erik nominates) Richard Kovacs
    - For submitting a route-reflector autoscaler in kube-controllers.
    - Has always been a nice-to-have, and now it's a have!
- (shaun nominates) Josh Reich
    - For digging into a weird issue involved with our move to from:scratch, and identifying the exact line in questions
- (turk nominates) Brian McMahon
    - For all the automation work he's been doing in the repositories, like "auto-merge approved & passing PRs", and "automatic pin updates".

🛠️ Demos

- Casey: auto-mtu
    - Merging to master soon, included in calico v3.17

🤪 Q & A / Ask the maintainer

Sept 9, 2020

🛎️ Release check-in / sneak peeks

- Calico v3.16.0 released
    - eBPF now GA
    - Windows VXLAN and network policy

- - BGP community strings
  - BGP port selection (maybe metallb compatibility?)
- Calico patch releases v3.16.1
  - install-cni scratch container fixes (etcd certs and nodename)
  - flannel migration bugfixes
  - configurable iptables rules for VXLAN/IPIP drop rules (v3.15.3 too) - allows Calico k8s to run on top of Calico Openstack. Remember to put policy in place to limit
- Calico v3.17.0
  - Scope and date TBD
  - Auto MTU (finally, we hope!)
  - calicoctl will default to Kubernetes API Datastore
    - default to using the same config as kubectl
    - If ETCD_ENDPOINTS set, autodetects etcd mode
- Calico VPP
  - v0.8 last time
  - Bug in NAT outgoing on EKS
  - tap to tun switch (no need for dummy MACs)
  - v0.9… policies; wireguard; NAT for ICMP fixes; AF_XDP for compatibility
- Operator
  - Mid-certification with Red Hat for Catalogue

🔥 Hot issues

- Cluster upgrade causes connections to drop to API server.
  - https://github.com/kubernetes/kubernetes/issues/87615 ?
- v3.16.0 CNI install; fix now released in v3.16.1

🤑 Calico heroes

- (Casey nominated) Song! Mr Windows for v3.16; pretty big job!
- (Erik) Reza: for calicoctl plugin for kubectl and docs for microk8s https://docs.projectcalico.org/getting-started/kubernetes/microk8s
- (Neil) https://github.com/fionera. He/she reported a dual stack floating IP issue on Calico Users, worked through the investigation with me, then followed through with the required CNI plugin fix + test, which I've just merged today

🛠️ Demos

- calicoctl plugin for kubectl planned for v3.17
  - calicoctl now defaults to Kubernetes mode so works as a kubectl plugin
  - superficial change right now but opportunity for more integration later

```
✓ casey-update-libcalico ?  sudo cp ./bin/calicoctl-linux-amd64 /usr/local/bin/kubectl-calico    1 ↵  10070  09:32:01
[sudo] password for casey:
~/repos/gopath/src/github.com/projectcalico/calicoctl                                             ✓  10071  09:32:06
✓ casey-update-libcalico ?
~/repos/gopath/src/github.com/projectcalico/calicoctl                                             ✓  10071  09:32:07
✓ casey-update-libcalico ?  kubectl calico get gnp -o yaml
^C
~/repos/gopath/src/github.com/projectcalico/calicoctl
✓ casey-update-libcalico ?  unset ETCD_ENDPOINTS                                          SIGINT(2) ↵ 10072  09:32:14
~/repos/gopath/src/github.com/projectcalico/calicoctl
✓ casey-update-libcalico ?  kubectl calico get gnp -o yaml                                         ✓  10073  09:32:16
apiVersion: projectcalico.org/v3
items:
- apiVersion: projectcalico.org/v3
  kind: GlobalNetworkPolicy
  metadata:
    creationTimestamp: "2020-09-09T15:52:12Z"
    name: allow-all
    resourceVersion: "7650"
    uid: 11b3ef1a-389b-44a8-bffa-884331794828
  spec:
    egress:
    - action: Allow
      destination: {}
      source: {}
    ingress:
    - action: Allow
      destination: {}
      source: {}
    selector: role == 'database'
    types:
    - Ingress
    - Egress
kind: GlobalNetworkPolicyList
metadata:
  resourceVersion: "13921"
~/repos/gopath/src/github.com/projectcalico/calicoctl
✓ casey-update-libcalico ?  kubectl calico ipam show                                              ✓  10074  09:32:18
+----------+----------------+------------+-------------+----------------+
| GROUPING |      CIDR      | IPS TOTAL  | IPS IN USE  |   IPS FREE     |
+----------+----------------+------------+-------------+----------------+
| IP Pool  | 192.168.0.0/16 |   65536    |   12 (0%)   | 65524 (100%)   |
+----------+----------------+------------+-------------+----------------+

0 k8s-  1:calicoct*                                                                            09/09  09:32:56
```

😜 Q & A / Ask the maintainer

- No further business

Aug 12, 2020

🛎 Release check-in / sneak peeks

- Calico v3.15.2
  - Near future patch release
  - Base image changes, remove unnecessary packages
  - Node IP changes for when nodes are using DHCP
- Calico v3.16.0
  - Imminent (next week)
  - Windows, deliver calico for windows
    - Networking and policy
    - VXLAN currently
  - eBPF data plane to be GA
    - Working on robustness and fixing things
  - BGP community string advertisement now in API
  - On AWS Calico can configure Source/Destination checks, new FelixConfig option
  - Several other Bug fixes/improvements too
- Calico VPP update
  - Latest release 0.6 based on 3.15

- - Added kustomize script for deployment
    - Adaptive mode is default
    - NAT outgoing support
    - Started work on dual stack
    - Next week 0.7
    - 0.8 expected mid-september
- Operator
  - Focussing on migration from manifest based installs to operator install. Read the config from existing install and translate into operator configuration. tech-preview-migrate-install (?) branch.
  - Adding additional networking modes, EKS support for Amazon VPC CNI and Calico CNI

🔥 Hot issues

- Calico node takes a long time to recover when the k8s API server goes away. Issue with k8s API library, being fixed upstream. (Debugged by Youson Zhou - hero!)

🤠 Calico heroes

- Yousong Zhou for reporting the above Hot Issue
- Steve Harris for being persistent on his flannel to calico migration
- Jesper Dangaard Brouer for a drive by PR for how we build bpf programs

🛠 Demos

- Calico for Windows

🤪 Q & A / Ask the maintainer

- Which components in Calico are responsible for setting up initial configuration of IP pools? What are the considerations when trying to migrate from canal to calico?
- What is the reason that only Felix uses Typha? Answer: Confd and tunnel IP allocator components use Typha too in more recent versions of Calico.

July 8, 2020

🛎 Release check-in / sneak peeks

- Calico 3.15 release
  - Released June 19th
  - General Availability of wireguard encryption

- - ○ Added procedure for migrating etcd to kubernetes datastore
    - ○ Updated Quickstart guide to use Operator
    - ○ OpenStack usuri support
    - ○ Bug with release v3.15.0 around service advertisement, fixed with v3.15.1
  - Calico 3.16 sneak peek
    - ○ Expect Mid-August
    - ○ Looking to add
      - ■ Auto detection of MTU
      - ■ Setting BGP community strings
      - ■ Cleanups around base images
      - ■ eBPF to GA status
  - Operator updates
    - ○ Resource requests and limits (typha, calico-node, kube-controllers)
    - ○ Image references switched back to tags
  - VPP
    - ○ Moved to incubation status under Calico
    - ○ Updating to Calico v3.15
    - ○ Working on Adaptive mode (adjust CPU consumption to be based on load)
    - ○ Moving to tun interfaces
    - ○ Services improvements
      - ■ NodePorts implemented
      - ■ Might be some code that can be reused from the BPF dataplane implementation

🔥 Hot issues

- Service advertisement issue in v3.15.0 (only release with the issue)
  - ○ Fixed in v3.15.1

🤓 Calico heroes

- Reza Ramezanpour: Added in-line tabs to the docs. Exciting
- Lars Ekman: Contributing to felix a feature detection override system. Can override something Felix detects isn't available.
- Uwe Krueger: Adding new interface detection method filtering using IPs matching CIDR
- c6h3un: fix RBAC doc rules for etcdv3 paths needed for hostendpoint & kubecontrollerconfigurations.
- Hakman: Remove duplicate FELIX_WIREGARDMTU entry
- Shaun C: Helping out an IBM user that had filled up an etcd datastore

🛠️ Demos

- Calico datastore migration from etcd to kdd/kubernetes
  - Migration done with calicoctl
  - Migration can be done without taking down cluster
    - Lock datastore, blocks new pods from being created by blocking CNI
    - Export data
    - Switch to kubernetes datastore config (for calicoctl)
    - Import data
    - Check data has been migrated over
    - Apply manifest to convert calico install to Kubernetes datastore
    - Wait for node pods to restart. Kube-controllers pod will be stuck in ContainerCreating until datastore is unlocked
    - Unlock datastore
    - Enjoy

😜 Q & A / Ask the maintainer

- When will the operator be supported on more platforms?
  - There is some ground work going on to expand the configuration options available with the operator before expanding the supported platforms.
  - There is active work going on to expand the configurations available with the operator.

July 8, 2020

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June 10, 2020

🛎 Release check-in / sneak peeks

- Calico 3.15
  - Release is imminent
  - etcd to kdd migration complete
    - https://github.com/projectcalico/calicoctl/pull/2133
  - Promoting CRDs from v1beta to v1
    - https://github.com/projectcalico/libcalico-go/pull/1237
    - Brings some validation
  - WireGuard encryption GA (nodeport support)
  - Calico can configure AWS source/destination checks
  - Performance improvements
    - IPTables optimizations
    - Reduce number of GET requests Typha is making against the K8s API
- Calico 3.14.1
  - CVE - Impacts all CNI plugins
    - https://github.com/kubernetes/kubernetes/issues/91507
    - Fixed to disable IPv6 router advertisements
    - Fixes all the way back from Calico 3.14.1 to 3.8
- Route reflector operator
  - Documentation is finished
    - https://github.com/mhmxs/calico-route-reflector-operator-proposal/
  - Four different topologies covered
  - POC that can scale route reflectors but doesn't take care on BGPPeers
    - V0.0.1 https://github.com/mhmxs/calico-route-reflector-operator
  - Second case can scale in multi-cluster topology with BGPPeers
    - Coming in the next couple of days

- ○ Next step to integrate into core Calico projects
- VPP
  - ○ Full POC for pod to pod encryption with ipsec
    - ■ 40Gbps IPSEC blog post: https://medium.com/fd-io-vpp/getting-to-40g-encrypted-container-networking-with-calico-vpp-on-commodity-hardware-d7144e52659a
  - ○ 3.15 will be more configurable, VPP is lagging behind on 3.9, but making progress on getting up to date
- Operator
  - ○ Updated quickstart guide in master and soon to be released 3.15 to use the operator-based installation.

🔥 Hot issues

- Connecting to services with no endpoints, that connection should be rejected. Calico is not up to spec and times out. Accepts default egress behavior and doesn't hit the KubeProxy rule that comes later and rejects it.
  - ○ https://github.com/projectcalico/calico/issues/1055
  - ○ Unsure of what the fix is, but ideas being considered in issue
- Failsafe port for connections to Typha, hopefully adding soon
  - ○ You can change Felix default failsafe ports during configuration
  - ○ We will update the default list as well (tcp 5473).
  - ○ Operator installs Typha by default, so something to consider
- Wireguard tech preview
  - ○ Need new docs in place to correctly configure MTU

🤓 Calico heroes

- Ricardo Katz
  - ○ Keeps trying out patches and experimental builds, giving loads of feedback to Shaun.
- Jonathan Bryant
  - ○ Many thanks for participating in the Calico user research group
- Alexis Ducastel
  - ○ Keeping us honest by putting Calico through its paces for perf testing
  - ○ In 3.16 automatic MTU is coming! :-)
  - ○ Wireguard adds overhead for MTU? Plans for handling that?

🛠️ Demos

- Cluster API - Jason DeTiberus

😛 Q & A / Ask the maintainer

- Jason answered various questions about Cluster API
- Nirman: can we continue to do PRs for s390x? - yes please do
- Alexis: gave an overview of the CNI performance benchmarking he's working on

May 13, 2020

🛎 Release check-in / sneak peeks

- Calico v3.14 🥧 (just released - May 7)
  - Automatic Host Endpoints
    - Demo from last month's meeting https://youtu.be/0lcgUpl-Rsg
  - Policy changes for wildcard host endpoints
  - Encryption/Wireguard tech preview
- Calico v3.15 (coming soon)
  - Promote Encryption to GA
  - Switch cluster from etcd to kubernetes (or v3.16)
  - Selector for host endpoints
- Docs Google search improvements
  - Improved archiving of older release docs so web searches show more recent versions of pages

🔥 Hot issues

- Typha performing too many GET requests against API server
  - Original issue: https://github.com/projectcalico/cni-plugin/issues/838

🤓 Calico heroes

- Jessica Deen - https://www.youtube.com/watch?v=0zCHtrEJ9Bc
- Reza Ramezanpour - https://github.com/projectcalico/calico/pull/3434 -https://github.com/projectcalico/calico/pull/3472
- Richard Kovacs - Route reflector operator and on updating Calico hard way
- Erik Stidham - helping Brad and friends get going with the Calico operator
- Nirman Narang - s390x support for go build

🛠 Demo

- Wireguard encryption - Guarav Khatri

😛 Q & A / Ask the maintainer

- Nirman(@nirmannarang): go-build s390x Arch related changes merged to master branch already [PR 104](#), when can we expect go-build:s390x image to be released? Most of the modules use go-build arch based image as base image for building their docker images.
- Do I need to cherry pick the commits and push them to release branch or this shall be done by the maintainers of calico only?
  There are changes needed wrt s390x for many modules of calico, but until go-build:s390x image gets released they won't be tested in the CI. Shall I wait for go-build:s390x image to be released and then push my changes for other calico modules or I can do it right away?

April 8, 2020

- Community members - feel free to propose topics here in the document with your username, or reach out to @caseydavenport in the Calico Slack!

🛎 Calico release check-in

- Released two patch releases for 3.13
    - eBPF and base image
- Upcoming 3.14
    - Auto-creation of HostEndpoints
        - Uses wildcard HEPs
    - Supporting 'normal policy' on HEPs (i.e. not pre-dnat only)
    - Host-to-host encryption support
    - Well-defined interface for CNI plugin (for developers)

🔥 Hot issues

- Plugged IP tunl address leak
    - https://github.com/projectcalico/calico/issues/1195
- VXLAN, Felix doesn't push all routes out.
    - https://github.com/projectcalico/calico/issues/3231
    - Many thanks to Tommasso Pozzetti for reporting this issue
- Resolving flood of GET calls made by typha
    - https://github.com/projectcalico/cni-plugin/issues/838
    - Thanks to Jacek Kaniuk for raising this issue

🤑 Calico heroes

- Aloys Augustine
    - VPP
    - Added interface to CNI plugin (and upstreamed the changes!)
- Edward Chang
    - Improving docs UX with his first OS PR!

🛠️ Demo: Automatic host endpoint creation

🤪 Q & A / Ask the maintainer

- Ricardo - looking for next good issue to tackle; groom some more "good first issue" labels
- Chris - a recent flurry of folks having difficulty getting started on CentOs - see recent example in discuss.projectcalico.org

March 11, 2020

Recording: https://youtu.be/-BZa1btCZm4

🛎️ Calico 3.13 release check-in

- 3.13 cut last week
- eBPF Dataplane tech preview
    - Better scale, faster, more efficient, less latency, and more!
    - See blog on performance & functional benefits for more details:
      https://www.projectcalico.org/introducing-the-calico-ebpf-dataplane/
- Bugfixes
- Now auto-detects pod cidr in kubeadm
- More docs enhancements

👀 Calico v3.14 sneak peek

- Rough timeline 6-8 weeks
- Improving the story for Policy enforcement on hosts
    - Automating lifecycle for HostEndpoints
- Scoping Migration from etcd → Kubernetes Datastore

🛎️ / 👀 Calico Operator releases update

- Adjustment to Image registry pathing to work with registries that don't support nested paths
- Configurable IP pool blocksize
- upcoming
    - more configurable flexvol path
    - more support for configuring Calico resources at install time
    - More support for configuring calico-node rolling upgrades
    - Option to disable Calico CNI plugin portmap feature

🔥 Hot issues

- IPAM upgrades handling IP of tunl addresses
    - Potential to leak addresses during the upgrade
    - https://github.com/projectcalico/node/pull/430
- Labeling prioritization of issues on GH
    - Want to make it more consistent and easier to understand for both maintainers and users
    - Proposal: split into two categories of priority
        - Likelihood
        - Impact Severity

🤑 Calico heroes

- Brandon for contributing the flexvol change! And for providing code-reviews on Operator code
- Casey for taking on etcd -> KDD migration. It's something we're excited about!
- Spike for isolating memory leak and contributing tooling to help us do it in the future

⚒️ Overview of calico-vpp project

😜 Q & A / Stump the maintainer

- Straight from Twitter: "Is anyone using a kubeval equivalent and/or ConfTest to validate @projectcalico network policies in CI?"
  https://twitter.com/garethr/status/1237775660011130880
    - https://www.tigera.io/blog/decentralized-calico-network-security-policy-deployment-for-gitops-part2/
- Add additional tests to Calico?

Feb 12, 2020

Recording: https://youtu.be/KbvDQHHhihA

🛎️ Calico 3.12 check-in

- v3.12 is out!
    - Openshift v4.2 via Operator
    - IPv6 service advertisement
    - Iptables Backend autodetection

👀 Calico 3.13 sneak peek

- Targeting Late feb / early march
- Pool CIDR Autodetection on kubeadm
- Docs reordering
    - Theme changes with better landing pages
    - Not on explicit version at docs home page
        - Hoping it will help with SEO
    - Links to subtopics on right, tracks scrolling
    - Geeky details coming in soon

🔥 Hot issues

- Calico networking during postStart lifecycle hooks
    - K8s maintainers deciding on correct fix

    Only happens if using Calico for policy and not networking
- Resync issue in typha
    - NetworkPolicy Watch setup fails when using k8s NetworkPolicy due to invalid ResourceVersion
- Typha memory leak
    - Bug in go http library used by apimachinery which leaks resources when watches are cancelled

Moving forward
- IPAM leaking resources in certain edge cases leading to resource exhaustion
    - https://github.com/projectcalico/calico/issues/2713
    - https://github.com/projectcalico/calico/issues/1195

🤩 Calico heroes

- [Svend](#)! For pointing out typha memory leak and assisting with debugging
- [Stefan Breunig](#)! For developing a fix and unit test for said memory leak
- Thomaso Posetti! For outlining an incredibly detailed issue in felix vxlan code
- Shaun! And Lance! For sharing ideas with Jay on some policy work

🛠️ Demo: Installing Calico using the operator

- Showed installing operator
- Operator then can install and maintain Calico
  - Included configuration updates
  - Upgrades

😜 Q & A / Stump the maintainer

- Jay and Sedef - demo of KEP / code walkthrough of how to overhaul and consolidate logic for NetworkPolicy tests
  - https://github.com/vmware-tanzu/antrea/blob/community-network-policy-tests/docs/design/cni-testing-initiative-upstream.md current proposal lives here, PRs welcome, hope to send to sig-network soon.
  - Found a number of holes in existing policy tests
  - Actually found that many upstream tests fail
  - Clear that nobody is relying on the tests and running them
  - Tests have poor performance, incomplete coverage
    - Based on polling
    - Should move to an exec model
    - Lots of code duplication (reduced)
- Casey: Q: What tool did you use for the ASCII diagrams?
  - Jay A: Asciiflow infinity

Jan 8, 2020

Recording: https://www.youtube.com/watch?v=QAmCf7-I-gs

🛎️ Calico 3.11 check-in

- Released Dec 18th.
- Full support for k8s dual stack
- OpenStack networking-calico supports etcd v3.3.11 with authentication enabled
- Several bird/confd fixes and updates

- Go-yaml update for billion laughs
- Images ubi-minimal
- Istio 1.3 support
- Bunch of other small fixes

👀 Calico 3.12 sneak peek

- Due to release in couple of weeks
- RPF check moves to iptables
- IPv6 service advertisements
- Per-rule metadata (Spike)
    - Adds fields on Calico API that allows you to specify metadata on a per rule level in policy and profiles
    - Annotation on rules
    - User can put whatever they want there - who wrote the rule; what is does; etc
    - Shows up as comments in iptables rules
- Operator likely in 3.12 or shortly after - it's on its own release stream
    - Can be used to install Calico open source or Calico Enterprise
    - Docs focussed on Calico open source
-

🦸 Calico heroes

- Aloys Augustine, Nathan Skrzypczak for developing the VPP dataplane. Wow!
- Cfiske for really good engagement, debugging, on Calico Users slack

🤪 Q & A / Stump the maintainer

- What's the deal with preserving source IP address for service IP advertisement? Service needs to be "at least" node port, even if you don't plan to use the node port. K8s docs hard to follow in this area. Good candidate for covering in how-to guide in the Calico docs.
- Why move RPF checks to iptables? Neil: systemd now sets global loose mode (int value 2), and Linux uses the max value, so setting strict mode (int value 1) on the Calico interfaces no longer has the desired effect. So move explicit check into iptables.

December 11, 2019

Recording: < Recording issues, sadly no recording this time >

🔔 Calico 3.11 check-in

- Intended to release early next week (of December 16)

- Working on dual stack IPv6 support, coincident with Kubernetes features
- Enforcing RP filter checks in iptables instead of kernel.
  - Some distributions are using a more permissive setting.
- Updating integration with Istio to support Istio 1.3
  - "More or less just works with a few manifest changes"
- Including afix for goyaml bug
  - Fix for "100 laughs bug" (sp?)
  - Primarily impacts calicoctl

👀 Calico 3.12 sneak peek

- *These features aren't set in stone.*
- SCTP protocol, adding support for ports in policy rules
- Istio 1.4 support
- Istio permissive (allow non-istio incoming connections)
- Installation operator (stretch goal)
  - New way to install Calico
  - At least for a bit still support previous install methods
- *Missed the notes here...*

🔥 Hot issues

- IPv6 Service advertisement
  - Identified lacking support for advertising IPv6 service addresses
  - Good spot for someone to get involved
  - Issue: https://github.com/projectcalico/calico/issues/2731
- Jay: Issue with log spam, resulting from a complicated issue.
  - Sean is the best expert on this issue?
  - Can do xdp optimization on certain policies
    - If it fails, generates a lot of log spam
    - Awkward problem to deal with
    - Option to disable it 100%, or if flag set only log one message
    - Retry logic is kicked in when we don't want it
    - When xdp is disabled the log spam stopped?
    - Need some information on black hole route
      - Two issues, one a bug the other not
      - One makes sure that packets sent to a deleted pod won't be routed outside of the node or cluster.
      - May be covered on the FAQ page

🤠 Calico heroes

- Jack Kleeman - Added support for reject instead of drop flag

- ○ Could make it in for 3.12
- ● Rafael - build improvements for the makefile, on his own he improved that by moving common bits under one place
- ● Brad Behle - helping to test the operator

🛠️ Demos:

- ● Dual-stack (Neil)
  - ○ Every pod gets an IPv6 and IPv4 address
  - ○ Assumes underlying infrastructure support
  - ○ Unofficially you can run IPv6 only in Kubernetes stack
  - ○ There's was only one place for an address in a pod
  - ○ K8s 1.16 allows for multiple IPs for a pod, one for IPv6 and one for IPv6
  - ○ When you create a service, you can specify the IP version you want
  - ○ Routing will happen to pods with matching pods of same family.
  - ○ No cross communication across protocols
  - ○ Configure CNI plugin to use dual stack
  - ○ Set some variable in the calico node daemonset
  - ○ Needed to make a few code changes in the K8s API, will be included in 3.11 release
  - ○ Set up Kind cluster (need to use a fork), upstream is working on IPv6 dual stack support (song-dualstack branch)
  - ○ *Demo magic happened… it was a good demo.*
  - ○ Specify prefixes to kind to handle address distribution
  - ○ Kube-proxy needs to be run in ipvs mode
    - ■ There was a bug where size of subnets needs to be the same size, may have been fixed in K8s 1.17
- ● Docs improvements (Turk)
  - ○ Primary issue: confusing system on old docs. Navigation at top and at the side of the page.
    - ■ Now everything is at the side with expandable sections.
  - ○ Some pages with lots of children now have a landing page with links to lower volume content, with descriptions.
  - ○ Breadcrumbs to keep track of where you were.
  - ○ Navigation bar follows where you are in page
  - ○ Can download code snippets
  - ○ Way to copy just command out of a code/command block
  - ○ Expecting them to go live at the start of 2020
  - ○ Collapsible sidebar for cleaner navigation
  - ○ Improving redirects and removing 404s seen before, but this is early work

😜 Q & A / Stump the maintainer

- Alex: "As a user if I define an IPv6 pool with IP in IP enabled, does it tell me to stop being stupid?"
    - It's not supported, so it won't work
    - Casey thinks we validate check it
    - But we support IPv6 for outgoing NAT
    - https://github.com/projectcalico/libcalico-go/blob/master/lib/clientv3/ippool.go#L449

November 13, 2019

Recording: https://www.youtube.com/watch?v=65qsn_xUPNw

⎈ Calico at KubeCon San Diego

- Day0 calico event
- Social event
- See everyone in-person then!

🛎 Calico 3.10 check-in

- v3.10.1 - First patch release is out
    - CVE fix
    - IPAM fix (thanks beautytiger!)
- v3.10.2 - targeting end of this week
    - Fix liveness probe
    - Switch to Universal Base Images (UBI)
    - [neil] ipv6

👀 Calico 3.11 sneak peek

- Targeting mid-december
- Headline feature
    - Dual Stack (ipv4 + ipv6)
        - Expecting bumps integrating Calico's existing ipv6 support with K8s new ipv6 api's

🔥 Hot issues

- Assigned ipBlocks are not released [https://github.com/projectcalico/calico/issues/2713]
    - Hard to repro. Looking for more diags from community!
    - Investing in better garbage collection for orphan IP blocks would be nice
- Typha rebalancing https://github.com/projectcalico/typha/issues/291
    - Low priority thanks to typha resiliency
    - Great issue for external contributor to get a quick win!
- Service advertisement IPs [https://github.com/projectcalico/calico/issues/2457]
    - Cause determined, Calico maintainers fixing it!

🤩 Calico heroes

- shout out to jackkleeman for combining ports into a single rule when possible
- Jay Vyas - helping with builds and for the demo he's about to do
- Valentin - doing good things with Calico ipv6 in the community
- Tom Pointon - contributing external IP advertisement feature

🛠 Demo: Jay Vyas: Setting up a Calico Development Environment

😜 Q & A / Stump the maintainer