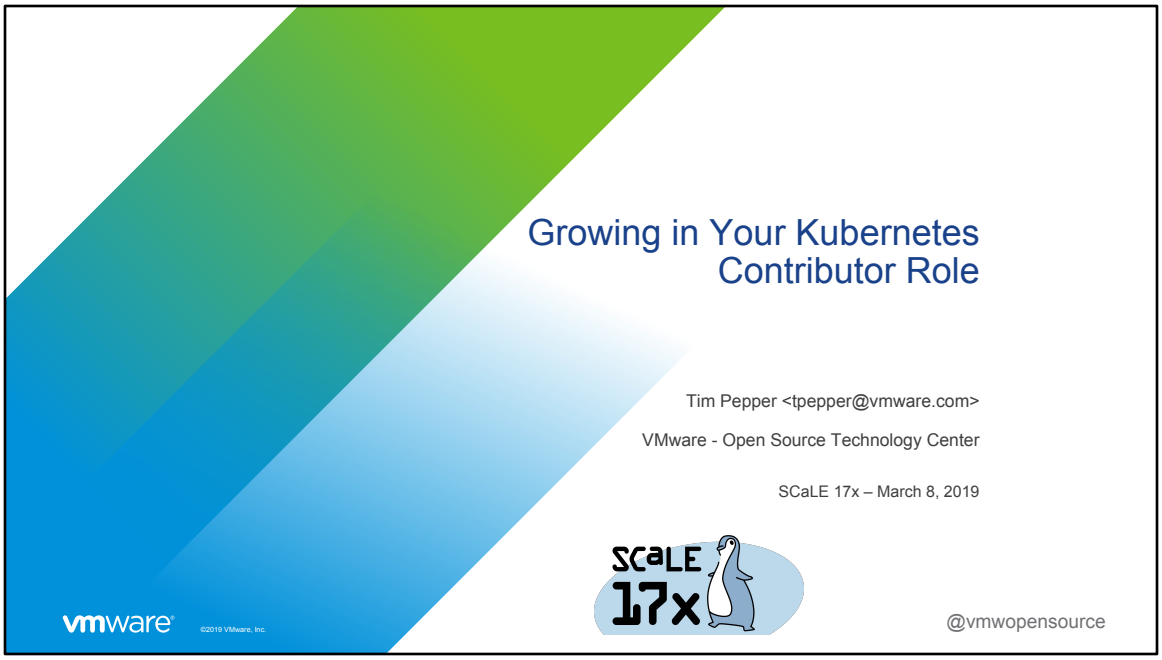
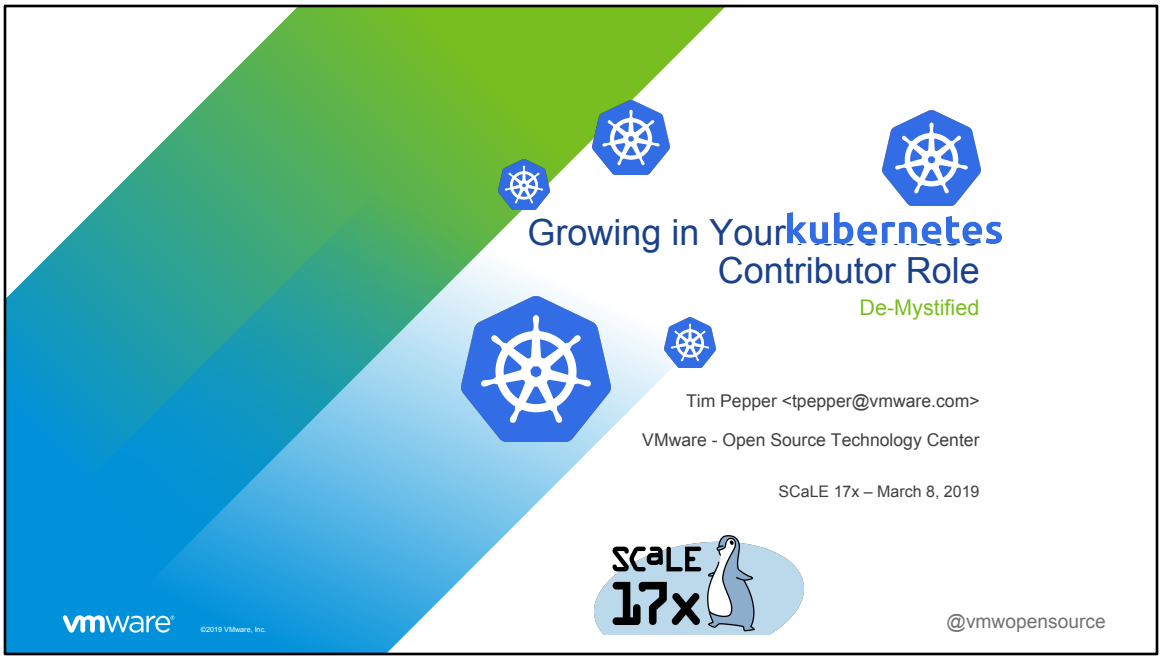


Nyan cat: https://giphy.com/gifs/nyan-cat-sIIhZliB2McAo

Kubernetes logo:
https://github.com/kubernetes/kubernetes/blob/master/logo/usage_guidelines.md

Adding kittens will make everything better!



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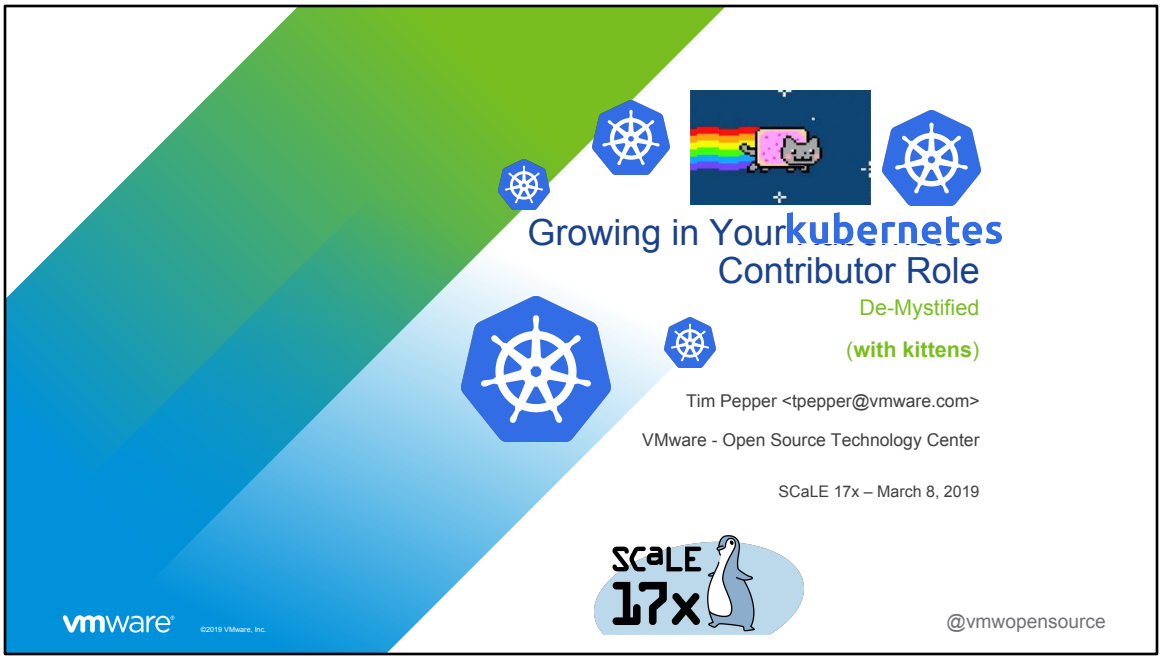

Adding kittens will make everything better!

Nyan cat: https://giphy.com/gifs/nyan-cat-sIIhZliB2McAo

Kubernetes logo:
https://github.com/kubernetes/kubernetes/blob/master/logo/usage_guidelines.md
SCaLE logo: https://www.socallinuxexpo.org/scale/17x/schedule/friday

Agenda

A story about a large, high velocity, open source software project which started inside one company and has graduated out into a public phenomenon.

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Agenda

A story about a large, high velocity, open source software project which started inside one company and has graduated out into a public phenomenon.

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Too buzzwordy? I agree. But bear with me…

Image source: Flickr user cuatrok77
https://www.flickr.com/photos/cuatrok77/9019854067/ (CC BY SA 2.0)

Agenda

A story about a large, high velocity, open source software project which started inside one company and has graduated out into a public phenomenon.

KUBERNETES NEEDS YOU!!!

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This talk is a bit different from most on the schedule (oriented towards describing a given tech's functionality and how to deploy/use/manage some tech).

If you rely on open source, you should get involved and give back too.

Agenda

A story about a large, high velocity, open source software project which started inside one company and has graduated out into a public phenomenon.

Narrated by…

@pythomit

tpepper

tpepper@vmware.com

Agenda

A story about a large, high velocity, open source software project which started inside one company and has graduated out into a public phenomenon.

Narrated by…K8s newbie

- Got involved in 2017
- Org member since early 2018

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Prior to just a couple years ago cloud was all buzzword hype to me. I didn't get it.

Then I got it, got involved in k8s community ~1.5years ago…

Agenda

A story about a large, high velocity, open source software project which started inside one company and has graduated out into a public phenomenon.

Narrated by…K8s newbie

- Got involved in 2017
- Org member since early 2018
- 1.10 release team “issue triage” shadow
- 1.11 release team “issue triage” lead
- 1.12 release team lead

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And my contributions progressed…

Agenda

A story about a large, high velocity, open source software project which started inside one company and has graduated out into a public phenomenon.

Narrated by…K8s newbie

- Got involved in 2017
- Org member since early 2018
- 1.10 release team “issue triage” shadow
- 1.11 release team “issue triage” lead
- 1.12 release team lead
- SIG Release co-chair
- WG LTS co-organizer

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And then somebody put me in charge of stuff

Agenda

A story about a large, high velocity, open source software project which started inside one company and has graduated out into a public phenomenon.

Narrated by…K8s newbie

1.12 release team lead
SIG Release co-chair
WG LTS co-organizer

But...

Wait…how'd that happen so quick?

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Agenda

A story about a large, high velocity, open source software project which started inside one company and has graduated out into a public phenomenon.

Narrated by…Experienced software engineer

- 20yrs experience, basically all open source dev
- VMware OSPO, Intel OTC, IBM LTC
- Drivers, kernel, distro, s/w update, storage, security, HPC, etc.,…systems s/w

cloud orchestration == systems software

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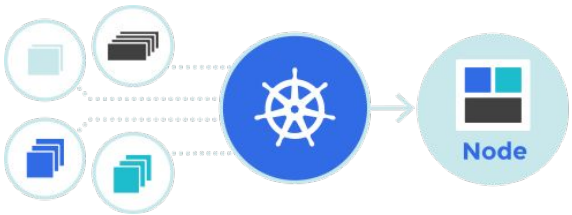
Kubernetes and distributed cloud software is the next generation of systems software. It's amazingly complex and full of fascinating technical challenges.

Every aspect of this complexity can be a unique area where you can get involved or grow:
…as a new dev or experienced dev
…as somebody new to k8s or already familiar with parts of k8s

What is Kubernetes

Kubernetes is an open-source system for automating deployment, scaling, and management of containerized applications.



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You probably know this

What is Kubernetes

Started as…

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But we loose sight of it having originally been “Kubernetes by Google”

Which means Google-isms baked in here and there. And this has been particularly prevalent in parts of the project most adjacent to release.

What is Kubernetes

And now is…

Community driven!

Just plain Kubernetes.

Almost 5 years in the open.

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Almost 5 years of iteratively shifting towards a community driven release process.

What is Kubernetes

And now is…

Community driven!

Just plain Kubernetes.

Now under the auspices of Cloud Native Computing Foundation

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Because everybody wants to have a foundation too.

But how does governance happen now that things are open and on a neutral playing field?

What are Kubernetes SIGs

Governance – Special Interest Groups (SIGs)

Yeah it's open source,
but organizationally how does it work?

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What are Kubernetes SIGs

Governance – Special Interest Groups (SIGs)

Yeah it's open source,
but organizationally how does it work?

Special Interest Groups (SIGs)

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What are Kubernetes SIGs

Governance – Special Interest Groups (SIGs)

Yeah it's open source,
but organizationally how does it work?

Special Interest Groups (SIGs)

Collaboration forums where folks are doing their shared technical thing

- Vertical: Network, Storage, Node, Scheduling, Big Data
- Horizontal: Scalability, Architecture
- Project: Testing, Release, Docs, PM, Contributor Experience

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Bullet text from
https://github.com/kubernetes/community/blob/master/governance.md

What are Kubernetes SIGs

Governance – Special Interest Groups (SIGs)

Name	Label	Chairs	Contact	Meetings
API Machinery	api-machinery	* Daniel Smith, Google * David Eads, Red Hat	* Slack * Mailing List	* Regular SIG Meeting: Wednesdays at 11:00 PT (Pacific Time) (biweekly)
Apps	apps	* Matt Farina, Samsung SDS * Adnan Abdulhussein, Bitnami * Kenneth Owens, Google	* Slack * Mailing List	* Regular SIG Meeting: Mondays at 9:00 PT (Pacific Time) (weekly)
Architecture	architecture	* Brian Grant, Google * Jaice Singer DuMars, Google * Matt Farina, Samsung SDS	* Slack * Mailing List	* Regular SIG Meeting: Thursdays at 19:00 UTC (biweekly)
Auth	auth	* Mike Danese, Google * Mo Khan, Red Hat * Tim Allclair, Google	* Slack * Mailing List	* Regular SIG Meeting: Wednesdays at 11:00 PT (Pacific Time) (biweekly)

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Yeah it's open source, but organizationally how does it work?

Special Interest Groups … topical focus areas where folks are doing their technical thing.

What are Kubernetes SIGs

Governance – Special Interest Groups (SIGs)

Autoscaling	autoscaling	* Marcin Wielgus, Google	* Slack * Mailing List	* Regular SIG Meeting: Mondays at 14:00 UTC (biweekly/triweekly)
AWS	aws	* Justin Santa Barbara * Kris Nova, VMware * Nishi Davidson, AWS	* Slack * Mailing List	* Regular SIG Meeting: Fridays at 9:00 PT (Pacific Time) (biweekly 2019 start date: Jan. 11th)
Azure	azure	* Stephen Augustus, VMware * Dave Strebel, Microsoft	* Slack * Mailing List	* Regular SIG Meeting: Wednesdays at 16:00 UTC (biweekly)
Big Data	big-data	* Anirudh Ramanathan, Rockset * Erik Erlandson, Red Hat * Yinan Li, Google	* Slack * Mailing List	* Regular SIG Meeting: Wednesdays at 17:00 UTC (biweekly)
CLI	cli	* Maciej Szulik, Red Hat * Sean Sullivan, Google	* Slack * Mailing List	* Regular SIG Meeting: Wednesdays at 09:00 PT (Pacific Time) (biweekly)

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…there are a loooot of SIGs

What are Kubernetes SIGs

Governance – Special Interest Groups (SIGs)

Cloud Provider	cloud-provider	* Andrew Sy Kim, VMware * Chris Hoge, OpenStack Foundation * Jago Macleod, Google	* Slack * Mailing List	* Regular SIG Meeting: Wednesdays at 1:00 PT (Pacific Time) (biweekly) * (cloud-provider-extraction-migration) Weekly Sync removing the in-tree cloud providers led by @cheftako and @andrewsykim: Thursdays at 13:30 PT (Pacific Time) (weekly)
Cluster Lifecycle	cluster-lifecycle	* Robert Bailey, Google * Lucas Käldström, Luxas Labs (occasionally contracting for Weaveworks) * Timothy St. Clair, VMware	* Slack * Mailing List	* Regular SIG Meeting: Tuesdays at 09:00 PT (Pacific Time) (biweekly) * kubeadm Office Hours: Wednesdays at 09:00 PT (Pacific Time) (weekly) * Cluster API office hours: Wednesdays at 10:00 PT (Pacific Time) (weekly) * Cluster API Provider Implementers' office hours (EMEA): Wednesdays at 15:00 CEST (Central European Summer Time) (weekly) * Cluster API Provider Implementers' office hours (US West Coast): Tuesdays at 12:00 PT (Pacific Time) (weekly) * Cluster API (AWS implementation) office hours: Mondays at 10:00 PT (Pacific Time) (biweekly) * kops Office Hours: Fridays at 09:00 PT (Pacific Time) (biweekly) * Kubespray Office Hours: Wednesdays at 08:00 PT (Pacific Time) (biweekly)
Contributor Experience	contributor-experience	* Elsie Phillips, CoreOS * Paris Pittman,	* Slack * Mailing	* Regular SIG Meeting: Wednesdays at 9:30 PT (Pacific Time) (weekly) * (contributors-documentation) Non-Code Contributors Meeting: Wednesdays at 11:00 PT (Pacific Time) (biweekly)

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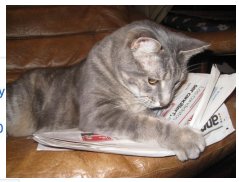
…there are a loooot of SIGs

What are Kubernetes SIGs

Governance – Special Interest Groups (SIGs)



Docs	docs	* Andrew Chen, Google * Zach Corleissen, Linux Foundation * Jennifer Rondeau, VMware	* Slack * Mailing List	* Regular SIG Meeting: Tuesdays at 17:30 UTC (weekly - except fourth Tuesday every month) * APAC SIG Meeting: Wednesdays at 02:00 UTC (monthly - fourth Wednesday every month)
GCP	gcp	* Adam Worrall, Google	* Slack * Mailing List	* Regular SIG Meeting: Thursdays at 16:00 UTC (biweekly)
IBMCloud	ibmcloud	* Khalid Ahmed, IBM * Richard Theis, IBM * Sahdev Zala, IBM	* Slack * Mailing List	* Regular SIG Meeting: Wednesdays at 14:00 EST (biweekly)
Instrumentation	instrumentation	* Piotr Szczesniak, Google * Frederic Branczyk, Red Hat	* Slack * Mailing List	* Regular SIG Meeting: Thursdays at 17:30 UTC (biweekly)
Multicluster	multicluster	* Christian Bell, Google * Quinton Hoole, Huawei	* Slack * Mailing List	* Regular SIG Meeting: Tuesdays at 9:30 PT (Pacific Time) (biweekly) * Federation v2 Working Group: Wednesdays at 7:30 PT (Pacific Time) (weekly)

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…there are a loooot of SIGs

Oh wait I said there'd be kittens too!

Image source: Flickr user jit bag https://www.flickr.com/photos/jitbag/4482493864/ (CC BY 2.0)

What are Kubernetes SIGs

Governance – Special Interest Groups (SIGs)

Network	network	* Tim Hockin, Google * Dan Williams, Red Hat * Casey Davenport, Tigera	* Slack * Mailing List	* Regular SIG Meeting: Thursdays at 14:00 PT (Pacific Time) (biweekly)
Node	node	* Dawn Chen, Google * Derek Carr, Red Hat	* Slack * Mailing List	* Regular SIG Meeting: Tuesdays at 10:00 PT (Pacific Time) (weekly)
OpenStack	openstack	* Chris Hoge, OpenStack Foundation	* Slack * Mailing List	* Regular SIG Meeting: Wednesdays at 16:00 PT (Pacific Time) (biweekly)
PM	pm	* Aparna Sinha, Google * Ihor Dvoretskyi, CNCF * Caleb Miles, Google	* Slack * Mailing List	* Regular SIG Meeting: Tuesdays at 18:30 UTC (biweekly)
Release	release	* Caleb Miles, Google * Stephen Augustus, VMware * Tim Pepper, VMware	* Slack * Mailing List	* Regular SIG Meeting: Tuesdays at 21:00 UTC (biweekly)

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What are Kubernetes SIGs

Governance – Special Interest Groups (SIGs)

Scalability	scalability	* Wojciech Tyczynski, Google * Shyam Jeedigunta, AWS	* Slack * Mailing List	* Regular SIG Meeting: Thursdays at 17:30 UTC (bi-weekly)
Scheduling	scheduling	* Bobby (Babak) Salamat, Google * Klaus Ma, Huawei	* Slack * Mailing List	* 10AM PT Meeting: Thursdays at 17:00 UTC (biweekly starting Thursday June 7, 2018) * 5PM PT Meeting: Thursdays at 24:00 UTC (biweekly starting Thursday June 14, 2018)
Service Catalog	service-catalog	* Carolyn Van Slyck, Microsoft * Michael Kibbe, Google * Jonathan Berkhahn, IBM * Jay Boyd, Red Hat	* Slack * Mailing List	* Regular SIG Meeting: Mondays at 13:00 PT (Pacific Time) (weekly)
Storage	storage	* Saad Ali, Google * Bradley Childs, Red Hat	* Slack * Mailing List	* Regular SIG Meeting: Thursdays at 9:00 PT (Pacific Time) (biweekly)

What are Kubernetes SIGs

Governance – Special Interest Groups (SIGs)

Testing	testing	* Aaron Crickenberger, Google * Erick Fejta, Google * Steve Kuznetsov, Red Hat * Timothy St. Clair, VMware	* Slack * Mailing List	* Regular SIG Meeting: Tuesdays at 13:00 PT (Pacific Time) (weekly) * (kind) sigs.k8s.io/kind weekly meeting: Mondays at 11:00 PT (Pacific Time) (weekly) * (testing-commons) Testing Commons: Fridays at 07:30 PT (Pacific Time) (bi-weekly)
UI	ui	* Sebastian Florek, Loodse * Marcin Maciaszczyk, Loodse * Dan Romlein, Google * Jeffrey Sica, University of Michigan	* Slack * Mailing List	* Regular SIG Meeting: Thursdays at 18:00 CET (Central European Time) (bi-weekly)
VMware	vmware	* Fabio Rapposelli, VMware * Steve Wong, VMware	* Slack * Mailing List	* Regular SIG Meeting: Thursdays at 11:00 PT (Pacific Time) (bi-weekly) * Cloud Provider vSphere monthly syncup: Wednesdays at 09:00 PT (Pacific Time) (monthly - first Wednesday every month) * Cluster API Provider vSphere bi-weekly syncup: Wednesdays at 13:00 PT (Pacific Time) (bi-weekly)
Windows	windows	* Michael Michael, VMware * Patrick Lang, Microsoft	* Slack * Mailing List	* Regular SIG Meeting: Tuesdays at 12:30 Eastern Standard Time (EST) (weekly)

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What are Kubernetes SIGs

Governance – Special Interest Groups (SIGs)

Testing	testing	* Aaron Crickenberger, Google * Erick Fejta, Google * Steve Kuznetsov,	* Slack * Mailing List	* Regular SIG Meeting: Tuesdays at 13:00 PT (Pacific Time) (weekly) * (kind) sigs.k8s.io/kind weekly meeting: Mondays at 11:00 PT (Pacific Time) (weekly) * (testing-commons) Testing Commons: 7:30 PT (Pacific Time) (bi-
UI	ui			G Meeting: Thursdays at 18:00 l European Time) (bi-weekly)
VMware	vmware	VMware	Mailing List	G Meeting: Thursdays at 11:00 Time) (bi-weekly) vider vSphere monthly syncup: s at 09:00 PT (Pacific Time) (monthly - first Wednesday every month) * Cluster API Provider vSphere bi-weekly syncup: Wednesdays at 13:00 PT (Pacific Time) (bi-weekly)
Windows	windows	* Michael Michael, VMware * Patrick Lang, Microsoft	* Slack * Mailing List	* Regular SIG Meeting: Tuesdays at 12:30 Eastern Standard Time (EST) (weekly)

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Image source: Flickr user Joshua Powers
https://www.flickr.com/photos/16474390@N07/1776289445/ (CC BY 2.0)

Wow that's a lot of special interest groups!

Also there are:

Subprojects
Working Groups
Committees

There must be a strong project management ethic tightly governing how these work together right?

…not so much!

What is Kubernetes

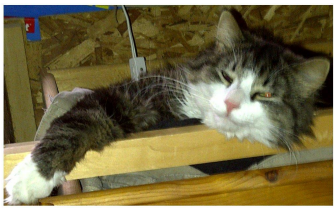
Governance – Steering Committee

SIGs aren't project governance really

https://git.k8s.io/community/governance.md
Doesn't say a lot on mechanism or policy, but rather sets the tone of the community.

Policies and mechanisms implicitly characterized in
- shared source code, infrastructure, and automation
- SIG charter documents
- Steering Committee

Steering Committee is a defers-mostly, lazy-consensus group



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Committees -> There's a Steering Committee

Image source: Flickr user Bryan Alexander
https://www.flickr.com/photos/bryanalexander/5653716580/ (CC BY 2.0)

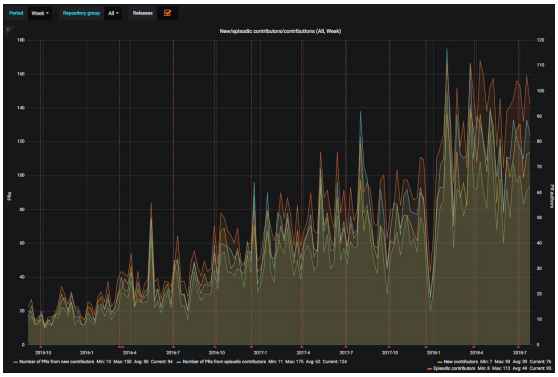
What is Kubernetes

Some cross-functional Needs

Large and Rapidly Growing Project!!!

In past year alone:

- 2088 commit authors generated
  - **24714 commits**
- 14146 contributors generated
  - **583898 GitHub contribution events**



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Big community, high velocity, need more than just functional organization around compute, storage, networking, and hosting providers. (devstats screen caps on new/episodic contribs, overall contributors, development velocity)

Image source DevStats.k8s.io:
https://k8s.devstats.cncf.io/d/18/new-and-episodic-pr-contributors?orgId=1&var-period=w&var-repogroup_name=All&from=1440729073984&to=1532745073984

What is Kubernetes

Some cross-functional Needs

Large and Rapidly Growing Project!!!

In past year alone:

- 877 authors generated
  - **6841 (non-merge) commits**
- 16405 contributors generated
  - **395933 GitHub contribution events**

Kubernetes internal developers, cluster operators, end users all need "…high quality releases on a reliable schedule"

SIG-Release mission statement http://git.k8s.io/sig-release

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Could make for a wild ride!

Image source: Flickr user ElGatoPescado
https://www.flickr.com/photos/11897810@N02/1204596631/ (CC BY SA 2.0)

Data sources:

Past year info from
https://k8s.devstats.cncf.io/d/24/overall-project-statistics?orgId=1&var-period_name=Last%20year&var-repogroup_name=All on March 7, 2019

And raw git info from git.k8s.io/kubernetes/kubernetes via
git log --since=2018-03-08 --before=2019-03-08 --no-merges --pretty=format:"%an %ae" | sort | uniq | wc –l
git log --since=2018-03-08 --before=2019-03-08 --no-merges --pretty=oneline | sort | uniq | wc -l

What is Kubernetes

Some cross-functional SIGs

SIG Testing

SIG Docs

SIG PM

SIG Release

SIG Architecture

SIG Contributor Experience

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Cross-functional needs met by cross-functional SIGs

AGAIN every one of these SIGs is a unique area where you can get involved or grow:
…as a new dev or experienced dev
…as somebody new to k8s or already familiar with parts of k8s

Kubernetes Dev Model

Contributor Ladder

Role	Responsibilities	Requirements	Defined by
member	active contributor in the community	sponsored by 2 reviewers. multiple contributions to the project.	Kubernetes GitHub org member.
reviewer	review contributions from other members	history of review and authorship in a subproject	OWNERS file reviewer entry.
approver	approve accepting contributions	highly experienced and active reviewer + contributor to a subproject	OWNERS file approver entry
subproject owner	set direction and priorities for a subproject	demonstrated responsibility and excellent technical judgement for the subproject	sigs.yaml subproject OWNERS file *owners* entry

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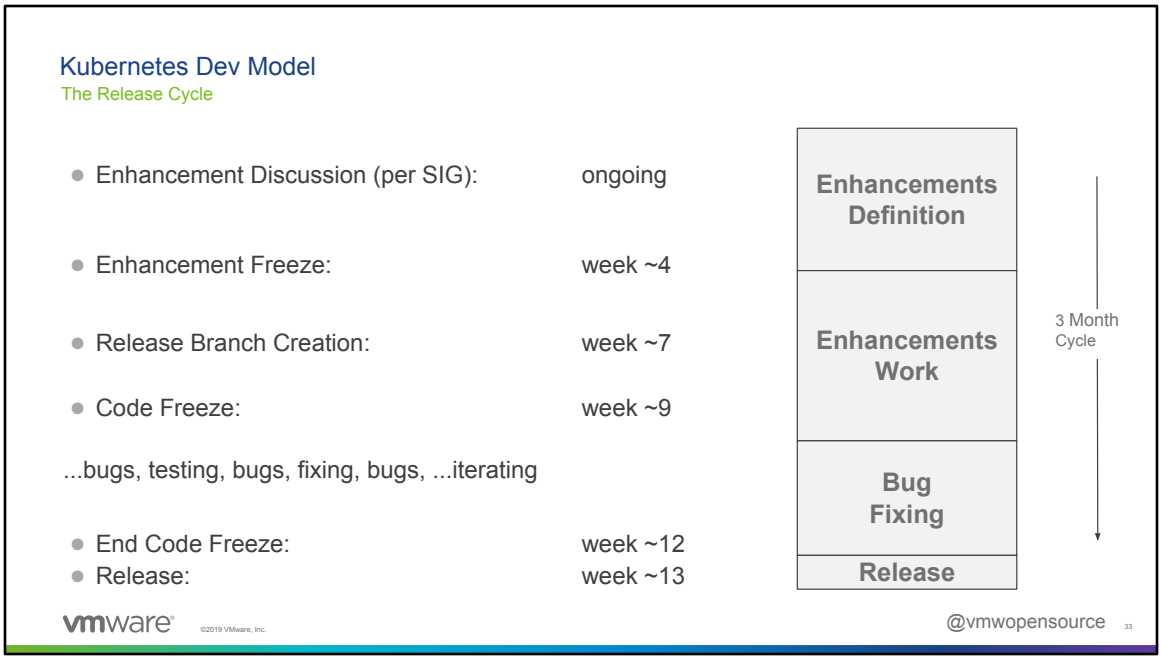
How do we do high quality releases on a reliable schedule? Through involvement of people with broad skills.

AGAIN…every one of these SIGs is a unique area where you can get involved or grow:
…as a new dev or experienced dev
…as somebody new to k8s or already familiar with parts of k8s



A first hiccup for folks can be “why isn’t anybody talking to me or looking at my code…often this is due to the specific timing of the release…folks are busy because of a deadline.

Three key components of the release cycle:

1. Identifying features targeted to the release milestone
2. Getting those done
3. Insuring quality

Kubernetes Dev Model

How do we deal with enhancements?

Kubernetes Enhancement Proposals (KEPs)

- KEPs are more than GitHub projects
- KEP PR process captures history, rationale, design-thinking
- Required since 1.14…this is good!

- (eg: Python PEPs and OpenStack Blueprints)

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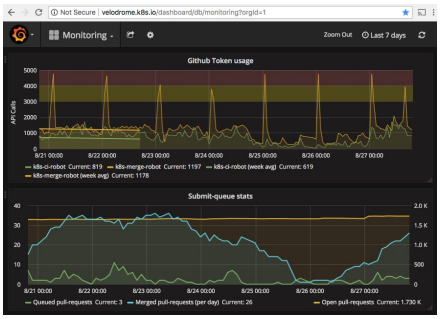
Kubernetes Dev Model

How do we do day-to-day development?

Mostly looks like normal Git/GitHub workflow

…plus **Prow**

- more than GitHub labels
- automates GitHub events -> jobs
  - RBAC-like review and approvals layer
  - CI Testing
  - process label checks
  - …automerges PRs when ready



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See also:
http://velodrome.k8s.io/

http://git.k8s.io/test-infra/prow/README.md
https://bentheelder.io/posts/prow

This is a common stumbling block for newcomers (as with any project)….how do I get my stuff merged?

Labels, CI, bot comments, active review & approval

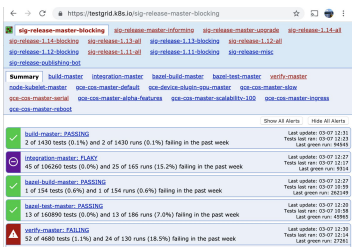
Kubernetes Dev Model

How do we manage stability?

Dev's run unit and e2e tests locally

Prow runs tests against PRs

Time-based testing against master & release branches



This is HUGE … we build and test run dozens (hundreds?) of clusters a day

https://testgrid.k8s.io

Continuous feedback on the health of release and master branches. Aim is to keep signal always green and be always ready to release.

Kubernetes Dev Model

The Release Lifecycle

K8S Releases

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Speaking of release branches…

Lest you get the impression this seems waterfall, let's add a few more waterfall like iterations. Really this is more like a continuous flow. I've overaccentuated the distinctions between feature definitions, development and stabilization. Our code freeze is currently two weeks out of the cycle. VERY liberal.

9 months support lifetime per release

Image source: Flickr user Russel Smith
https://www.flickr.com/photos/rasmithuk/468899776/ (CC BY 2.0)

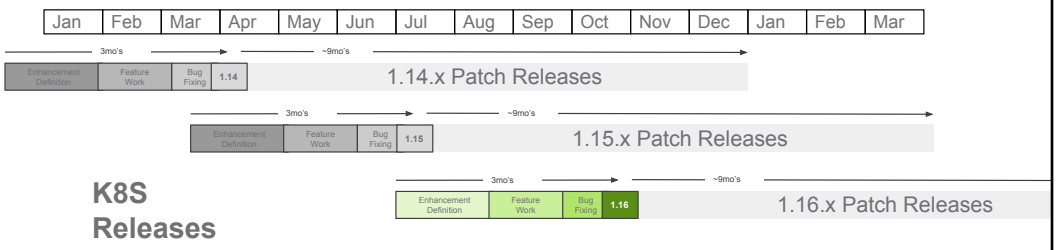
Kubernetes Dev Model

The Release Lifecycle

K8S Releases

Kubernetes Dev Model

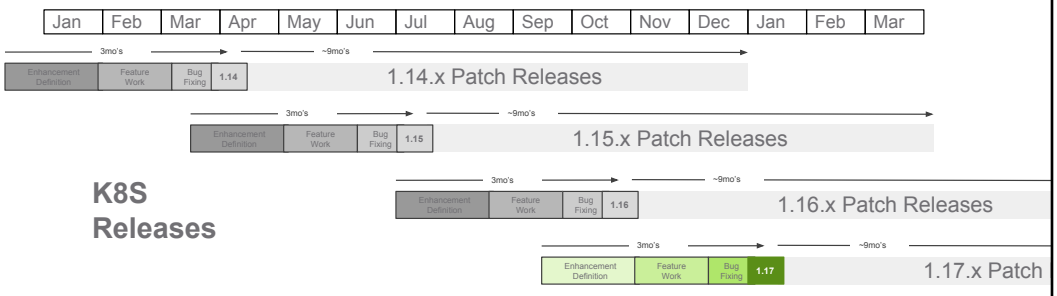
The Release Lifecycle



K8S Releases

Kubernetes Dev Model

The Release Lifecycle



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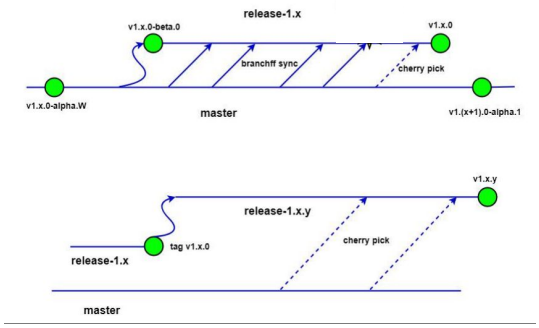
9 months support lifetime per release

3 supported release streams in parallel

Kubernetes Dev Model

Release branching



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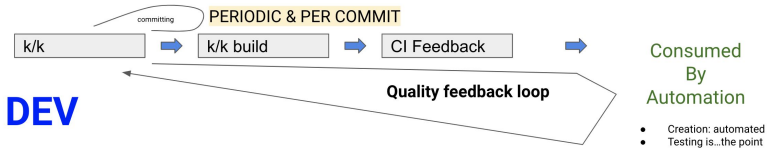
From:
https://schd.ws/hosted_files/kccncchina2018english/93/Kubernetes%20Use%20it%2C%20Contribute%20to%20it%2C%20and%20Enjoy%20it%21.pdf
@xiangpengzhao Peter Zhao

Kubernetes Dev Model

The Release Process Aspirations & Possibilities



Consumed By Automation

- Creation: automated
- Testing is...the point

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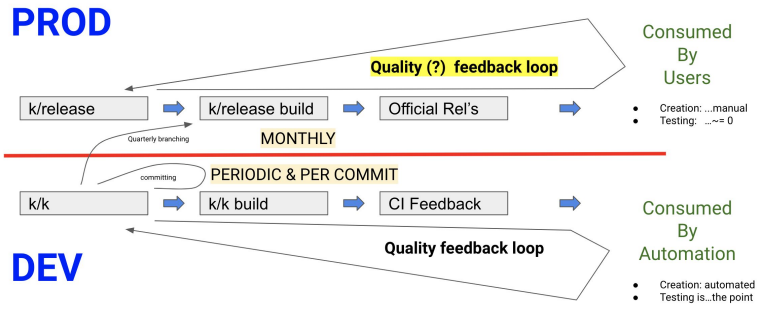
Good

Kubernetes Dev Model

The Release Process Aspirations & Possibilities



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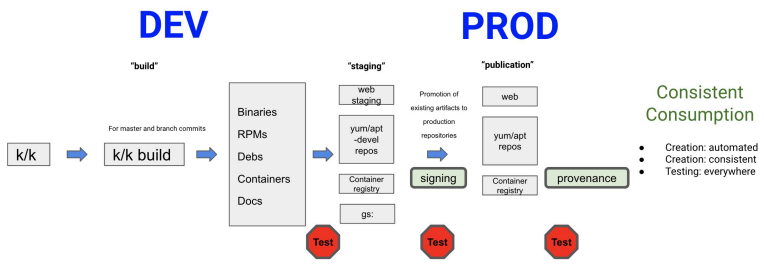
Bad

Kubernetes Dev Model

The Release Process Aspirations & Possibilities



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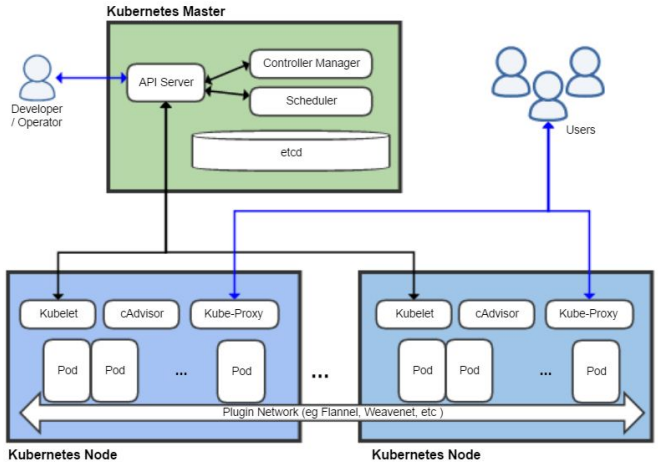
Good

Kubernetes Dev Model

Splitting the Monolith vs Stability



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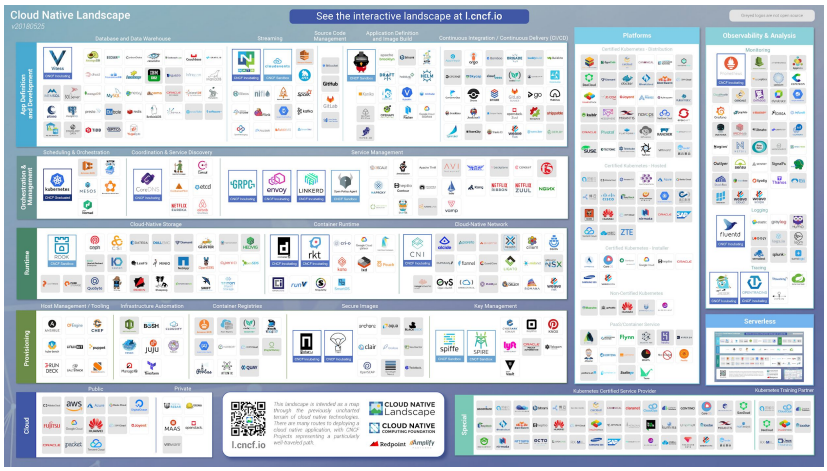
Old, dated architectural diagram of k8s control plane. Especially with most of the component code in one repo, it's easy to imagine validating this as an integrated cluster unit.

Image source: https://en.wikipedia.org/wiki/Kubernetes#/media/File:Kubernetes.png (CC BY-SA 4.0)

Kubernetes Dev Model

Splitting the Monolith vs Stability



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But what k8s presentation is complete without the CNCF eye chart?

Image source: https://raw.githubusercontent.com/cncf/landscape/master/landscape/CloudNativeLandscape_v20180525.png

In a way splitting the k/k monolith is just adding a few more icons here.

How do we do integration testing here? How much do we ***need*** to do?

This makes my brain go…

Kubernetes Dev Model

Splitting the Monolith vs Stability

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Image source: Flickr user Tambako The Jaguar
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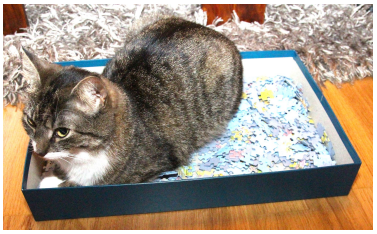
Roar!

Soooooooo many interesting technical challenges here to conquer!

Given this future task…who wants to join the 1.15+ release teams?

SIG Release

The Release Team



- Volunteer leads, plus shadows
- Meets regularly to assess state of dev, weigh risks
- We generate focus where we feel more is needed
- Meetings meetings meetings with the SIGs SIGs SIGs
- Contacting people on Slack
- Attempting to follow GitHub status across multiple repos and 100s of issues and PRs

Mostly toothless: doesn't do "the real work" rather watches, worries, spots gaps and issues, finds the right owning party, tracks critical work to completion on timeline

Mostly thankless: Servant leadership, but we have fun ;0

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Image source: Flickr user Andy Miccone
https://www.flickr.com/photos/andymiccone/27657176029/ (CC0 1.0)

There's a token dog in the presentation, ironically from Aaron @spiffxp Crickenberger's slack icon.

SIG Release

Release Team Roles

Role	Name (GitHub / Slack ID)	Shadow Name(s) (GitHub / Slack ID)
Lead	Tim Pepper (@tpepper)	Aishwarya Sundar (@AishSundar)
Features	Stephen Augustus (@justaugustus)	Kendrick Coleman (@kacole2), Robert Sandoval (@robertsandoval), Rajendar Talatam (@rajendar38), Michael Singh (@wadadli)
CI Signal	Mohammed Zeeshan Ahmed (@mohammedzee1000)	Christian Hernandez (@christianh814), Suraj Narwade (@surajnarwade)
Test Infra	Cole Wagner (@cjwagner)	Amit Watve (@amwat), Paul Renato (@prwitt), RaviSantosh Gudimetla (@ravisantoshgudimetla)
Bug Triage	Guinevere Saenger (@guineveresaenger/ @gsaenger on Slack)	Jeremy Rickard (@jeremyrickard), Arnaud Meukam (@ameukam), Anubhuti Manohar (@amanohar), Niko Penteridis (@dogopupper)
Branch Manager	Doug MacEachern (@dougm)	Etienne Coutaud (@etiennecoutaud), Yang Li (@idealhack), Hannes Hoerl (@hoegaarden), Travis Rhoden (@codenrhoden)
Docs	Zach Arnold (@zparnold)	Samuel Tauil (@samueltauil), Jim Angel (@jimangel), Tim Fogarty (@tfogo)
Release Notes	Nick Chase (@nickchase)	Dave Strebel (@dstrebel), Lindsey Tulloch (@onyiny-ang), Mike Arpaia (@marpaia)
Communications	Kaitlyn Barnard (@kbarnard10)	Keri Dell (@kerilynndell), Kristen Evans (@kristenevans)

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Test Infra		), RaviSantosh
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Branch Ma		i (@idealhack), n (@codenrhoden)
Docs		nangel), Tim
Release No		@onyiny-ang), Mike
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CI Signal	Maria Ntalla (@mariantalla)	Morten Torkildsen (@mortent), Kendrick Coleman (@kacole2), Silvia Patricia Moura Pina (@smourapina), Jorge Alarcon (@alejandrox1)
Test Infra	Amit Watve (@amwat)	Dhawal Yogesh Bhanushali (@imkin), James Munnelly (@munnerz), Tara Gu (@taragu)
Bug Triage	Niko Penteridis (@nikopen)	Nicholas Lane (@soggy), Ibrahim AshShohail (@ibrasho), Tim Carr (@timmycarr), Shubheksha Jalan (@shubheksha), Mayank Kumar (@mayank), Marko Mudrinic (@xmudrii), Gianluca Arbezzano (@gianarb), Mohammed Zeeshan Ahmed (@mohammedzee1000)
Branch Manager	Hannes Hoerl (@hoegaarden)	Cheryl Fong (@bubblemelon), Melynda Hunter (@melyndah), Nikhil Manchanda (@SlickNik)
Docs	Jim Angel (@jimangel)	Barnabas Makonda (@MAKOSCAFEE), Cody Clark (@cody-clark), Jared Bhatti (@jaredbhatti), Naomi Pentrel (@npentrel), Tunde Oladipupo (@simplytunde)
Release Notes	Dave Strebel (@dstrebel)	Jeff Sica (@jeefy), Lindsey Tulloch (@onyiny-ang), Alena Varkockova (@alenkacz)
Communications	Natasha Woods (@nwoods3)	Kaitlyn Barnard (@kbarnard10), Jorge Castro (@castrojo), Taylor Dolezal (@onlydole)

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Test I		erz), Tara Gu
Bug T		arr ar (@mayank), ohammed
Branc		ikhil
Docs		k), Jared Bhatti simplytunde)
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Get stuck in
1.15+

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Maybe you're here at the conference to learn about some specific tech's and maybe it's just about using some existing features in those. Cool. Good.

But look at where you can give back to the project. There's a lot more to open source development than just implementing a feature and submitting a pull request for it. There are all these aspects of broader project health.

Image source: Flickr user Jeffrey
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SIG Contributor Experience

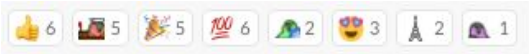
Community growth and quality software engineering

Do you have project management, documentation, testing, release management, communications, etc. skills?

Do you employ people with ^^^^ skills?

Call to action:

- There is real opportunity here for individuals (and employers) who want to collaborate in support of this open source project.
- We don't have all the answers, but iterate/evolve and are a humble/inclusive community
- We try to have to have fun (see or wild emoji usage on Slack)
- JOIN US!!



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A lot of this talk showed the project BREADTH via examples from the SIG Release side of my brain, but…SIG Contributor Experience is actually why I'm here.

I could focus on a few technical implementation tasks which are interesting and challenging to me. But open source is not a zero sum game. I can do more if I help others too.

And if you were to ask "Is kubernetes done yet?" Answer is very clearly, Not by a long stretch. Need more people, especially DevOps minded people passionate about helping insure stability in a wildly complex distributed system software stack.

We're really only just getting started. So much needs build, trialed, decided, and abstracted.

Most of this should have seemed like normal s/w engr. The specific implementation details might be k8s-specific, but the concepts are not.

This periphery of "non-code" development activities needs more volunteers.

Image source: Flickr user Jassim msahri
https://www.flickr.com/photos/61192342@N03/9496463918/ (CC BY 2.0)

Thank You

…and questions?

Thank you VMware

Thank you CNCF, LF, kubernetes community

@pythomit

tpepper

tpepper@vmware.com

DM's open, there are no "dumb questions", Ask Me Anything

In honor of yesterday's code freeze for 1.14

https://www.youtube.com/watch?v=62Au2SNgd8w