KubeCon
CloudNativeCon
North America 2019

SIG Multicluster

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Agenda

- History Lesson
- Current SIG Projects
- Survey
- Future of the SIG

We’re here to talk, please feel free to ask questions as we go

A little history

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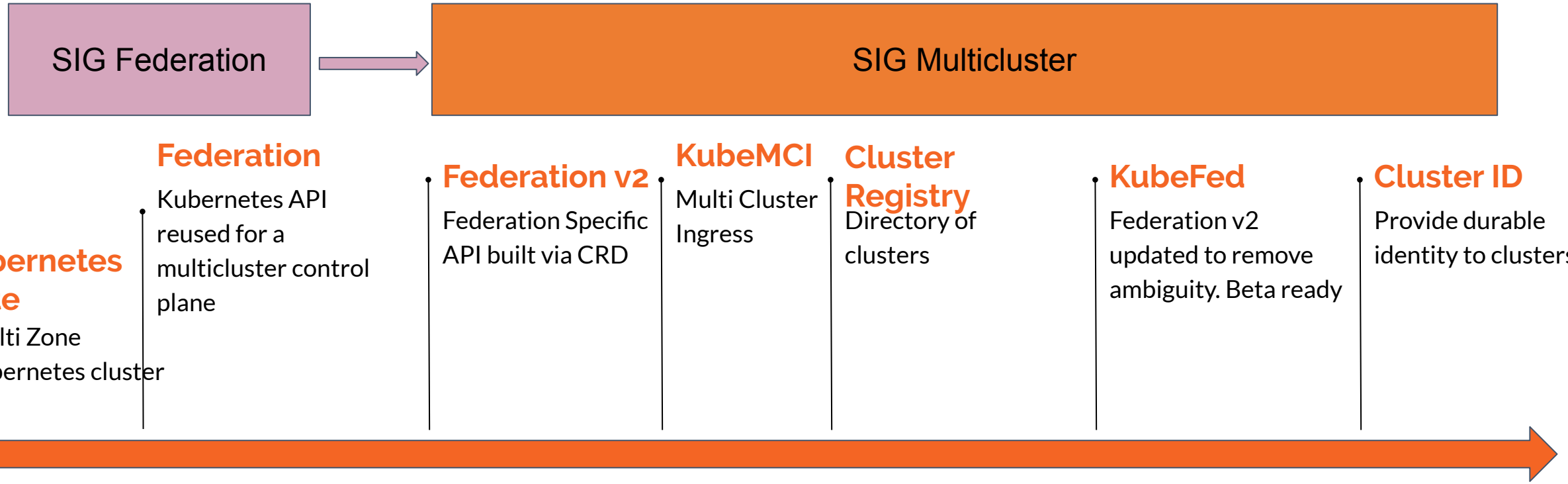


Current SIG Projects

- KubeFed
- Cluster Registry
- Cluster ID
- KubeMCI CLI

KubeFed

- **Big Idea: Distribute K8s resources to multiple clusters**
  - Coordinate the configuration of multiple clusters from a single set of APIs in a hosting cluster
- **Current Status: Alpha - Just short of beta**
- **What's Next:**
  - Determine whether there is enough community backing to bring to beta
- **Repo:** https://github.com/kubernetes-sigs/kubefed

KubeFed - Updates

- Propagation status improved
- Updates in how KubeFed handles annotations
- API group changed (from kubefed.k8s.io to kubefed.io)
- *APIVersion* of the target resource can now be configured
- API Validations using admission web hook
- json patch overrides

Cluster Registry

- **Big Idea: Track a collection of clusters**
  - Inventory which can store per cluster metadata
- **Current Status: Alpha**
- **What's Next:**
  - Determine extent of adoption
  - Determine beta criteria
- **Repo:** https://github.com/kubernetes/cluster-registry

Cluster ID

- **Big Idea: Durable identification of a cluster**
  - Give clusters a permanent ID coordinate
- **Current Status: Paper (stalled)**
- **What's Next:**
  - Implementation of the proposal

KubeMCI CLI

- **Big Idea: CLI tool to configure ingresses across clusters**
  - Enable customers to create global load balancers for their applications running across multiple k8s clusters. This is essential to building HA services.
- **Current Status: Beta.**
- **Feedback:** Feedback from customers in production:
  - https://github.com/GoogleCloudPlatform/k8s-multicluster-ingress/issues/117
- **What's Next:**
  - Continue to iterate with customers
- **Repo:**https://github.com/GoogleCloudPlatform/k8s-multicluster-ingress

Survey
Says...

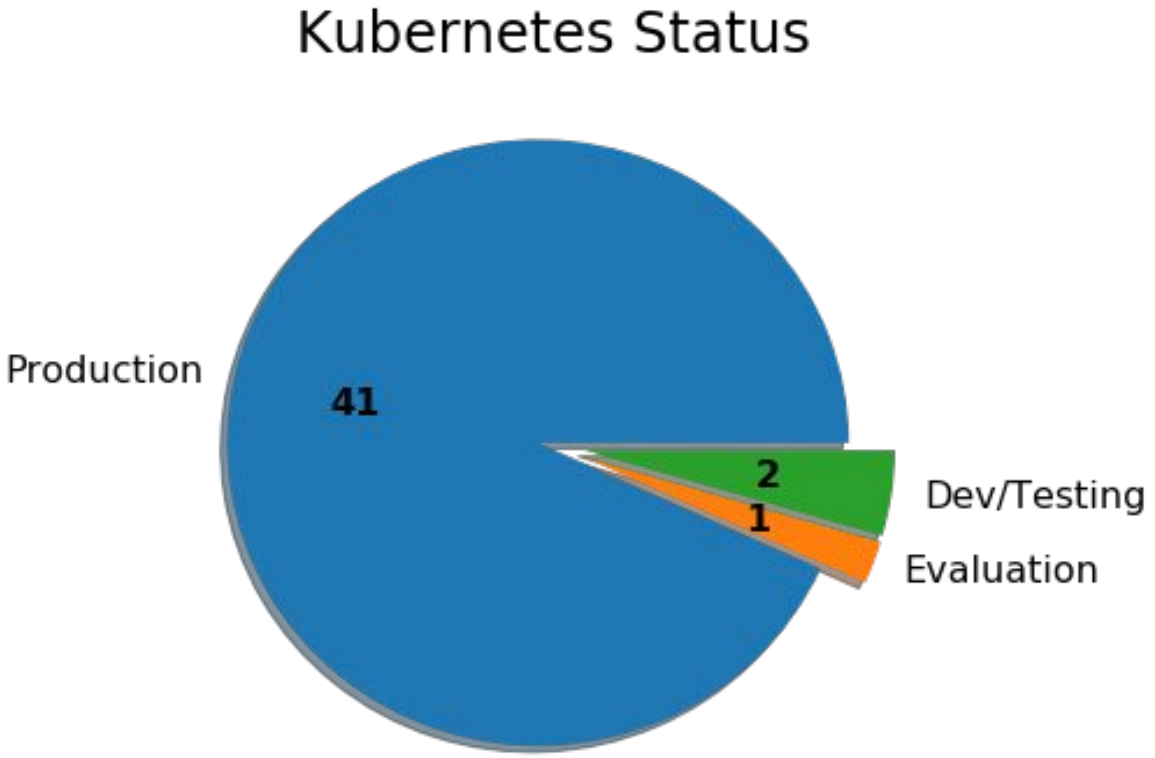
Our Survey

44 respondees

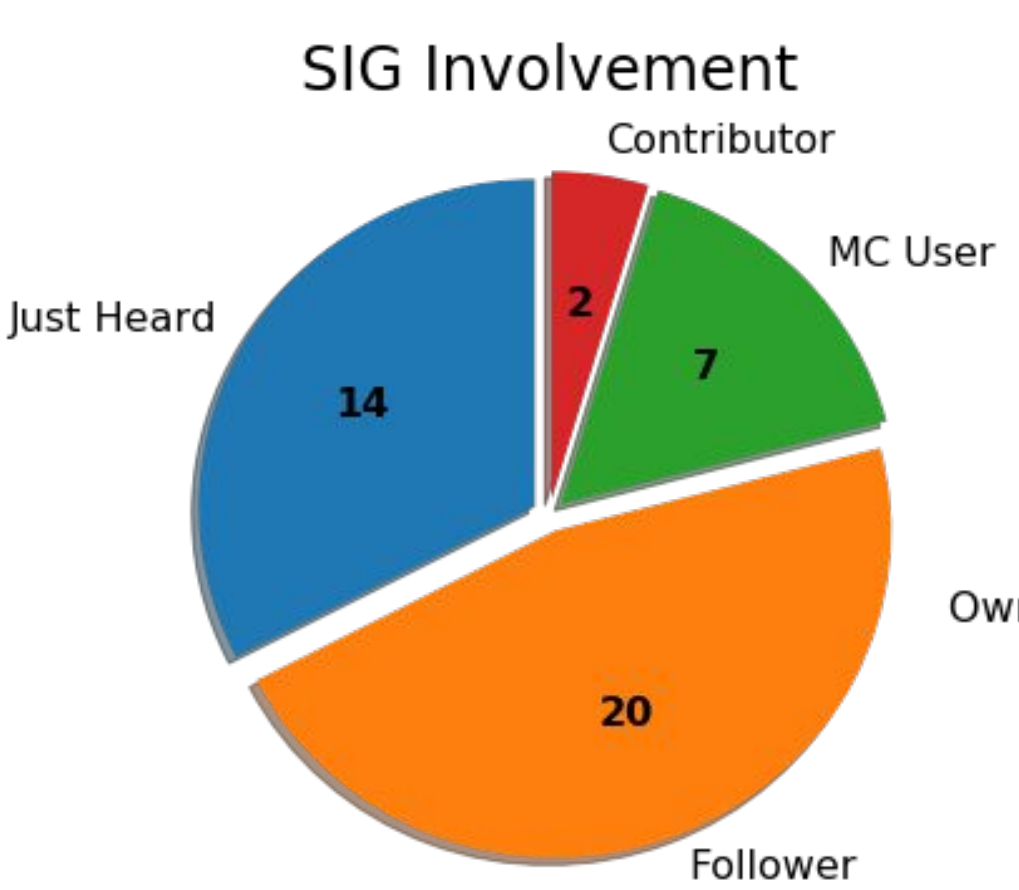
Not finished surveying yet

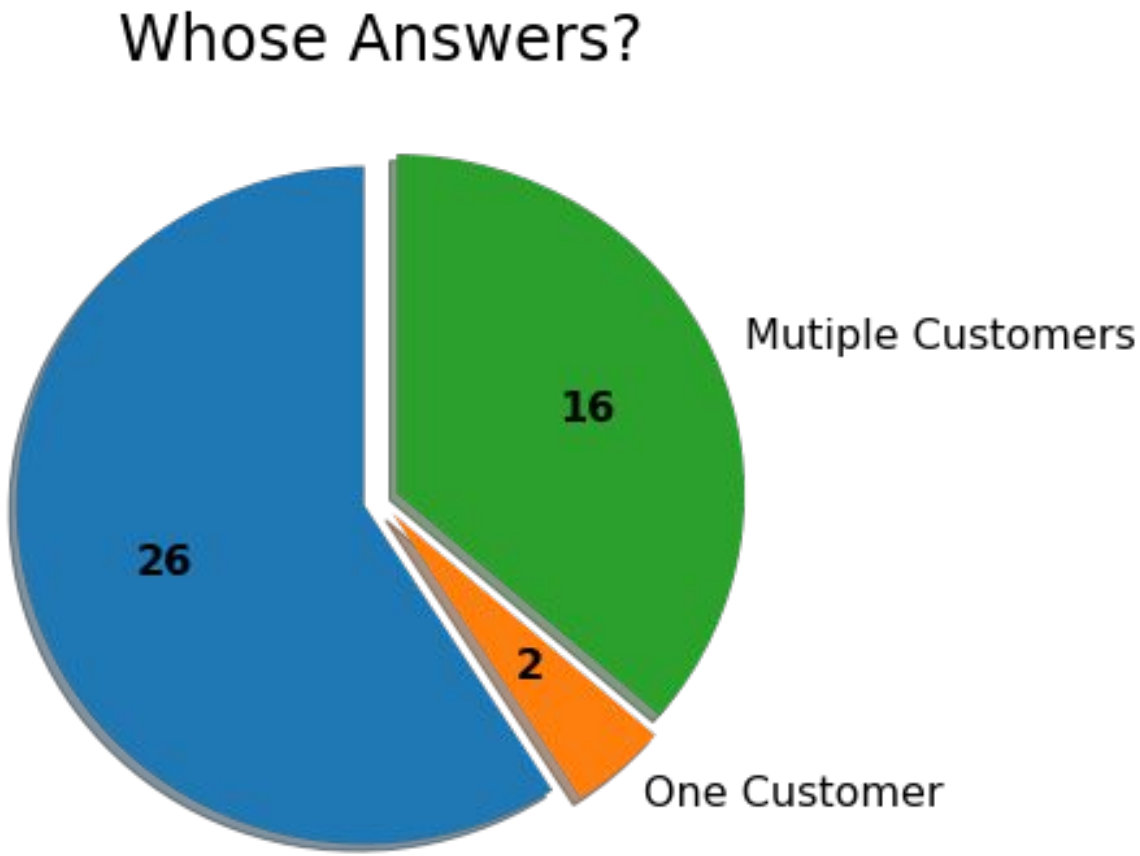
https://www.surveymonkey.com/r/5ZXRMY8

Survey Respondees



Survey Respondees

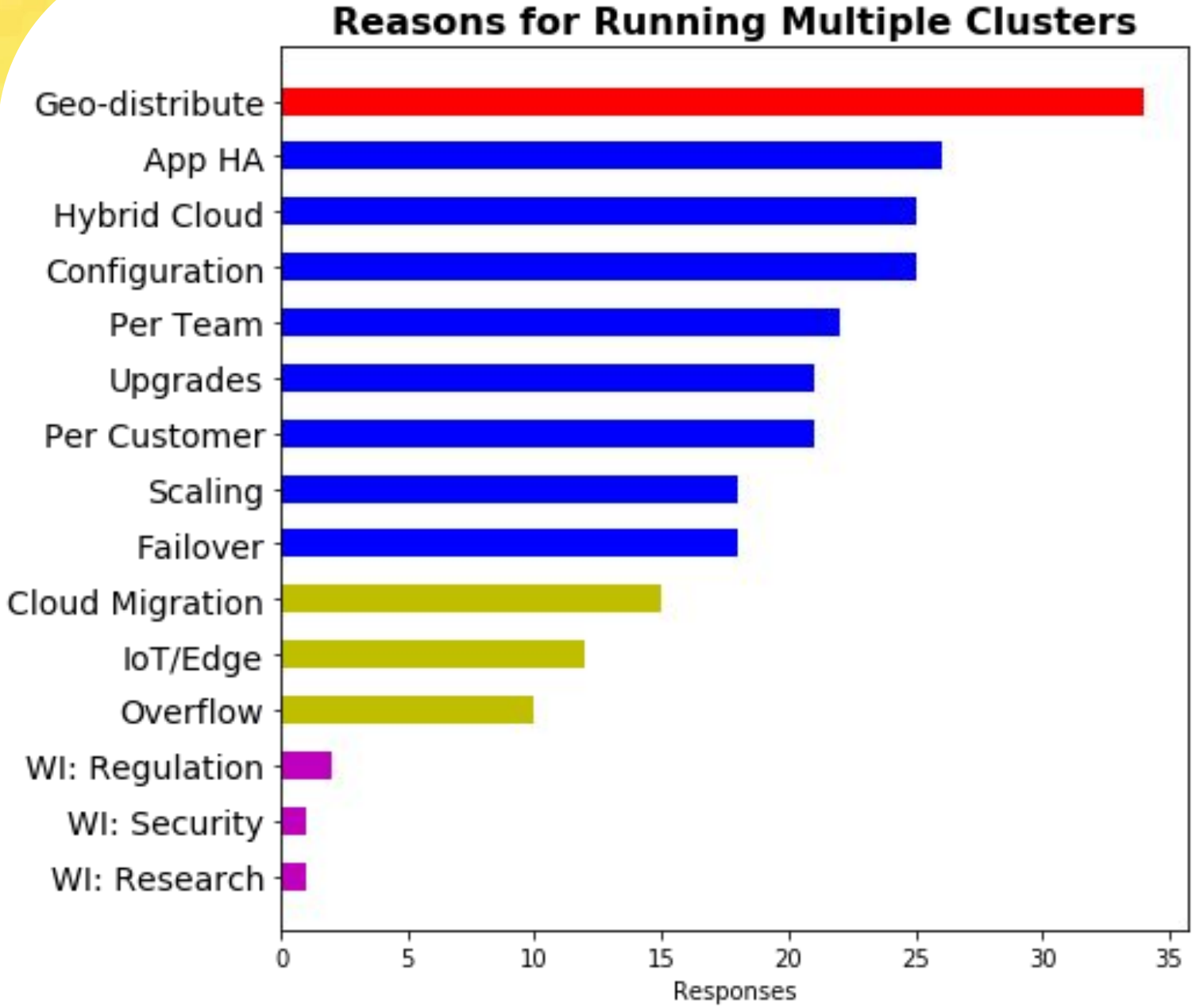




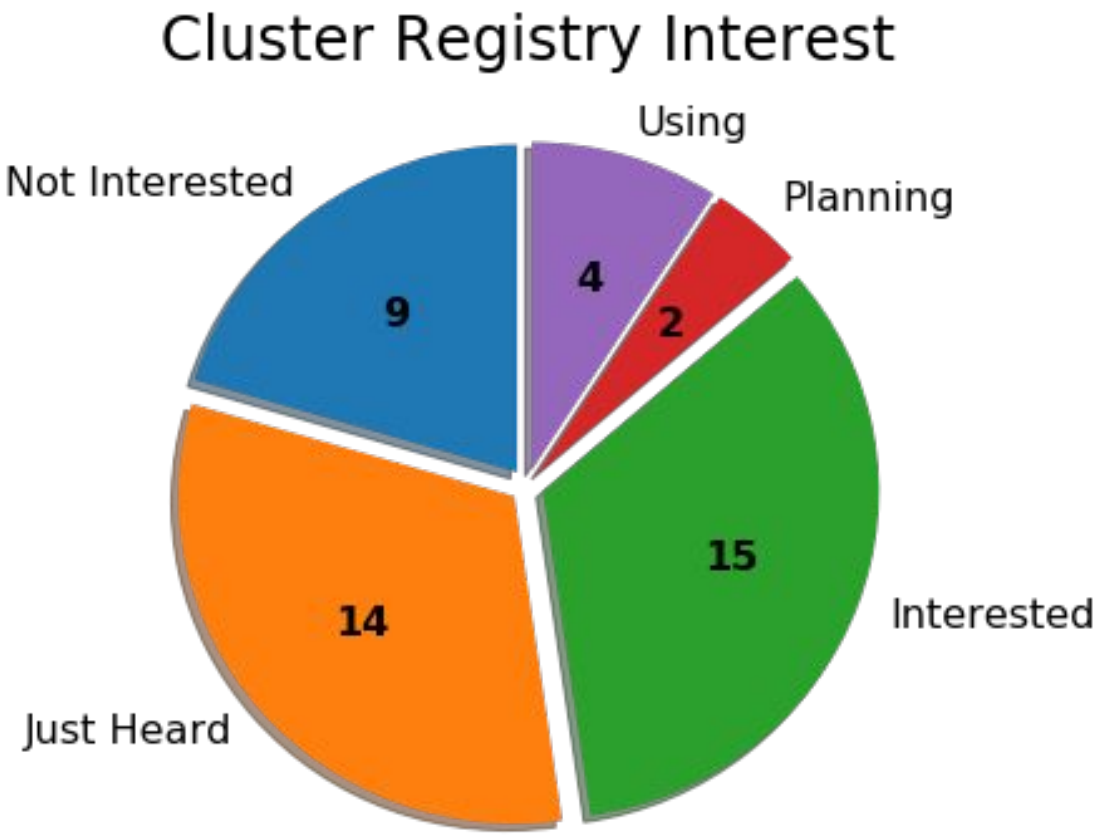
Cluster Size

Organization Type	Responses	Min.	Median	Max
Consultant/SI	7	4	12	30
End-User	17	2	16	5000
Provider/Host	4	10	75	150
Research	2	3	6.5	10
Everything	14	5	25	1000

Multicluster Reasons



Cluster Registry



We have a internally build rudimentary form of Cluster Registry ... We would like to adopt something which is better integrated with the rest of the ecosystem.

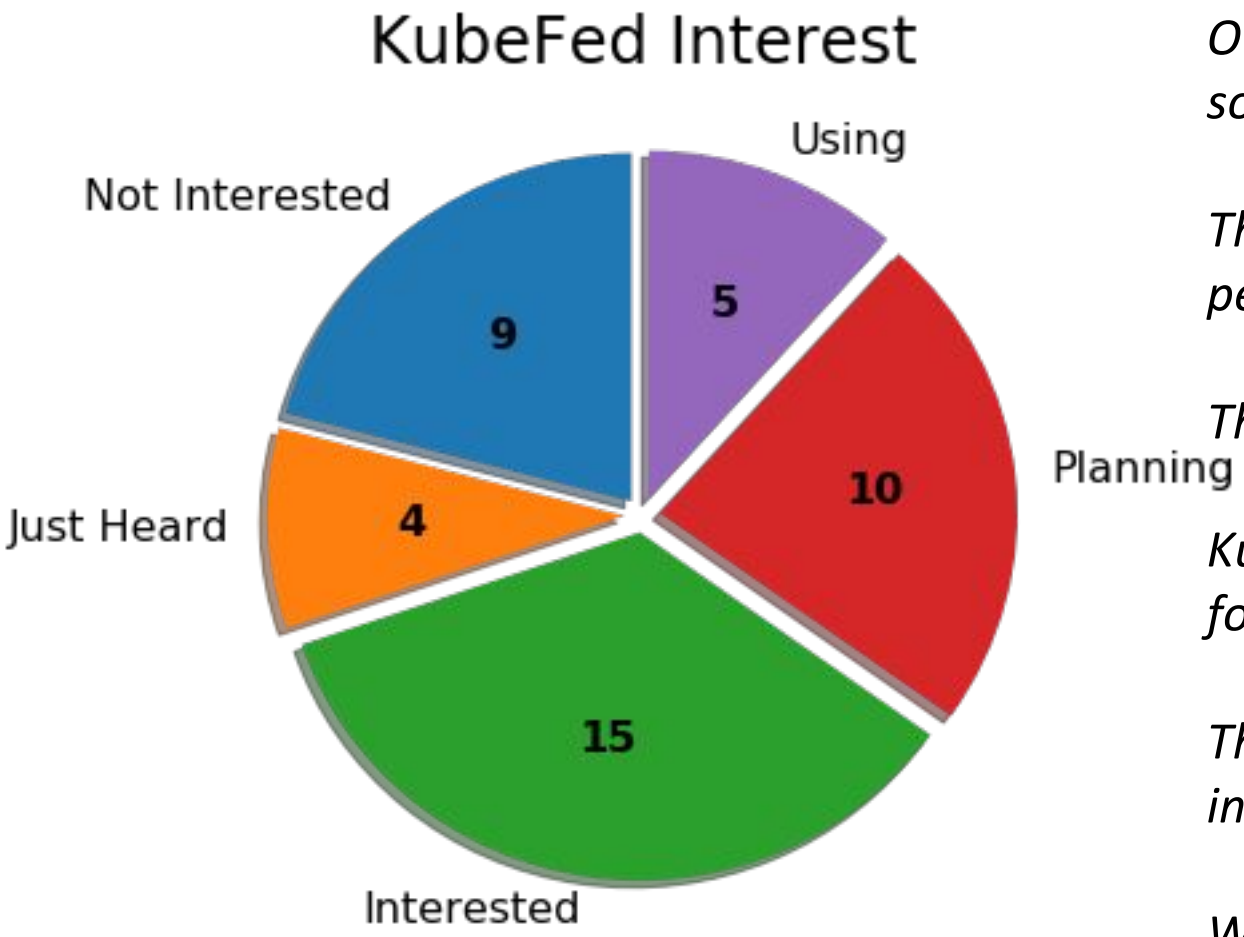
It's abandonware, I don't even understand what it could do.

There's a lot of overlap with the cluster-api SIG cluster-lifecycle project … and neither provides exactly the model we need.

We have a better internal replacement

I see this effort as critical to Day 2 operations.

KubeFed



Our current solution for Fog/Edge computing … can be solved using cluster federation

The multi-cluster Ingress/Namespace sync seems perfect for us.

The requirements of API compatibility are too onerous

KubeFed has been so long in development that we were forced to build our own tools

The other big desire is for pull-based reconciliation instead of push.

Waiting to get out of beta and to see wider adoption among the community.

What's next?

- Areas to explore
  - Inventory / Grouping
  - Cluster ID/Ownership
  - Auth{n,z}
  - Multi-cluster spanning:
    - Namespaces
    - Workloads
    - Networks
    - Storage
  - How resources / work get to clusters

- F2F / dial-in meeting to hash out concentration areas next year?

Discussion opened by Tim Hockin at
https://docs.google.com/document/d/1G1lflukib7Fy_LpLUoHZPhcZ5T-w52D2YT9W1465dtY

Show us what you got

We’d love to see demos of what you’re working on related to multicluster!

Next steps..

- **Communication across clusters and network topologies**
  - Network service mesh might be useful, but we definitely need to define the networking constructs and multicluster schemes
- **Access control between clusters**
  - Authentication and authorization between clusters need to be correctly established

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Next steps..

- **Cross cluster service discovery and dns name resolution**
  - We have some implementations but that mandates external LBs per service and that's limiting
- **Giving meaning to single cluster resources across multiple clusters**
- **….**

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