

Survey: Istio users' cross-cluster routing today

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Intro

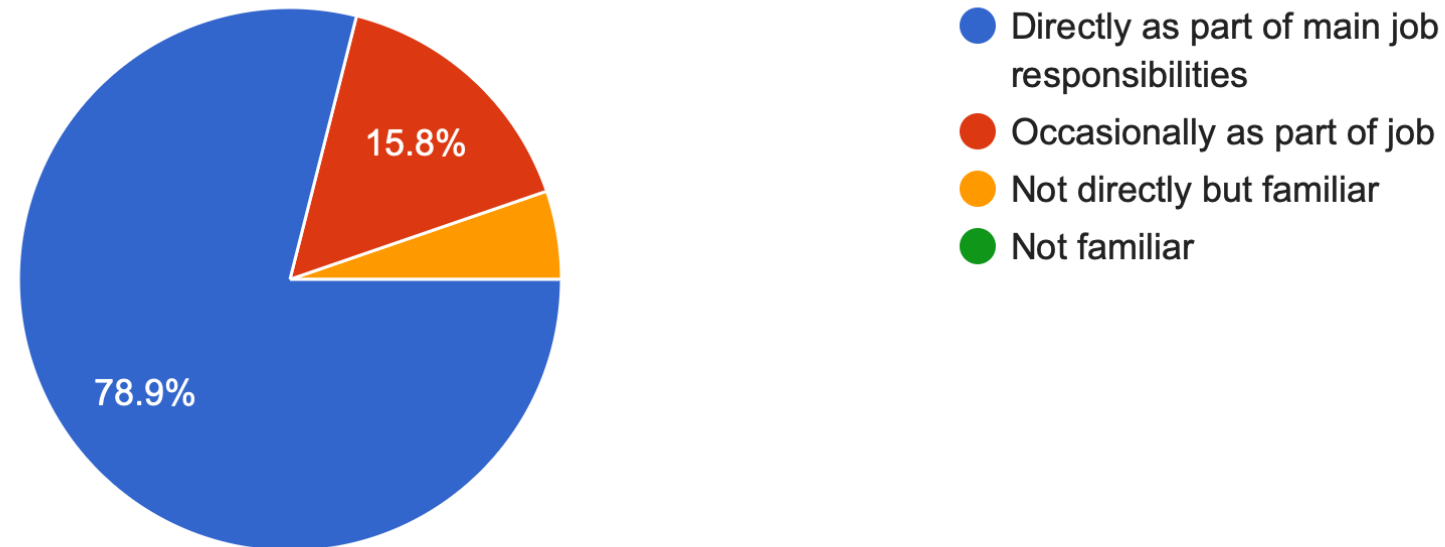
We are a research group in the Department of Computer Science at the University of Illinois at Urbana-Champaign, working on improved platforms for multi-cluster microservice deployments.

The purpose of this survey is to understand common multi-cluster deployments in practice. The results of this survey will only be used for research purposes. We received 38 responses.

*Disclaimer: This survey was conducted in Istio community. We specified this survey was about multi-cluster & cross cluster routing. Hence, the population could be biased to the people who are familiar with multi-cluster deployment and who actually have experience to deploying multiple clusters.

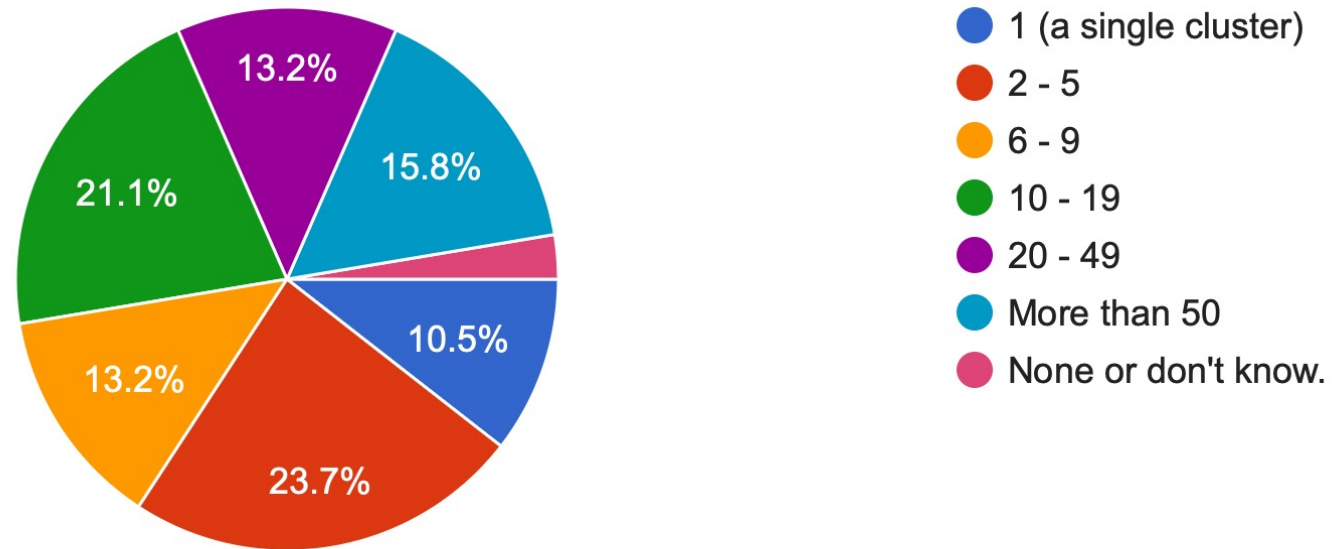
Do you manage Kubernetes cluster(s) as part of your job? (Throughout this survey, "clusters" refers to Kubernetes clusters.)

38 responses



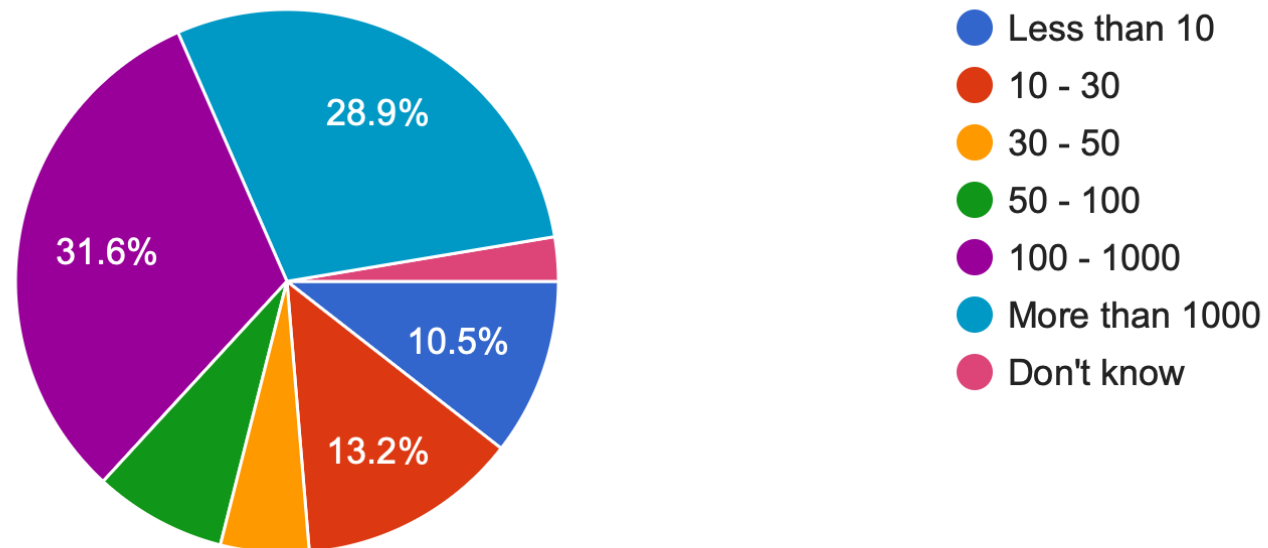
Roughly how many production clusters do you have?

38 responses



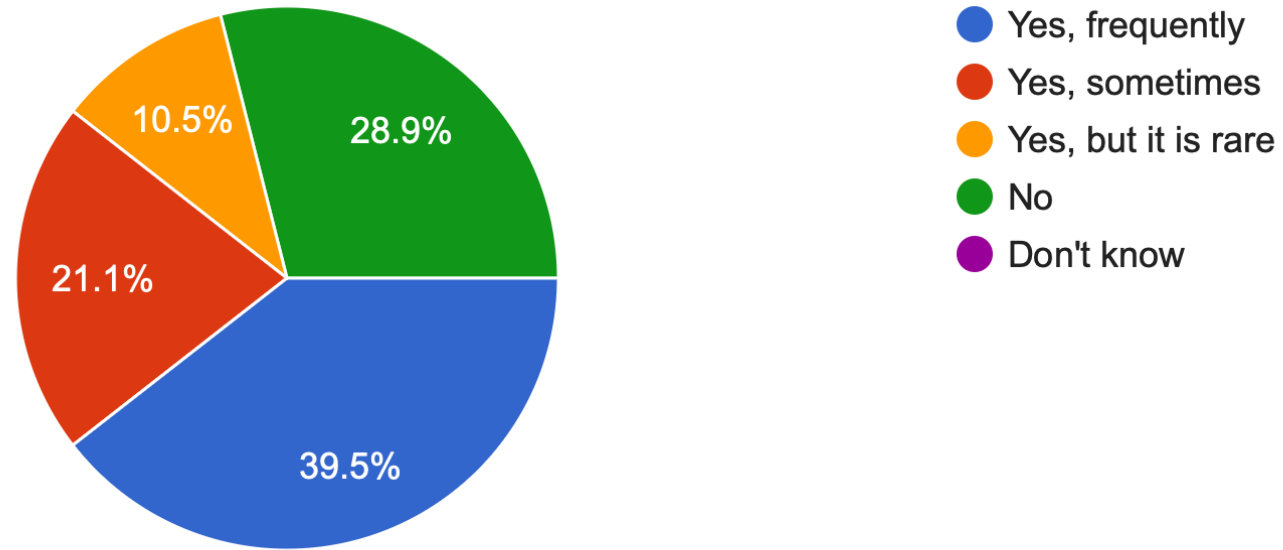
Across all of your clusters together, roughly how many nodes (VMs or physical machines) are there?

38 responses



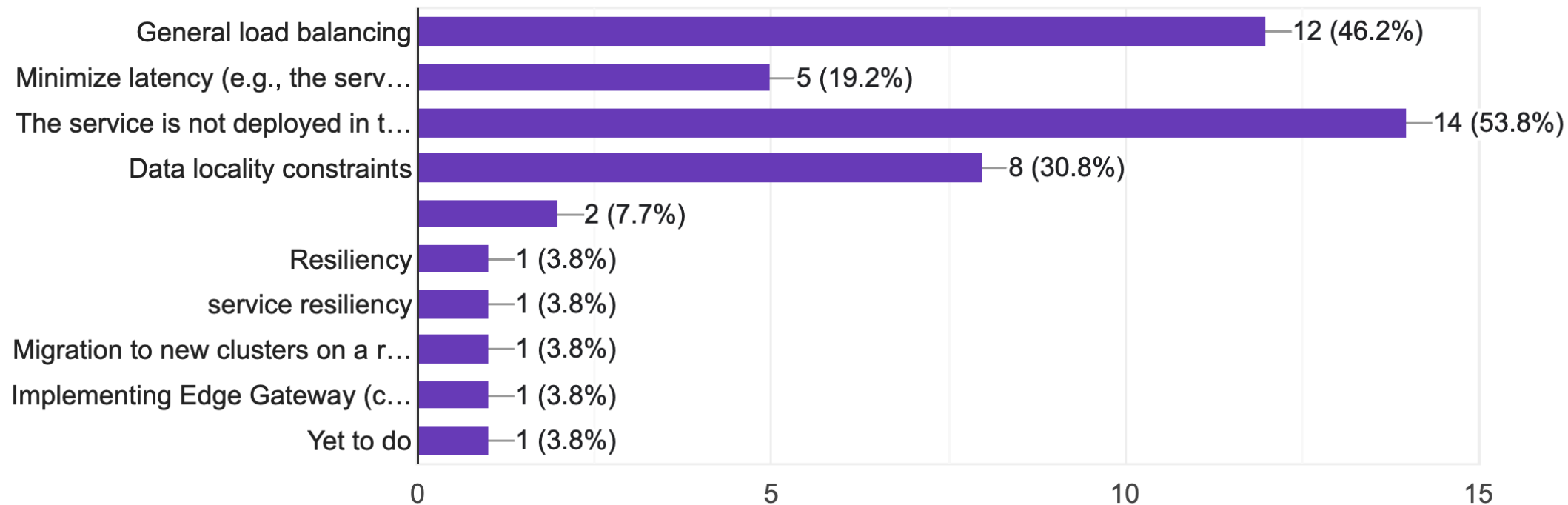
Does your deployment do cross-cluster request routing?

38 responses



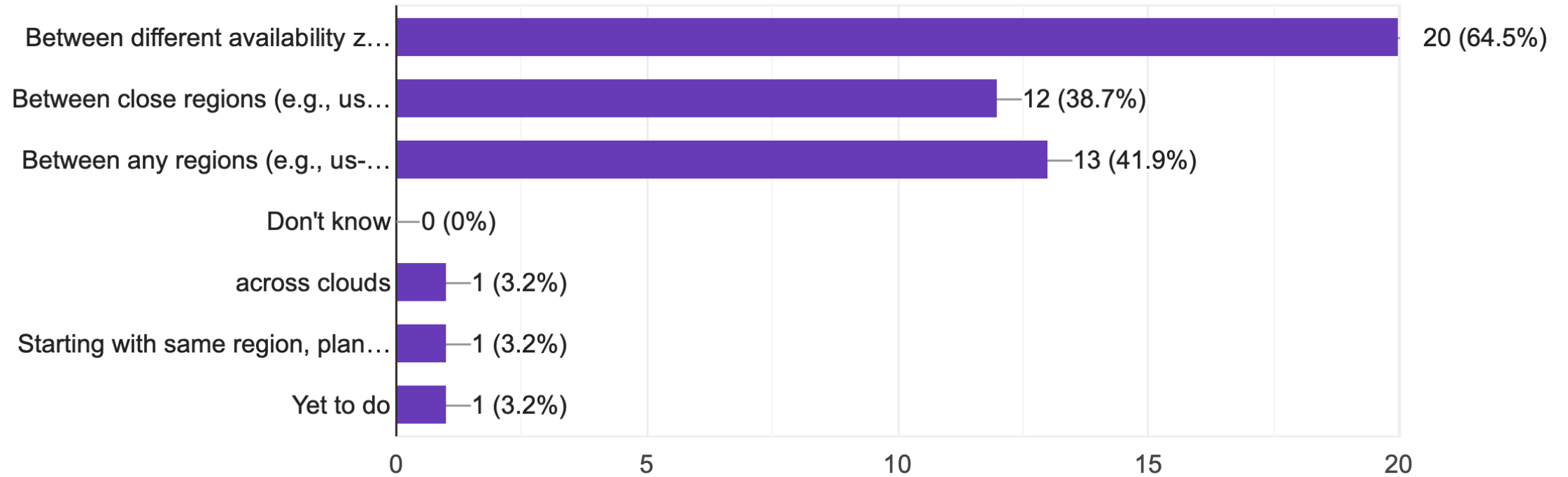
If you do cross-cluster request routing, what are the major motivations?

26 responses



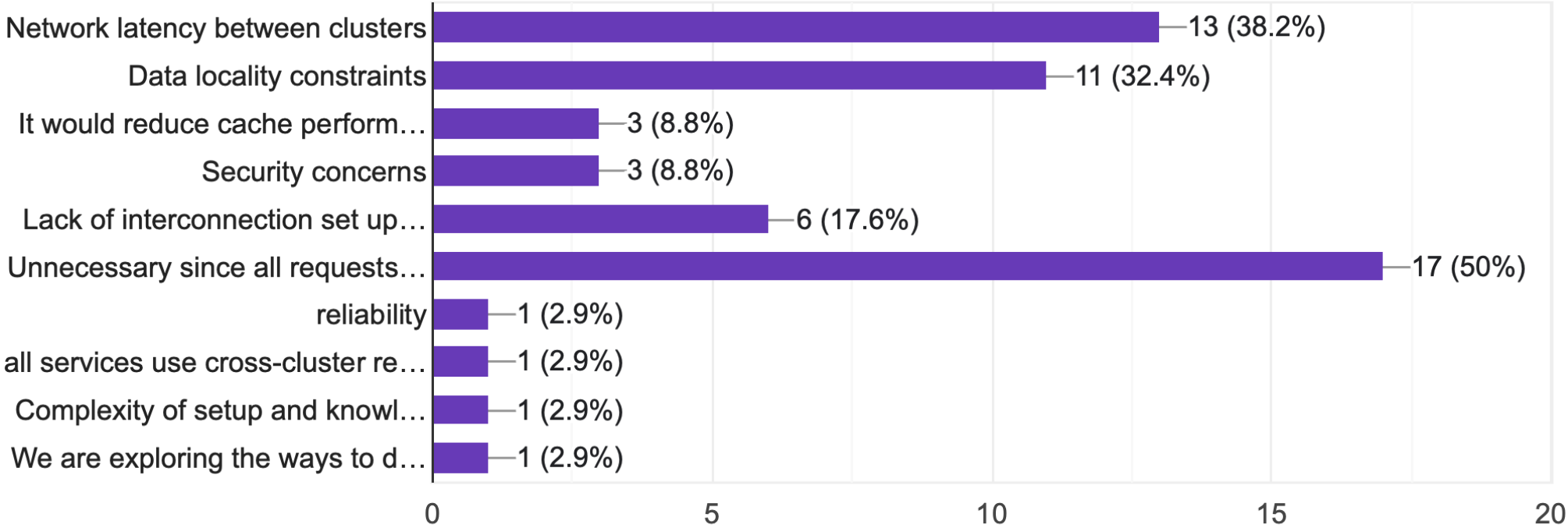
If you do cross-cluster request routing, how far do you allow it to route requests?

31 responses



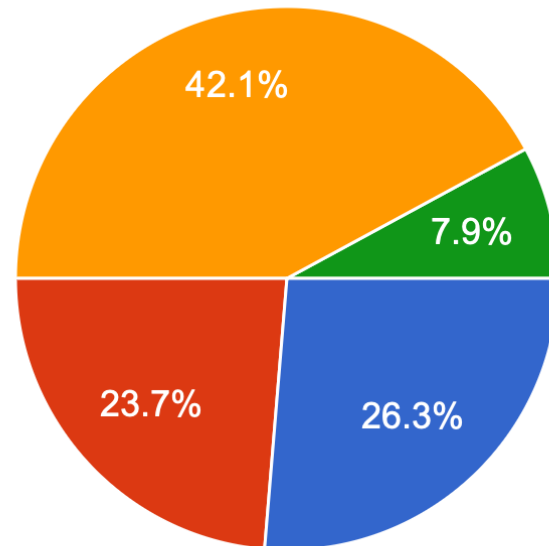
For your services that do not use cross-cluster request routing, what are the major reasons? (You can choose more than one.)

34 responses



Do you deploy multi-cluster services? We define a multi-cluster service as a single service that has production replicas running in more than one clust...example of multi-cluster services is shown below.

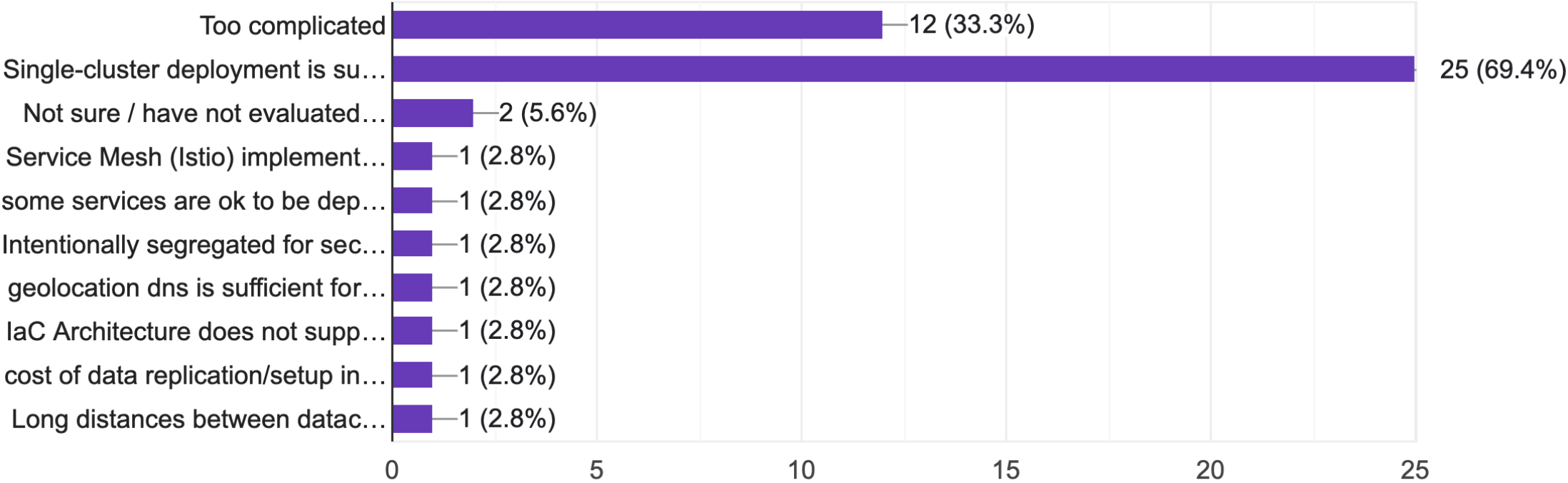
38 responses



- Yes, most or all of our services are deployed in multiple clusters
- Yes, some of our services are deployed in multiple clusters
- Not now, but we expect multi-cluster deployments in the future
- No, and we don't expect multi-cluster deployments in the future
- Don't know

For your services which are not deployed in multiple clusters, what are the major reasons? (You can choose more than one.)

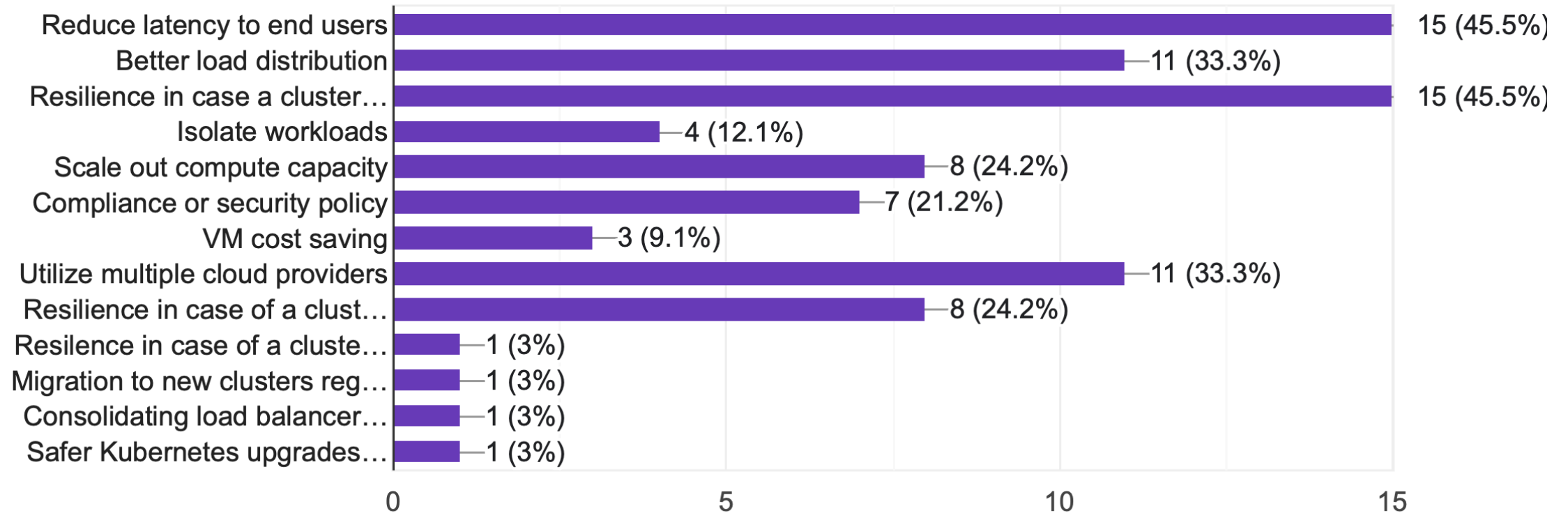
36 responses



If you don't deploy multi-cluster services and don't plan to deploy them in the future, you can stop the survey here and submit the response.

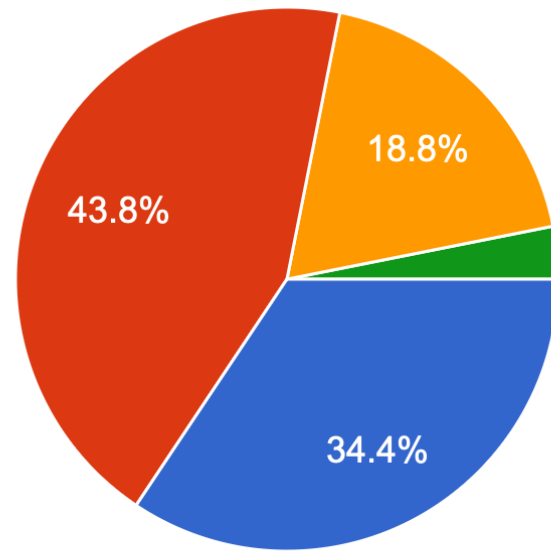
For your services which are or will be deployed multi-cluster, what are the major reasons? (You can choose more than one.)

33 responses



How do or will you deploy your multi-cluster services?

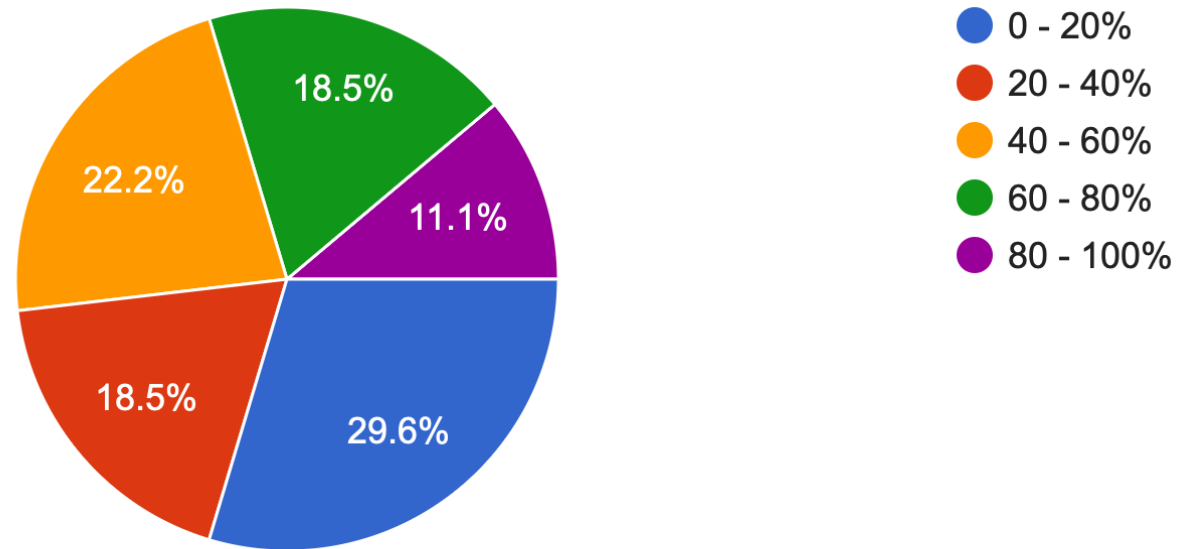
32 responses



- Complete replication: Each cluster contains all of the application's microservices
- Partial replication: Some clusters contain only some of the application's microservices (and therefore, some requests may need to be routed across clusters)
- Both
- Don't know

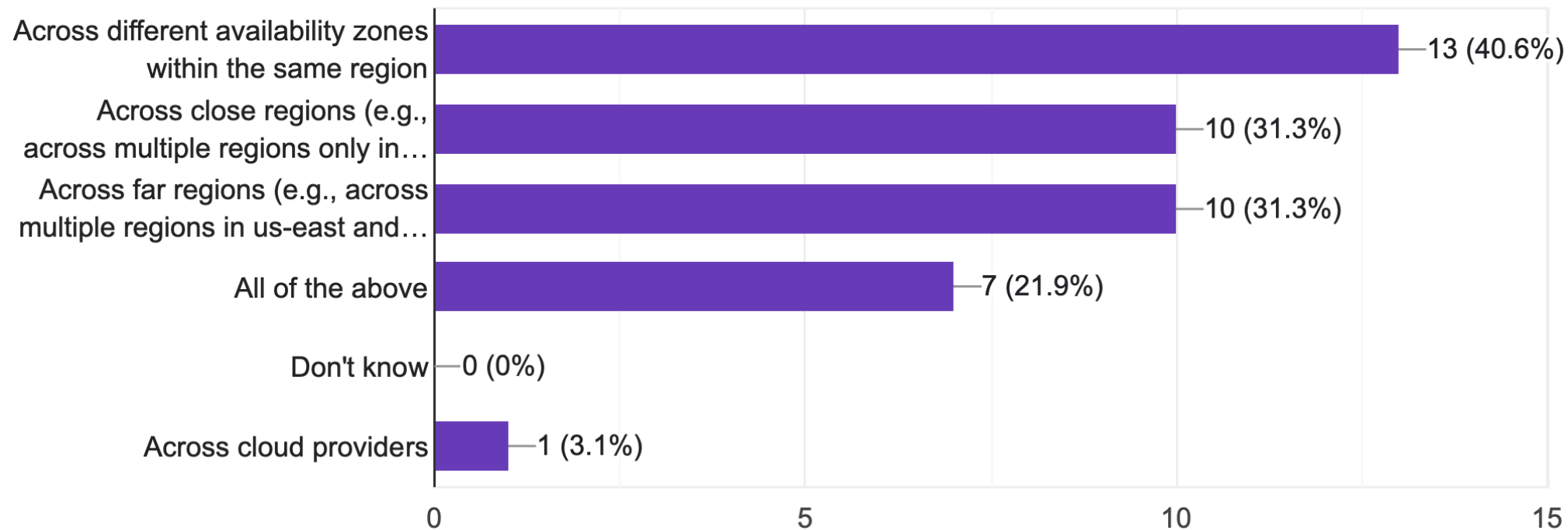
How much percentage of your services are multi-cluster services?

27 responses



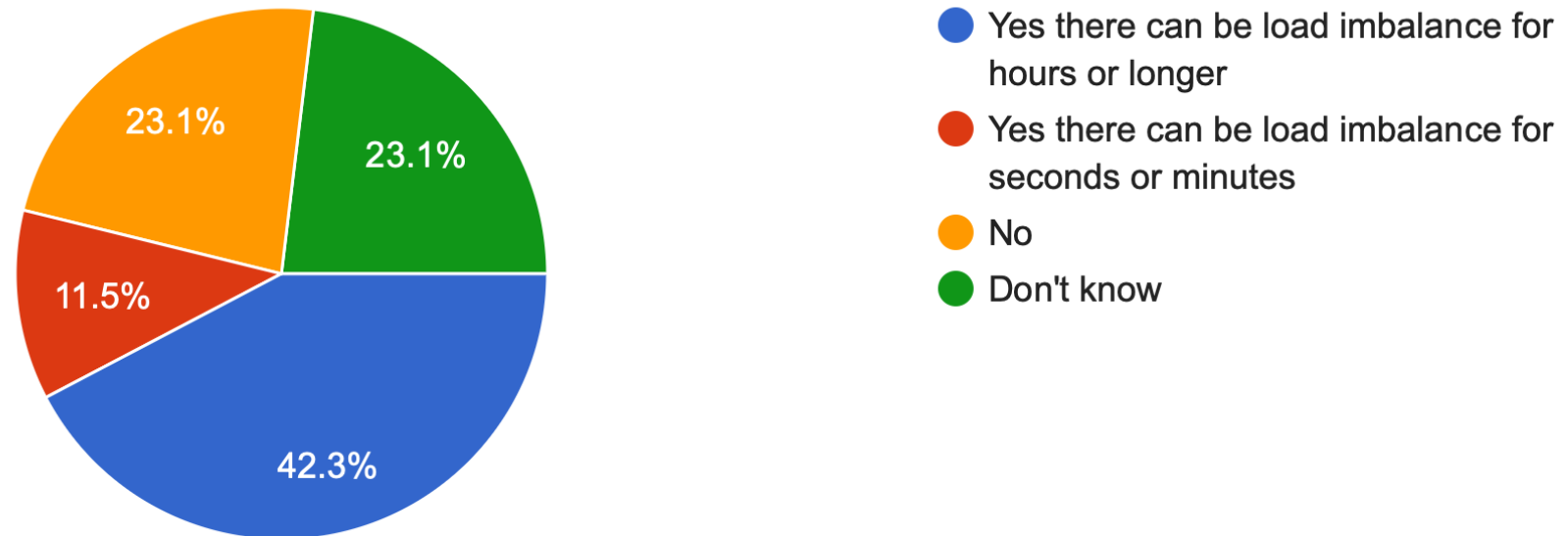
Where do or will you deploy your multi-cluster services?

32 responses



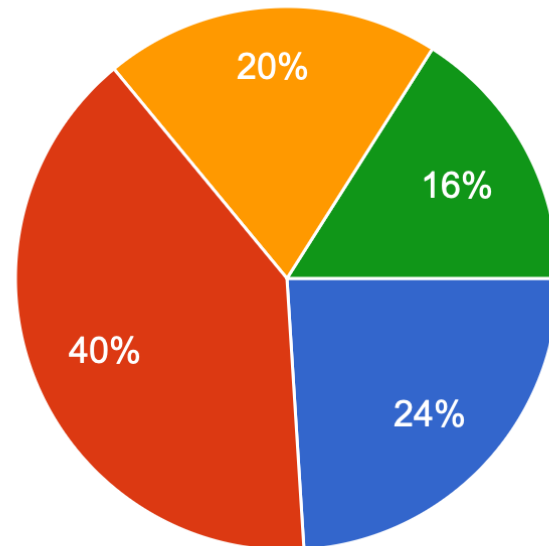
Is there considerable imbalance in load between clusters in your multi-cluster services? (you can ignore this question if you have not deployed multi-cluster services yet)

26 responses



Is there difference in cost to serve requests between clusters in your multi-cluster services? e.g., VM price difference, network bandwidth cost difference... you have not deployed multi-cluster services yet)

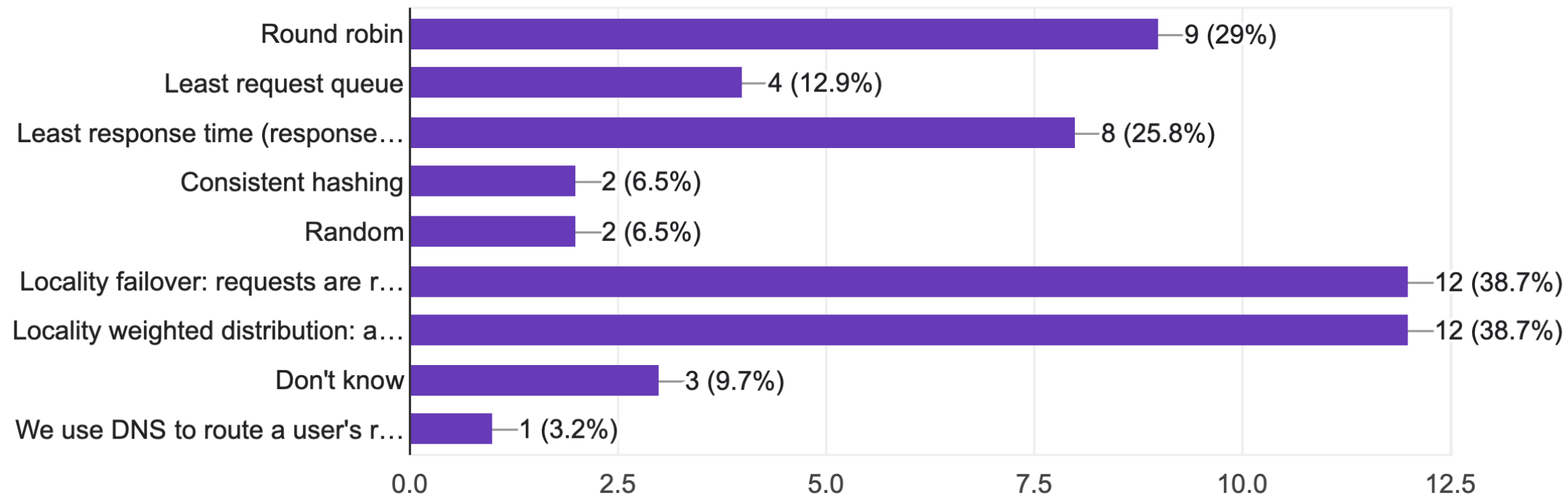
25 responses



- Yes, in terms of compute cost (e.g., VM price), serving request in one cluster can cost less than other clusters.
- Yes, in terms of network bandwidth cost, serving request in one cluster can cost less than other clusters.
- No
- Don't know

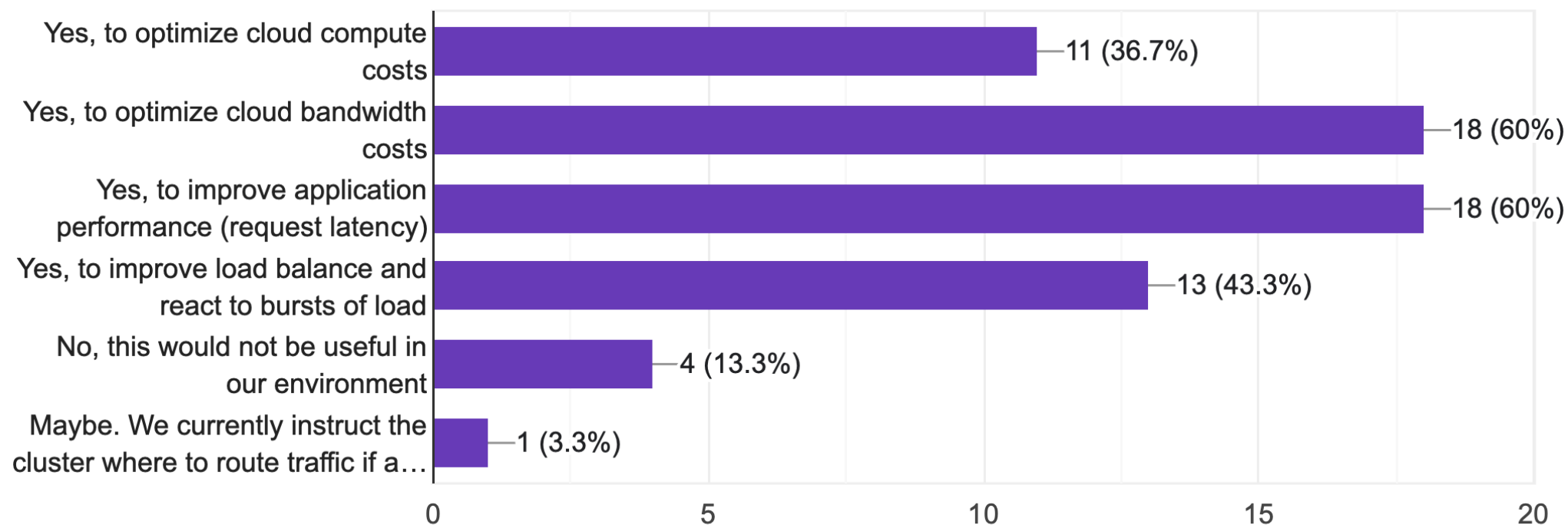
Which policy or policies do you use for multi-cluster service load balancing?

31 responses



Suppose your cluster infrastructure systems could automatically optimize the cross-cluster routing among multi-cluster services. Would this be useful in your environment? (Check all that apply.)

30 responses



Do you adjust the scale of your clusters?

24 responses

