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North America 2019

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SIG-Network Intro



@vllry

SIG-Network Scope



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“SIG Network is responsible for the components, interfaces, and APIs which expose networking capabilities to Kubernetes users and workloads.”

SIG-Network Scope



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- Networking control plane and data paths.
- Network service abstractions.
- Service discovery (DNS).
- Service load balancing (L4, L7).
- Network security and identity.
- Cluster connectivity.
- Cross-cutting concerns such as scalability.
- Metrics and monitoring associated with networking components.



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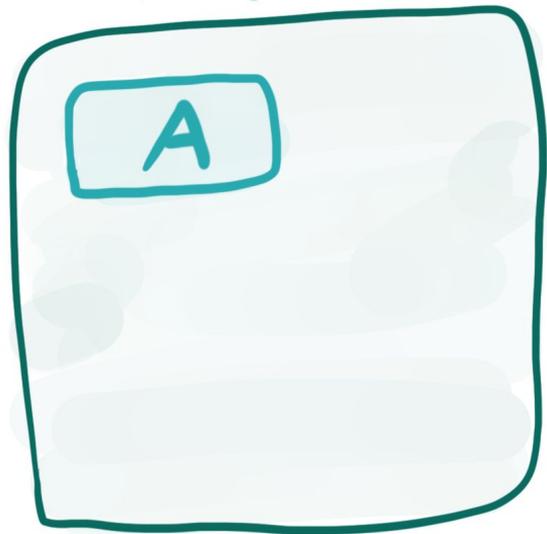
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SIG-Network Components

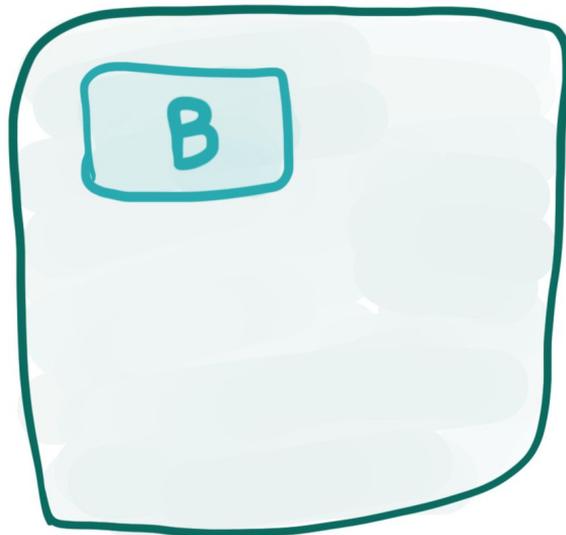


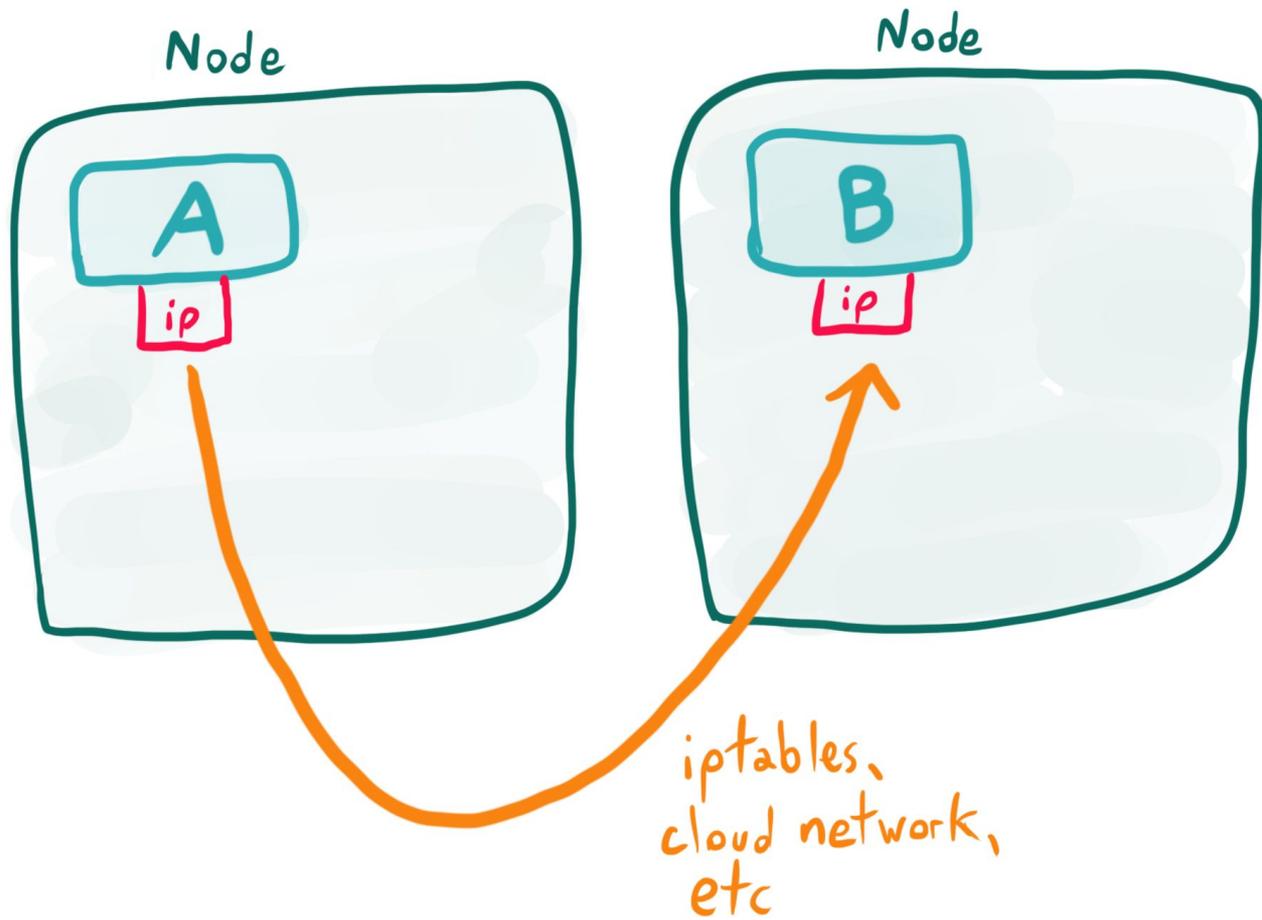
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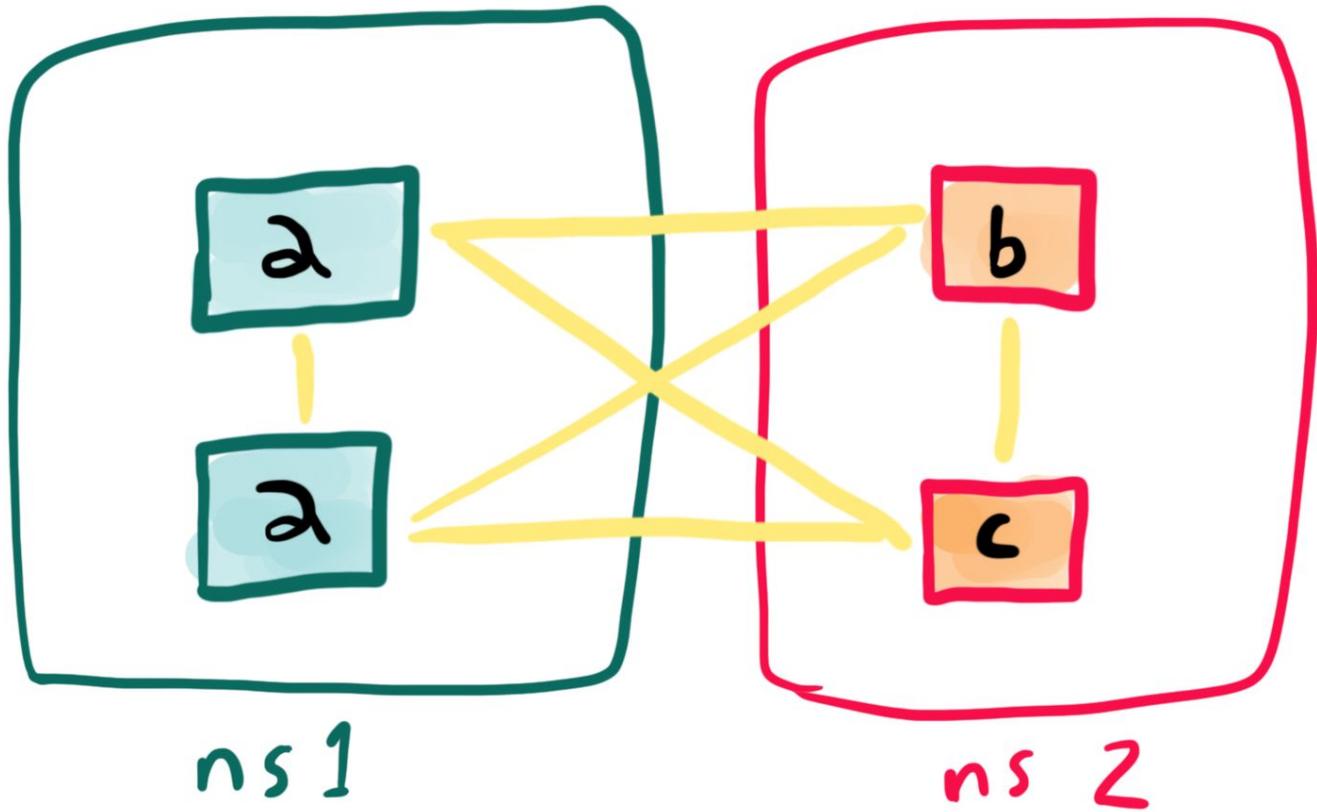
Node



Node







NetworkPolicy - Deny All Ingress



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```
kind: NetworkPolicy
apiVersion: networking.k8s.io/v1
metadata:
  name: ingress-deny-all
spec:
  podSelector:
    matchLabels:
      app: a
  ingress: []
```

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NetworkPolicy - Limited Ingress



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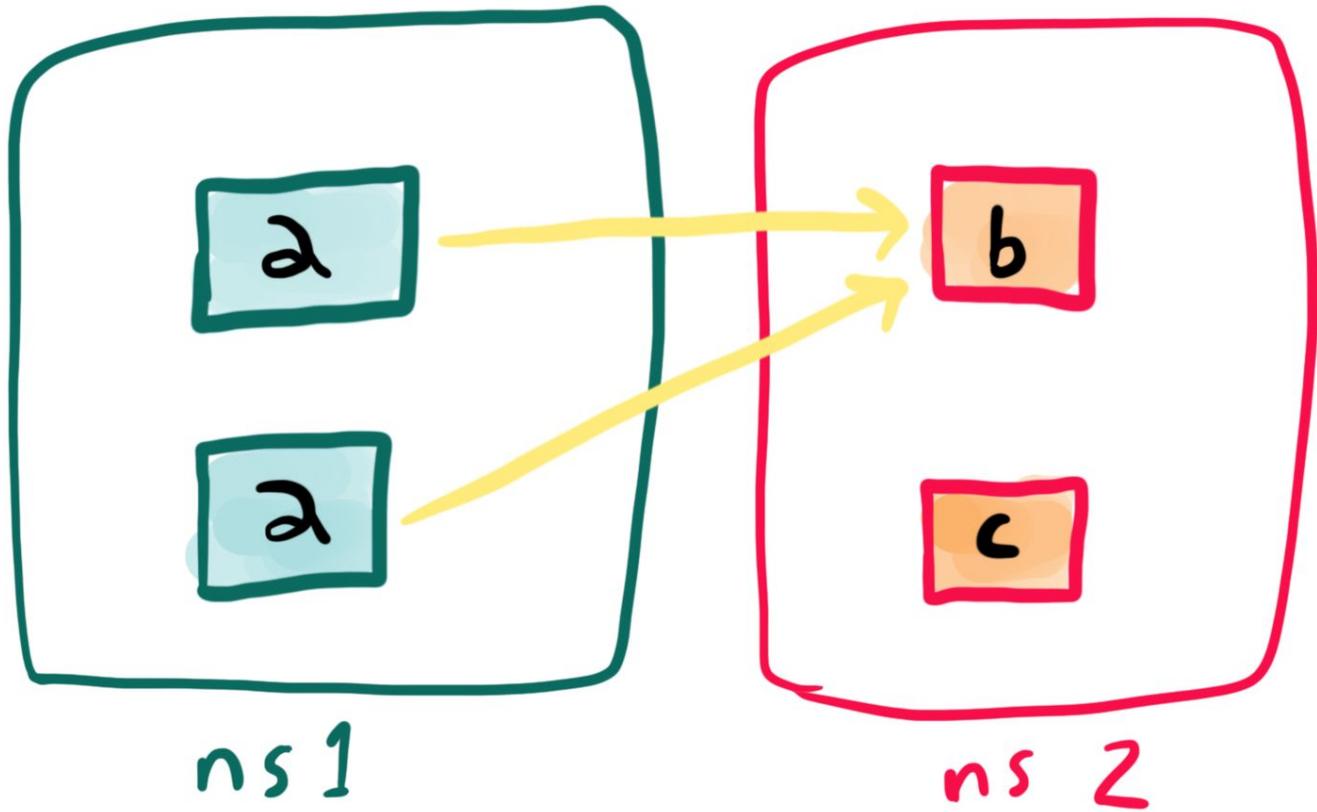
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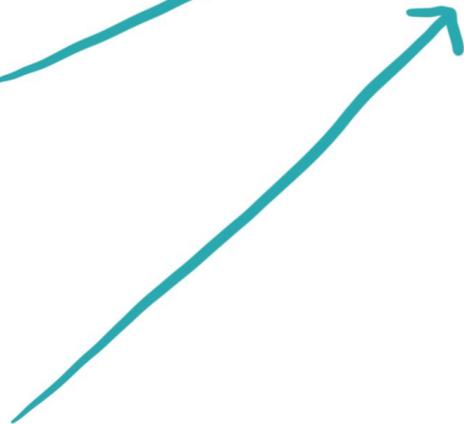
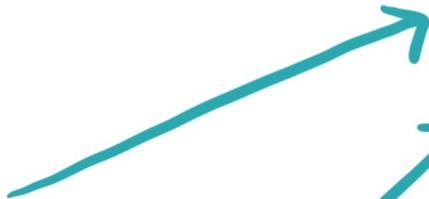
...

```
spec:
  podSelector:
    matchLabels:
      app: b
  ingress:
    - from:
      - namespaceSelector:
          matchLabels:
            team: a
        podSelector:
          matchLabels:
            app: a
```

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Pods



Endpoints

10.0.0.1
10.0.0.2

⋮

Pods

app: a

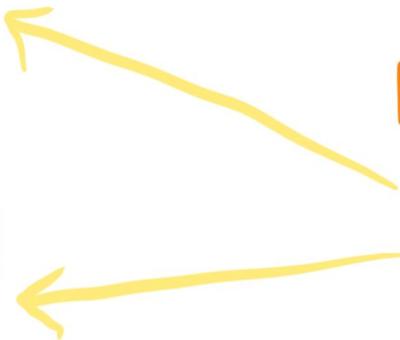
app: a

daemon: x

Endpoints

Labels:

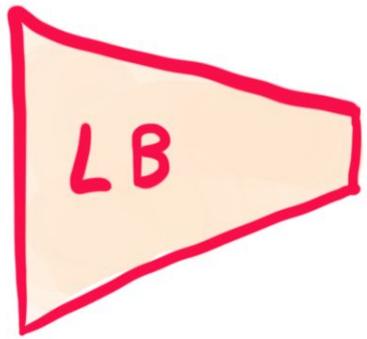
app: a



endpoints

addresses:

1.1.1.1
2.2.2.2
⋮



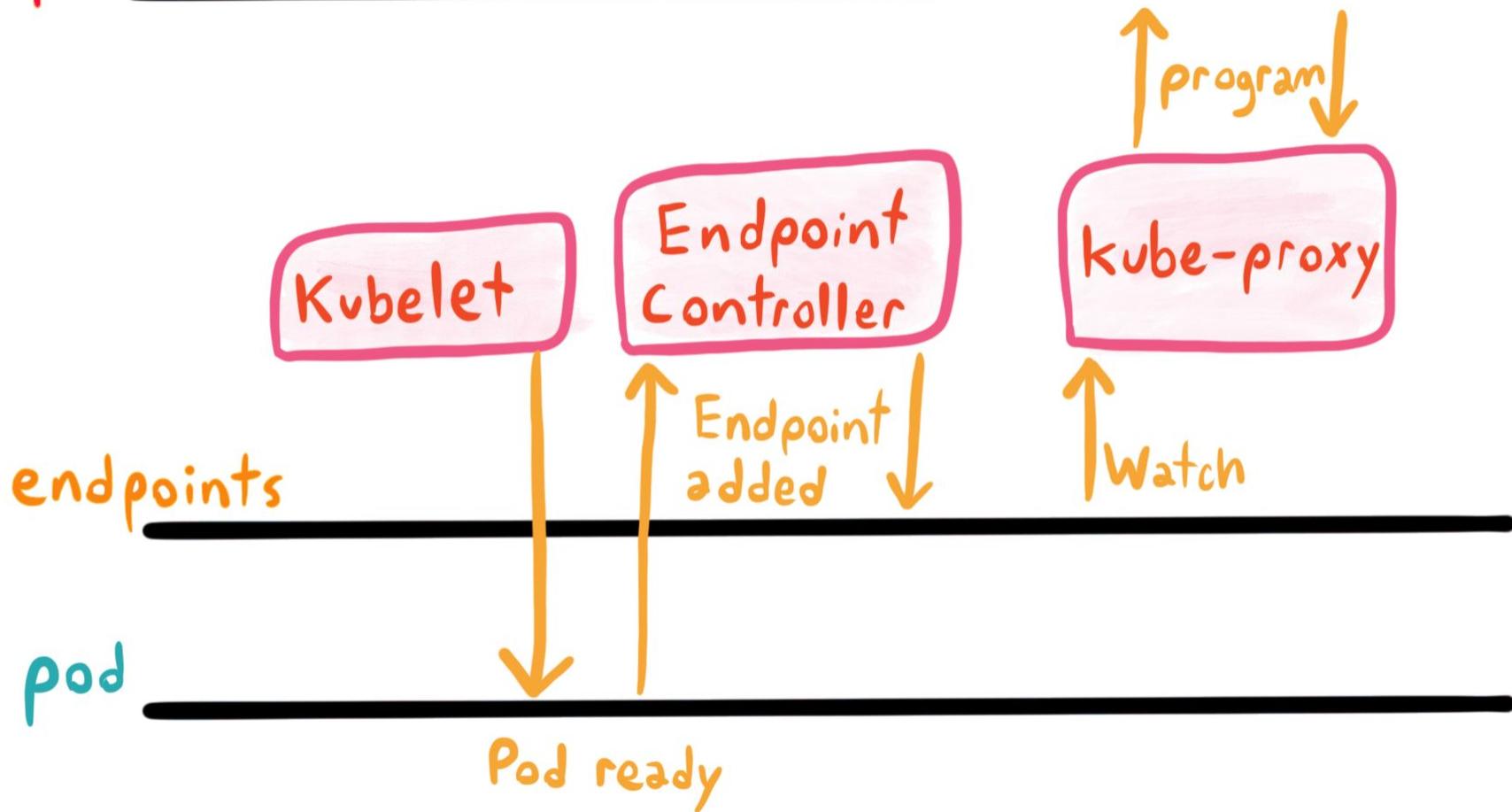
service

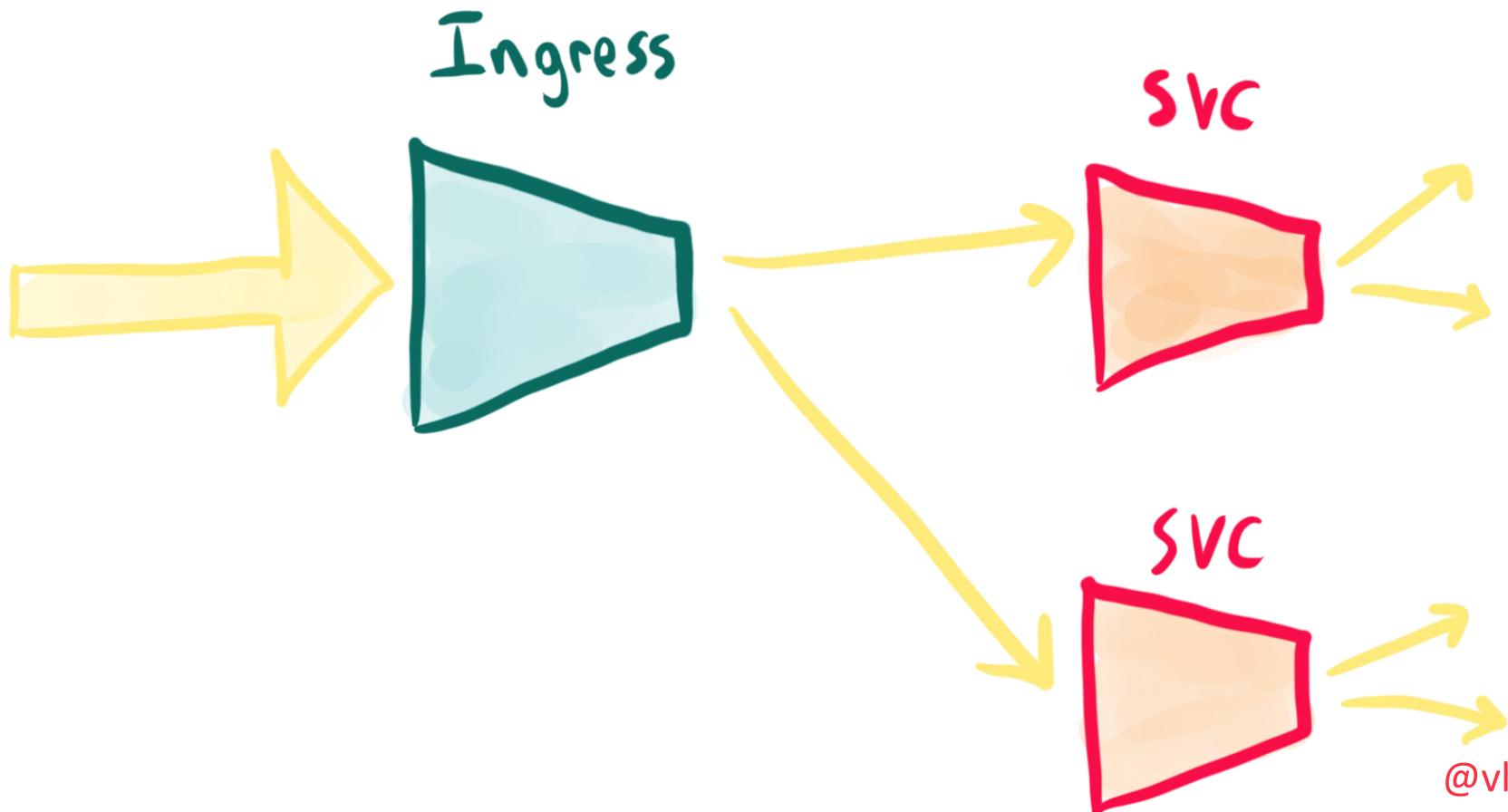
type: ClusterIP

clusterIP: 1.2.3.4



iptables





```
spec:
  rules:
  - http:
    paths:
    - path: /
      backend:
        serviceName: main
        servicePort: 80
    - path: /api
      backend:
        serviceName: api
        servicePort: 80
```



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Recent & Upcoming Work



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Recent



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- IPv4 / IPv6 dualstack.
- Endpoint Slice.

Upcoming



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- Ingress GA
- Multicluster networking

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Get Involved



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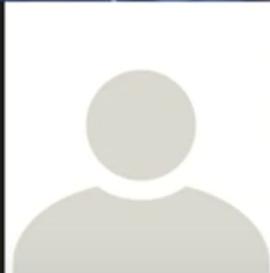
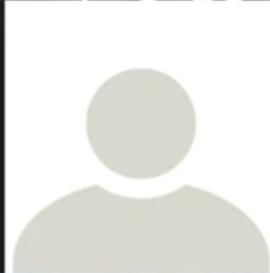


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- Join the SIG-Network mailing list and Slack channel to discuss current and future work.
- Attend bi-weekly conference calls.

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Get Involved



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- Find issues and PRs on Github.
- Help assess/review.
- Take on issues!
 - Start small.

The screenshot shows the GitHub interface for the Kubernetes repository. At the top, there are navigation tabs for Code, Issues (2,260), Pull requests (1,085), Actions, Projects (9), and Security. Below this is a search bar with filters: 'is:issue is:open label:sig/network'. A 'Clear current search query, filters, and sorts' button is visible. The main content area displays a list of open issues with the following details:

- 193 Open** (2,258 Closed) | Author | Labels | Projects
- Investigate Transitive Deps from docker/libnetwork** (area/code-organization, area/dependency, kind/feature, sig/architecture, sig/network) #85005 opened 23 hours ago by andrewsykim
- Adding new handler, postReady hook** (kind/design, sig/contributor-experience, sig/network, triage/support, triage/unresolved) #84997 opened yesterday by mcortinas
- Push the CoreDNS 1.6.5 image in gcr.io** (kind/feature, sig/cluster-lifecycle, sig/network) #84993 opened yesterday by rajansandeep
- performance enhance for kube-proxy/ipvs syncProxyRules** (kind/feature, sig/network, triage/unresolved) #84906 opened 2 days ago by njuicgz

Find Us



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- github.com/kubernetes/community/tree/master/sig-network
- Mailing list: kubernetes-sig-network@googlegroups.com
- Slack: [#sig-network](https://slack.k8s.io) on slack.k8s.io