



k8gb.io

incubation presentation

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Agenda

- Background and Motivation
- What is k8gb?
- Community and Growth
- Roadmap and Goals
- Architecture Deep Dive
- Q + A



Background and Motivation

Background and Motivation

Problem

- Absa bank was moving to the cloud. They needed a global load balancer to make decisions based on Kubernetes services.
- Absa found proprietary software and vendors. These were expensive, complex, and not cloud native. Some required dedicated hardware and ran outside Kubernetes.

k8gb was born to solve that problem.

<https://www.k8gb.io/#motivation-and-architecture>



Background and Motivation

Solution Needed

- No special software or hardware - must rely only on OSS/CNCF projects
- No dedicated management cluster or single point of failure
- To fit with existing Kubernetes workflows like: GitOps, Kustomize, Helm

goal: environment agnostic, pluggable, k8s native solution



What is k8gb?

Architecture Overview

What is k8gb?

- OSS following the Kubernetes Operator pattern
- A single [Gslb CRD](#) enabling Global Load Balancing
- Vendor-neutral, CNCF Sandbox
- The only cloud native Kubernetes Global Load Balancer



Architecture Overview

What are k8gb's key differentiators?

- Configured with a single Kubernetes CRD
- Provides independent GSLB capability to any Ingress or Service
- No dedicated management cluster and no single point of failure
- Load balancing uses timeproof DNS
- Kubernetes native app health checks that use liveness and readiness probes

k8gb commoditizes GSLB for Kubernetes.



Community and Growth

Current Project Status

✓ CNCF Sandbox

✓ Applied for Incubating

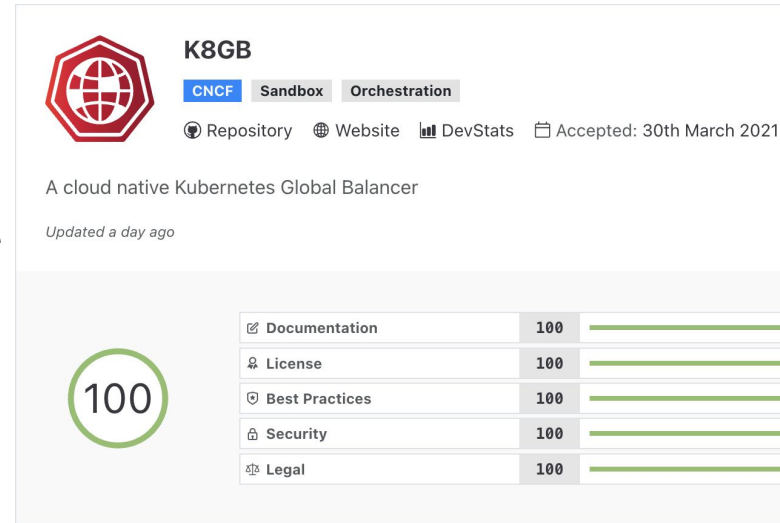
✓ **5 public adopters:** Absa, Millennium bcp, Eficode, Open Systems, PagBank

✓ 2 times finalist of **CNCF Security Slam**

✓ Perfect **CLOMonitor** [score](#)

✓ Maintainers from Absa, Upbound, Kedify, Accenture

✓ Contributors from Millennium bcp, Tetrade, D2iQ



K8GB

CNCF Sandbox Orchestration

Repository Website DevStats Accepted: 30th March 2021

A cloud native Kubernetes Global Balancer

Updated a day ago

100

Documentation	100	100%
License	100	100%
Best Practices	100	100%
Security	100	100%
Legal	100	100%

Community

- Community Management
 - early goals: spread awareness, get incubating!
 - started collecting vanity metrics, next up: engagement, health
- Statistics
 - GH (922 ★, 98 forks) and growing: <https://tinyurl.com/3nbnkdmc>
 - Slack (106)
 - Community Meetings (61)
 - WIP: Twitter/X, LI
- Plans
 - let's get more folks into community meetings
 - let's get more contributors
- k8gb Talks: <https://www.k8gb.io/#presentations-featuring-k8gb>



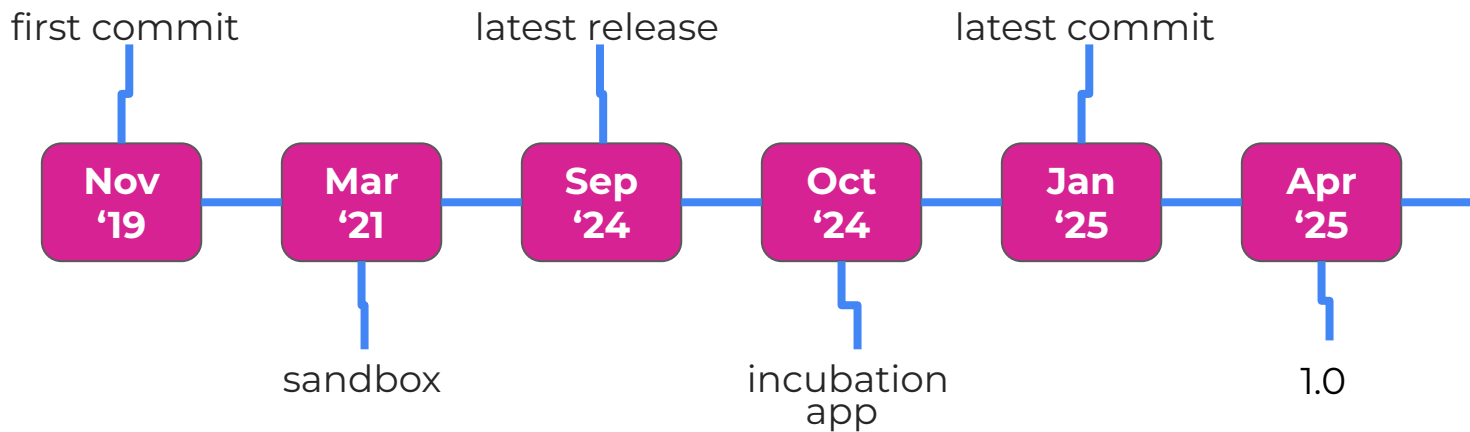
Community Contributions

- 80 community members: <https://tinyurl.com/6pzmmp66>
- 6 active maintainers
- 1,806 PRs
- 32 releases



Roadmap and Goals

Timeline



1.0 Release

- [Roadmap](#)
 - GCP Cloud DNS Support (zone delegation)
 - Gateway API Support
 - Reference Architectures Update
 - Documentation Revamp



Why Incubating?

Achieving CNCF Incubating status will:

- **demonstrate** k8gb's **growing maturity, technical merit**, and **community adoption**
- **increase trust** in k8gb's **reliability** and **sustainability**

Achieving CNCF Incubating status will:

- **enhance** k8gb's **visibility** within the ecosystem, **attracting greater interest** from **enterprises** and **contributors**
- **position** k8gb **for** even **greater impact within the** cloud-native **community**



Architecture Deep Dive

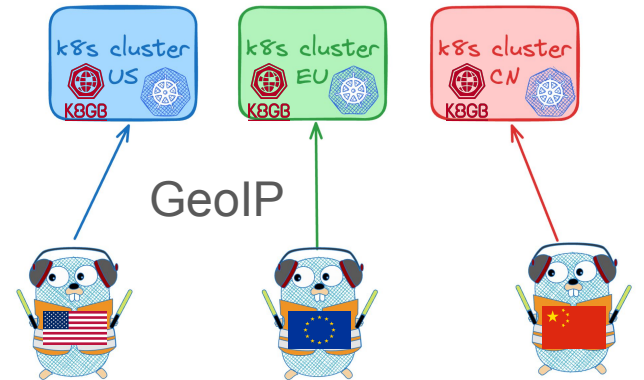
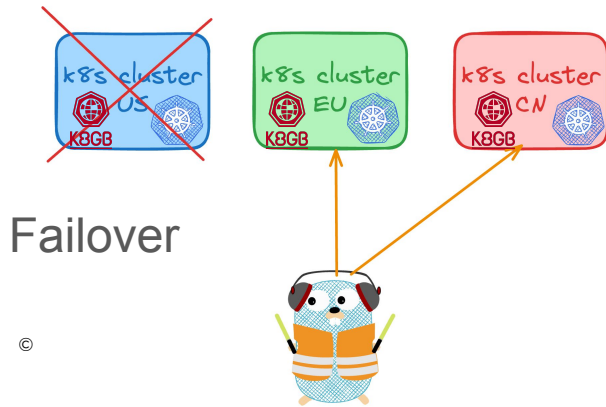
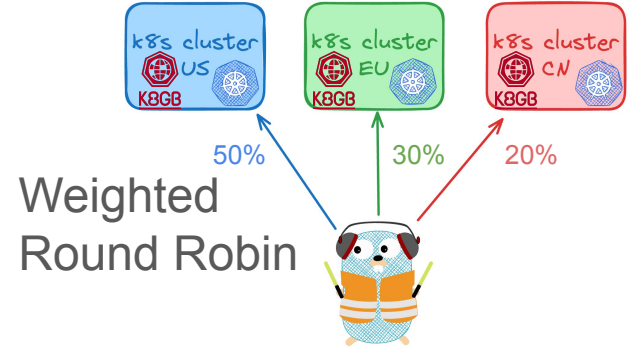
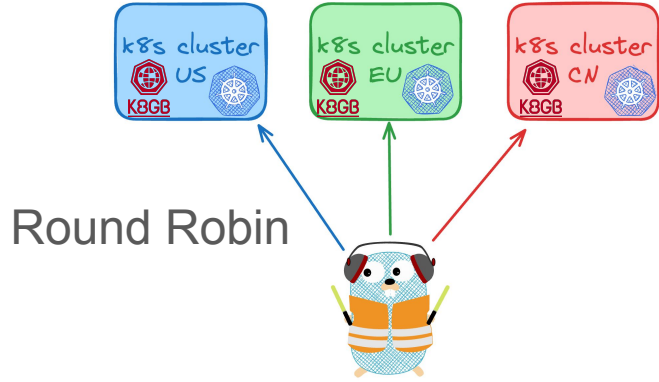
Architecture Deep Dive

- Use cases / features
- How does it work with Kubernetes

<https://www.k8gb.io/docs/components.html>



Supported GSLB Strategies



Gslb CRD

```
apiVersion: k8gb.absa.oss/v1beta1
kind: Gslb
metadata:
  name: test-gslb-failover
  namespace: test-gslb
spec:
  resourceRef:
    apiVersion: networking.k8s.io/v1
    kind: Ingress | VirtualService
    matchLabels:                                     # ingresses.networking.k8s.io
                                                    resource selector

    app: test-gslb-failover
  strategy:
    type: failover | roundRobin | geoip           # Global load balancing strategy
    primaryGeoTag: eu-west-1 | us-east-1        # Primary cluster geo tag
```



K8GB Components



Embedded custom CoreDNS serves DNS requests



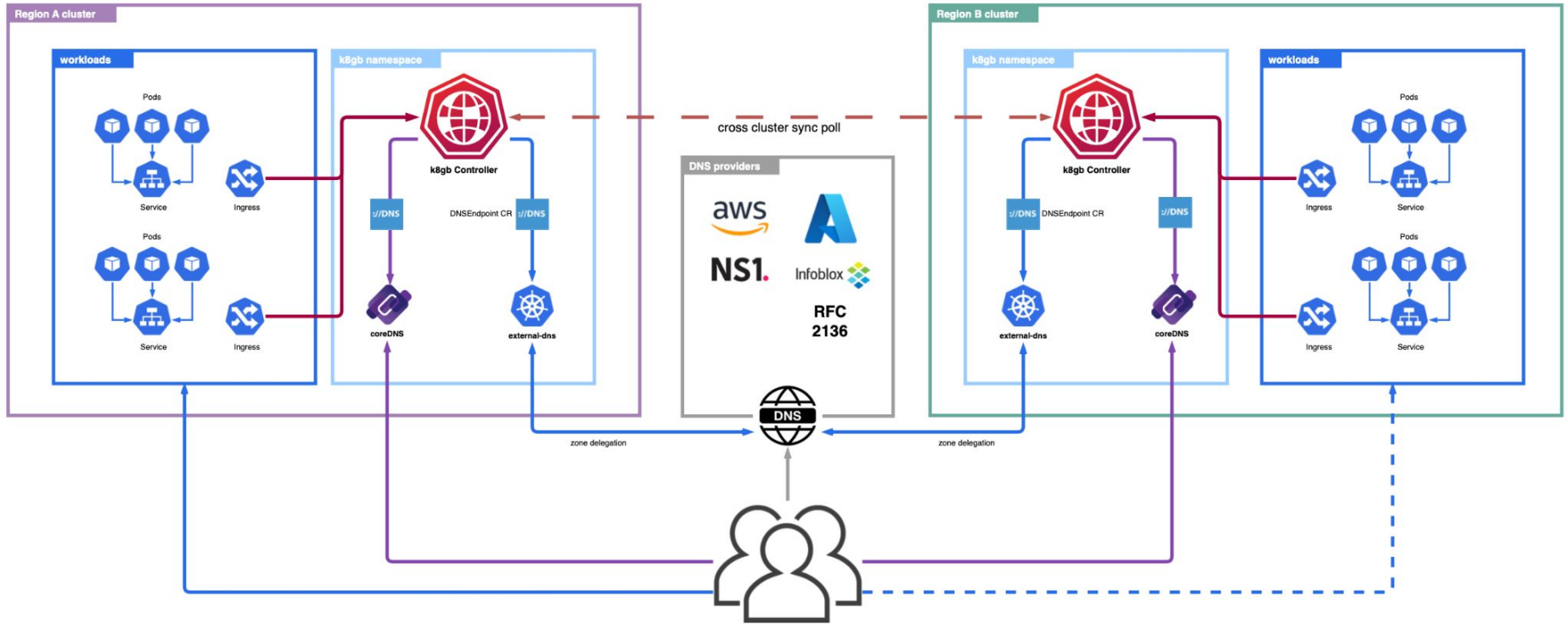
Integrated ExternalDNS automates configure Zone Delegation



K8GB controller coordinates the logic according to the GSLB strategy



Multi-Cluster Coordination



Multiple Integrations

 K8GB is architected to run on top of **any CNCF-conformant K8s cluster** and Ingress controller, Istio Virtual Service, GatewayAPI is on the roadmap

- ✓ Operates in any **on-prem, cloud or hybrid** scenarios
- ✓ Supported external DNS providers for **full zone delegation** automation:

- ✓ AWS Route53

- ✓ Azure Public DNS

- ✓ NS1

- ✓ Infoblox

- ✓ Cloudflare

- ✓ RFC2136 implementations (e.g. Bind/Windows DNS)



**RFC
2136**



Q + A

Next Steps

Links

Links

- [k8gb Incubation Application](#)
- [k8gb Project Website](#)
- [k8gb GitHub](#)
- [k8gb Bi-Weekly Meeting Notes](#)



Socials

- [Slack](#)
- [LinkedIn](#)
- [Twitter / X](#)
- [Medium](#)





Thank you 🙏