Kubernetes Ingress
With Kong

AUG 2019

Ingress with Kong

Agenda

- Ingress
- Kong
- Ingress & Kong
- Demo

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Open-source enthusiast

Qemu-KVM based virtualization in previous life

Kubernetes Ingress

Edge/DMZ

One port of entry

- Operations
- Security & audits
- $ effective

Connection management

- TCP and TLS termination
- Certificate management
- Service mesh

Traffic management

- Load balancing
- Throttling
- Canary
- Service mesh

networking.v1beta1

Ingress Spec

- Vendor-neutral spec defining external access to services inside k8s
- L7 metadata based
- TLS termination
- GA progress: https://github.com/kubernetes/enhancements/pull/1113

Ingress Spec

extensions.v1beta1
->
networking.v1beta1
->
networking.v1

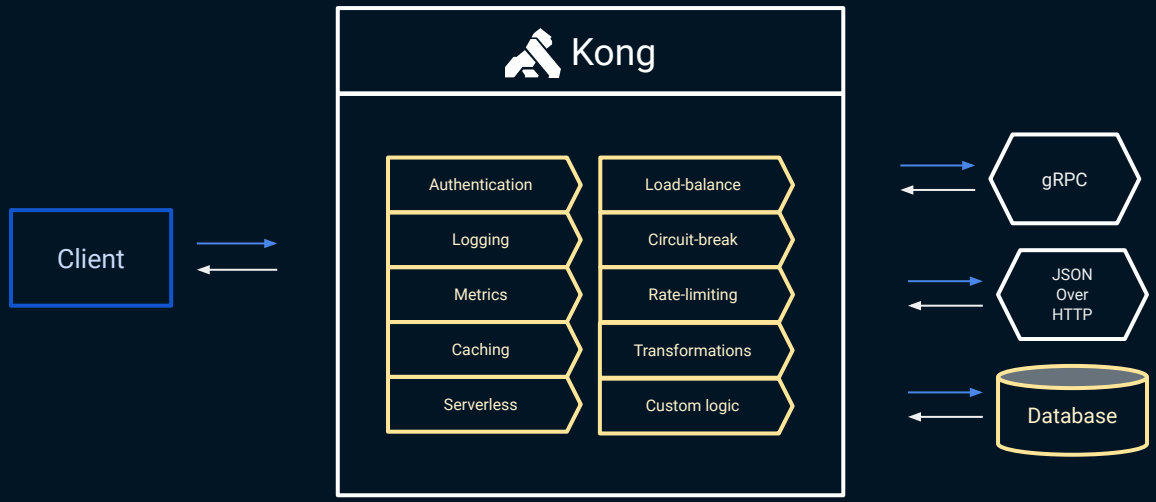
```yaml
apiVersion: extensions/v1beta1
kind: Ingress
metadata:
  name: finance-apis
spec:
  rules:
  - host: example.com
    http:
      paths:
      - path: /bills
        backend:
          serviceName: bills
          servicePort: 80
      - path: /orders
        backend:
          serviceName: orders
          servicePort: 443
```

Kong

Kong

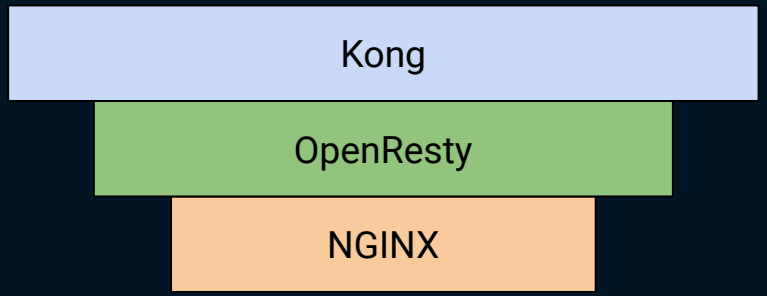
- Popular cloud-native API Gateway
- Open sourced in 2015; Apache-2.0
- Kong 1.0 announced last year in September
- Platform agnostic
  i.e. **k8s friendly but not k8s only**

King in the North



Robust

Tech stack



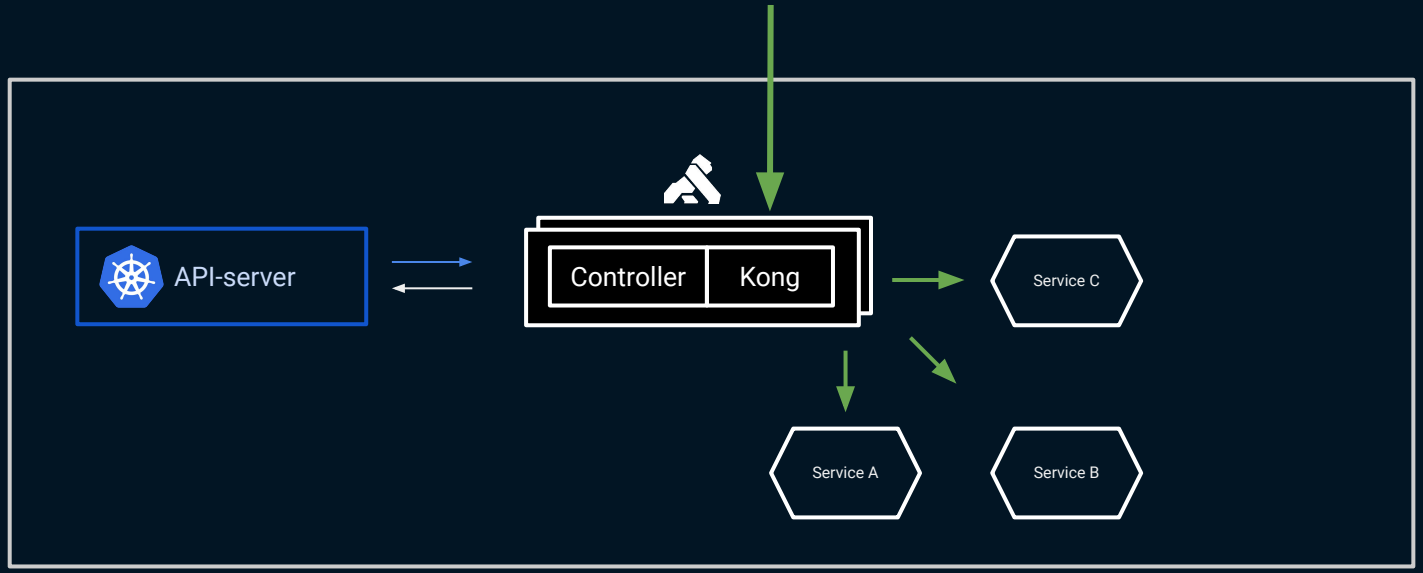
Cloud-native, dynamic & API-driven

Lua & LuaJIT extension (powers ingress-nginx)

Internet's WorkHorse

Ingress with Kong

Kong Ingress Controller



configuration.konghq.com/v1

Custom Resources

KongPlugins

- Additional functions that can be executed
- Configurable for each Ingress or Service

KongConsumer & KongCredential

- Per user/service customization
- Authentication
- Traffic transformation and shaping

KongIngress

- Route by HTTP Method
- Route by header
- Round robin, weight based, least conn
- Sticky session, hash based
- Active & passive health-checks (TCP/HTTP)

Demo

Features

Load balancing

- Round robin, weight based, least conn
- Sticky session, hash based
- Active & passive health-checks (TCP/HTTP)

Plugins

- Prometheus
- Jaeger/Zipkin/OpenTracing
- Response caching

Routing

- Route by HTTP Method
- Route by header

Integrations

- cert-manager: automated TLS certs
- external-dns: automate DNS records

Roadmap

- L4 TCP/TLS routing
- gRPC routing
- Ingress v2 API
- Istio compatibility
- Upstream TLS
- configuration.konghq.com/v2alpha1 API group
- Admission webhooks

Thank You

Questions?

Kong Nation: https://discuss.konghq.com/
Kubernetes Slack (#Kong): https://slack.k8s.io/

Install Kong Ingress Controller:
kubectl apply -f https://bit.ly/kong-ingress-dbless

Github:
https://github.com/kong/kong

https://github.com/kong/kubernetes-ingress-controller

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