

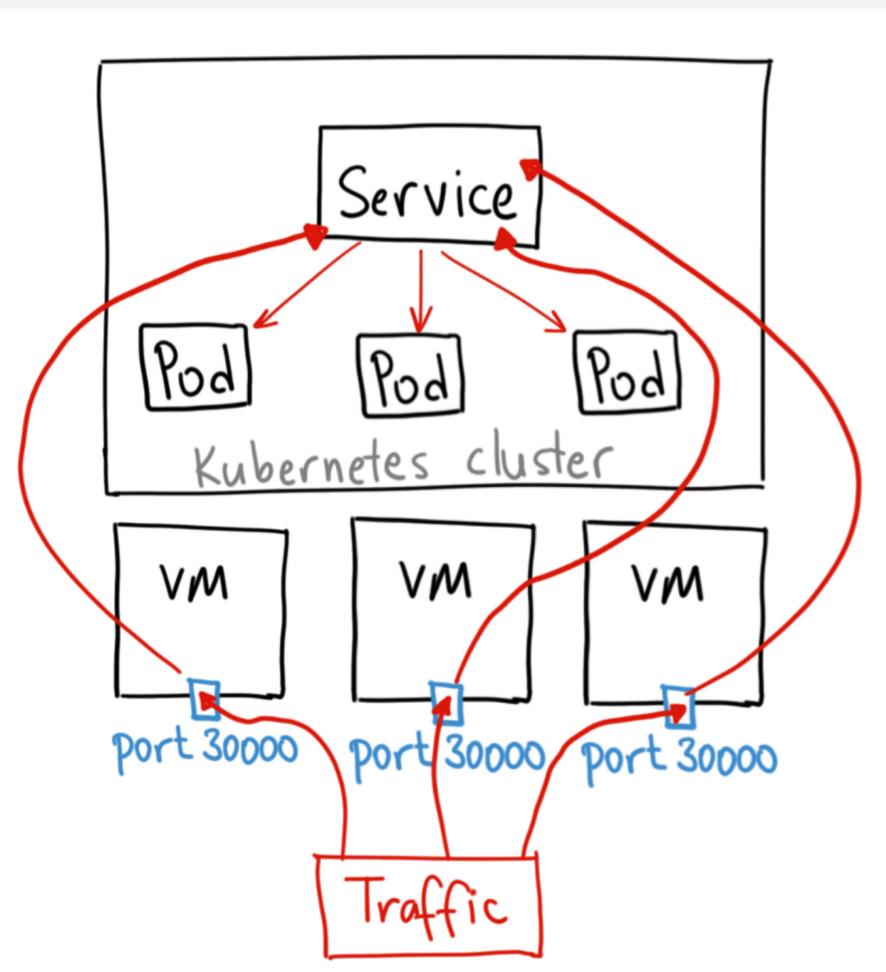
Tencent 腾讯

浅谈k8s ingress controller选型

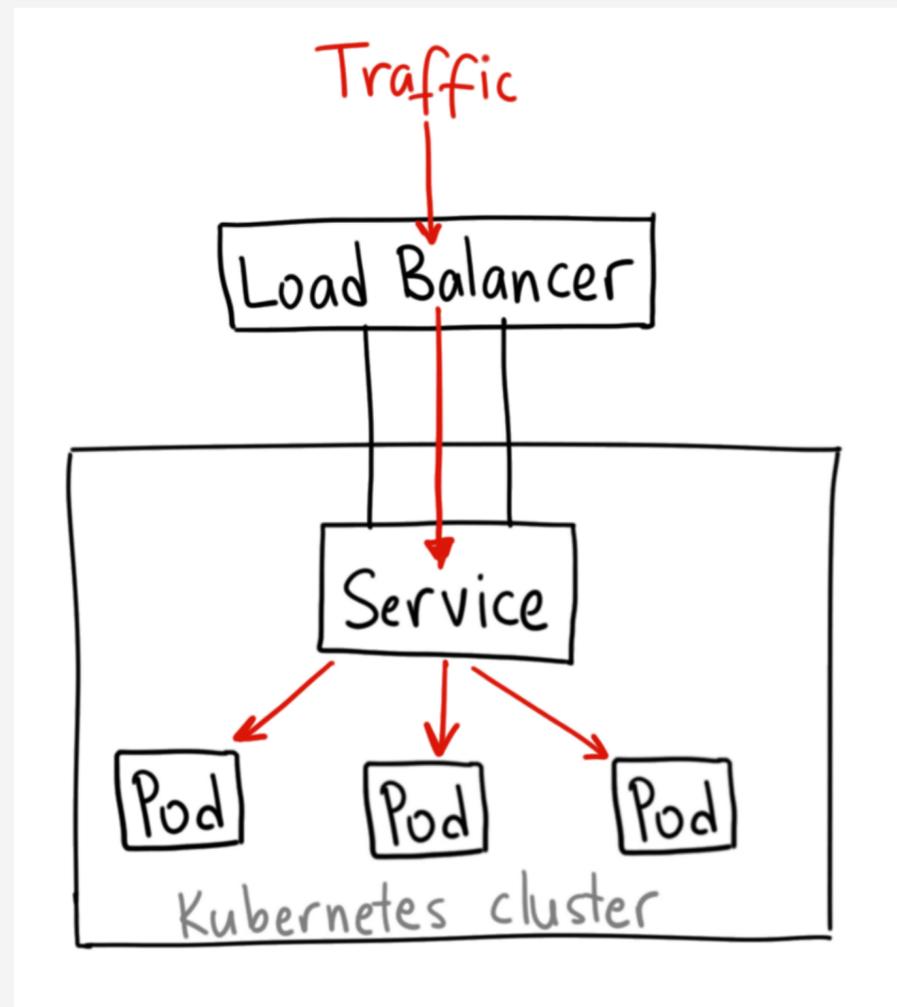
自我介绍

- CSIGer
- Apache PPMC

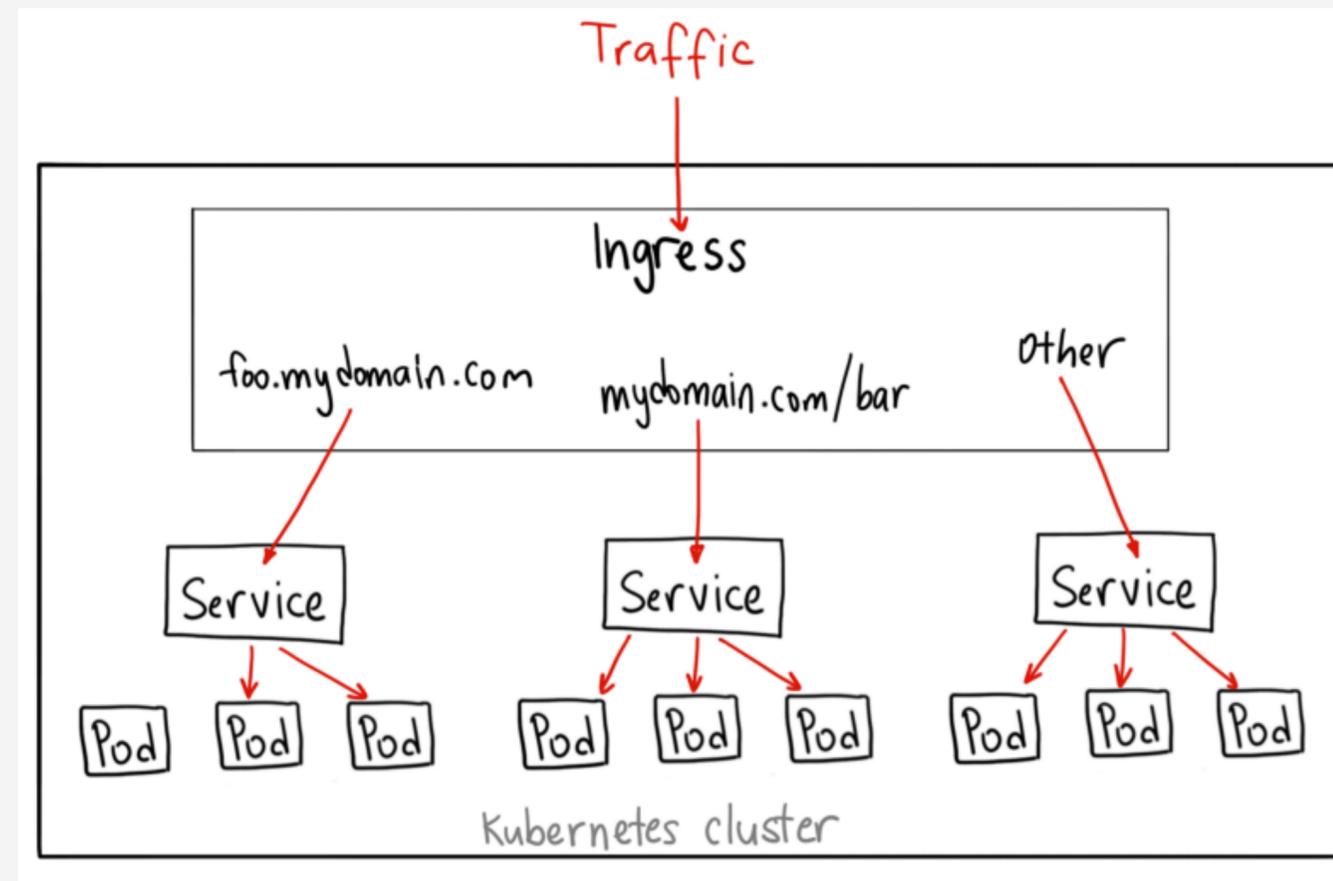
1 现状-Kubernetes的外部访问方式



NodePort



LoadBalancer



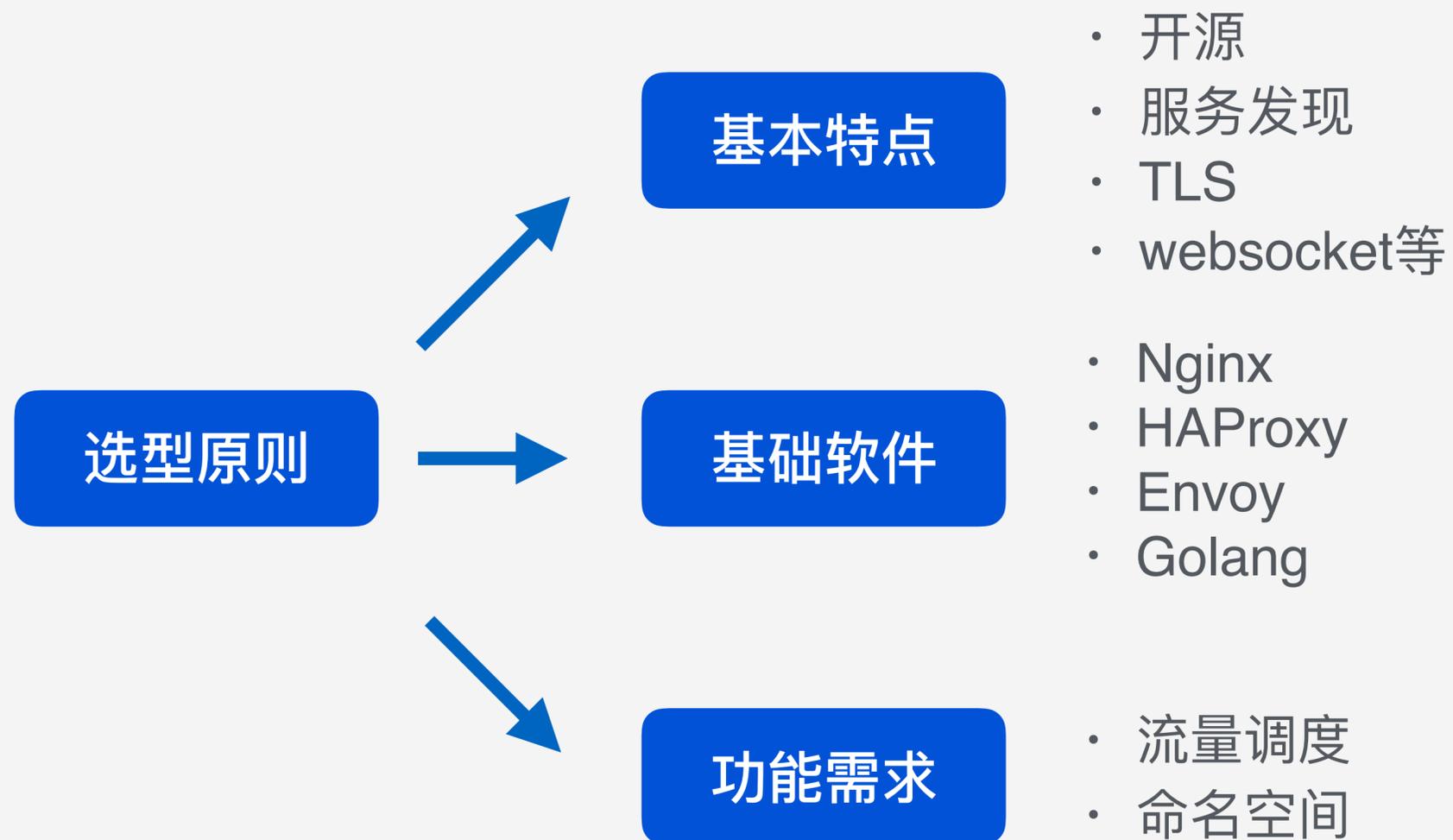
Ingress

2 Ingress选型

Ingress选型困难重重

- 官方Ingress功能基础，扩展功能较少
- 开源Ingress种类繁多
- 开发人员擅长的技术栈不一样

3 选型原则

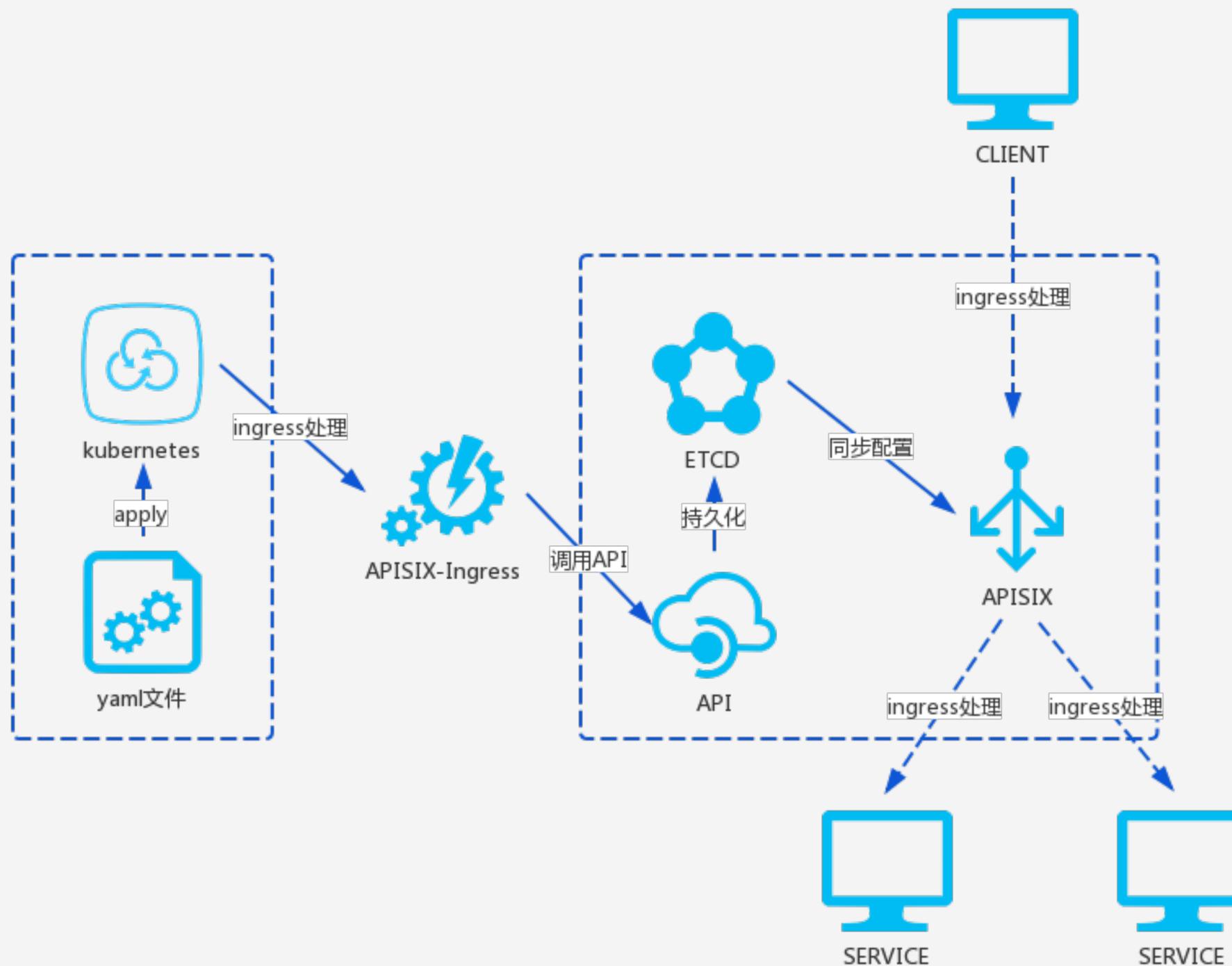




推荐选择APISIX作为ingress控制器

4 APISIX Ingress架构

- 1、监听kube-api server
- 2、调用api生成配置
- 3、APISIX加载配置
- iresty/ingress-controller



4 Ingress对比

	APISIX ingress	Kubernetes Ingress	NGINX Ingress	Kong Ingress	Traefik	HAproxy	Istio Ingress	Ambassador
协议	http/https, http2, grpc, tcp/udp, tcp+tls, Dubbo	http/https, http2, grpc	http/https, http2, grpc, tcp/udp	http/https, http2, grpc	http/https, http2, grpc, tcp, tcp+tls	http/https, http2, grpc, tcp, tcp+tls	http/https, http2, grpc, tcp, tcp+tls, mongo, mysql, redis	http/https, http2, grpc, tcp, tcp+tls
基础平台	openresty/tengine	nginx/openresty	nginx/nginx plus	openresty	traefik	haproxy	envoy	envoy
路由匹配	path, method, host, header, nginx变量, args变量, 自定义函数	host, path	host, path	path, method, host, header	host, path, headers, query, path prefix, method	host, path	host, path, method, headers	host, path, method, headers
命名空间支持	-	共用或指定命名空间	-	指定命名空间	共用或指定命名空间	共用或指定命名空间	共用或指定命名空间	共用或指定命名空间
部署策略	ab部署、灰度发布、金丝雀部署	金丝雀部署, ab部署	-	金丝雀部署、蓝绿部署	金丝雀部署、蓝绿部署、灰度部署	蓝绿部署、灰度部署	金丝雀部署、蓝绿部署、灰度部署、根据header白名单	金丝雀部署、蓝绿部署、灰度部署、根据header白名单
upstream探测	重试、超时、心跳探测、熔断	重试、超时	重试、超时、心跳探测	心跳探测、熔断	重试、超时、心跳探测、熔断	探测url、ip、port	重试、超时、心跳探测、熔断	重试、超时、心跳探测、熔断
负载均衡算法	一致性hash, WRR	RR, 会话保持, 最小连接, 一致性hash, EWMA	RR, 会话保持, 最小连接, 最短时间, 一致性hash	WRR, 会话保持	WRR, 动态RR, 会话保持	RR, static-RR, 最小连接, 源ip, uri, uri param, uri header, 会话保持	RR, 会话保持, 一致性hash, maglev负载均衡	RR, 会话保持, 一致性hash, maglev负载均衡
鉴权方式	key-auth, OpenID Connect	basic-auth, oauth	-	basic, Key, HMAC, LDAP, Oauth 2.0, PASETO, OpenID Connect	basic auth, auth-url, external auth	basic-auth, Oauth, Auth TLS	basic, external auth, Oauth, OpenID	basic, external auth, Oauth, OpenID
JWT	+	-	+	+	+	+	+	+
DDOS防护能力	limit-conn, limit-count, limit-req, ip-writelist	limit-conn, limit-count, limit-req, ip-writelist	rate-limit	limit-conn, limit-count, limit-req, ip-writelist, response limit	limit-conn, limit-req, ip-writelist	limit-conn, limit-req, ip-writelist	limit-req, ip-writelist	limit-req, ip-writelist
全链路跟踪	+	+	-	+	+	+	+	+
协议转换	grpc, Dubbo	-	-	-	grpc	-	grpc, mongo, mysql, redis	grpc, mongo, mysql, redis

5 Qcloud

- Qcloud TKE架构图
- Qcloud CLB Ingress 控制器原理

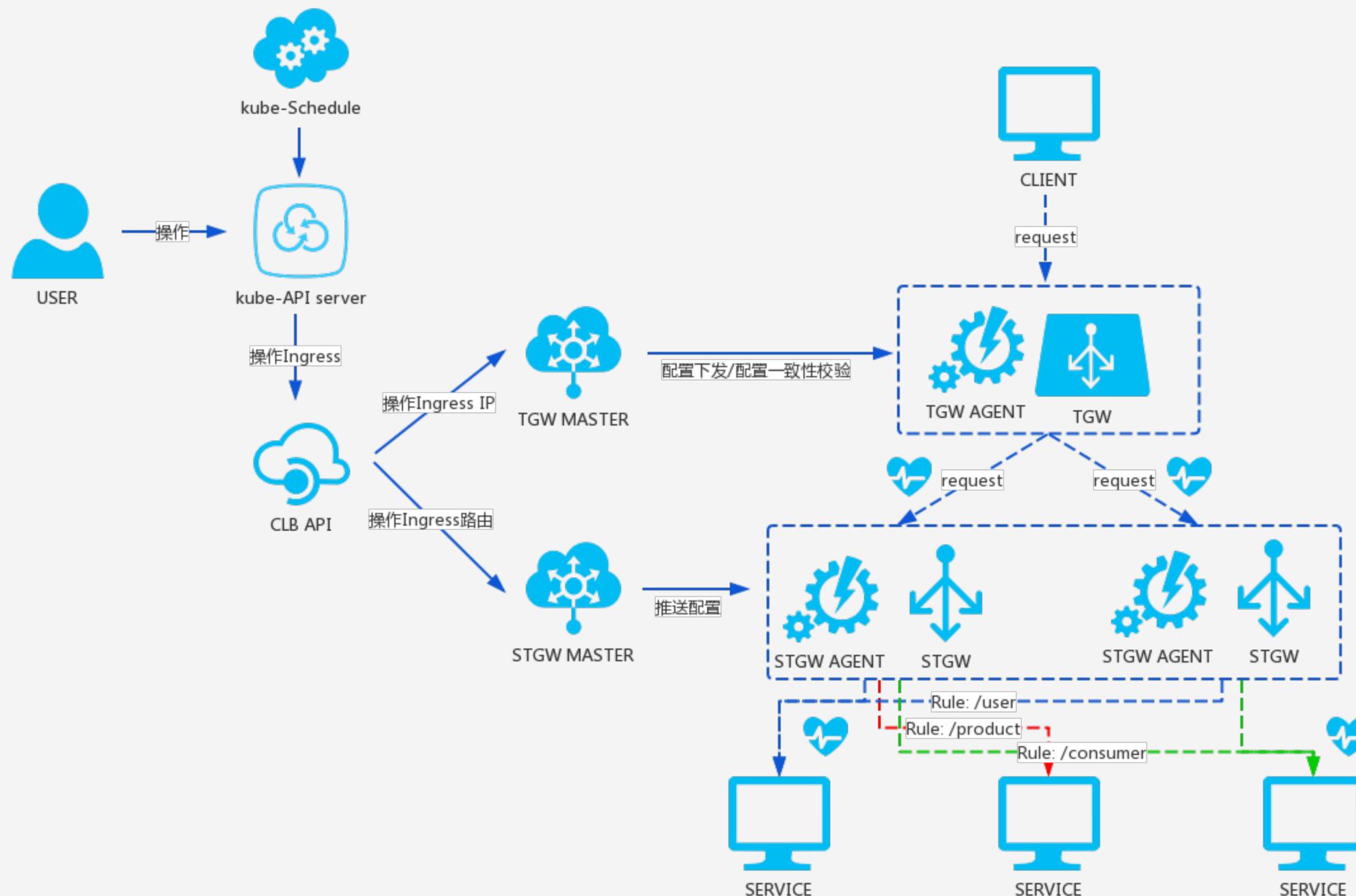
6 TKE

- TKE Tencent Kubernetes Engine
- 简化管理集群
- 灵活集群托管，集成负载均衡
- 资源隔离，服务高可用
- 镜像快速部署，业务持续集成
- 容器服务免费

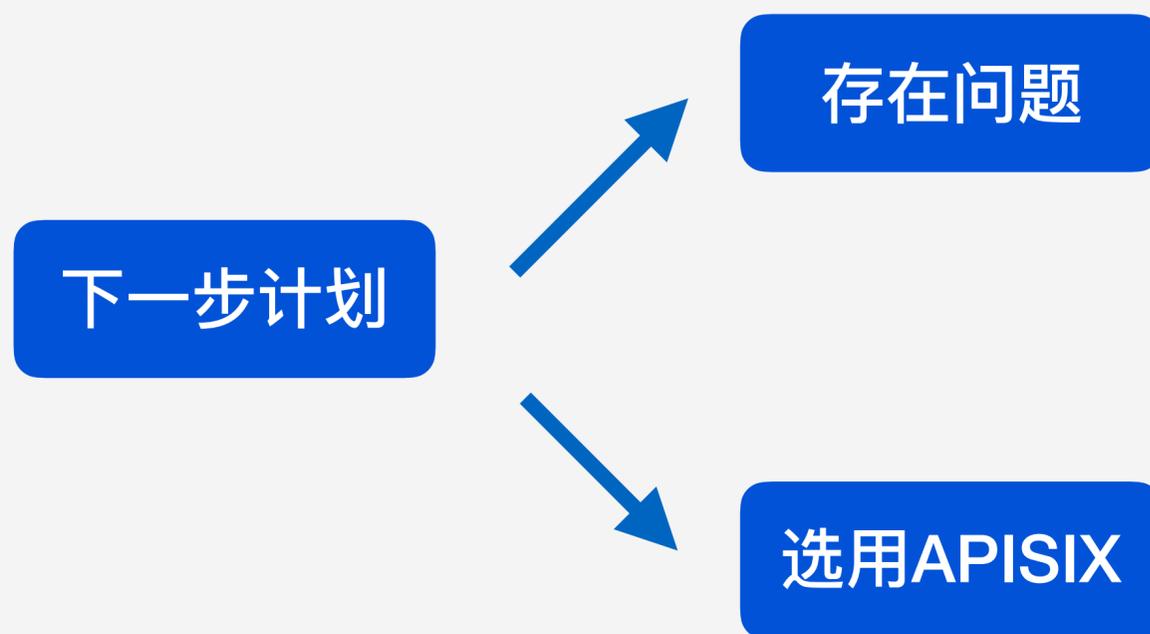


6 CLB Ingress控制器工作原理

- 高性能
 - nginx优化、协议优化
 - 动态server/upstream
- 高可用
 - 集群化、跨可用区容灾
 - 心跳探测



7 下一步计划



- ingress路由配置变更缓慢
- 没有灵活的灰度能力
- 多用户共用一组ingress集群，隔离性差

- Apache APISIX性能优异
- 灰度策略灵活
- 用户独占ingress，隔离性好

Thanks

