从开源第一到企业落地
中国银联 Kubernetes 案例分享

肖 勤 | 才云科技

caicloud
才云

主办方：caicloud 才云 K8S Meetup 中国社区 TensorFlow

协办方：网易云

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科技创新打造才云独特技术优势

Intelligent PaaS

Automatic micro-service management
Streamlined Devops workflow
Intelligent monitoring and log analysis
App orchestration and solution management

Cluster Management

PaaS + IaaS integration with hardened security and multi-tenancy
Multi-cluster management and interaction
Automatic operations
Flexible networking solutions

Diverse Workloads Support

Core, complex, stateful workloads in Enterprises
Data-intensive workloads
Workloads with diverse scheduling needs

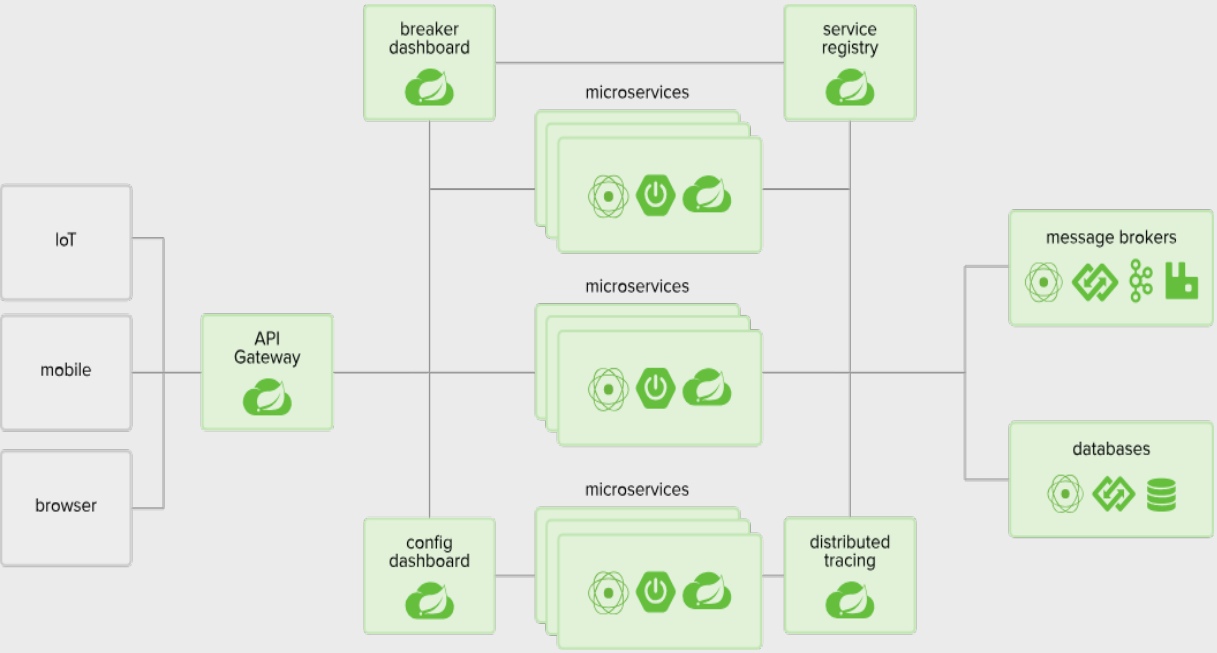
Machine Learning Stack as a Service

GPU integration with containers and Kubernetes
Distributed TensorFlow management
Continuous Machine Learning pipeline

提纲

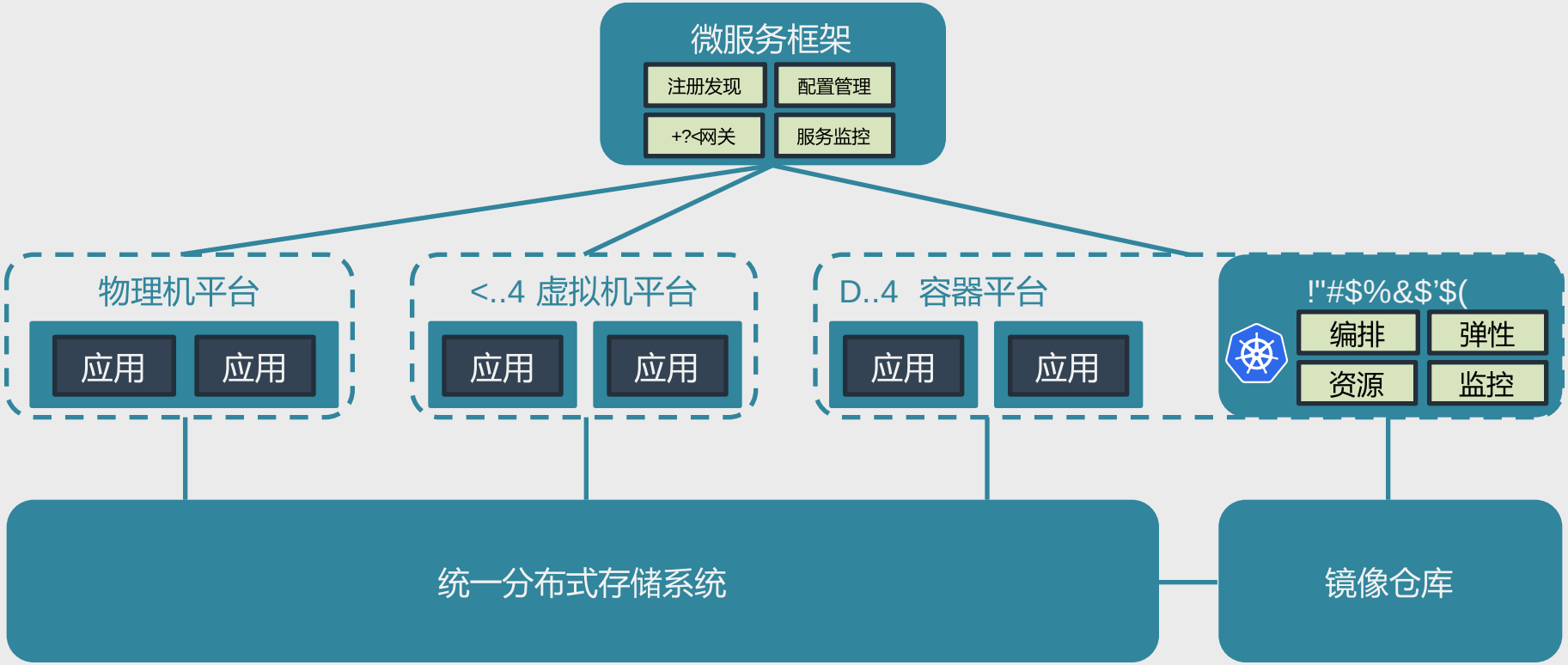
- 开源第一
  - kubernetes/kubernetes 38,918 stars 13,607 forks
  - 第一个毕业的 CNCF 项目
  - 最大的容器社区
  - 越来越多的公有云服务 EKS, GKE, AKS ...
- 企业落地会遇到的问题
  - 平台定位
  - 计算
  - 网络
  - 存储
  - 应用

容器云平台与微服务框架同质化功能如何取舍

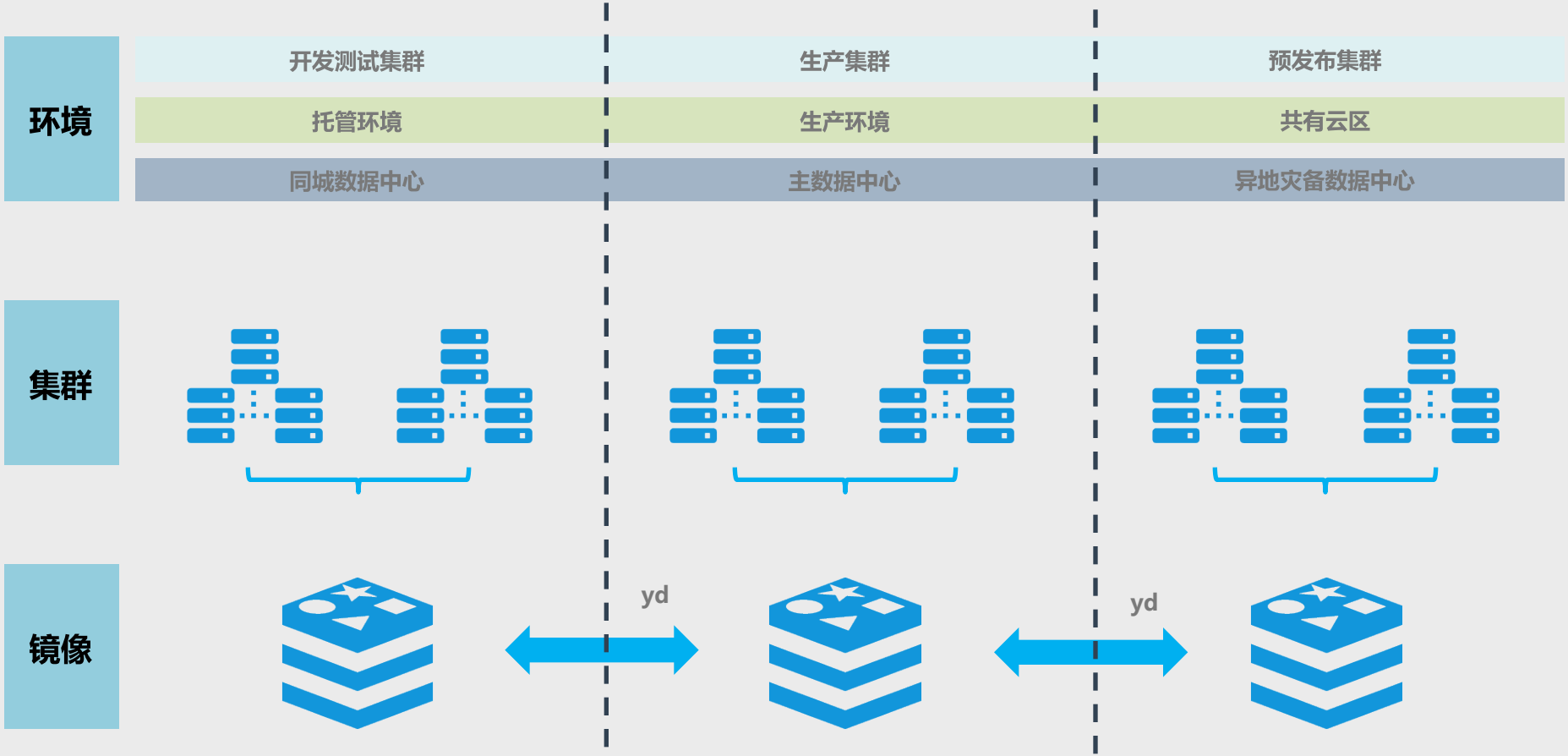


	Spring Cloud	Kubernetes
服务发现	Eureka	CoreDNS
负载均衡	Ribbon	Service
配置管理	Config	Configmap
故障容错	Hystrix	HPA
API gateway	Zuul	Ingress
链路追踪	Sleuth	Service Mesh
定时任务	Spring Batch	Cron Job

微服务分步迁移问题


微服务框架
注册发现
配置管理
+?<网关
服务监控
物理机平台
应用
应用
<..4 虚拟机平台
应用
应用
D..4 容器平台
应用
应用
!"#$%&$'$(
编排
弹性
资源
监控
统一分布式存储系统
镜像仓库

容器云平台与多环境如何规划和适配



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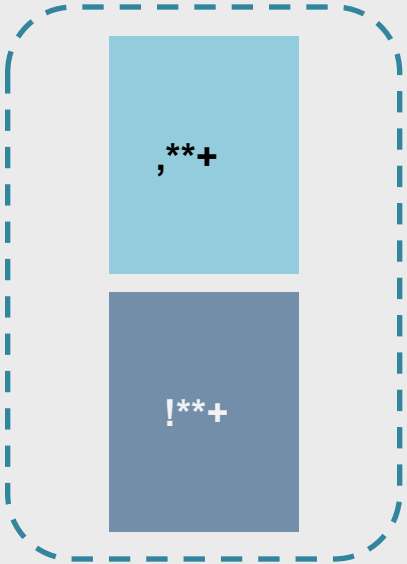

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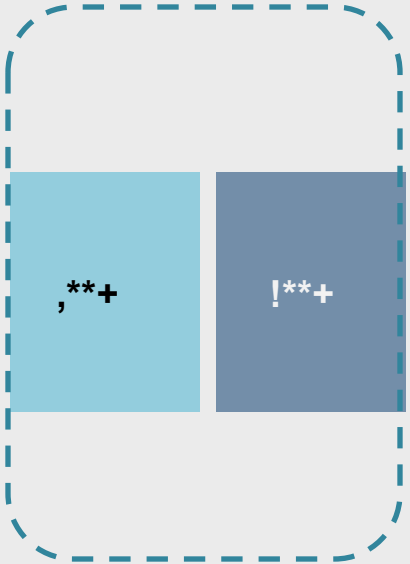

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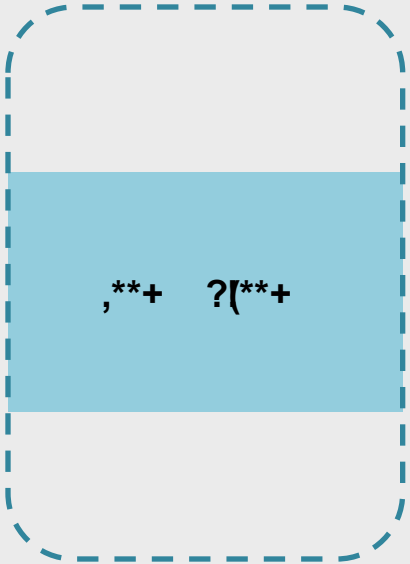

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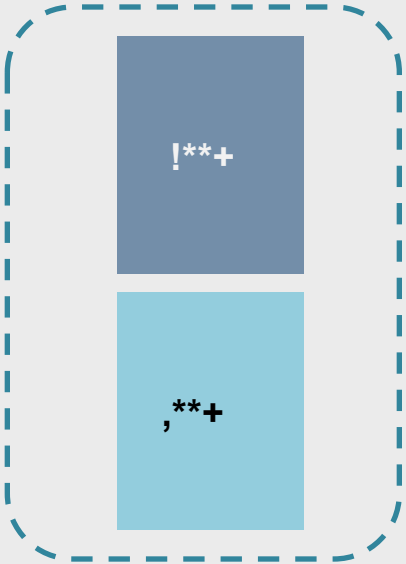

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,**+ S !**+ 融合 > 计算

容器平台与@8$"+#*96 !+ 平台集成：**

- L 与\8$&4'.0: <..4 租户共享
- L 认证鉴权一体化
- L 管理界面统一
- L 底层资源完全打通

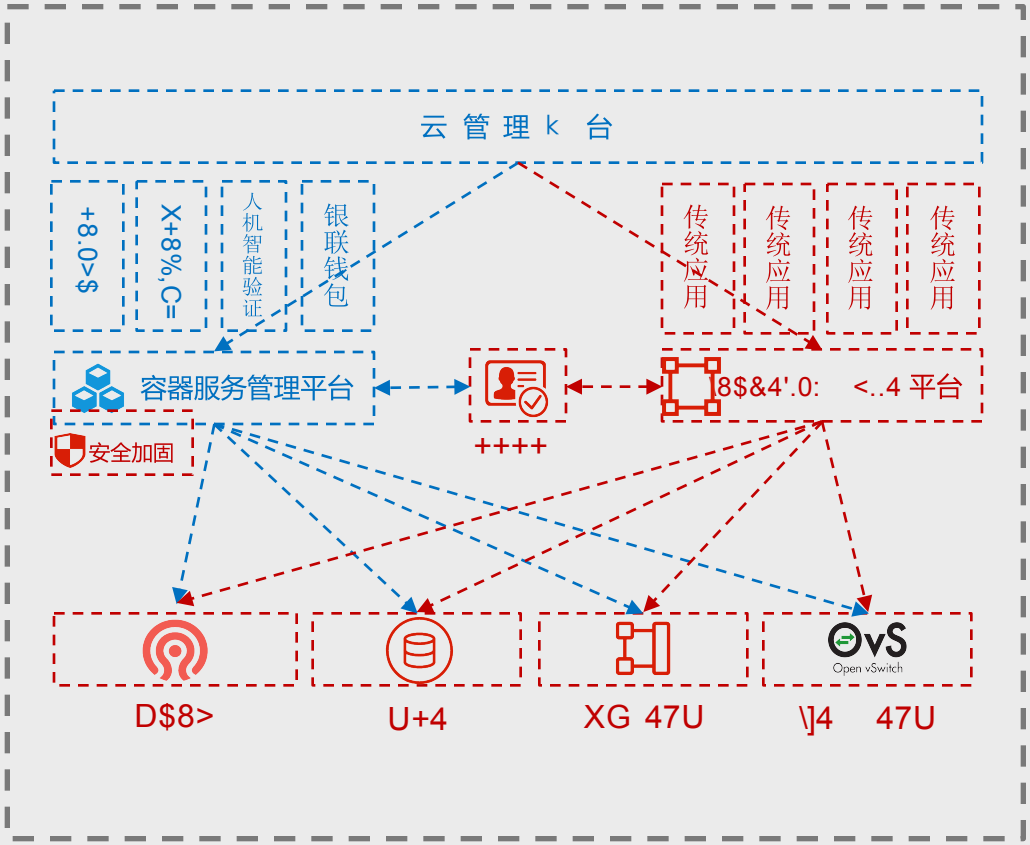
应用上云：

- L 前端应用：+8.0>$ ，X+8%,C=
- L 核心应用：人机智能验证平台，银联钱包应用

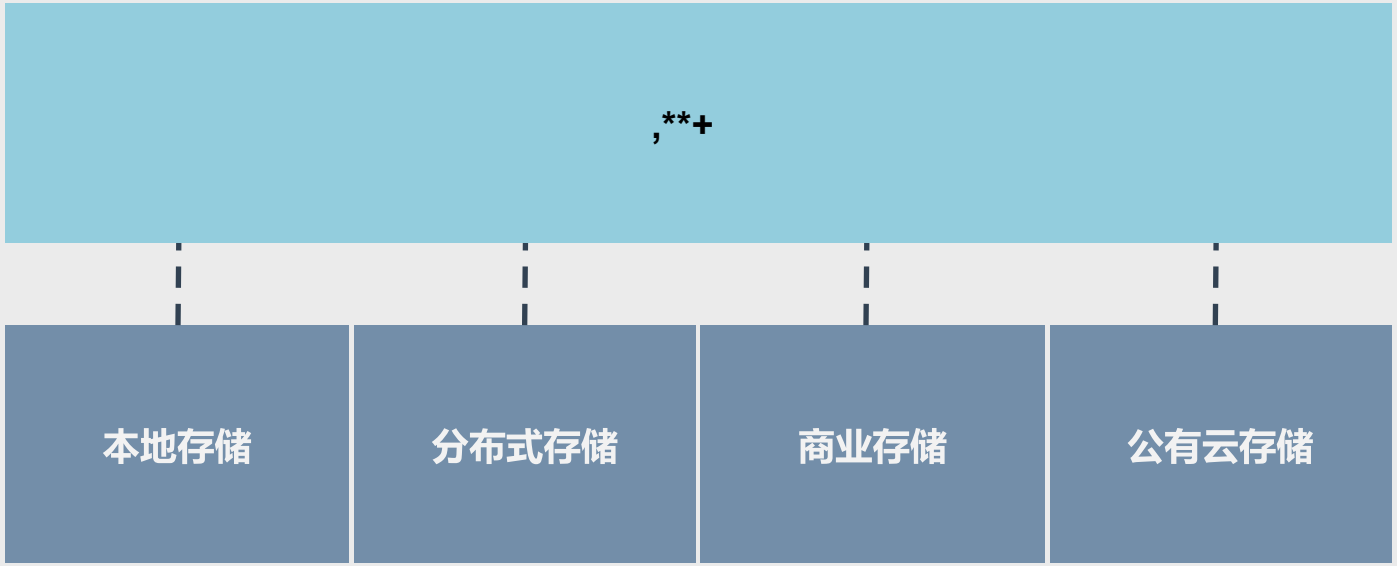
认证鉴权：与银联内部认证鉴权系统无缝整合

云管平台：管理平面与云资源管理平台整合

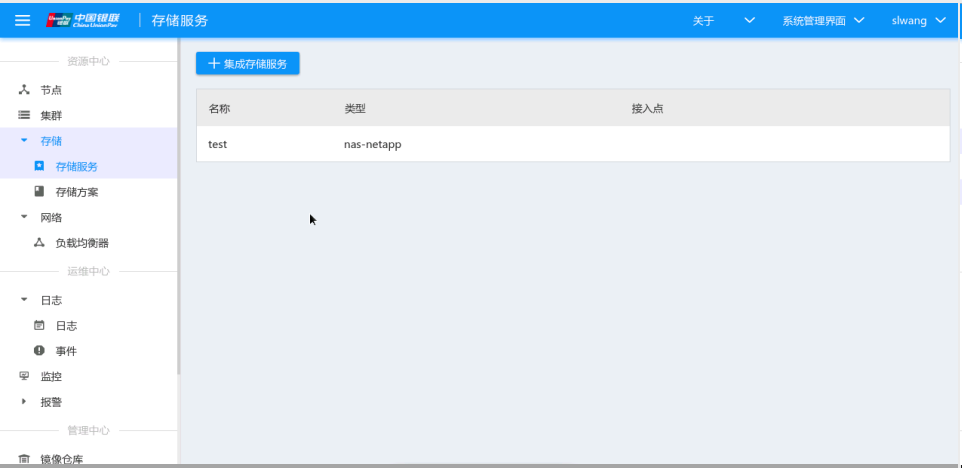
安全加固：符合银监会及银联内部安全策略

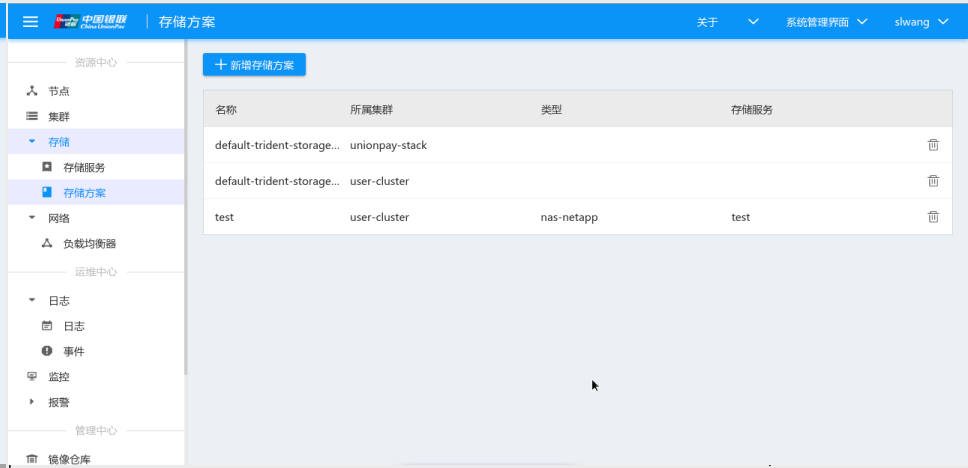


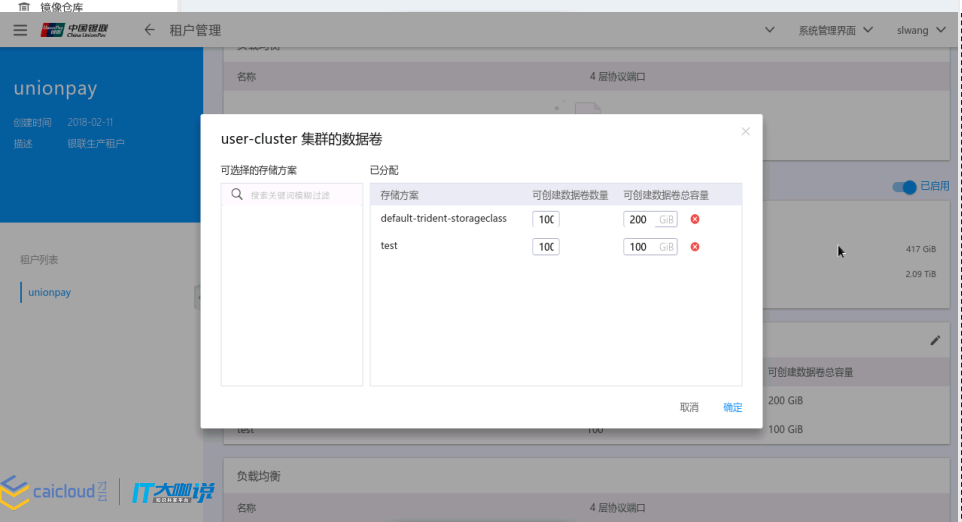
,**+ S !**+ 融合 > 存储

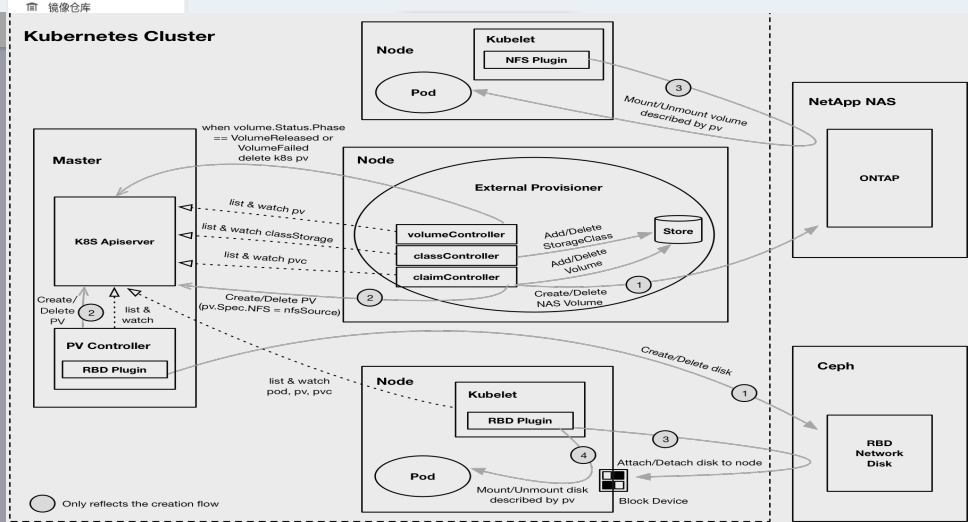


CaaS与IaaS融合 – 存储





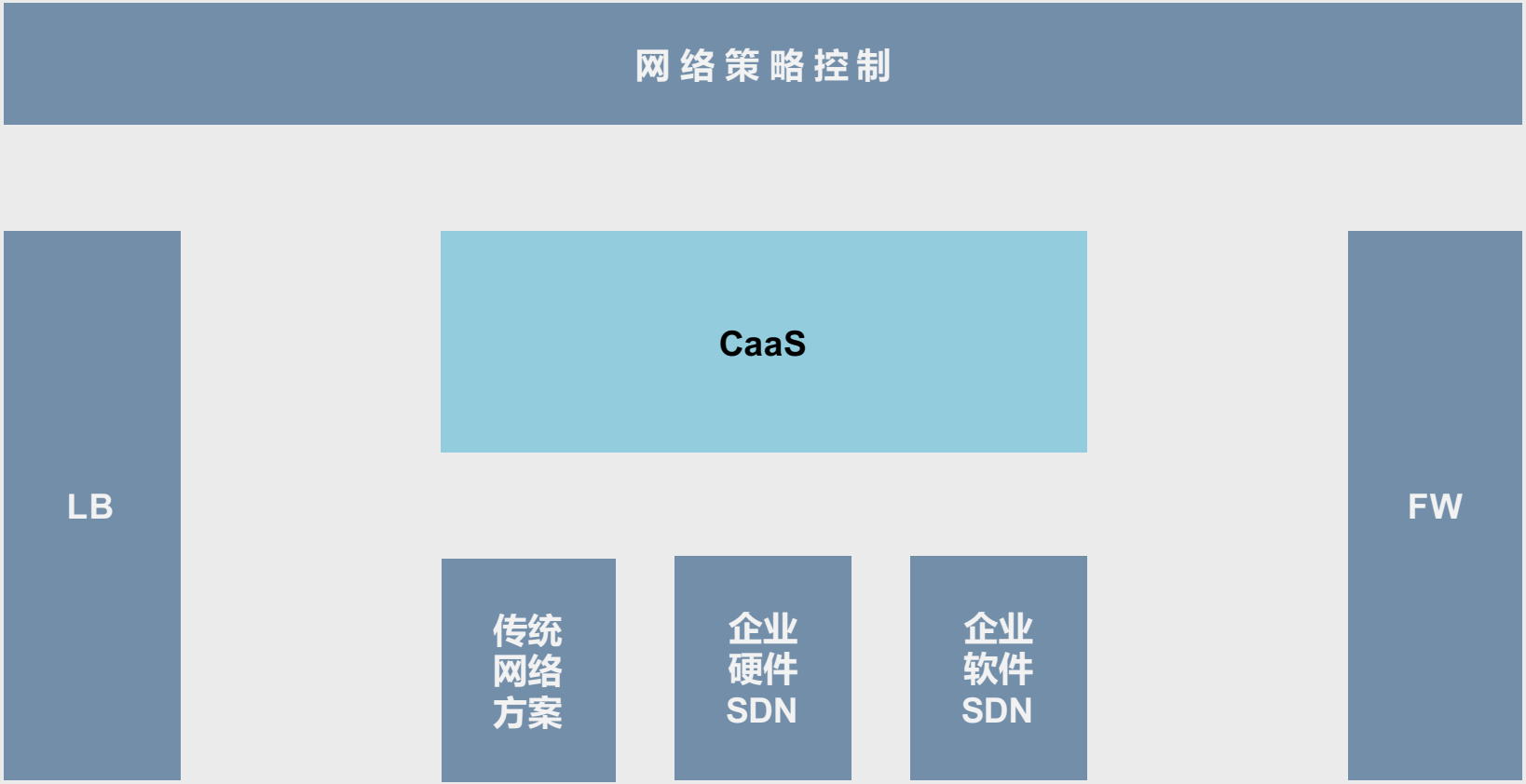




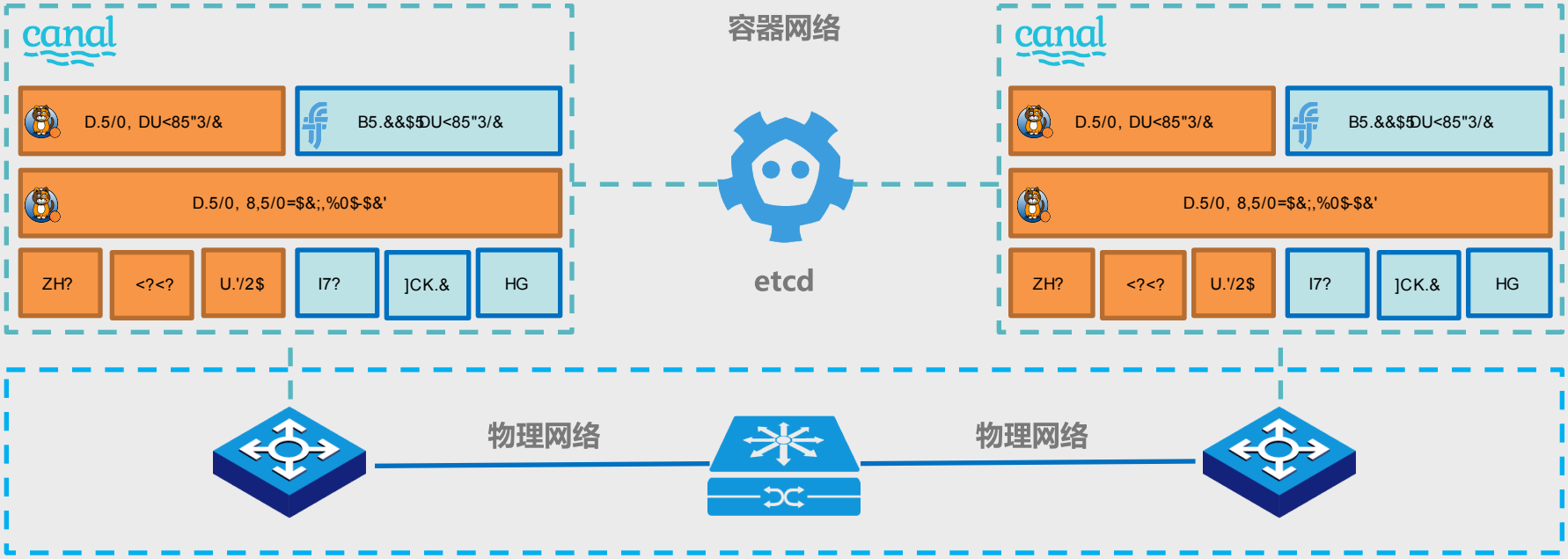
,**+ S !**+ 融合 > 存储

- L 存储服务支持多样存储后端
- L 存储方案定义详细存储需求
- L 支持租户存储容量配额管理
- L 支持本地存储Local storage
- L StorageClass
- L PV+PVC

CaaS与IaaS融合 – 网络

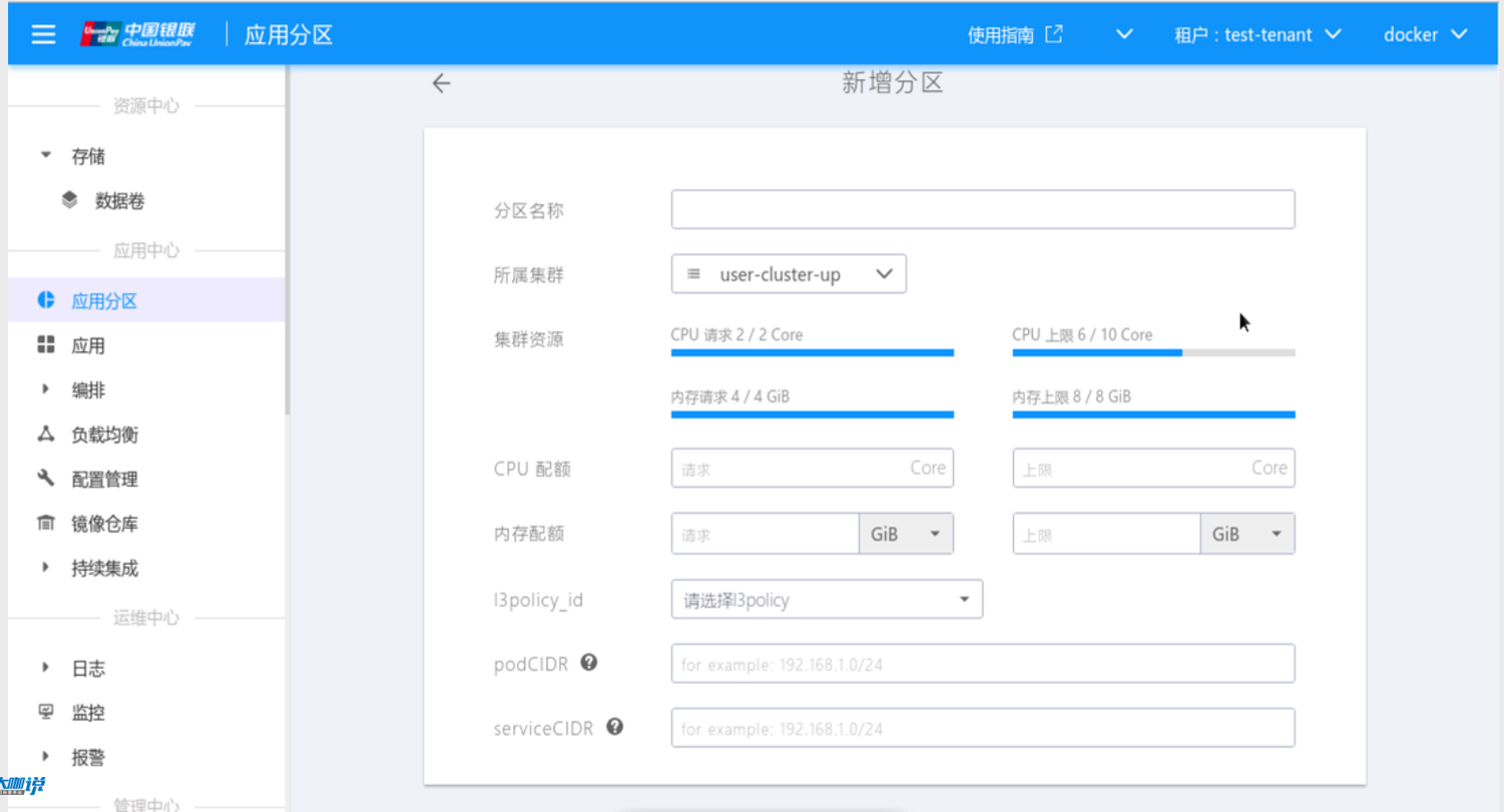


,**+ S !**+ 融合 > 网络 ?对底层网络透明

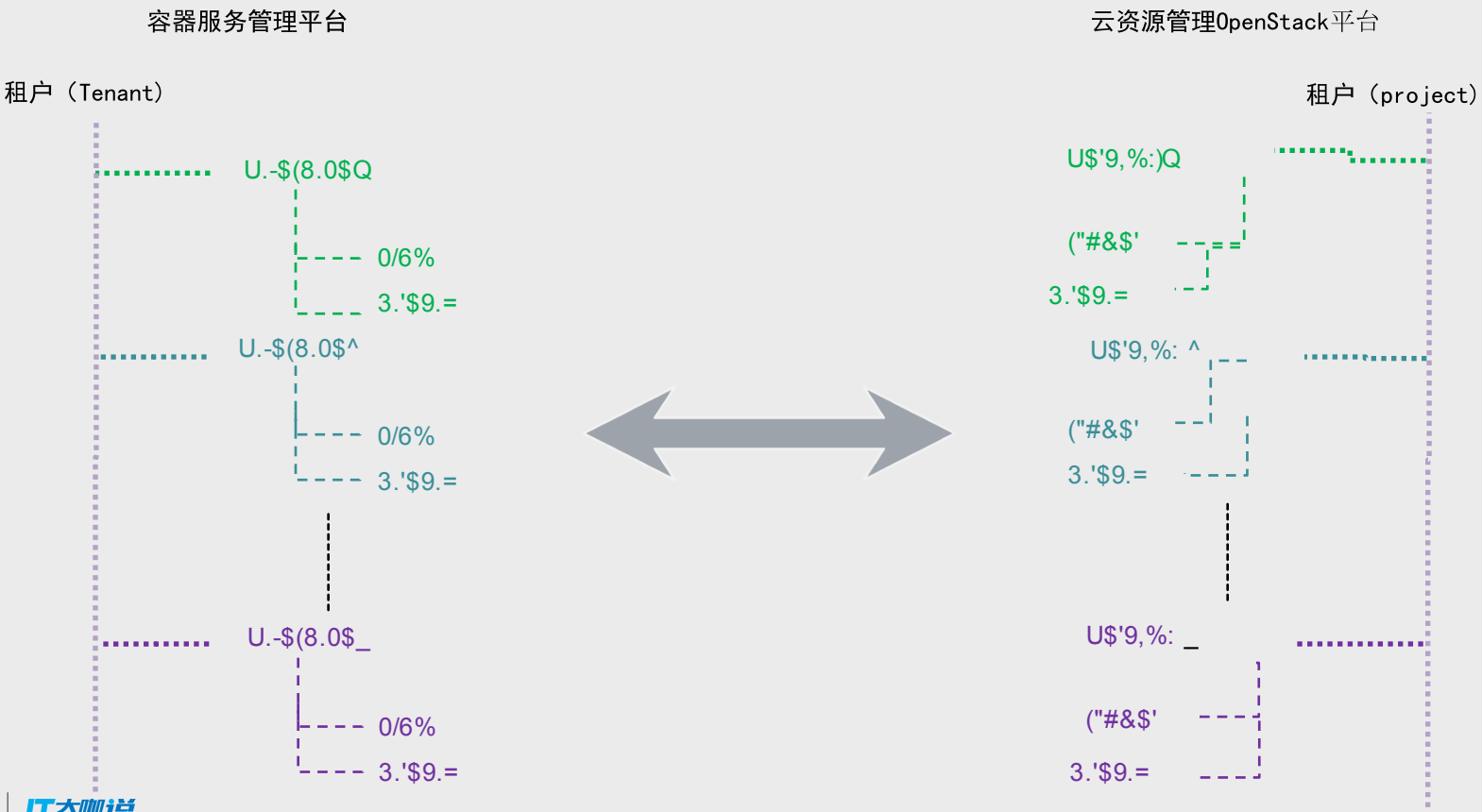


- L 多种网络方案集群粒度可选
- L 底层合法物理网络形态无感
- L 应用间网络访问控制策略支持
- L Flannel+Calico多种网络方案

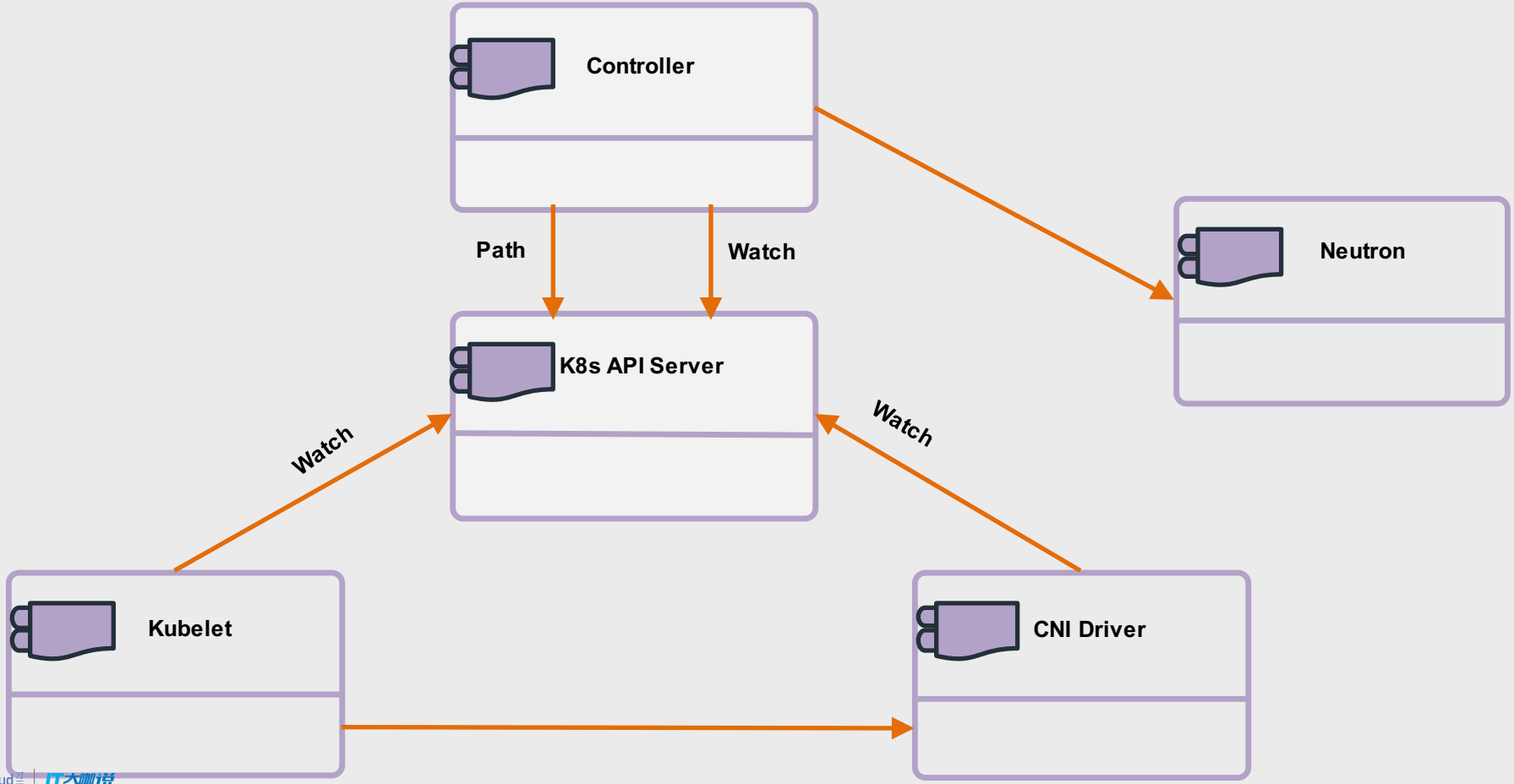
CaaS与IaaS融合 – 网络 | 与底层网络深度集成 | L2L3



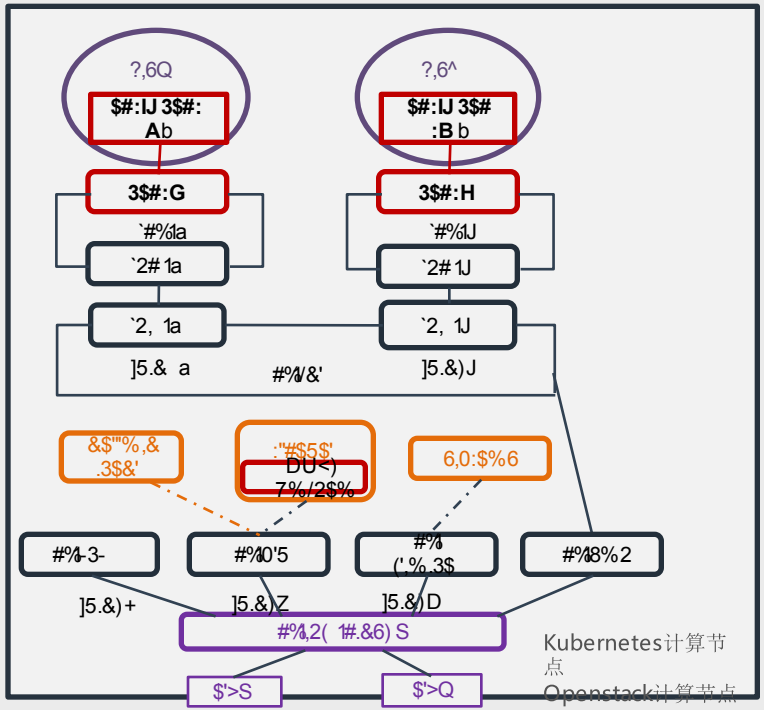
,**+ S !**+ 融合 > 网络 ?与底层网络深度集成 ?;D;E

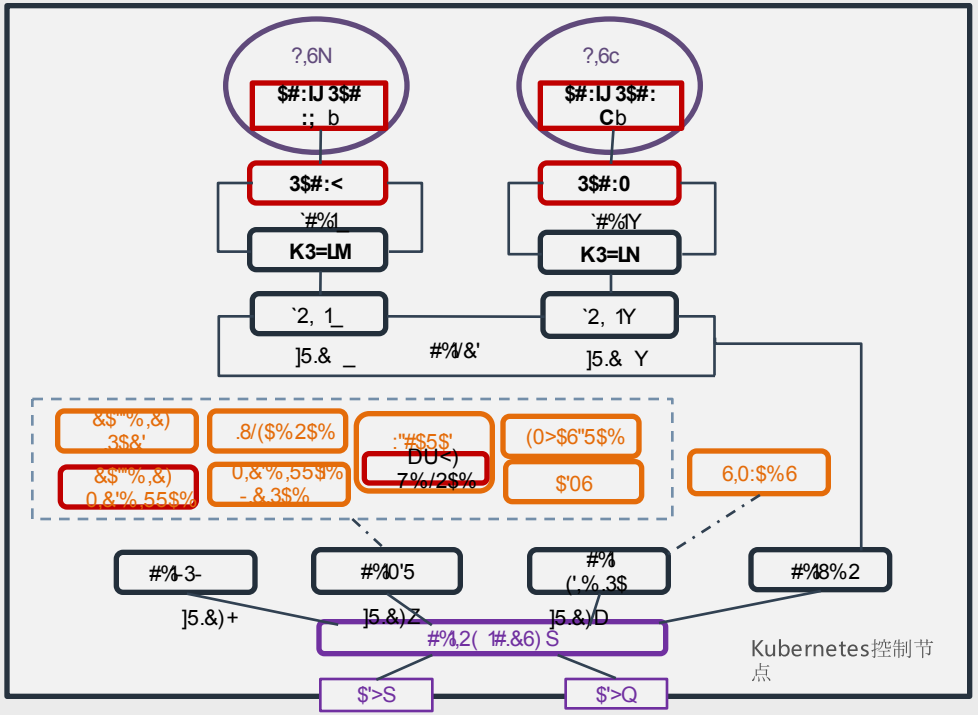


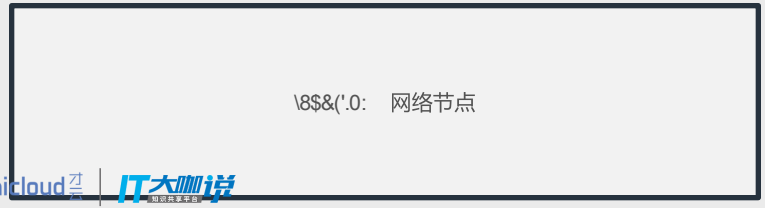
CaaS与IaaS融合 – 网络 | 与底层网络深度集成 | L2L3

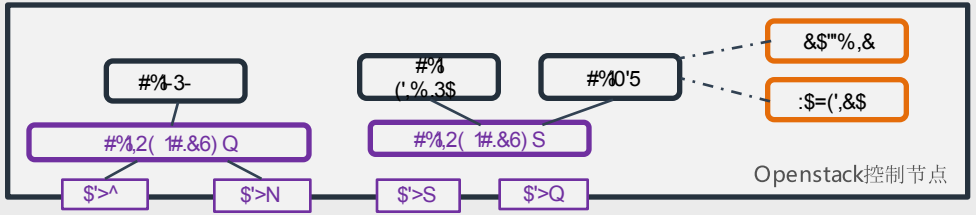


,**+ S !**+ 融合 > 网络 ?与底层网络深度集成 ?;D;E



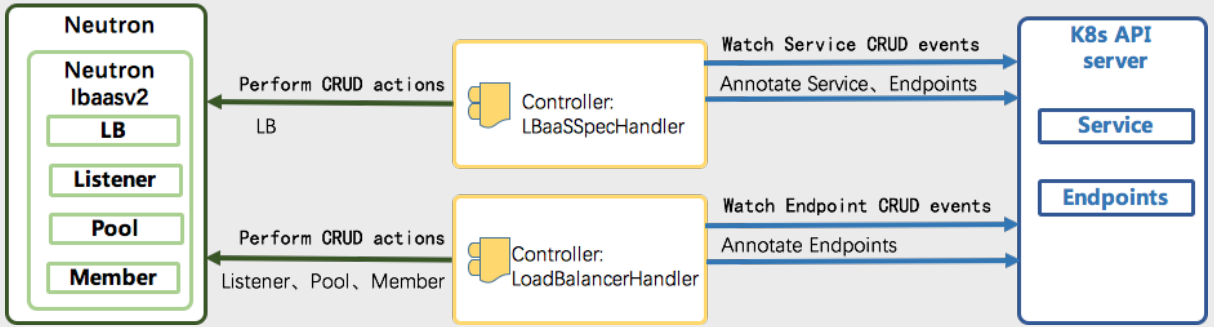




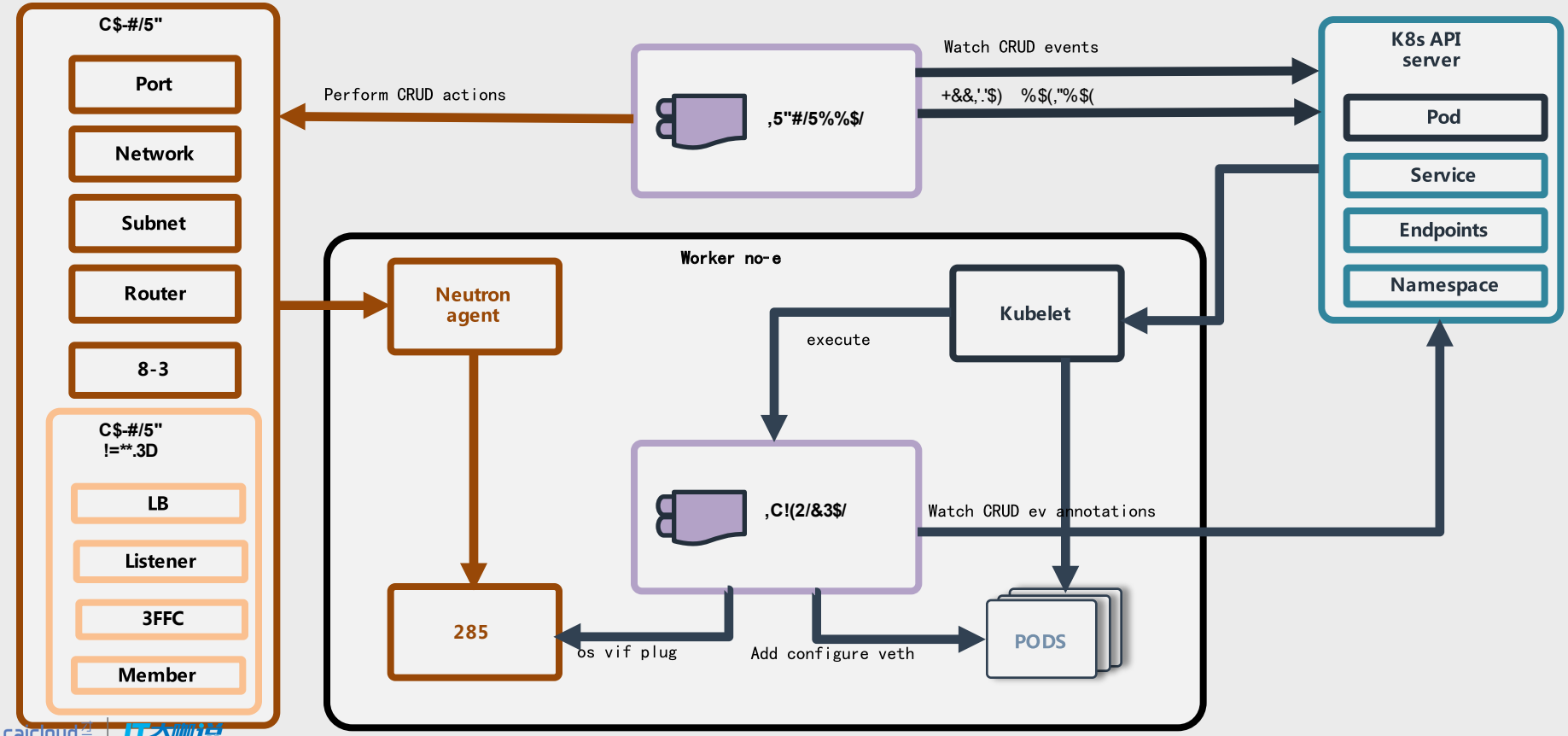


CaaS与IaaS融合 – 网络 | 与底层网络深度集成 | LB

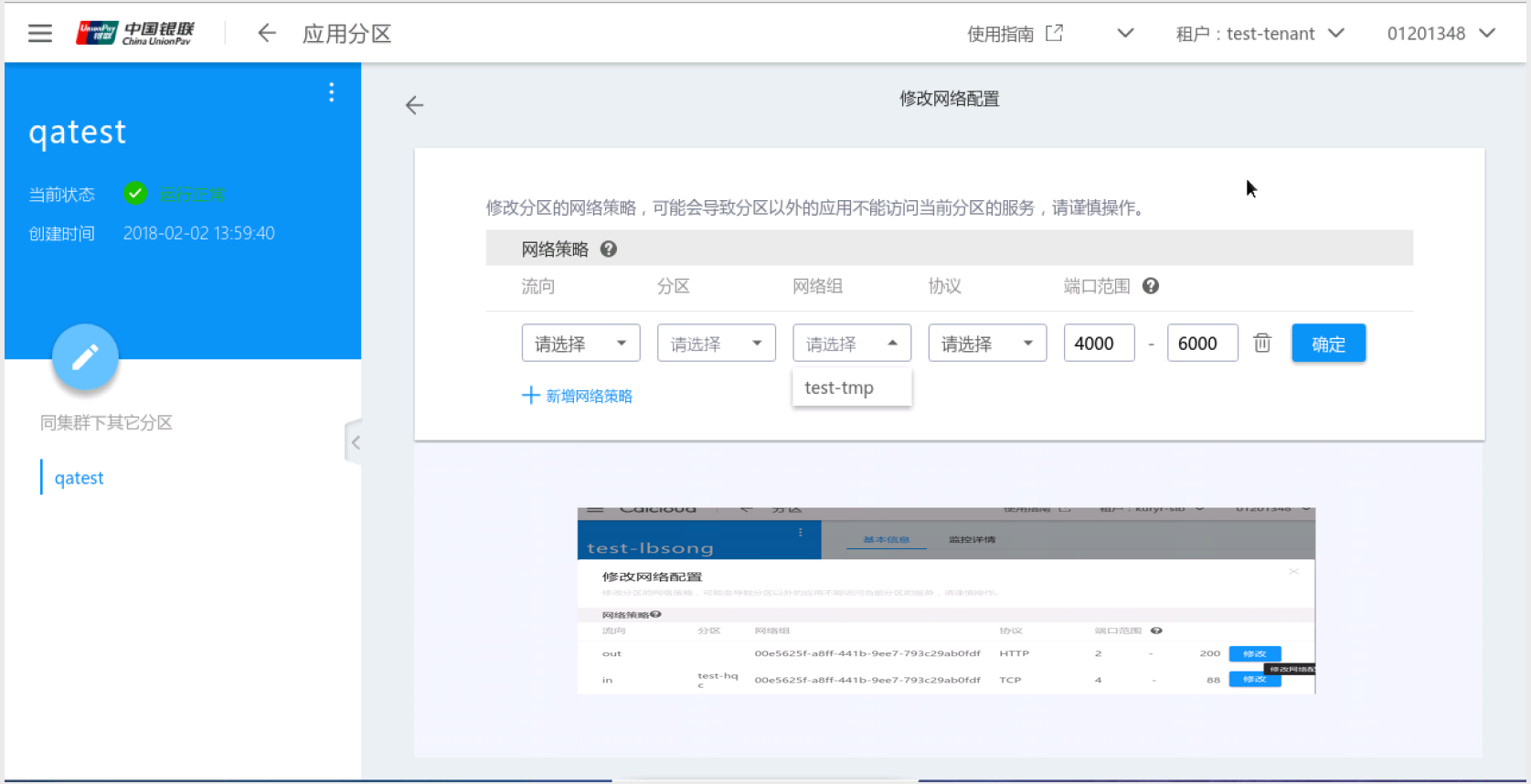
Neutron LBaaS	Kubernetes
Loadbalancer VIP	Service Cluster IP
Loadbalancer FIP	Service External IP
Protocol and Port of Listener	Protocol and Port of Service
Loadbalance Method of Member Pool	Loadbalance Method of Service/Endpoints
Members (IP, Port)	Endpoints (IP, Port)



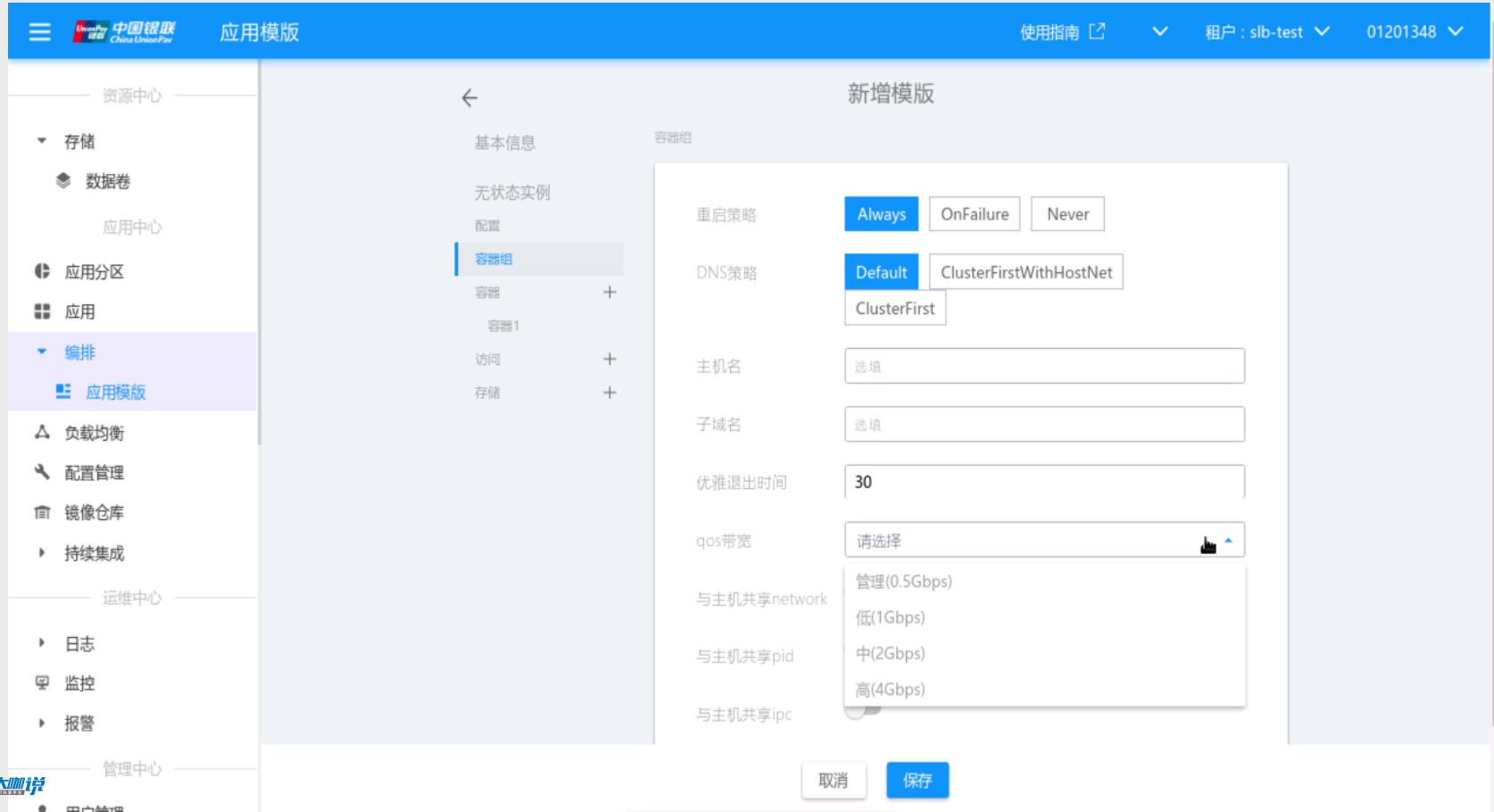
,**+ S !**+ 融合 > 网络 ?与底层网络深度集成 ?;D L;O



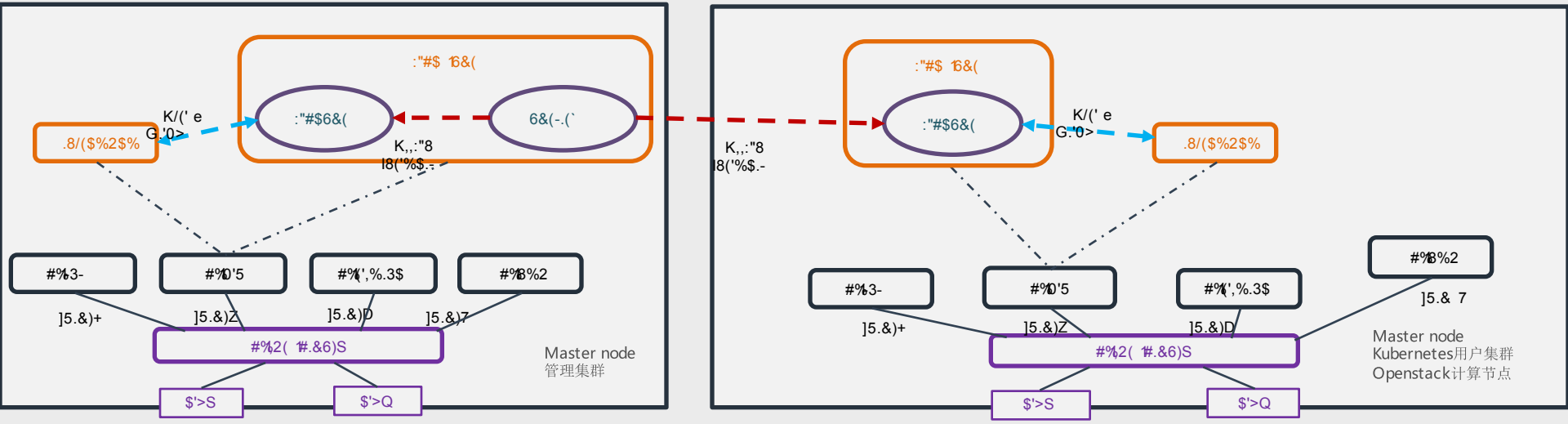
CaaS与IaaS融合 – 网络 | 与底层网络深度集成 | 通断



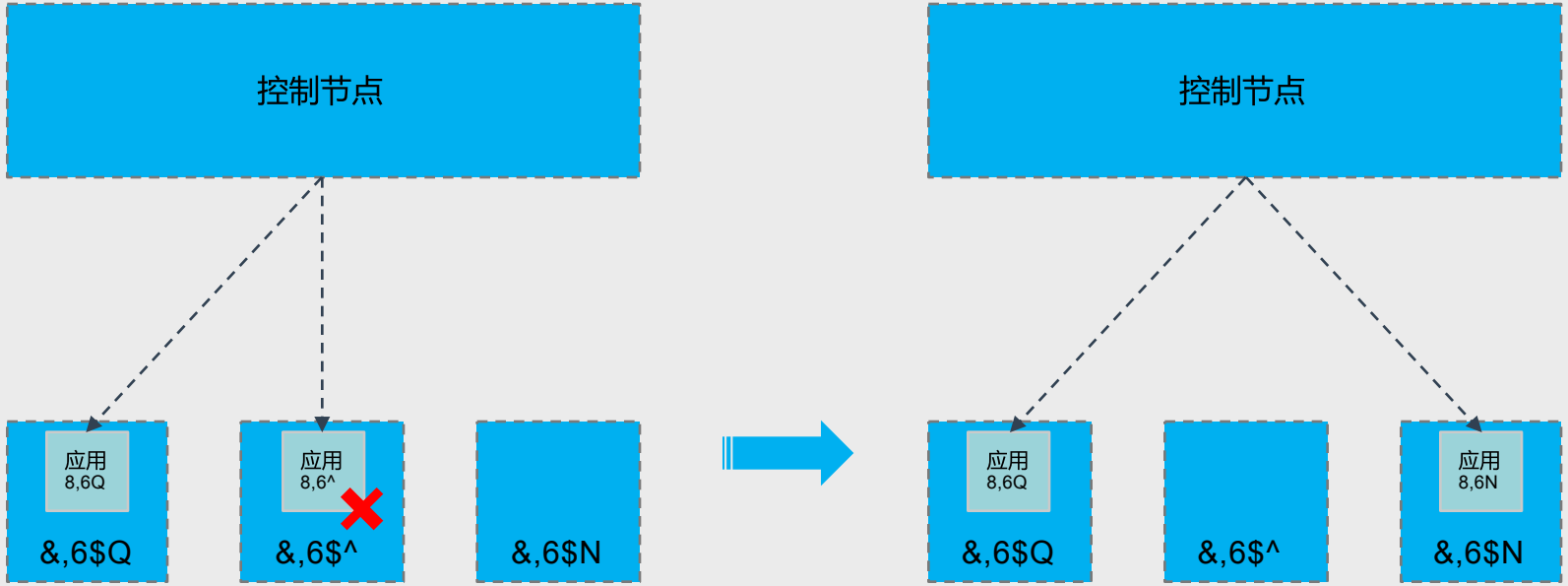
CaaS与IaaS融合 – 网络 | 与底层网络深度集成 | 带宽



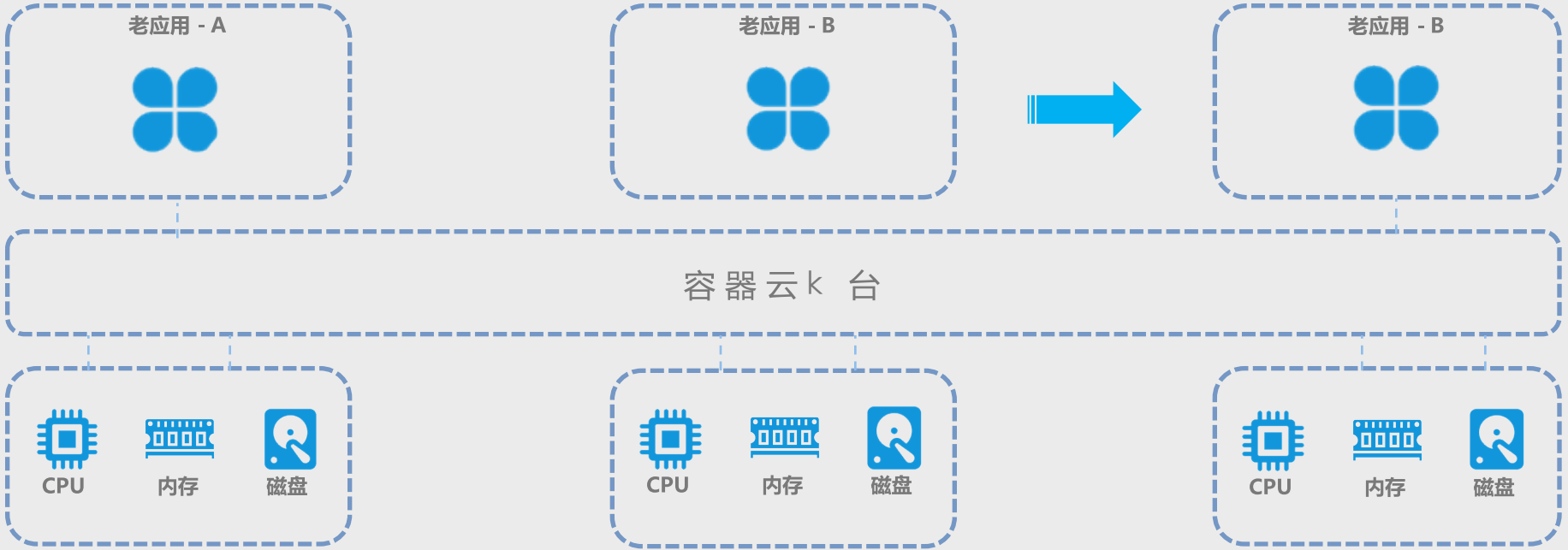
,**+ S !**+ 融合 > 网络 ?与底层网络深度集成 ?服务发现



容器!) 不固定问题



容器云平台承载历史包袱老应用



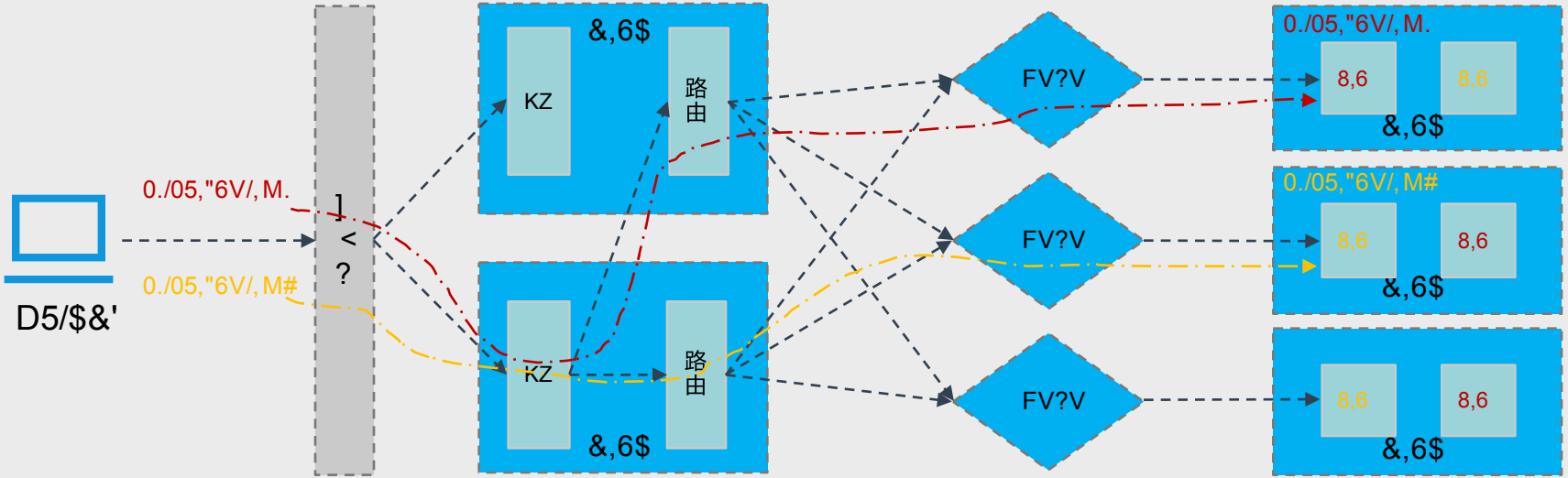
使用本地存储

- 磁盘限额管理
- 亲和性保证

老应用容器漂移

- 数据状态分离
- 带数据漂移

外部访问容器云平台容器应用



谢　谢

主办方：caicloud 才云　K8S Meetup 中国社区　TensorFlow

协办方：网易云