阿里巴巴云原生专场

Serverless Kubernetes 理想，现实和未来

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观看视频回放

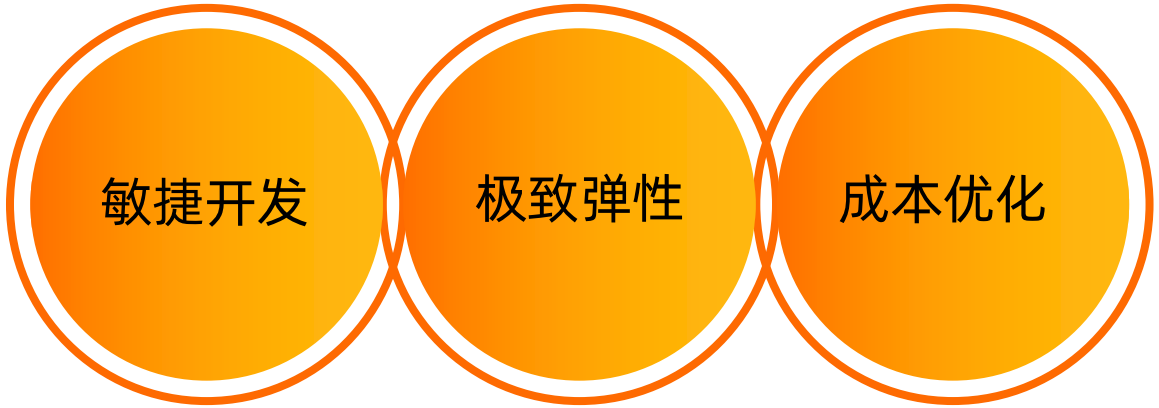
Serverless：关注应用而非基础设施

- 无需购买和安装机器
- 无需管理服务器
- 无需升级和更新OS
- 快速部署和更新应用
- 快速发布

- “无限”容量
- 秒级弹性
- 更好的扩展性
- 更好的灵活性

- 按需创建
- 无资源闲置

Serverless容器



容器

Build once, Run anywhere

没有语言和库的限制

连接Kubernetes生态

连接Cloud Native生态

无厂商绑定风险

Serverless Container Landscape

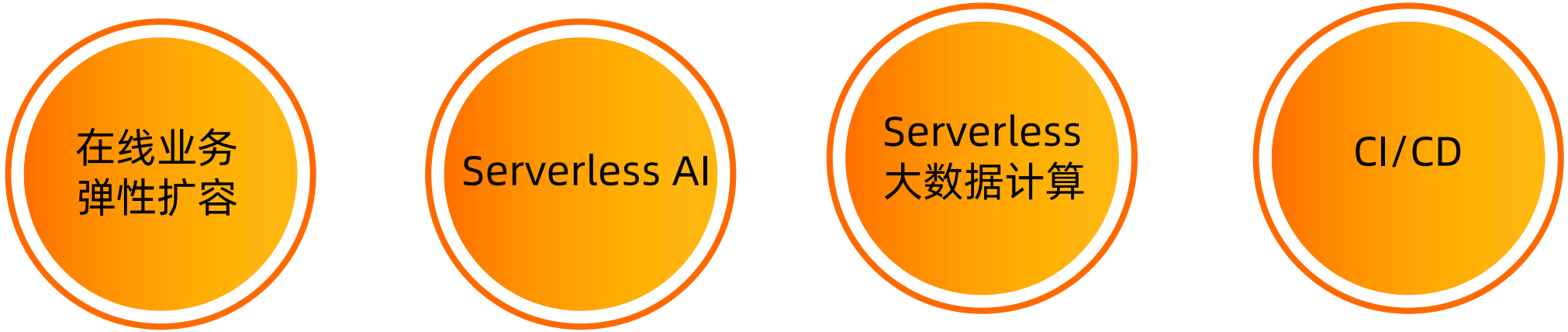
Competitive Landscape of Public Cloud Container Service Market

Generally Available Preview

Analysis Criteria		Alibaba	AWS	Google	IBM	Microsoft	Oracle
Container Orchestration Services	Kubernetes	Alibaba Cloud Container Service for Kubernetes (ACK)	Amazon Elastic Kubernetes Service (EKS)	Google Kubernetes Engine (GKE)	IBM Cloud Kubernetes Service (IKS)	Azure Kubernetes Service (AKS)	Oracle Container Engine for Kubernetes (OKE)
	Other Orchestration Technologies	Alibaba Cloud Container Services[c]	Amazon Elastic Container Service (ECS)				
Serverless Container Services	Serverless Kubernetes	Alibaba Cloud Serverless Kubernetes (ASK)	AWS EKS on Fargate			AKS Virtual Nodes	
	Serverless Container Instance	Alibaba Cloud Elastic Container	AWS ECS on Fargate	Google Cloud Run Google Cloud Run on GKE		Azure Container Instances (ACI)	
Kubernetes-Based Managed aPaaS	Red Hat OpenShift		Red Hat OpenShift Dedicated[b]	Red Hat OpenShift Dedicated[b]	Red Hat OpenShift on IBM Cloud	Azure Red Hat OpenShift	
Container-Related Other Services	Service Mesh (Managed)	Alibaba Cloud Service Mesh	AWS App Mesh	Anthos Service Mesh	OpenShift Service Mesh IKS Istio		
	Registry						
	Marketplace						
Hybrid and Multicloud Solutions	On-Premises Deployable Container Solutions	ACK on Apsara Stack	ECS/EKS on AWS Outposts	Anthos	IBM Cloud Paks	AKS Engine on Azure Stack[d]	Oracle Linux Cloud Native Framework
	Multicloud Container Management Solutions	ACK		Anthos (for the Other Clouds)[e]	IBM Cloud Pak Multicloud Management	Azure Arc	
General Criteria	First Production Support Date	May 2016	April 2015	August 2015	March 2017	March 2018	May 2018
	Pricing Model for Kubernetes Master Services[a]	Free	10 Cents per Hour per Cluster (EKS)/Free (ECS)	10 Cents per Hour per Cluster[f, g]	Free	Free	Free

Source: Gartner

Serverless容器典型场景和客户价值



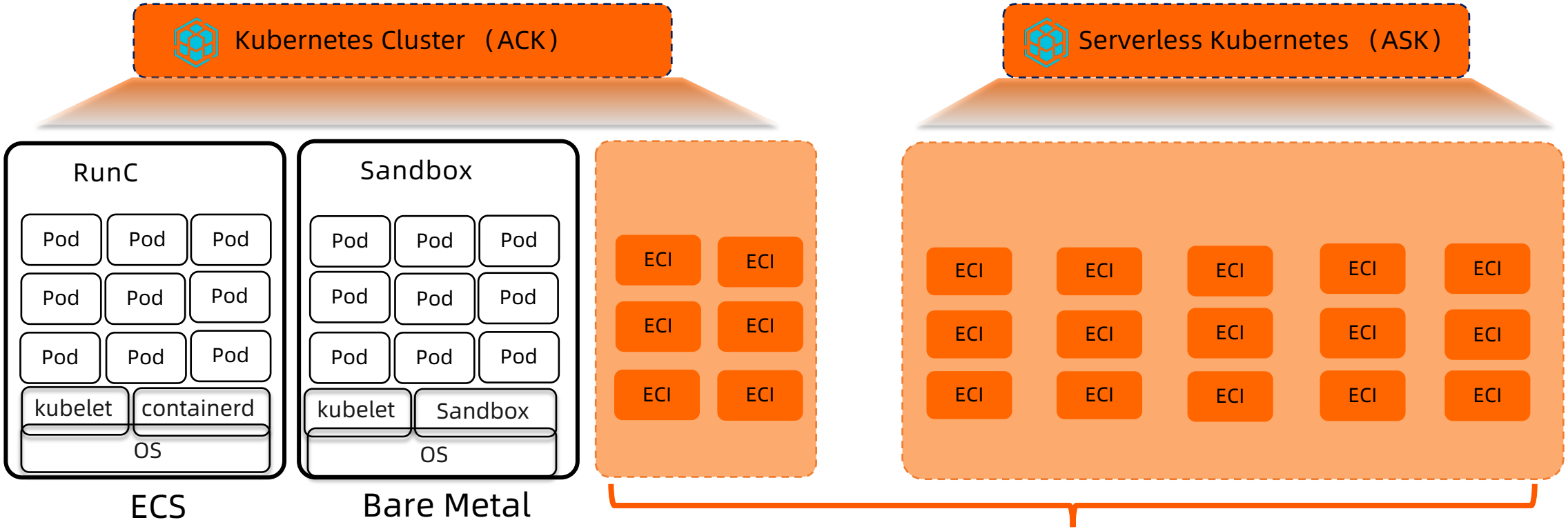
- 30s 500pod
- 非预期突发流量
- 适用电商、在线教育等行业

- 免运维
- 高弹性
- 低成本

- Spark / Presto
- 高弹性低成本
- 免容量规划

- Jenkins/Gitlab-Runner
- 低成本
- 强隔离

Serverless Kubernetes - 在Kubernetes中使用Serverless容器



- 共享OS
- 安全性弱

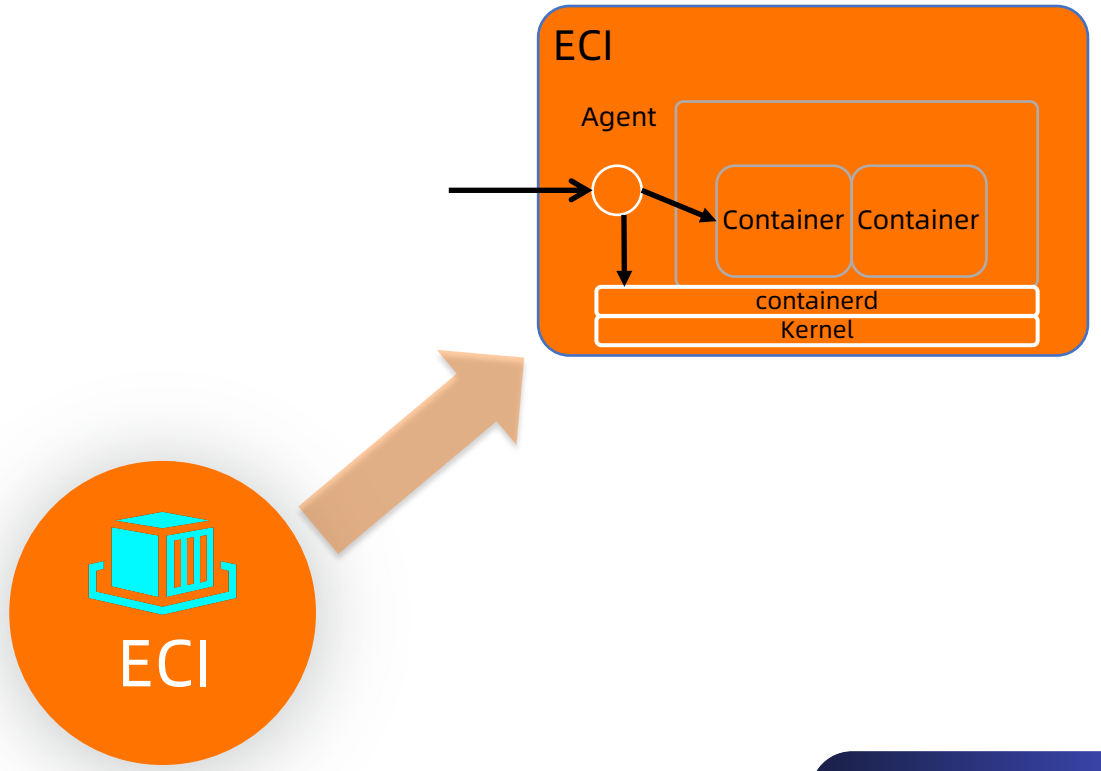
- 强隔离，安全

- 强隔离，安全
- 无节点管理

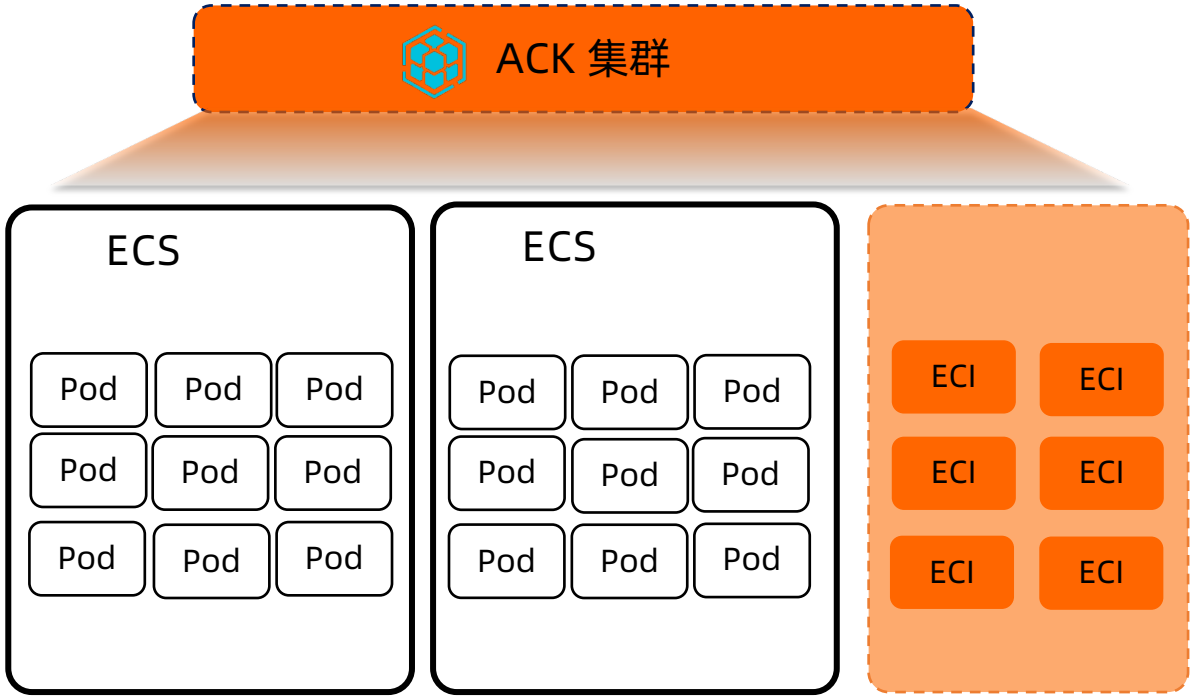
ECI: Elastic Container Instance

- Run Containers without Managing Infrastructure
- 容器成为云上的一等公民
- 安全隔离的容器运行环境
- 支持CPU 0.25c - 64c，GPU，按需创建按秒收费
- Spot Instance：极大降低计算成本
- Startup time: ~10s
- 镜像缓存：无需从远端拉取镜像
- 与ECS并池：大规模资源池，弹性能力保障

- 在Kubernetes中使用ECI: ACK/ASK on ECI

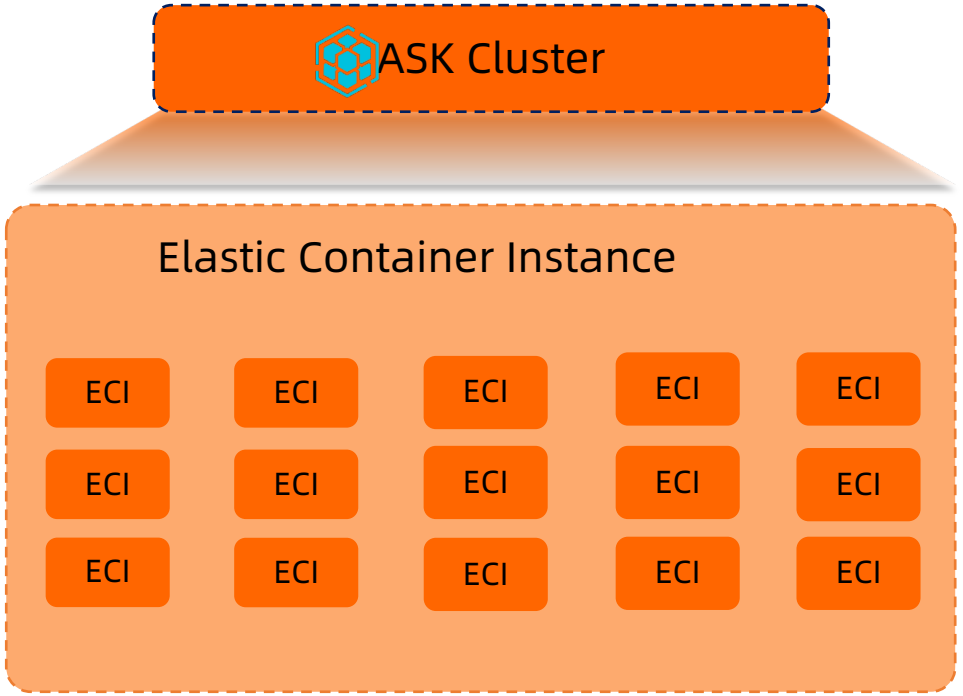


ACK on ECI



- ECS + ECI混合部署：将long run应用运行在ECS上，弹性和任务应用运行在ECI上。
- “无限”容量
- 极致弹性
- ECI 和 ECS Pod之间 互联互通（支持ClusterIP）

ASK: Serverless Kubernetes

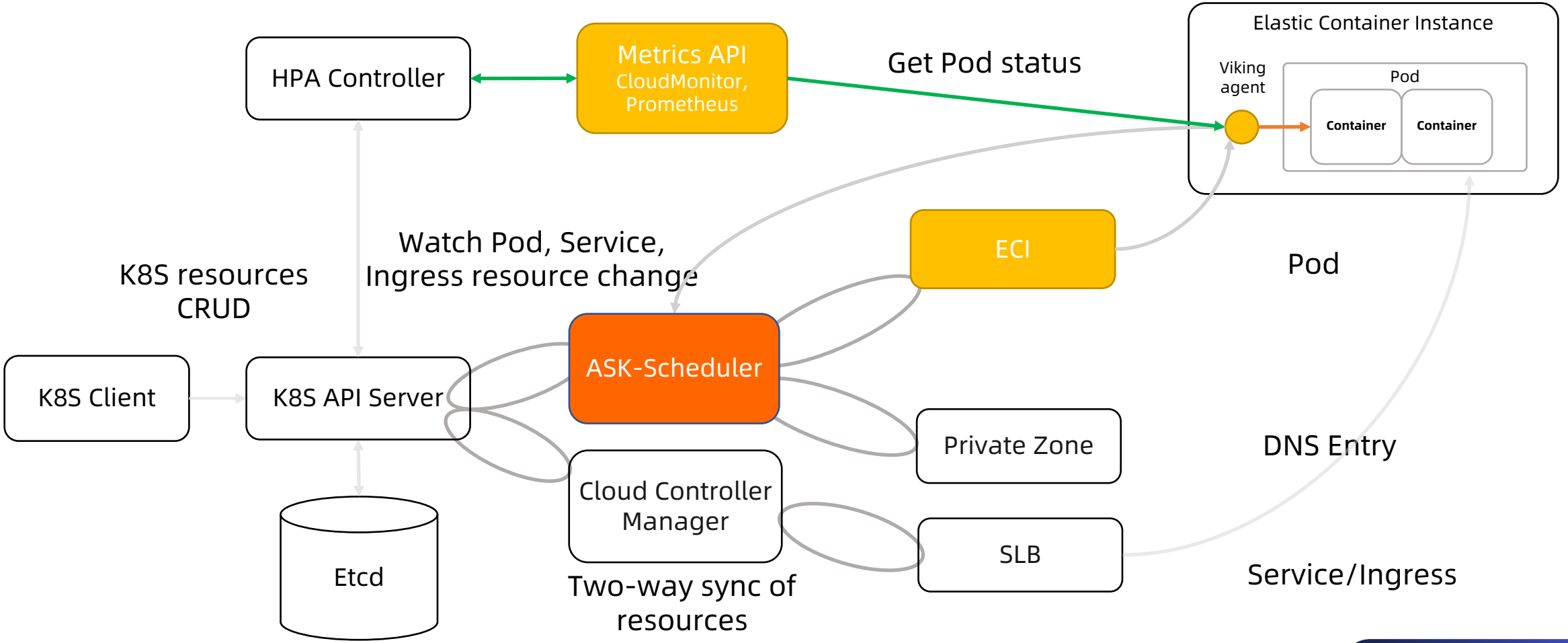


- Nodeless：简单易用，无节点管理，运维成本低
- 极致弹性: 30s 500 pod
- 成本优化：按需创建，支持spot和预留实例券
- Kubernetes兼容性：

  deployment/statfulset/job/service/ingress/CRD
- ALB Ingress: 基于SLB 7 layer
- Knative serving on ASK：automatic scaling in knative
- 集成ARMS, SLS

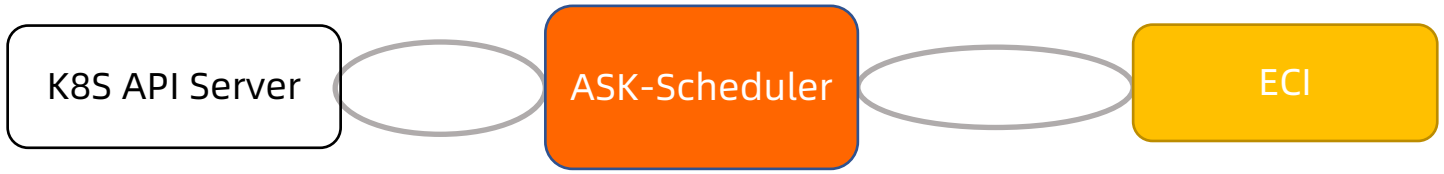
Serverless Kubernetes Architecture

Cloud-scale Nodeless Kubernetes



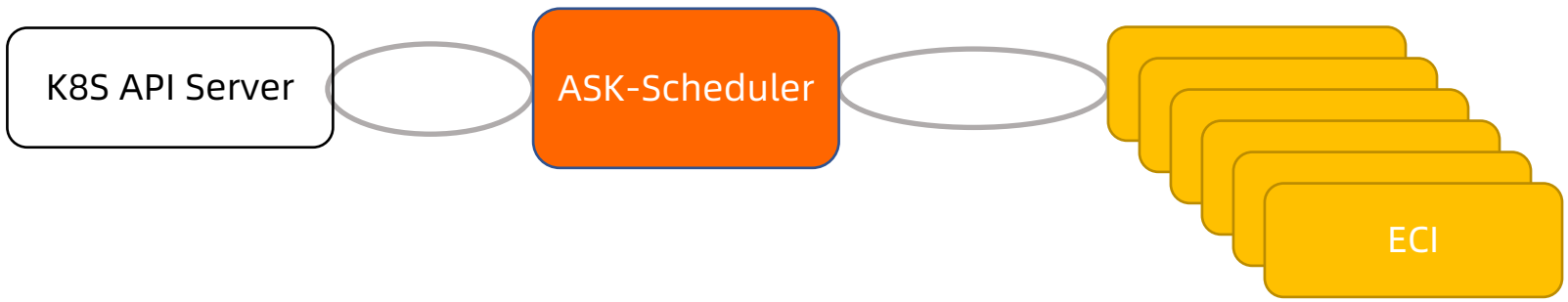
Serverless Scheduler

- Nodeless：最佳弹性和扩展性，无传统调度器的复杂调度逻辑，最优的调度效率。
- 支持多可用区、多规格调度。
- 支持批量调度。
- AZ亲和性和反亲和性。
- ECI Pod生命周期管理：直通ECI Pod（Pod状态查询、logs、exec、metrics链路），降低ECI管控压力。



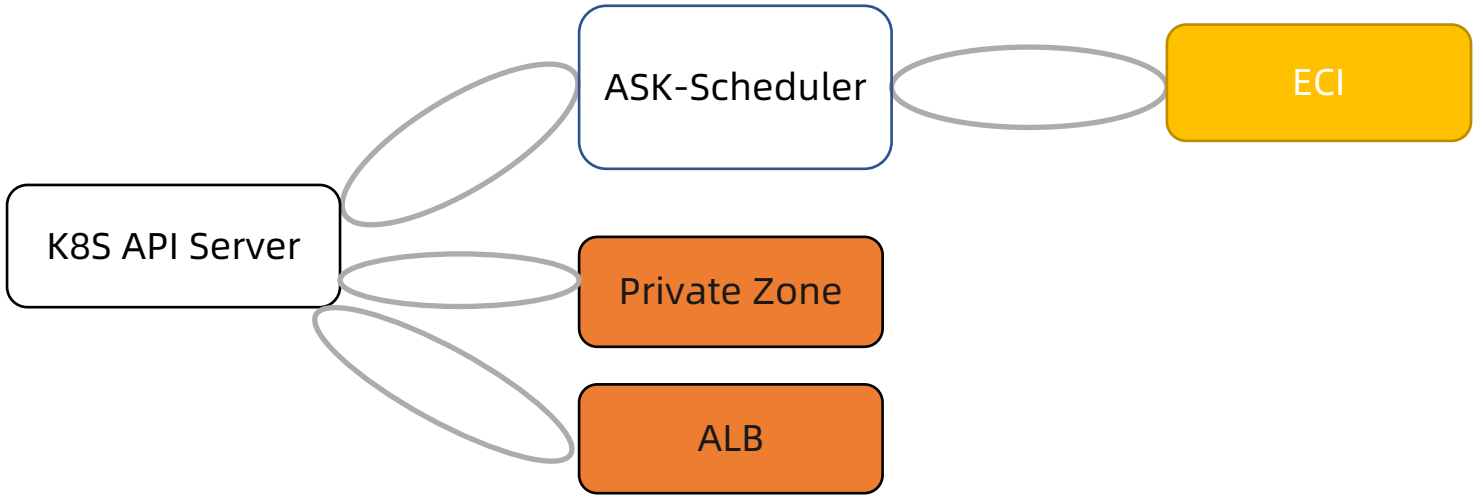
Elastic Scalling

- Pod（N）： Node（1）
- 单集群支持1万Pod
- 大量Pod场景中的Kube-proxy风暴问题



Controllers - service discovery, ingress

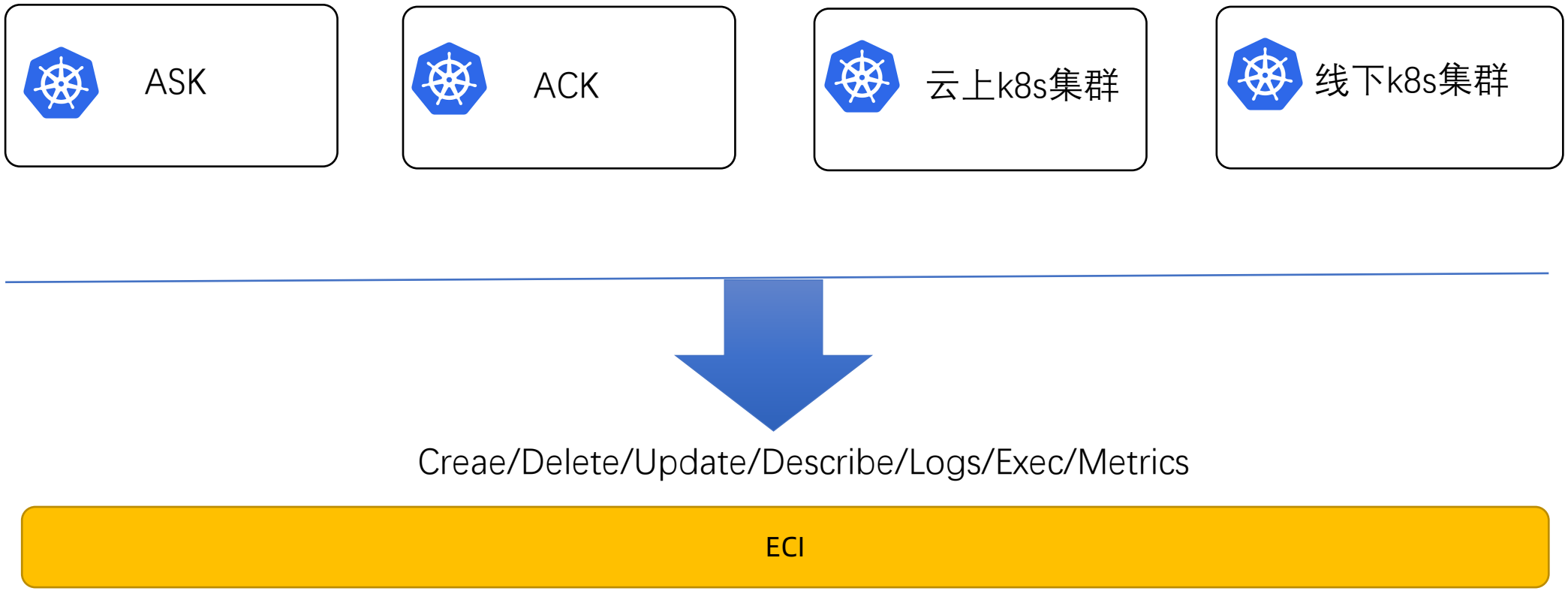
- 基于云产品控制器降低Kubernetes集群的复杂度
  - 使用PrivateZone代替coredns服务发现
  - 使用SLB layer-7（ALB）作为默认Ingress



Serverless容器基础设施 - ECI

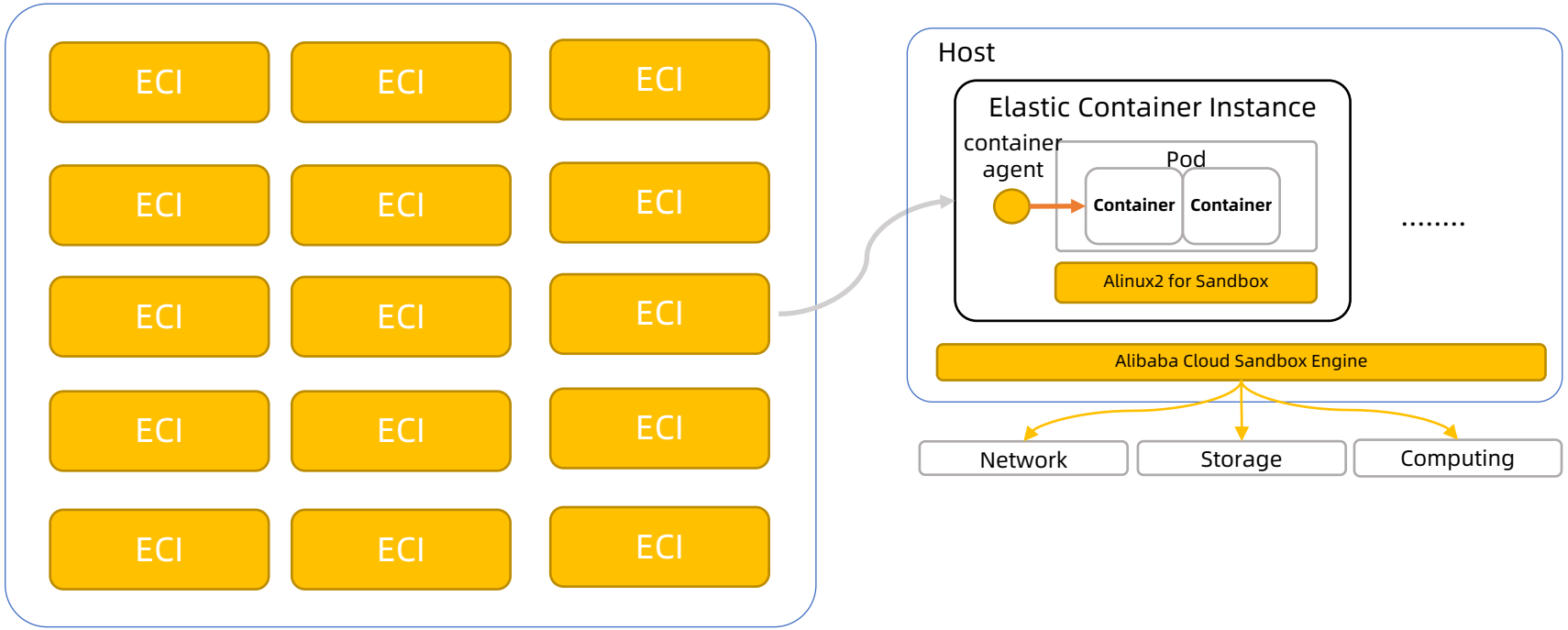
- 更低的计算成本：弹性成本要低于ECS，long run应用成本要接近ECS包年包月
- 更高的弹性效率：ECI扩容速度要远高于ECS
- 更大的弹性规模：与传统ECS节点扩容不同，一个大规模容器应用动辄需要数万核的弹性算力。
- 持平的计算性能：ECI计算效能需要和同规格ECS有一致的性能表现
- 更低的迁移成本：与现有容器应用生态完美集成
- 更低的使用成本：全自动化安全和运维能力

ECI关键技术选择 - 基于 Pod 的基本调度单位和标准、开放的API接口

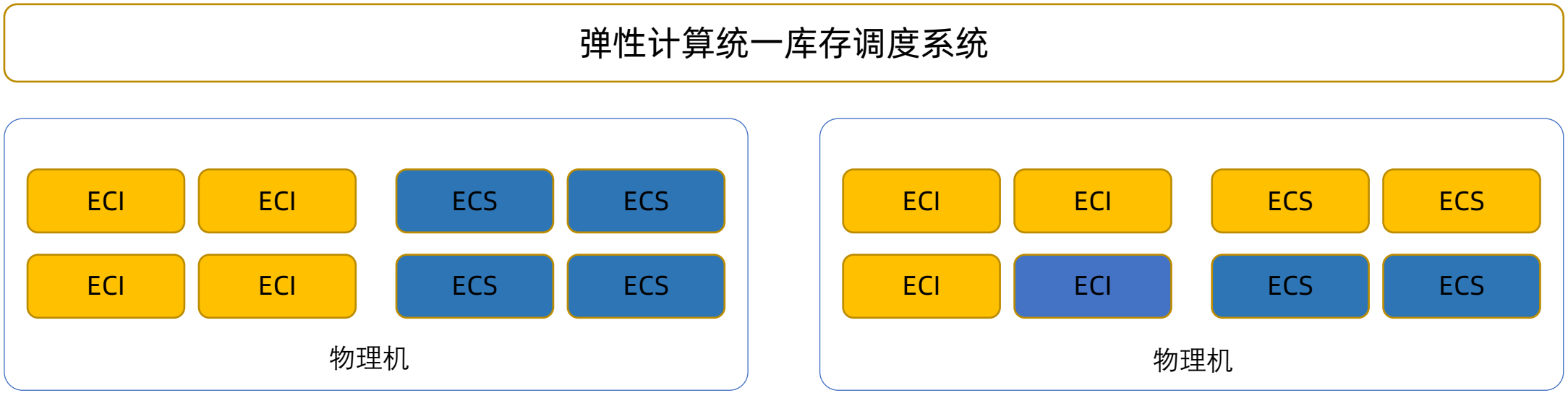


ECI关键技术选择 - 基于安全沙箱技术的容器运行时

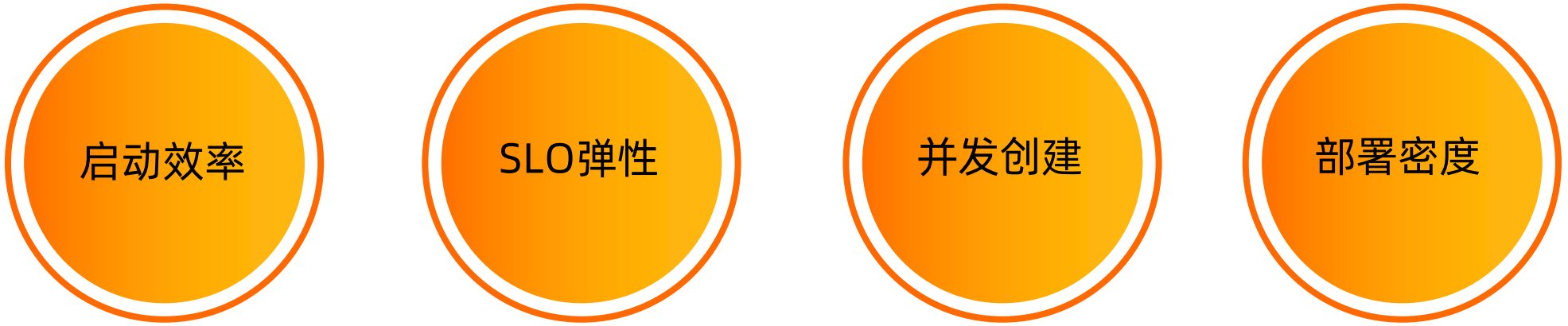
- Bulti-in Security
- Light-Weight Virtualization
- High Density
- Scale and efficiency
- Optimization



ECI关键技术选择 - ECI和ECS并池架构



Serverless容器未来挑战



咨询和答疑

首届 KubeCon 2020 线上峰...

22人

扫一扫群二维码，立刻加入该群。

THANKS