

# OpenStack概述



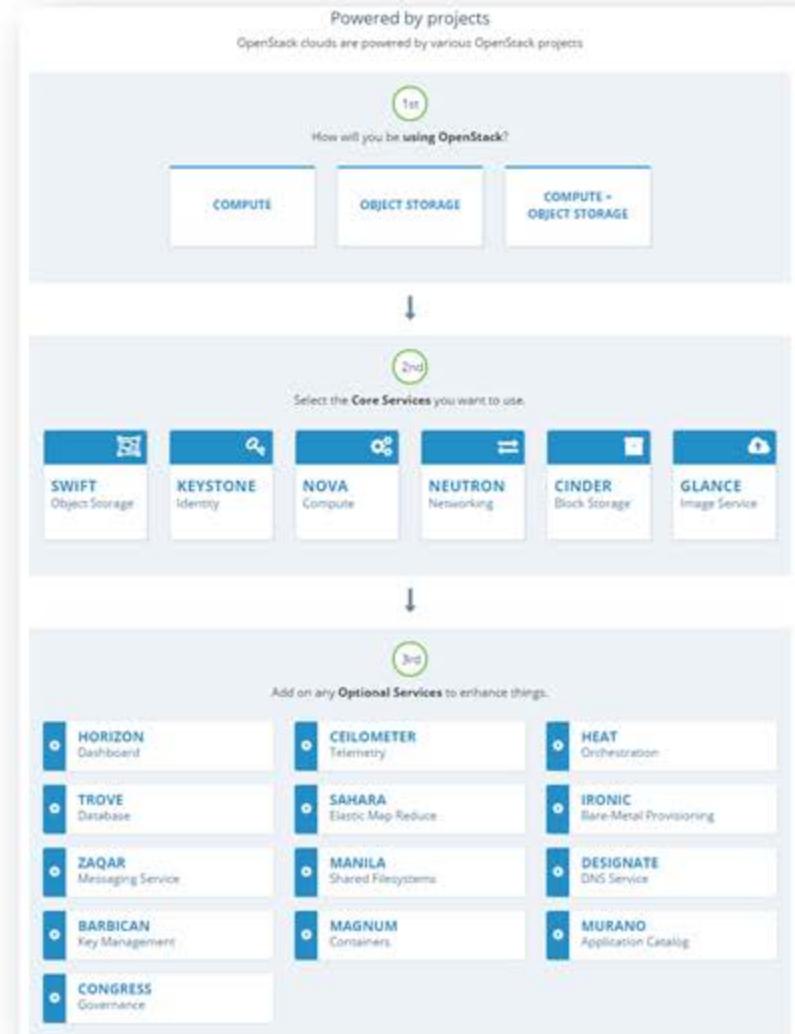
# 概述

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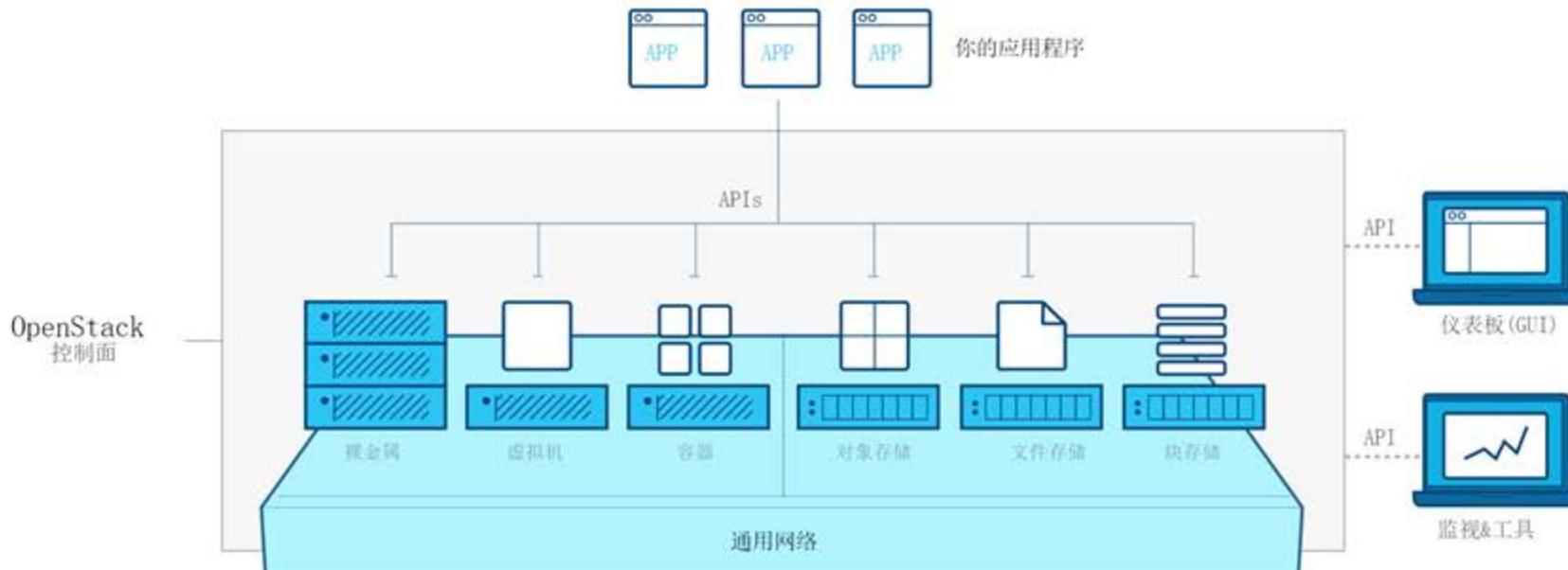
- ▶ OpenStack概述
- ▶ OpenStack架构

# ◆ OpenStack概述

- ▶ 什么是OpenStack
- ▶ 核心服务 Core Services
- ▶ 可选服务 Optional Services



# 什么是OpenStack ?



OpenStack is a cloud operating system that controls large pools of compute, storage, and networking resources throughout a datacenter, all managed through a dashboard that gives administrators control while empowering their users to provision resources through a web interface.

# 核心服务 Core Services

### NOVA

Compute

Manages the lifecycle of compute instances in an OpenStack environment. Responsibilities include spawning, scheduling and decommissioning of machines on demand.

95 % ADOPTION   8 OF 8 MATURITY   7 YRS AGE

[MORE DETAILS](#)

### NEUTRON

Networking

Enables network connectivity as a service for other OpenStack services, such as OpenStack Compute. Provides an API for users to define networks and the attachments into them. Has a pluggable architecture that supports many popular networking vendors and technologies.

93 % ADOPTION   8 OF 8 MATURITY   5 YRS AGE

[MORE DETAILS](#)

### SWIFT

Object Storage

Stores and retrieves arbitrary unstructured data objects via a RESTful, HTTP based API. It is highly fault tolerant with its data replication and scale out architecture. Its implementation is not like a file server with mountable directories.

52 % ADOPTION   7 OF 8 MATURITY   7 YRS AGE

[MORE DETAILS](#)

### CINDER

Block Storage

Provides persistent block storage to running instances. Its pluggable driver architecture facilitates the creation and management of block storage devices.

88 % ADOPTION   8 OF 8 MATURITY   5 YRS AGE

[MORE DETAILS](#)

### KEYSTONE

Identity

Provides an authentication and authorization service for other OpenStack services. Provides a catalog of endpoints for all OpenStack services.

96 % ADOPTION   7 OF 8 MATURITY   5 YRS AGE

[MORE DETAILS](#)

### GLANCE

Image Service

Stores and retrieves virtual machine disk images. OpenStack Compute makes use of this during instance provisioning.

95 % ADOPTION   6 OF 8 MATURITY   7 YRS AGE

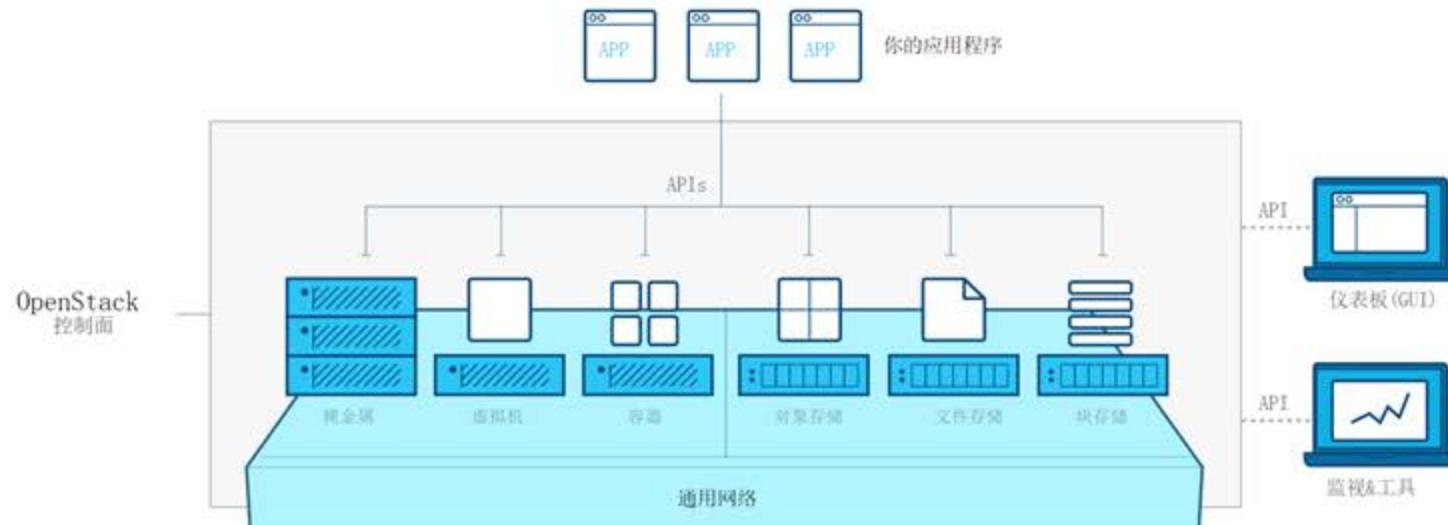
[MORE DETAILS](#)

# 可选服务 Optional Services

Optional Services ( 13 Results )					
NAME	SERVICE	MATURITY	AGE	ADOPTION	
Horizon	Dashboard	6 of 8	5 Yrs	87 %	
Ceilometer	Telemetry	1 of 8	4 Yrs	55 %	
Heat	Orchestration	6 of 8	4 Yrs	67 %	
Trove	Database	3 of 8	3 Yrs	13 %	
Sahara	Elastic Map Reduce	3 of 8	3 Yrs	10 %	
Ironic	Bare-Metal Provisioning	5 of 8	3 Yrs	21 %	
Zaqar	Messaging Service	4 of 8	3 Yrs	4 %	
Manila	Shared Filesystems	5 of 8	3 Yrs	14 %	
Designate	DNS Service	3 of 8	3 Yrs	16 %	
Barbican	Key Management	4 of 8	3 Yrs	9 %	
Magnum	Containers	2 of 8	2 Yrs	11 %	
Murano	Application Catalog	1 of 8	2 Yrs	11 %	
Congress	Governance	1 of 8	2 Yrs	2 %	

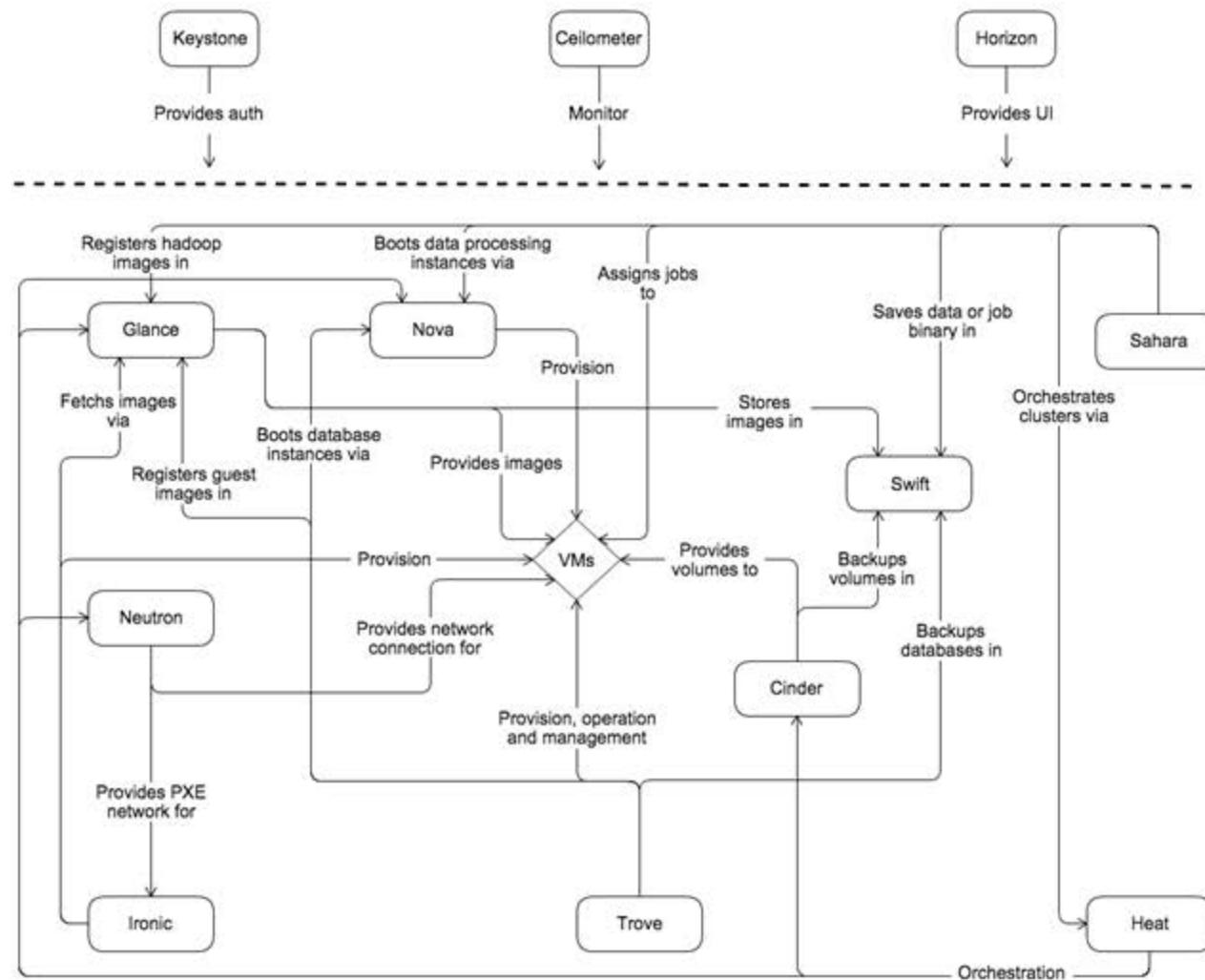
# ◆ OpenStack架构

- ▶ OpenStack概念性架构
- ▶ OpenStack逻辑性架构



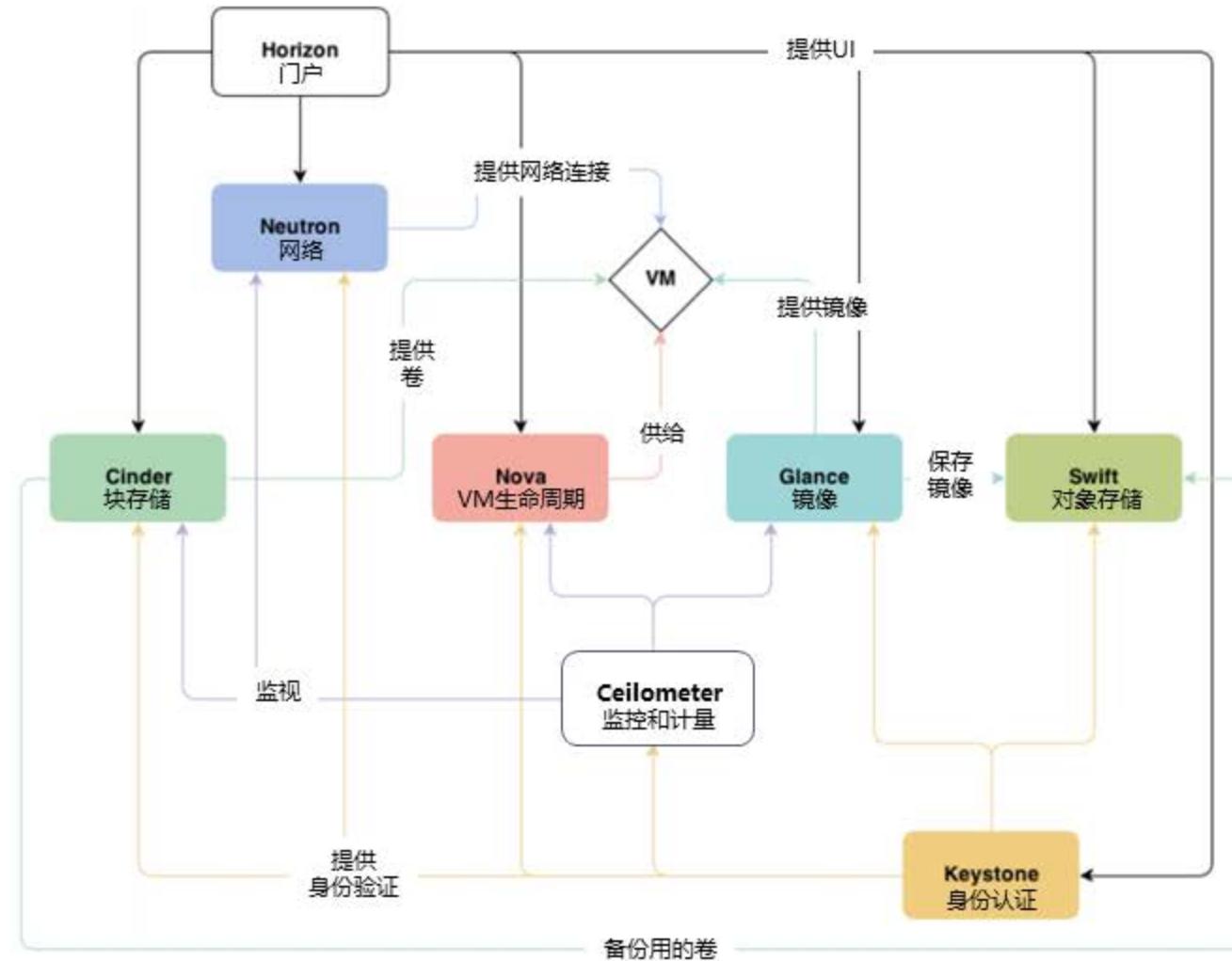
# OpenStack概念性结构

# Conceptual Architecture



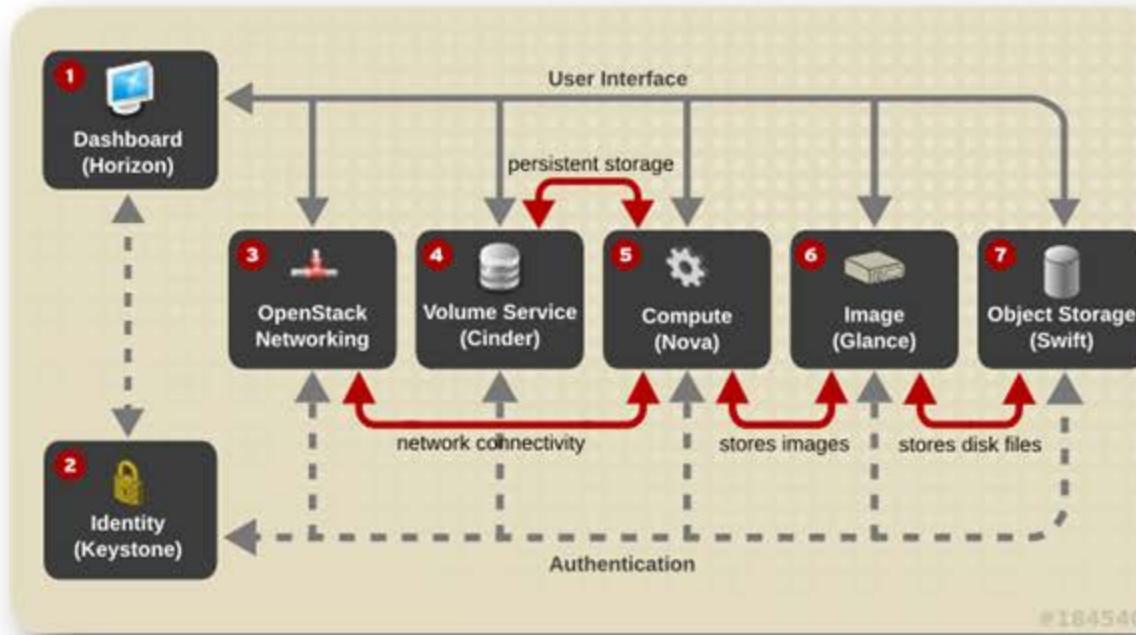
# OpenStack概念性结构

# Conceptual Architecture



# OpenStack概念性结构

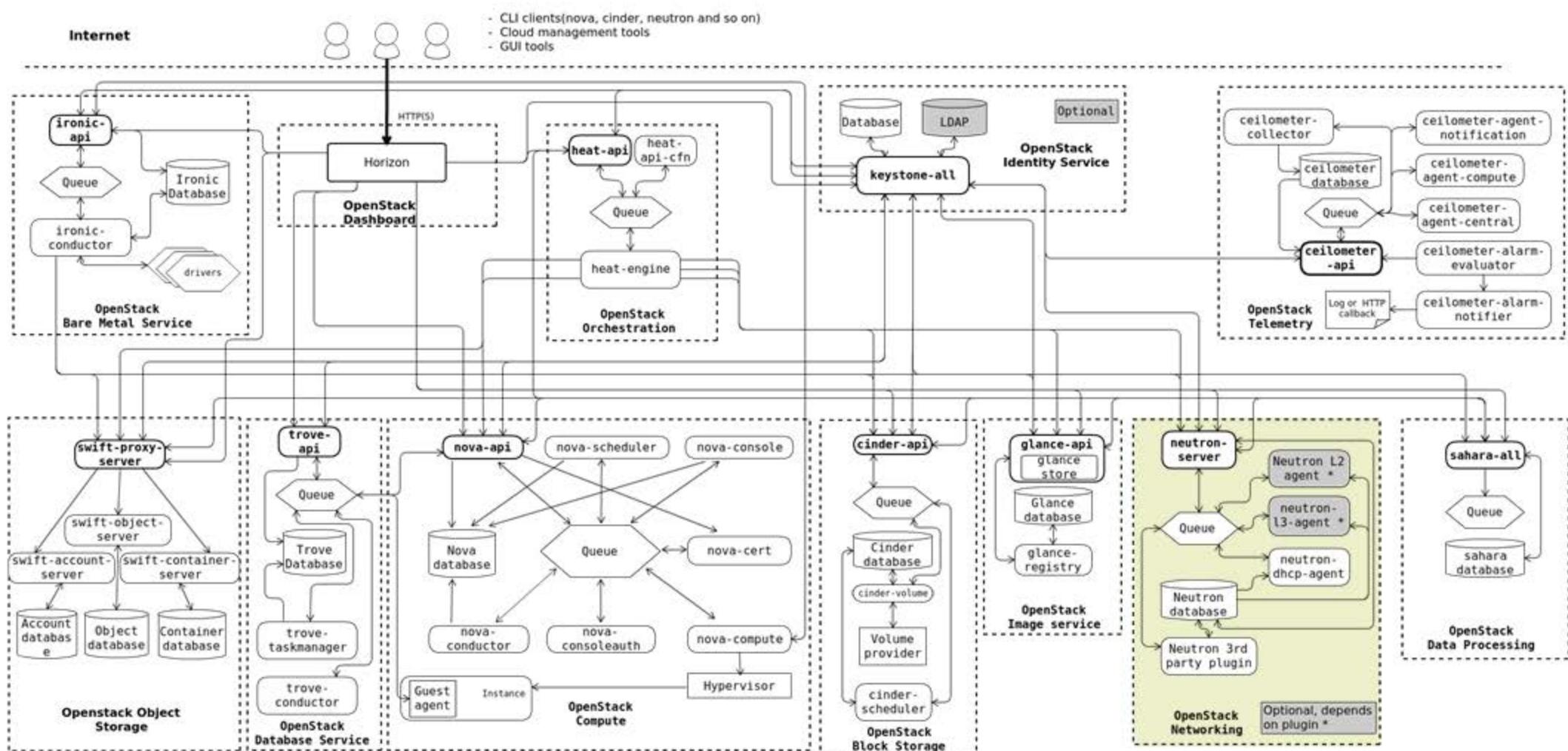
# Conceptual Architecture



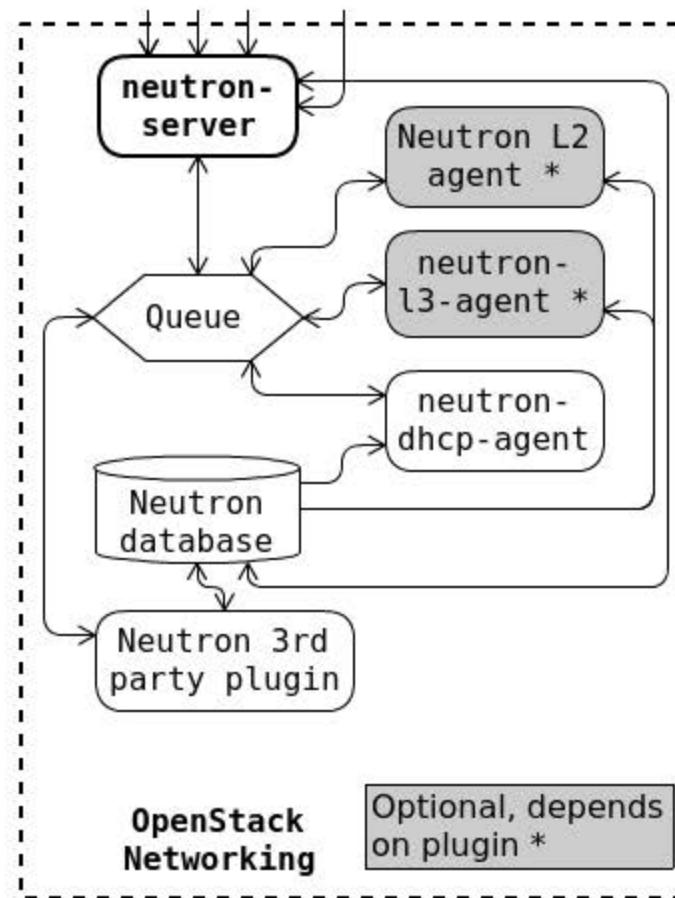
来源：<https://access.redhat.com>

# OpenStack逻辑结构

# Logical architecture

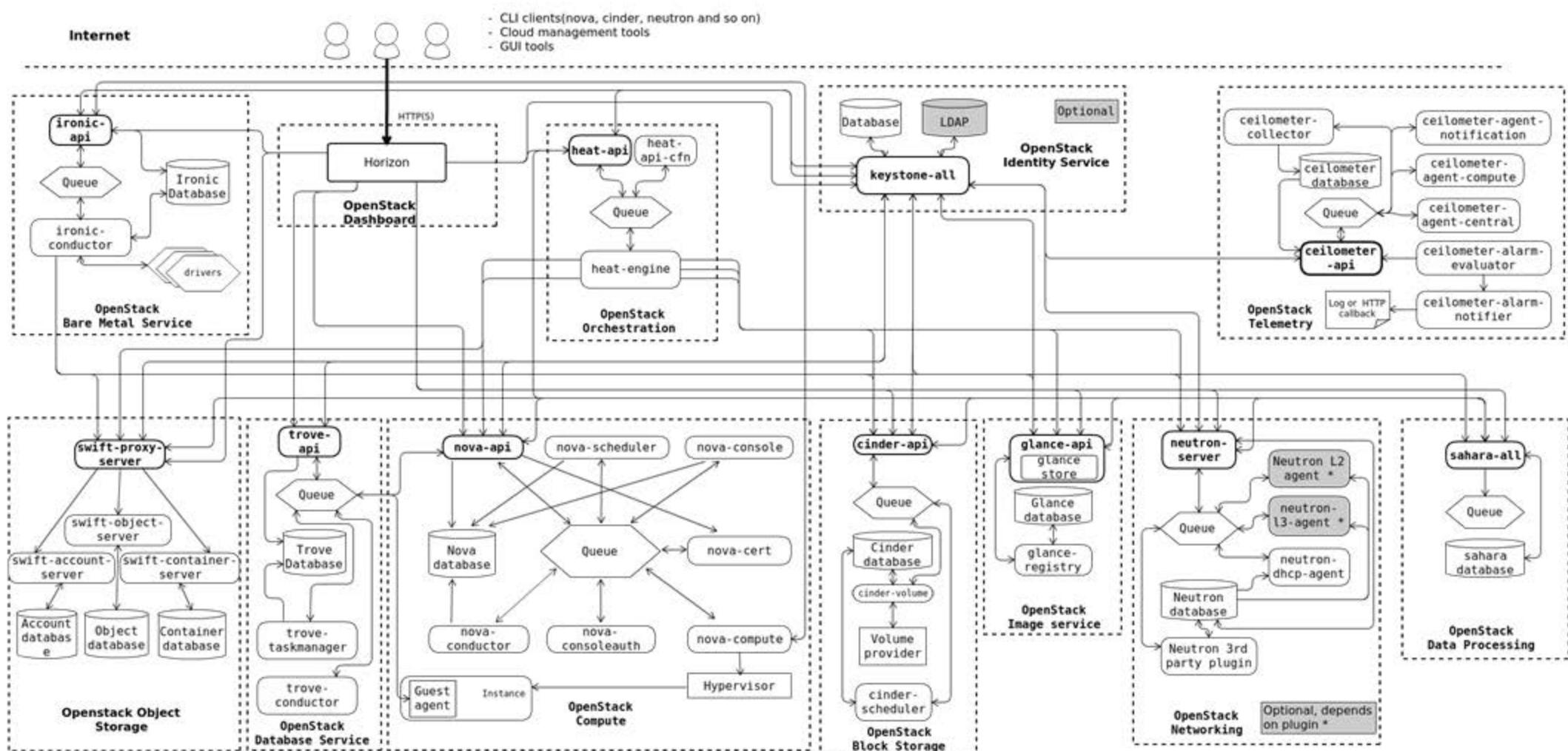


# OpenStack模块/服务示例-Neutron



# OpenStack逻辑结构

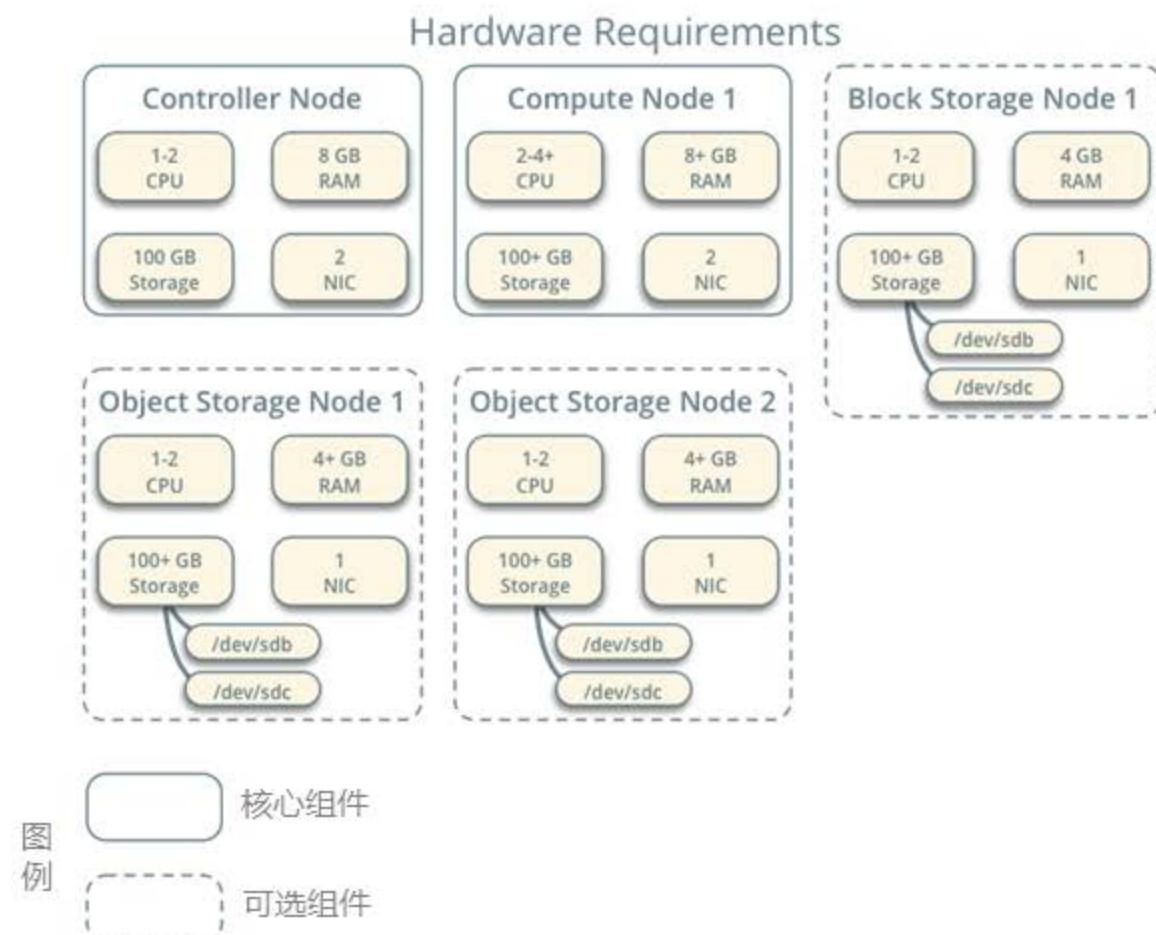
# Logical architecture



# 示例架构-硬件要求

## ▶ 控制器节点

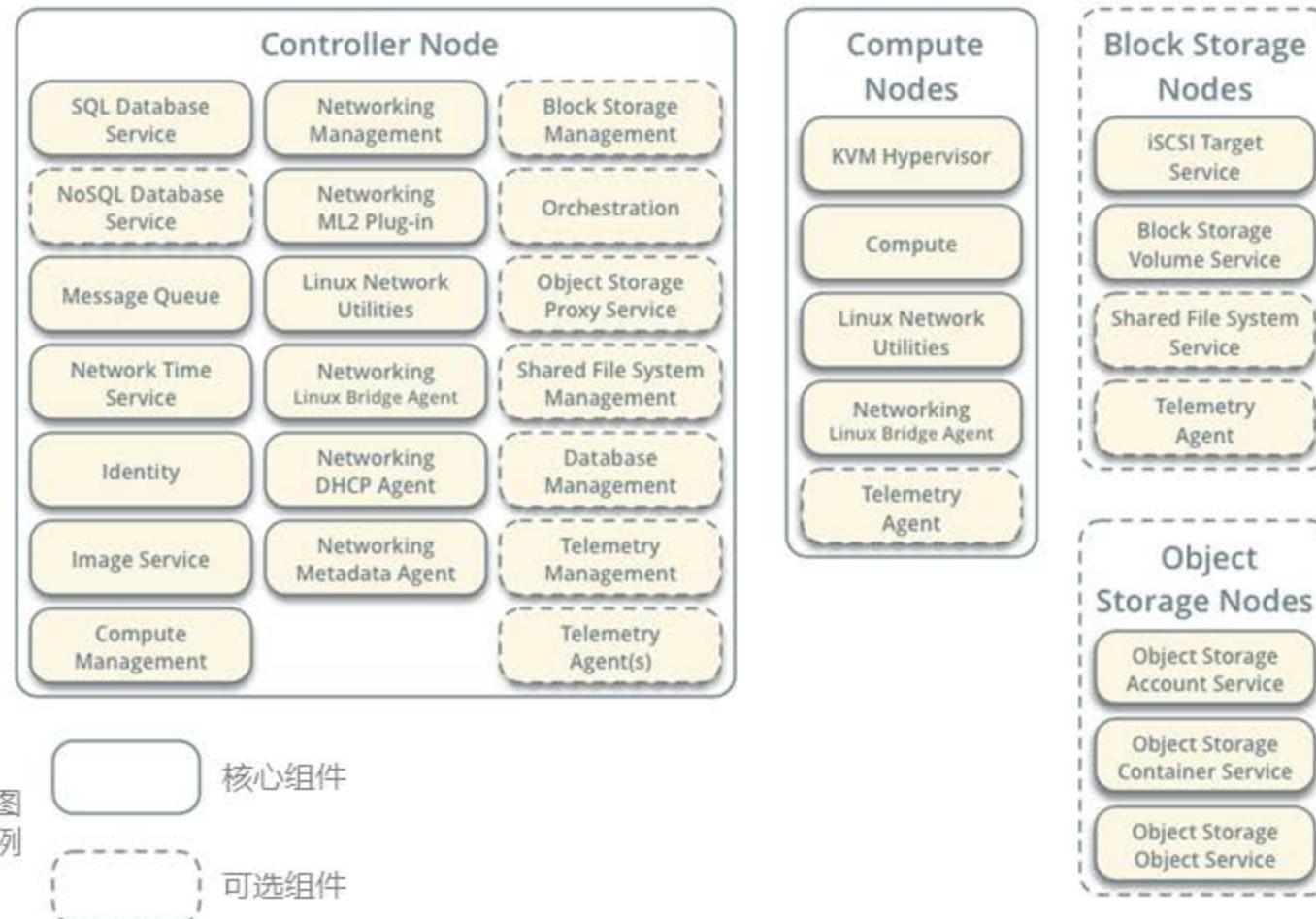
- ▶ 身份认证服务
- ▶ 镜像服务
- ▶ 计算服务的管理部分
- ▶ 网络服务的管理部分
- ▶ 多种网络代理
- ▶ 仪表板
- ▶ 数据库、消息队列、NTP...
- ▶ 计算节点
- ▶ 块存储节点
- ▶ 对象存储节点



# 示例架构-网络选项1(公共网络Provider networks)

Networking Option 1: Provider Networks

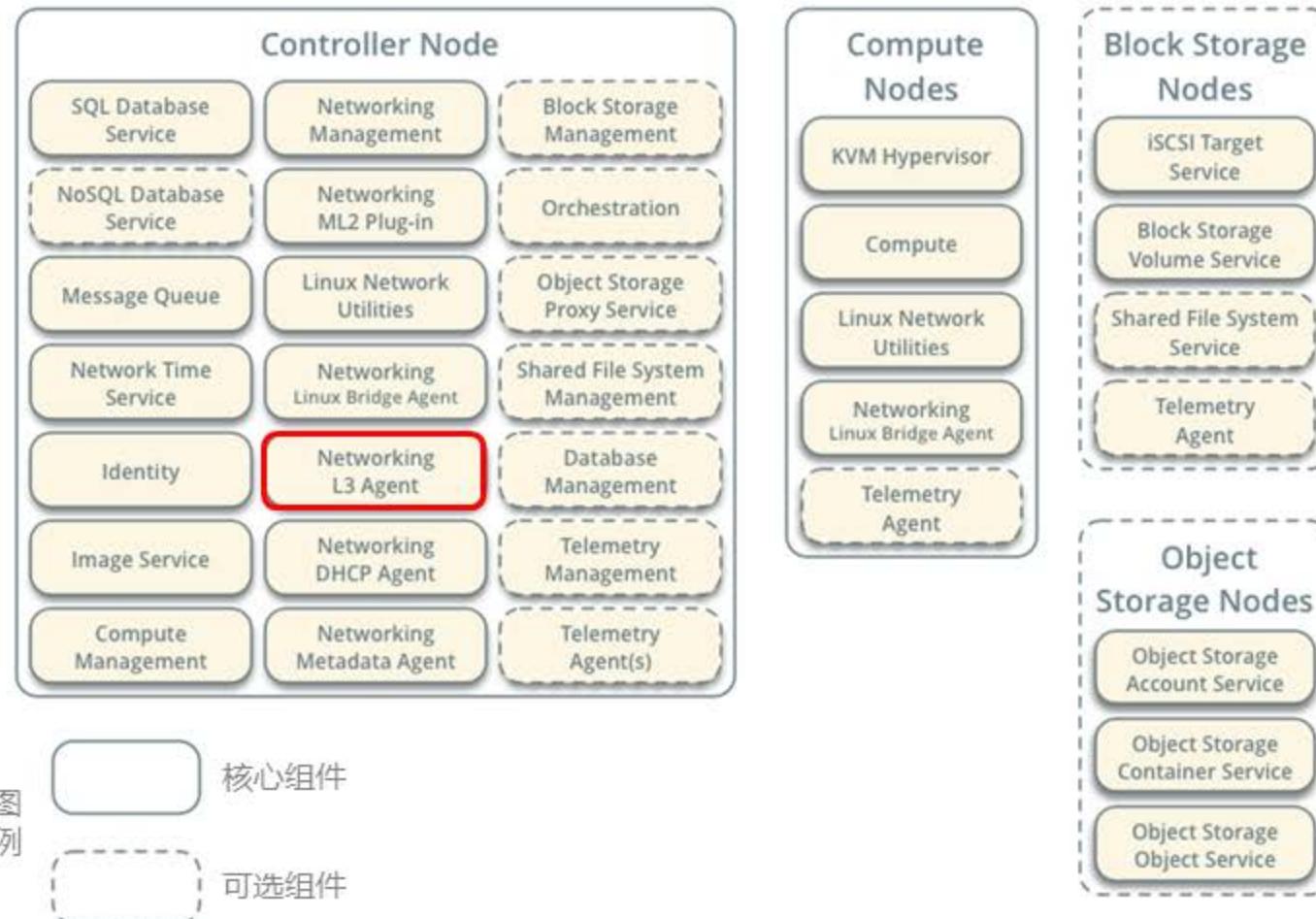
Service Layout



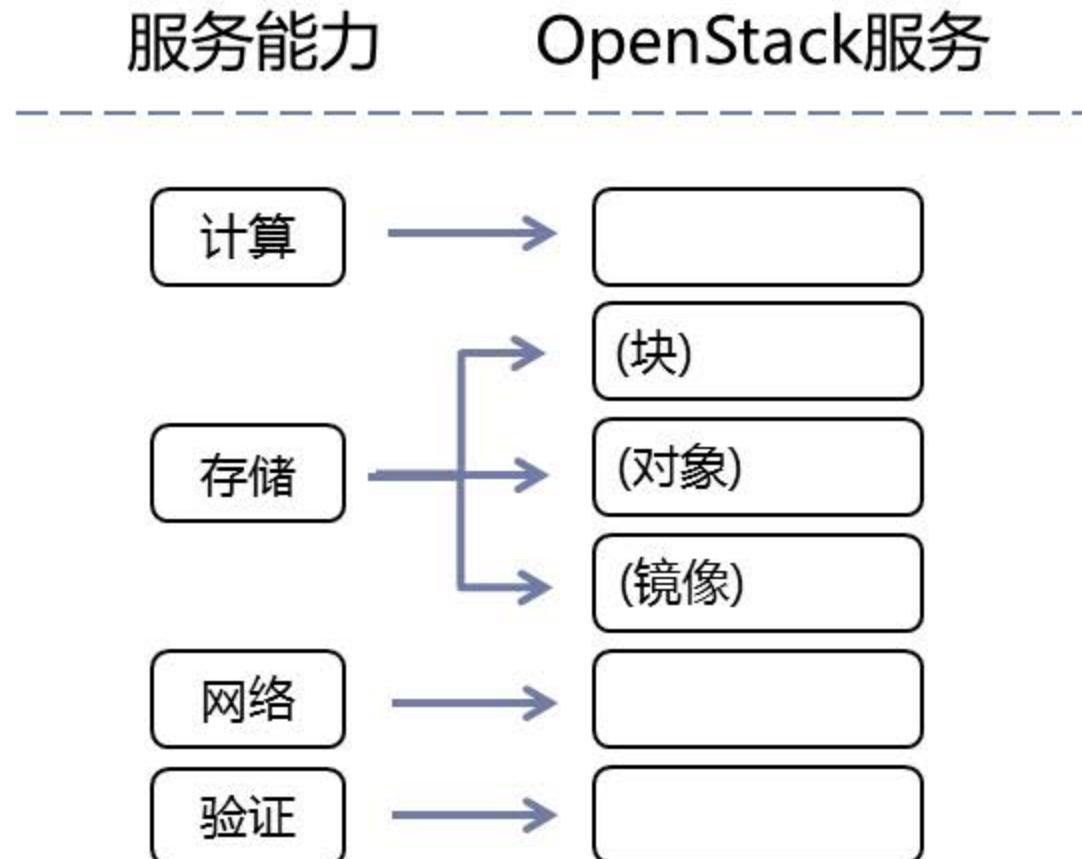
# 示例架构-网络选项2(私有网络Self-service networks)

Networking Option 2: Self-Service Networks

Service Layout



# 小测试：OpenStack项目



# 总结

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- ▶ OpenStack概述
- ▶ OpenStack架构