

OpenStack云服务平台设计与挑战

程辉
UnitedStack Founder & CEO

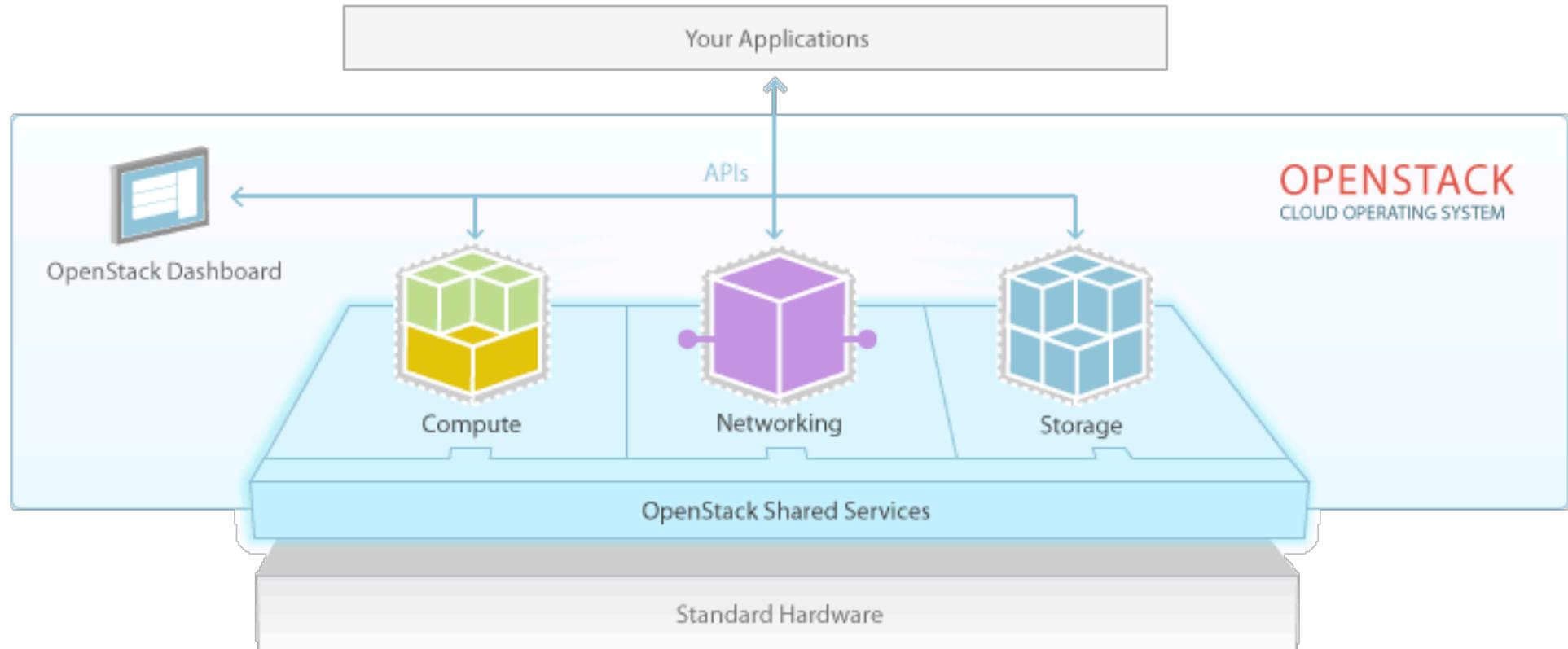


UnitedStack

内容



OpenStack Overview

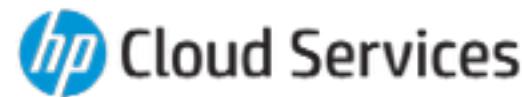


IT Giants Behind OpenStack

厂商



OpenStack产品



Cisco InterCloud



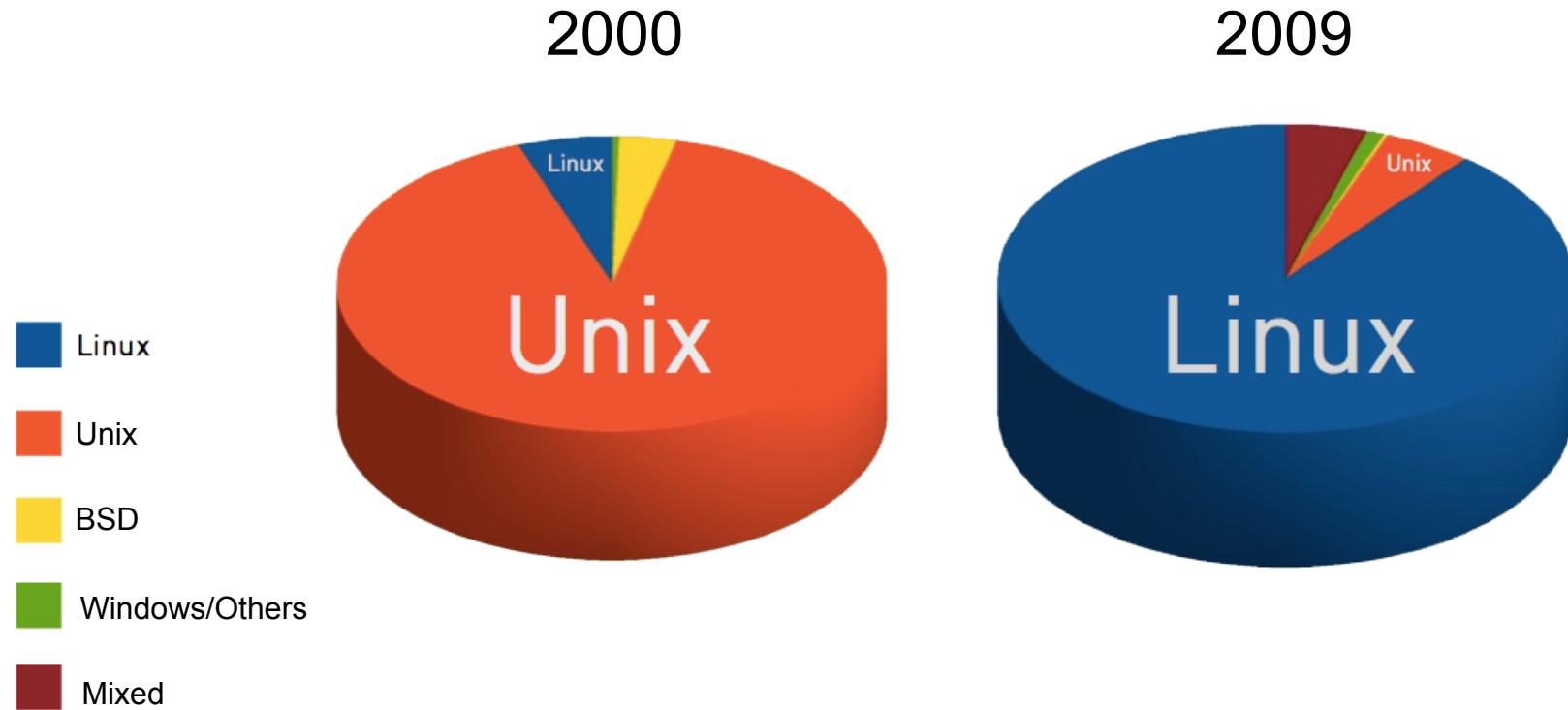
OpenStack is replacing the legacy infrastructure software stack

Self-developed VM Management Platform	Nova
Cloud Storage Platform	Swift, Cinder
Networking/Security Tools	Neutron
Database DBA Operation System	Trove
SSO System	Keystone
Dev/Testing Environment	Devstack/TripleO
Hadoop Management Platfrom	Savana
Physical Resources Provisioning System	Ironic

OpenStack vs AWS

服务	AWS	OpenStack
虚拟机服务	EC2	Nova
分布式块存储服务	EBS	Cinder + Ceph
负责均衡	ELB	LBaaS (Neutron Plugin)
SDN服务	VPC	Nuetron
关系型数据库服务	RDS	Trove
缓存服务	ElasticCache	n/a
对象存储服务	S3	Swift
NoSQL数据库服务	DynamoDB	MagnetoDB
DNS服务	Route53	Designate
控制面板	AWS Console	Horizon
计费服务	Billing	n/a
监控服务	CloudWatch	Ceilometer
服务自动化 (编排, Orchestration) 项目	CloudFormation/OpsWorks	Heat
裸机部署服务	n/a	Ironic
队列服务	SQS	Marconi
大数据处理服务	EMR	Sahara

The Future of OpenStack



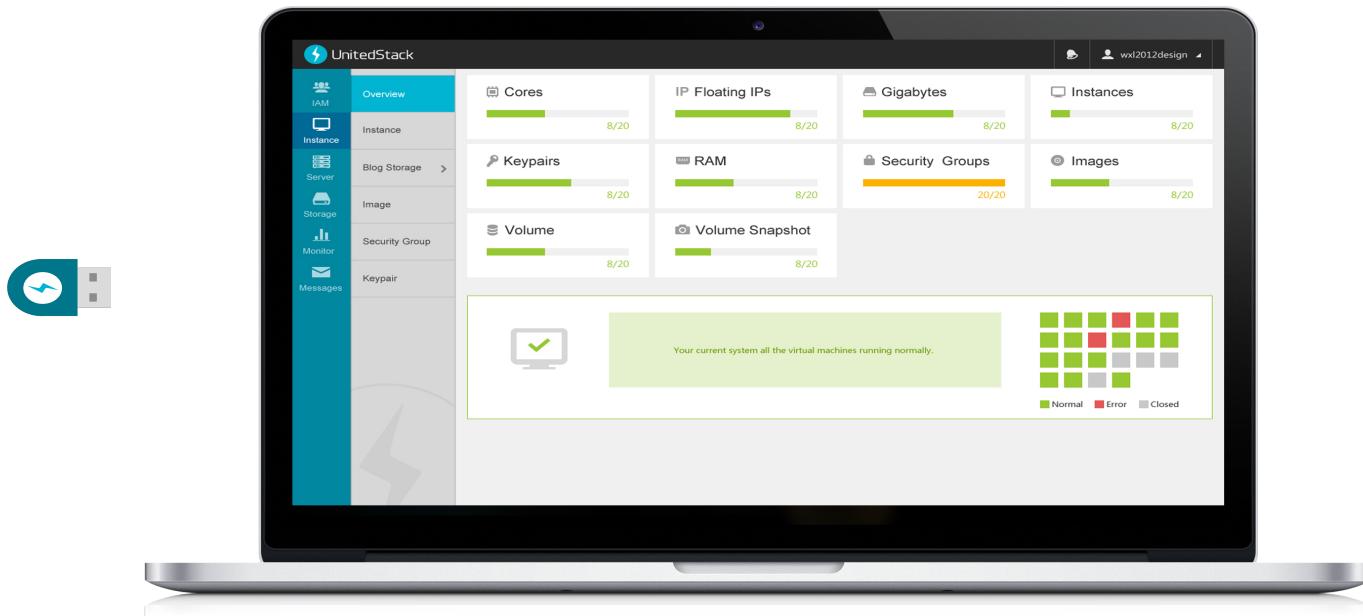
OpenStack is the Linux of Cloud Computing

7

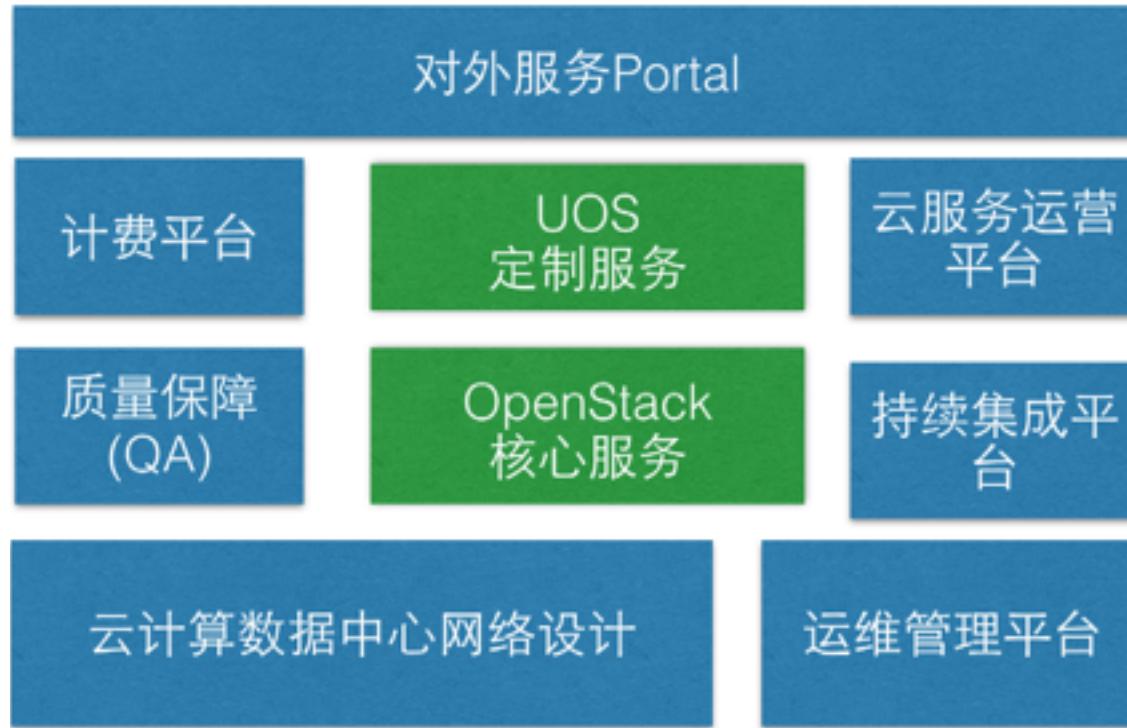
UnitedStack OpenStack

UOS 1.0

A Revolutionary OpenStack Distro for Private Cloud



UOS Cloud Overview



UOS Cloud

UnitedStack

Beijing yejia

云主机

概览

虚拟机

云硬盘

快照

镜像

公网IP

安全组

密钥对

虚拟数据中心

网络拓扑

路由器

网络

虚拟网卡

用户中心

消费记录

工单支持

账户余额

-10.1093 元

消费记录 | 账户充值

资源配额

申请提高配额

8/10 虚拟机

1/50 公网IP

2/10 云硬盘

2/10 快照

1/10 路由器

1/10 交换机

1/10 安全组

0/100 密钥对

创建虚拟机

网络拓扑

最新消息

虚拟机 Instance cc 预计将在一天内余额不足

虚拟机 Instance cc 预计将在一天内余额不足

虚拟机 Instance cc 预计将在一天内余额不足

最近操作

sdfsdf 创建 成功 7秒 2014-04-17 14:49:42

(90b32aa4) 删除 成功 少于1秒 2014-04-17 14:49:41

(263e40a1) 更新 成功 4秒 2014-04-17 14:49:18

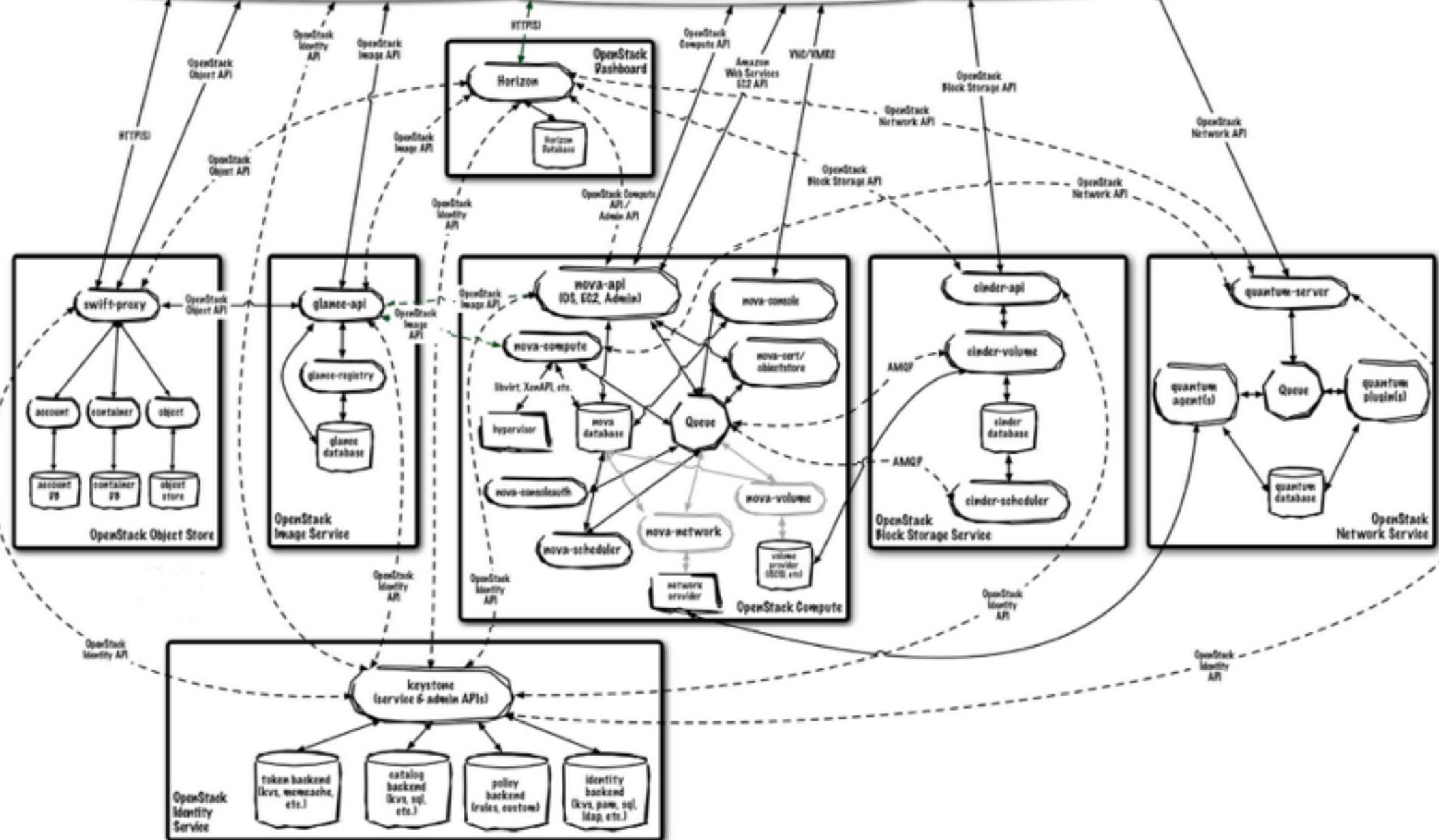
查看更多

UOS核心技术

计算 网络 存储 运维

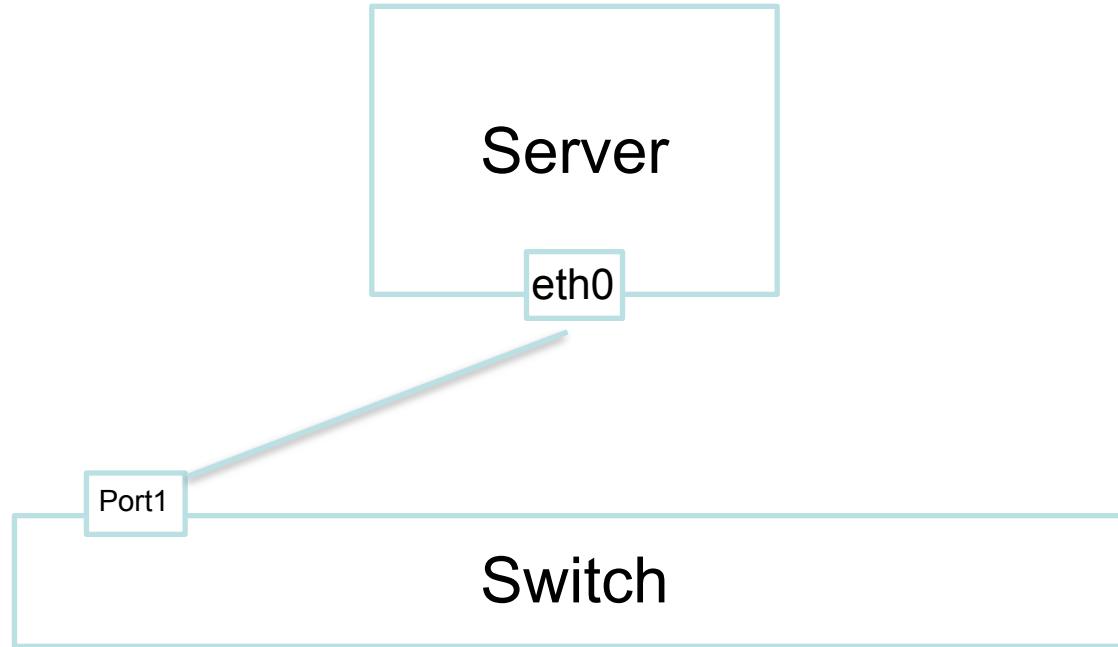


OpenStack End Users

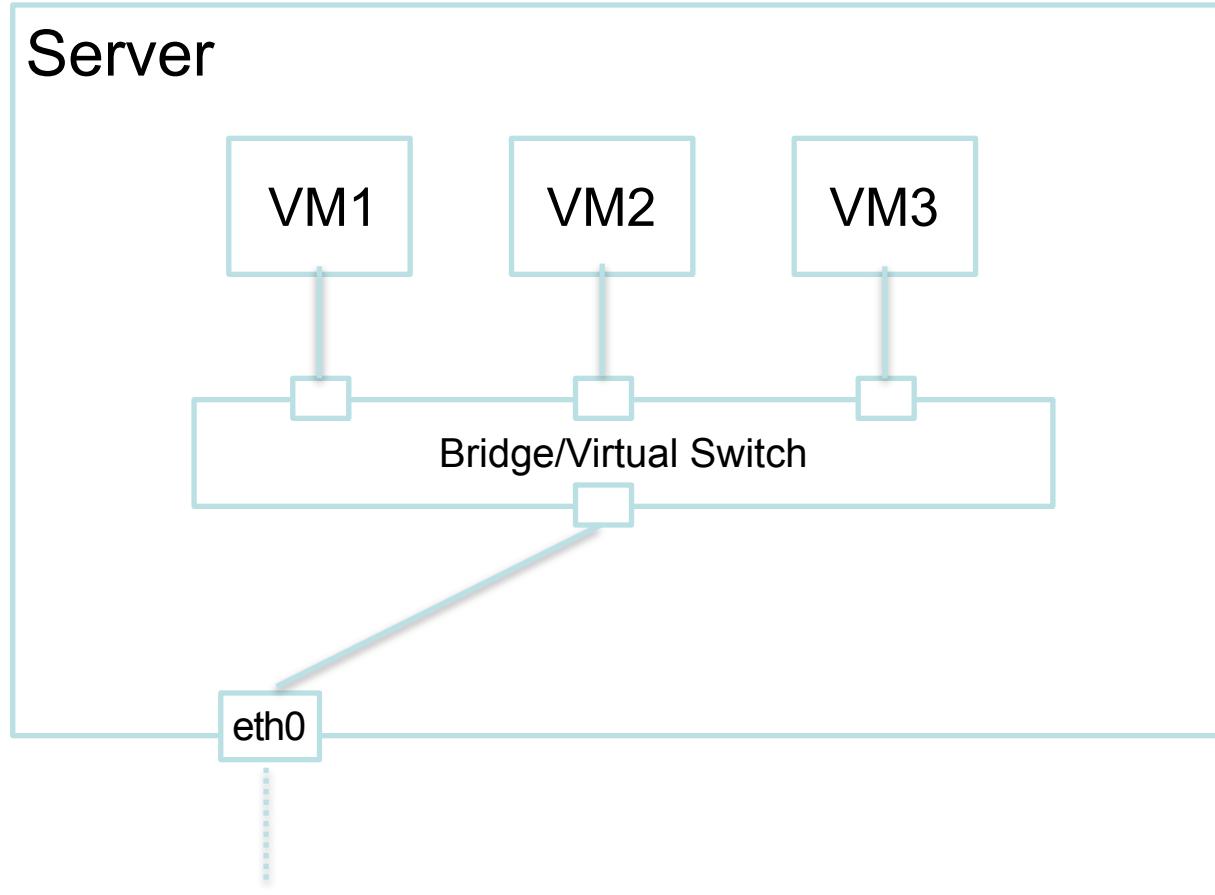


计算 网络 存储 运维

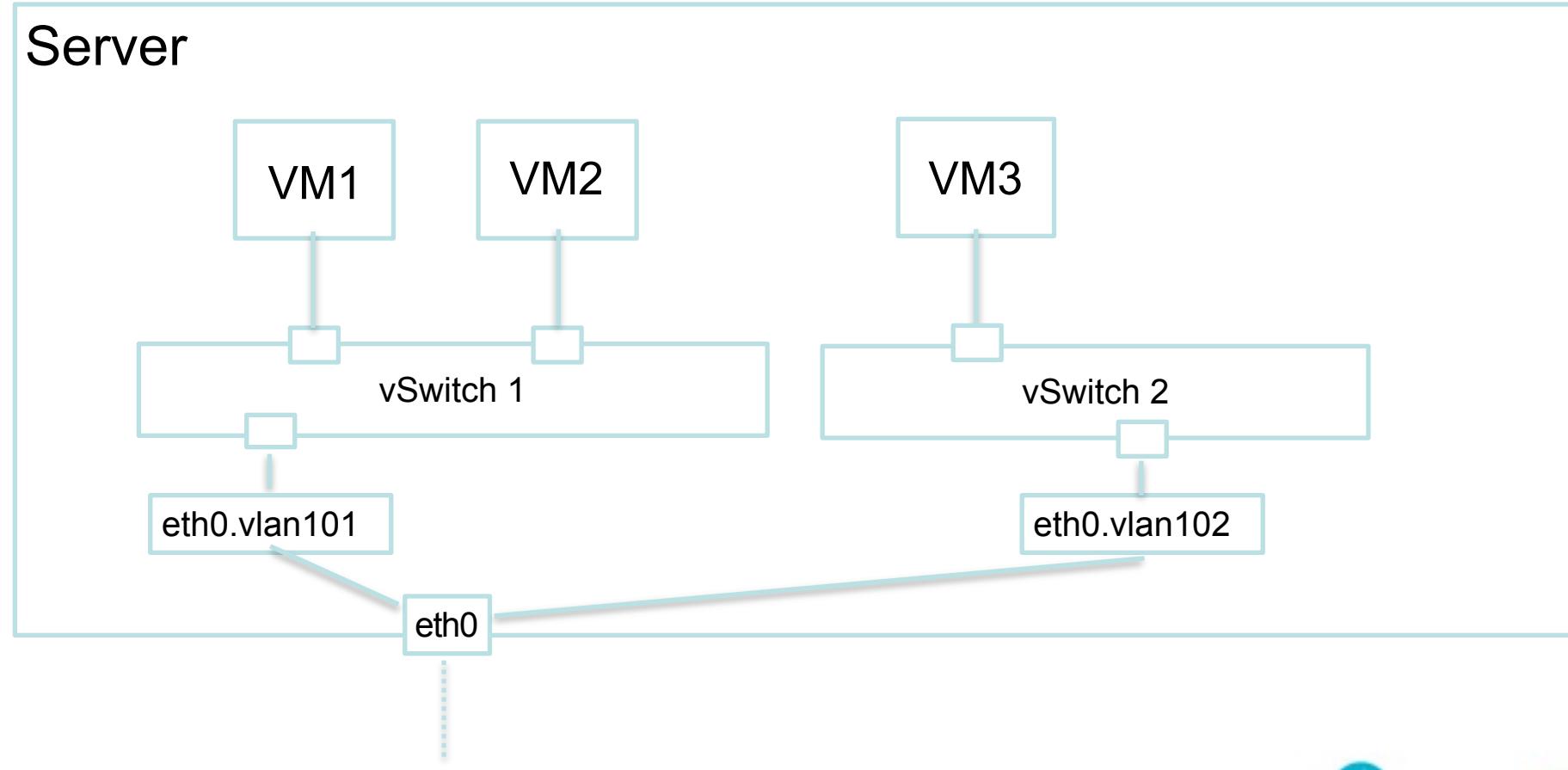
IaaS网络 - 物理机网络



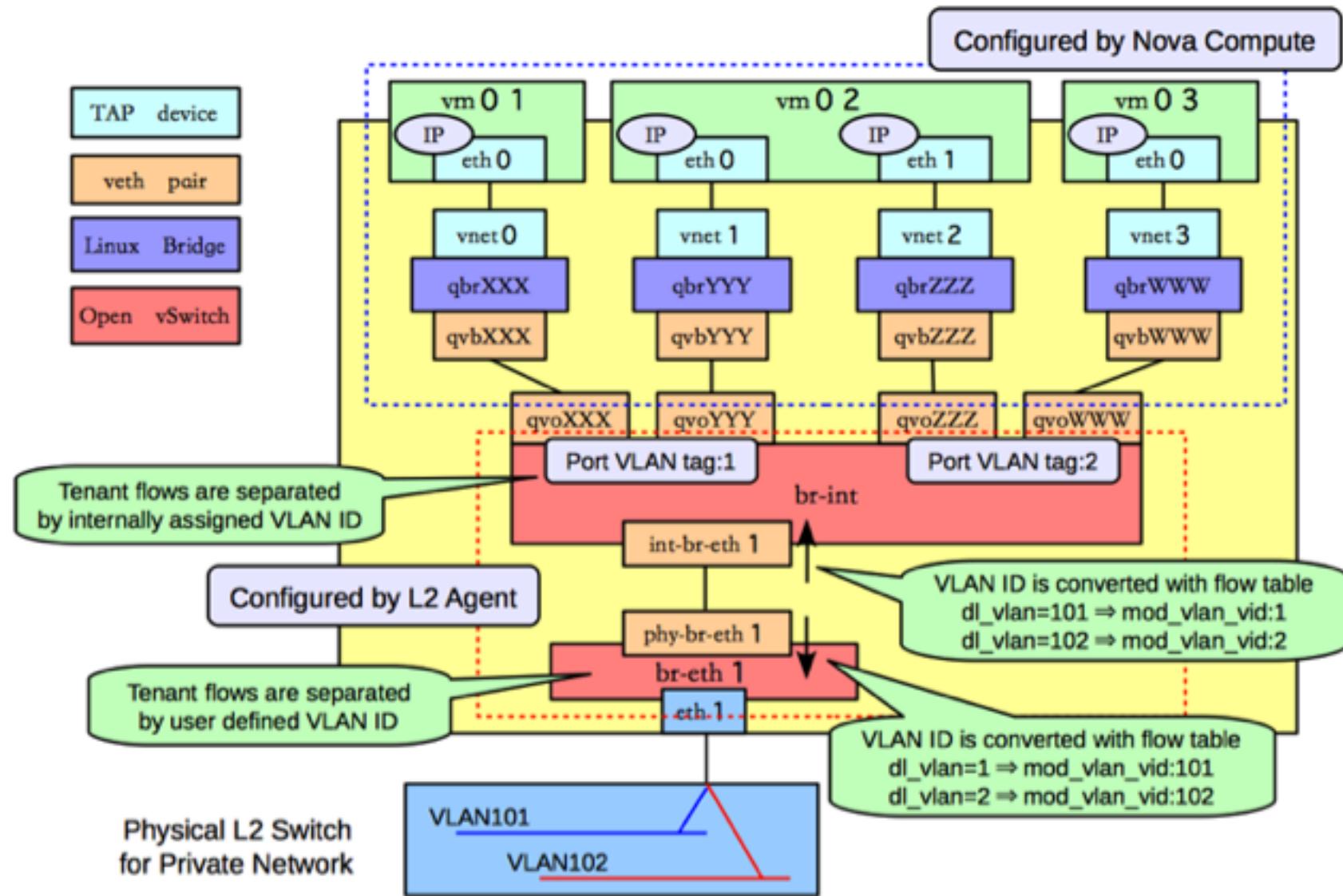
IaaS网络 - 桥接虚拟机网络



IaaS网络 - 多租户隔离网络



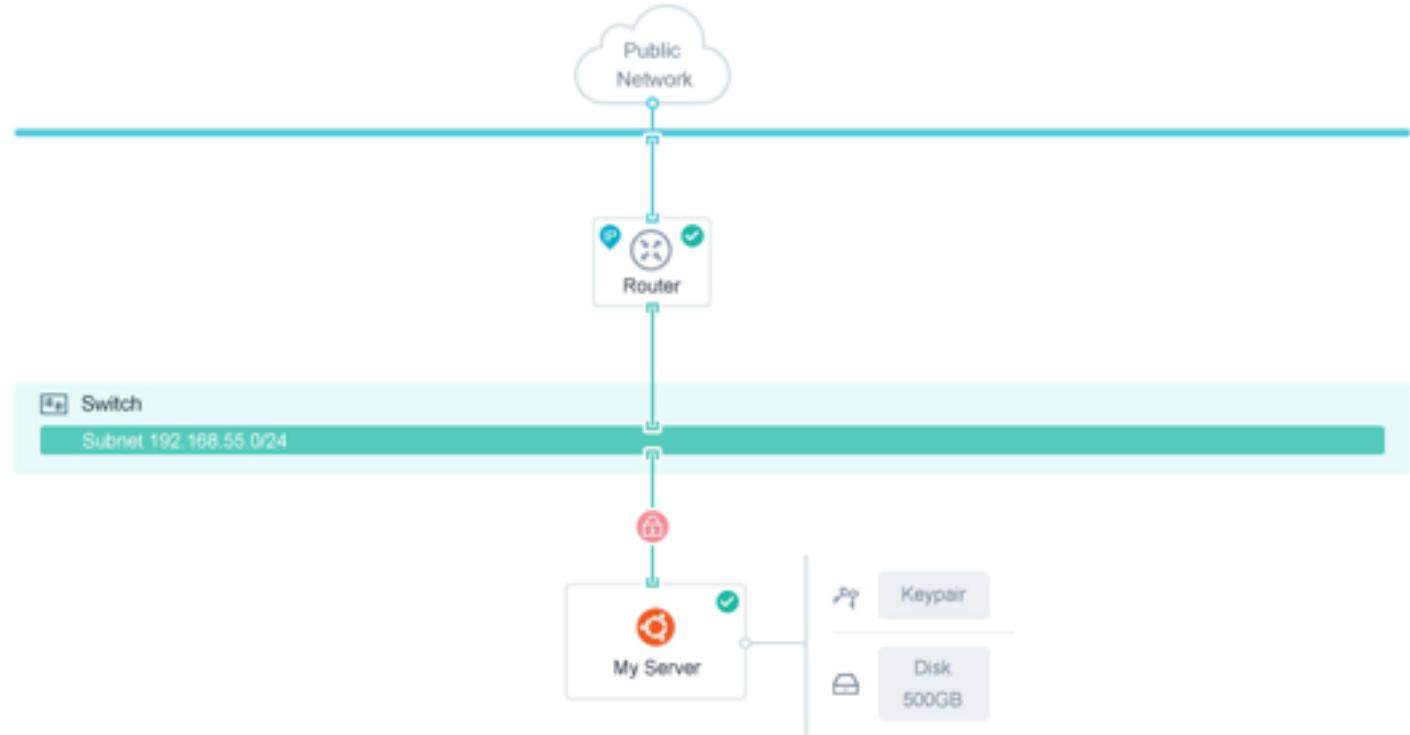
IaaS网络 - 真实虚拟网络



虚拟数据中心 (VDC)

虚拟数据中心

- 支持路由器、交换机、防火墙等功能
- 隔离二层网络
- VM跨网络迁移



虚拟网卡

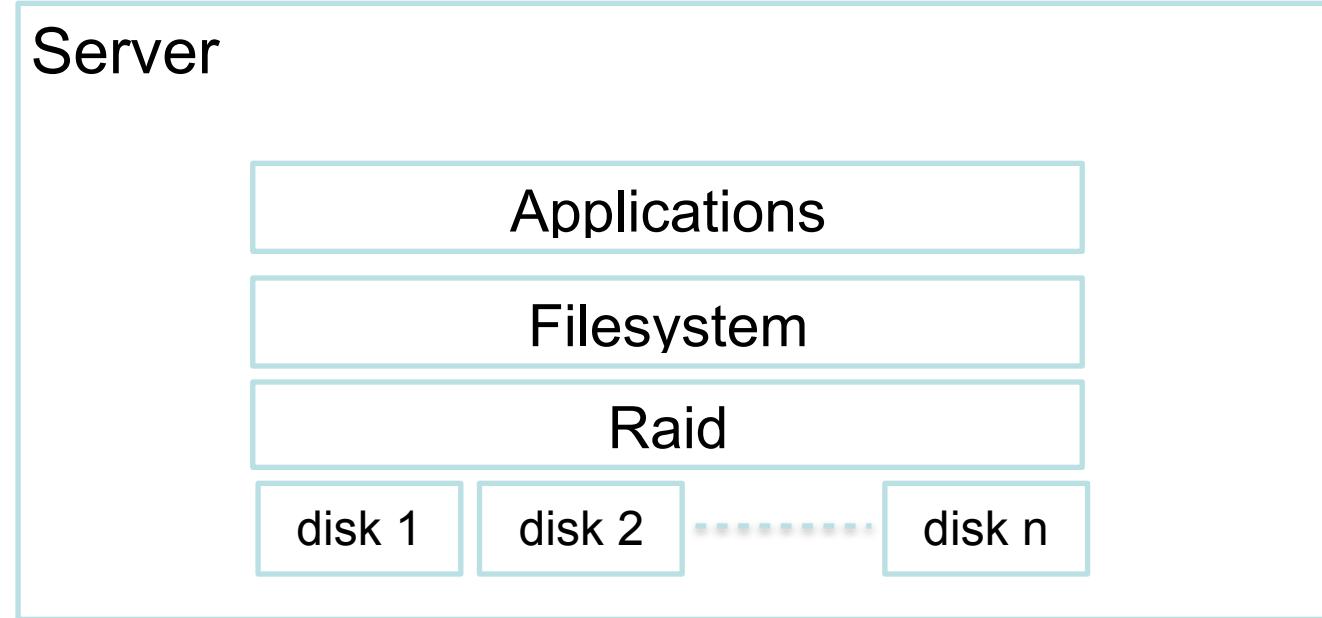


虚拟网卡

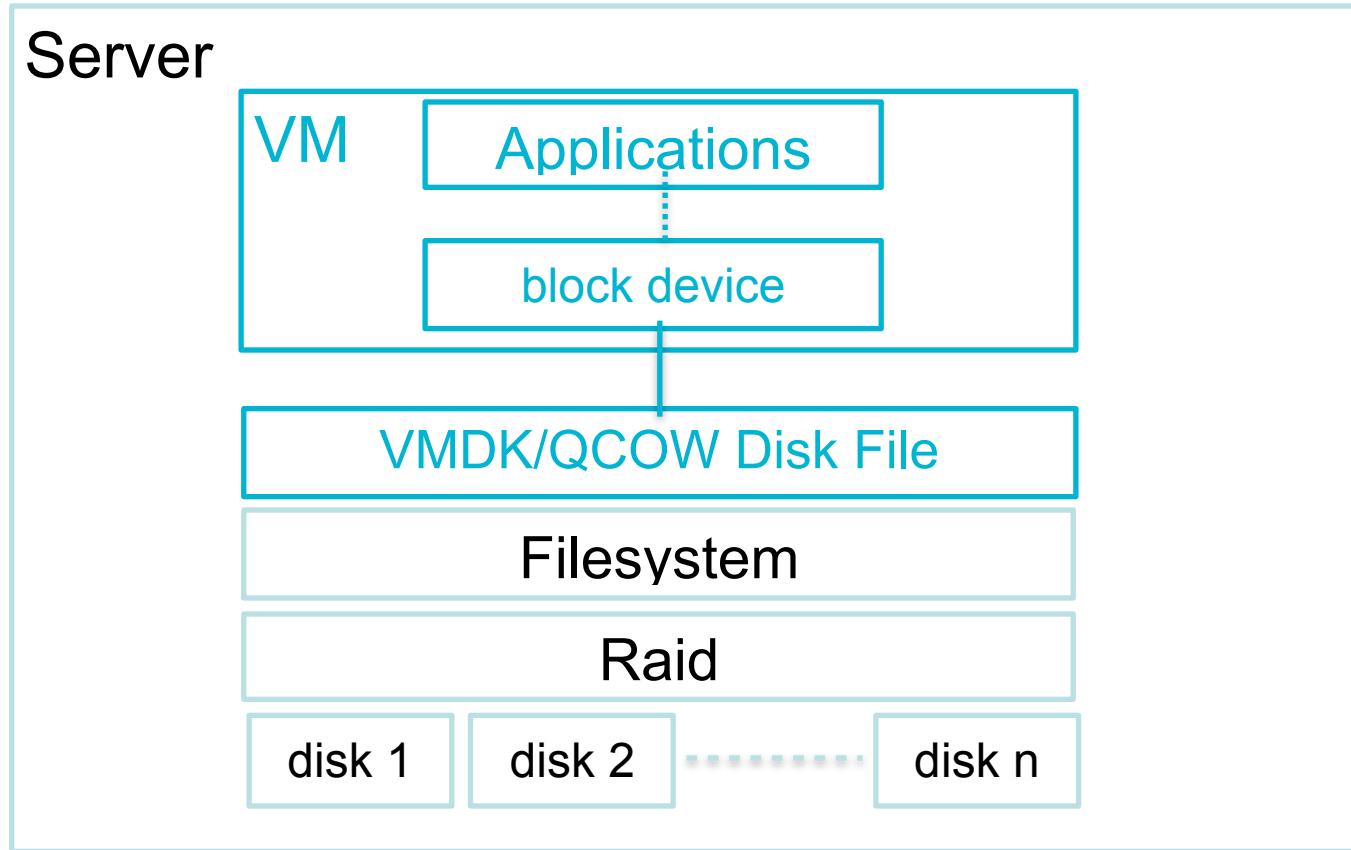
- 灵活挂载、卸载
- 自定义IP地址

计算 网络 存储 运维

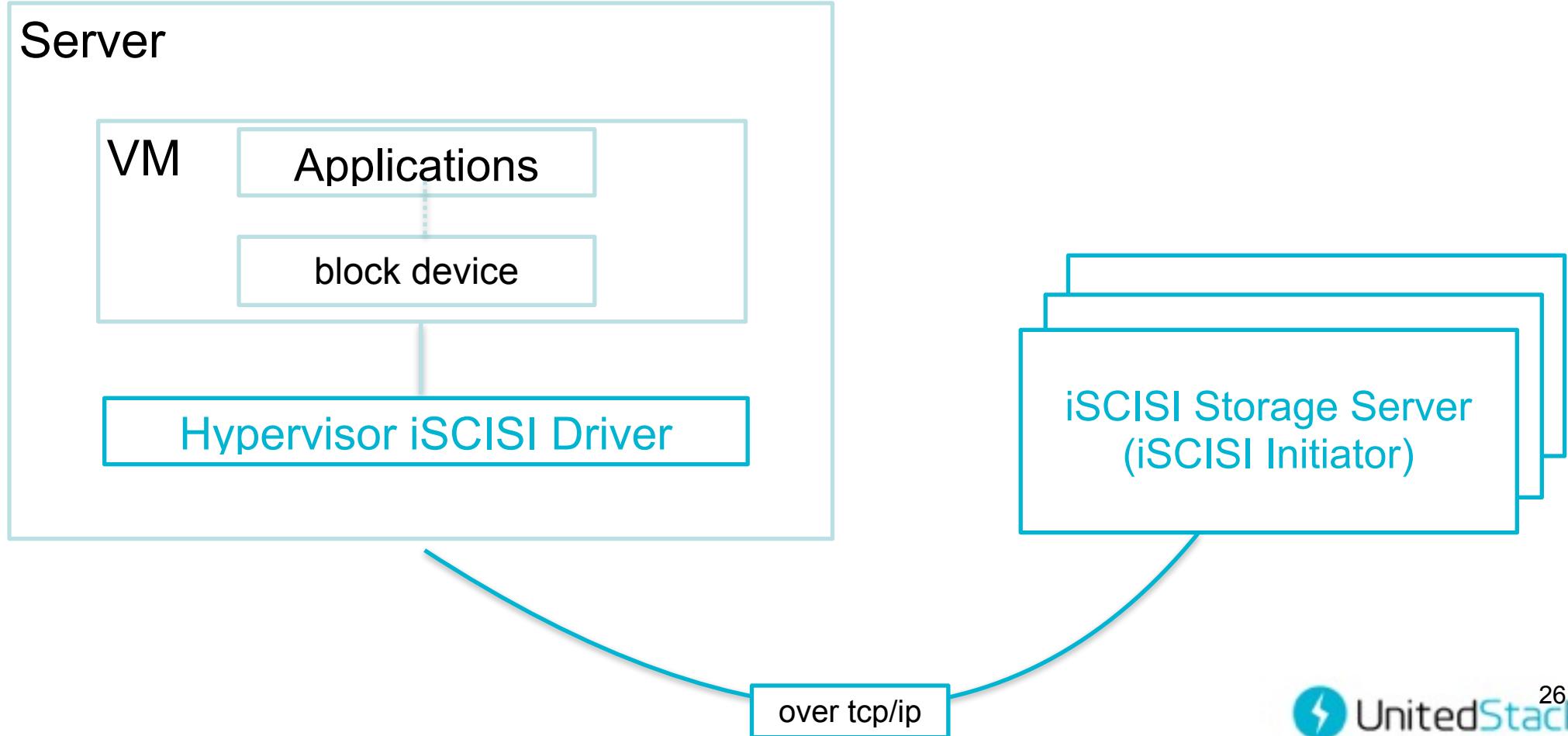
IaaS存储 - 传统本地存储



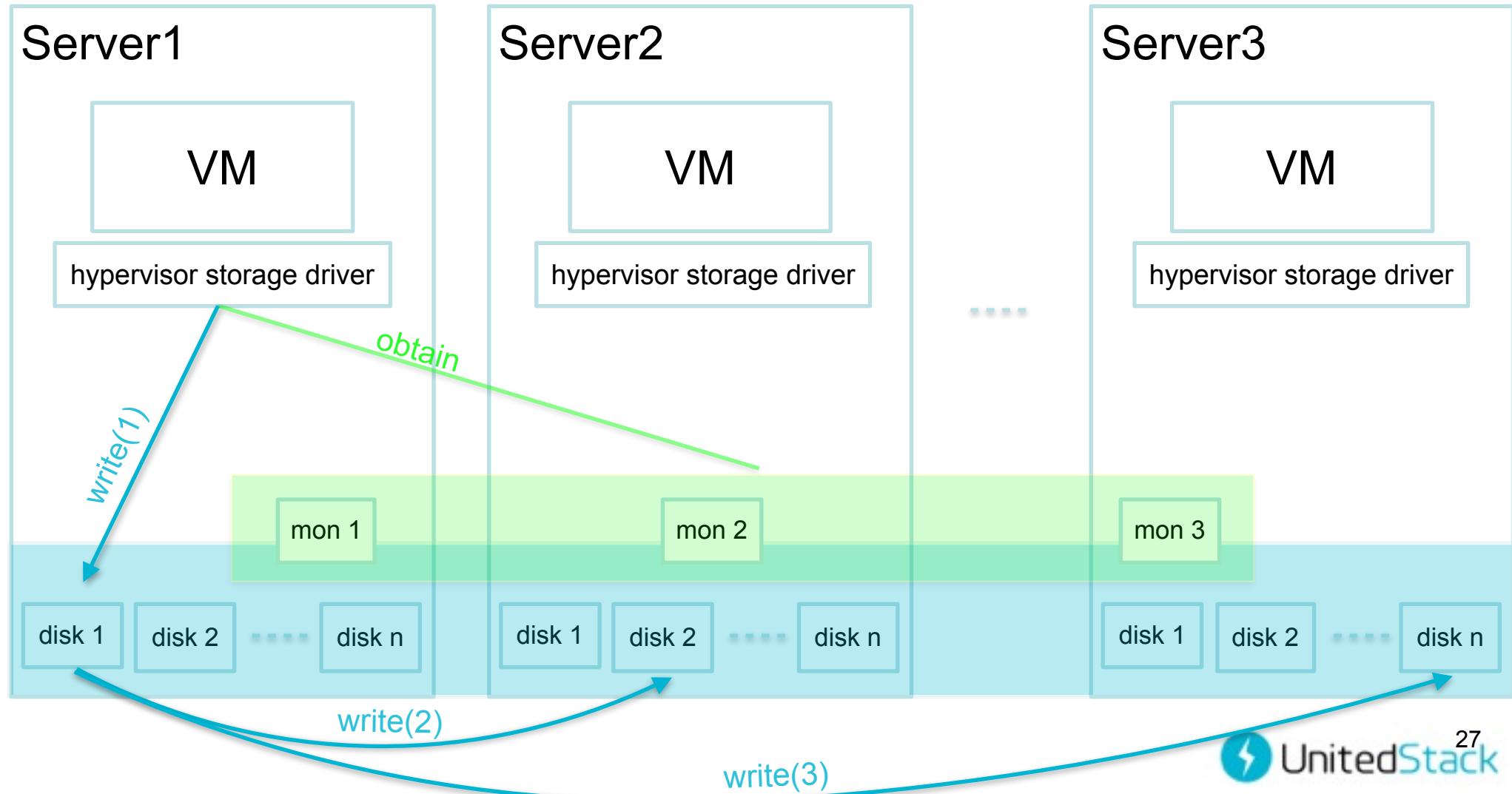
IaaS存储 - 带虚拟化的本地存储



IaaS存储 - 远程卷管理



IaaS存储 - 分布式块存储



云硬盘



云硬盘

- 多重副本、持久化
- 高性能
- 精确定义QoS

快照

快照

- 增量非依赖快照
- 快照实时创建，延时 < 1s

The screenshot shows a window titled "云硬盘快照" (Cloud Disk Snapshot) with a sub-header "新建快照" (Create New Snapshot). A table lists nine snapshots for the volume "xiaochezhu". The columns from left to right are: creation time, volume name, size, status, and creation date/time. The last column contains icons for managing each snapshot. The third snapshot from the top is highlighted with a light blue background.

5 minutes ago	xiaochezhu	115 GB	Active	2014-3-24 14:05:20		
2 days ago	xiaochezhu	112 GB	Active	2014-3-24 14:05:20		
3 months ago	xiaochezhu	110 GB	Active	2014-3-24 14:05:20		
3 months ago	xiaochezhu	100 GB	Active	2014-3-24 14:05:20		
4 months ago	xiaochezhu	112 GB	Active	2014-3-24 14:05:20		
5 months ago	xiaochezhu	110 GB	Active	2014-3-24 14:05:20		
5 months ago	xiaochezhu	100 GB	Active	2014-3-24 14:05:20		
5 months ago	xiaochezhu	110 GB	Active	2014-3-24 14:05:20		
6 months ago	xiaochezhu	100 GB	Active	2014-3-24 14:05:20		

计算 网络 存储 运维

orchestration



运维工具的演变

收敛、传播和标准化



BASH

 Perl
Practical Extraction and Report Language

 php

 python

 UnitedStack

UOS Cloud五月份正式运营

UOS开放计划

UnitedStack又开始招聘了

THX



UnitedStack

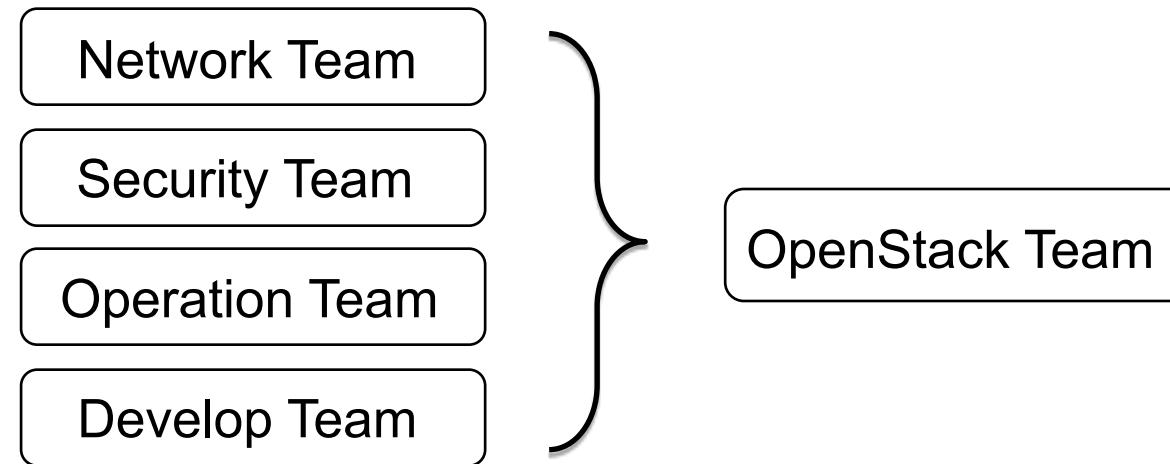
Observation #1

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Observation #2

OpenStack restructures the infrastructure team



Selling OpenStack as Web Services

UnitedStack Core Engineers

We have diverse footprint on almost all core projects of OpenStack, as well as other infrastructure open source projects, such as ceph and puppet.

- 2 core developers in OpenStack
- OpenStack Top 10 contributor
- Continuous contribution to Ceph and Puppet



OpenStack Havana Top Contributors

#	Company	Commits
1	Red Hat	3379
2	HP	2592
3	IBM	1670
4	Rackspace	1469
5	Mirantis	1412
	*independent	806
6	OpenStack Foundation	698
7	SUSE	540
8	eNovance	429
9	VMware	328
10	UnitedStack	213
11	Intel	207
12	NEC	189
13	Canonical	176
14	DreamHost	154
15	Nebula	134
16	Yahoo!	113



- 1,914 个OpenStack配置项
- 777 个RPM软件包(包括OpenStack/Linux基础软件包)
- 40,000行Puppet脚本代码
- 20,000行Ruby代码扩展Puppet模块