

CloudStack

CloudStack

- [CloudStack](#)
- [CloudStack](#)
- [HA](#)
- [Apache CloudStack 4.16.0.0](#)
- [CloudStack](#) [iso](#)
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Cloudstack
Cloudstack VM Firewall,Load Balance,Vpn,Dhcp,Dns,Nat
?

802.1Q Tagged Vlan Cloudstack vlan VM Cloudstack Zone Vlan
399 Vlan VM Vlan VM Vlan Switch Vlan

Virtual Router VM Virtual Router OS Debian Di
Balance,Firewal Linux Cloudstack Virtual Router
Juniper srx firewall Citrix Netscaler Virtual Router

KVM

1.

```
/usr/share/cloudstack-common/scripts/storage/secondary/cloud-install-sys-tmpl \
-m /storage/nfs/s \
-u http://download.cloudstack.org/systemvm/4.15/systemvmtemplate-4.15.1-
kvm.qcow2.bz2 \
-h kvm -F
```

2.

```
/usr/share/cloudstack-common/scripts/storage/secondary/cloud-install-sys-tmpl \
-m /export/secondary \
-f /root/systemvmtemplate-4.15.1-kvm.qcow2.bz2 \
-h kvm -F
```

```
cpu.overprovisioning.factor 2.0 //CPU
mem.overprovisioning.factor 2.0 //      2GB 4GB
secstorage.allowed.internal.sites 0.0.0.0/0 //      ISO ,      nginx
management.network.cidr 192.168.100.0/24 //
```

```
system.vm.use.local.storage      [set false to -> true\
ca.plugin.root.auth.strictness   [set true to -> false
secstorage.allowed.internal.sites [set value = 10.66.11.9(local server ip using
apache web server for download iso
```

```
host manager ip
cpu.overprovisioning.factor 2.0
mem.overprovisioning.factor 2.0
secstorage.allowed.internal.sites 0.0.0.0/0
```

KVM : VMs virtio Linux kernel versions 2.6.25 virtio

```
vim /etc/cloudstack/agent/agent.properties
guest.cpu.mode=host-model
host-model CPU
```

```
systemctl restart cloudstack-management
systemctl cloudstack-agent start
```

Log

```
tail -f /var/log/cloudstack/management/management-server.log
```

mysql

```
innodb_rollback_on_timeout=1
innodb_lock_wait_timeout=600
max_connections=350
log-bin=mysql-bin
binlog-format = 'ROW'
bind-address = 0.0.0.0
```

nfs Server

```
/export/primary *(rw,async,no_root_squash,no_subtree_check)
/sbin/rpc.statd --no-notify --port 662 --outgoing-port 2020
```

```
mount -t nfs 10.66.100.30:/export/secondary /mnt/secondary
```

```
cloudstack-setup-databases cloud:123456@localhost --deploy-as=root:12345
cloudstack-setup-management
```

Disable automatic upgrades and unnecessary packages:

```
apt-get remove --purge unattended-upgrades snapd cloud-init
```

Edit the files at /etc/apt/apt.conf.d/* with following

```
APT::Periodic::Update-Package-Lists "0";
```

```
APT::Periodic::Unattended-Upgrade "1";
```

CloudStack	(Primary Storage)	(Secondary Storage)
	(Volume)	CloudStack
CloudStack	(Local)	(Shared)

CloudStack

	ISO	
ISO		
	ISO	ISO
ISO		
CloudStack		ROOT

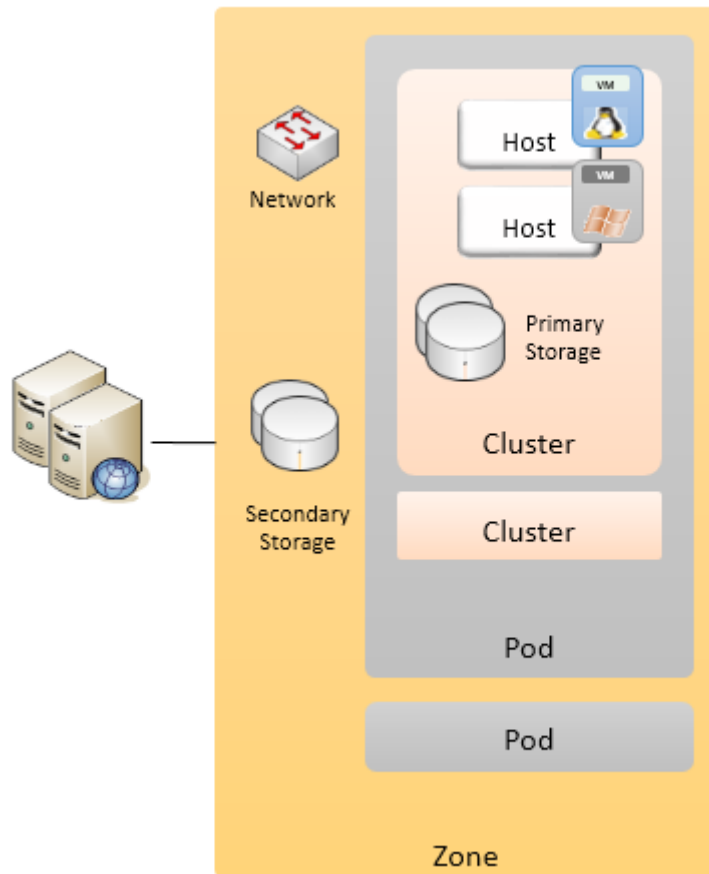
CloudStack

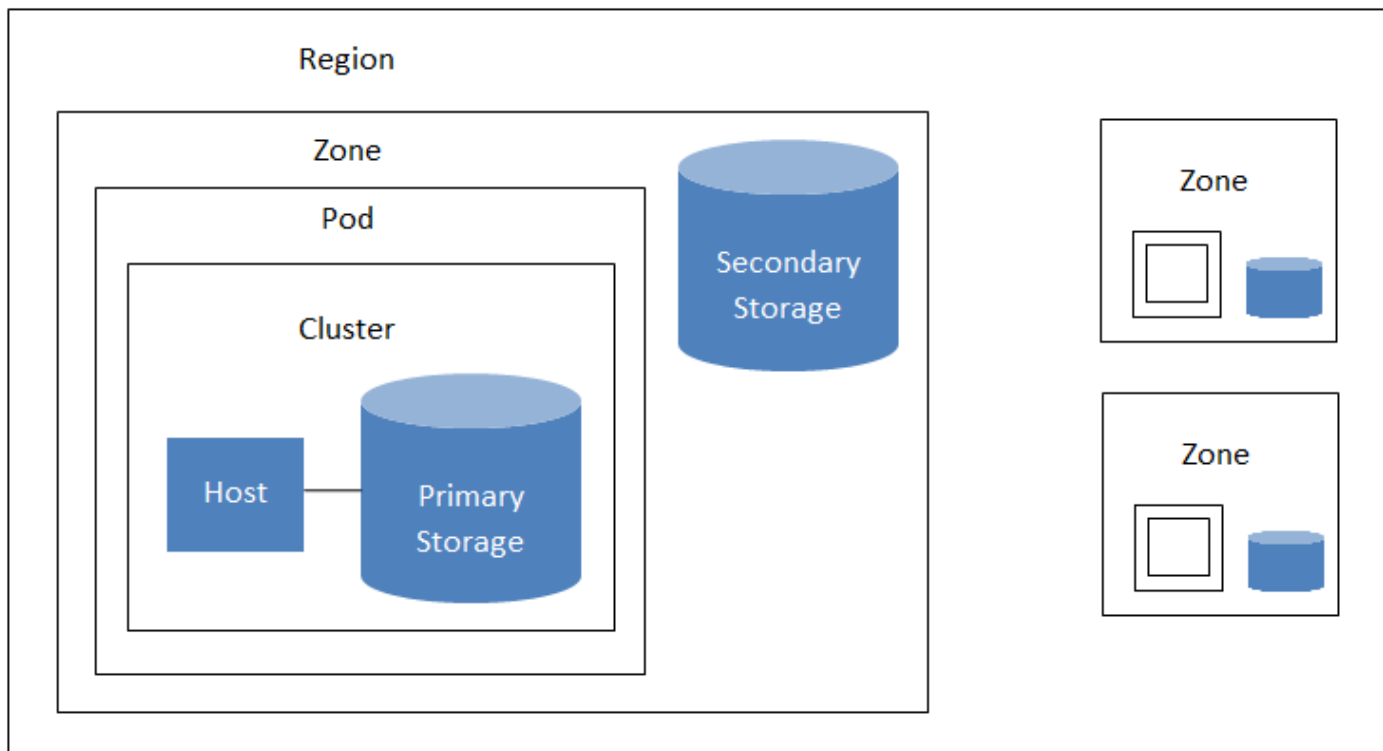
IAAS

- — 50% (10% 15%)
- — IT
- / — (
- —
- (Disaster recovery) / (Business Continuity) —

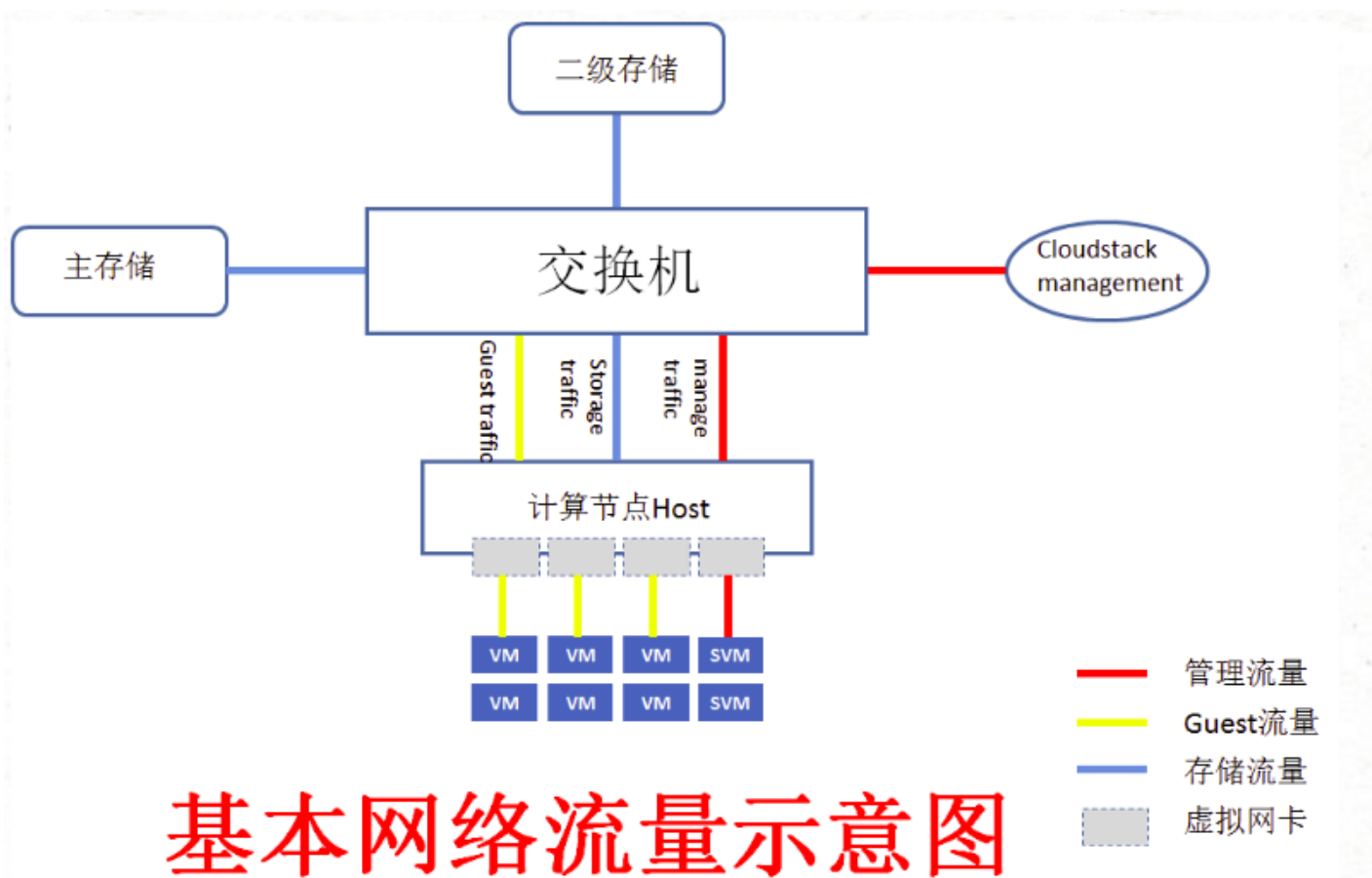
- CloudStack IAAS IaaS CloudStack
- CloudStack
- -
 -
 -
 -
 - VM
 -
 -
 - Amazon EC2/s3
 -

CloudStack

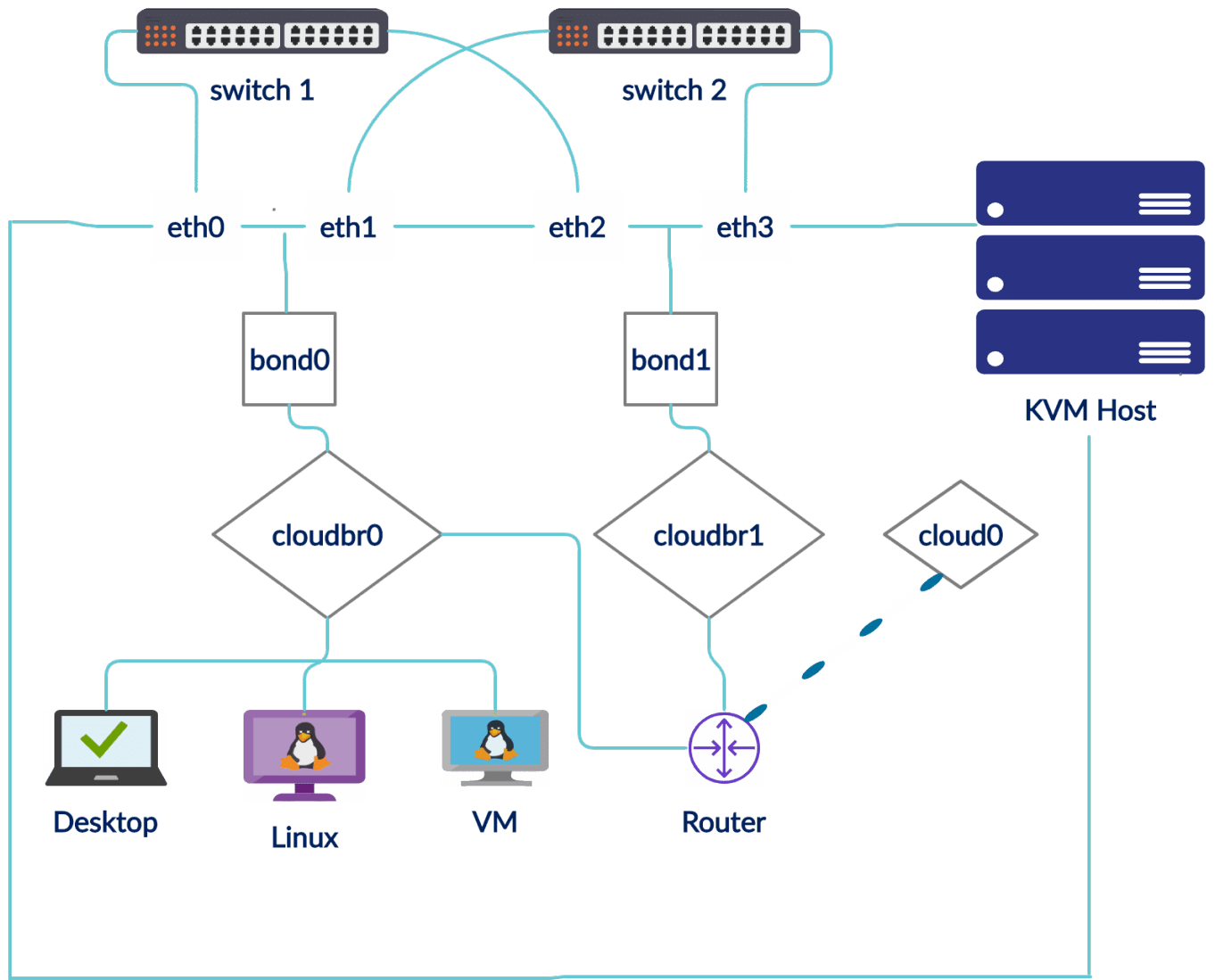




A region with multiple zones



基本网络流量示意图



CloudStack

Zone

Zone

CloudStack

Zone

Pod

Pod

Cluster

Pods

IP

Clusters

Cluster

vCenter

Cluster

VMware

Hypervisor

Cluster

Hosts

Host

VM

CloudStack

- Primary Storage
 - Secondary Storage
- Cluster
Zone
- Cluster
ISO
- Cluster

HA

DISABLED	HA	HA		
AVAILABLE		HA	AVAILABLE.	
INELIGIBLE	HA	HA	INELIGIBLE.	
SUSPECT		CloudStack		FENCED
DEGRADED			DEGRADED	
CHECKING		checking		RECOVER
RECOVERING			FENCED	
FENCED			FENCING	FENCED

INELIGIBLE		INELIGIBLE	
HEALTH CHECK		INITIALIZING, AVAILABLE, SUSPECT, DEGRADED	
Activity Check		HA	CHECKING
Recovery			
Fence	HA	SUSPECT	RECOVERING

HA

API

listHostHAConfigurations	HA
configureHAForHost	HA
enableHAForHost	HA
disableHAForHost	HA

2.2 HA

HA	HA
----	----

isEligible	HA	HA
isHealthy	API	
hasActivity		API

recover

fence

IPMI

IPMI

HA

HA

- Minimum Recovery Time
- Recovery Timeout
- Maximum Recovery Attempts
- Minimum Fence Time
- Fence Timeout
- Activity Check Interval
- Activity
- Health Check Timeout

2.2.1 KVM HA

KVM HA

STONITH

Shoot the Other Node in the Head

KVM HA

Apache CloudStack

4.16.0.0

Apache CloudStack 4.16.0.0

LTS

22

4.15

244

- - OpenSuse
 - Rocky Linux
- CloudStack
 - Dell EMC PowerFlex
 - LINSTOR
- UI
- CloudStack Kubernetes
 - CloudStack Kubernetes Kubernetes
 - Kubernetes Clusters
- - CPU/RAM
 - VMware
 - CloudStack-setup-databases
 - HA
 - API Pod IP
 - API VLAN IP

CloudStack iso

```
N CloudStack CloudStack
iso
template/iso " " " " " no route to host
CloudStack SSVM template/iso SSVM
1 " " " " "
CS 2 [SystemVM Template CentOS 5.6 (64-bit) no GUI (XenServer)]
ssvm management-server 8250 UI
ssvm management-server
management.network.cidr host secstorage.allowed.internal.
<1> management-
server cloudstack route default management.network.cidr host
ip ssvm management-server
management-server ssvm
<2>secstorage.allowed.internal.cidr 0.0.0.0/0
public ip private ip SSVM SSV
secstorage.allowed.internal.cidr cidr manage
```

management-server

url

> no route to host

private

private

private ip

SSVM

```
secstorage.allowed.internal.cidr 0.0.0.0/0
```

0.0.0.0

1.2

<3>

SSVM service_offering SSVM

IAAS infrastructure as a service

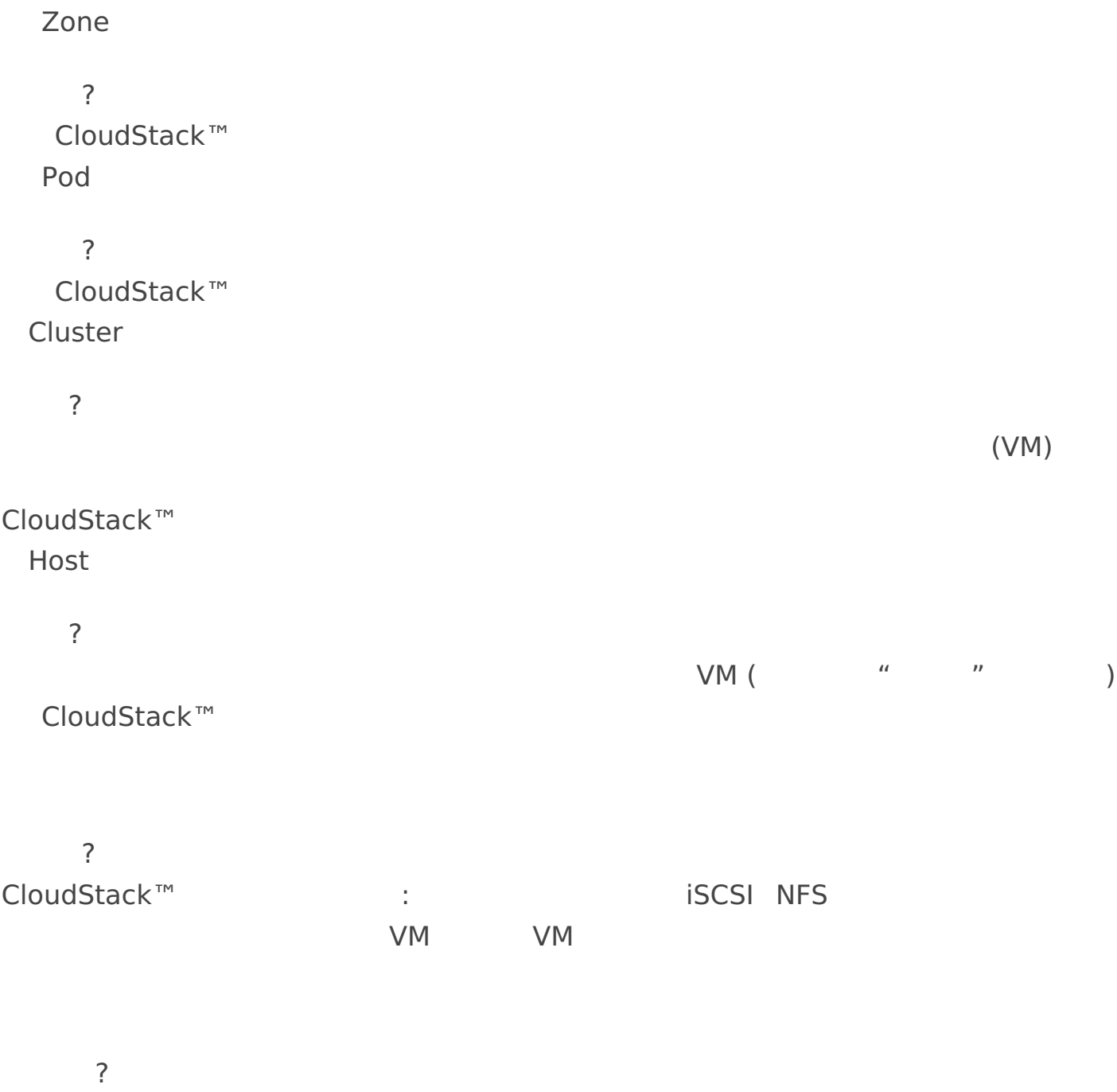
PAAS platform as a service

SAAS software as a service

163

cloudstack

PAAS




```

:
- VM ( )
ISO -
- VM

```

1. HA HA hahosttag .
2. .
- 3.
4. /etc/cloudstack/agent/agent.properties CPU cloudstack-age
- 5.
6. WindowsServer2008R2 IP DHCP IP IP DHCP
7. IP IP
8. CIDR, check.pod.cidrs
9. IP 255.255.0.0 , 192.168. 10.20-192.168.
10. IP cloud vlan ip4_range cloudstack-management
11. IP NIC IP NIC ID IP

Primary storage ()
cloudstack , NFS SharedMour

Secondary storage ()
cloudstack , ssvm
, ,ISO, , IOPS , , . NFS,

CloudStack , , :

template snapshot volume

hyperviser management server ssvm

3 template volume snapshots

template cloudstack

template/tmpl/userid/templateid/templatefile
vm secondary storage management server management serve
storage template primary storage template

zone link /var/www/copy copy .htaccess
server cloudstack secstorage.allowd.internal.sites copy

snapshots vm

:snapshots/userid/templateid/snapshotfile snapshot hyperviser snap
storage mount ssvm snapshot secondary
storage snapshot ssvm link /var/www/userdata db

volume vm UI volume secondary storage ssvm lir

SSVM (Secondary Storage VM)

SSVM cloudstack , SSVM , cloudst

CPVM (Console Proxy VM)

CPVM , cloudstack UI CPVM , vnc .

V-Route()

DNS dhcp

VPN DHCP DNS (HaProxy) SNAT NAT A

DHCP IP , , DHCP IP ? no,

, , , , ,

1. cloudstack .

2. V-Route .

Security Group ()

, , iptables

Guest network ()

, IP , IP , cloudstack

CloudStack

1.CloudStack

CloudStack (200Mbit/s). :network.throttling.rate vm.throtti

Affinity Groups

cloudstack VM 2 VI

web db app web web

web db db ?

Explicit Dedication cs

OpenStack CloudStack

OpenStack

OpenStack	Rackspace	Apache			
OpenStack (Glance)	OpenStack Identity(Keystone)	OpenStack Compute(Nova)	OpenStack Network Connectivity(Quantum)	OpenStack Web DashBoard	Cloud ObjectStorage
150	Openstack	HP,Dell,AMD,Intel,Cisco,Citrix			H3C
Windows Server 2008 R2		Ubuntu 11.04	OpenStack	OpenStack	
OpenStack	Python				
C/C++	Java	OpenStack	OpenStack	Tornado	Na

CloudStack

CloudStack	Apache	CloudStack	Java		
Cloud.com		Citrix	2012 4 5	CloudStack	Apache Cl
CloudStack	CloudStack 3.0	Amazon	CloudStack	API	CloudStack

OpenStack CloudStack

2012 4 5	Citrix	CloudStack	Apache	CloudStack	OpenStack	Apache
OpenStack		CloudStack			CloudStack	Cl

	CloudStack	OpenStack
	IaaS	IaaS
	Apache 2.0	Apache 2.0
	Maintainance VM	Nova-scheduler
VM		
VM Console		
	Java	Python
	Web Console,	DashBoard
	(Virtual Router)	(Nova-network OpenStack Load Balance API)
	XenServer,Oracle VM vCenter,KVM,Bare Metal	XenServer,Oracle VM,KVM,QEMU,ESX/ESXi,LXC(Liur Container)
		All in one Nova,Keystone,Glanc
	MySQL	PostgreSQL,MySQL,SQLite

	Console Proxy VM,Second Storage VM,Virtual Router VM,Host Agent,Management Server	Nova,Glance,Keystone,Horizon,Sv
	Isolation VLAN Share	VLAN,FLAT,FLATDhcp
VLAN	VLAN	VLAN

1. OpenStack

CloudStack

OpenStack
2. OpenStack

CloudStack
3. OpenStack

Web DashBoard

bug

CloudStac
4. OpenStack

CloudStack
5. CloudStack

(Template) ISO

ISO

OpenStack
6. Web

OpenStack

IP

IP

IP

S