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Micro Cloud (Hybrid) Architecture DRAFT

Disposable HW and SW architecture required! Vendor-lock-in may be kept at minimum levels. SDDC (Software-Defined Data Center): A data storage facility where networking, storage, CPU and security are virtualized and delivered as a service. Stable, cheap, good enough.

Tier	Description
I	A Tier 1 data center is a basic server room implementing the general guidelines for computer system installations. This first level runs within a 99.671 percent availability through one non-redundant distribution path with non-redundant capacity components.
II	A Tier 2 data center Includes all requirements of Tier 1, plus a guarantee of 99.741 percent availability with redundant site infrastructure capacity components.
III	In addition to fulfilling requirements of Tiers 1 and 2, Tier 3 data centers provide dual-powered IT equipment to receive data from multiple independent distribution paths with an increased availability of 99.982 percent guaranteed.
IV	Tier 4 data centers include the components of the first three Tiers with the addition of independently dual-powered cooling equipment. The site infrastructure is fault-tolerant with distribution capability and the capacity to store electrical power. An availability of 99.995 percent is guaranteed.

Basic Topology Important parts

Command and conquer	Openstack Horizon, Proxmox Datacenter Manager, Nutanix Prism etc.
Compute Nodes	KVM
Storage Nodes	File, Block, Objects

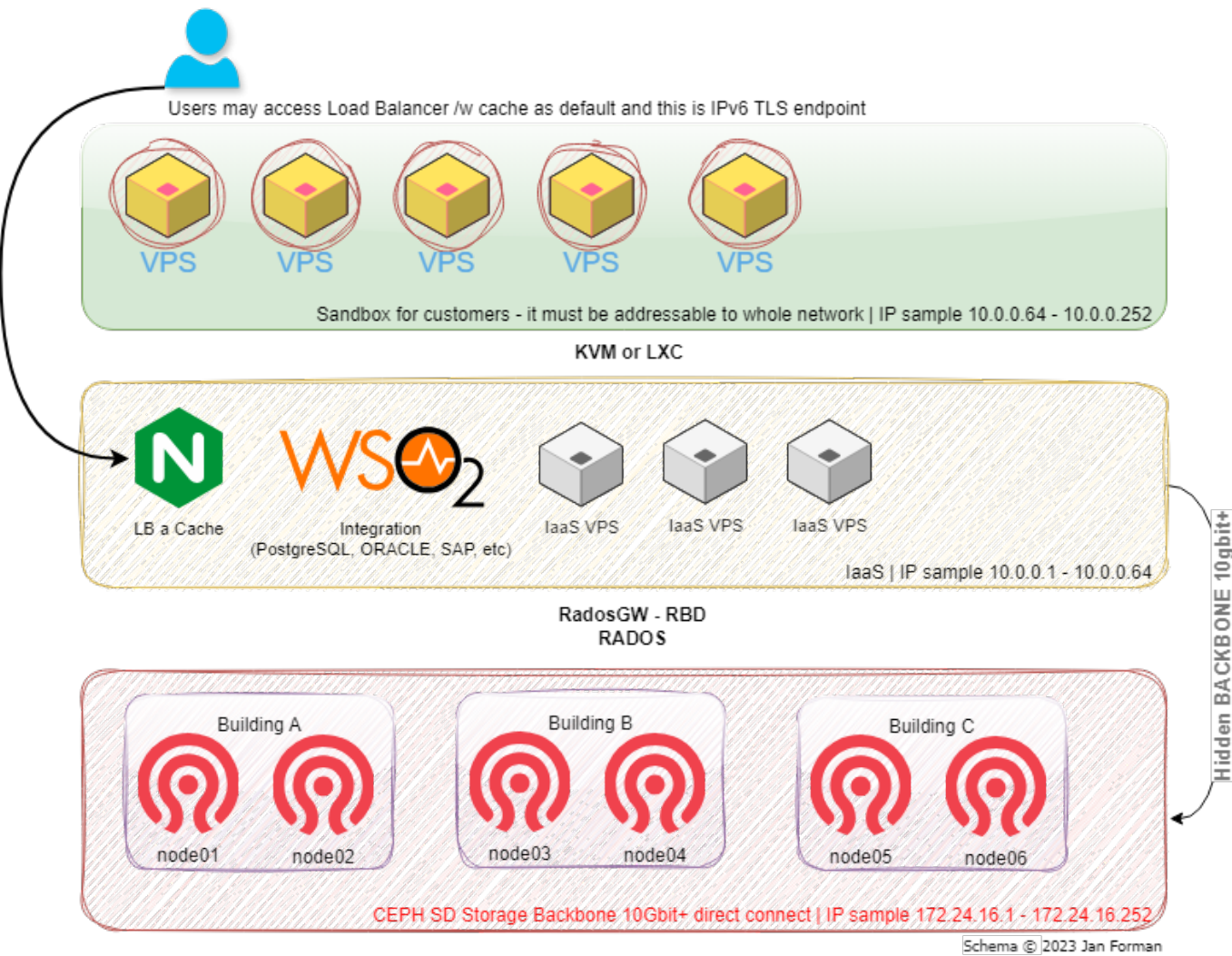
AWS Basic knowledge (Introduction by Chetan)

This is My Architecture playlist from AWS

[This is my architecture](#)

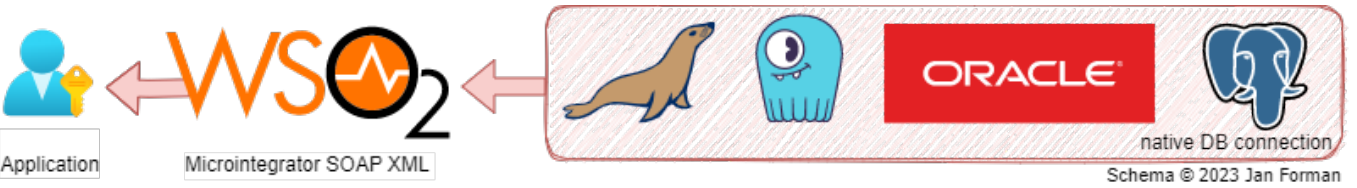
Schematics

Basic Topology



Firewalls are templates linked to VPS instance

Integration Schema



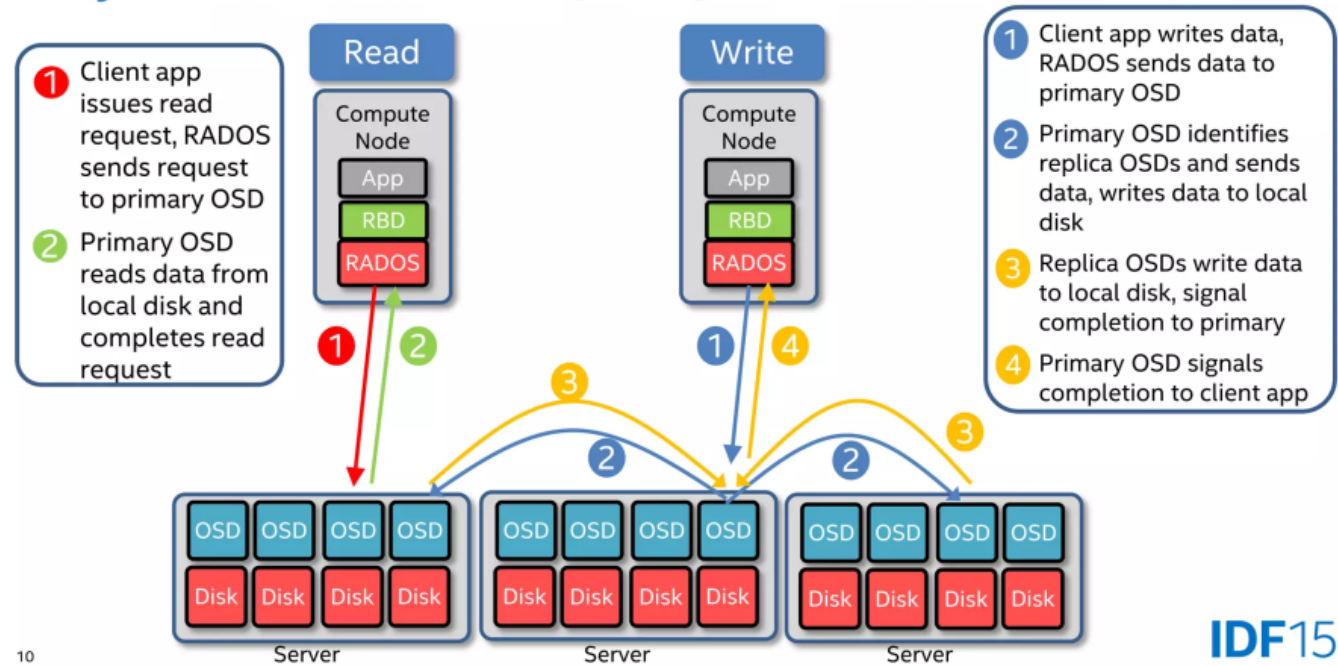
Service Flow

CEPH SD Storage Schema

Ceph Storage at CERN (IT Department)

Exabyte storage scaleout with Geocluster and autoscaling

Object Store Daemon (OSD) Read and Write Flow



© 2015 Jian Zhang [Intel CEPH software optimizations for cloud workloads](#)

Replication HA schema

- root
- \ datacenter
- \ \ row
- \ \ \ rack
- \ \ \ \ host
- \ \ \ \ \ osd

AZ recommendation

EBS	1x AZ
EFS	~3x AZ (Full region)
S3	~3x AZ (Full region)

HA granularity

By service	No HA	Single AZ	MultiAZ
VPS	Yes	No	No
CephFS	No	Yes	may
Blockstorage - CEPH	No	Yes	may
Blockstorage - Minio	Yes	may	No
Blockstorage - Garage	Yes	may	No
GalleraCluster	No	Yes	may
ScyllaDB	No	Yes	may
Mariadb	Yes	Yes	may
Postgresql	Yes	Yes	may
Citus	No	Yes	may

Software Stack

Cloud Core Infrastructure (IaaS)

Type	Cloud Service Description	CPU support
Compute Nodes and Management	AWS EC2 replacement with cloudinit support	ARM support
Openstack	Full, but as LEGO style	YES
Proxmox	Light, but EASY to implement	YES
- LXC may deploy container templates - both have native CEPH support		
SD Storage (Object, Block, File) Scaleout	AWS S3 compatible and EBS replacement	
AWS EBS - CEPH SD Block Storage	Hyperconverged or PetaSAN	YES
AWS EFS - CEPH SD File Storage	Hyperconverged or PetaSAN	YES
SD Load Balancer, Cache	AWS ELB / Citrix Netscaler replacement	
NGINX	or AlibabaCloud clone	YES
Integration + Enterprise Service Bus	IBM WebSphere replacement	
WSO2 Integrator		YES
Mass webhosting		
ISP Config		YES
MQTT Platform	AWS IoT core replacement	
Mosquitto		YES
Cloud Data Synchronization / Backup		
Rclone		YES
Restic		YES
Infrastructure Monitoring System	AWS CloudWatch replacement	
NetXMS		agent only
Grafana		YES
Kubernetes Orchestrator	AWS EKS replacement	
Mikro K8s		
Microsoft Windows	Windows Infrastructure	\$\$\$ not recommended
1x Datacenter - dedicated HW	Xx Server Standard on KVM	no/LIMITED
XXX users	CAL (client access licence) per user	
Cloudinit for Windows		

Deployment

Ansible
Terraform
Juju

Security as a Service (SECaaS)

Type	Cloud Service Description	CPU support
WAF (Application Firewall)		
OWASP® ModSecurity	+nginx connector	YES
SD Firewall	AWS VPC, Security groups replacement	
Integrated firewall with templates	inside hypervisor	YES
pfSense	+platform integrated (VPS sandboxing)	LIMITED

Software as a Service (SaaS)

Type	Info	Service Description	Location
Services and Management	API catalog	WSO2 API Manager	KVM or LXC
DB	PostgreSQL	CitusData (Sharding Cluster)	KVM or LXC
DB	PostgreSQL	Postgresql	KVM or LXC
DB	PostgreSQL	Neon	KVM or LXC
DB	MariaDB	MariaDB with GalleraCluster	KVM or LXC
DB	AWS DynamoDB replacement	ScyllaDB Alternator	KVM or LXC
Storage	AWS S3	Ceph version	CEPH Cluster
Storage	AWS S3	Garage	Garage
Storage	AWS S3	Minio version	Minio Cluster

Platform as a Service (PaaS)

Type	Name	Service Description	Location
Web Publishing	Info	Wordpress	ISPConfig
Web Storage	Network Drive	NextCloud * can use AWS S3	ISPConfig, LXC or KVM
Videoconferencing	Talk	Talk * WebRTC	Inside Nextcloud + coTurn Server
Bug Tracking	Bug Tracking	Mantis Bug Tracker	ISPConfig
Forum	Discussion Forum	VanillaForums	ISPConfig
Knowledge Base	Wikipedia	DokuWiki	ISPConfig

* WebRTC is decentralized protocol it may needs some help from CDN

Cloud-Init

KVM - Virtual drive with configuration

LXC - scripts for distribution executed directly in container

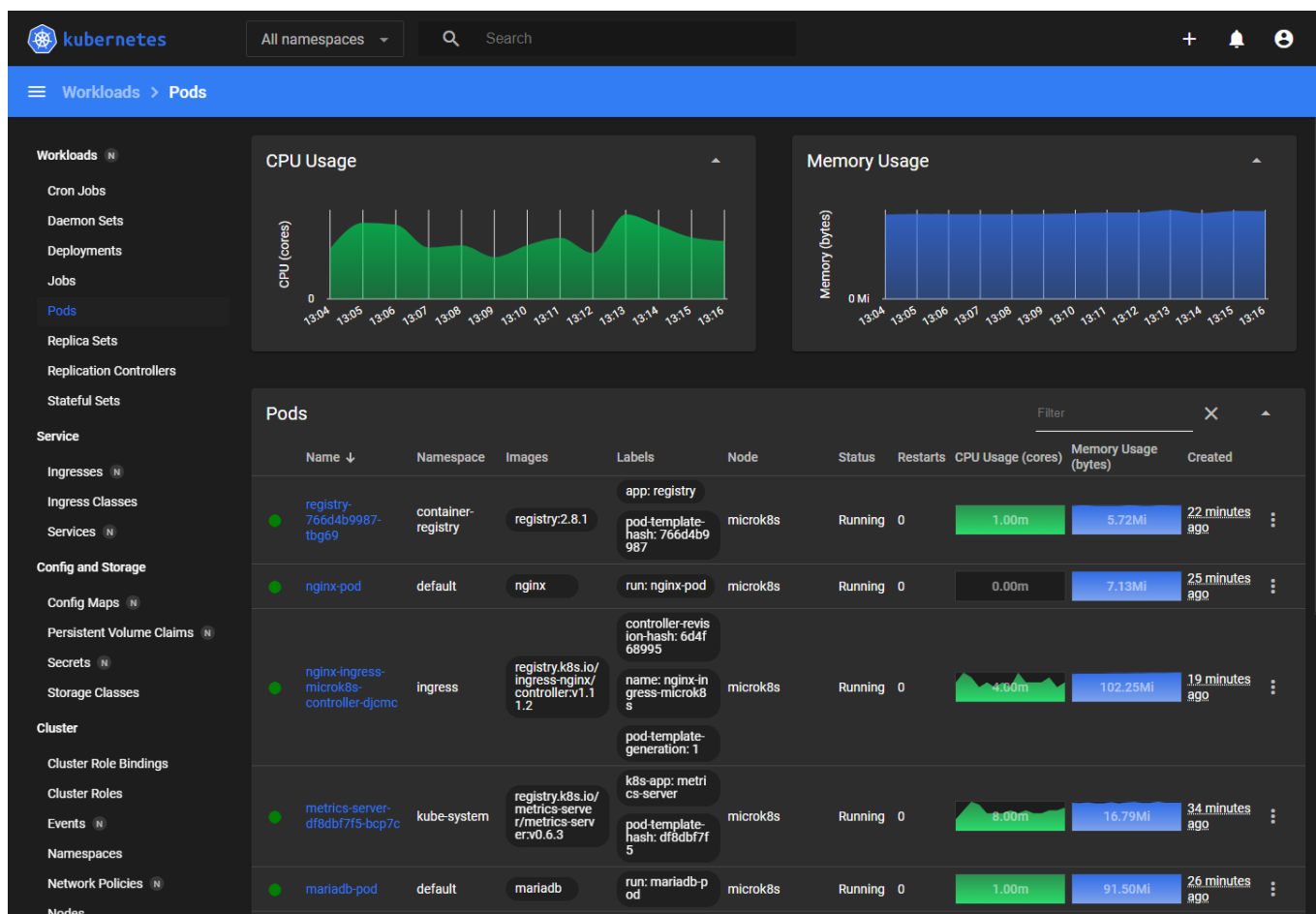
API + CLI

[PROXMOX API documentation](#)

Multiuser setups

You may use pools inside Proxmox to separate users and namespaces inside Kubernetes

Kubernetes (MicroK8s)



Hardware Draft

Compute nodes
AMD Epyc
EBS - SD Storage
Ampere / ARM 4x core+

Security

Biometric Readers + card

Man-Trap

Cage or room with Biometric Readers + card

Zero-Trust-Security

Every microservice must not trust to anyone else

Main-Distribution-Frame (MDF)

Incoming and outgoing communication and power lines within a building

A panel or set of panels where all communication cables from different parts of the building are both terminated and connected.

Cage or room with Biometric Readers + card

Intermediate Distribution Frame (IDF)

A wall-mounted or free-standing rack used to manage and interconnect a telecommunications cable between end-user devices and the main distribution frame (MDF).

Meet-Me-Room (MMR)

Network interchange place

Cage or room with Biometric Readers + card

Carrier Hotel

Internet exchange points for an area.

East-West Traffic

From server to server within a network's data center

North-South Traffic

Data flowing from or to a system physically residing outside the data center

CDN

Content Delivery Network with NGINX or TENGINE

Hardware suppliers & Datacenter vendors

Reuse what's possible and make sense
Custom boards from 1000+ pcs

Hardware	Datacenter builders
ASRock Rack	Equinix
Gigabyte Enterprise	Digital Realty
Ingrasys	Cologix
Wiwynn	Aligned
Quanta Cloud Technology	DataBank
Tyan	NTT Data
Inventec	Digital Edge
ZT systems	EdgeConneX
Supermicro	
Aivres	

Remarks

Add Storage type

Datacenter

Search

Summary

Notes

Cluster

Ceph

Options

Storage

Backup

Replication

Permissions

Users

API Tokens

Two Factor

Add

Remove

Edit

Directory

LVM

LVM-Thin

BTRFS

NFS

SMB/CIFS

GlusterFS

iSCSI

CephFS

RBD

ZFS over iSCSI

ZFS

Proxmox Backup Server

ESXi

Type	Content
RBD (PVE)	Disk image, Container
Directory	VZDump backup file
LVM-Thin	Disk image, Container
NFS	VZDump backup file
NFS	Disk image, ISO image, Container template

Backup

Virtual Machine 111 (ora-jispcv.hzscr.internal) on node 'cloud-gis02' legacy sql Start Shutdown Migrate Console More Help

Summary

Console

Hardware

Cloud-Init

Options

Task History

Monitor

Backup

Replication

Snapshots

Backup now

Restore

Show Configuration

Edit Notes

Change Protection

Remove

Storage: synology-backup

Name	Notes	Date ↓	Format	Size
vzdump-qemu-111-2024_08_24-03_00_04.vma.zst		2024-08-24 03:00:04	vma.zst	140.98 GB
vzdump-qemu-111-2024_08_17-03_00_00.vma.zst		2024-08-17 03:00:00	vma.zst	141.38 GB
vzdump-qemu-111-2024_08_10-03_00_01.vma.zst		2024-08-10 03:00:01	vma.zst	142.88 GB
vzdump-qemu-111-2024_08_03-03_00_10.vma.zst		2024-08-03 03:00:10	vma.zst	143.00 GB
vzdump-qemu-111-2024_07_27-03_00_00.vma.zst		2024-07-27 03:00:00	vma.zst	143.10 GB
vzdump-qemu-111-2024_07_20-03_00_10.vma.zst		2024-07-20 03:00:10	vma.zst	143.09 GB
vzdump-qemu-111-2024_07_13-03_00_05.vma.zst		2024-07-13 03:00:05	vma.zst	143.64 GB

Storage CEPH

Replication schema

Reload

Create: OSD

Manage Global Flags

No OSD selected Details Start Stop

Name ↑	Class	OSD Type	Status	Version	weight	reweight	Used (%)	Total	Apply/Commit Latency (ms)	PGs
default				18.2.2						
cloud-gis00				18.2.2						
osd.0	ssd	bluestore	up / in	18.2.2	1.74599	1.00	7.87	1.75 TiB	1 / 1	86
osd.7	ssd	bluestore	up / in	18.2.2	1.74599	1.00	10.99	1.75 TiB	1 / 1	76
osd.8	ssd	bluestore	up / in	18.2.2	1.81879	1.00	10.16	1.82 TiB	1 / 1	79
cloud-gis01				18.2.2						
osd.1	ssd	bluestore	up / in	18.2.2	1.7466	1.00	10.11	1.75 TiB	0 / 0	87
osd.2	ssd	bluestore	up / in	18.2.2	1.7466	0.95001	10.54	1.75 TiB	0 / 0	72
osd.3	ssd	bluestore	up / in	18.2.2	1.7466	0.95001	8.79	1.75 TiB	0 / 0	82
cloud-gis02				18.2.2						
osd.4	ssd	bluestore	up / in	18.2.2	1.7466	0.90002	9.20	1.75 TiB	0 / 0	78
osd.5	ssd	bluestore	up / in	18.2.2	1.7466	1.00	8.77	1.75 TiB	0 / 0	75
osd.6	ssd	bluestore	up / in	18.2.2	1.7466	0.95001	11.45	1.75 TiB	0 / 0	88

CEPH One SSD backbone network connectivity

Details: OSD 8 ✕

Reload

General

Network

Devices

Front Address (Client & Monitor)	v2: 172.24.16.1:6808 v1: 172.24.16.1:6809
Heartbeat Front Address	v2: 172.24.16.1:6813 v1: 172.24.16.1:6814
Back Address (OSD)	v2: 172.24.16.1:6810 v1: 172.24.16.1:6811
Heartbeat Back Address	v2: 172.24.16.1:6816 v1: 172.24.16.1:6818

CEPH Pools (replication config)

CreateEditDestroy

Pool #	Name	Size/min	# of Placement Groups	Optimal # of PGs	Autoscale Mode	CRUSH Rule (ID)	Used (%)
3	ceph-pool	3/2	64	32	off	replicated_rule (0)	1.61 TiB (12.81%)
12	.mgr	3/2	1	1	on	replicated_rule (0)	209.26 MiB (0.00%)
13	.rgw.root	3/2	32	32	warn	replicated_rule (0)	48.00 KiB (0.00%)
14	default.rgw.log	3/2	32	32	warn	replicated_rule (0)	408.00 KiB (0.00%)
15	default.rgw.control	3/2	32	32	warn	replicated_rule (0)	0 B (0.00%)
16	default.rgw.meta	3/2	8	8	warn	replicated_rule (0)	119.21 KiB (0.00%)
17	default.rgw.buckets.index	3/2	8	8	warn	replicated_rule (0)	157.69 KiB (0.00%)
18	default.rgw.buckets.data	3/2	32	32	warn	replicated_rule (0)	93.65 GiB (0.83%)
19	default.rgw.buckets.non-ec	3/2	32	32	warn	replicated_rule (0)	15.59 KiB (0.00%)
							1.70 TiB

Create VM

Create: LXC Container

GeneralTemplateDisksCPUMemoryNetworkDNSConfirm

Storage:

synology-vm

Template:

Name	For...	Size
amzn-2-standard-amd64.tar.gz	tgz	91.42 MB
centos-6-arccgis_10-1_x86_64.tar.gz	tgz	1.37 GB
centos-6-oracle12c-1_x86_64.tar.gz	tgz	5.56 GB
debian-12-standard_12.2-1_amd64.tar.zst	tzst	126.13 MB
oracle-8-cloud_amd64.tar.gz	tgz	214.10 MB
rockylinux-9-default_20221109_amd64.tar.xz	txz	102.70 MB
ubuntu-22.04-standard_22.04-1_amd64.tar.zst	tzst	129.82 MB
ubuntu-24.04-standard_24.04-2_amd64.tar.zst	tzst	141.59 MB

Running VM

Virtual Machine 125 (wso2mi.hzspk.internal) on node 'cloud-gls02'

StartShutdownMigrateConsoleMoreHelp

Summary

ConsoleHardwareCloud-InitOptionsTask HistoryMonitorBackupReplicationSnapshotsFirewallPermissions

wso2mi.hzspk.internal (Uptime: 361 days 20:35:0)

Statusrunning

HA Statestarted, Group: XeonE5-2680

Nodecloud-gls02

CPU usage1.11% of 4 CPU(s)

Memory usage70.62% (2.82 GiB of 4.00 GiB)

Boo...disk size16.00 GiB

IPs10.160.149.9fe80::be24:11ff:fe0e:2628

Notes

WSO2 µIntegrator 4.1 == ! ==

IP: 10.160.149.9 @ UBUNTU 22.04 LTS 64bit

ORACLE, Postgres, MariaDB, MSSQL connectors

+Mosquitto 3.1 +NGINX

CPU usage

Week (average)

CPU usage

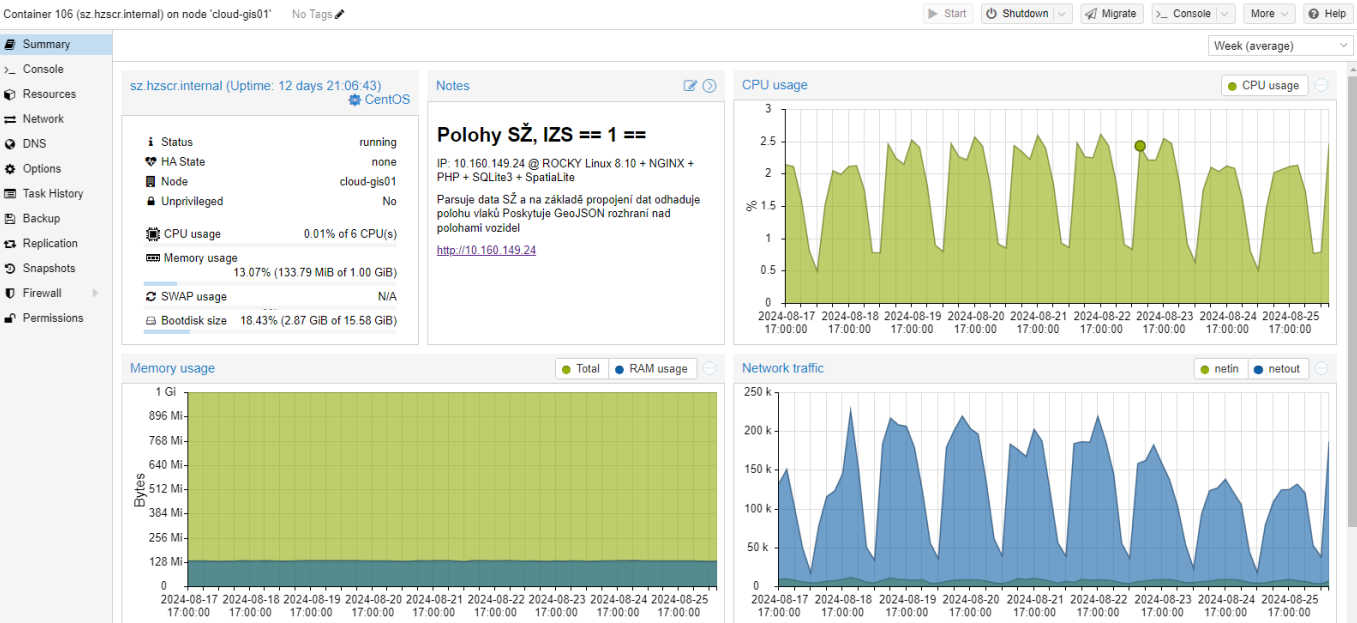
Memory usage

TotalRAM usage

Network traffic

netinnetout

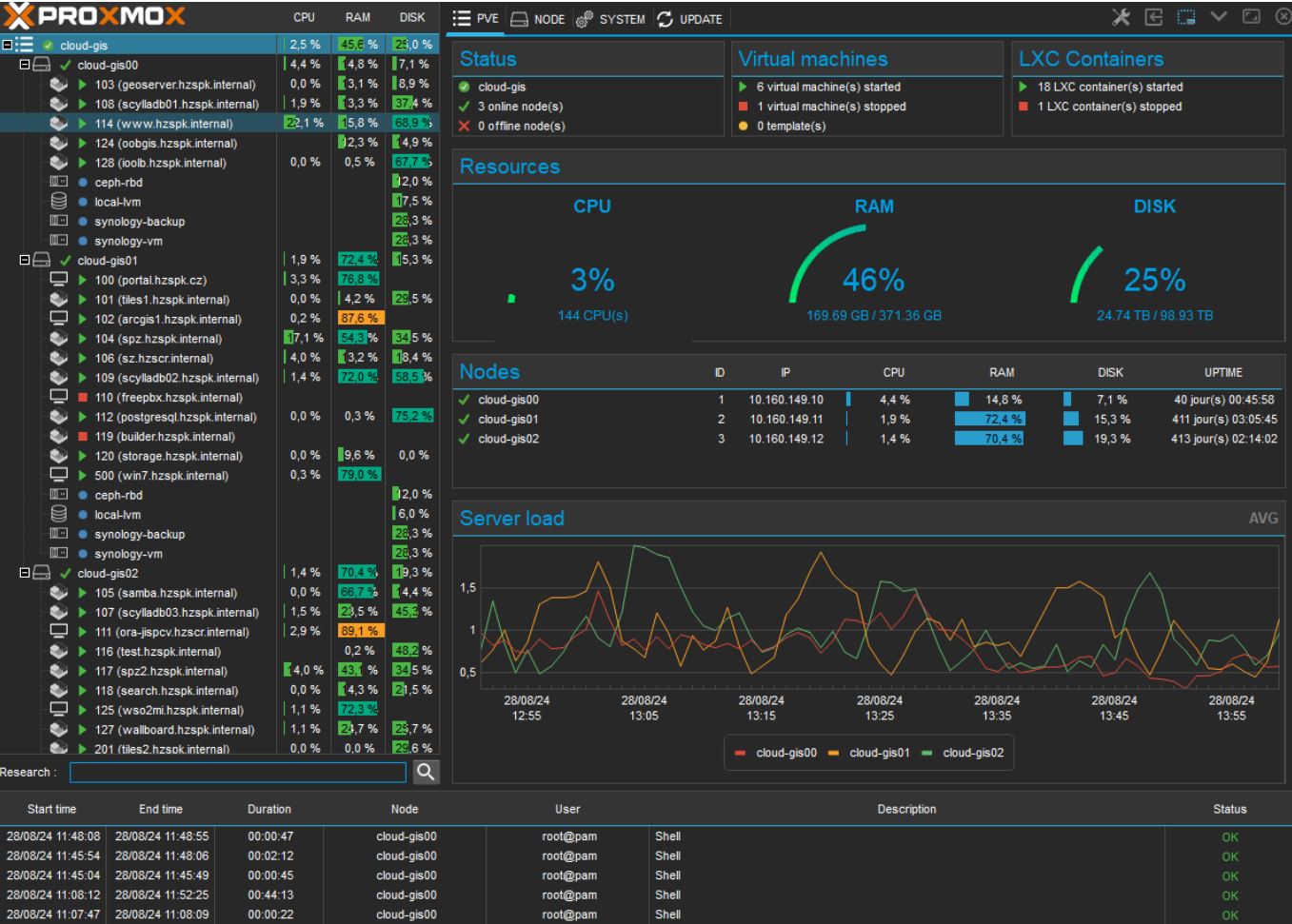
wiki.janforman.com - https://wiki.janforman.com/



Firewall Template (SECaaS)

Group: CreateRemoveEdit		Rules: AddCopyRemoveEdit									
Group ↑	Comment		On	Type	Action	Macro	Protocol	Source	S.Port	Destination	D.Port
ags	ArcGIS Enterprise	≡ 0	☒	out	ACCEPT	Ping					
lb	Load Balancer	≡ 1	☒	out	DROP						
scylladb	Big Data	≡ 2	☒	in	ACCEPT	Ping					
web	Accept HTTP traffic	≡ 3	☒	in	ACCEPT		tcp			+cloud	8080
wso2	Micro Integrator	≡ 4	☒	in	ACCEPT	HTTP		+cloud		+cloud	
		≡ 5	☒	in	ACCEPT	HTTPS		+cloud		+cloud	
		≡ 6	☒	in	DROP						

MultiCluster Proxmox Dashboard



MultiCluster Kubernetes Dashboard

Kubernetes KubeWall

Proxmox on RaspberryPI 5 / with Win11 ARM inside

Proxmox direct import from VMWare ESXi

<https://www.youtube.com/watch?v=8Z9Zvt2RxIA>

AWS Load Balancer

VPC dashboard

EC2 Global View

Filter by VPC:
Select a VPC

Virtual private cloud

Your VPCs

Subnets

Route tables

Internet gateways

Egress-only internet gateways

DHCP option sets

Elastic IPs

Managed prefix lists

Endpoints

Endpoint services

NAT gateways

Peering connections

Security

Network ACLs

Security groups

DNS firewall

Rule groups

Domain lists

Network Firewall

Firewalls

Firewall policies

Network Firewall rule groups

TLS inspection configurations

Subnets (1/2) Info

Find resources by attribute or tag

	Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR	Available IPv4 addresses
☒	-	subnet-0ff8394458cb94e1c	Available	vpc-05adaa844b29dde10	172.31.0.0/20	2a05:d016:8cd:c9c9::/64	4090
☐	my-test-subnet-delete	subnet-0072d5382bbbf4fa	Available	vpc-05adaa844b29dde10	172.31.16.0/24	-	250

subnet-0ff8394458cb94e1c

Details | Flow logs | Route table | Network ACL | CIDR reservations | Sharing | Tags

Details

Subnet ID
subnet-0ff8394458cb94e1c

Available IPv4 addresses
4090

Network border group
eu-north-1

Default subnet
Yes

Customer-owned IPv4 pool

Subnet ARN
arn:aws:ec2:eu-north-1:964348697580:subnet/subnet-0ff8394458cb94e1c

IPv6 CIDR
2a05:d016:8cd:c9c9::/64

VPC
vpc-05adaa844b29dde10

Auto-assign public IPv4 address
Yes

State
Available

Availability Zone
eu-north-1c

Route table
rtb-0d4956eb400df7ae5

Auto-assign IPv6 address
No

IPv4 CIDR reservations

IPv4 CIDR
172.31.0.0/20

Availability Zone ID
eun1-az3

Network ACL
acl-0fb585019407f5f5b

Auto-assign customer-owned IPv4 address
No

IPv6 CIDR reservations

loadbalancer

Details

Load balancer type
Application

Scheme
Internet-facing

Load balancer ARN
arn:aws:elasticloadbalancing:eu-north-1:964348697580:loadbalancer/app/loadbalancer/c523f95aa5f7762d

Status
Active

Hosted zone
Z23TAZ6LKFMNIO

VPC
vpc-05adaa844b29dde10

Availability Zones
subnet-0ff8394458cb94e1c eu-north-1c (eun1-az3)
subnet-0072d5382bbbf4fa eu-north-1a (eun1-az1)

DNS name
loadbalancer-873478218.eu-north-1.elb.amazonaws.com (A Record)

IP address type
IPv4

Date created
June 17, 2024, 10:45 (UTC+02:00)

Listeners and rules

Network mapping

Resource map - new

Security

Monitoring

Integrations

Attributes

Tags

Resource map Info

View, explore, and troubleshoot your load balancer's architecture.

Overview

Unhealthy target map

Show resource details

loadbalancer

Last fetched seconds ago

Export

Listeners (1)

Rules (2)

Target groups (1) Info

Targets (1)

HTTP:80

2 rules

Priority 1
Fixed response

Conditions (If)
HTTP Host Header is janforman....

Priority default
Forward to target group

Conditions (If)
If no other rule applies

Instance
maintarget

1 target

i-004de795859f9ea1f

Port 443

Healthy

EC2 > Target groups > maintarget

maintarget

Actions

Details

arn:aws:elasticloadbalancing:eu-north-1:964348697580:targetgroup/maintarget/a1235ec01f739182

Target type

Instance

Protocol : Port

HTTPS: 443

Protocol version

HTTP1

VPC

[vpc-05ad8a844b29dde10](#)

IP address type

IPv4

Load balancer

[loadbalancer](#)

1

Total targets

1

Healthy

0

Anomalous

0

Unhealthy

0

Unused

0

Initial

0

Draining

► Distribution of targets by Availability Zone (AZ)

Select values in this table to see corresponding filters applied to the Registered targets table below.

Targets

Monitoring

Health checks

Attributes

Tags

Registered targets (1)

Info

Anomaly mitigation: Not applicable

Deregister

Register targets

Target groups route requests to individual registered targets using the protocol and port number specified. Health checks are performed on all registered targets according to the target group's health check settings. Anomaly detection is automatically applied to HTTP/HTTPS target groups with at least 3 healthy targets.

Filter targets

<

1

>

⚙

☐	Instance ID	Name	Port	Zone	Health status	Health status details	Launch...	Anomaly detection result
☐	i-004de795859f9ea1f	eu-north-1	443	eu-north-1c	Healthy	-	November...	Normal

AWS S3 (replicated across AZs within location), S3 Express One Zone (faster, cheaper only one zone)

Software stack overview

Sorted by my recommendation

Openstack	Pros	Cons
	OpenSource, cost-effective	Hard to setup
	Modular design	Modular design
	Ultimate solution for very large clouds	Higher maintenance costs
NASA Hybrid Cloud Amazon AWS and OpenStack, SEZNAM.cz		
AT&T runs its mobile core network on an OpenStack cloud, serving millions of subscribers.		
China Mobile, one of the world's largest telecom providers, is building the biggest NFV network based on OpenStack with over 50,000 servers.		
OpenStack is more alive than ever with 40 million cores in production and over 300 public cloud data centers worldwide.		
Proxmox	Pros	Cons
	OpenSource, cost-effective	Scalability issues for very large environments
	Easy to setup	approx. 32 servers in group more needs MultiCluster manager
	Multiple HV KVM, LXC	Limited enterprise support
	LXC is very lightweight	Upgrade on OS level
	Integrated SD storage, SD firewall (like AWS sg)	
	CEPH and ZFS implemented, IPAM support	
	Can consume CEPH from a dedicated cluster	
	Open vSwitch alternative to vSphere Distributed Switch	
	SDN Network alternative to NSX-T Data Center	
OpenNebula	Pros	Cons
	Multiple HV KVM, LXC, vCenter	
	Kubernetes included	
Nutanix AHV	Pros	Cons
	Kubernetes Support	Vendor-lock-in (Closed opensource products)
	Integrated storage and networking solutions	Messy Architecture
	Rocky Linux, Cassandra	No external storage support
Microsoft Hyper-V	Pros	Cons

Openstack	Pros	Cons
	Easy to setup	Cost, limited functionality
		Additional licensing costs!
		Vendor-lock-in
VMWare	Pros	Cons
	Easy to setup	Higher cost
		Additional licensing costs!
		Vendor-lock-in

CEPH	Pros	Cons
	No single point of failure	Complex
	Data durability via replication or erasure coding	minimum 8nodes+ recommended
	No interruption of service from rolling upgrades, online expansion, etc.	QoS on pool
	A single cluster can serve object, block, and file	
	Compatibility with Openstack, S3, K8s, Proxmox	
Notable known references		
Approx 3500 clusters worldwide with more than 1.5EB capacity		
CERN storage services and its support of experiments, 37000 users 5100 projects in data centers.		
SAMSUNG	CHINA MOBILE	DigitalOcean
My experience from 7.3.2018 in production 18TB MLC AllFlash		

Competitors [Dell Isilon](#) [Dell Powerflex](#)

You may connect storage nodes with one network card and compute nodes with two (in LACP mode)

Openstack


openstack.


 janforman.com • admin ▼


 admin ▼

Project ▼

API Access

Compute >

Volumes >

Container Infra >

Network >

Admin >

Identity >

Project / API Access

API Access

 View Credentials
  Download OpenStack RC File ▼

Zobrazeno 7 položek

Service	Service Endpoint
Compute	http://10.20.21.12:80/openstack-nova/v2.1
Identity	http://10.20.21.12/openstack-keystone/v3
Image	http://10.20.21.12:80/openstack-glance
Network	http://10.20.21.12:80/openstack-neutron
Placement	http://10.20.21.12:80/openstack-placement
Volumev2	http://10.20.21.12:80/openstack-cinder/v2/9cca5b7c2ba3428e95d3e71da229a71b
Volumev3	http://10.20.21.12:80/openstack-cinder/v3/9cca5b7c2ba3428e95d3e71da229a71b

Zobrazeno 7 položek

Spustit instanci

Podrobnosti

Zdroj

Typ

Sítě

Síťové porty

Bezpečnostní skupiny

Key Pair

Konfigurace

Skupiny serverů

Plánovač pokynů

Metadata

Typy určují velikost výpočetních, pamětních a úložných možností instance.

Přiděleno

Zobrazena 1 položka

Název	VCPUS	RAM	Celková kapacita disku	Systémový disk	Efemérní disk	Veřejné
> t4g.small	2	8 MB	8 GB	0 GB	8 GB	Ano

Zobrazena 1 položka

▼ Dostupné 4

Vyberte jeden

Q

Click here for filters or full text search.

X

Zobrazeny 4 položky

Název	VCPUS	RAM	Celková kapacita disku	Systémový disk	Efemérní disk	Veřejné
> m1.tiny	1	512 MB	4 GB	4 GB	0 GB	Ano
> m1.small	1	2 GB	30 GB	30 GB	0 GB	Ano
> m1.medium	2	4 GB	60 GB	60 GB	0 GB	Ano
> m1.large	4	8 GB	90 GB	90 GB	0 GB	Ano

Zobrazeny 4 položky

X Zrušit

< Zpět

Další >

Spustit instanci

Vytvořit obraz

Detaily obrazu

Metadata

Detaily obrazu

Zadejte obraz pro nahrání do Služby obrazů.

Název obrazu

windows xp

Popis obrazu

Zdroj obrazu

Soubor

Vybrat soubor

WinXPSP3-VE-052011.iso

Formátovat

ISO - obraz optického disku

PLOOP - Virtuoizzo/Parallels Loopback Disk

QCOW2 - emulátor QEMU

Raw

VDI - obraz virtuálního disku

VHD - virtuální pevný disk

VMDK - disk virtuálního stroje

AKI - obraz kernelu Amazon

AMI - obraz stroje Amazon

ARI - obraz Ramdisku Amazon

Viditelnost

Privátní

Sdíleno

Community

Veřejné

Ramdisk

Zvolit obraz

Minimální kapacita disku (GB)

0

Minimum RAM (MB)

0

Chráněno

Ano

Ne

Zrušit

< Zpět

Další >

Vytvořit obraz

openstack

janforman.com • admin

admin

Project

API Access

Compute

Overview

Instances

Images

Key Pairs

Server Groups

Volumes

Container Infra

Network

Admin

Identity

Project / Compute / Key Pairs

Key Pairs

Click here for filters or full text search.

Vytvořit klíč

Import Public Key

Delete Key Pairs

Zobrazena 1 položka

Název	Typ
eu-plz-cloud	ssh

otisk

2e:99:89:76:fd:12:b6:39:e6:19:a8:52:9b:1c:f6:d2

Veřejný klíč

ssh-rsa

AAAAB3NzaC1yc2EAAAADAQABAAQCA4WzxZx2/Kz9xKqJEvrckyL6e2w/HeGj0+hQfyz3AqHeUpD6Ta2kM+VX1sgXJh45BwvGY6UvCYX6VqyxZbXGVPV5zG89/JAr975Zs+O4M5pYJ6k5qDdPrdmYspyCez28CBhkuL4JlI6LeOv5G3lQk2Bdn9kpTD4UegSYrsYrm5lkmTKie/YTKvW/yGQ/5aDqCnUlkWgNh/upMdXeUer3dusXPCiifmMzs7syFaqQ+MUxKtmKFLC3EBopwxRKPqrX98M3KQqPL2T/#EU6hejcRHI1HeUZenx8VzussDvwISi1o9W60Hx335dtbq1gkdsTemzINjkhPy8Eu3tnrty3f Generated-by-Nova

Zobrazena 1 položka

Project

API Access

Compute

Volumes

Snapshots

Groups

Group Snapshots

Container Infra

Network

Admin

Identity

Project / Volumes / Volumes

Volumes

Filter

+

Create Volume

=

Accept Transfer

🗑

Delete Volumes

Zobrazena 1 položka

☐	Name	Description	Size	Status	Group	Type	Attached To	Availability Zone	Bootable	Encrypted	Actions
☐	elastic volume	-	8GiB	-	-	ebs-1000	nova		No	No	Delete Volume

Zobrazena 1 položka

MINIO S3 service for small networks

MINIO

OBJECT STORE

ADDITIONAL LICENSE

User

Object Browser

Access Keys

Documentation

Administrator

Buckets

Policies

Identity

Monitoring

Metrics

Logs

Audit

Events

Configuration

License

Metrics

InfoUsageTrafficResources

Server Information

Buckets

2

Browse

Objects

39

Reported Usage

4 GiB

Time since last Heal Activity

n/a

Time since last Scan Activity

n/a

Uptime

n/a

Servers

3

0

OnlineOffline

Drives

3

0

OnlineOffline

Backend type

Erasure

Standard storage class parity

1

Reduced redundancy storage class parity

1

Servers (3)

minio1.janforman.com:9000

1/1

3/3

30 minutes

Version: 2025-04-22T22:12:26Z

minio2.janforman.com:9000

1/1

3/3

4 minutes

Version: 2025-04-22T22:12:26Z

minio3.janforman.com:9000

1/1

3/3

1 hour

Version: 2025-04-22T22:12:26Z

CEPH 3node 10gbit performance (KVM-VirtIO)

3 servers with 3xSSD (9 OSD)

Block Size	4k	(IOPS)	64k	(IOPS)
-----	---	----	----	----
Read	49.45 MB/s	(12.3k)	220.80 MB/s	(3.4k)
Write	49.54 MB/s	(12.3k)	221.96 MB/s	(3.4k)
Total	98.99 MB/s	(24.7k)	442.76 MB/s	(6.9k)
Block Size	512k	(IOPS)	1m	(IOPS)
-----	---	----	----	----
Read	597.15 MB/s	(1.1k)	663.25 MB/s	(647)
Write	628.88 MB/s	(1.2k)	707.43 MB/s	(690)
Total	1.22 GB/s	(2.3k)	1.37 GB/s	(1.3k)

CEPH Performance Proxmox

<https://www.proxmox.com/images/download/pve/docs/Proxmox-VE-Ceph-Benchmark-202312-rev0.pdf>

<https://cilium.io>

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