

openSUSE でおうちクラウド @openSUSE mini Summit 2018

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<https://github.com/masayukig/cheap-cloud>



Agenda

- ▶ Who I am?
- ▶ What is “the OpenStack”?
- ▶ What I did
- ▶ Why do I need it?
- ▶ How to build it?
- ▶ Benefits
- ▶ Issues
- ▶ Conclusion
- ▶ Demo

Who I am?

- ▶ Company : SUSE/ノベル株式会社
 - ▶ SUSE OpenStack Cloud QE(Quality Engineering) Team (日本にいるのは私だけ)
SUSE Acquires OpenStack IaaS and Cloud Foundry PaaS Talent and Technology Assets from HPE to Accelerate Growth and Entry into New Markets
- ▶ Job: Senior Software Engineer/Open Source Programmer
 - ▶ OpenStack QA Upstream/Downstream development, Core Reviewer
(Tempest, OpenStack-Health, Subunit2SQL, Stackvizi)
 - ▶ stackalytics.com/?user_id=igawa
 - ▶ github.com/masayukig
- ▶ Books
 - ▶ OpenStack クラウドインテグレーション (オープンソースクラウドによるサービス構築入門)
 - ▶ インフラ CI 実践ガイド (Ansible/GitLabを使ったインフラ改善サイクルの実現)
(レビュー参加)

What is “the OpenStack”?

- ▶ Open Source Cloud OS Software: Apache License Version 2.0
- ▶ Written in Python
- ▶ There are a lot of ‘OpenStack’ projects: [65 projects\(2018-06-18\)](#)
- ▶ Released every 6 month: Latest version is called ‘Queens’
- ▶ Users: AT&T, American Airlines, BBVA, Bloomberg, CERN, China, Comcast, Gap, Mobile, Nike, VEXXHOST, Verizon, Volkswagen, WALMART, eBay, etc..

What I did

- ▶ Got 1U servers * 3
- ▶ Set up the servers
- ▶ Installed openSUSE
- ▶ Installed OpenStack
- ▶ Using VMs

Why do I need the private Cloud?

- ▶ Very Good Excercise to learn Computer, Network, Storage
- ▶ Understand the Cloud architecture
- ▶ Use VMs for sandboxes such as k8s, mesos, etc.
- ▶ **FUN!!**

How to get cheap servers?

Yahoo! Auction

ヤフオク!

ログイン
IDでもっと便利に新規取得

フリマ オークション すべて

1u

すべてのカテゴリ > コンピュータ > サーバー

検索条件 この条件を保存

▼ カテゴリ 解除

コンピューター
サーバー (145)
サーバー本体 (134)
サーバーラック (7)
その他 (4)

検索結果 約145件

検索対象: タイトル キーワード: 1u

1u ラック luxman p-1u p-1u wh-f1u で検索

落札相場を調べる おすすめ順とは?

おまかせ検索

Get 1U servers * 3

- ▶ Yahoo! Auction!!
Dell PowerEdge R410 * 3: 59.58k JPY

The screenshot shows a Yahoo! Auction listing for a Dell PowerEdge R410 server. The main image displays three physical server units standing next to each other. Below the main image are two smaller thumbnail images showing close-up views of the server's internal components. To the right of the images is the auction details panel.

☆Dell PowerEdge R410 [2*X L5640-2.27GHz(6C)/32GB/2*250GB] !	
落札価格:	18,520 円
入札件数:	18 (入札履歴)
残り時間	終了
入札単位	500円
商品状態	中古
終了日時	2017年9月18日 22時59分

1U, Xeon L5640(6cores * 2CPU HT), 32GB RAM, 250GB HDD*2
(Cost: 18.52k JPY * 3 servers = 55.56k, 4.02k (for a rental car))

Install the servers

Problem

- ▶ Stack on the floor? -> Hard to move
- ▶ Rack? -> Too expensive

LackRack: <https://wiki.eth0.nl/index.php/LackRack>



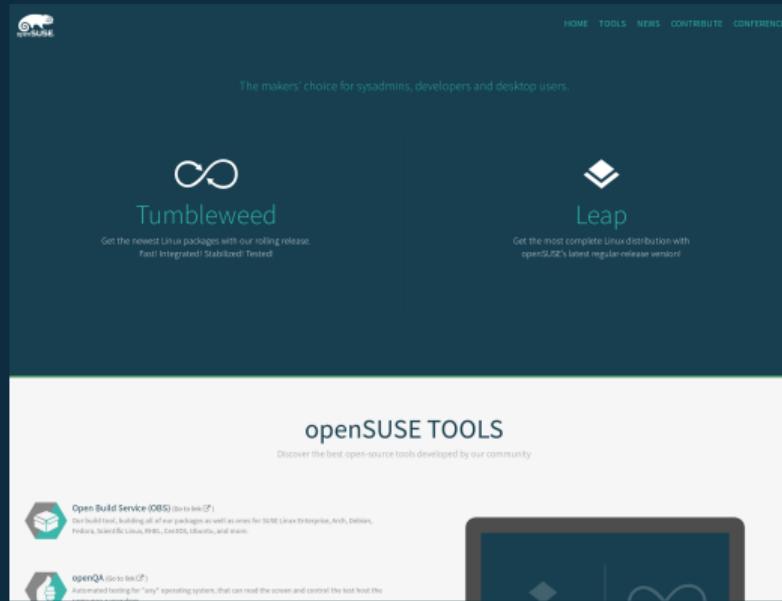
Implemented



Install openSUSE

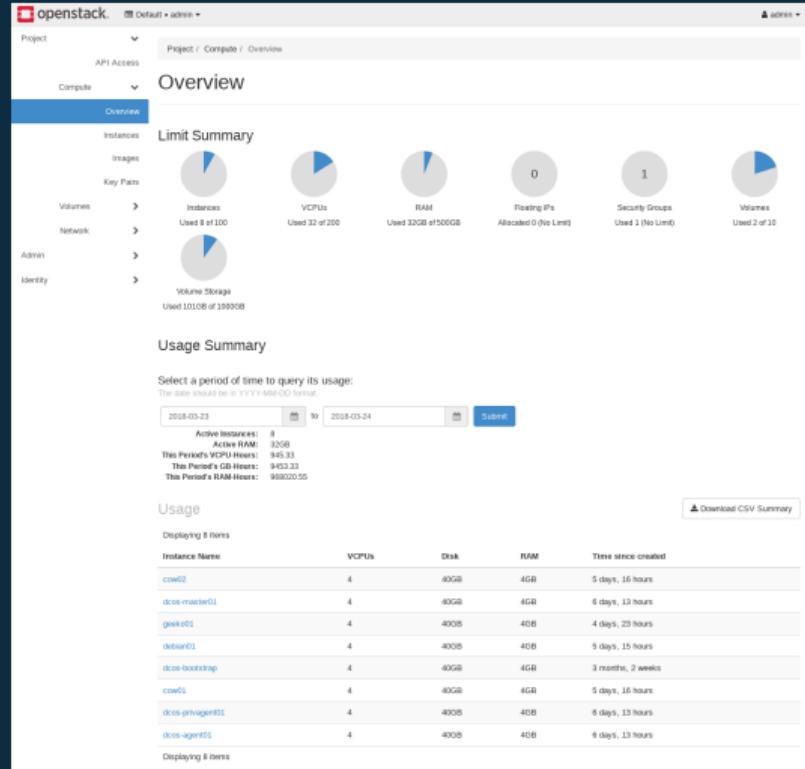
No automation such as autoyast, ansible, puppet, etc

- ▶ Download image and burn it to a USB stick
(<https://software.opensuse.org/distributions/leap>)
- ▶ Install from that media
- ▶ Update it to the latest: `$ sudo zypper dup`

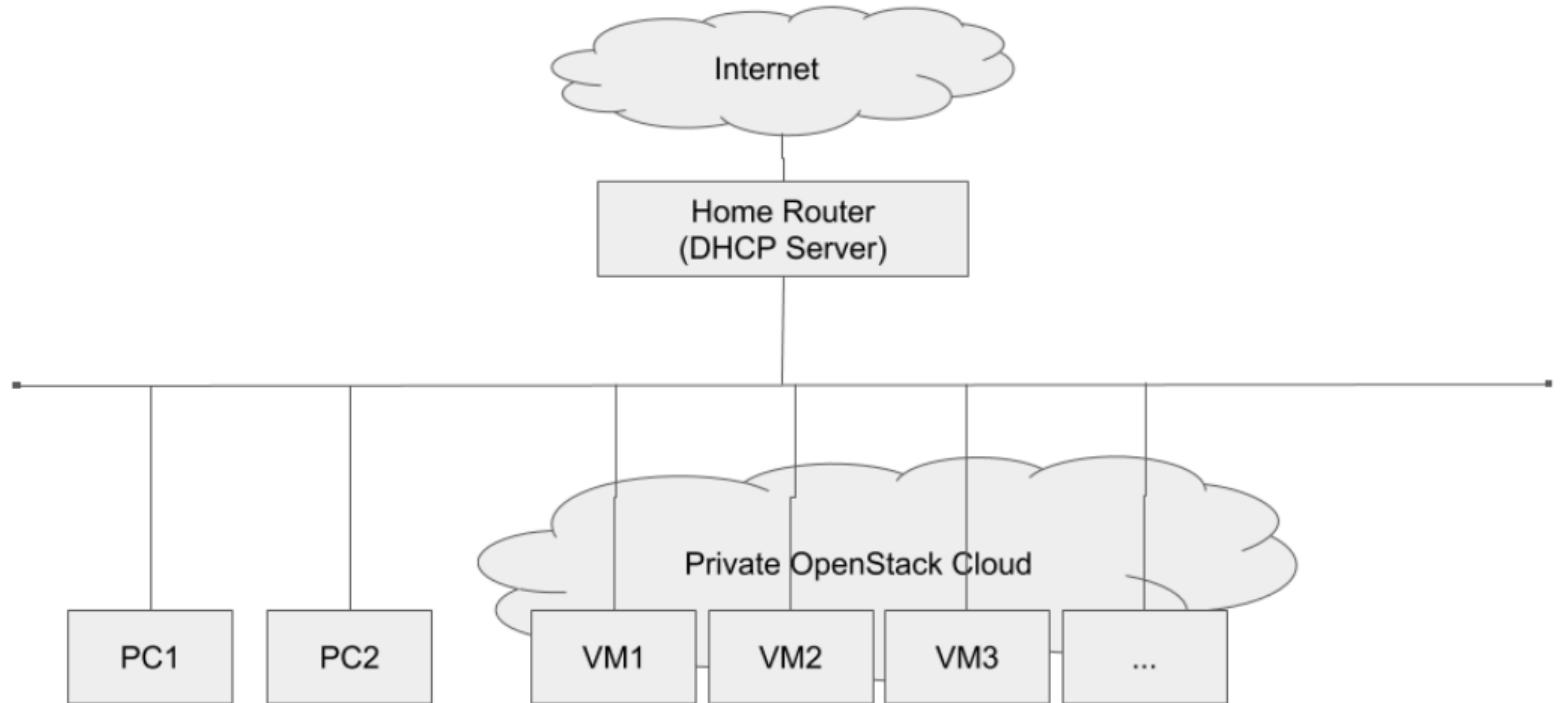


Install OpenStack: Use openSUSE rpm packages

- ▶ Read the Doc (e.g. <https://docs.openstack.org/nova>)
- ▶ Install from the openSUSE repo
- ▶ Configure



My Cloud Network



Update OpenStack

- ▶ Install from the openSUSE repo (Just needed to update repo URL)
- ▶ No Configuration changes

Use VMs: Mesos DC/OS

The screenshot shows the DC/OS Dashboard interface. The left sidebar contains navigation links for Dashboard, Services, Jobs, Catalog, Resources (Nodes, Networking), System (Cluster, Components, Settings, Organization), and a search bar. The main dashboard area has several sections:

- CPU Allocation:** Shows 20% usage of 8 shares across 8 nodes.
- Memory Allocation:** Shows 38% usage of 5 GB across 8 nodes.
- Disk Allocation:** Shows 5% usage of 74 GB across 8 nodes.
- Services Status:** Shows the status of the Kubernetes service.
- Tasks:** Shows 2 total tasks, with 2 running and 0 staged.
- Components Health:** Lists components and their status: Admin Router Agent (Healthy), Admin Router Master (Healthy), DC/OS Authentication (OAuth) (Healthy), DC/OS Checks Timer (Healthy), and DC/OS Component Package Manager (Pkgpanda) (Healthy).
- Nodes:** Shows 2 connected nodes.

Use VMs: Rancher

The screenshot shows the Rancher interface for managing hosts. There are two hosts listed:

- Host 1: cow01.novalocal**
 - Stack: healthcheck**
 - ...healthcheck-1 (IP: 10.42.177.204)
 - Stack: ipsec**
 - ...cni-driver-1 (None)
 - ...ipsec-1 (IP: 10.42.101.159)
 - Sidekicks**: ... (red dot)

Host 2: cow02.novalocal

 - Stack: ipsec**
 - ...cni-driver-2 (None)
 - ...ipsec-2 (IP: 10.42.59.40)
 - Sidekicks**: ... (green dot)

Namespace: kube-system

 - tiller-deploy-cc9... Failed to find lab... (red dot)
 - Containers**: ... (red dot)

Benefits

- ▶ Free to use!!!
- ▶ Low Cost to start
- ▶ Powerful
- ▶ Low Network Latency
- ▶ Warm (in winter)

Issues

- ▶ Electricity cost: 10,000 JPY/month (Expensive)
- ▶ Noise (Imagin a server room)
- ▶ Space (Expensive in Tokyo)
- ▶ Failures (HDD, Power Unit... Expensive)
- ▶ Abandonment (Expensive)

Demo (if possible...)

- ▶ Boot an Instance or Cloud Native something?

Future work

- ▶ Replace the broken HDD to SSD (WIP)
- ▶ Upgrade openSUSE to Leap 15.0 (WIP)
- ▶ Use a RaspberryPi as a controller node
- ▶ Automation

Conclusion

- ▶ Initial cost can be low but **EXPENSIVE** to maintain and **NOISY**
- ▶ **Freedom of cloud usage**
- ▶ Own physical servers and play with it is super **FUN!**