



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

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@openSUSE mini Summit 2018  
<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 Up/Downstream development, Core Reviewer  
(Tempest, OpenStack-Health, Subunit2SQL, Stackvizi)
  - ▶ stackalytics.com/?user\_id=igawa
  - ▶ github.com/masayukig

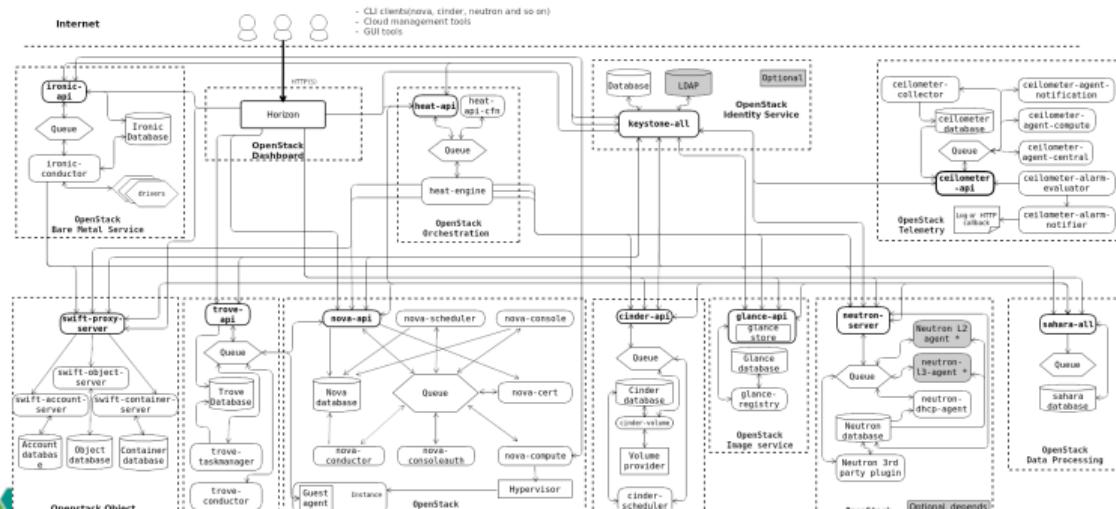


- ▶ Books
  - ▶ OpenStack クラウドインテグレーション (オープンソースクラウドによるサービス構築入門)
  - ▶ インフラ CI 実践ガイド (Ansible/GitLabを使ったインフラ改善サイクルの実現)  
(レビュー参加)

## 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, AA, BBVA, Bloomberg, CERN, China Mobile, Gap, Nike, VEXXHOST, Volkswagen, WALMART, etc..

<https://www.openstack.org/user-stories/>



## 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

Yahoo! 検索結果 約700件

検索条件 この条件を保存 キーワード: lu

すべてのカテゴリ > コンピュータ

▼ カテゴリ

- コンピュータ (706)
- 周辺機器 (313)
- モニタ (104)
- サブウーハー (104)
- バッテリー (91)
- 電源 (86)
- パソコン (27)
- ワームドライブ (11)

価格帯

- ~13,999円 (352)
- 14,000円~27,999円 (240)
- 28,000円~37,999円 (144)
- 38,000円~47,999円 (116)
- 52,000円~53,999円 (16)
- 23,000円~504,999円 (1)

仕分け

- 月 (1)
- 週 (1)
- 毎日 (1)

落札相場を調べる おすすめ順とは?

おすすめ順 売者順 落札相場 入札 戻り物順

注目のオークション (3件)

J1 在庫 DAT 72x10 LU Tape Autoloader SRLA-0933-AC 8,000円

●在庫1 リラックマ監視可 2台セッタ 小型サーバー A-TWORKS Quad Beagle 2G 2台 (Core i5-2520M 2.50GHz/8GB/500GB/LAN4/CentOS6.7) 3,000円

●在庫1 リラックマ監視可 2台セッタ 小型サーバー A-TWORKS Quad Beagle 2G 2台 (Core i5-2520M 2.50GHz/4GB/320GB/LAN4/CentOS6.7) 3,480円

おまけ

●在庫1 リラックマ監視可 2台セッタ 小型サーバー A-TWORKS Quad Beagle 2G 2台 (Core i5-2520M 2.50GHz/8GB/500GB/LAN4/CentOS6.7) 59,076円

●在庫1 リラックマ監視可 2台セッタ 小型サーバー A-TWORKS Quad Beagle 2G 2台 (Core i5-2520M 2.50GHz/4GB/320GB/LAN4/CentOS6.7) 57,780円

●在庫1 リラックマ監視可 2台セッタ 小型サーバー A-TWORKS Quad Beagle 2G 2台 (Core i5-2520M 2.50GHz/4GB/320GB/LAN4/CentOS6.7) 1,000円

●在庫1 I/Oカード 32GB UHS-I U1 データ復旧サービス MF-FS032GU1RA 29,700円

●在庫1 リラックマ監視可 2台セッタ 小型サーバー A-TWORKS Quad Beagle 2G (Core i5-2520M 2.50GHz/4GB/500GB/LAN4/CentOS6.7) 17,496円

●在庫1 リラックマ監視可 2台セッタ 小型サーバー A-TWORKS Quad Beagle 2G ディスクレス (4.3.レッド Core i5-2520M 2.50GHz/4GB/320GB/LAN4/CentOS6.7) 24,300円

●Keen ES LU BELL PowerEdge R320 8G (4コアXeon E5-1410 2.60GHz/12GB/500GB 2.5HDD/DVDRW/Windows2008 Server R2) 35,424円

●在庫1 リラックマ監視可 2台セッタ 小型サーバー A-TWORKS Quad Beagle 2G (4.3.レッド Core i5-2520M 2.50GHz/4GB/500GB/LAN4/CentOS6.7) 37,476円

すべての検索条件を表示

保存した検索条件

ログイン IDでもっと便利に新規取得

おまけ

ログイン IDでもっと便利に新規取得

検索結果 約145件

検索条件 この条件を保存 キーワード: lu

▼ カテゴリ

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

落札相場を調べる おすすめ順とは?

おまけ

7 / 22

# Get 1U servers \* 3

## ► Yahoo! Auction!!

Dell PowerEdge R410 \* 3: 59.58k JPY

☆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>



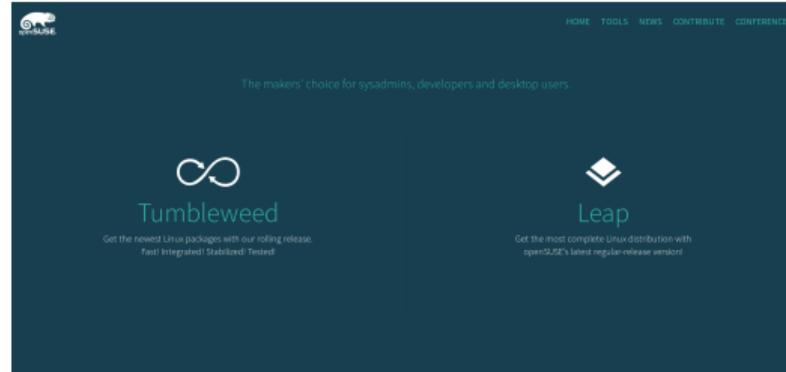
# Implemented



# Install openSUSE

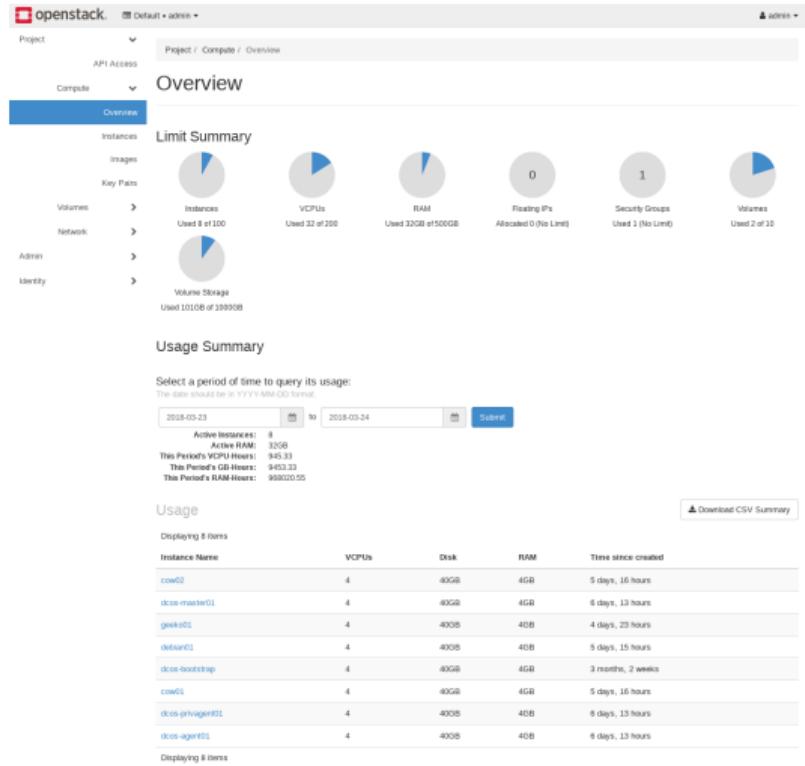
No automation such as autoyast, ansible, puppet, etc

- ▶ 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

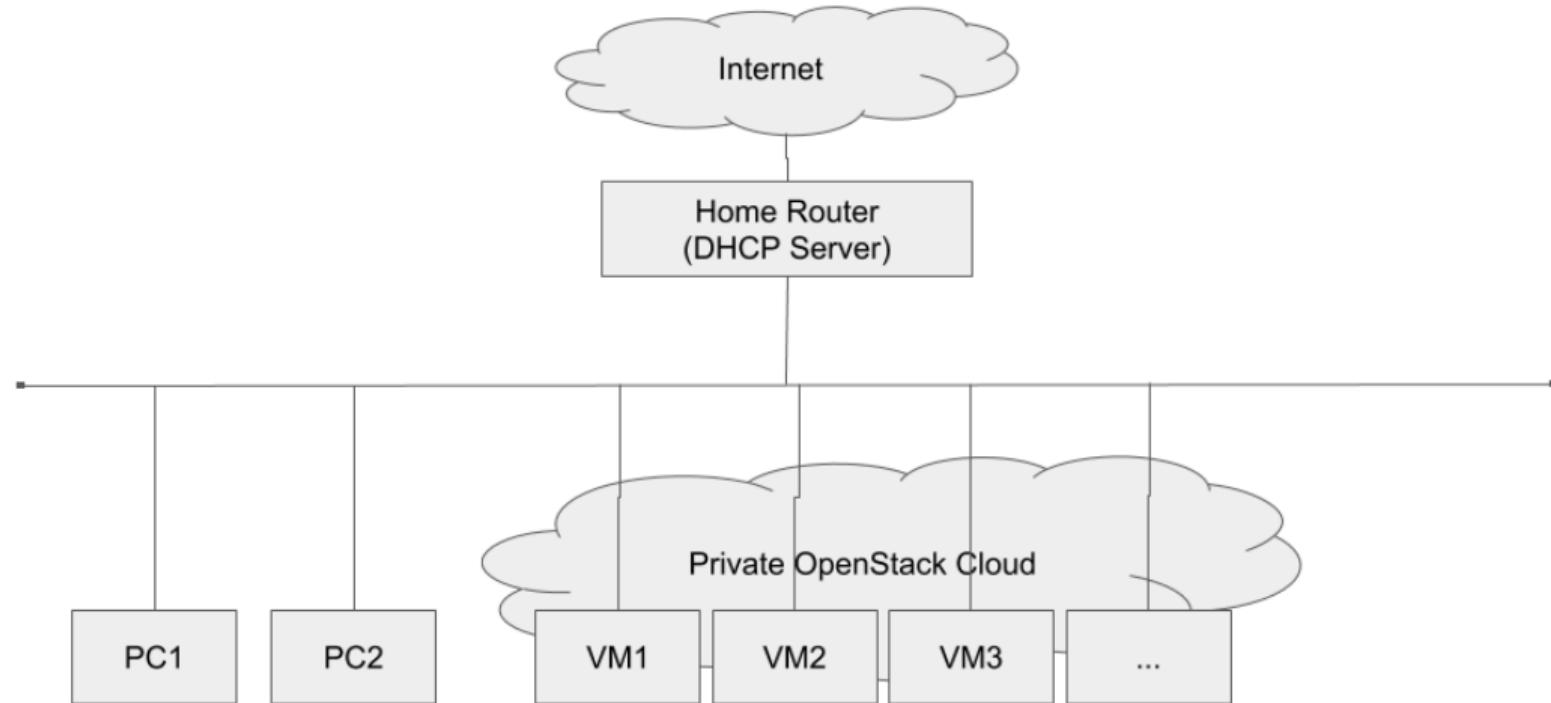


# Install OpenStack: Use openSUSE rpm packages

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



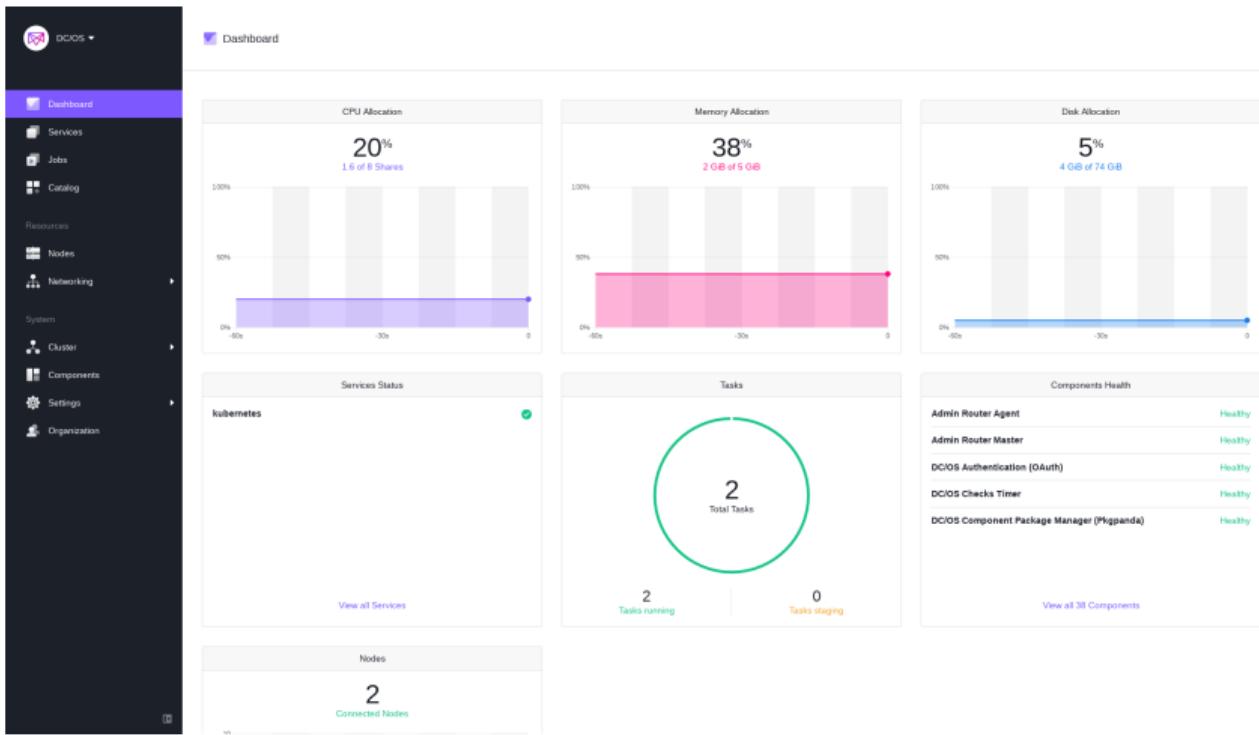
# My Cloud Network



# Update OpenStack

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

# Use VMs: Mesos DC/OS



# Use VMs: Rancher

The screenshot shows the Rancher interface for managing hosts and stacks across two hosts: cow01.novalocal and cow02.novalocal.

**Hosts:**

- cow01.novalocal:** ACTIVE. IP: 172.17.0.1 | OS: RancherOSv1.3.0-rc1(4.15.9) | CPU: 4x3.4 GHz | RAM: 3.85 GiB | Storage: 7.43 GiB
- Stack: healthcheck:** Contains one green circle labeled "...healthcheck-1" with IP 10.42.177.204.
- Stack: ipsec:** Contains one green circle labeled "...cni-driver-1" with IP None, and one red triangle labeled "...ipsec-1" with IP 10.42.101.159. Sidekicks: one red circle and one green circle.
- Namespace: kube-system:** Contains one green circle labeled "tiller-deploy-cc9..." with IP Failed to find lab..., and one red triangle labeled "Containers".

**cow02.novalocal:** ACTIVE. IP: 10.0.0.63 | OS: RancherOSv1.3.0-rc1(4.15.9) | CPU: 4x3.4 GHz | RAM: 3.85 GiB | Storage: 7.43 GiB

**Stack: ipsec:** Contains one green circle labeled "...cni-driver-2" with IP None, and one red triangle labeled "...ipsec-2" with IP 10.42.59.40. Sidekicks: one green circle and one green circle.

**Namespace: kube-system:** Empty.

# 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!**