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

Masayuki Igawa
masayuki@igawa.io
masayukig on Freenode, GitHub, Twitter

June 23, 2018

@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 Upstream/Downstream development, Core Reviewer (Tempest, OpenStack-Health, Subunit2SQL, Stackviz)
  - 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

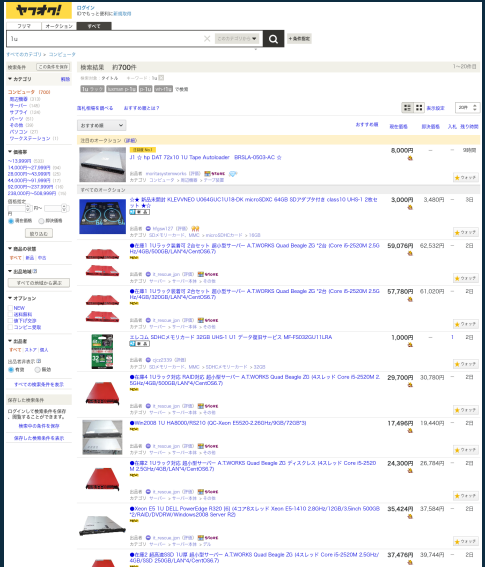
- Got 1U servers * 3
- Set up the servers
- Installed openSUSE
- Installed OpenStack
- Using VMs

Why do I need the private Cloud?

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

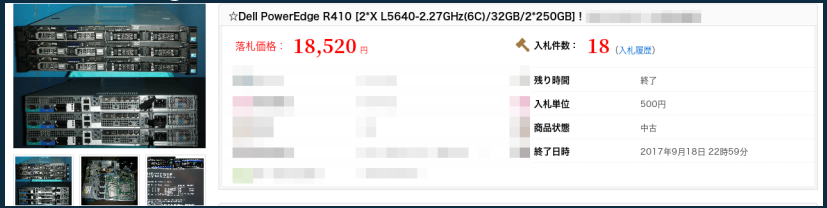
How to get cheap servers?

Yahoo! Auction



Get 1U servers * 3

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



1U, Xeon L5640(6cores * 2CPU HT), 32GB RAM, 250GB HDD*2

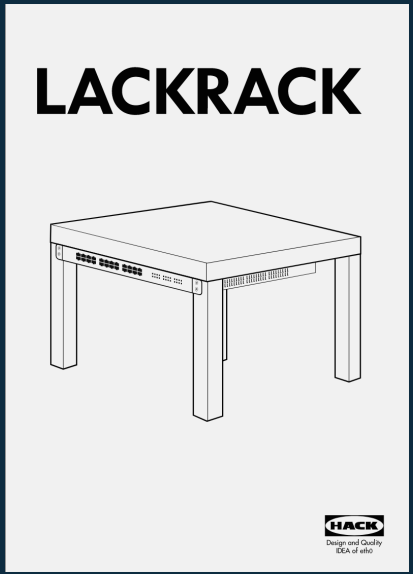
(Cost: 18.52k JPY * 3 servers = 55.56k, 4.02k (for a rental car))

Install the servers

Problem

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

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

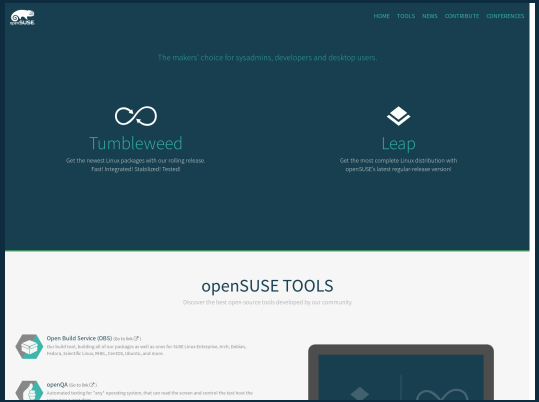


Implemented

Install openSUSE

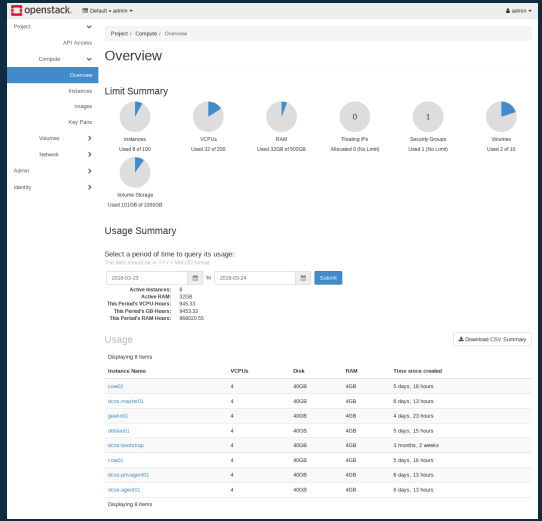
No automation such as autoyast, ansible, puppet, etc

- 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`

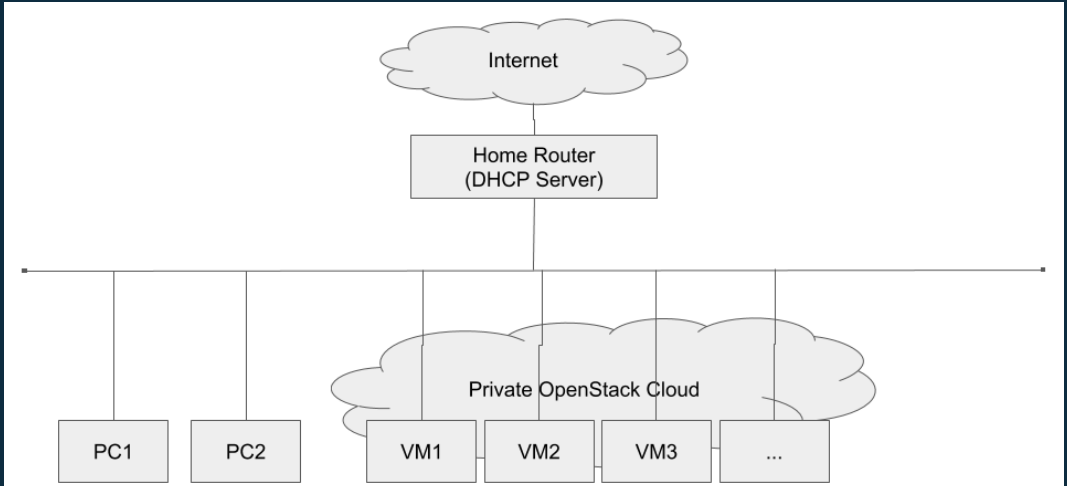


Install OpenStack: Use openSUSE rpm packages

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



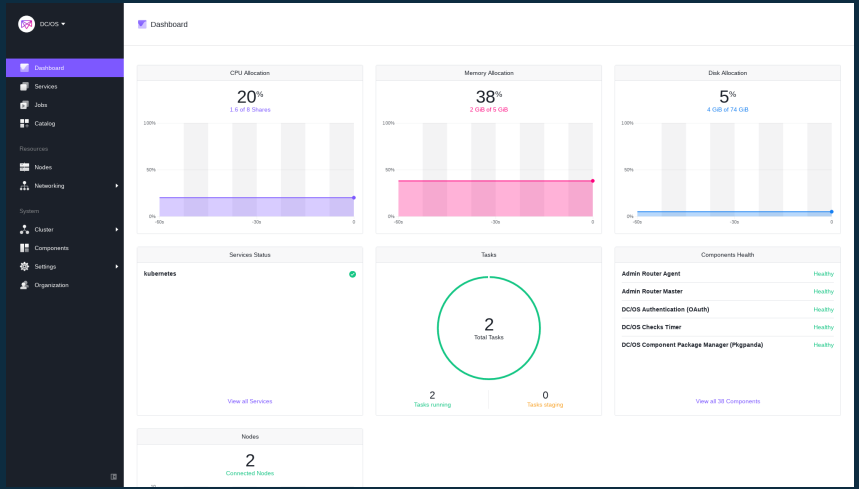
My Cloud Network



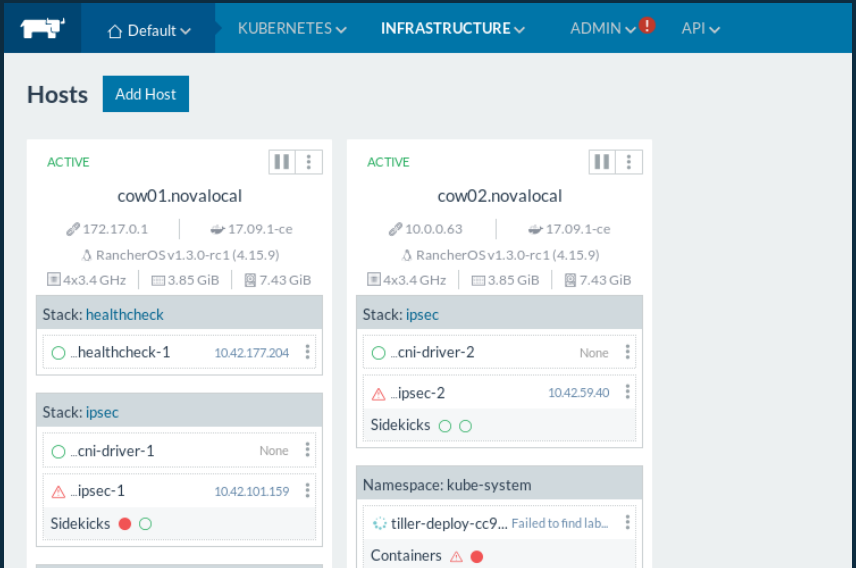
Update OpenStack

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

Use VMs: Mesos DC/OS



Use VMs: Rancher



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 could be low but **EXPENSIVE to maintain and NOISY**
- **More transparent than public clouds**
- **Own physical servers and play with it is super FUN!**