Building Tiny Private openSUSE Cloud @openSUSE.Asia Summit 2018

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

June 23, 2018

@openSUSE.Asia 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
- Demo
- Future Work
- Conclusion

These slides are my own opinion

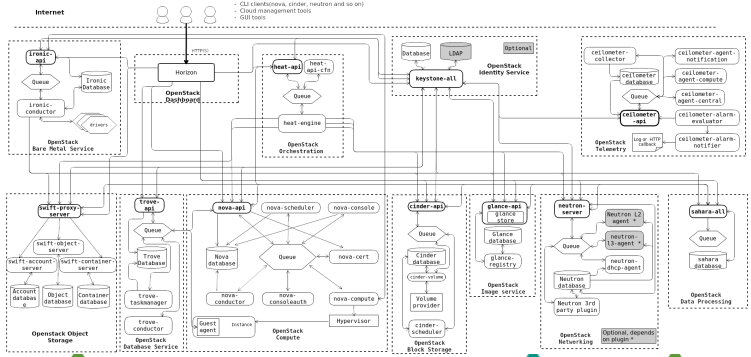
Who I am?

- Company：2017.3- SUSE/Novell Japan -> 2019 ???("Further Independence for SUSE")
  - SUSE OpenStack Cloud QE(Quality Engineering) Team (I'm the only one person who are in Japan and Japanese)

    "SUSE Acquires OpenStack IaaS and CF PaaS Talent and Tech Assets from HPE ..."
- Job: Senior Software Engineer/Open Source Programmer
  - OpenStack QA Up/Downstream development, Core Reviewer (Tempest, OpenStack-Health, Subunit2SQL, Stackviz)
  - stackalytics.com/?user_id=igawa, github.com/masayukig
- Books  
  - OpenStack Cloud Integration (OpenStack クラウドインテグレーション)
  - Infra CI Pragmatic Guide - Ansible/GitLab (インフラ CI 実践ガイド) (as a reviewer)
- Hobby
  - Bike, Diet, etc.

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, VEXXHOST, Volkswagen, WALMART, etc.. https://www.openstack.org/user-stories/



What I did

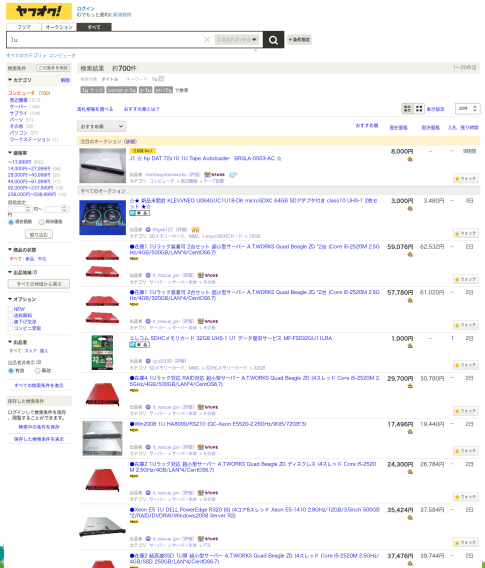
- Got 1U servers * 3
- Set up the servers
- Installed openSUSE
- Installed OpenStack
- Using VMs

Why do I need the private Cloud?

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

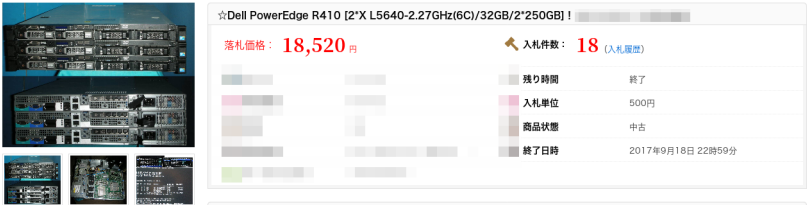
How to get cheap servers?

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

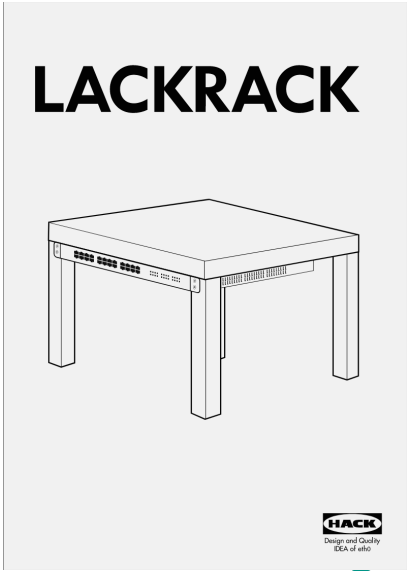
(Cost: 18.52k JPY * 3 servers = 55.56k, 4.02k (for a rental car))

Install the servers

Problem

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

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

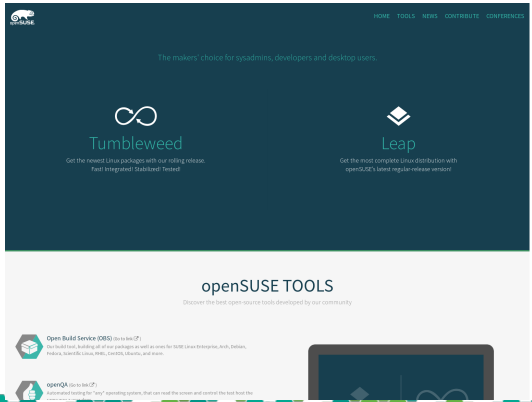


Implemented

Install openSUSE

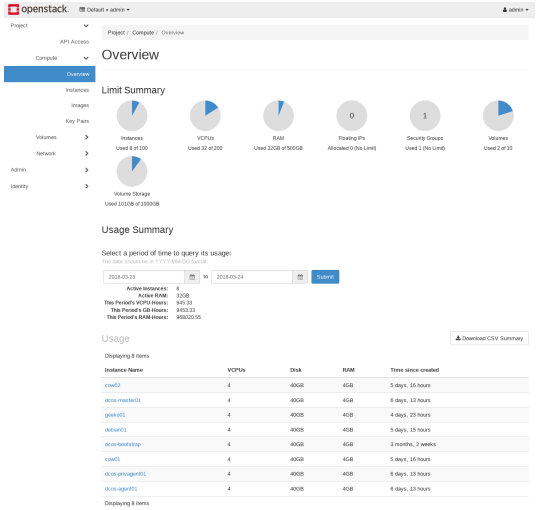
No automation such as autoyast, ansible, puppet, etc

- 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`

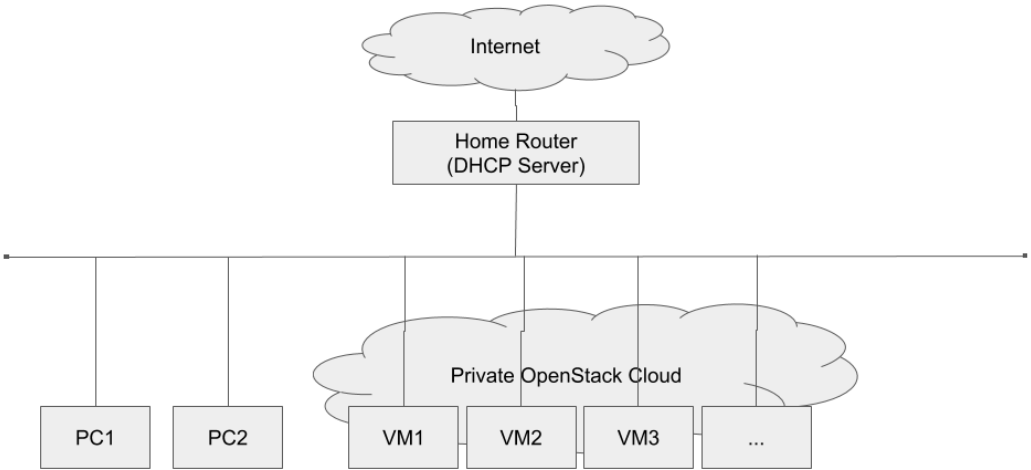


Install OpenStack: Use openSUSE rpm packages

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



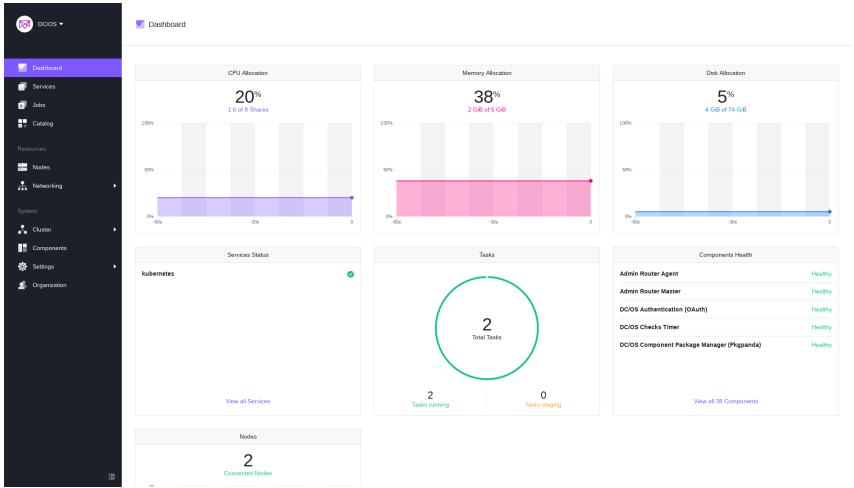
My Cloud Network



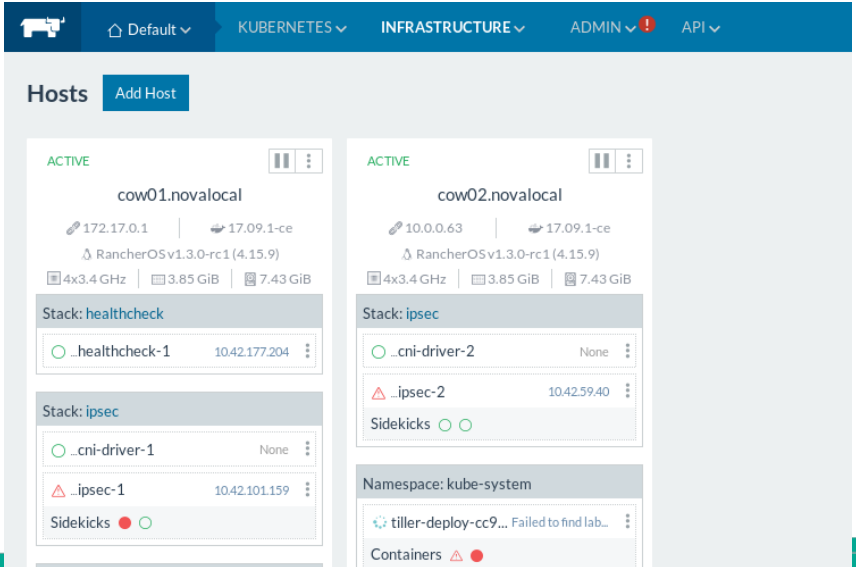
Update OpenStack

- Update the repo and just `zypper update`
- **No configuration change!**

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 (Done)
- Upgrade openSUSE to Leap 15.0 (WIP)
- Use a RaspberryPi3 model B+ as a controller node
- Automation (Bash, Ansible, etc.)

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!**