
# Building A Tiny Private openSUSE Cloud @openSUSE.Asia Summit 2018

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

# Agenda

1. Who I am?
2. What is “the OpenStack”?
3. What I did
4. Why do I need it?
5. How to build it?
6. Benefits
7. Issues
8. Demo
9. Future Work
10. Conclusion

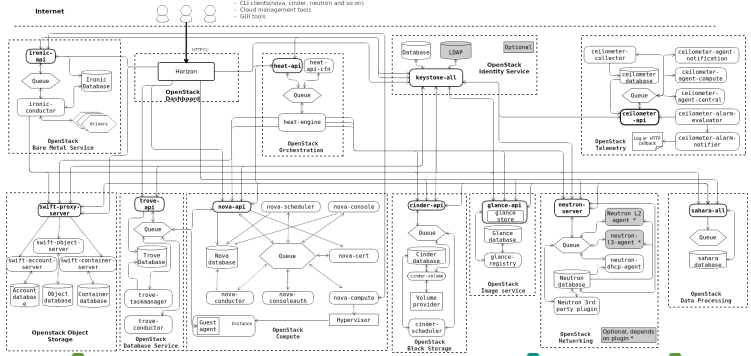
# These slides are my own opinion

# Who I am?

- Company：1998.4-2015.12 Traditional IT company in Japan, 2016.1-2017.3 HPE -> 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 Operation System: 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

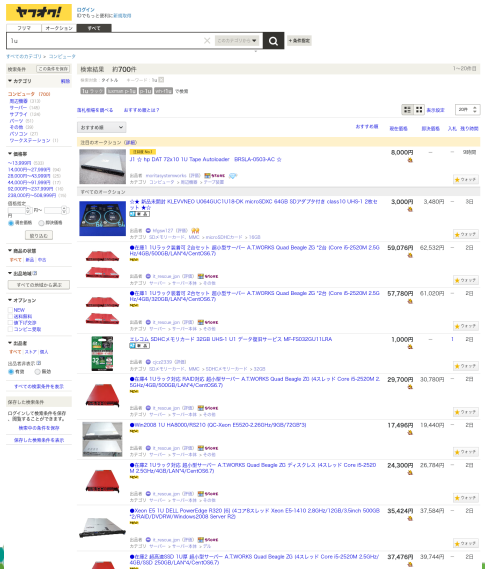
1. Got 1U servers * 3
2. Set up the servers
3. Installed openSUSE
4. Installed OpenStack
5. Using VMs

# Why do I need the private Cloud?

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

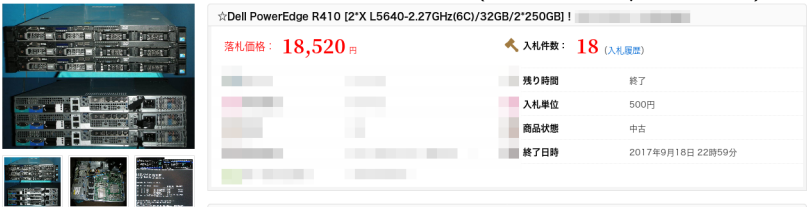
# How to get cheap servers?

# Yahoo! Auction (similar to ebay)



# Get 1U servers * 3

- Yahoo! Auction!!
  Dell PowerEdge R410 * 3: 59.58k JPY (16.4k TWD/538 USD)




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

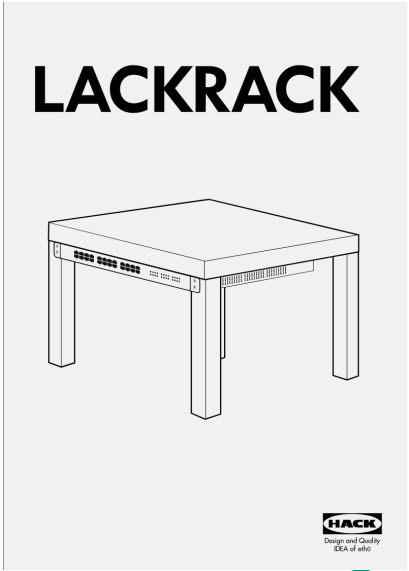
(Cost: 18.52k JPY * 3 servers = 55.56k, 4.02k (for a rental car))

# Install the servers

Problem - Where should I put them?

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

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

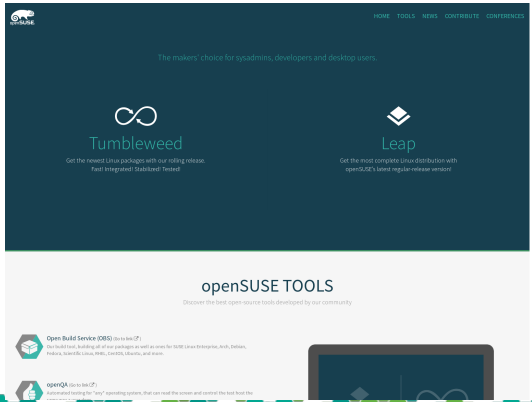


# Implemented

# Install openSUSE

No automation such as autoyast, ansible, puppet, etc

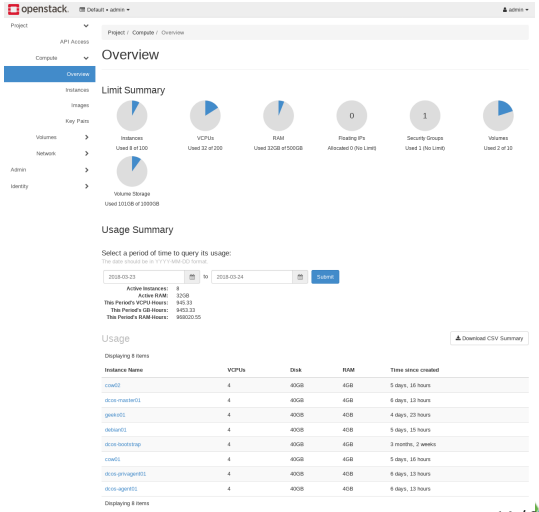
1. Download image and burn it to a USB stick (https://software.opensuse.org/distributions/leap)
2. Install from that media
3. Update it to the latest: `$ sudo zypper dup`



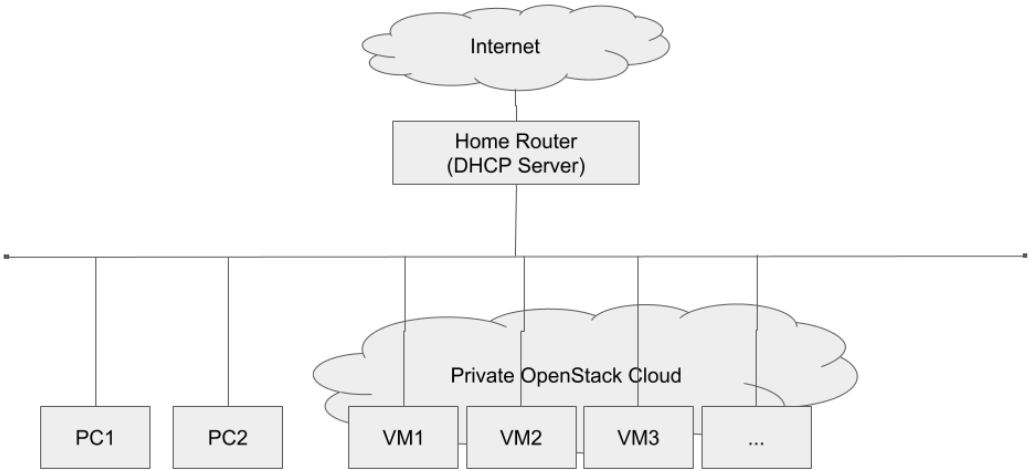
# Install OpenStack: Use openSUSE rpm packages

No automation as well

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



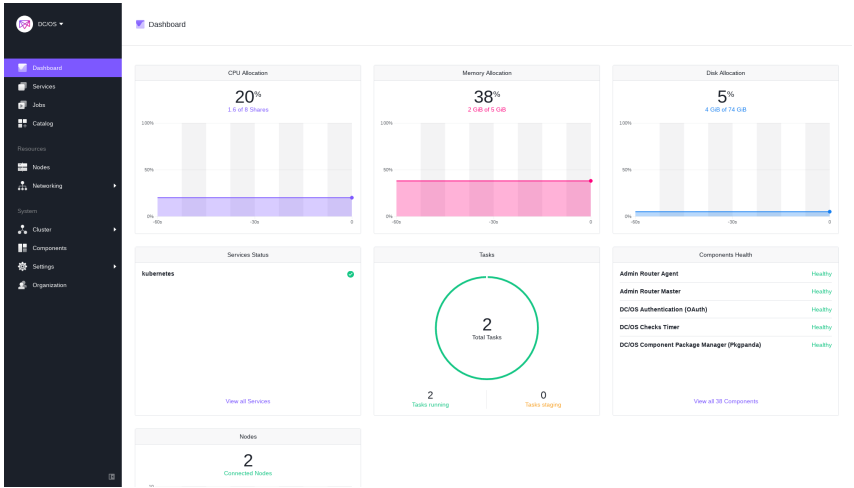
# My Cloud Network



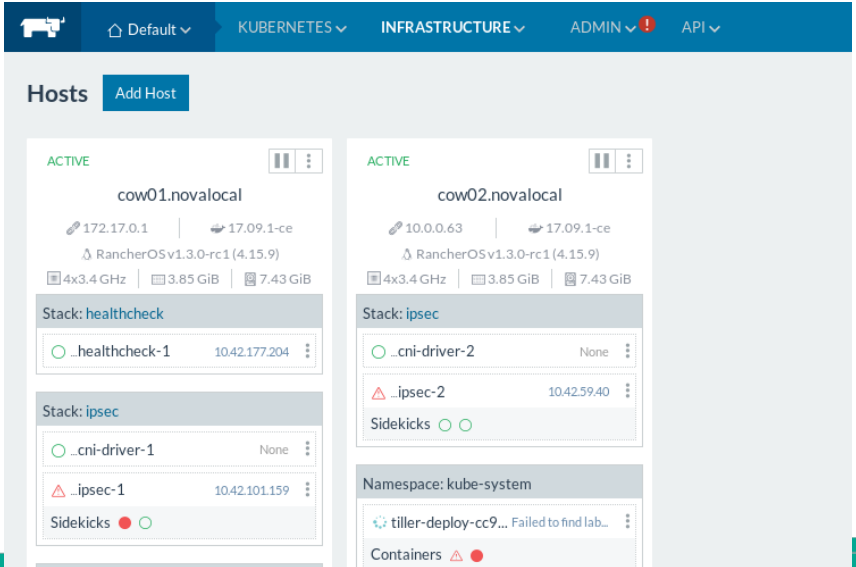
# Update OpenStack

- 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(2,800 TWD)/month (Expensive)
- Noise (Imagine in a server room)
- Space (Expensive in Tokyo)
- Failures (HDD, Power Unit... Expensive)
  -> Replaced the broken HDD to SSD
- Abandonment (Expensive)

# Demo (if possible...)

- Boot an Instance

# Future work

- Upgrade openSUSE to Leap 15.0 (WIP)
- Use a Raspberry Pi3 model B+ as a controller node
- Use more k8s things (vanila k8s, SUSE CaaS)
- 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!**

Appendix

- My slides: https://github.com/masayukig/cheap-cloud
- Contact info: masayukig on Freenode, GitHub, Twitter, LinkedIn
- Original Idea: https://github.com/mtreinish/dirty-clouds-done-dirt-cheap