

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?

ヤフオク! 拾い出し オークション すべて

検索条件 この条件を削除

検索結果 約700件

検索条件 タイム すべて 1~20日目

落札相場を調べる おすすめ順とは?

おすすめ順 売先価格 既定価格 入札 戻り状態

おなじのオークション (36)

J1 合計 DAT 72x10 JU Tape Autoloader SRSLA-0903-AC 8,000円

J1 合計 DAT 72x10 JU Tape Autoloader SRSLA-0903-AC 8,000円

おなじのオークション (36)

J1 合計 DAT 72x10 JU Tape Autoloader SRSLA-0903-AC 3,000円

J1 合計 DAT 72x10 JU Tape Autoloader SRSLA-0903-AC 3,000円

J1 合計 DAT 72x10 JU Tape Autoloader SRSLA-0903-AC 59,076円

J1 合計 DAT 72x10 JU Tape Autoloader SRSLA-0903-AC 59,076円

J1 合計 DAT 72x10 JU Tape Autoloader SRSLA-0903-AC 57,780円

J1 合計 DAT 72x10 JU Tape Autoloader SRSLA-0903-AC 57,780円

データ基盤 SDHCメモリカード 32GB UHS-I U1 データ復旧サービス MF-FS302GU1URA 1,000円

データ基盤 SDHCメモリカード 32GB UHS-I U1 データ復旧サービス MF-FS302GU1URA 1,000円

J1 合計 DAT 72x10 JU Tape Autoloader SRSLA-0903-AC 29,700円

J1 合計 DAT 72x10 JU Tape Autoloader SRSLA-0903-AC 29,700円

データ基盤 SDHCメモリカード 32GB UHS-I U1 データ復旧サービス MF-FS302GU1URA 17,498円

データ基盤 SDHCメモリカード 32GB UHS-I U1 データ復旧サービス MF-FS302GU1URA 17,498円

J1 合計 DAT 72x10 JU Tape Autoloader SRSLA-0903-AC 24,300円

J1 合計 DAT 72x10 JU Tape Autoloader SRSLA-0903-AC 24,300円

J1 合計 DAT 72x10 JU Tape Autoloader SRSLA-0903-AC 35,424円

J1 合計 DAT 72x10 JU Tape Autoloader SRSLA-0903-AC 35,424円

検索条件 タイム すべて

落札相場を調べる おすすめ順とは?

おなじのオークション (36)

J1 合計 DAT 72x10 JU Tape Autoloader SRSLA-0903-AC 37,478円

J1 合計 DAT 72x10 JU Tape Autoloader SRSLA-0903-AC 37,478円

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

検索結果 約145件

検索対象: タイム キーワード: 1u

落札相場を調べる おすすめ順とは?

おなじのオークション (36)

コンピュータ サーバー (145)

サーバー本体 (134)

サーバーラック (7)

その他 (4)

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 server units stacked vertically. Below the main image are two smaller thumbnail images showing internal components like motherboards and drives. To the right of the images is a detailed auction summary.

☆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>



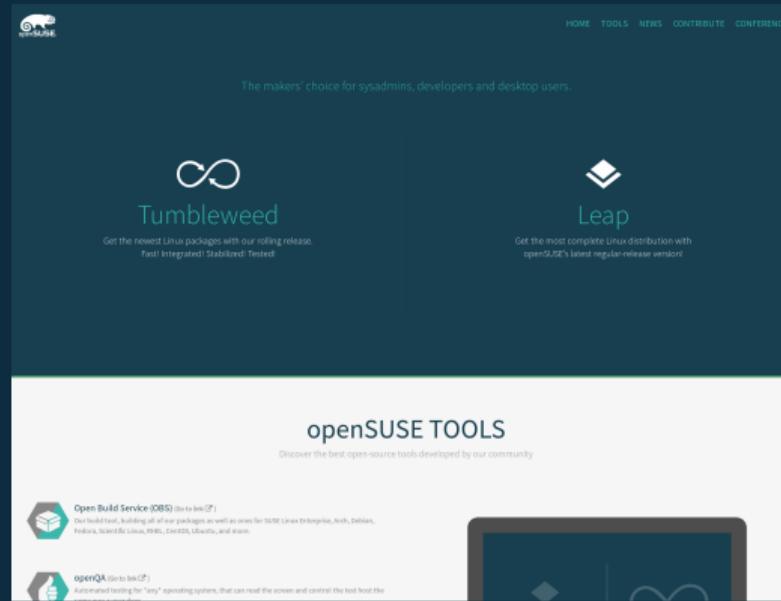
Implemented



Install openSUSE

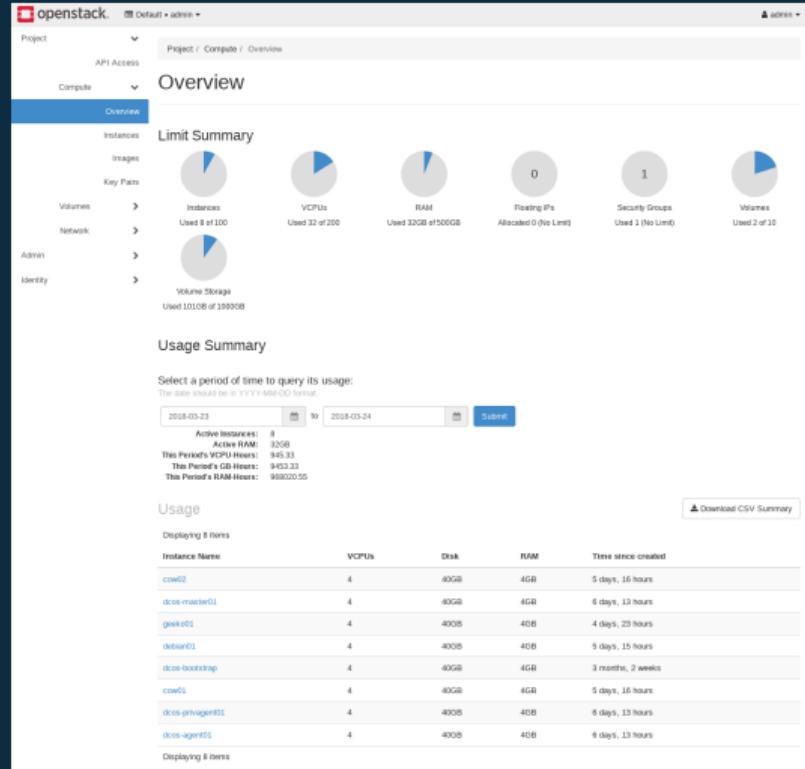
No automation such as autoyast, ansible, puppet, etc

- ▶ 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`

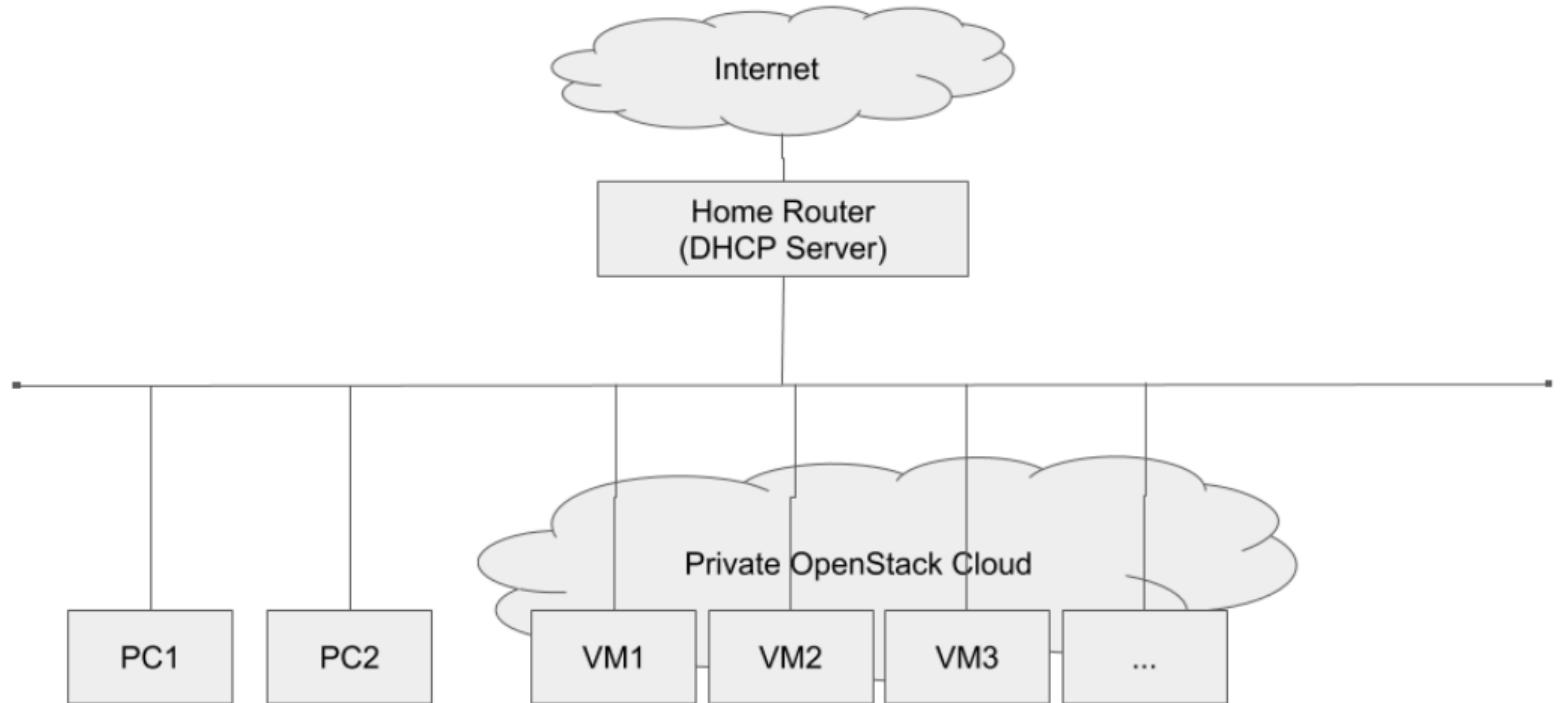


Install OpenStack: Use openSUSE rpm packages

- ▶ 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 cards:

- 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:

- cow01.novalocal**:
 - Stack: healthcheck**: Contains one green circle icon.
 - Stack: ipsec**: Contains one green circle icon and one red triangle icon.
 - Namespace: kube-system**: Contains one green circle icon and one red triangle icon.
- cow02.novalocal**:
 - Stack: ipsec**: Contains one green circle icon and one red triangle icon.
 - Namespace: kube-system**: Contains one green circle icon and one red triangle icon.

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!**