

# Dirty Clouds Done Dirt Cheap

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<https://github.com/mtreinish/dirty-clouds-done-dirt-cheap>

# Building a Cloud

# Scope of the Project

- ▶ Pretend to be a sysadmin with no prior OpenStack knowledge
- ▶ Try to rely only on install docs and google searches
- ▶ \$1500 USD Budget
- ▶ Build a basic compute cloud:
  - ▶ Keystone
  - ▶ Glance
  - ▶ Nova
  - ▶ Neutron
- ▶ Install from Ocata from tarballs
- ▶ No automation or pre-existing install scripts

# Buying Hardware

- ▶ Maximize core count per USD
- ▶ Second priority is amount RAM
- ▶ Machines don't need to be fast (that costs money)

ebay<sup>tm</sup>

## The Servers

Model	PowerEdge R610
Processor	2x Intel Xeon E5540
Memory Installed	32GB Total Memory; 8 x 4 GB DDR3
Hard Drives	2x 146GB 10K SAS Hard Drive
RAID Controller	Dell PowerEdge R610 Perc 6i
Ethernet	2x Dual Port Embedded Broadcom NetXtreme II 5709c
Return Policy/Warranty	60 days Money Back Or Exchange

\$215 Each



## Quirks with the servers

- ▶ Super stripped down:
  - ▶ No management interface
  - ▶ No redundant power supply
- ▶ Memory installed in wrong slots
- ▶ Came pre-installed with Windows Server 2012 (and default password Apple123)
- ▶ At full fan speed **>70 dB**



# Assembling the Cloud

- ▶ Need something to hold the servers
- ▶ Traditional racks are too much money (even used)

# LackRack





# Installing the Operating System

- ▶ Installed Ubuntu 16.04 LTS server
- ▶ Nothing special, stick with base packages

# Installing OpenStack

- ▶ 2 config options
- ▶ Needed a service user
- ▶ Requirements issue











- ▶ Python Packaging:
  - ▶ Binary Dependencies
  - ▶ etc files (and any data files)
  - ▶ No dependency solver, use upper constraints
- ▶ Debugging OpenStack requires a high level of competence



What to do with your budget cloud?



# OpenStack Development

- ▶ Lots of capacity for running devstack
- ▶ A really good platform to develop and test OpenStack applications

- ▶ <https://github.com/mtreinish/handbrakecloud>







- ▶ 5x 1U Servers in your bedroom closet is not pleasant
- ▶ The power bill
- ▶

## Where to get more information

- ▶ openstack-dev ML [openstack-dev@lists.openstack.org](mailto:openstack-dev@lists.openstack.org)

Questions?