Automated workload migrations to Red Hat infrastructure

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About me

- Manager Of System Management Dept.
- Infrastructure engineer
- Project Manager

FROM

- A subsidiary company of Yahoo! Japan
- Financial company providing forex trading service
Overview

1. Our Business & System Architecture
2. The reason we decide to adopt OpenStack
3. The case that we migrated without troubles
4. The case that we struggled with migration
5. Conclusion
Our Business
What is Forex Trading?

Forex = Foreign Exchange

YJFX! makes margins from differences between these prices.

1$=¥115.00

1$=¥114.99
The cases when traders earn profits are as follows

A: Sell → B: Buy
C: Buy → D: Sell
What is required for FX system

**Instantaneous High Load**
Changes in prices are volatile and very fast

For example,
1. Employment situation of U.S
2. Statement by President Trump

**Low Latency**
The system subscribes to prices every 100ms
TAT of customers' request is lower than 100ms
We adopt Openstack #staging & dev env.

System of YJFX

channels

Customer system

execute order

Front system

Analyze system

data

Traders

price
don

order

BANK

Yen

BANK

Dollar

BANK

Euro
Our Issues

We adopt OpenStack and migrate to solve the following problems

Premise
- We own multiple staging & developing environment
- We own those environment by public cloud (proprietary)

We face the following problems:
- The cost is ever increasing (inelastic computing)
- Low cost effectiveness
- Speed of delivery
We have migrated!!

The case that we migrated without trouble

The case that we struggled with
The case that we migrated without trouble

- We have already adopted Deploy by Ansible.
- We did not migrate but re-create & deploy instead.

Almost all are done by Ansible
100 Virtual Instances have been migrated in 30 mins.
The case that we struggled with migration

“Perfect” Migration
• It is time consuming.

2-5 hours
Export image & download

1 hour
Convert to raw image

1-3 hours
Import to OpenStack

2-5 hours
Boot

Failed to boot

1 hour
Re-configuration
device mapping
network
disk partition
..etc

Simple but, we need much time & resources.

Extremely troublesome!!!!
Words of gratitude

We appreciate your contribution towards the development of OpenStack and Migration process.

Engineers:
Ryo Sasaki, Koichi Araki, Naoyoshi Kawashima
Conclusion: We should treat servers as cattle, not pets

It is easy to migrate cattle servers by Ansible. If you own pet servers, you need some preparation to migrate.

Nevertheless, if you don’t have enough time, Red Hat provides you with the solution.
Appendix: The detail of troublesome

- Time of export
- Reconfiguration of NIC
- Device mapping
The Infrastructure Migration Solution
INFRASTRUCTURE MIGRATION SOLUTION

Discovery and assessment of your migration
INFRASTRUCTURE MIGRATION SOLUTION
Setting up a Red Hat® Openstack environment sized for your migration
INFRASTRUCTURE MIGRATION SOLUTION

Install Red Hat CloudForms® and extend your networks
INFRASTRUCTURE MIGRATION SOLUTION

Setup multiple conversion hosts
INFRASTRUCTURE MIGRATION SOLUTION

Use the infrastructure mapping wizard to map both solutions

- Clusters
- Datastores
- Networks
- Projects
- Cinder backend
- Provider networks
INFRASTRUCTURE MIGRATION SOLUTION

Create your migration plan attached to an infrastructure mapping
INFRASTRUCTURE MIGRATION SOLUTION

Launch your migration
DATA FLOW DURING A MIGRATION
USING ANSIBLE FOR ADVANCED USE-CASES

Pre and Post migration automation

MIGRATION PLAN

WEB01
WEB02
APP01
APP02
DB01

Some use-case examples...

- Remove VM from load-balancer before the migration.
- Disable your monitoring during the migration.
- Change VM configuration or install packages post-migration.
- Automated testing post-migration.
- Notify me when a migration is completed.
Demo
MIGRATION JOURNEY

COLLABORATIVE

DISCOVERY SESSION
1-2 Days

MIGRATION PILOT
8-12 Weeks

MIGRATION AT SCALE
Ongoing

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