Continuous Integration for IaaS

- Open vSwitch/DPDK, QEMU/libvirt, OpenStack, and Applications.

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YAHOO! JAPAN

$ whoami

- Yusuke TATSUMI (立見 祐介)
  - @Yahoo! JAPAN
  - Network engineer for several years
    - building/operating/monitoring production network
  - OpenStacker from last year
    - with OvS/DPDK in our OpenStack

Agenda

- Yahoo! JAPAN and OvS/DPDK/OpenStack
- Start to use OvS/DPDK as vSwtich in compute nodes
- Recent issue
  - Adopting latest components
  - hard work for integration test
- CI for IaaS
- Actual examples
- Summary

Yahoo! JAPAN Portal Site Overview

Yahoo! JAPAN Portal Site Overview

Monthly Page Views

69+ Billion

**Monthly Page Views
(Only Smartphone)**

39+ Billion

Apps Total Download

380+ Million

Number of services

100+

OpenStack/OvS/DPDK supports our many services!

Start to use OvS/DPDK as vSwtich in Compute nodes

- High-performance/functioning needs for our web services.
- https://youtu.be/NSeWzduInTg
  - Effective for networking
  - stable L7 performance even under noisy condition

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Recent issue

- To ensure our NW infrastructure stability
  - Adopting latest version is good way
    - new function implements
      - ex. OvS client-mode
    - performance improvement/bug fixed
- But func/perf integration test is hard work
  - combination problems
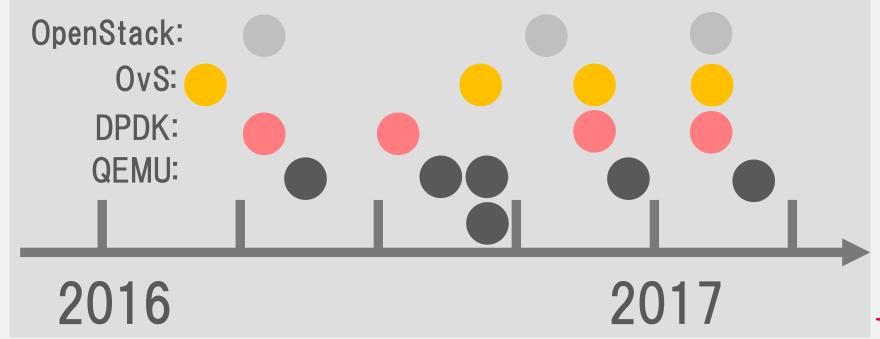 - many different release date

Every month integration test?
Every combinations can't be tested! (3*4*4*6)
=> Continuous Integration Tool-chain

OpenStack:
OvS:
DPDK:
QEMU:

2016

2017

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CI for IaaS

- Package preparation by Jenkins

- Jenkins start tests
  - deployment
    - BareMetal
    - OpenStack, applications
  - function/performance testing
  - return the results

- Env 1.
  - liberty
  - OvS 2.5.90/DPDK 16.07
  - QEMU 2.6.0
- Env 2.
  - mitaka
  - OvS 2.6.1/DPDK 16.11
  - QEMU 2.7.1
- Env 3
  - ....

- iperf
- ab
- sysbench
- etc...

Our confirmation points

- Packet tx-drop in a permissible range

- Ovs-vswitchd return in a few seconds by client-mode

- PPS performance is (or not) improved with different combination

- etc···

Actual example (1)

- QEMU vhostforce-option mismatch by differences of QEMU version
  - leading performance degradation
  - https://review.openstack.org/#/c/404606/
  - merged :)

- ## Restarting "nova-compute" process recreate I/F of OvS
  - ### an instant disconnection happen

- ## fixed internally
  - ### few reported
  - ### preparing a report

```
2 ■■□□□ nova/network/linux_net.py

        @@ -1368,7 +1368,7 @@ def _ovs_vsctl(args):
1368  1368
1369  1369    def _create_ovs_vif_cmd(bridge, dev, iface_id, mac,
1370  1370                            instance_id, interface_type=None):
1371       -    cmd = ['--', '--if-exists', 'del-port', dev, '--',
      1371  +    cmd = ['--may-exist',
1372  1372                            'add-port', bridge, dev,
1373  1373                            '--', 'set', 'Interface', dev,
1374  1374                            'external-ids:iface-id=%s' % iface_id,
```

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Summary

- Continue to adopt latest release is good way to improve stability
- It is hard to ensure func/perf with integrated infrastructure
- Whole integration test with CI-tools
  - Finding combination problems
  - It makes NW infrastructure much stable

EOP

Thank you for your kind attention.