Adoption of OCP Solutions in Yahoo! JAPAN’s Infrastructure

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Yahoo Japan Corporation
Agenda

1. About Yahoo! JAPAN
2. Server Infra. Overview
3. Adoption of OCP
• Founded: January 31, 1996
• Businesses: Internet Advertising, E-Commerce…
• Employees: 6,330 (Mar. 31 2017)
• Head Office: Chiyoda-ku, Tokyo, Japan

(Location address) https://yahoo.jp/4LnAXG
The Largest Portal Site in Japan
100+ services
The famous internet service in Japan

Visited by 80% of Japanese internet users

# Surveyed by Yahoo! Japan
Agenda

About Yahoo! JAPAN

Server Infra. Overview

Adoption of OCP
Overall Infra. Div. Organization

Site Operation Division
Vice President

150+
Infra. Engineer

Infrastructure Tech1
Dept. Director

Private Cloud
(OpenStack)
Operating System
Configuration Tools

30+
Engineer

Infrastructure Tech2
Dept. Director

Server
Storage
DataCenter Operation

30+
Engineer

Infrastructure Tech3
Dept. Director

L2/L3 Network
BackBone
Network Operation

30+
Engineer

Infrastructure Tech4
Dept. Director

Platform / CDN
Development
Operation

25+
Engineer

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Server Infra. Overview In Figures

<table>
<thead>
<tr>
<th>Server Team</th>
<th>Physical Server</th>
</tr>
</thead>
<tbody>
<tr>
<td>10+ Server Engineer</td>
<td>6+ Server Vendor</td>
</tr>
<tr>
<td>60+ Server Operation staff #</td>
<td>80+ Server Model</td>
</tr>
<tr>
<td># outsourcing of operation in Datacenter</td>
<td>200,000+ Server Component</td>
</tr>
</tbody>
</table>
Server Infra. Team Work

- Review Configuration
- Testing Server & Component
- Introduction Scheme
- Server Operation
- Trouble Shooting
- Server Analysis
Agenda

About Yahoo! JAPAN

Server Infra. Overview

Adoption of OCP
Why OCP?
## Comparison between EIA19 and OCP

<table>
<thead>
<tr>
<th></th>
<th>EIA19</th>
<th>OCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customization</td>
<td>Restrict</td>
<td>Flexible</td>
</tr>
<tr>
<td>CAPEX</td>
<td>Same Range</td>
<td></td>
</tr>
<tr>
<td>OPEX</td>
<td>Normal</td>
<td>Better</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Front / Rear</td>
<td>Front</td>
</tr>
<tr>
<td>Quality (Failure Rate)</td>
<td>Same Quality</td>
<td></td>
</tr>
<tr>
<td>Compatibility</td>
<td>Each Vendor (Proprietary)</td>
<td>OCP Standard</td>
</tr>
</tbody>
</table>

OPEX (Power)

Better 8%
OPEX (Temperature)

Better 13%
Total Cost is better

Reduce TCO

EIA19

OCP

OPEX
Power consumption
Temperature

CAPEX
Server Node
Rack
Others
Introduction of OCP in Japan

2016
Leopard(v1)

2017
Leopard(v2)

2018 (#plan)
Tioga Pass
BryceCanyon
Lightning
Our OCP Models

SV7220G2

SV7220G3

ST7200-30P

SV7000G2
Ratio of FF(OCP, EIA19) in Our Cloud

26%, OCP

74%, EIA19

Which Hypervisor on OCP

28%, VMware

https://www.vmware.com/jp.html

72%, KVM

https://www.linux-kvm.org/page/Main_Page

26%, OCP

https://cherrypick.com/
## VMware on OCP Configuration

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SKU</strong></td>
<td><strong>Version</strong></td>
</tr>
<tr>
<td>2CPU x E5-2683v4</td>
<td>VMware vSphere Hypervisor 6.0</td>
</tr>
<tr>
<td><strong>DIMM</strong></td>
<td><strong>Workload</strong></td>
</tr>
<tr>
<td>DDR4 32GB x 16</td>
<td>PaaS (Pivotal Cloud Foundry)</td>
</tr>
<tr>
<td><strong>SSD</strong></td>
<td><strong>vSAN</strong></td>
</tr>
<tr>
<td>SFF SATA SSD 240GB</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>NIC</strong></td>
<td><strong>SAN</strong></td>
</tr>
<tr>
<td>10GBaseSR x 4port</td>
<td>Storage Appliance</td>
</tr>
</tbody>
</table>

https://www.vmware.com/jp.html
Not using vSAN (Why?)

**vSAN Pros and Cons**

**Pros**
- Simple Architecture
- Flexible Configuration
- High Cost Performance

**Cons**
- Strict HW compatibility
  - Vendor
  - Model
  - Device
  - Firmware

**Yahoo! Japan’s Background**
- Various Candidates (Vendor, Model, Device)
- In some cases, depending on business need, Workload changes after H/W purchase
- Buy a lot and assign later
- Firmware management isn’t enough

**Because of**
Not Using vSAN based on this Background
Difficult to buy server for vSAN’s Configuration
Benefit of VMware on OCP

VMware Benefit
- High Availability
- Security Incident

OCP Benefit
- High Density
- Reduce OPEX/CAPEX

- vMotion, vSphere HA
- HV/VM Isolation
- Avoid LockDown

- Limited Rack Space / Power
- Better Power / Temperature each Node
- Lower Initial Cost
Yahoo! JAPAN Activity for OCP

OCP Tour
- OCP Server, Rack Tour
- For Competitive ISP in Japan
- In Yahoo! JAPAN’ DataCenter

Media
- Web Article
- Magazine

Presentation
- Event, Conference, Seminar
- Talk about OCP as Adopter

https://cloud.watch.impress.co.jp/docs/cdc/extra/1129886.html
Summary
Today’s summary

Yahoo! JAPAN

- Top-Class ISP in Japan
- Provide 100+ Services
- Visited by 80% JP-People

Server Infra. Overview

- 150+ Engineers in Infra. Div.
- Cloud, HW, NW, Platform
- 10+ Engineers as Server Eng.
- < 100,000 Servers

OCP

- Started in 2016
- Main Usage is Cloud(OpenStack)
- OPEX better than EIA19
- Many Activities for OCP
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