Open. Together.
How effective was OCP adoption in Yahoo! JAPAN Infrastructure as Non-Board Member of OCP

Kazuhide Fujimi / Server Infra. Architect / Yahoo Japan Corporation
Today’s Agenda

- **Introduction**
  - About Yahoo! JAPAN
  - About Speaker
  - Overview OCP adoption at Yahoo! JAPAN

- **How effective OCP**
  - Cost Saving
  - Operational Efficiency / Enhanced Relationship

- **Challenges for OCP adoption**
  - Delivery / Internal Coordinate / Lead Time
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About Company (1/2)

Over 6,000 Employees
Over 20 years Company History
(Founded in January 31, 1996)

1. Characteristics of Yahoo! JAPAN

Over 100 various services and high quality data

Tokyo - JP

As of December 2018
About Company (2/2)

2. Characteristics of Yahoo! JAPAN

one of the largest user volume in Japan

<table>
<thead>
<tr>
<th>PC users</th>
<th>Smartphone users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yahoo! JAPAN, 24731</td>
<td>Yahoo! JAPAN, 60499</td>
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<td>Naver Japan, 4708</td>
<td>Hatena, 27074</td>
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</tbody>
</table>

*Source: “Nielson NetView” PC access from home or office (excluding Internet apps). “Nielson Mobile NetView” Smartphone access (including apps). Average of April to September 2018 summarised by brand level. Calculated by Yahoo! JAPAN from “Nielson NetView Custom Data Feed.”

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SiteOps Division manages all of Production Infrastructure of YJ!

Speaker: Kazuhide Fujimi

My Profile:
- Joined YJ! since 2010
- Belong to HW/DCO Team
- Involved in OCP since 2014
- History of testing server: Over 6 vendors, 30 models

My Responsibility of Server:
- Testing
- Considering Configuration
- Procurement
- Vendor/Supplier Communication
- Troubleshooting
- Quality Control

Kazuhide Fujimi (me) in HW/DCO Team
OCP Journey of Yahoo! JAPAN

2016 • Adoption Leopard (OCPv1) for 1 site

2017 • Adoption Leopard (OCPv2) for 2 site

2018 • Adoption for Leopard/TiogaPass (OCPv2)

2019 • Planning to expand OCP adoption

Yahoo! JAPAN’s OCP investment is increasing

2016 $5M
2017 $15M
2018 $20M

Fiscal Year +1

4x

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How effective of OCP adoption

1. CAPEX Saving
   - Saved 29% / server unit cost
   - Saved 18% / rack (without OPEX)

2. Operational Efficiency / Enhanced Relationship
   - Removing Rail/Tools/Rear-Ops for enhancing Ops
   - OCP style for enhancing Relationship of Manufacturer
Cost Reduction of Initial/TCO

Server Unit Cost

- Decreasing Server Unit Price
  - 0.29 pt

Price Scale
(Based on EIA19 as 1.00)

2017 - early: 1.00
2018 - latest (Current): 0.71

Rack Cost

- Rack Cost including ....
- 0.18 pt

- Server / Rack / PowerShelf / Cable / L11-expenses

2018 - latest (Current): 0.82

#SOURCE: Yahoo! JAPAN
How? – CAPEX Saving

1. Tight Relationship
   Can approach to ODM/Key Commodity Supplier directory and/or via OCP SP
   Distribution/Price control process improved transparency

2. Maturity of JP Market
   More OCP vendors entered JP Market ever
   More Competition
How about? – OPEX Saving

Before
- Facility layout is not considering OCP (Not measureable)

After
- Facility layout is considering OCP (measureable)
- Fair environment to validate OPEX
- Involving facility team

Until Now Facility Layout

Only the difference is EIA19 or OCP

In FY2019 Facility Layout
Break down …

Operational Efficiency

- Reducing Operation Step for Data Center Staff
- Reducing Racking Trouble
- Reducing Compatibility of Server Components
- Improving Failure Rate / Failure Feedback loop

Server Failure Rate

<table>
<thead>
<tr>
<th>% of Reports Count Rate</th>
<th>EIA19</th>
<th>OCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n = Over 1,000)</td>
<td>2.67%</td>
<td>2.36%</td>
</tr>
</tbody>
</table>

Analysis Overview

#SOURCE: Yahoo! JAPAN
Break down ....

Enhanced Relationship
- To make relationship with Manufacturer side
- To drive communication with each End-user
- To have common view about Infra.

**Operation/Relationship (2/2)**
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Challenges for OCP adoption

We have same Barriers ….

Delivery at our Data Center
- Japan Data Center has specific specification
- Not common with L11 delivery

Internal Coordination
- Need to across the organization for procurement
- Concerned about serviceability/business requirement

Lead Time
- OCP’s delivery takes long time
- Does not meet server demand

Delivery at our Data Center

Not enough Space entrance of DC for L11

Not optimized delivery route inside DC

OCP Tips - Delivery Style (L10 / L11)

Level 10 (L10) is component level delivery style with the work of assembly on DC.

Level 11 (L11) is rack level delivery style without the work of assembly on DC.

Change flexible Delivery Style
Lead Time

1.0 - 2.0 Month

2.0 - 3.0 Month

Delivery at Data Center
Conclusion

We are now ….

Planning to expand OCP Infra.
- Advantage of CAPEX Cost / Operation
- Plan to estimate OPEX with FY2019 Facility
- Improving relationship with End-user/Vendor

Addressing some challenges for even more OCP adoption
- Delivery / Internal Coordinate / Lead Time is barrier of OCP Adoption
- Continue to deal with these challenges