From Bare Metal Toward OCP Solution

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Edge to Cloud OCP Solutions

- Low Latency
- Compact
- Ruggedized
- High Throughput

- New build DC
- Legacy Facilities with 19” Racks

- High Density
- High Capacity
- Long-Term Data Analysis

OCP OpenEdge

Far Edge

Aggregate Edge
- OCP ESA for EIA 19” rack
- OCP openEdge

Regional
- OCP OpenRack
- OCP ESA for EIA 19” rack

Core

OCP Open Rack or EIA 19” rack
The Considerations of Adopting an OCP Solution

- Difficulty in adopting OCP?
- Power limitation on current server racks infrastructure to support OCP?
- Dimensions of OCP racks with current datacenter facility? (Height or other constraints)
- Budget control on OCP racks upgrades?
OpenRack or EIA 310 with ESA

Difficulty in adopting OCP?

No Problem!

Y

ESA Kit

OCP Server Racks
OCP ESA Kit in EIA 19” Rack

- Install ESA Kit in 19” Rack
- Install Power Shelf in 19” Rack

EIA 19” Rack

Less than 15 minutes to migrate EIA racks could use OCP solution
From Bare Metal Toward to Solution

Before
- Sitecore App
- Sitecore Data
- Runtime
- Middleware
- O/S
- Virtualization
- Servers
- Storage
- Networking

Now
- Sitecore App
- Sitecore Data
- Runtime
- Middleware
- O/S
- Virtualization
- Servers
- Storage
- Networking

What about the Future?

The certification MiTAC’s Tioga Pass has done
- VMware ESXi 6.7 U3
- RHEL and RedHat Openstack
Next Gen. DC and Central Office

- Exponential growth of data streaming, especially video and IoT, response time is the key challenge to traditional DC.

- Successful experience in DC inspires telco industry toward SDN, NFV, and more open source including OCP

- Depends on latency demand, Wi-Fi, LTE, 5G become major building block of regional and edge DC that is closed to end users

- More challenge in distributed DC management

- Centralized DC / Central Office + Edge = Harmonious service experience to process balanced user workload in right place
Branch Office Rack of VCO 2.0

Mice Workload
Elephant Workload
Real-time Workload

Mitac Computing Technology Corp.

OCP Product Portfolio
- Tioga Pass OCP Server
- ESA Kit for EIA 19" Rack
- Crystal Lake OCP Storage

Management Network
Data Network
Converged Multi-Access and Core

Source: ONF
Adopting SEBA POD with OCP Solutions

Source: ONF
SEBA POD with OCP Solution

OCP SEBA POD is coming

ONUs: Refer to SEBA equipment list

OLTs: Edgecore

AGG switch: EdgeCore
Servers: VOLTHA, ONOS, XOS, K8s, ELK, Docker, Prometheus, Grafana, Kibana

OCP Compute Node with ESA

Source: ONF
XaaS – Everything as a Service

Source: Gartner
HaaS – Hardware as a Service

• **HaaS is a physical machine leasing service (PMLS)**
  - Each tenant gets a **physical data center instance (PDCI)**, which consists of a set of physical servers, a physical network connecting them, and a set of local/remote storage volumes accessible to the servers.

• **Why Hardware as a Service (HaaS)?**
  - Specialized computing hardware, such as GPU, TPU and FPGA
  - Preferred virtualization method: VM, container, physical partition, etc.
  - Big data/DNN training/HPC: efficient utilization of HW resource is critical

• **Comparison among service models:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Rental Unit</th>
<th>IT HW Ownership</th>
<th>HW Management</th>
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<tbody>
<tr>
<td>IaaS</td>
<td>Virtual machine</td>
<td>Service provider</td>
<td>Service provider</td>
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<tr>
<td>HaaS</td>
<td>Physical machine</td>
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<tr>
<td>Colocation</td>
<td>Rack space</td>
<td>User</td>
<td>User</td>
</tr>
</tbody>
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Source: ITRI
HaaS Service Model

- An HaaS reservation consists of the following:
  - A set of servers, each with its hardware specification and configurations on BIOS, BMC, PCI devices, and OS
  - A set of storage volumes that exist in local or shared storage, and are attached to the servers
  - A set of IP subnets that connect the servers and how they are connected
  - A set of public IP addresses to be bound to some of the servers, and their firewall policies

- Server, storage and network provisioning: Bare Metal provisioning from ITRI(BAMPI), which is used in KDDI since 2014

Source: ITRI
HaaS Service with Deep Learning on OCP

1. Allocate for renting 1 bare-metal server
2. Associate floating IP
3. DNN training appliance
4. Return the bare-metal server

Source: ITRI
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Thanks!