

# OpenStack in Japan today

~ Business case and Opportunity ~

Bit-Isle R&D  
(OpenStack Ambassador)  
Akihiro Hasegawa

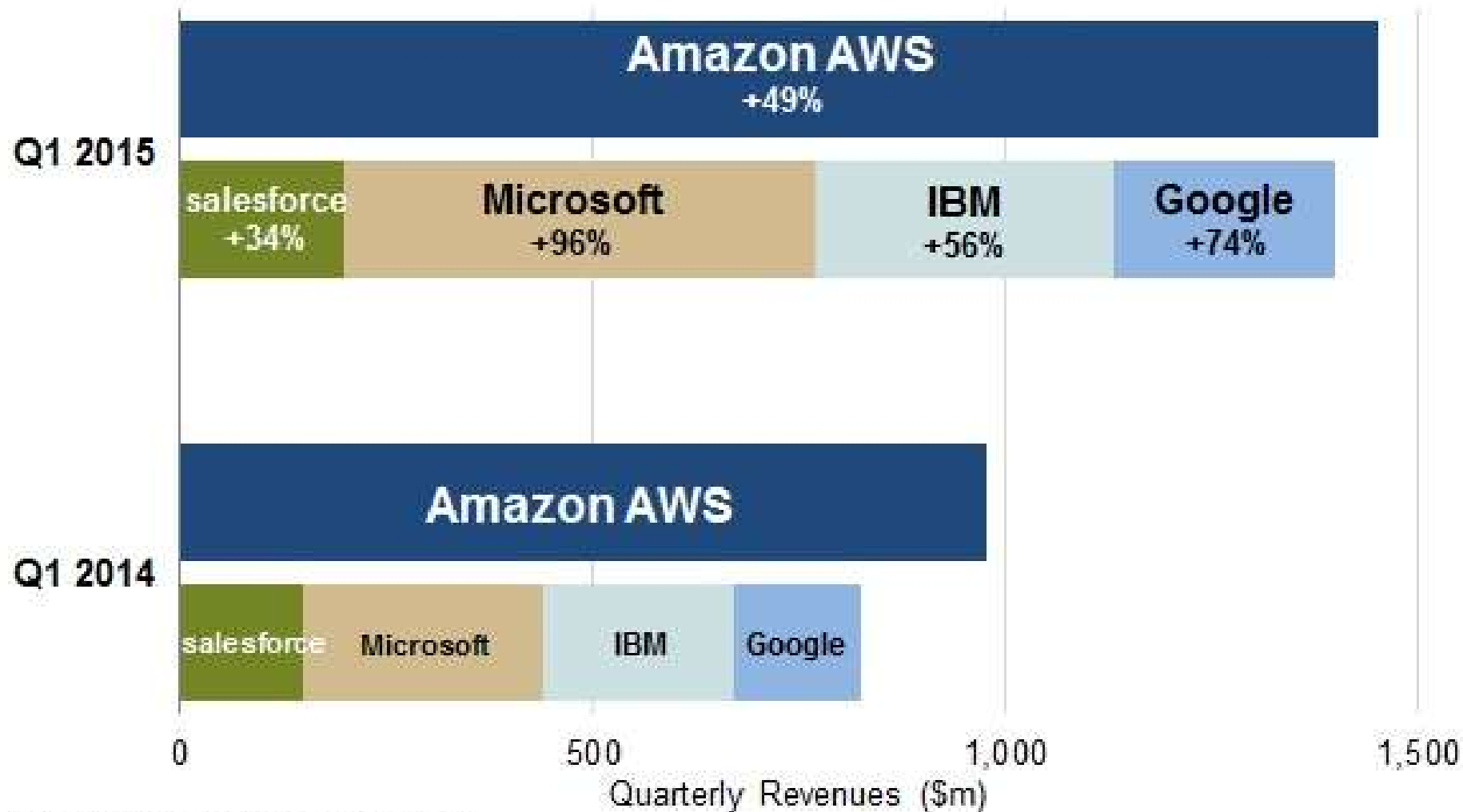
# “THE WORLD NEEDS ONLY FIVE COMPUTERS”

- Greg Papadopoulos, Former CTO for Sun Microsystems, 2006



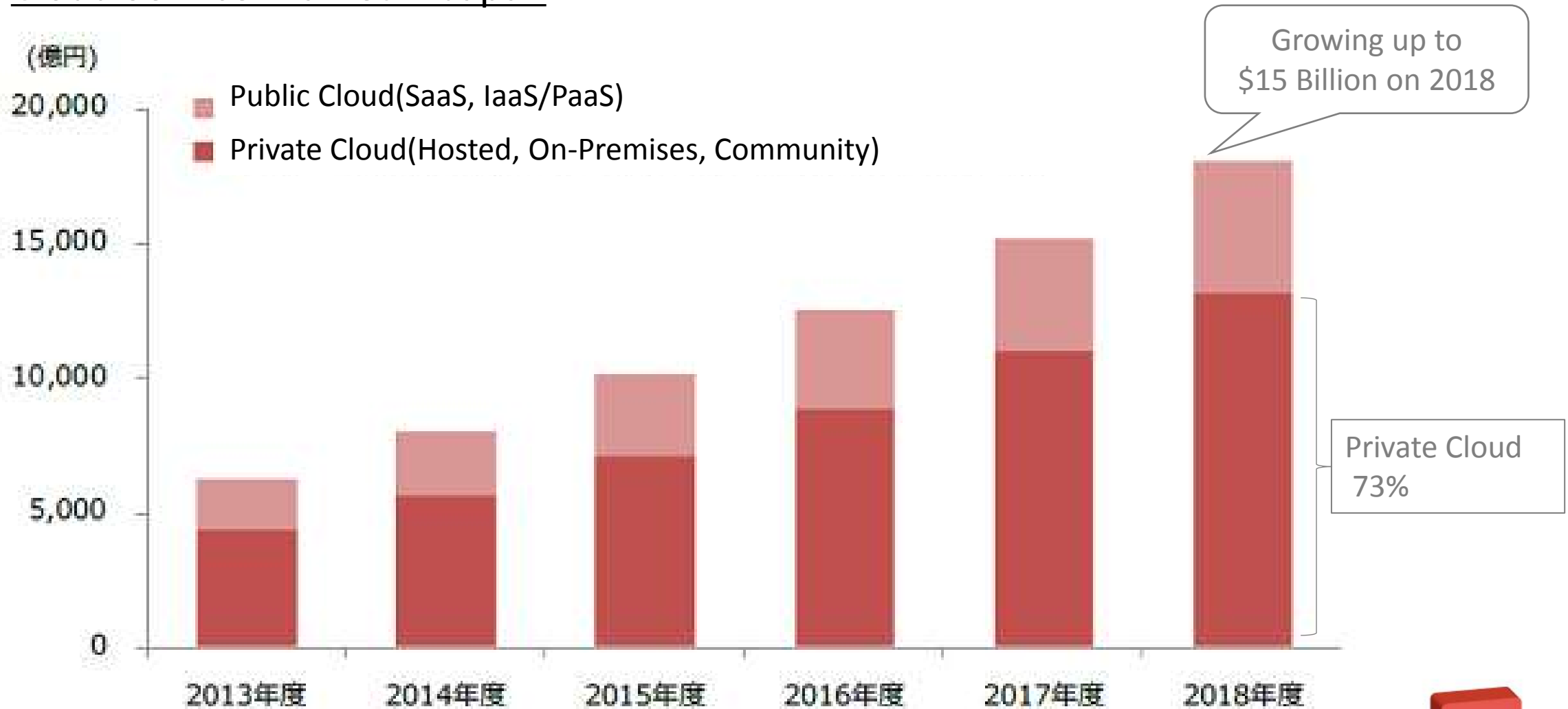
# Cloud Infrastructure Services Revenue Growth

(IaaS, PaaS, Private & Hybrid services)



Source: Synergy Research Group

# Cloud Service Market in Japan



Cloud Market in Japan. Actual(2013) / Forecast (2014 to 2018)

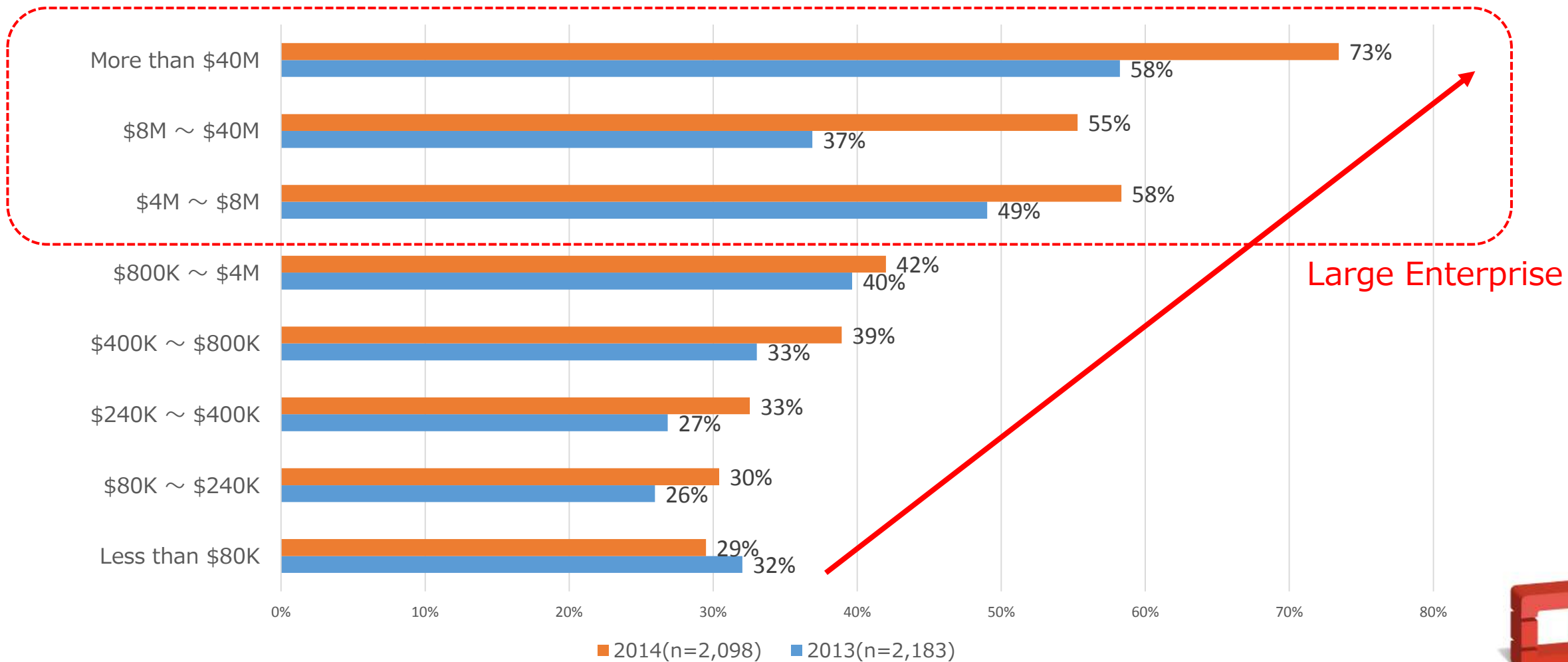
MMRI ( Nov. 2014)

<http://www.m2ri.jp/newsreleases/main.php?id=010120141104500>



# Cloud Service Consumer in Japan

Adoption of Cloud ( Capital Stock Base: Ratio %)



Ministry of Internal Affairs and Communications –White Paper ICT in Japan ( Jul. 2015)

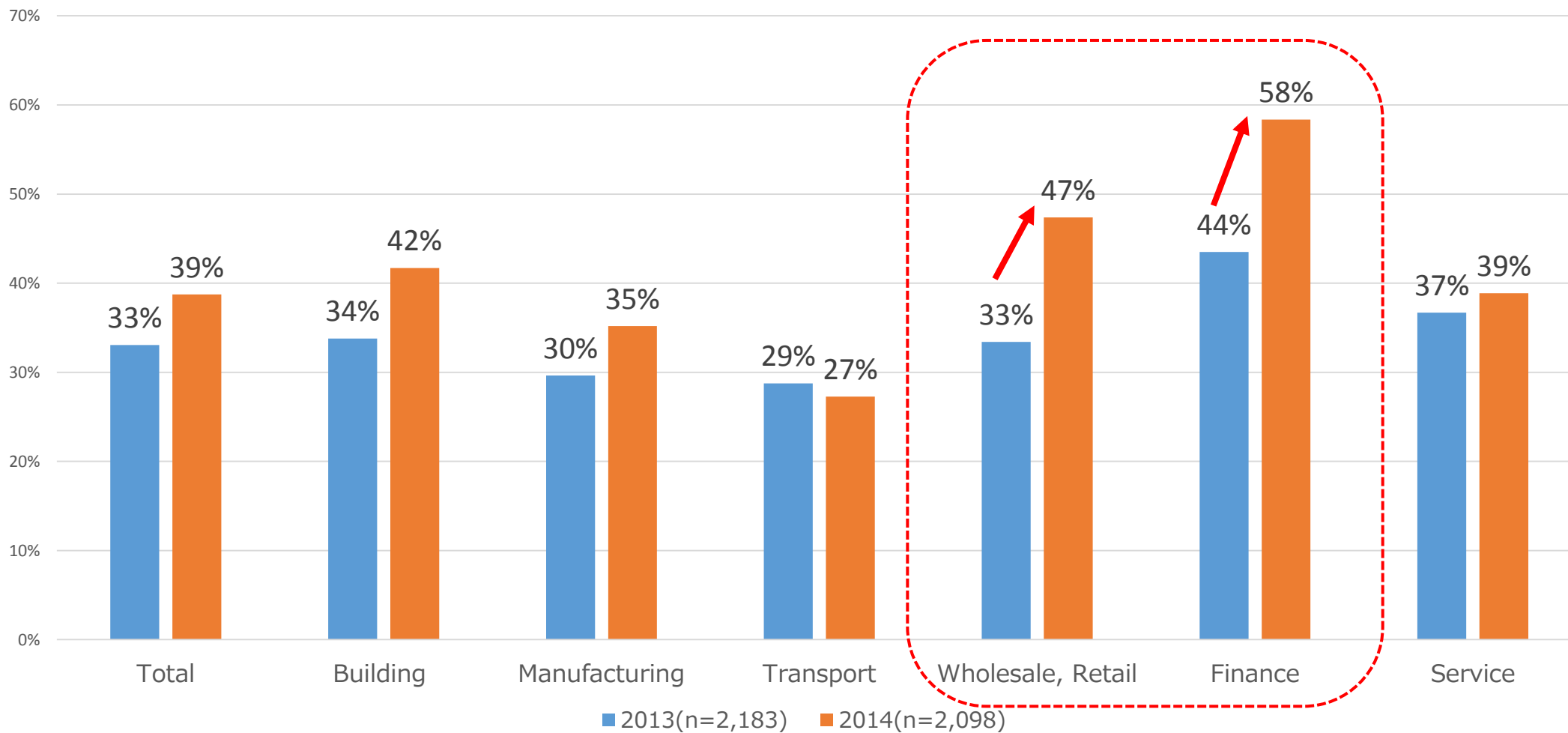
<http://www.soumu.go.jp/johotsusintokei/whitepaper/ja/h27/index.html>

2014



# Cloud Service Consumer in Japan

Adoption of Cloud ( Industry Base: Ratio %)



Ministry of Internal Affairs and Communications –White Paper ICT in Japan ( Jul. 2015)

<http://www.soumu.go.jp/johotsusintokei/whitepaper/ja/h27/index.html>

2014



# Feb. 2015 OpenStack Days Tokyo – 3<sup>rd</sup>

ADVANCE REGISTRANTS

2842+

ONSITE ATTENDEES

2000+

Sponsors

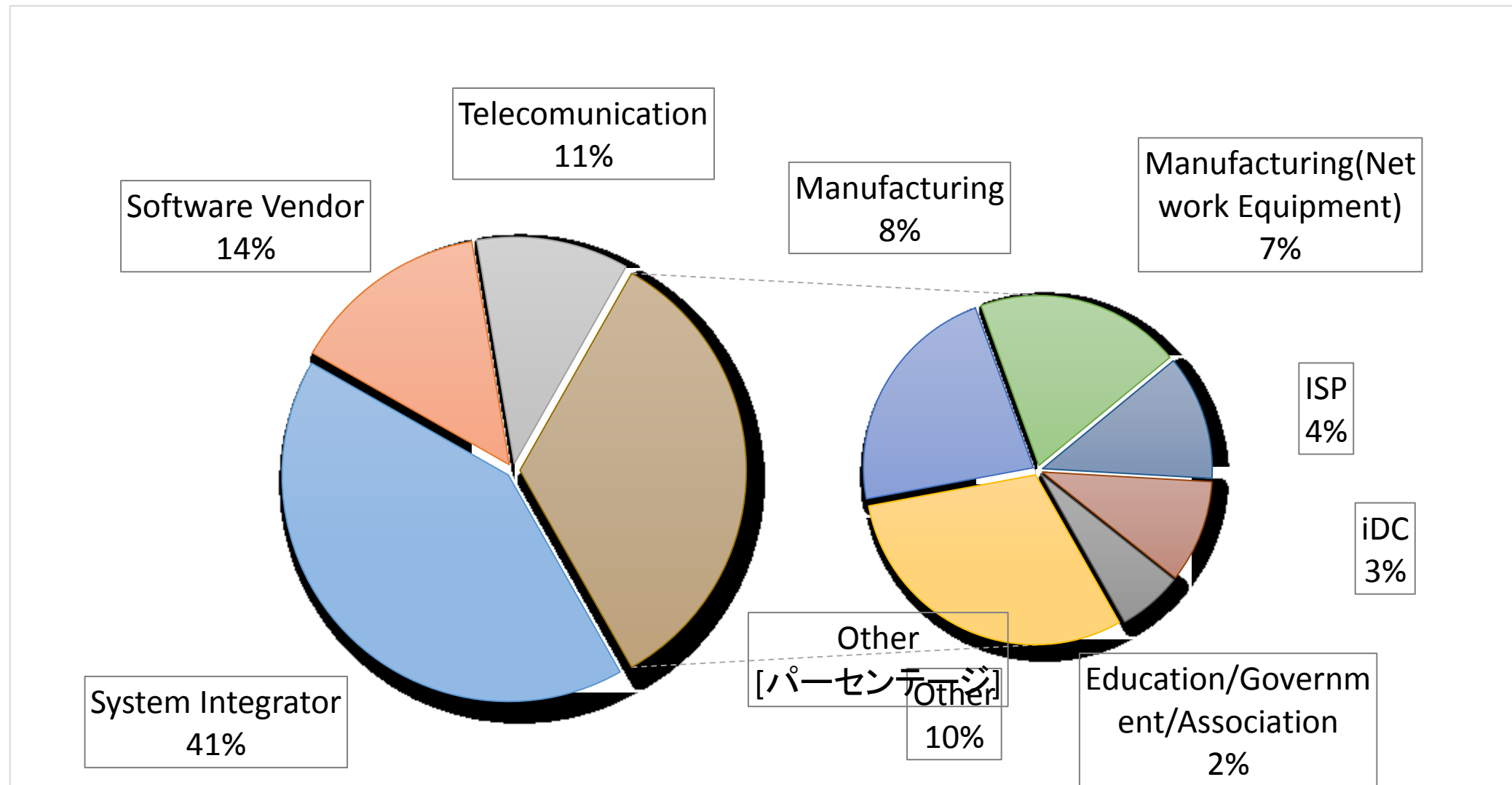
43

Number of Session

43



# User Survey on OpenStack Days Tokyo Feb. 2015



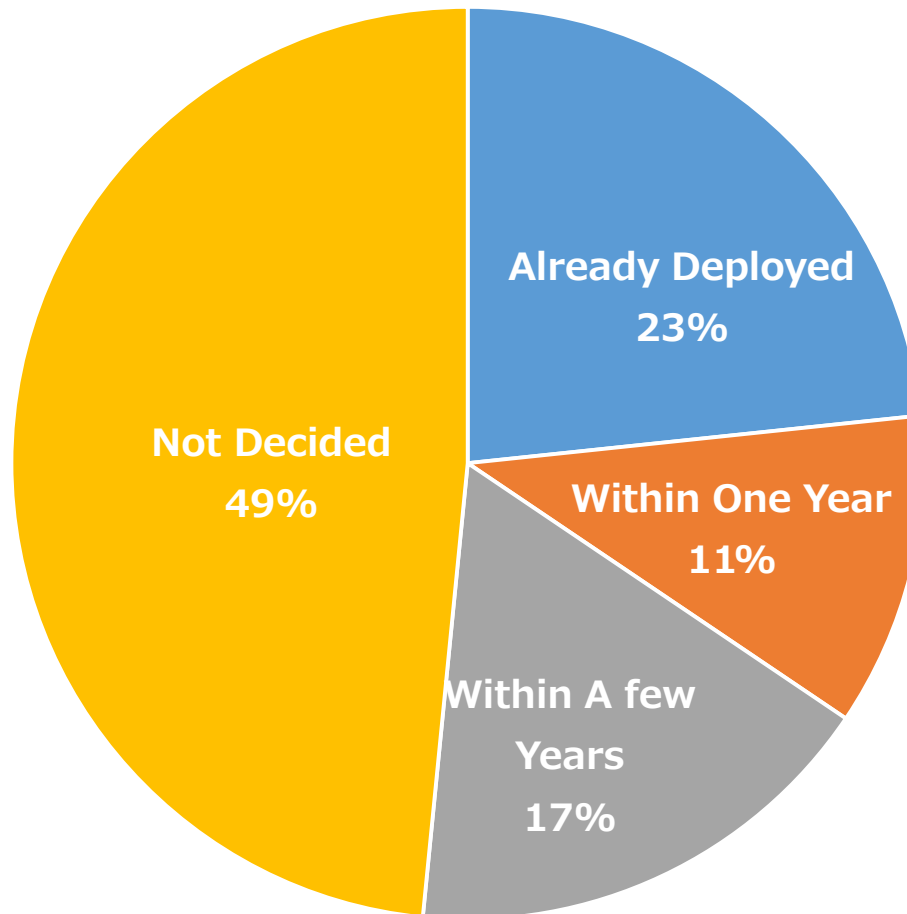
Industry of the Registrants  
n = 2,833(Registrants)



openstack  
CLOUD SOFTWARE



## User Survey on OpenStack Days Tokyo Feb. 2015



More Than 50%  
Will deploy OpenStack

OpenStack Adoption In Your Business  
n = 2,833(Registrants)

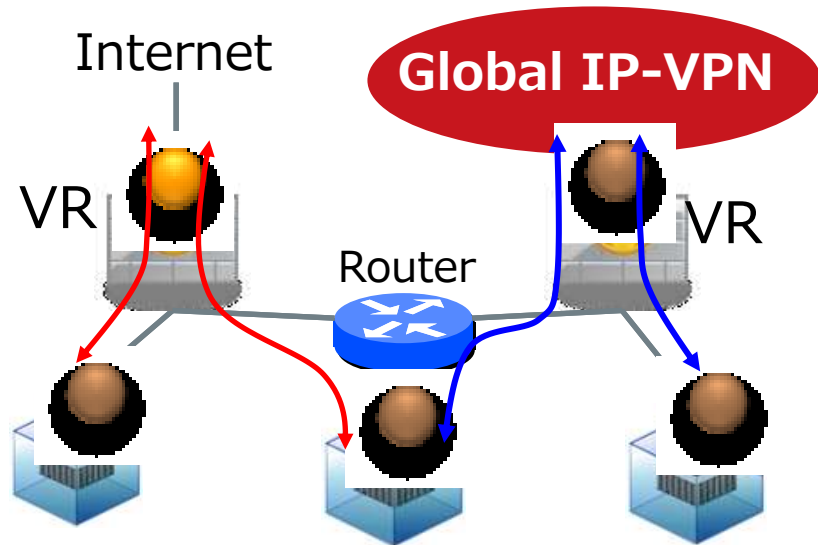






# Virtual Private Cloud (VPC) with OpenStack Bizホスティング Cloud<sup>n</sup> NTTCommunications

## VPC - ClosedNW



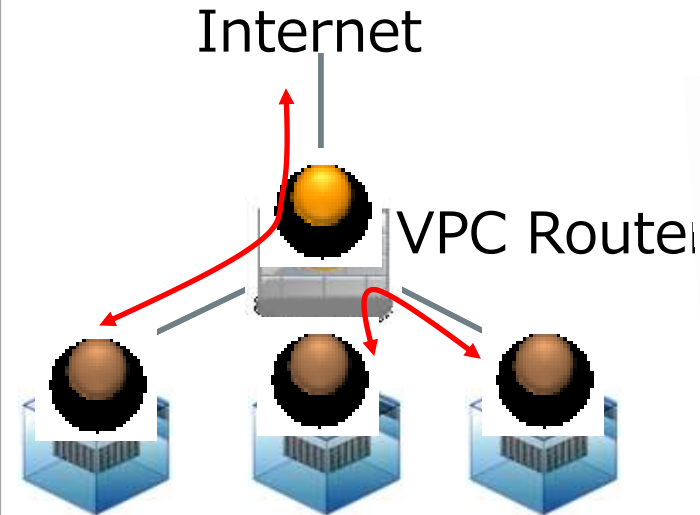
**Global IP-VPN connection and multiple NW segment**



**Nova  
Neutron**

**Launched in 2013 October**

## VPC - OpenNW

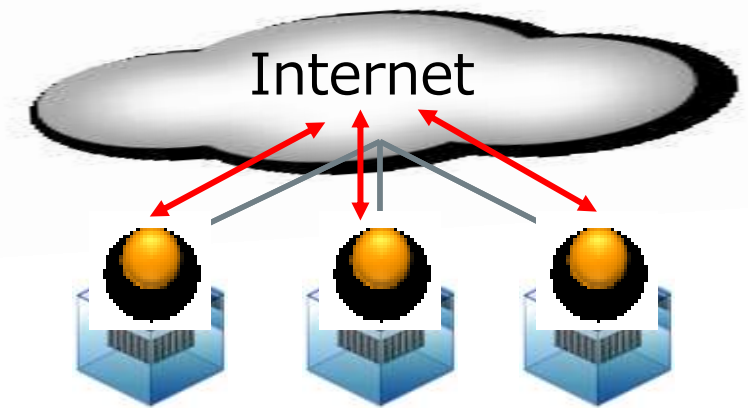


**Virtual Private Cloud with IPsec (Internet VPN)**



**2013 October**

## Public Cloud



**Direct internet access**

**2012 June**

VPC type is available only in Japan (as of July 2015)

# IoT Platform using Cloud<sup>n</sup> VPC ClosedNW

Real Time  
Analysis

Cloud

VPN

Building

**Takenaka Corp. "Next-Gen Building Management Platform"**

Real Time  
Energy-Usage  
Monitoring

Demand  
Control

Energy-Usage  
Forecast

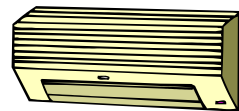
Cloud<sup>n</sup> VPC (OpenStack)

Bizホスティング  
Cloud<sup>n</sup>  
NTTCommunications

Global IP-VPN

5,000 data/min

Secure  
M2M/IoT  
Platform



Sensor



Energy  
Consumption  
Visualization

Global ICT Partner  
Innovative. Reliable. Seamless.

SEAMLESS CLOUD FOR THE WORLD



**GMO** INTERNET GROUP



# GMO Internet, Inc.: VPS and Cloud service

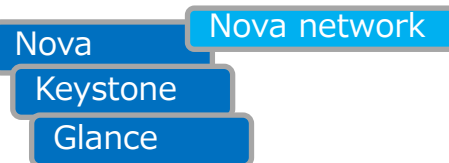
Onamae.com VPS (2012/03) :

<http://www.onamae-server.com/>

Forcus: global IPs; provided by simple "nova-network"



OpenStack Diablo  
on CentOS 6.x



tenten VPS (2012/12)

<http://www.tenten.vn/>

Share of OSS by Group companies in Vietnam



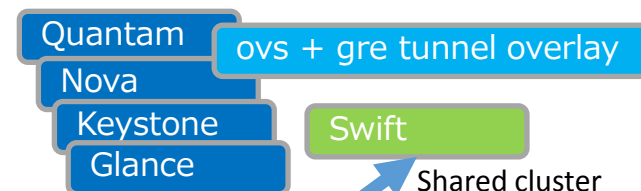
ConoHa VPS (2013/07) :

<http://www.conoha.jp/>

Forcus: Quantam(Neutron) overlay tenant network



OpenStack Glizzly  
on Ubuntu 12.04



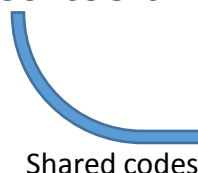
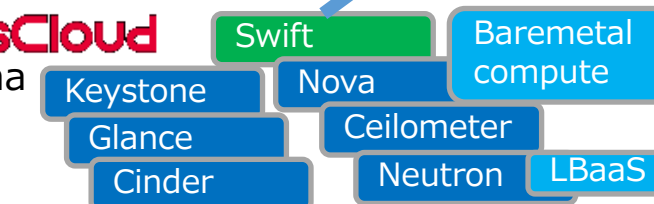
GMO AppsCloud (2014/04) :

<http://cloud.gmo.jp/>

Enterprise grade IaaS with block storage, object storage, LBaaS and baremetal compute was provided



OpenStack Havana  
on CentOS 6.x



Onamae.com Cloud (2014/11)

<http://www.onamae-cloud.com/>

Forcus: Low price VM instances, baremetal compute and object storage



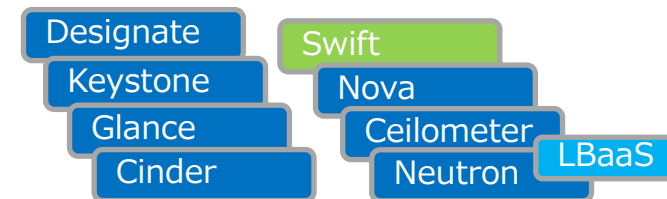
Shared cluster

ConoHa Cloud (2015/05/18) <http://www.conoha.jp/>

Forcus: ML2 vxlan overlay, LBaaS, block storage, DNSaaS(Designate) and original services by keystone auth



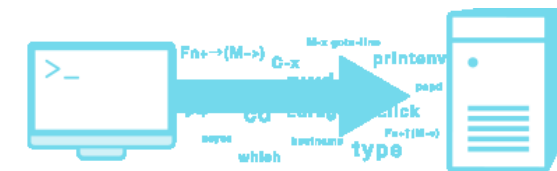
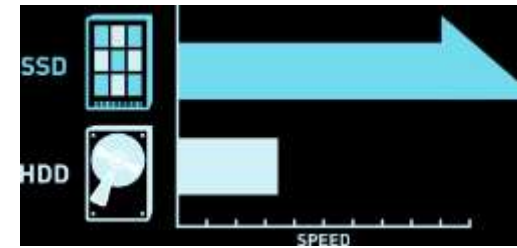
OpenStack Juno  
on CentOS 7.x



# ConoHa: based on OpenStack Juno



- Multiple region openstack cluster
  - Tokyo / Singapore / San Jose
  - ... and so on
- Full SSD storage
- Multiple keystone service domain support
  - ConoHa and Next service (now developed) ... OEM etc.
- LB as a Service: LVS-DSR (original)
- DNS as a service : OpenStack Designate
- Original shared services by keystone auth
  - Database hosting as a service
  - E-mail hosting as a service
- OpenStack API and additional RESTful API
- Multiple Languages web panel support
  - Japanese / ConoHa (^ \_ ^;
  - English : <https://www.conoha.jp/en>
  - Korean :
  - Mandarin Chinese : <https://www.conoha.jp/zh>







楽天  Rakuten

# How to use OpenStack in Rakuten



KENTARO SASAKI

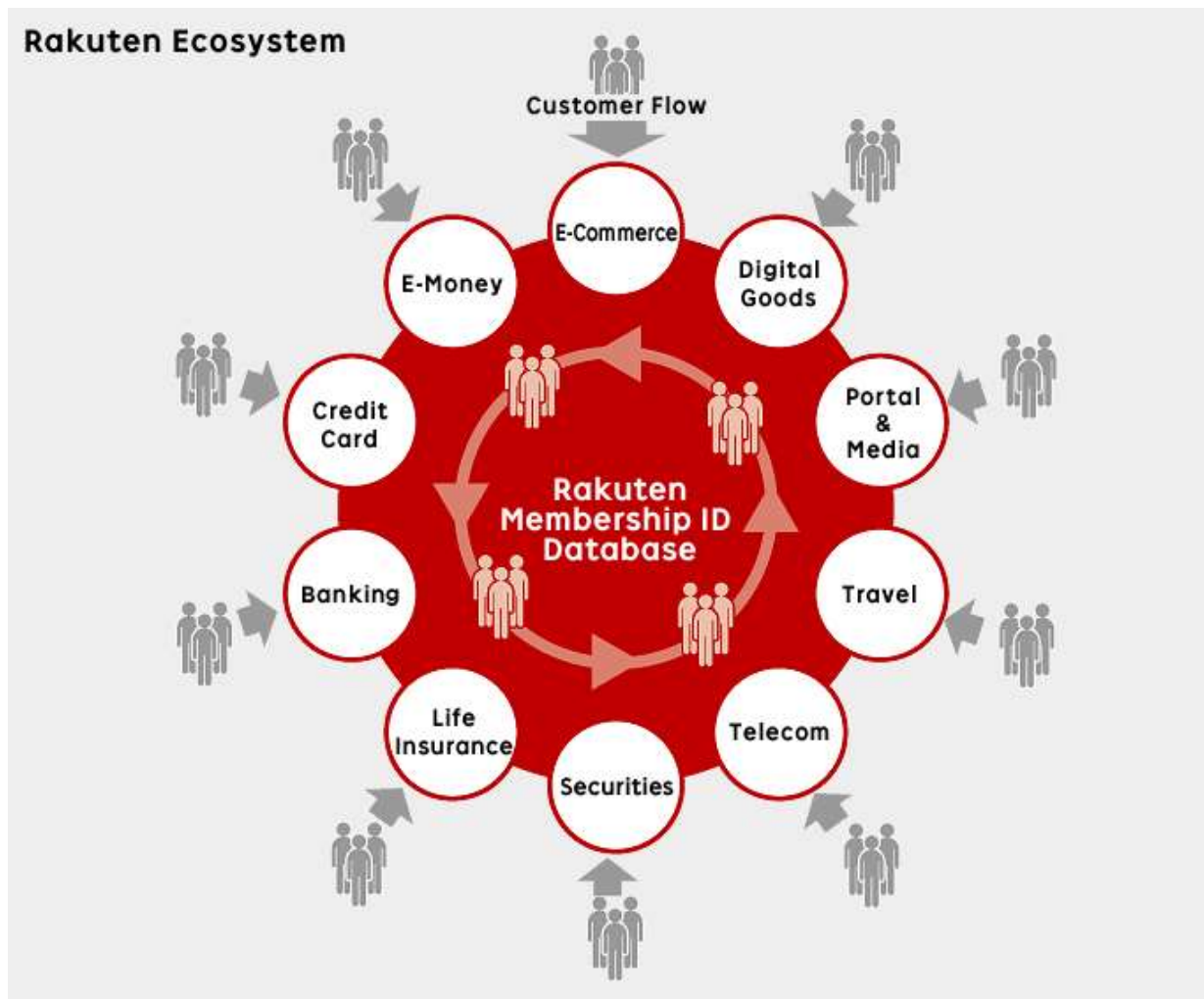
kentaro.sasaki@rakuten.com



@kentarosasaki



Tokyo-based e-commerce and Internet company





## Rakuten Membership (Cumulative)

**99.77** Million persons

\*As of Mar 31, 2015

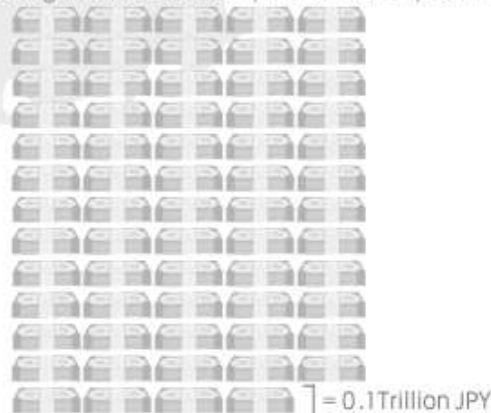


\* Log-in members: 72.34 million persons

## Domestic Group Gross Transaction Volume

**6.4** Trillion JPY

\*Including finance services, \*As of Dec 31, 2014



# Before introducing OpenStack

## Large VMware Platform



# Large VMware Platform

+20000 instances

+600 ESX Hosts

2 DCs

# How to use OpenStack?

Internal Purposes?  
For a lot of Rakuten Services

# Why OpenStack?

## Open Source Software

# Why OpenStack?

## Designed with durability

# Why OpenStack?

## Be resolving complexity

# Why OpenStack?

Easy to improve the integrity

# Architecture Design #1

## Controller Nodes / Network Nodes



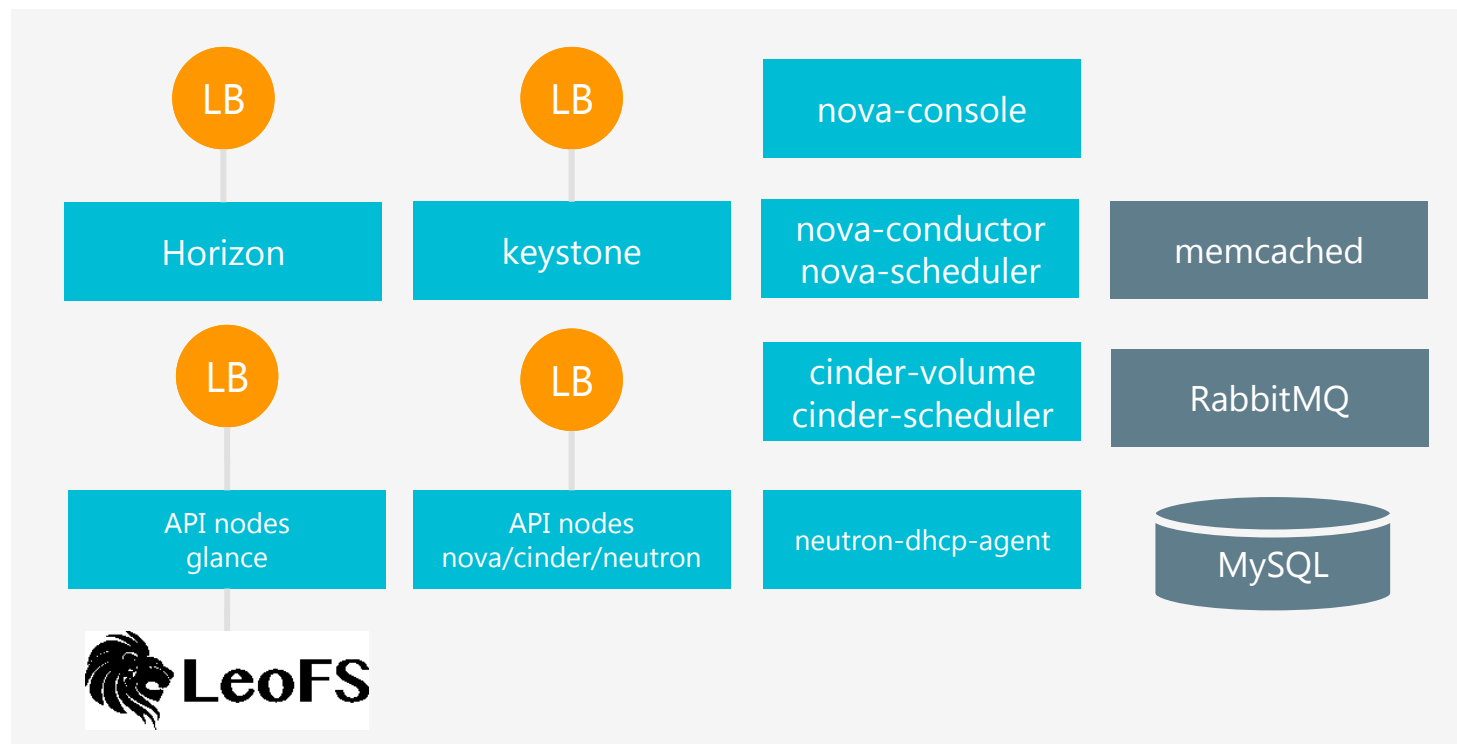
# Controller Nodes / Network Nodes

Use at least 10 servers and 4 LB per a region unless having HA

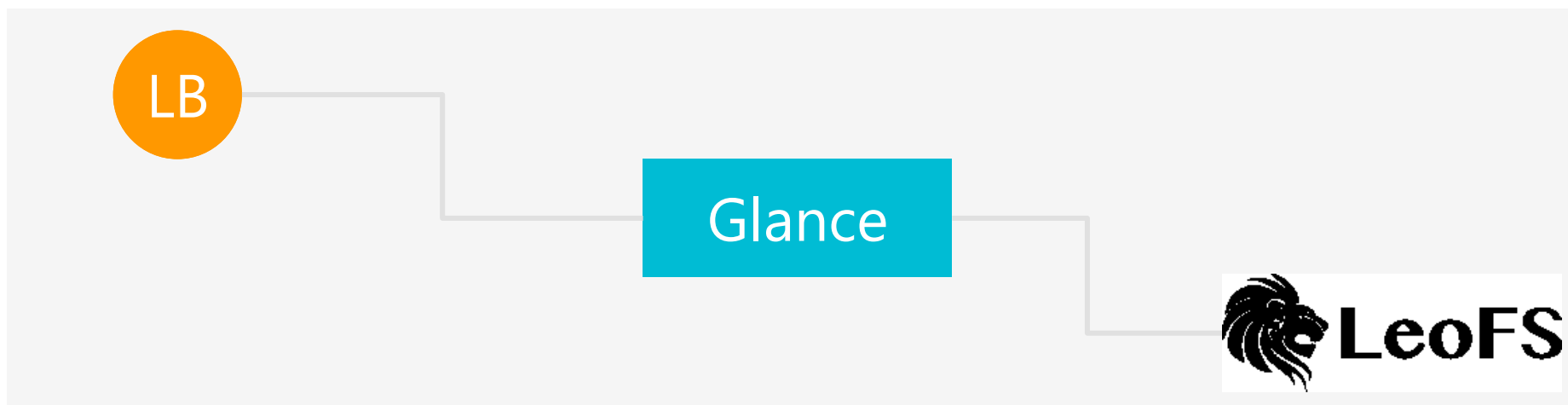
1 or 2 process per a server

Not using L3 agent

# Controller Nodes / Network Nodes



# Glance Backend Storage: LeoFS





Distributed Object Storage

Amazon S3 API Compatible

Open Source

# Architecture Design #2

## Compute Nodes, KVM

# Compute Nodes, KVM

QEMU/KVM 2.0

Ubuntu 14.04.2

# Compute Nodes, KVM

## 4.0 CPU Over Commit

# Compute Nodes, KVM

Full local SSDs



# Various Purposes #1

## Sandbox Dev Environment

# Sandbox Dev Environment

VMware + Icehouse Release

Start over a hundred instances per a day

# Sandbox Dev Environment

+3000 tenants

```
$ keystone tenant-list | wc -l  
3396
```

# Various Purposes #2

## IaaS Platform

# IaaS Platform

Dev team can choice OpenStack or VMware

KVM + Juno Release

Not yet used Cinder

# IaaS Platform

Launch 3 regions and 4 AZs

Region: Development

AZ1

Region: Staging

AZ1

Region: Production

AZ1

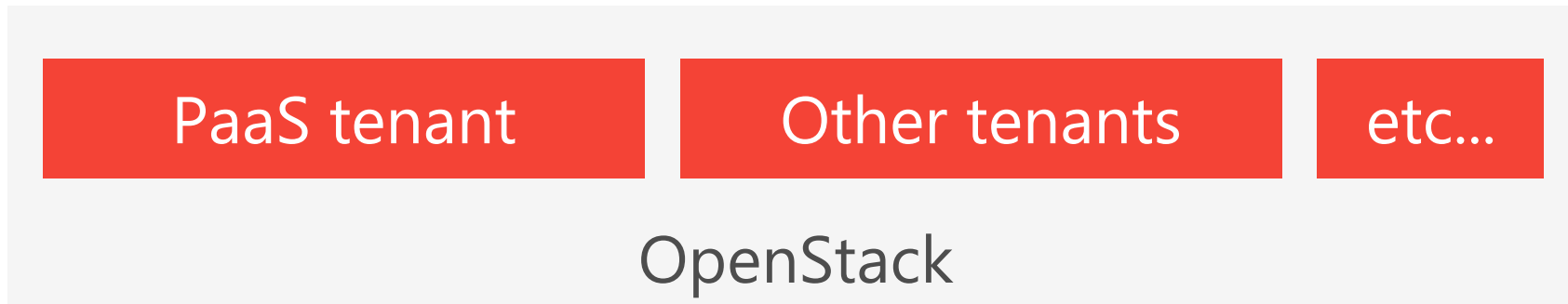
AZ2

# Various Purposes #3

## Cloud Foundry v2 on OpenStack

# Cloud Foundry v2 on OpenStack

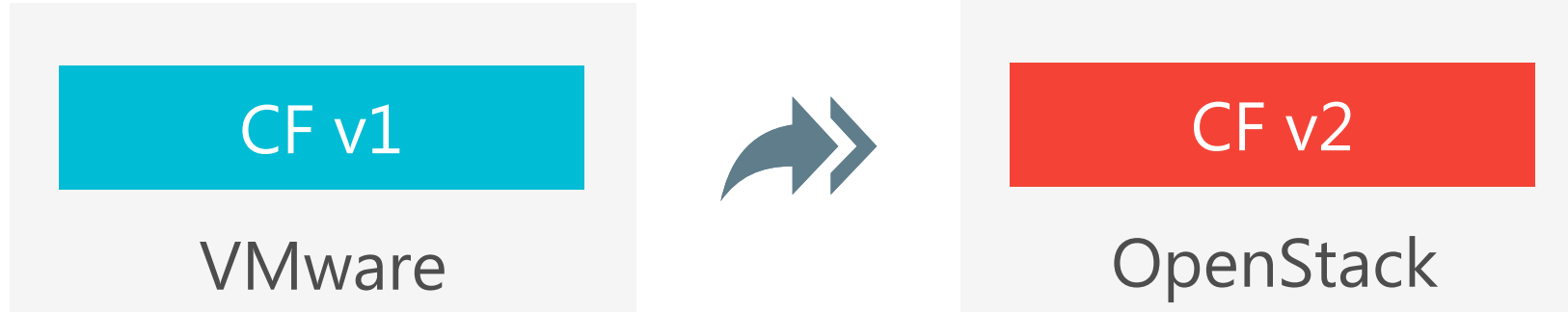
Provide as PaaS tenant





# Cloud Foundry v2 on OpenStack

Now running 5000 CFv1 instances on VMware

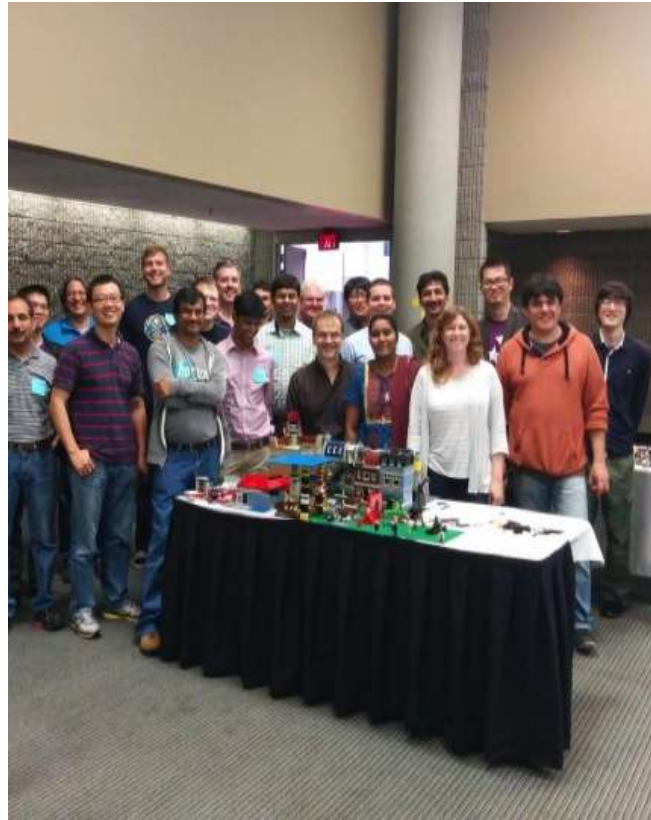


# Community Activities

## Upstream Training

# Upstream Training

Participate training in Atlanta and start contribution from this point



# Upstream Training

Became a mentor in Japanese training



Upstream Training in Japan

# What's Next?

## Feature Roadmap

# Block Storage Service Cinder

On top of various traditional backend storage device

Will release at the end of this year

# DNS and LB implementation

Use original APIs to control DNS and LB

Get started to test designate and LBaaS

# Migration old region

From Icehouse/VMware to Juno/KVM

No upgrading

Create new region and shut down old region



# We love OpenStack!


OSS Activities is a lot of fun!

We have many challenges



請快一點！！

### Ticket Information

TICKET TYPE	SALES END	PRICE	FEE	QUANTITY
<b>Early Bird Full Access Pass</b> Includes lunch. Allows access to everything at the Summit.	Aug 31, 2015	\$600.00	\$0.00	1 

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