Introduction of Okinawa Open Laboratory
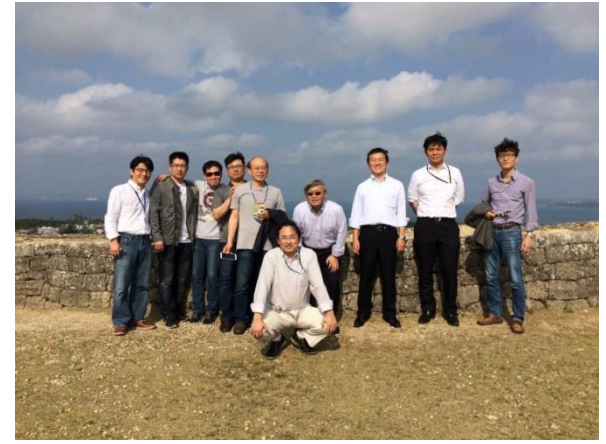
November 17th, 2015

Harumi Ikeda
Okinawa Open Laboratory

Okinawa Open Laboratory (OOL)

- **Research Institute**
  - Founded in May 2013 in Okinawa
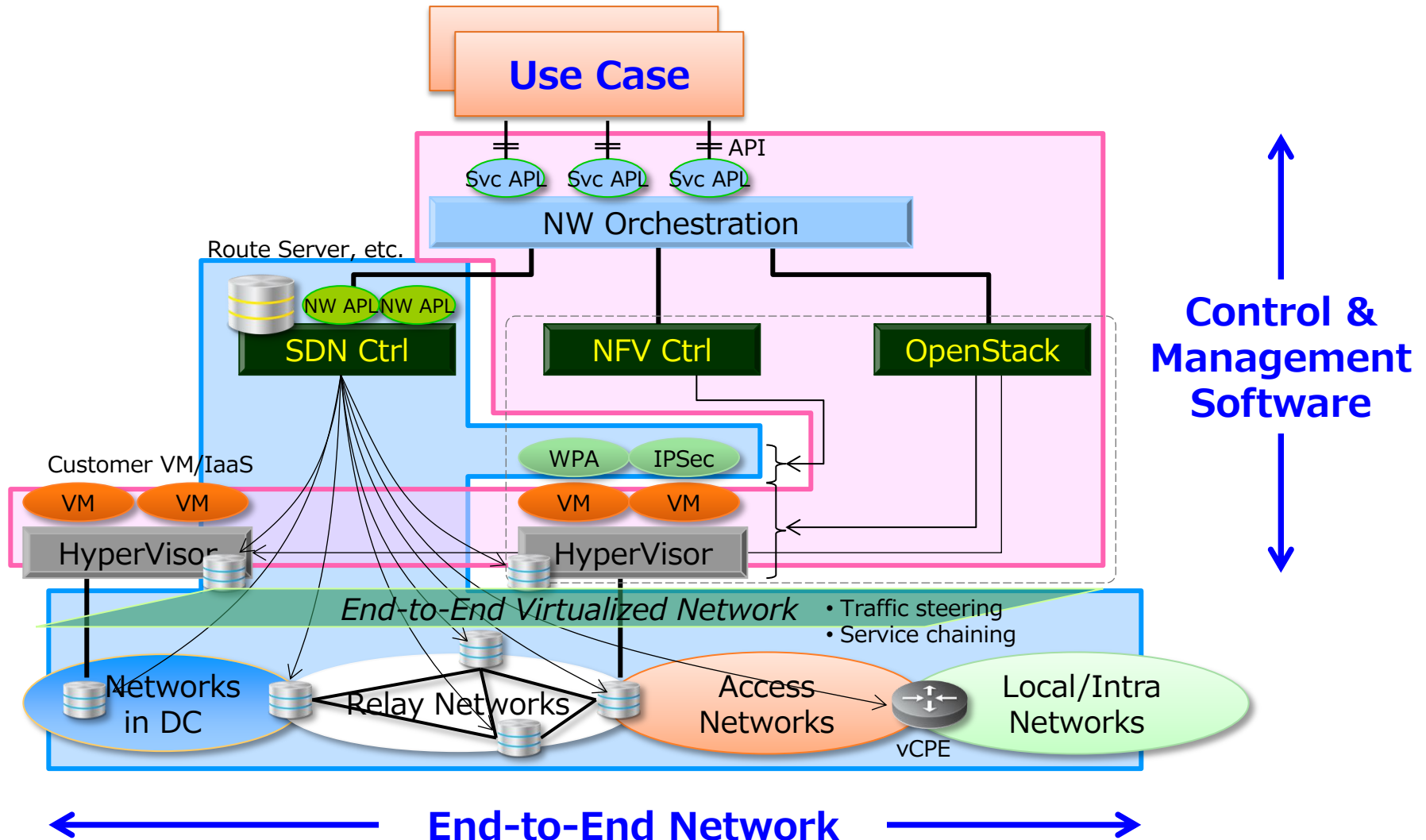

Okinawa

(NEAOSS Korea team visited OOL in February 2015)
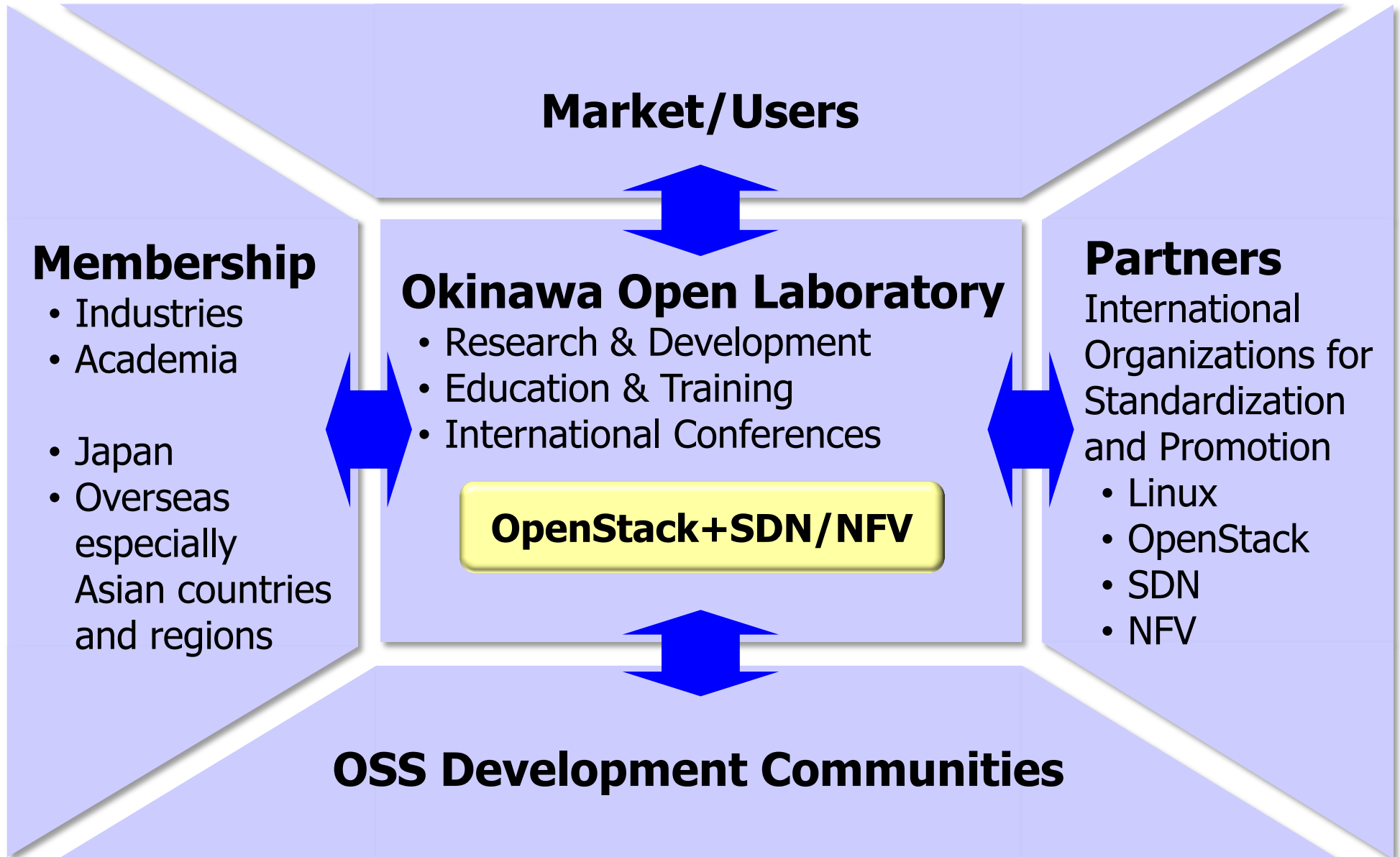
- **Mission**
  - Promote the practical application and dissemination of next-generation ICT platform technologies, especially OpenStack, SDN and NFV
  - Promote the convergence of these technologies
  - Search for use cases of these technologies

Scope of Target Technologies

- Next-generation ICT platform technologies

Activities

Market/Users

Membership
- Industries
- Academia

- Japan
- Overseas especially Asian countries and regions

Okinawa Open Laboratory
- Research & Development
- Education & Training
- International Conferences

OpenStack+SDN/NFV

Partners
International Organizations for Standardization and Promotion
- Linux
- OpenStack
- SDN
- NFV

OSS Development Communities

Membership List （as of October 31st, 2015）

OKINAWA OPEN LABORATORY

Board (5)

NTT Communications	NEC Empowered by Innovation	iga co.,ltd	CTC	FUJITSU
NTT コミュニケーションズ	日本電気	イイガ	伊藤忠テクノソリューションズ	富士通

Member (30)

NTT PC COMMUNICATIONS	e-side	NEC NECソリューションイノベータ	ixia	A10 Networks	f5	BROCADE	HITACHI Inspire the Next
NTTPC コミュニケーションズ	イーサイド	NECソリューションイノベータ	イクシアジャパン	A10 ネットワークス	F5 ネットワークスジャパン	ブロケードコミュニケーションズシステムズ	日立製作所
hp	GLBB	NTT COMWARE	Alcatel·Lucent	HUAWEI	Quali systems	AlaxalA	BroadBand Tower, Inc.
日本 HP	GLBB ジャパン	NTT コムウェア	日本アルカテルルーセント	HUAWEI	QualiSystems	アラクサラネットワークス	ブロードバンドタワー
radware	NS Solutions	ciena	OCC	ADOC Delight Company	odc	KIT	net one
日本ラドウェア	新日鉄住金ソリューションズ	Ciena Corporation	オーシーシー	アドックインターナショナル	沖縄データセンター	オキット	ネットワンシステムズ
CISCO	モノビット	NISSHO ELECTRONICS	ATTO RESEARCH	ARBOR NETWORKS	inwinSTACK		
シスコシステムズ	モノビット	日商エレクトロニクス	Atto Research	Arbor Networks	inwinSTACK		

Fellow (13)

| 琉球大学工学部	kbc 沖縄電子ビジネス専門学校	沖縄県立美来工科高等学校	The Institute for Information Industry (資)	慶應義塾大学理工学部	東京大学大学院情報学環	KIC 神戸情報大学院大学	ETRI	OGDC 沖縄ゲーム企業コンソーシアム	ONF Open Networking Foundation
琉球大学工学部	沖縄電子ビジネス専門学校	沖縄県立美来工科高等学校	The Institute for Information Industry (資)	慶應義塾大学理工学部	東京大学大学院情報学環	神戸情報大学院大学	ETRI	沖縄ゲーム企業コンソーシアム	Open Networking Foundation
NICT 国立研究開発法人情報通信研究機構	Universiti Kuala Lumpur(MIT, UniKL)	OPEN DAYLIGHT OpenDaylight							

Total (48)

5

Research and Development

- Provide members with places for joint R&D activities
    - Forum   … Place for open communication and discussion
    - Project   … Place for design and implementation
    - Testbed   … Place for testing and validation
- Evaluate new technologies
    - Multi-Cloud/Inter-Cloud
    - Service Function Chaining
    - OpenDaylight/Onos
- Develop unique technologies
    - OF-Patch (OpenFlow based patch panel function)
- Study and search for use cases
    - Organize workshops with various industries (user side of ICT)
        - Tourism, Medical care, Education, Gaming, City planning, etc.
    - Study and search for use cases based on the discussion at the workshop, develop and conduct PoC testing for them
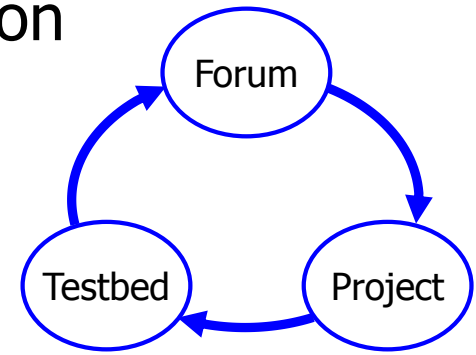
Education and Training

- **Provide unique programs in cooperation with communities**
  - **Basic**
    - Educate, train and secure ICT platform engineers who can make technical contribution to Cloud/SDN business
    - Raise up overall technical level
      - Beginners training programs
      - Classroom lecture seminars, Hands-on training
  - **Advanced**
    - Educate and train advanced ICT platform engineers who can play an active role in international open-source communities
      - Code review, BOF/Hackathon, Program contests
      - Specialist training programs
        - Supported by top engineers in industries and communities as mentors
- **Track Record**

	No. of Events	No. of Attendees	Remarks
FY2013	14	1,240	
FY2014	12	980	
FY2015	15	1,350	Planned

(Note) Including international conferences

International Conferences

- **International Conferences**
  - Okinawa Open Days (Dec. 2013, Dec. 2014)
    - OOL's own international conference hosted by OOL
    - Held in Okinawa under the auspices of Okinawa Prefectural Government
  - 6th ETSI NFV ISG Meeting (NFV#6) (May 2014)
    - Held in Okinawa in cooperation with OOL
  - iPOP 2015 (Apr. 2015)
    - Held in Okinawa under the co-sponsorship of PIL, ISOCORE USA and OOL
- **International Exchange Meetings**
  - OpenStack/SDN Roundtable (Feb. 2014)
    - Held in Okinawa and organized by OOL
  - Cloud/SDN Infrastructure Security Hackathon with NECOMA Project (Jun. 2014)
    - Held in Okinawa and organized by OOL
  - 2015 Taiwan-Japan International SDN Workshop (Aug. 2015)
    - Held in Taipei, Taiwan under the co-sponsorship of III and NCTU
  - 2015 Taiwan SDN 2nd Plugfest (Aug. 2015)
    - Held in Hsinchu, Taiwan under the co-sponsorship of Taiwan SDN Alliance, III and NCTU

Okinawa Open Days 2014

- Dates: Dec. 11 (Thu.) – Dec. 12 (Fri.)
- Venue: Okinawa-Jichikaikan, Naha City, Okinawa
- Host: Okinawa Open Laboratory
- Auspices: Okinawa Prefectural Government
- Co-sponsors: 10 companies and organizations
- Cooperation: 6 organizations
- Sessions and Events: More than 40
- Speakers: 11 speakers invited from overseas
- Language support: English-Japanese simultaneous interpretation
- Attendees: 554 in total

Okinawa Open Days 2015

Outline

Dates	December 14(Mon.) – 18(Fri.) 2015
Host	Okinawa Open Laboratory
Venue	Okinawa Jichikaikan (Asahi-machi, Naha, Okinawa)
Participation Fee	Free of charge (Prior Registration Required)
No. of participants	Approx. 700
Banquet	December 17, (Thu.) 18:00 ~ Okinawa Jichikaikan(5,000JPY :Tentative)
URL	http://www.okinawaopenlabs.org/en/ood2015

The SDN/cloud open-source community will gather in Okinawa!

Okinawa Open Days 2015

@Okinawa-Jichikaikan   DEC. 14-18, 2015

Keynote

Dan Pitt
Open Networking Foundation

Kentaro Sasaki
Rakuten, Inc.

Neela Jacques
Executive Director, OpenDaylight

Dr. Ming-Whei Feng
Vice President and Director General, SNSI of III, Taiwan

Schedule

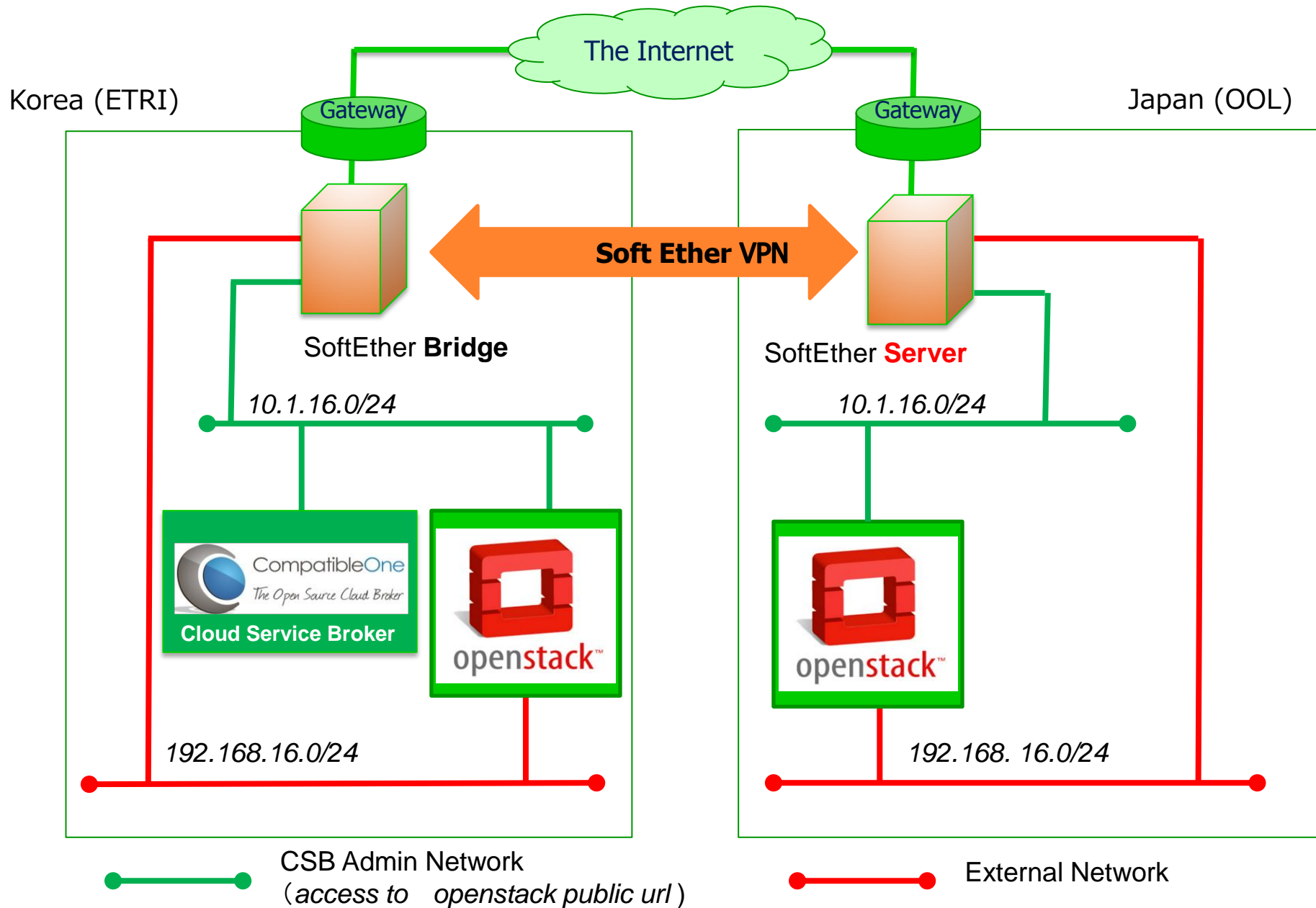| December	AM	PM
14 (Mon.)		Special Track
15 (Tue.)	Special Track	Special Track
16 (Wed.)	Special Track / SDSG	Programming Contest / SDSG
17 (Thu.)	General Track / Exhibition	Special Track
		Banquet
18 (Fri.)	General Track / Exhibition	Special Track

*As of the end of Oct. 2015.

Come and Join us in Okinawa !!

Collaboration with NEAOSS

- **Established NEAOSS Project in OOL to collaborate with NEAOSS WG1 in the field of Inter-Cloud technologies**
  - CSB (Cloud Service Broker) technology
    - ⇒ Compatible One
  - OpenStack multi-cloud management technology
    - ⇒ OpenStack Cascading
  - OpenStack native application technology
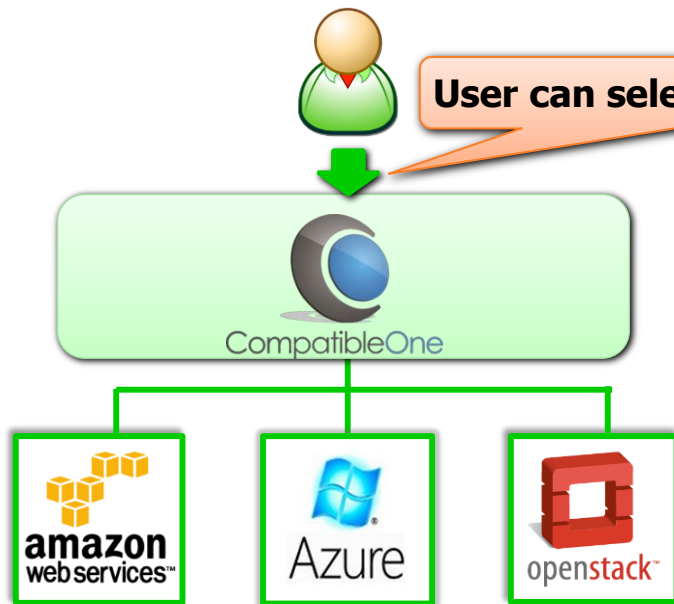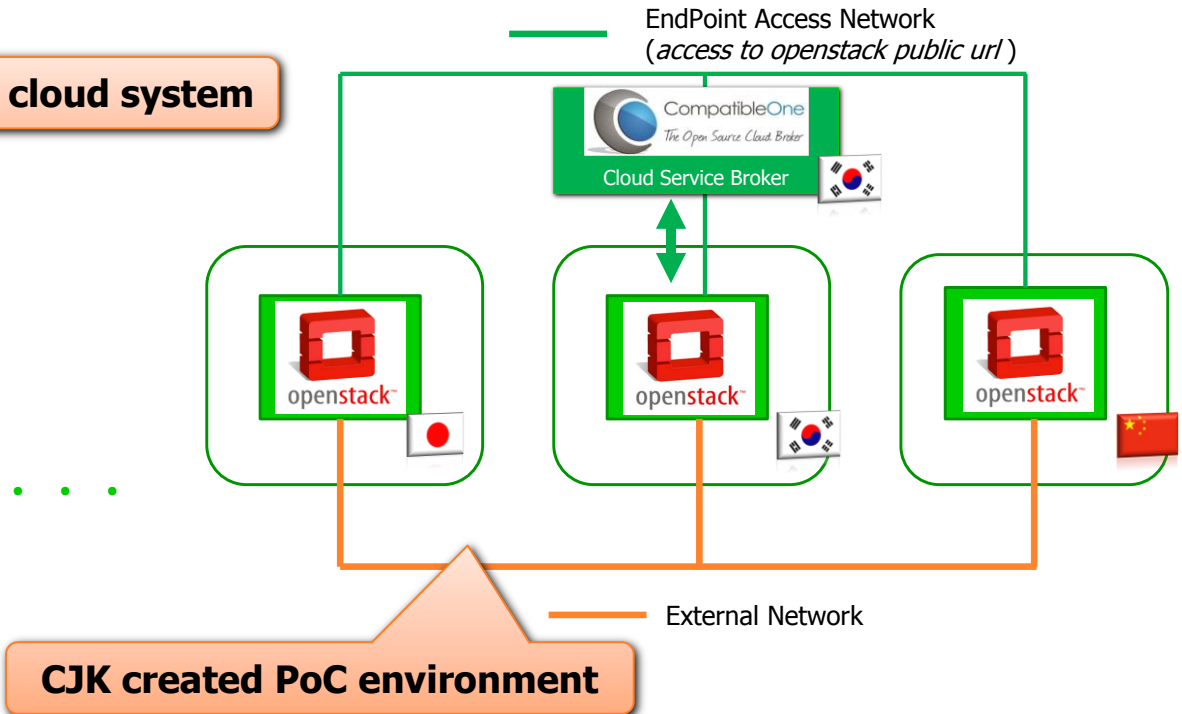   - ⇒ RACK (Real Application Centric Kernel)

OOL OKINAWA OPEN LABORATORY   NEAOSS

NEAOSS Project

(Engineers+Testbed)

WG1

Network Connectivity

The Internet

Korea (ETRI)

Japan (OOL)

Gateway

Gateway

Soft Ether VPN

SoftEther **Bridge**

SoftEther **Server**

10.1.16.0/24

10.1.16.0/24

CompatibleOne
The Open Source Cloud Broker
Cloud Service Broker

openstack™

openstack™

192.168.16.0/24

192.168. 16.0/24

CSB Admin Network
（*access to   openstack public url* ）

External Network
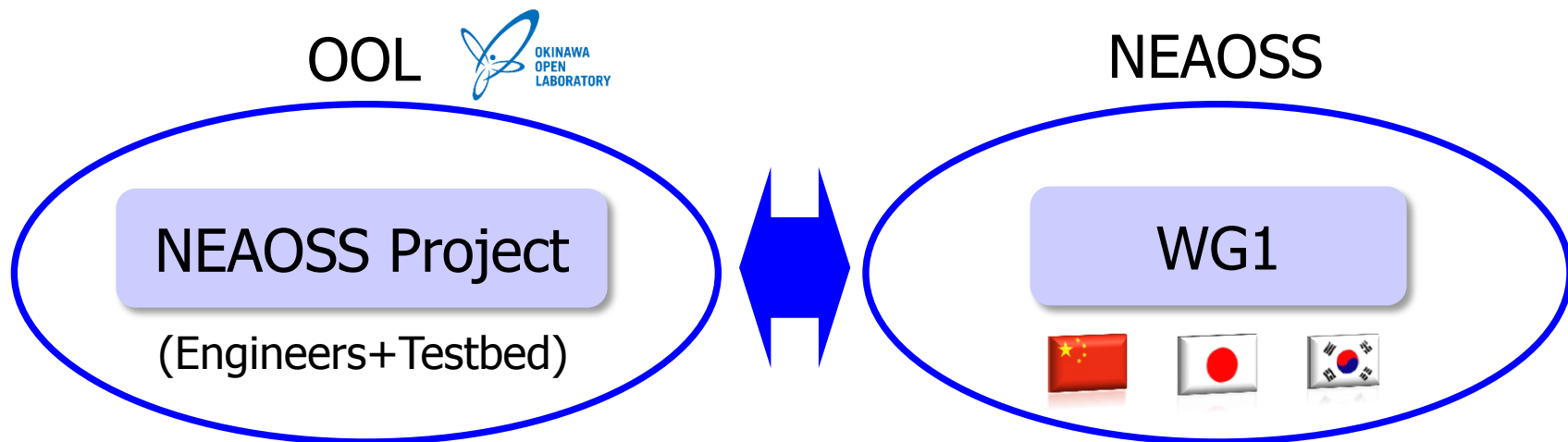
Compatible One Overview

- Compatible One is a new category of Inter-Cloud
- Compatible One can create single cloud service by communicate with many types of cloud, for example OpenStack, AWS, Google, etc.
- User can select the best cloud infrastructure to provide their application to end-user

Compatible One

## Inter-Cloud with Compatible One in CJK

User can select a cloud system

EndPoint Access Network
(*access to openstack public url*)

Cloud Service Broker

CJK created PoC environment

External Network

OpenStack Cascading Overview

- OpenStack Cascading is an OpenStack project that provides single OpenStack API endpoint over multiple OpenStack environments
- Using OpenStack Cascading, we have tested Inter-Cloud over CJK testbed
- User can manage and operate Inter-Cloud as single OpenStack
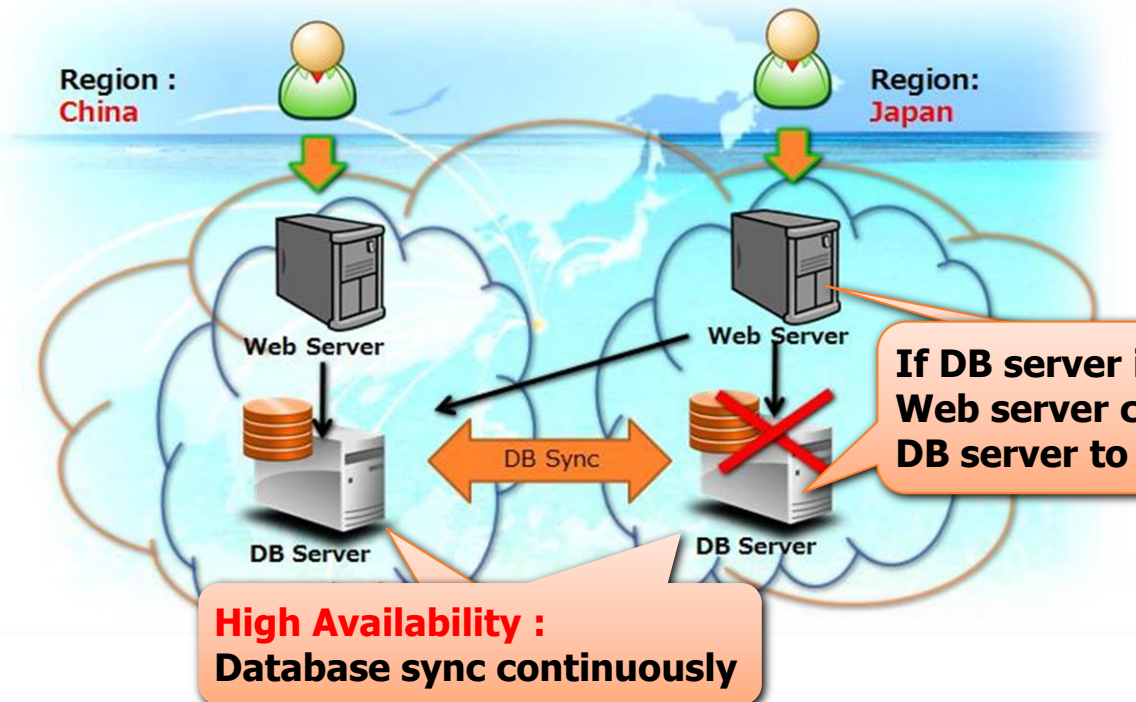
OpenStack Cascading System

Cascading OpenStack can control cascaded OpenStack
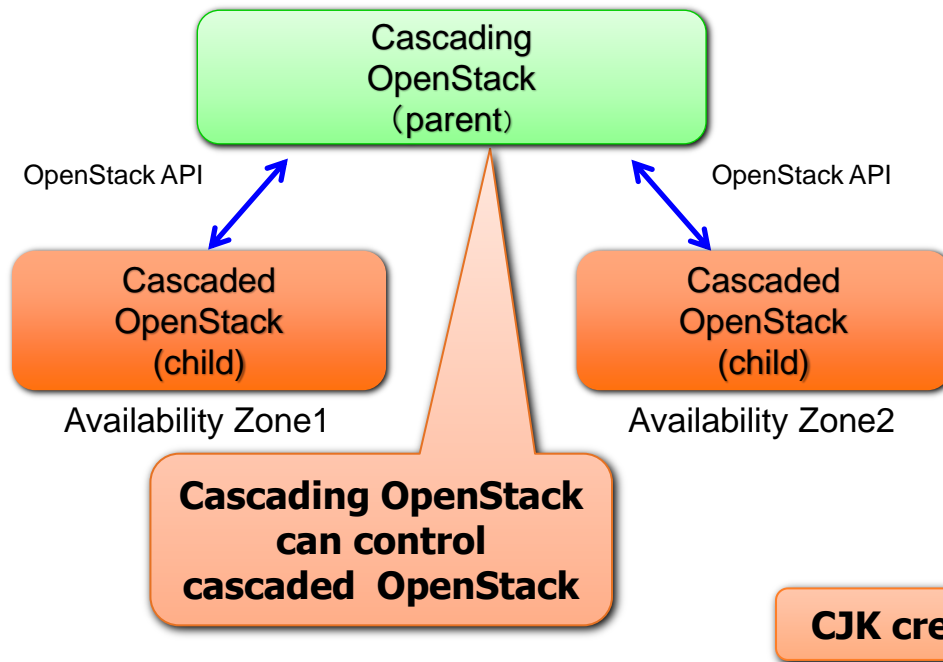
Inter-Cloud with OpenStack Cascading
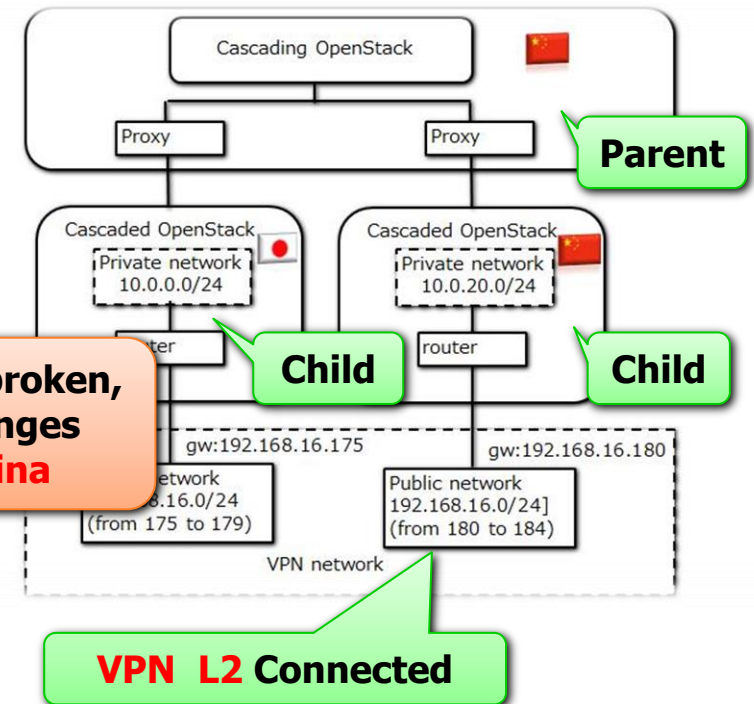

CJK created PoC environment
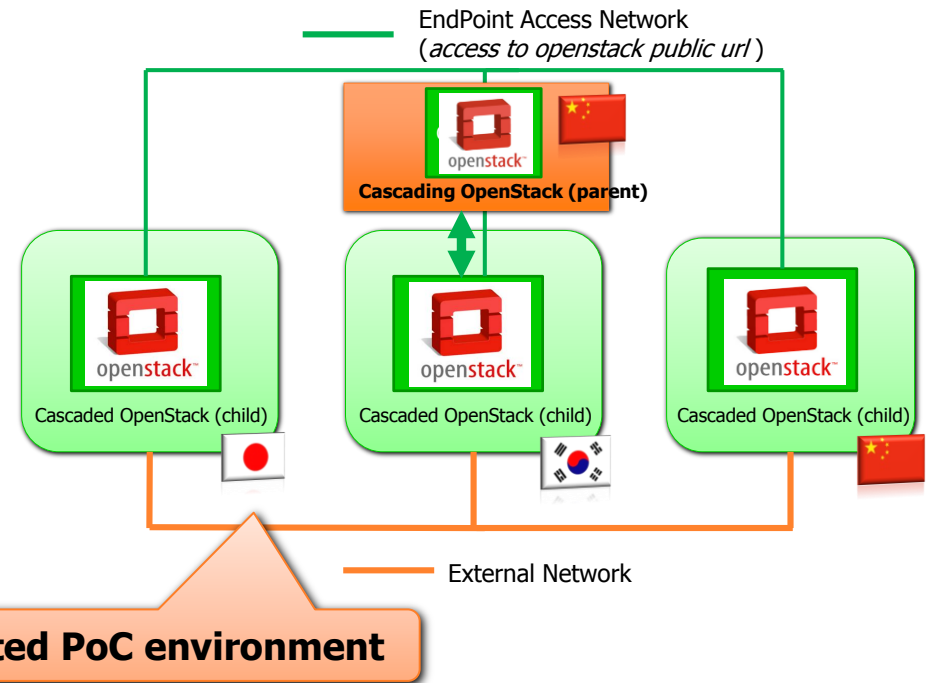
Use Case

- Building a Web server using a DB server with OpenStack Cascading
- DB servers are synchronized between China and Japan
- When the DB server in Japan is broken, the Web server in Japan will change the referenced DB server to China

Use Case of OpenStack Cascading Disaster Recovery

OpenStack Cascading Network Design

☞ *You can see the demonstration at* https://youtu.be/7pVpE6YnMqE*.*

Contact Information

- **Mail**
  - 201 Okinawa Information and Communication Center
    61-1 Kanekadan, Uruma City, Okinawa,Japan 904-2241

- **Phone**
  - +81-98-989-1940

- **Fax**
  - +81-98-989-1943

- **E-mail**
  - info@okinawaopenlabs.org

- **Web**
  - http://www.okinawaopenlabs.org/

- **Facebook**
  - http://www.facebook.com/okinawaopenlabs/

END