Testbed
Operation and Maintenance Working Group

Okinawa Open Laboratory O&M WG
Introduction
About Testbed

A foundation of OOL activities

More than 20 research projects and hands-on seminars used Testbed

Example of Projects

Service Chaining
Ryu Certification
Cloud Native Application
Multi-Network Collaboration
Accelerated VNF
North America connection “Overlay SDN Ecosystem in Okinawa”
Taiwan Connectivity
OpenStack LBaaS improvement PJ
L1Patch application NW Test system PJ
NEA OSS PJ
VNF test automation PJ
Collaborative Events in Taiwan PJ
Carrier Grade SDN Controller
Hands-on Seminar
Human Resource Development Programs
Activities on FY2016
- Resource improvement and Promotion
Consolidation

- Established at Okinawa IT Shinryyo Park (Uruma-City) in 2014
- Launched Kanekadan DC (Okinawa Information Communication Center, Uruma-City) and configured distributed infrastructure across 3 branches in JUL 2015
- Removed from Okinawa IT Shinryyo Park and Consolidated to 2 branches in FY2016
Consolidation kept site distribution with Wide-Area Network and realized Virtual unified data center by connection of OF-Patch

- **Main Site:** NTT-Com Naha Jitchaku BLDG
  - System infrastructure and 90% of resources are deployed

- **Sub Site:** Okinawa Information Communication Center
  - 10% of Resources are deployed
Promotion to Use - Open Resource & Hands-On -

Support Pre-Project Activity
- Catch up demand to use easily
- Disclose Resource vacancy status

Utilize Resources
- Utilize vacant Resource

Testbed Hands-on
- Online, Forum and Produce Specialist program and so on
Next Generation Testbed
- Toward OOL Testbed 2.0 -
Easier to use, More convenient

- Reduce OPEX to change proprietary source to Open Source
  - License fee for proprietary software is costly
  - Make other organization to be able to build Testbed
- More scalable automation
  - Sometimes, It takes a time to dispatch resource
  - Control form User Application

Build new orchestrator with flexible policy

1. Build based on Open Source
2. Available to use in programmable
3. User can connect own devices to verify
4. Ready to connect with Wide area Testbed
Stay on Open Source, and Programmable

OOL promotes Testbed as practical use case of SDN/Cloud

Open Source + Programmable = Flexibility

Proprietary + OSS → OSS Completely
Server, Network control with API → Automatic control for monitoring, Reservation management and Infrastructures
Device, facility and systems → Allow to bring own device, interconnection for other network

OF-Patch open NaEF
REST API Open Flow Template
Requirement for new Testbed

- Full automation
  Reserve timer
  Route configuration
  Server setup

- Visualize is mandatory
  Operation with Direct feeling

- Efficiently use for divers and limited resources
  [Resource to be managed]
  Hardware, Server and Switch
  Port, Disk and Status.
  Topology
  Physical Connection and logical connection
  Virtual
  Tenant, Site, VLAN, VM and etc.
  Time

- Flexibility, scalability and Serviceability
System Configuration

Operate Testbed resource by resource object operation with Restful API, and scalability and Serviceability of application.

Manage devices, wires and any resources are managed uniformly as resource object.

Components to collaborate with Inventory/Scheduling.

Use, Scale and Maintenance
Consider total Life Cycle Engineering
Interesting configuration management system
Seems to solve scheduling and configuration
Collaborate with NetTester
Introduce to in house system
How to use Testbed (View)

Dashboard
- Resource List View
- Resource Reservation (Server/NW)
- Configuration (Auto)
- Start - End
- Remove Configuration (Auto)

Inventory Web
- Retrieve Server Configuration
- Retrieve NW Configuration

Topology Viewer
- View Topology
How to use Testbed (View)

Dashboard

Resource List View

Resource Reservation (Server/NW)

Configuration (Auto)

Start - End

Remove Configuration (Auto)

Inventory Web

Retrieve Server Configuration

Retrieve NW Configuration

Topology Viewer

View Topology
Resource selection like web showcase
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Define Free-wiring in Tenant

- Wiring by Drag&Drop
- Command via OF-Patch API
- L1 Wiring completed on dashboard
Operation for computing node on dashboard

1) OS Installation

2) Power Switch

3) Console Login
1) VLAN Configuration

2) Console Login
How to use Testbed (View)

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Topology Viewer
- View Topology
## ノードリスト

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Management to add new physical wire
How to use Testbed (View)

Dashboard

Resource List View
Resource Reservation (Server/NW)
Configuration (Auto)
Start - End
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Inventory Web

Retrieve Server Configuration
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Topology Viewer

View Topology
Management  Total topology management
(Reference) Time-series inventory API

Reservation status on timeline

Available for user interface

- Create L1 Link
- VLAN Configuration
- Port management
Summary
Testbed becomes easier to use by improvement of resource and installation of Open Source

Hands-on for Testbed can be conducted on demand, Please contact us

Development is still going on to realize more convenient Testbed

Trial for Testbed 2.0 will be ready within FY2016

Source code of Testbed will be released!!!