



ASIA-PACIFIC TELECOMMUNITY

2nd APT/ITU Conformance and Interoperability Workshop
(C&I-2)

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Report of NGN End-to-End Service interoperability testing and showcasings

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**2nd APT/ITU Conformance & Interoperability Event
Workshop
25 – 26 August 2014, Bangkok, Thailand**

**Report of NGN End-to-End Service
interoperability testing and showcasing
on 2nd APT/ITU C&I event 2014**

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Agenda

- **NGN E2E service interoperability testing**
 - Summary of NGN E2E Interoperability testing
 - Introduce NGN services
 - Configuration on test environment
 - Testing guideline (VoIP & Multimedia)
 - Result of Interoperability testing

- **NGN E2E service showcasing**
 - NEC: NC1000-MV
 - OKI: IP Video Phone
 - NEIX:NGN Simulator

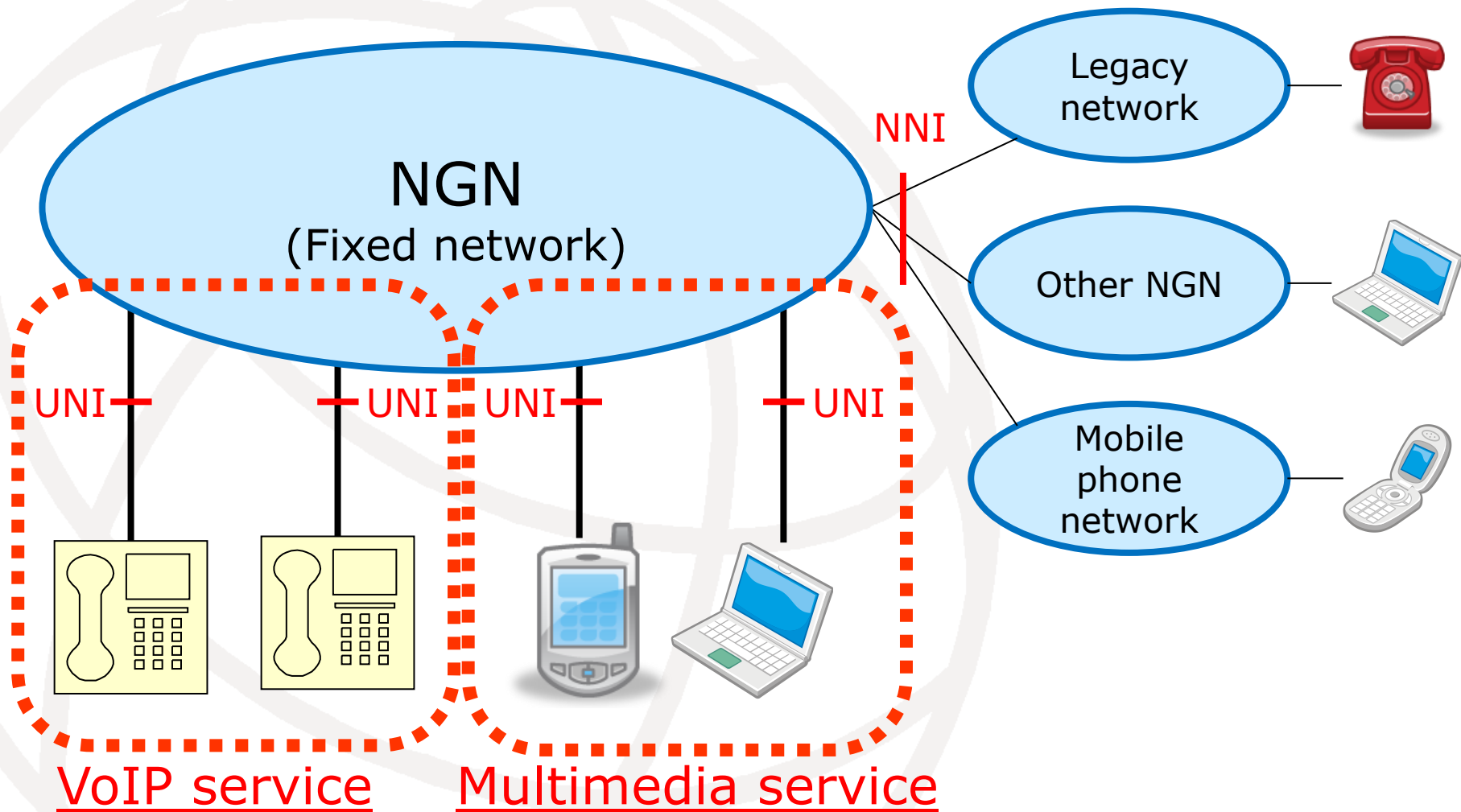
What is Interoperability testing

- What is Interoperability testing
 - ➔ Testing to assess the ability of two or more systems to exchange information and to make mutual use of the information that has been exchanged
- Who to join
 - ➔ Vendors (Big/Middle/Small companies)
 - ➔ Network Operators, Laboratories
- Why to join
 - ➔ It is necessary for vendors on developing product process
 - ➔ For operators to reduce their costs of system integration

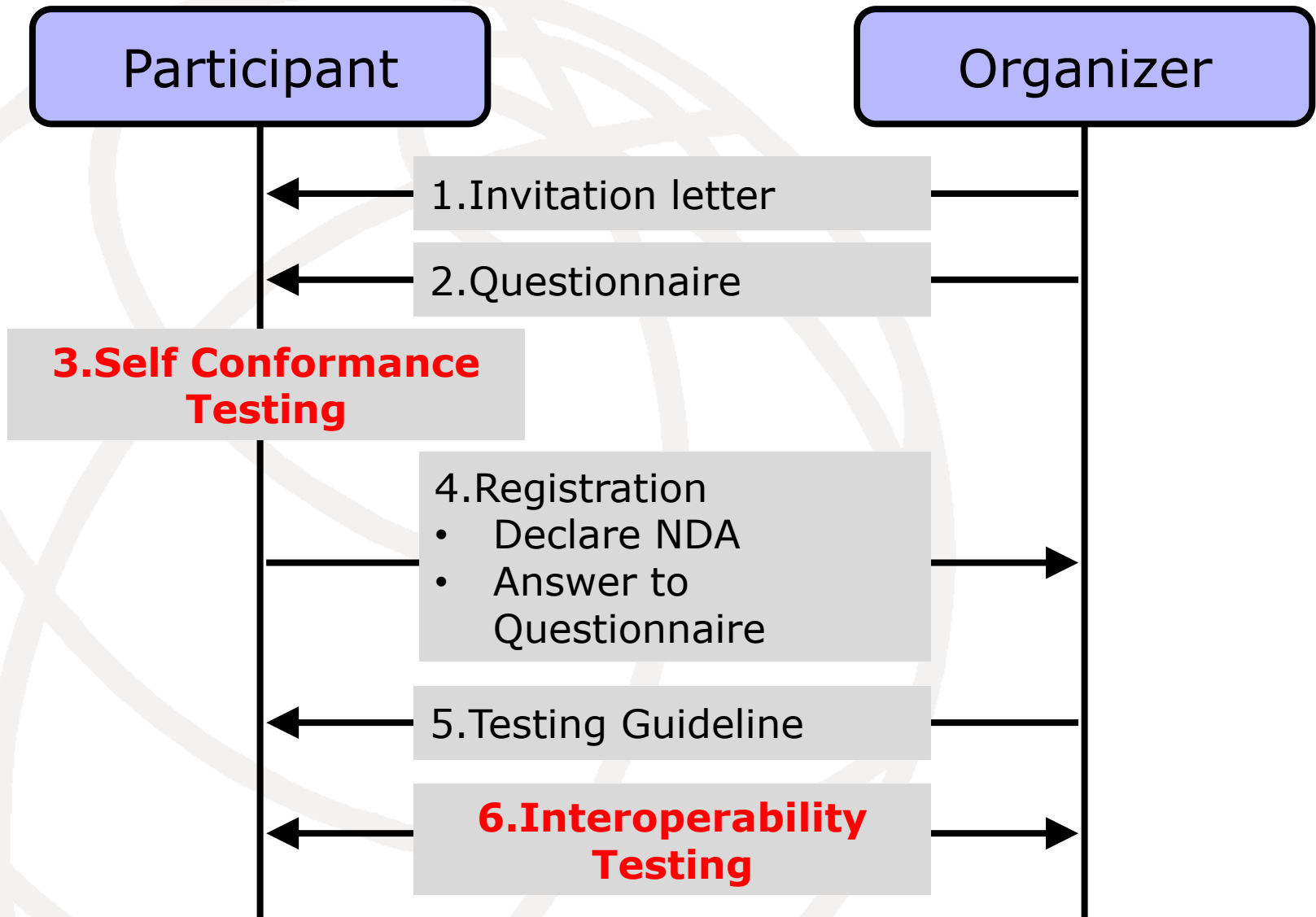
Purpose of NGN End-to-End service testing

- Service interoperability Confirmation
 - ➔ Based on ITU-T Q.3402 NGN-UNI.
 - ➔ Confirm connectivity of SIP terminal to NGN with using Gateway **New**
- End-to-End interoperability Confirmation
 - ➔ Based on ITU-T Q.3948(VoIP service)
 - ➔ Based on ITU-T Q.3949(Multimedia service)
 - ➔ Based on ITU-T H.264 (HD:720p) **New**
- Confirm End-to-End interoperability by Remote Environment via Internet. **New**

Testing target service area



Testing Flow



Questionnaire

items	Description
Interface	<input type="checkbox"/> Q.3402 (NGN-UNI) <input type="checkbox"/> RFC3261 (SIP) <input type="checkbox"/> Others ()
Remote testing	<input type="checkbox"/> VPN tunnelling
Type of equipment	<input type="checkbox"/> Wired appliance <input type="checkbox"/> Wireless appliance <input type="checkbox"/> Soft phone <input type="checkbox"/> MCU <input type="checkbox"/> Others
Audio codec	<input type="checkbox"/> G.711 μ -low (default) <input type="checkbox"/> G.722 <input type="checkbox"/> G.711.1 <input type="checkbox"/> G.729 <input type="checkbox"/> Others ()
Payload period	<input type="checkbox"/> 20ms <input type="checkbox"/> Others ()
PRACK transfer	<input type="checkbox"/> Applicable <input type="checkbox"/> Not applicable
Session Timer	<input type="checkbox"/> Applicable <input type="checkbox"/> Not applicable

Video codec Profile and level	<input type="checkbox"/> H.264 (profile @ level) <input type="checkbox"/> H.263 (profile @ level) <input type="checkbox"/> MPEG-4 Visual (profile @ level) <input type="checkbox"/> Others
I-frame rate (seconds or frames)	
Asymmetric video codec transfer	<input type="checkbox"/> Applicable <input type="checkbox"/> Not applicable
Frame size and maximum frame rate	<input type="checkbox"/> QCIF (fps) <input type="checkbox"/> CIF (fps) <input type="checkbox"/> QVGA (fps) <input type="checkbox"/> VGA (fps) <input type="checkbox"/> 4SIFi (fps) <input type="checkbox"/> 720p (fps) <input type="checkbox"/> 1080i (fps) <input type="checkbox"/> 1080p (fps) <input type="checkbox"/> Others

Participating organizations and Testing Configuration

Location#1: Bangkok



SIP



UNI



UNI



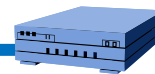
UNI



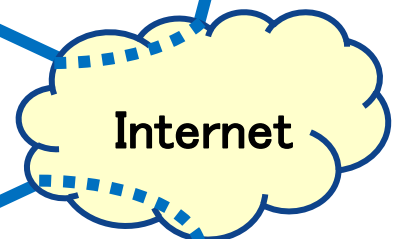
UNI



SIP

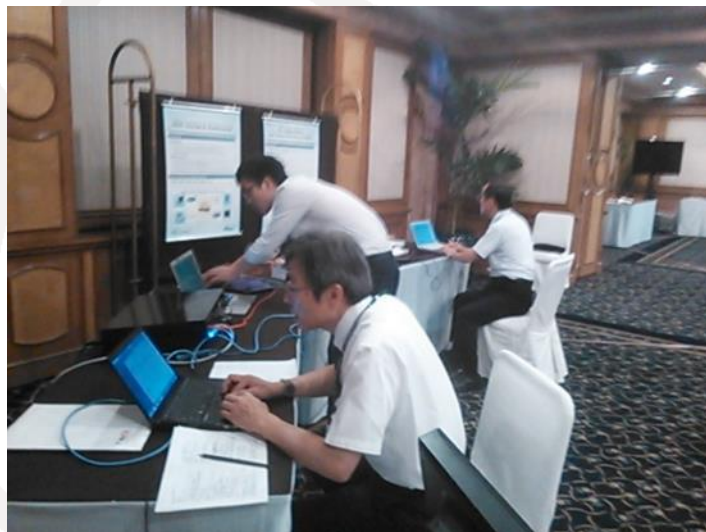


Location#2: Kanagawa



Location#3: Tokyo

Pictures



Bangkok, Thailand, 25 - 26 August 2014

Test results

■ VoIP E2E testing

Result (VoIP)		1 st event, 2013 Ratio(%)	2 nd event, 2014 Ratio (%)
Audio			
OK		40%	100%
NG		60%	0%

■ Multimedia E2E testing

Result (Multimedia)		1 st event, 2013 Ratio(%)	2 nd event, 2014 Ratio (%)
Audio	Video		
OK	OK	13%	67%
OK	NG	37%	33%
NG	NG	50%	0%

Consideration of test results

- VoIP E2E service testing
 - The test result was improved by feedback from the 1st test result in last year.
- Multimedia E2E service testing
 - The connection result was improved by feedback from the 1st test result in last year.
 - The issue of video profile remains.
- Remote testing configuration
 - It was successful to integrate VPN configuration for remote participants
 - Video noise was found in remote testing. It is possible to consider that this reason is loss band, packet delay by using Internet.



NGN Showcasing

Smart Visual Station (NC1000-MV)

High-Quality Video

- H.264/AVC true HD/Full HD video quality
- Packet-shaping and FEC for preventing packet-loss

High-Quality Audio

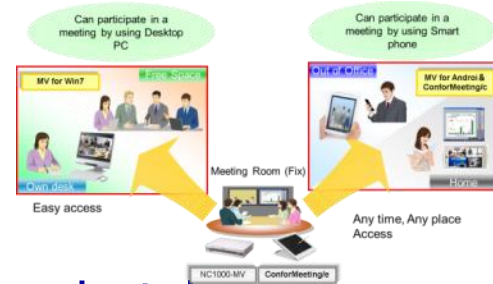
- MP4-AAC (high quality audio) for accurate voice communication

Proven over multiple Access Network

- ADSL optimized features for customers to utilize existing access
- Proven over new access networks such as WiMAX and LTE

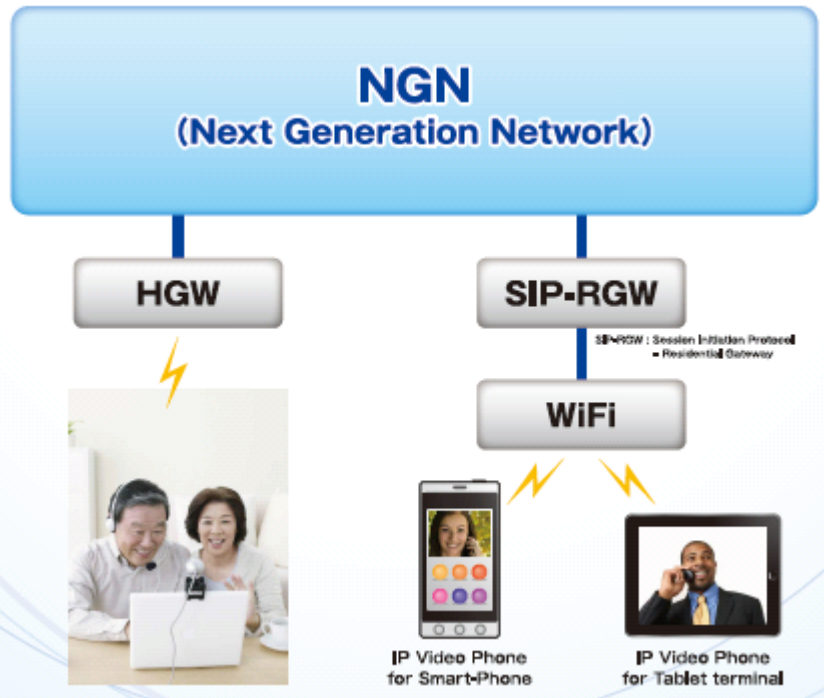
Flexible Network Support

- Internet, SIP, IP-VPN all supported
- RACF based QoS over NGN/IMS network



IP Video Phone for Smart-Devices on NGN

- IP Video Phone are multimedia communication tool for smart devices on NGN
- Automatically recognition for current access network and adapt the optimized profiles



■ Specification

- Protocol: RFC3261(SIP)
- Media Codec:
 - Audio: G.711/G.722
 - Video: H.264(SD/HD), MPEG-4
- OS: Android 4.x

NGN Network Simulator

-- For telecom testing for NGN Terminals --

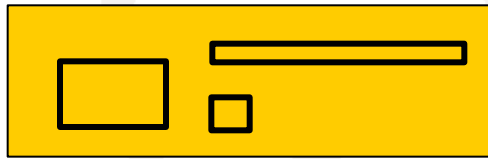
■ Feature

- NGN Exchange Simulation
 - Supports 4 NGN line ports.
 - Provides NGN-UNI interface on each line.
 - SIP based on ITU-T Q.3402 NGN-UNI.
 - Supports regional terminal registration procedure.
 - Supports extra network services on regional NGN.
- SIP Scenario Testing
 - Provides Scenario function for ITU-T Q.3402 NGN-SIP.
 - Customizing various SIP sequences.
- Regulation Testing
 - Conformance testing for regional IP terminal regulation.

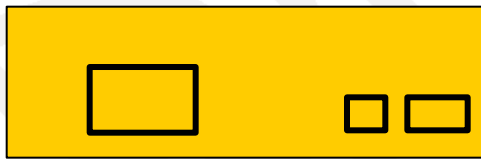


neix | **NEIX Inc.**

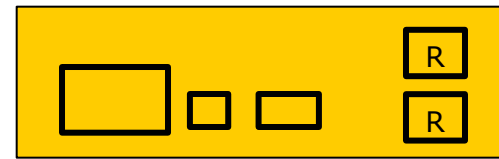
NGN Testing & Showcasing Layout Image



HD Video Phone
from NEC








NGN Simulator from
NEIX



NGN Terminal from
OKI
NGN Terminal
(Remote Test
)

Legend

-  Panel or Poster
-  Display
-  Equipment/NGN Simulator
-  Equipment/Terminal
-  SIP-RGW Equipment



Remote Test

Conclusion

- To confirm the almost basic NGN services was successful in this 2nd interoperability event.
- Interoperability event can identify both issues of current standardized recommendation protocols and issues of participating products. It is important to feedback this event's result to future recommendation and product's implementation.
- Application service (ex. T.38 IP-FAX, Video-conference) testing specifications are now being drafted in ITU-T SG11. We hope to add other NGN E2E service testing on next event.
- It's important to promote for new members to participate in this event.



Thank you!