Harmonization of Advanced Telecommunication Systems

HATS

Overview of NGN interoperability test2012 in HATS

July 13th 2012

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Agenda

Harmonization of Advanced Telecommunication Systems HATS

- Overview of HATS
- NGN Service Trend in Japan
- Overview of NGN interoperability Test in HATS

Overview of HATS

Content:
HATS General: This slide introduces the HATS activities to ensure the interconnectivity among various Info-communication equipment in multi-carrier/vendor environment of Japan.

HATS General -What is HATS ?-

Harmonization of Advanced Telecommunication Systems

HATS

HATS Conference: Promotion Conference of Harmonization of Advanced Telecommunication Systems

Activates to assure interconnectivity and interoperability between info-communication equipment of different manufacturers

HATS is the Non-Profit organization to ensure the Telecommunication Equipments Inter-operability in order to give a user convenience.

HATS was established in Aug. 1988.

- Members: info-communications manufacturers,vendors, carriers, TTC, MIC*1
- Secretariat: Communications and Information network Association of Japan (CIAJ)

Note*1:**MIC**(**M**inistry of **I**nternal Affairs and **C**ommunication, At that time MPT: **Ministry of Posts and Telecommunications**

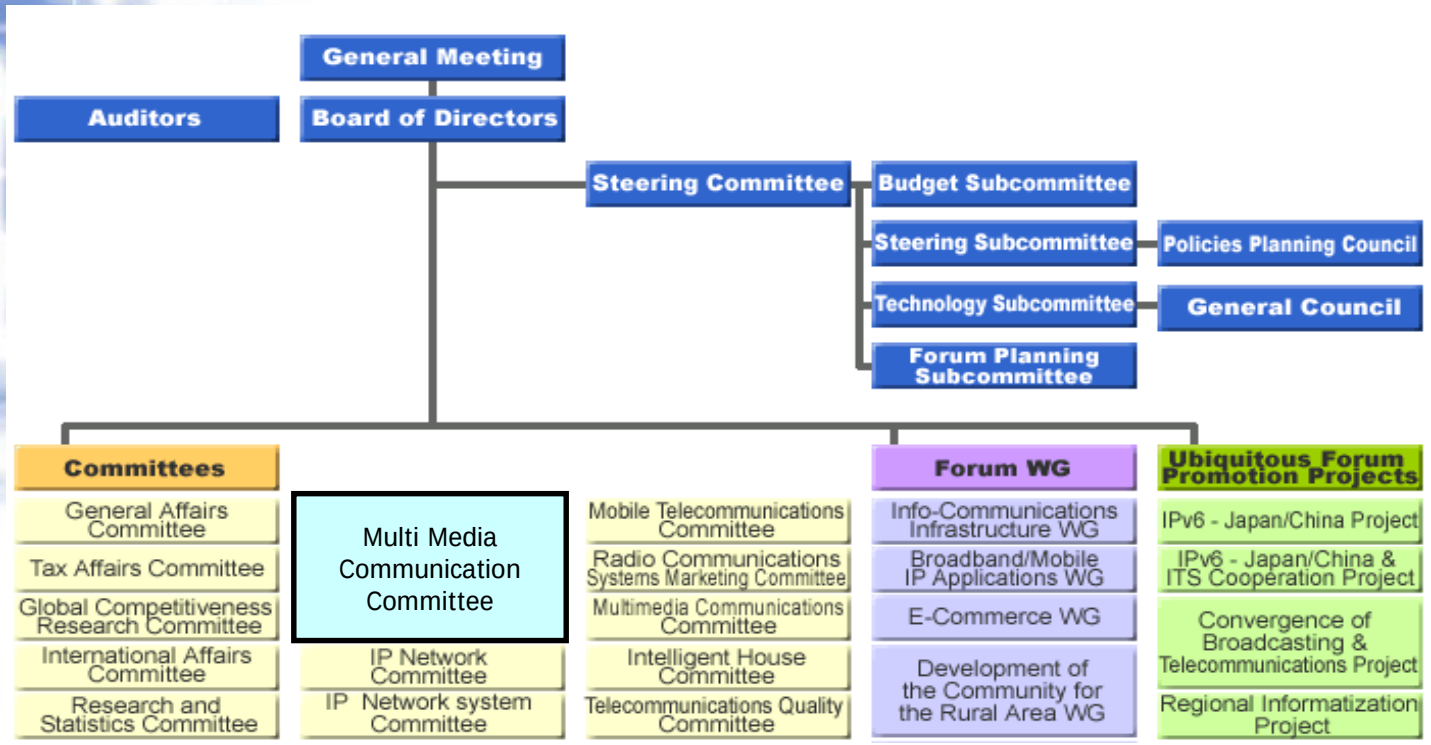
For the details,
http://www.ciaj.or.jp/hats/english/about.html

What is the CIAJ ?

H armonization of
A dvanced
T elecommunication
S ystems
HATS

CIAJ: Communications and information network association of Japan
CIAJ is committed to the healthy development of info-communication network industries through the promotion of info-communication technologies (ICT) in Japan.

The Multi Media Communication Committee discuss the technical issues about multi media communication equipment, and act the IOT with HATS which is a group of CIAJ.

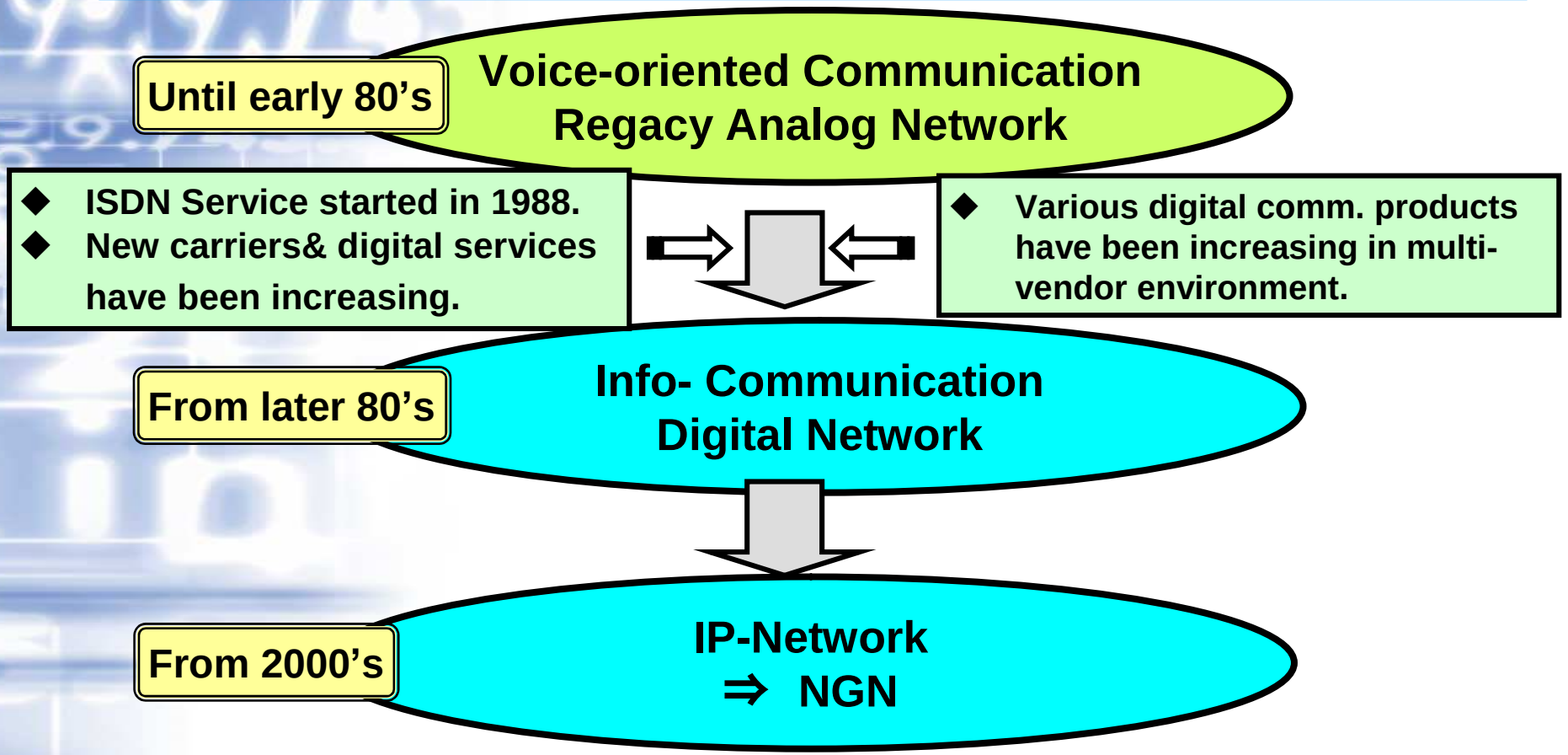


And more…

http://www.ciaj.or.jp/en/

Necessity of HATS

Harmonization of Advanced Telecommunication Systems HATS



<Interconnectivity of communication systems is required>

In order to develop sound Info-communication market, a framework aiming at ensuring end-to-end interconnectivity among various Info-communication equipments was needed in multi-carrier/multi-vendor environment.

Structure of HATS Conference

Harmonization of Advanced Telecommunication Systems **HATS**

Chairman
Executive Committee
-decides basic policies, overall HATS activities and establishment of new TILC

Management Committee

Steering Committee
-researches on ICT standardization & market trends
- coordinates TILCs activities
- liaises with other organizations

Advisory Committee
- gives advice on overall HATS activities

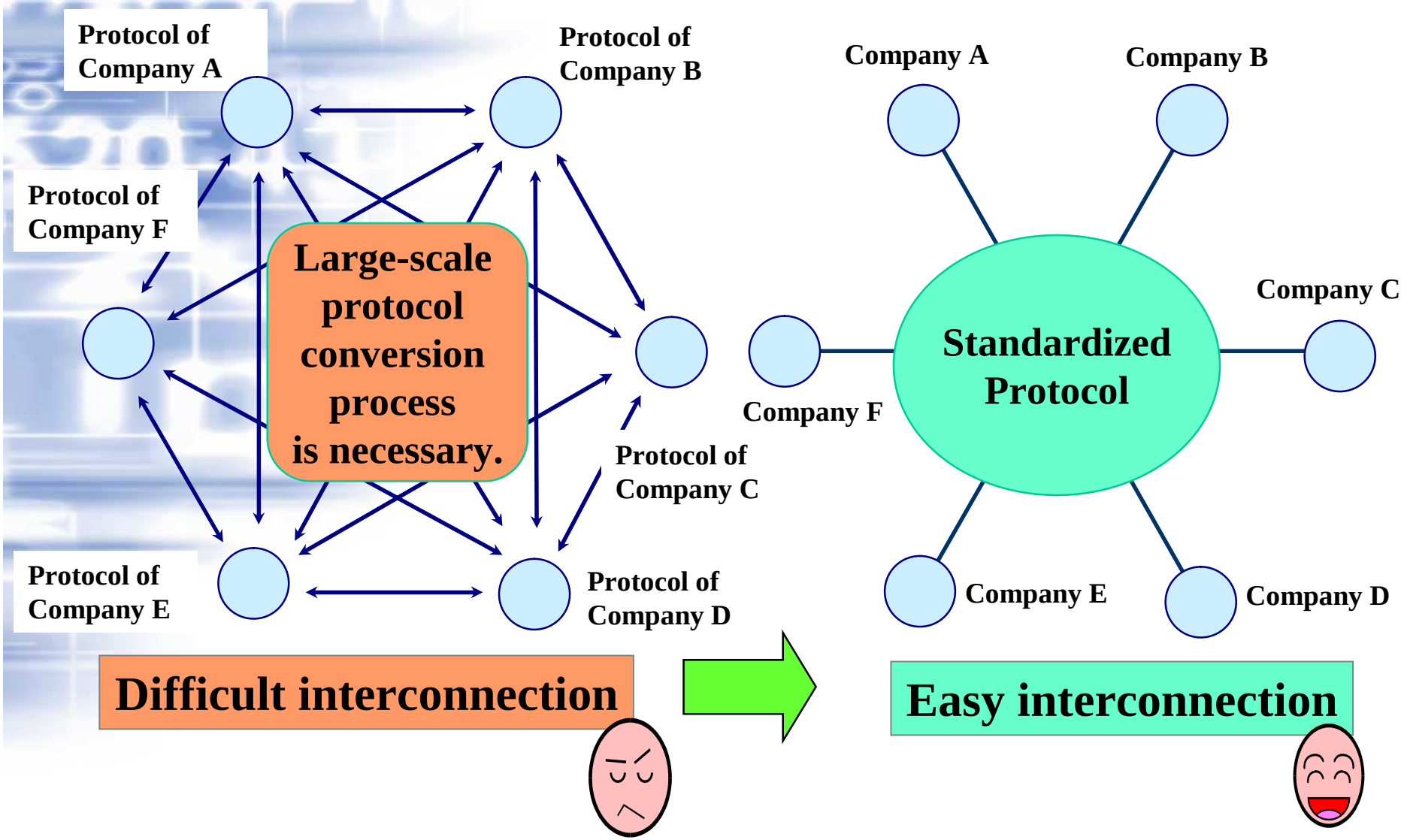
Promotion Committee
& Demonstration Committee
- disseminates HATS activities
- plans/arranges seminars & demonstrations

Test Implementation Liaison Committees(TILCs)
-Plans & implements interconnectivity test
- examines test method/procedure
- reviews&studies test result

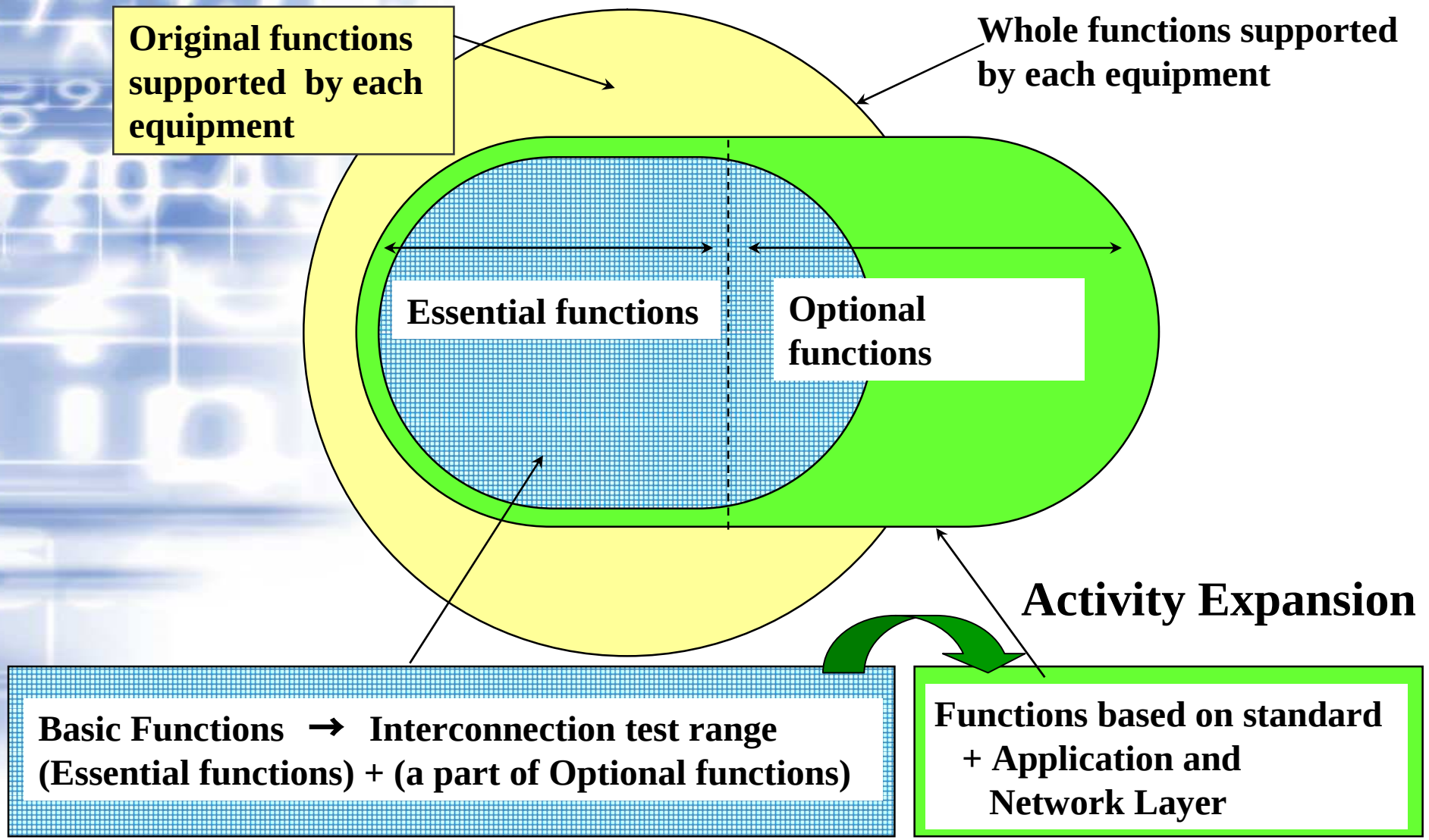
- **Facsimile TILC**
- **PBX Telecom Server TILC**
- **Multimedia Comm. TILC**
  - **VoIP WG**
  - **Video Conference WG**
  - **Home-Network WG**
  - **IP-Camera WG**

Secretariat: Communications and Information network Association of Japan (CIAJ)

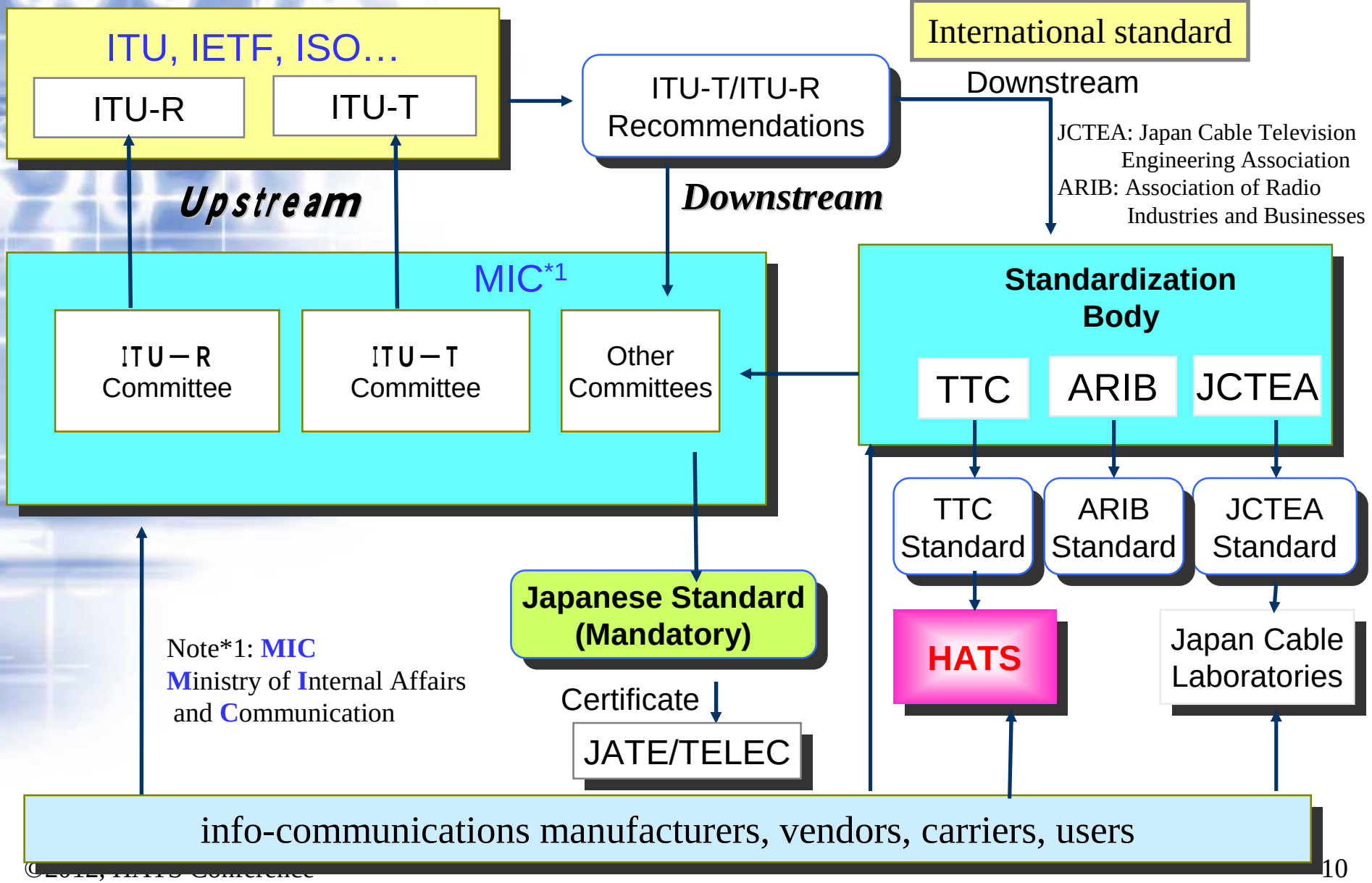
Merits of Standardization



5. The Interconnectivity Test Range Targeted by HATS

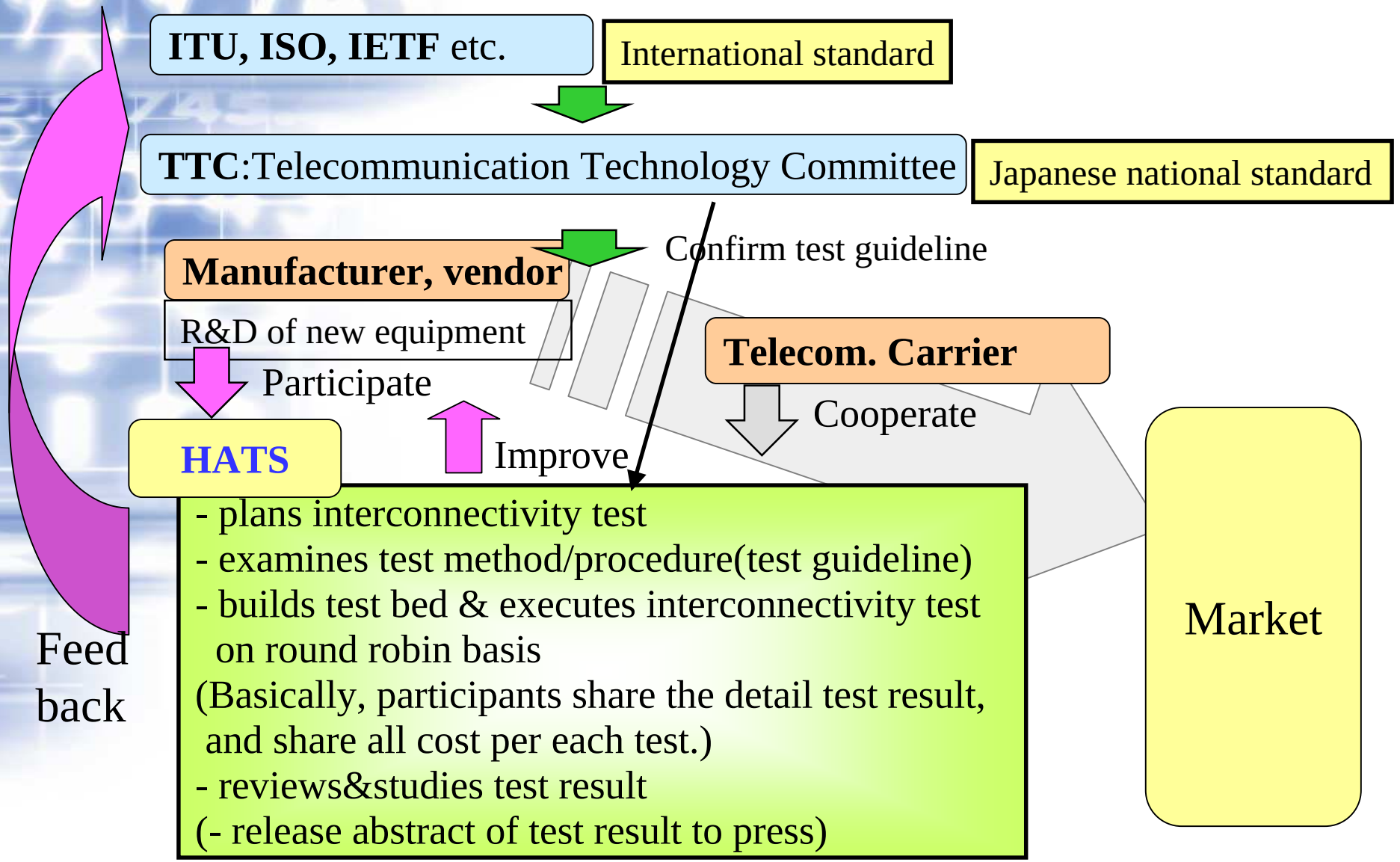


Standardization Flow in Japan



Role of HATS

Harmonization of Advanced Telecommunication Systems HATS



Variety of HATS Test

Harmonization of Advanced Telecommunication Systems **HATS**

1989- ISDN Terminal Adapter/digital telephone, G4 facsimile, PBX, MHS
1990- Analog videophone
1991- Digital videophone/videoconference, LAN router
1996- Super G3 facsimile
1997- MPEG2(H.262)
1999- LAN router(ATM, IPsec), H.324 videophone, Internet facsimile
2000- H.323 videophone(over IP), Color facsimile
2001- ADSL, LAN router(IPv6 native/tunnel mode), PBX(VoIP:IP-QSIG), SIP(VoIP), Internet-FAX
2002- ADSL(CPE), LAN router(OSPF, PPoE), SIP(VoIP), H.323+, IP-PBX(VoIP:IP-QSIG+), Internet-FAX
2003- ADSL, LAN router(VRRP), sYCC colour FAX, H.323, SIP PBX(IP-QSIG)
2004- LAN router (Internet VPN: IPsec-IKE), PBX-SIP , H.323, SIP
2005- PBX-SIP, IP-FAX, SIP, MPEG4
2006- PBX-SIP, IP-FAX, SIP, MPEG4, H.264
2007-2011 Expand the test function of the above-mentioned and established new 2 groups (Home Network and IP Camera)

Note:
ADSL and LAN TILC has terminated on 2005.

Actual results of HATS test

Harmonization of Advanced Telecommunication Systems HATS

ITEMS	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
PBX	3	7	5	5	5	5	5	5	5	5
Facsimile	1	5	0	11	10	22	1			7
LAN	24	11	6							
H.323	17	13	6							
SIP	29	32	23	18	20	10	12	10	3	
MPEG4			4	5	4	2	5	0		
H.264					3	4		2		
DSL	4									
NGN										3
IP-Camera								11	10	7
HN										3
Total	78	68	44	39	42	43	23	28	18	25

Number of Info-communication Equipment Tested Under HATS Scheme (JFY2011) ⇒ **25**
(TOTAL : JFY1988-2011)
⇒**1,393**

1989- ISDN Terminal Adapter/digital telephone, G4 facsimile, PBX, MHS
1990- Analog videophone
1991- Digital videophone/videoconference, LAN router
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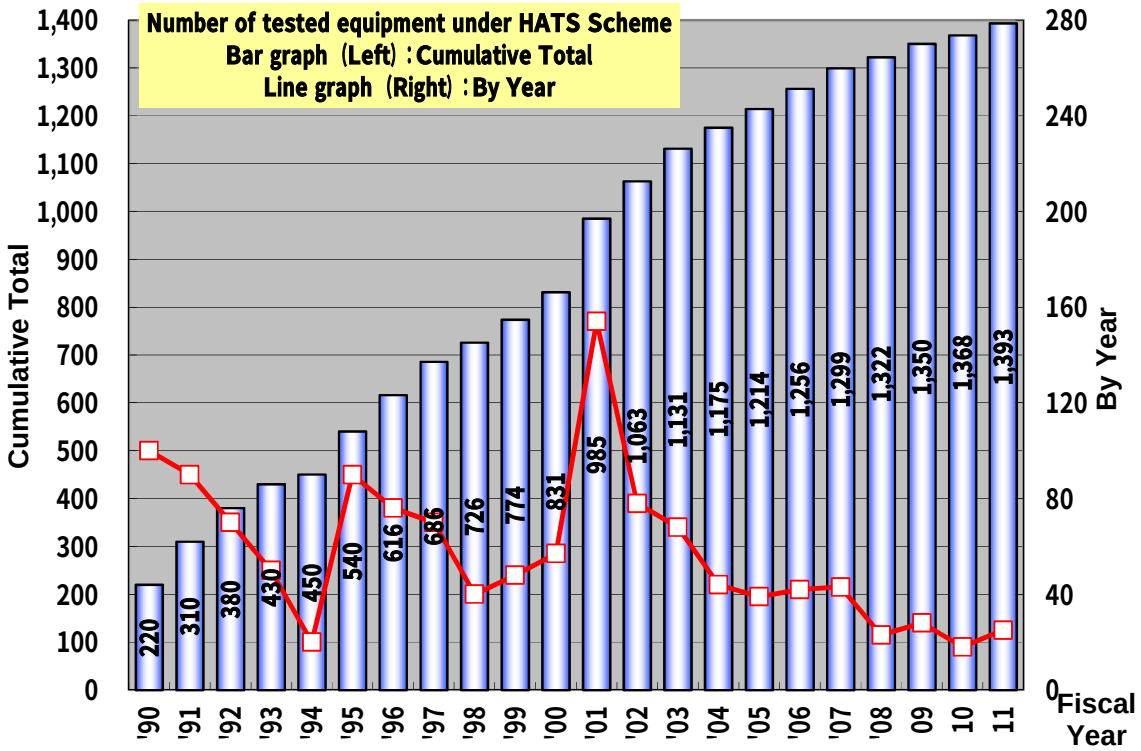
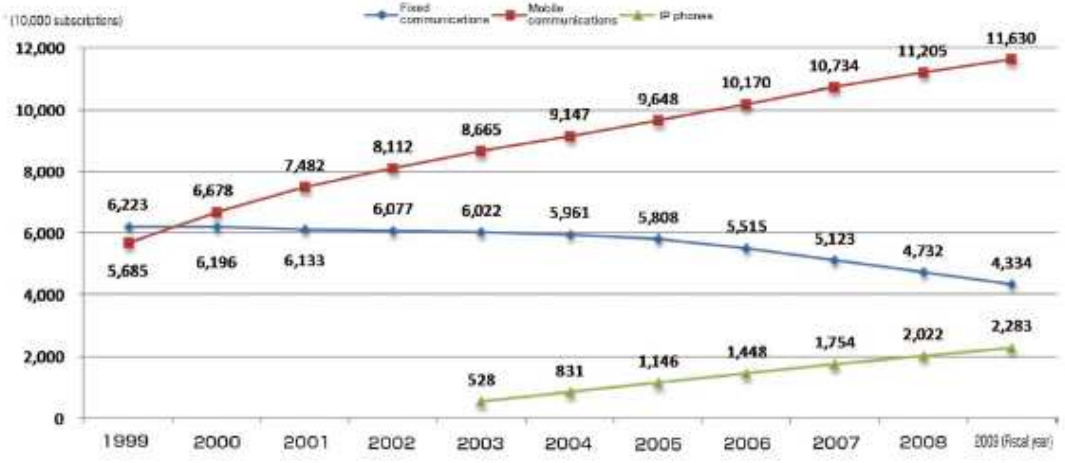


Harmonization of Advanced Telecommunication Systems HATS

NGN Service Trend in Japan

Number of subscribers to IP phone



(Source) Compiled from the Subscription to Telecommunications Services (end of March 2010), Ministry of Internal Affairs and Communications

2010 WHITE PAPER Information and Communications in Japan

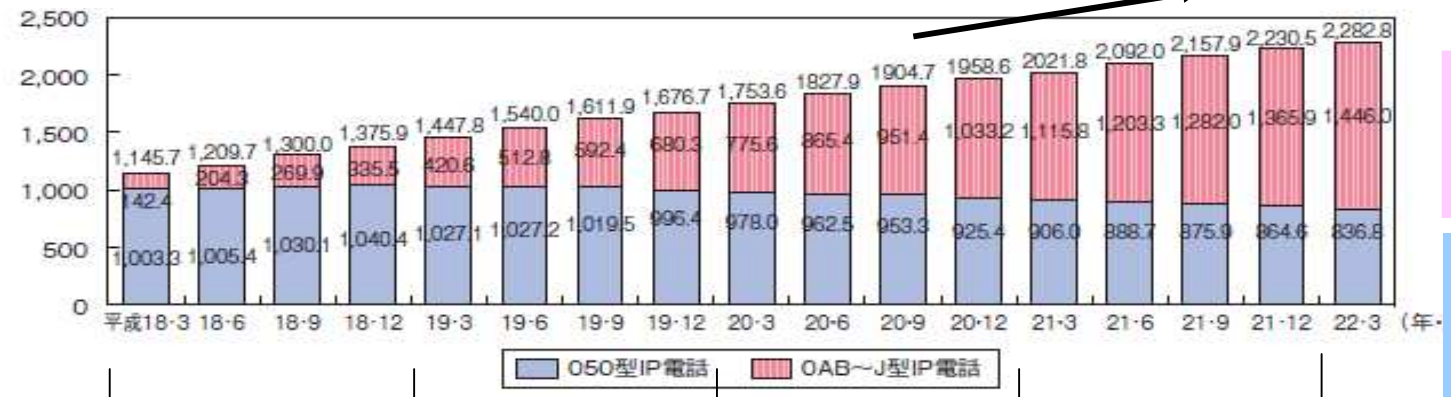
Ministry of Internal Affairs and Communications, Japan

http://www.soumu.go.jp/johotsusintokei/whitepaper/eng/WP2010/chapter4-3.pdf

End of FY2009
22.83M users

+15% / year

10000 subscriptions



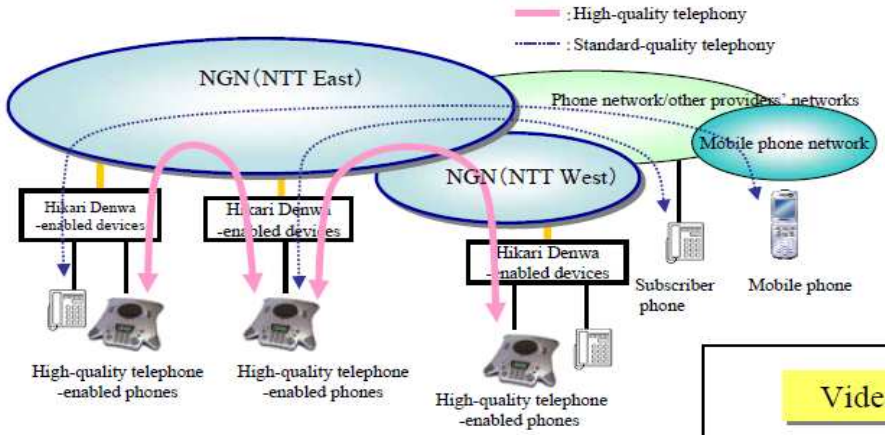
- 0AB-J IP phone high quality
- 050 IP phone available on ADSL

2006 | 2007 | 2008 | 2009 | 2010 (FY)

NTT EAST & NTT WEST Start Next-Generation Network Commercial Services on 31 MARCH 2008

Harmonization of Advanced Telecommunication Systems HATS

Voice Communication (Standard Quality, High Quality)

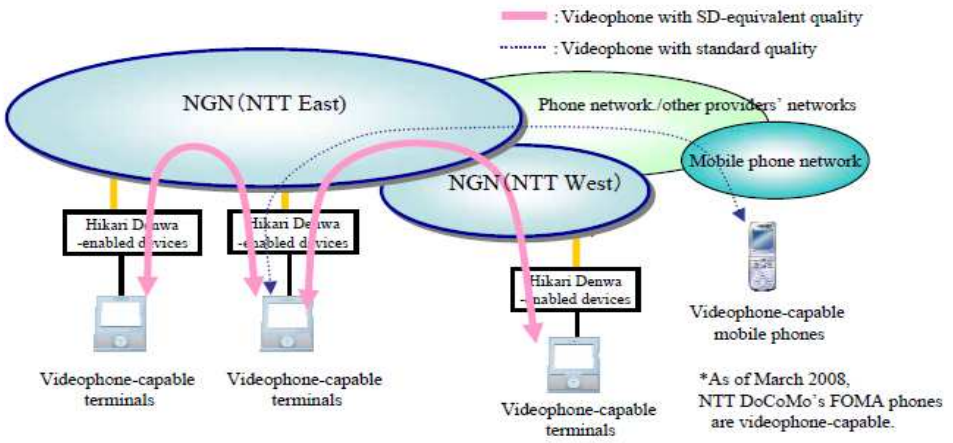


- SIP is used as a basic protocol of NGN
  - Session Control
  - Bandwidth guarantee
  - Quality of Service (QoS)

http://www.ntt-east.co.jp/release_e/0803/pdf/080328a_2.pdf

- HikariDenwaservices available to subscribers of FLET'S HikariNext
- HikariDenwaservices (0AB～J IP phone services)
- new high-quality telephone services (7kHz) delivering clearer voice communication
- broadband videophone services displaying natural movements
  - SD-equivalent quality: regular TV class
  - high-resolution images

Videophone Services (Standard Quality・SD-Equivalent Quality)



Harmonization of Advanced Telecommunication Systems

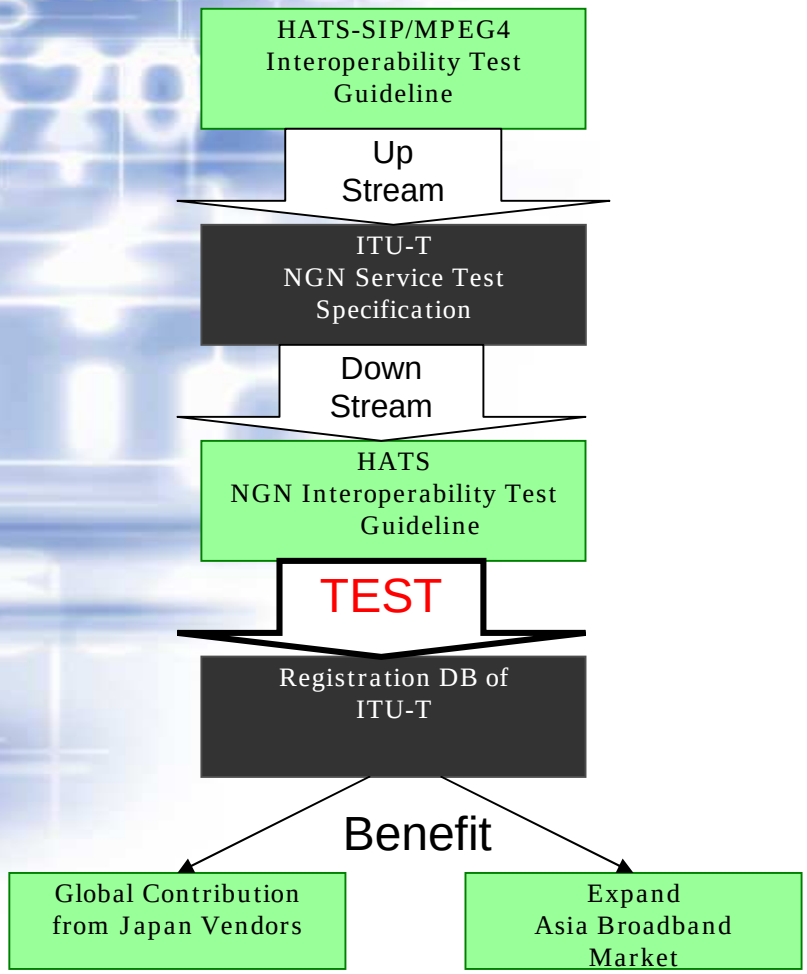
HATS

Overview of NGN interoperability Test in HATS

Standardization of Interoperability Test

Harmonization of Advanced Telecommunication Systems HATS

- HATS and TTC contribute to ITU-T Standardization of NGN Service Interoperability Test.



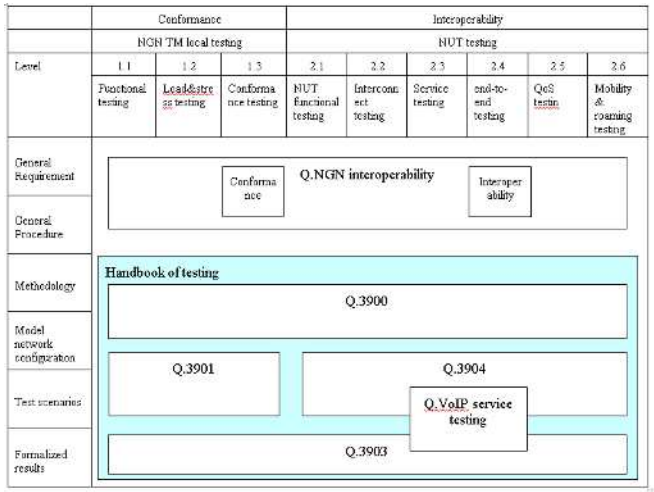


Figure 2 NGN testing document positioning map

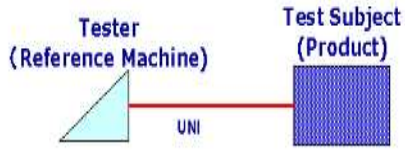


Figure 3 General Configuration of NIT for the VoIP Service testing

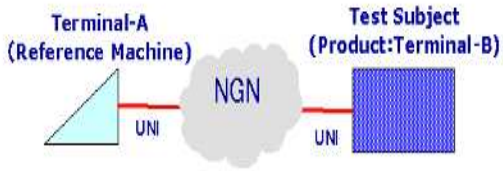


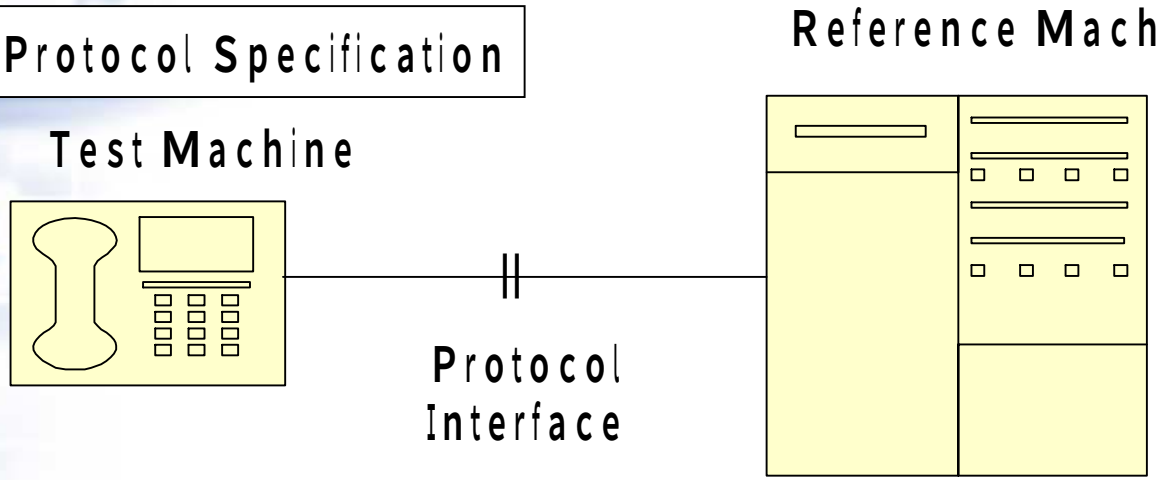
Figure 4 General Configuration of VoIP interoperability testing of the End-to-End service

NGN Service Test Recommend of ITU-T

Conformance Test and Interoperability Test

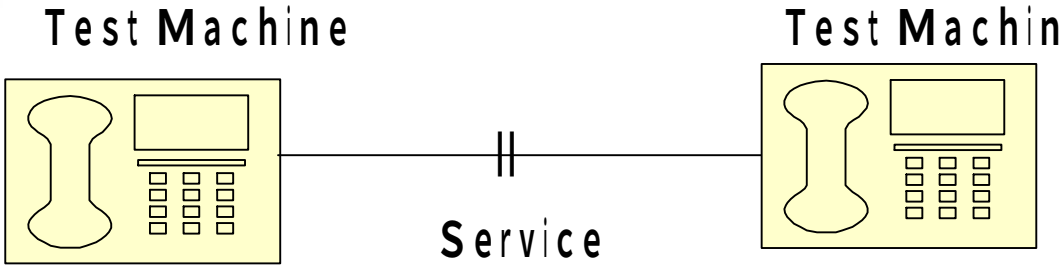
Harmonization of Advanced Telecommunication Systems HATS

Verification of Protocol Specification



(a) Conformance Test

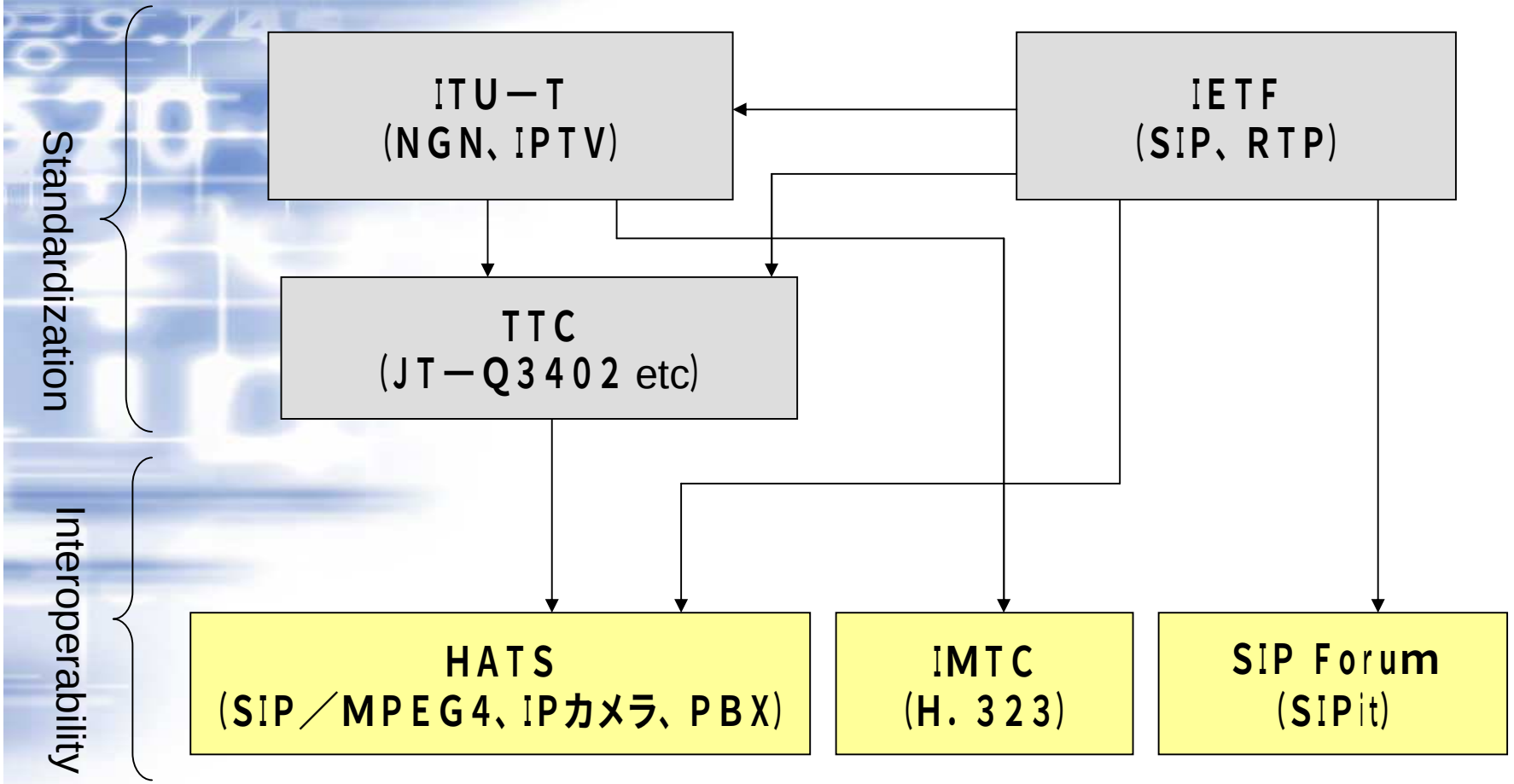
Verification of Service Specification between Machines



(b) Interoperability Test

Relationship on SDOs

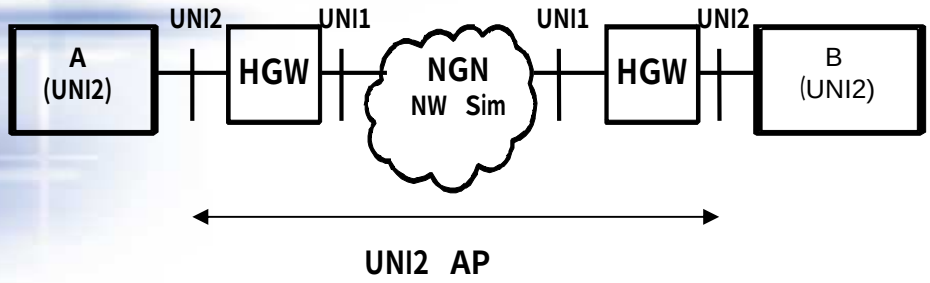
Harmonization of Advanced Telecommunication Systems HATS



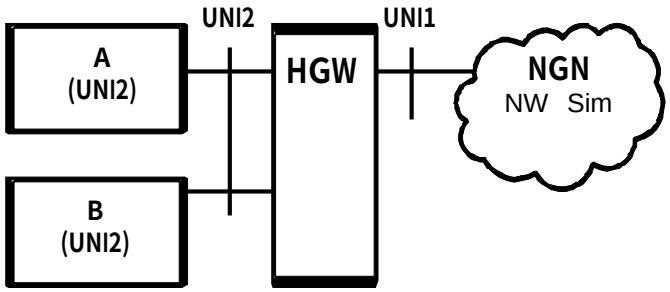
Interoperability Trial Test via NGN(2011)

Harmonization of Advanced Telecommunication Systems HATS

- ✓Purpose：Expansion of NGN Market by Interoperability between Equipments
- ✓Test Suites：NGN Network Simulator、Home Gateway、Office Gateway
- ✓Test scenario：
  - ✓ Interface：UNI2 (under Gateway)
  - ✓ Profile：IP-Phone／Video-Phone・Video-Conference、IP-FAX (T.38)、Contents Transfer
  - ✓ Vendor：NTT、NTT Advanced Technology、NEIX、Brother Industries、Ricoh、Fuji Xerox、Toshiba Tech
- ✓Date：13th Sep 2011～14th SEp 2011



Case１）Interoperability Test via NGN NW Simulator



Case２）Interoperability Test via Home Gateway

Interoperability Trial Test via NGN(2011)

Harmonization of Advanced Telecommunication Systems HATS

- 6 Vendors、10 Terminal（NTT、NTT Advanced Technology、Neix、Brother Industries、Ricoh、Fuji Xerox、Toshiba Tech）
  - IP-Phone、Video-Phone
  - IP－FAX
  - Contents Transfer

- NGN Network Simulator 2 Vendor（NTT、NEIX）

Photo in NGN Trial Test

Result of Interoperability Trial Test via NGN

Harmonization of Advanced Telecommunication Systems HATS

NW Simulator 1

Category	HGW	Test Case	Interoperable Rate
IP-Phone Video-Phone	RT-S300	1	100%
		2	100%
	RT-S300 OG-400	1	100%
Contents Transfer	RT-S300	1	100%
		2	100%
IP-FAX	RT-S300	1	69%
	RT-S300	2	57%
	OG-400 OG-800	1	16-24%
		2	50-52%

NW Simulator 2

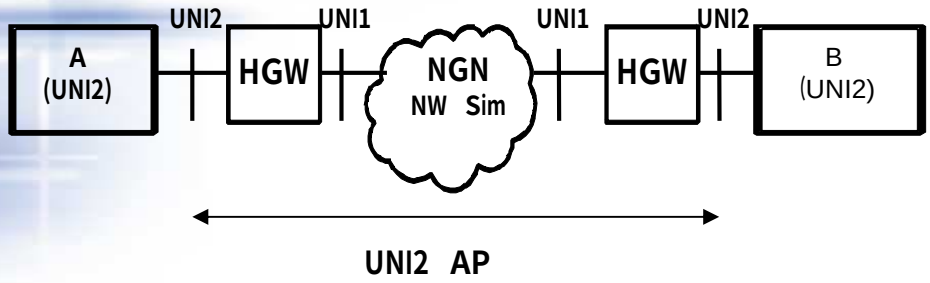
Category	HGW	Test Case	Interoperable Rate
IP-Phone Video-Phone	RT-S300	1	100%
	RT-S300	1	100%
	RT-S300	1	61%

- Results Overview
  - IP-Phone, Video-Phone, Contents Transfer can connect all Terminal
  - IP-FAX has occurred some problem in IFP(IP-FAX Protocol(T.38)) Phase.

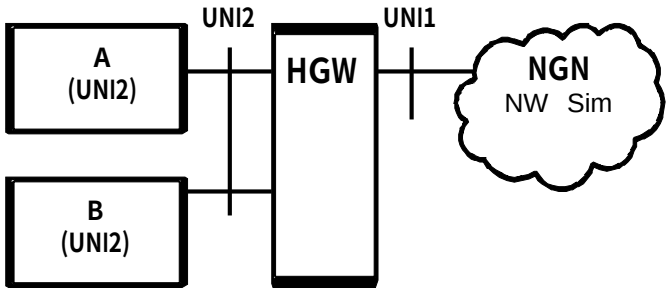
Interoperability Trial Test via NGN(2012)

Harmonization of Advanced Telecommunication Systems HATS

- ✓Purpose：Expansion of NGN Market by Interoperability between Equipments
- ✓Test Suites：NGN Network Simulator、Home Gateway、Office Gateway
- ✓Test scenario：
  - ✓ Interface：UNI2 (under Gateway)
  - ✓ Profile：IP-Phone／Video-Phone・Video-Conference、IP-FAX (T.38)、Contents Transfer
  - ✓ Vendor：NTT、NEIX、Brother Industries、Ricoh、Fuji Xerox、Toshiba Tech、NEC、Softfront、Konica Minolta Business Technologies、OKI
- ✓Date：11th －12th July 2012



Case１）Interoperability Test via NGN NW Simulator



Case２）Interoperability Test via Home Gateway

Interoperability Trial Test via NGN(2011)

Harmonization of Advanced Telecommunication Systems HATS

- 10 Vendors and 12 Terminals
  - VoIP and Video Terminals （NTT、Softfront、NEIX、OKI、NEC）
  - IP－FAX （Fuji Xerox、Ricoh、Brother Industries）
  - Contents Transfer （Konica Minolta Business Technologies、Toshiba Tech、NTT、Softfront）

- NGN Simulator（NTT、NEIXS）

Photos on NGN interoperability Test

Check Sheet

Appendix 1

Sheet 1: NGN VoIP Interoperability Test Check Sheet (Outline call)

Company/Organization	
Person in charge	
TEL	
FAX	

Test date [(year) (month) (date) : ~ :]

Test location [ ]

UA A [Company/Organization: Model type:]

UA B [Company/Organization: Model type:]

NGN environment [Company/Organization: Model type:]

List of test items

No	Item		Judging standard	Result (OK / NG)	Remarks (problem etc.)
1	Sending side (Terminal A)	Terminal registration	Confirm receiving the correct response from Network.		One time sucusses gets through the test
2		Deletion of terminal registration	Confirm receiving the correct response from Network.		One time sucusses gets through the test
3		Confirmation of audio communication	Confirm the communication of audio and the video in each mode. Record the mode used.		Sending side encoding mode Receiving side encoding mode
4		Update of Session Timer	Confirm the session timer is updated by UPDATE request and OK response at least one time.		
5		Call disconnection	Confirm that Terminal disconnected properly when Terminal disconnected.		
6	Option	Cancellation	Confirm if call cancellation procedure is done properly and both terminals return beginning state properly.		
7		Rejection and Busy	Confirm if Calling UA receives a notice of rejection properly and both terminals return beginning state properly.		
8	Sending side (Terminal B)	Terminal registration	Confirm receiving the correct response from Network.		
9		Deletion of terminal registration	Confirm receiving the correct response from Network.		
10		Confirmation of the audio communication	Confirm the communication of audio and the video in each mode. Record the mode used.		Sending side encoding mode Receiving side encoding mode
11		Update of Session Timer	Confirm the session timer is updated by UPDATE request and OK response at least one time.		
12		Call disconnection	Confirm that Terminal disconnected properly when Terminal disconnected.		
13	Option	Cancellation	Confirm if call cancellation procedure is done properly and both terminals return beginning state properly.		
14		Rejection and Busy	Confirm if Calling UA receives a notice of rejection properly and both terminals return beginning state properly.		

Sheet 2: NGN VoIP Interoperability Test Check Sheet (extension call)

Company/Organization	
Person in charge	
TEL	
FAX	

(month) (date) : ~ :]

]

rganization: Model type:]

rganization: Model type:]

rganization: Model type:]

List of test items

Judging standard	Result (OK / NG)	Remarks (problem etc.)
Confirm receiving the correct response from Network.		One time sucusses gets through the test
Confirm receiving the correct response from Network.		One time sucusses gets through the test
Confirm the communication of audio and the video in each mode. Record the mode used.		Sending side encoding mode Receiving side encoding mode
Confirm the session timer is updated by UPDATE request and OK response at least one time.		
Confirm that Terminal disconnected properly when Terminal disconnected.		
Confirm if call cancellation procedure is done properly and both terminals return beginning state properly.		
Confirm if Calling UA receives a notice of rejection properly and both terminals return beginning state properly.		
Confirm receiving the correct response from Network.		
Confirm receiving the correct response from Network.		
Confirm the communication of audio and the video in each mode. Record the mode used.		Sending side encoding mode Receiving side encoding mode
Confirm the session timer is updated by UPDATE request and OK response at least one time.		
Confirm that Terminal disconnected properly when Terminal disconnected.		
Confirm if call cancellation procedure is done properly and both terminals return beginning state properly.		
Confirm if Calling UA receives a notice of rejection properly and both terminals return beginning state properly.		

Harmonization of Advanced Telecommunication Systems HATS

■ Test Result

NGN Simulator1

Category	Cases	Interoperability RATES
IP-Phone (VoIP)	via NGN	100%
	via HGW	100%
Video Phone	via NGN	42%
	via HGW	66%
Contents Transfer	via NGN	100%
	via HGW	100%
IP-FAX	via NGN	100%
	via HGW	100%

NGN Simulator2

Category	Cases	Interoperability RATES
IP-Phone (VoIP)	via NGN	100%
Video Phone	via NGN	42%
Contents Transfer	via NGN	100%
IP-FAX	via NGN	100%

■ Consideration

- **Problems of Video Phone**
  1) **Expand Header of SIP in Smartphone with WiFi**
  2) **Fall-Back Procedures in Multi-codec implementations**

Future Program

Harmonization of Advanced Telecommunication Systems HATS

- **For the next Step, we are now working to revise test guideline document.**
  - **Add newly trial additional service function test procedure.**

- **Considering to expand a scope.**
  - **NGN services**
  - **NGN application interface (ANI, SNI)**
  - **IPFAX**
  - **Contents Transfer**
  - **IPTV**
  - **Home Network**