

## VoIP and ENUM Activities



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## AGENDA

- VoIP service; routing architecture
- VoIP/SIP Interoperability Task Force
- ENUM Trial Japan
- VoIP over MIPv6/NEMO/MANET

## VoIP & Multicasting

- NTT East & West, Plala
  - VoIP service with IPv6
  - Multicasting streaming service with IPv6
- DV(Digital Video) Multicasting over JGN2
- DV over IPv6 for TV productions
  - Contents distribution among local TV players(e.g., CATV)
  - Portable DVTS gear
  - DV switcher
    - ➔ direction of digital appliances networking

## NTT East & West switched on IPv6 - covers nation-wide -

- NTT West, since December 24, 2004.
  - Contents distribution
    - Multicasting and VoD
  - High quality video-phone, with instant messaging
  - Fairness control /Queuing
  - IPv4 over IPv6 for legacy ISP
- NTT East
  - Contents Distribution
    - Multicasting and VoD
  - High quality video-phone
  - FLET's Net
  - Multi-Homing (plan)



NTT Regional Co.  
IP Video Phone

## Numbering plan for IP telephony in Japan

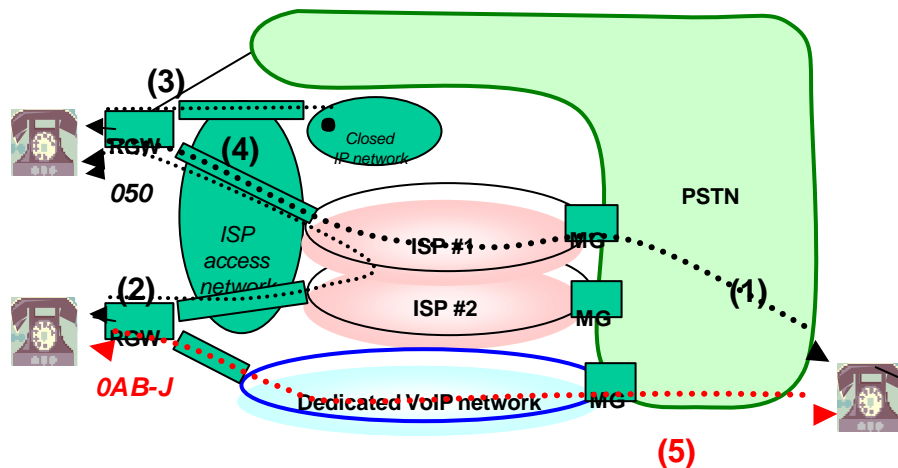
- In Japan, a specific numbering plan is applied for existing telephony, e.g., 0A0, 0AB0.
- For IP telephony, a new number allocation policy was introduced in Oct. 2002 based on performance and capabilities.

	R-value	End-to-end delay	Call failure rate	Emergency call	Telephone number
Class A	80–	~100 ms	0.15	Yes	0AB~J
				No	050
Class B	80–	~150 ms	0.15	Yes	0AB~J
	70–			Yes/no	050
Class C	50–	~400 ms	0.15	No	050

R-value (general voice transmission quality rate) is the figure indicates the comprehensive transmission quality of VoIP (ITU-T G.107). R-value and delay values are considered satisfactory when 95% of the samples are satisfied.

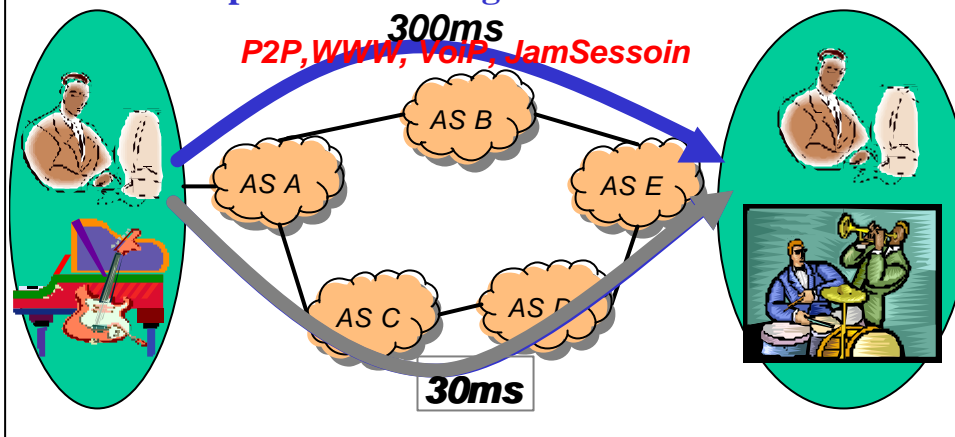
## IP telephony scenarios in Japan

In addition to the initial 050 type services, 0AB-J services are now being provided.



## Current Routing System

- Not-aware of Latency
  - $A \rightarrow B \rightarrow E = 3 < A \rightarrow C \rightarrow D \rightarrow E = 4$
- We need some tunneling technologies, e.g., MPLS, IP-in-IP, with policy routing....
  - We need new(?) routing architecture or operational configuration ?



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## Why we started Task Force ?

- Huge number (10M+) of IP-Phone installation
  - Triggered by yahoo BB, using the terrestrial phone number
  - NTT group, KDDI and Fusion Comm.
  - PBX migration
  - But,,,,,, we do not have interoperability among ISPs.....
- Started VoIP/SIP Interoperability Task Force
  - Run by JPNIC
  - Collab. With SIP Forum/SIPit, MSF, IPCC
  - Include IKE and ENUM
  - Will include SIP/ENUM over Mobile IPv6



## Founders



- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• IPv6普及・高度化推進協議会(V6PC)</li> <li>• 株式会社アズジェント</li> <li>• ENUMトライアルジャパン(ETJP)</li> <li>• 岩崎通信機株式会社</li> <li>• インテック・ウェブ・アンドゲノム・インフォマティクス株式会社</li> <li>• エヌ ティティ・アドバンステクノロジー株式会社</li> <li>• エヌ ティティ・コミュニケーションズ株式会社</li> <li>• エヌ ティティ・レゾナン株式会社</li> <li>• 沖電気工業株式会社</li> <li>• KDDI株式会社</li> <li>• サンテレホン株式会社</li> <li>• 伊藤忠テクノサイエンス株式会社</li> <li>• シスコシステムズ株式会社</li> <li>• 社団法人情報通信技術委員会(TTC)</li> <li>• 情報通信ネットワーク産業協会(CIAJ) 高度通信システム相互接続推進会議 (HATS推進会議)</li> <li>• 砂原秀樹(奈良先端科学技術大学院大学)</li> <li>• ソフトバンクBB株式会社</li> <li>• 株式会社ソフトフロント</li> </ul> | <ul style="list-style-type: none"> <li>• 社団法人テレコムサービス協会 VoIP推進協議会、</li> <li>• 株式会社東芝</li> <li>• 中村修(慶應義塾大学)</li> <li>• 西日本電信電話株式会社</li> <li>• 日本テレコム株式会社</li> <li>• 日本電気株式会社</li> <li>• 社団法人日本ネットワークインフォメーションセンター(JPNIC)</li> <li>• 特定非営利活動法人日本 VoIP フォーラム (VFJ)</li> <li>• 株式会社日本レジストリサービス</li> <li>• 株式会社ネットマークス</li> <li>• 東日本電信電話株式会社</li> <li>• 株式会社日立製作所</li> <li>• 富士通株式会社</li> <li>• フュージョン・コミュニケーションズ</li> <li>• 株式会社三菱総合研究所</li> <li>• 三菱電機情報ネットワーク</li> <li>• ヤマハ株式会社</li> <li>• WIDEプロジェクト</li> </ul> |
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# Structure



- Chair : Hiroshi Esaki (JPNIC/Univ.of Tokyo/WIDE)
- Vice-chairs : Osamu Nakamura (Keio Univ. ), Hideki Sunahara (NAIST), Yoshiki Ishida (ETJP), Masafumi Oe (WIDE)
- Supporting Organizations;
  - 社団法人情報通信技術委員会 (TTC)
  - 情報通信ネットワーク産業協会 (CIAJ)  
高度通信システム相互接続推進会議 (HATS推進会議)
  - IPv6普及 高度化推進協議会  
(サートイフイケーションWG SIP-SWG)
  - VoIP推進協議会
  - 特定非営利活動法人日本 VoIP フォーラム (VFJ)
  - JGN II
  - ENUMトライアルジャパン (ETJP)
- Oversea collaboration
  - MSF, SIP Forum, SIPit, IPCC, Moonv6
- Administrative Office : JPNIC, Mitsubishi Research Institute

## VoIP/SIP Interoperability Task Force

### Activities since December 2004.

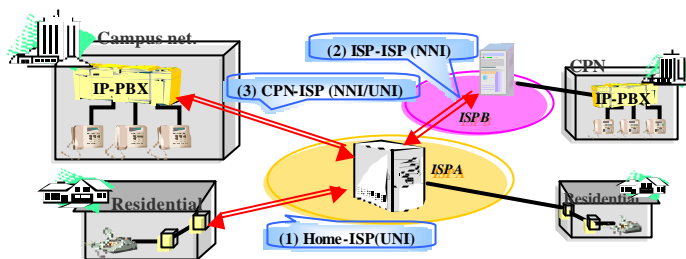
- Dec.2004 Established Task Force
- Jan.2005 First TE - ISP Interoperability Testing
- Mar.2005 Second TE - ISP Interoperability Testing
- Apr.2005 Third TE - ISP Interoperability Testing  
ISP - ISP Interoperability Testing
- Jun.2005 INTEROP TOKYO 2005



## VoIP/SIP Interoperability Task Force

### Objectives and Targets

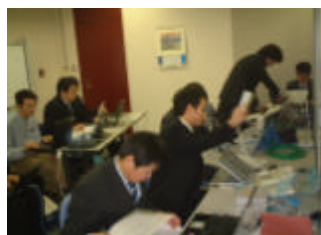
1. Establish interoperability among VoIP/SIP systems SIP
  - i. Multi-vendor
  - ii. Multi-Provider
2. Establish environments for interoperability testing
  - i. Publish specification (conformance and interoperability)
  - ii. Provide self-testing software
  - iii. Operate testbed and test-event
3. Collaboration with related organizations



## Interoperability Testing (1)

### TE-ISP (1)

Date : Jan.20, 2005  
 Venue : JGN2 Interoperability Lab in Tokyo  
 Test items :  
 - Place and receive call  
 - Cancel call  
 Participants :  
 ISP : **Fusion Communications**  
 TE : Iwatsu, Cisco Systems, Soft Front, Yamaha,  
 Hitachi Communications Tech.  
 Technical support : NTT-AT, JGN2, WIDE



### TE-ISP (2)

Date : March 4, 2005  
 Venue : JGN2 Interoperability Lab in Tokyo  
 Test items :  
 - Place and receive call  
 - Cancel call  
 - **Blocking call**  
 - **Pausing call**  
 Participants :  
 ISP : **KDDI**  
 TE : Iwatsu, Cisco Systems, Soft Front, Yamaha,  
 Fujitsu  
 Technical support : NTT-AT, JGN2, WIDE

## Interoperability Testing (2)

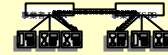
### TE-ISP (3)

Date : April 20, 2005  
 Venue : JGN2 Interoperability Lab in Tokyo  
 Test items :  
 - Place and receive call - Cancel call  
 - Blocking call - Pausing call  
 -100 rel - Session-Timer  
 - Number notification  
 Participants :  
 ISP : NTT Group (NTT SI Lab., NTT East, NTT West,  
 NTT Communications)  
 TE : Iwatsu, Cisco Systems, Yamaha, Fujitsu  
 Technical support : NTT-AT, JGN2, WIDE

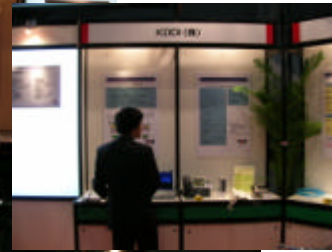
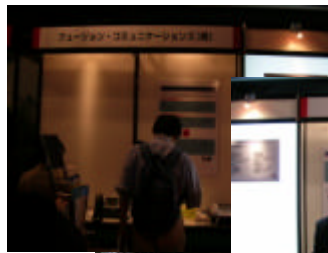
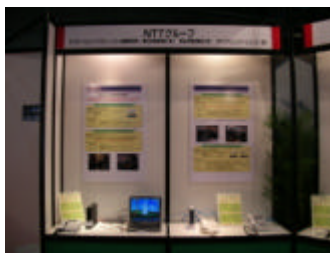


### ISP - ISP

Date : April 20-22, 2005  
 Venue : JGN2 Interoperability Lab in Tokyo  
 Test items :  
 - Place and receive call  
 - Cancel call  
 - Blocking call  
 Participants:  
 ISP : NTT Group (NTT SI Lab., NTT East, NTT West,  
 NTT Communications),  
 KDDI, Japan Telecom(with Yahoo BB!),  
 Fusion Communications  
 TE : Iwatsu, Cisco Systems, Yamaha, Fujitsu, Asjent, Oki  
 Technical support : NTT-AT, JGN2, WIDE



## Demonstration at INTEROP TOKYO 2005





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## ENUM Trial Japan (ETJP)

<http://etjp.jp/>

- Founders; JPNIC/JPRS/WIDE Project
- Established, September 17, 2003.
- Mission
  - Evaluation and establishment of ENUM basic service platform, applications and practical/professional feasibility.
  - Global and international collaboration regarding the ENUM trial, to share the technical and operational knowledge.
- Current topics
  - DNS-SEC
  - Security and Privacy, e.g., SPAM calls

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## VoIP over Mobile IPv6 (miptel)

<http://www.kame.net/~keiichi/event/miptel/index.html>

- Started since November 2004.
- We have open-source for MIPv6, NEMO and MANET
  - Nautilus6, SHASTA
- **Mission**
  - Integration of mobile IP technologies and VoIP technology.
  - Establish VoIP over Mobile IPv6, taking into account mobile VoIP service provisioning.
  - Integration of SIP and ENUM with VoIP/MIPv6.



## Conclusion

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