ENUM Activities in Japan

ENUM/SIP BoF in APRICOT
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ENUM Study Group

- Established
  - September 2002

- Objectives
  - Understanding the ENUM technology: desk work
  - Studying the implementation and operation of the ENUM-based system, and related matters
  - Finding political/regulatory issues related to ENUM-based implementation and operation
  - Finding technological issues related to ENUM
  - Clarifying pros and cons in ENUM usage

- Final report
  - Published in May 2003
ENUM Trial Japan (ETJP)

- Established
  - on 17 September 2003 (1 year activity)
- Purpose
  - Perform ENUM trials to ensure functioning and feasibility of basic technical facility
  - Demonstration of technology for international use
  - Accumulation and sharing of know-how about ENUM
  - DNS operation for ENUM Trial
  - Feasibility test of communication applications (device, software) using ENUM
  - Feasibility test of communication services
- Results
  - Technical verification
    - Communication devices and software provided by participants
    - Communication services
  - Clarification and consideration of relevant issues

http://etjp.jp/english/index.html
ETJP organization

- **Participants**
  - Companies, organizations, and individuals who hope to contribute to ETJP activities
  - Number of members: 43 (as of February 20, 2004)

- **Officers**
  - **Chairman**
    - Shigeki Goto
      - Japan Network Information Center (JPNIC)/Waseda University
  - **Vice chairman**
    - Hirofumi Hotta
      - Japan Registry Service Co., Ltd. (JPRS)
    - Yoshiki Ishida
      - WIDE Project
ETJP phases and schedule

Elements in the communication services on ENUM

- subscription application
- initial registration
- ENUM DNS
- change of ENUM data

Communication
- resolution (obtaining method and target address of communication)
- selection/change

Phases of the trial

- Phase 1: Sept.’03-Nov.03
- Phase 2: Dec.’03-Mar.04
- Phase 3: Apr.’04-Sept.04
ETJP Working Groups

• Privacy and Security WG
  – Objective
    • Discuss data treatment policy in each phase of trial and then publish guidelines
  – Milestone
    • Jan 2004: First draft, request for comments
    • Feb 2004: Second draft
    • Mar 2004: Publish guideline

• DNS WG
  – Objective
    • Definition of possible ENUM DNS models in Japan, their requirements and evaluation criteria, then evaluate current DNS implementations
  – Milestone
    • Feb 2004: Definition of possible ENUM DNS models, requirements, evaluation criteria
    • Mar 2004: Build Testbed, evaluation
    • Apr 2004: publish reports of the evaluation
DNS structure design

• Depends on what model to select
  – User ENUM / Operator ENUM
  – Requirements (such as Number-Portability?)

• Typical requirements for Tier1 DNS:
  – Handling of large zone
    • even over 100M entries (if all the numbers are held in Tier1)
  – Scalability and stability
  – Performance

• Typical requirements for Tier2 DNS:
  – Capability for frequent update
  – EDNS0 support?
    • To hold a number of NAPTR RRs for a single E.164 number
      that may exceed 512 octets in one DNS packet
Consideration on DNS

- Typical ENUM services like Web, Mail, SIP also lookup DNS.
  - Web: Hyper-links(A).
  - Mail: sending (MX, A), receiving (PTR).
  - SIP: service protocol (D2U/D2T NAPTR), service location(SRV), sip server(A)

- The number of DNS queries will increase when ENUM is deployed.

- Users are nervous about service quality.
  - Users don’t care where the bottle neck is.
ENUM trial (phase1)

1. Look-up
2. Response with communication method
3. Communication

Service registration in bulk (daily)

Initial registration of phone#

Trial secretariat

Trial team member

End user

PSTN SIP e-mail

* experiment on connectivity among applications

 ENUM registrar

 ENUM DNS

 Internet
**ENUM trial (phase2)**

1. Look-up
2. Response with communication method
3. Communication

* Experiment on communication services
ENUM trial (phase 3)

- Experiment on connection among communication services with user ENUM

- 1. Look-up
- 2. Response with communication method
- 3. Communication

Operator A
Operator B
Operator C

End user

Operator office

Tel#

Authentication

Initial registration of phone# and authentication code

Service registration

Service registration in bulk (several times a day)

Internet

ENUM DNS

ENUM registrar

Authentication

PSTN

SIP

e-mail
Layer of ENUM services and standards

- Communication service (multiple carriers)
  Authentication, Social Security

- Communication service (single carrier)
  Provisioning, Communication Security

- Applications/Terminals
  SIP, Mail, Web, etc.

- Infrastructure
  ENUM DNS

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ETJP Registration system (Phase 1)

- Each ETJP member can apply their preferred numbers as their trial E.164 numbers
  - The rules of the numbers to be registered in phase 2 and 3 are under negotiation with the government
- Verification is performed by each member’s ID and password
ETJP members can set their preferred NAPTR RRs to the trial DNS through this Web I/F.

Those NAPTR RRs are updated within a few minutes.

Can be examined via ENUM client-like Web I/F.
ETJP applications (Phase 1)

- ENUM enabled SIP Proxy (Softfront)
- ENUM enabled VoIP Router (Yamaha, CISCO)
- ENUM enabled InternetFAX (Panasonic)
- Sample Software ENUM Client (JPRS)
  - Available for the members
  - Object codes of runtime libraries used by the sample software are open to the members
  - API (under development)
    - SetDNS : specifies the DNS server
    - SetAUS : specifies the Telephone Number
    - CreateAUS : create the AUS Number using the locale info
    - ENUMQuery : look-up NAPTR records
    - ENUMGetData : picks up NAPTR records one by one
    - ....
More application and SDK

1) start

2) input telephone number and look-up

3) services are shown and select one

4) Start the communication service
References

• **ETJP**

• **ENUM Study Group**

• **JPRS**