

ENUM Activities in Japan

- ENUM Study Group & ENUM Trial Japan -

October 1, 2003

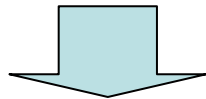
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ETJP (ENUM Trial Japan)

Establishment of ENUM Study Group

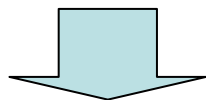
- **ENUM technologies**
 - being standardized in IETF
 - specifications almost fixed
- **Policy of International Operation**
 - had been discussed and becoming more well-defined in ITU-T
 - published as Supplement Document
- **ENUM trial environment**
 - being prepared by IAB , RIPE NCC , ITU-T, etc.
 - being under trial in several countries
- **In Japan**
 - IP telephone services are rapidly growing
 - 050xxxxxyyyy is being assigned to IP telephones



- **ENUM should be well studied and understood**
- **How ENUM is used should be made clear**

Objectives

- **Understanding the ENUM technology**
- **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**



The followings are studied

- **ENUM technology**
- **Related technology such as DNS , URI , DDDS**

Members

- **Chair**
 - **Shigeki Goto (Waseda Univ.)**
- **Vice Chair**
 - **Susumu Sano (JPNIC)**
- **Secretariat**
 - **JPNIC**
- **Members (23)**
 - **Telecommunication companies**
 - **IP telephone service providers**
 - **Network Device Vendors**
 - **Network Solution Providers**
 - **ccTLD registry (JPRS)**
 - **Trading companies**
 - **Non-profit organizations**
 - **Professionals from universities**
- **Observers**
 - **Ministry of Public Management, Home Affairs, Posts and Telecommunications (MPHPT)**

Scope

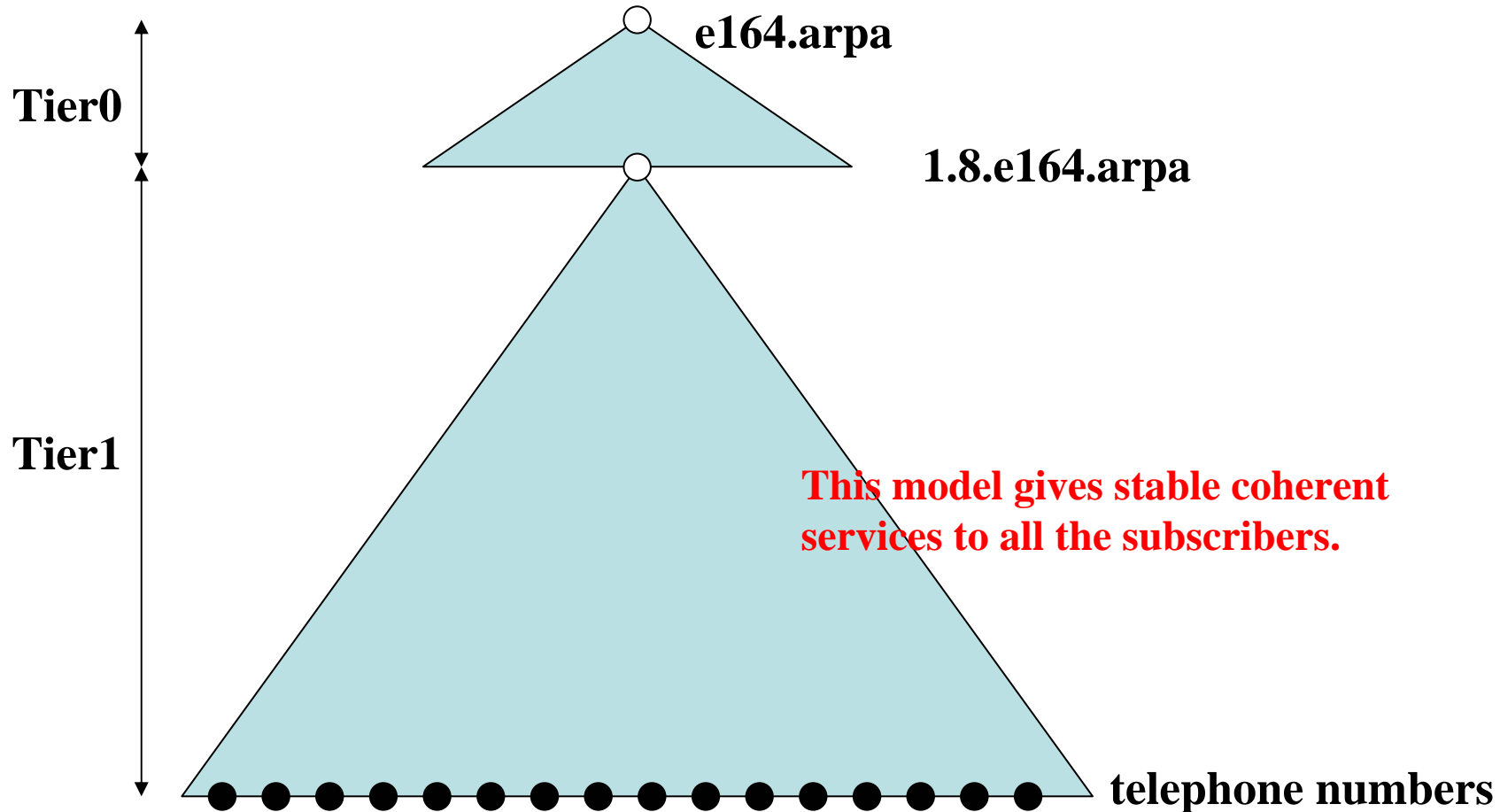
- **ENUM technology itself**
- **Some issues happening after resolving the telephone number mapping is important to implement and deploy the service, but they are out of scope on current Japan ENUM Study Group**
- **Its report in May 2003 covers**
 - **Outline of ENUM**
 - **What are solved by ENUM**
 - **Registration model of ENUM**
 - **Privacy and security in ENUM**
- **All the activities were on the desk**
 - **No experiment / no trial**

Tier structure

- **Tier structure and DNS zone structure**
 - **Country dependent**
 - **Existing structures of Telecom and Internet-related industry should be considered and a new combined/compromised structure may be necessary to utilize ENUM**
- **Recommendation**
 - **Boundary between Tier0 and Tier1 is 1.8.e164.arpa**
 - **as +81 is used for subscribers if and only if in Japan**
 - **Boundary between Tier1 and Tier2 has some options**
 - **Examples are shown in next pages**

Boundary between Tier1 and Tier2 (modell1)

Tier1 has phone numbers in full and no Tier2 is introduced

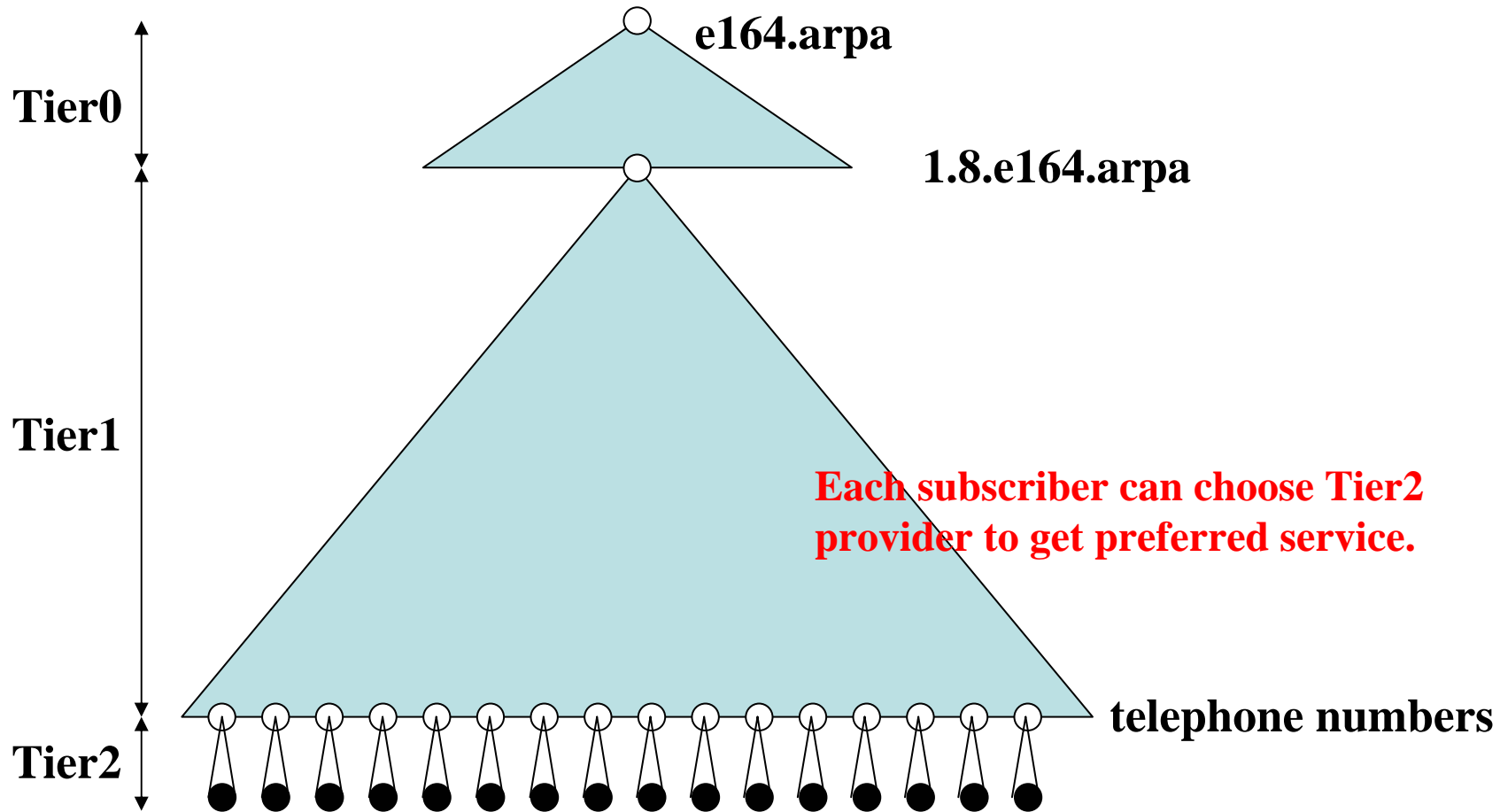


This model gives stable coherent services to all the subscribers.

○ NS record ● NAPTR record

Boundary between Tier1 and Tier2 (model2)

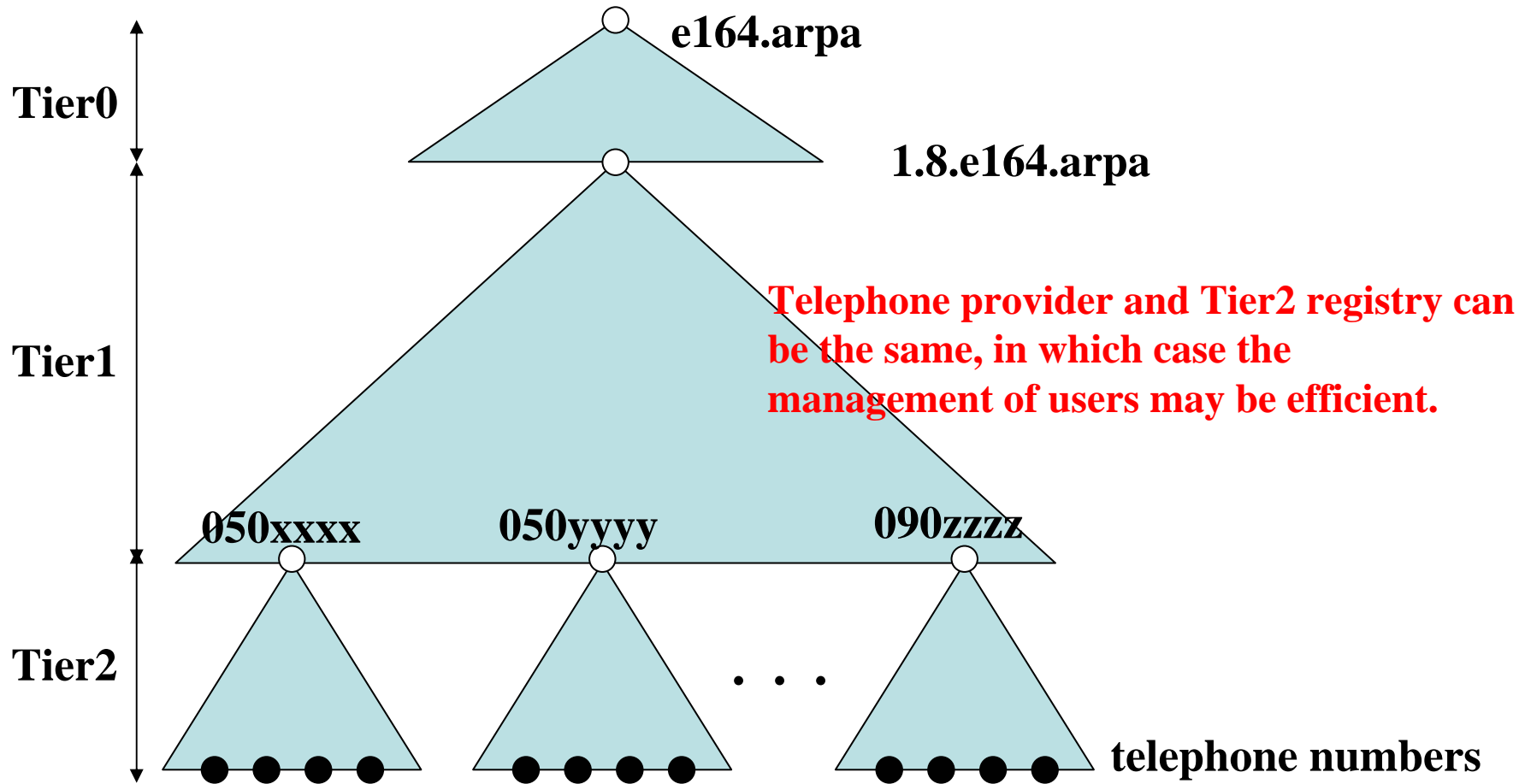
Tier1 has phone numbers in full and Tier2 handles a NAPTR record of each number.



○ NS record ● NAPTR record

Boundary between Tier1 and Tier2 (model3)

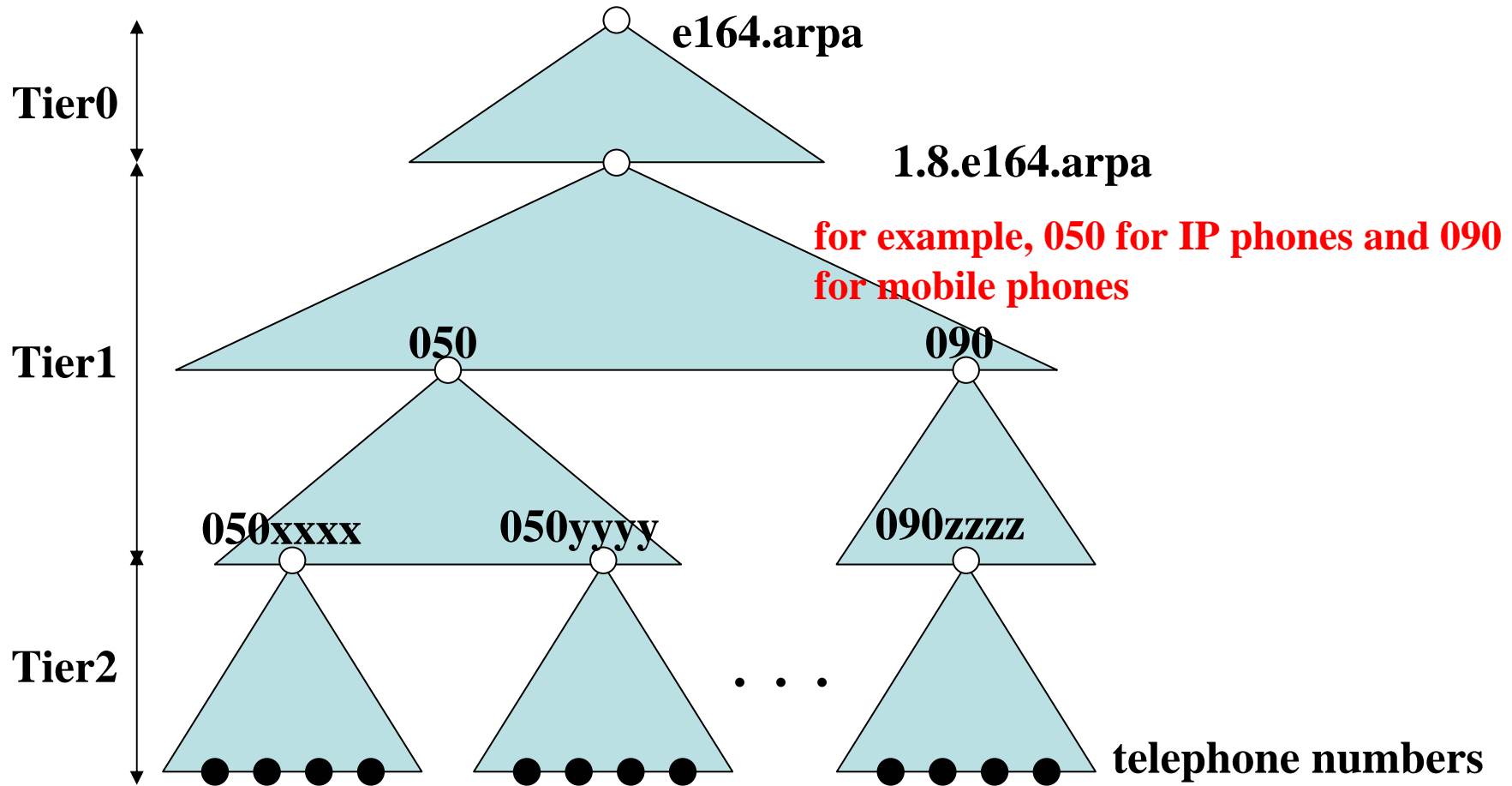
Boundary corresponds to the chunks (10,000 numbers) assigned to Telecom providers.



○ NS record ● NAPTR record

Boundary between Tier1 and Tier2 (model4)

Tier1 is divided into groups corresponding to chunks, each represents a phone service for example.



○ NS record ● NAPTR record

User ENUM and Operator ENUM

- **User ENUM and Operator ENUM**
 - Definitions of them were inevitable in carrying forward a discussion
 - Definition should have been done with our words and with knowledge of national telecom industry structure
- **User ENUM**
 - Each user of E.164 number, who subscribes a telecom service identified by the number, registers his/her favorite application services to ENUM records at his/her will
 - IETF, UKEG, ENUM Forum (US) seem to mainly give focus on this category
- **Operator ENUM**
 - A provider, which has assigned the number to the user, uses ENUM records to implement its service identified by the number at its will
 - This receives interests from IP telephone service providers in Japan
- **Combined models of User and Operator ENUM**
 - Addition of User ENUM flavor to Operator ENUM
 - Addition of Operator ENUM flavor to User ENUM

Example of registration policies

- **Mandatory**
 - Operators register ENUM records to implement their communication services
 - Typical in Operator ENUM
- **Opt-in**
 - Users register ENUM records spontaneously
 - Typical in User ENUM
- **Restriction of available services**
 - Only allowed services can be registered
 - Only allowed parameters can be registered
- **Restriction on priorities**
 - For example, services provided by primary telecom operator are registered as prioritized

Privacy issues

- **Information within DNS**
 - Destination address is publicized in DNS
 - For example, to hide a direct mail address
 - Register aci2hnwz@example.co.jp as NAPTR
 - Convert [aci2hnwz](#) to [yamada](#) in mail server
- **WHOIS information**
 - Information on registrants is publicized in WHOIS database for stable distributed operation
 - Balance should be made between operation stability and privacy
- **Customer information**
 - Should be secured as in the usual business

Security issues

- **ENUM**
 - **Spoofing of registrant**
 - **Falsification of registered data**
 - **Exhaustive loop-up for collecting data**
 - **DoS**
- **DNS**
 - **Wiretapping of DNS query**
 - **Falsification of DNS response**
 - **Spoofing of DNS server**
 - **Falsification of zone data**
 - **Counterfeiting of cache**
 - **DoS**
- **Communication service**
 - **Wiretapping of communicaiton**
 - **Falsification of caller/callee**
 - **SPAM**
 - **congestion**
 - **DoS**

Access control issues

- **Information within ENUM DNS**
 - All users can access the global unique DNS space
 - E.164 number space is globally unique
 - All users can access all the information on ENUM DNS
- **Users or communication providers**
 - may want to restrict the users who can access the portion of the ENUM under their control
- **Possible solution**
 - It seems there should be some mechanism to restrict the view in communication applications/devices (SIP, mail, ...)

ENUM Trial Japan (ETJP)

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

ETJP organization

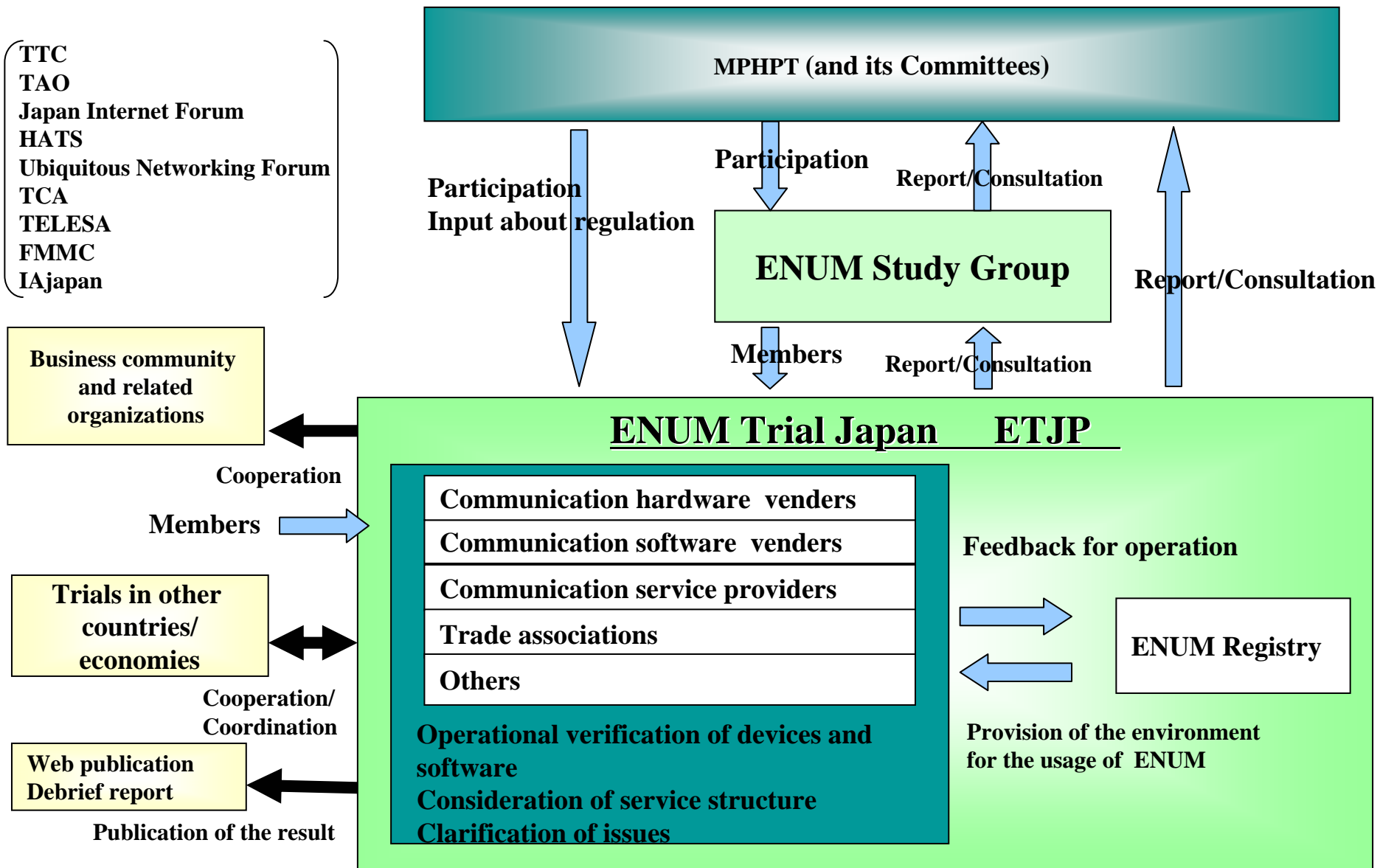
- **Participants**

- **Companies, organizations, and individuals who hope to contribute to ETJP activities**
- **Members should specify how they contribute to ETJP**
- **Number of members: 31 (as of September 30)**

- **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

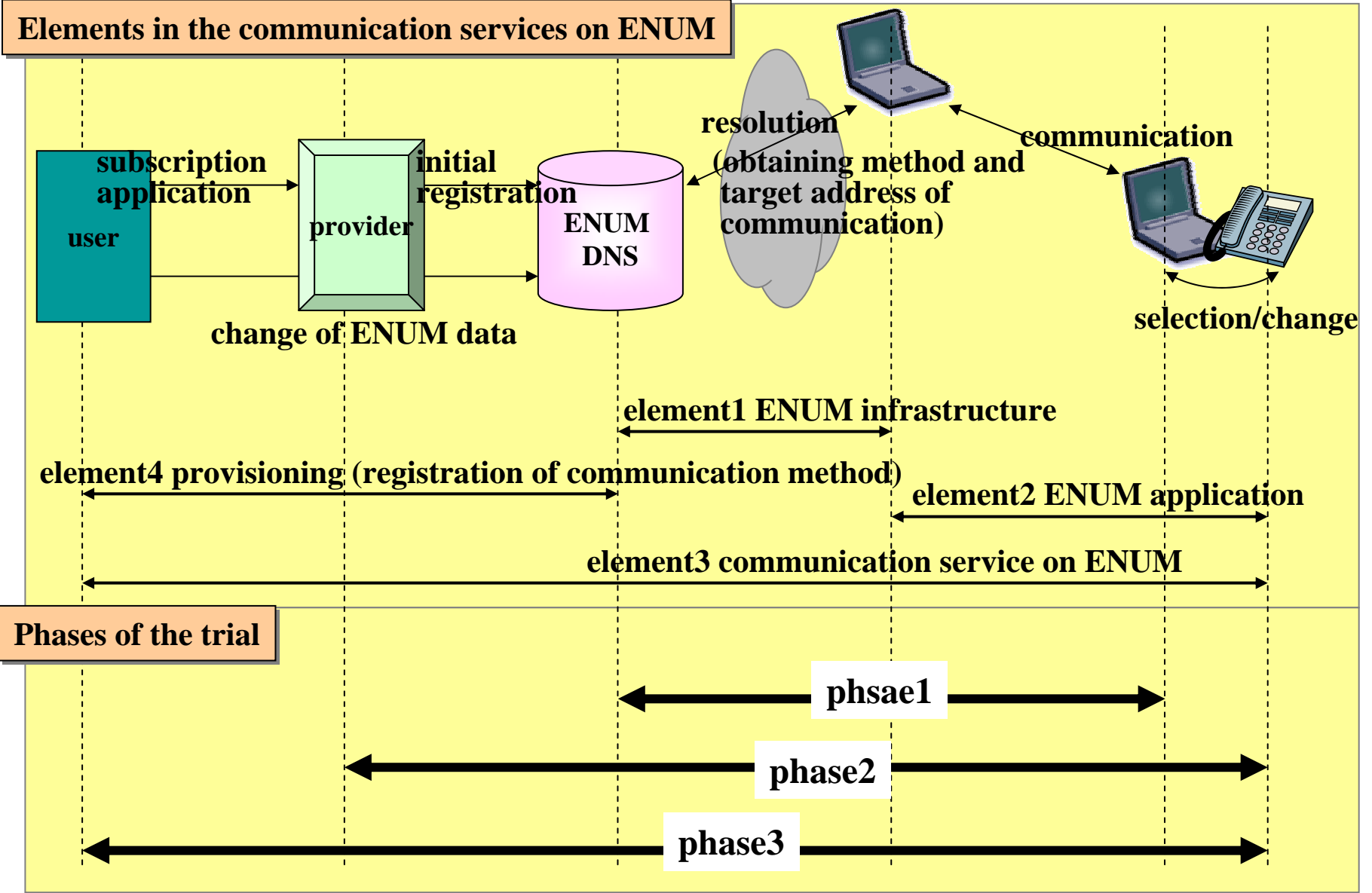
Positioning of ETJP



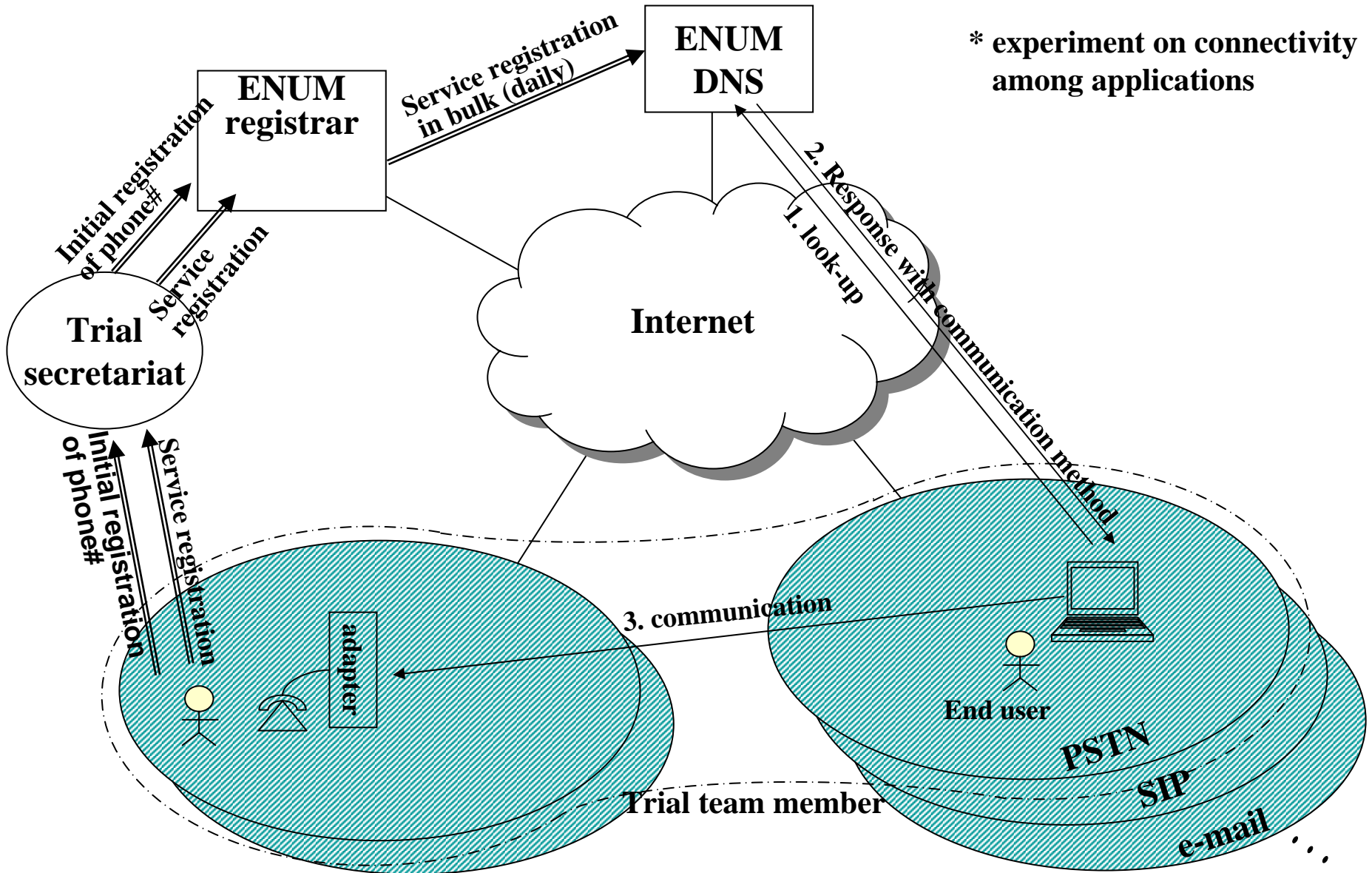
References of the organizations

- **The Telecommunication Tchnology Committee (TTC)**
 - <http://www.ttc.or.jp/e/index.html>
- **Telecommunications Advancement Organization of Japan (TAO)**
 - <http://www.shiba.tao.go.jp/>
- **Japan Internet Forum**
 - <http://www.internetforum.gr.jp/e/index.html>
- **Promotion Conference of Harmonization of Advanced Telecommunication Systems (HATS)**
 - <http://www.ciaj.or.jp/hats/>
- **Ubiquitous Networking Forum**
 - <http://www.ubiquitous-forum.jp/>
- **Telecommunications Carriers Association (TCA)**
 - <http://www.tca.or.jp/index-e.html>
- **Telecom Services Association (TELESA)**
 - <http://www.telesa.or.jp/>
- **Foundation for MultiMedia Communications (FMMC)**
 - <http://www.fmmc.or.jp/english/index.html>
- **Japan Internet Providers Association (JAIPA)**
 - <http://www.jaipa.or.jp/>
- **Internet Association Japan (IAjapan)**
 - <http://www.iajapan.org/index-en.html>

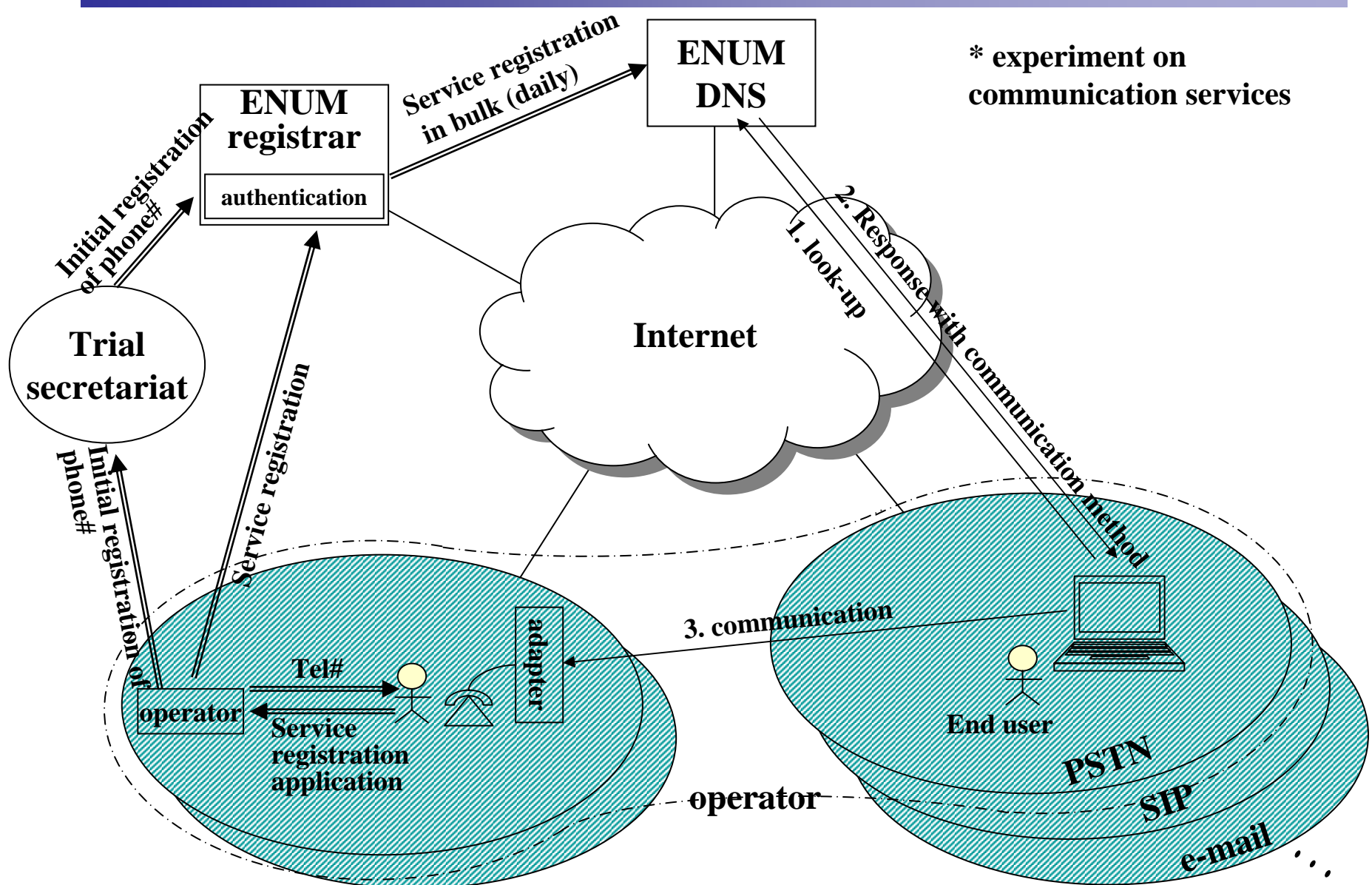
ENUM trial (in preparation)



ENUM trial (phase1)

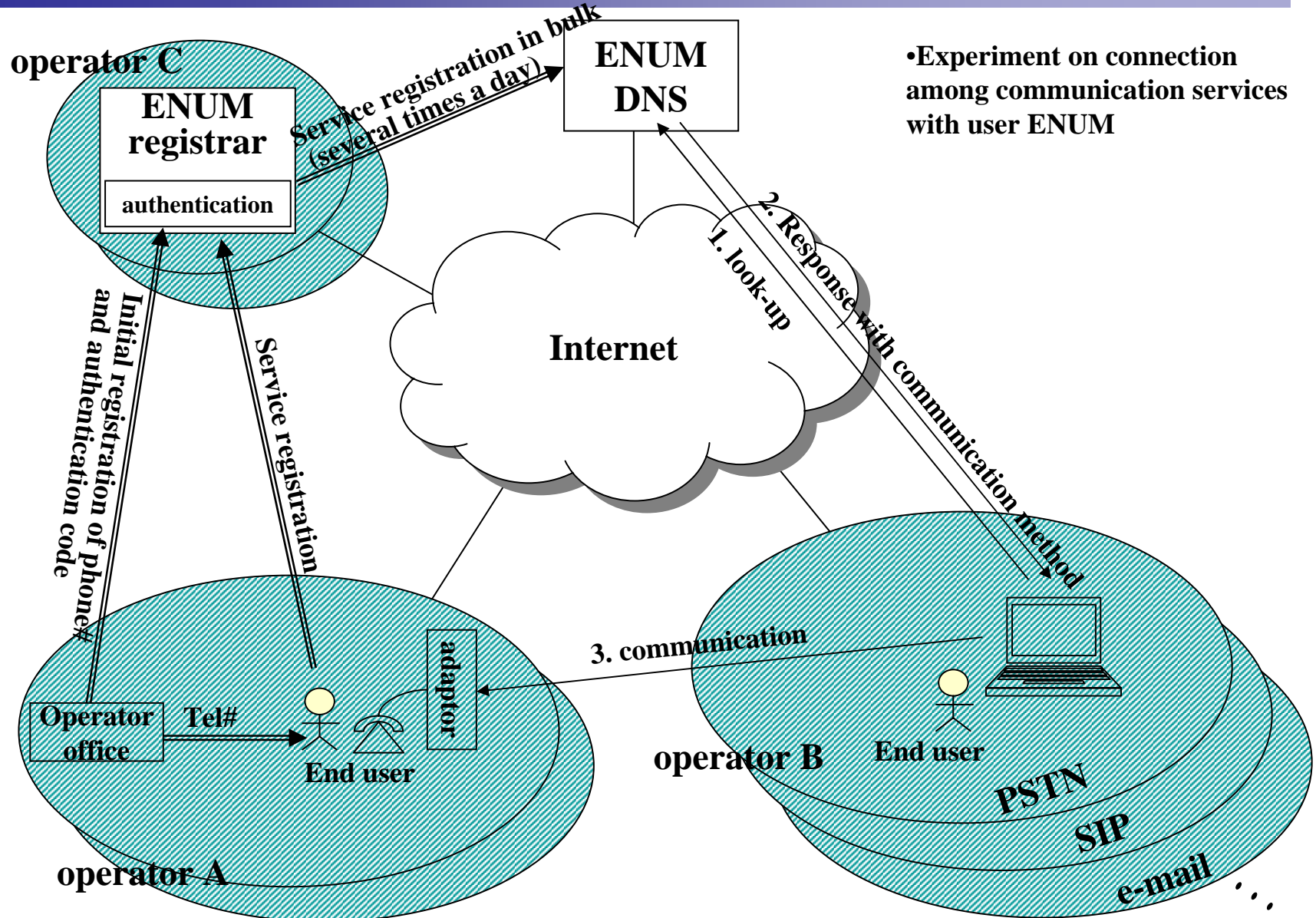


ENUM trial (phase2)



* experiment on communication services

ENUM trial (phase3)



•Experiment on connection among communication services with user ENUM