

ENUM Activities in Japan

- ENUM Study Group & ENUM Trial Japan -

October 1, 2003

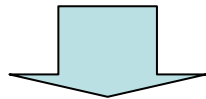
Hiro Hotta

hotta@jprs.co.jp

ETJP (ENUM Trial Japan)

Establishment of ENUM Study Group

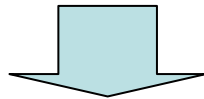
- **ENUM technologies**
 - being standardized in IETF
 - specifications almost fixed
- **Policy of International Operation**
 - had been discussed and becoming more well-defined in ITU-T
 - published as Supplement Document
- **ENUM trial environment**
 - being prepared by IAB , RIPE NCC , ITU-T, etc.
 - 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

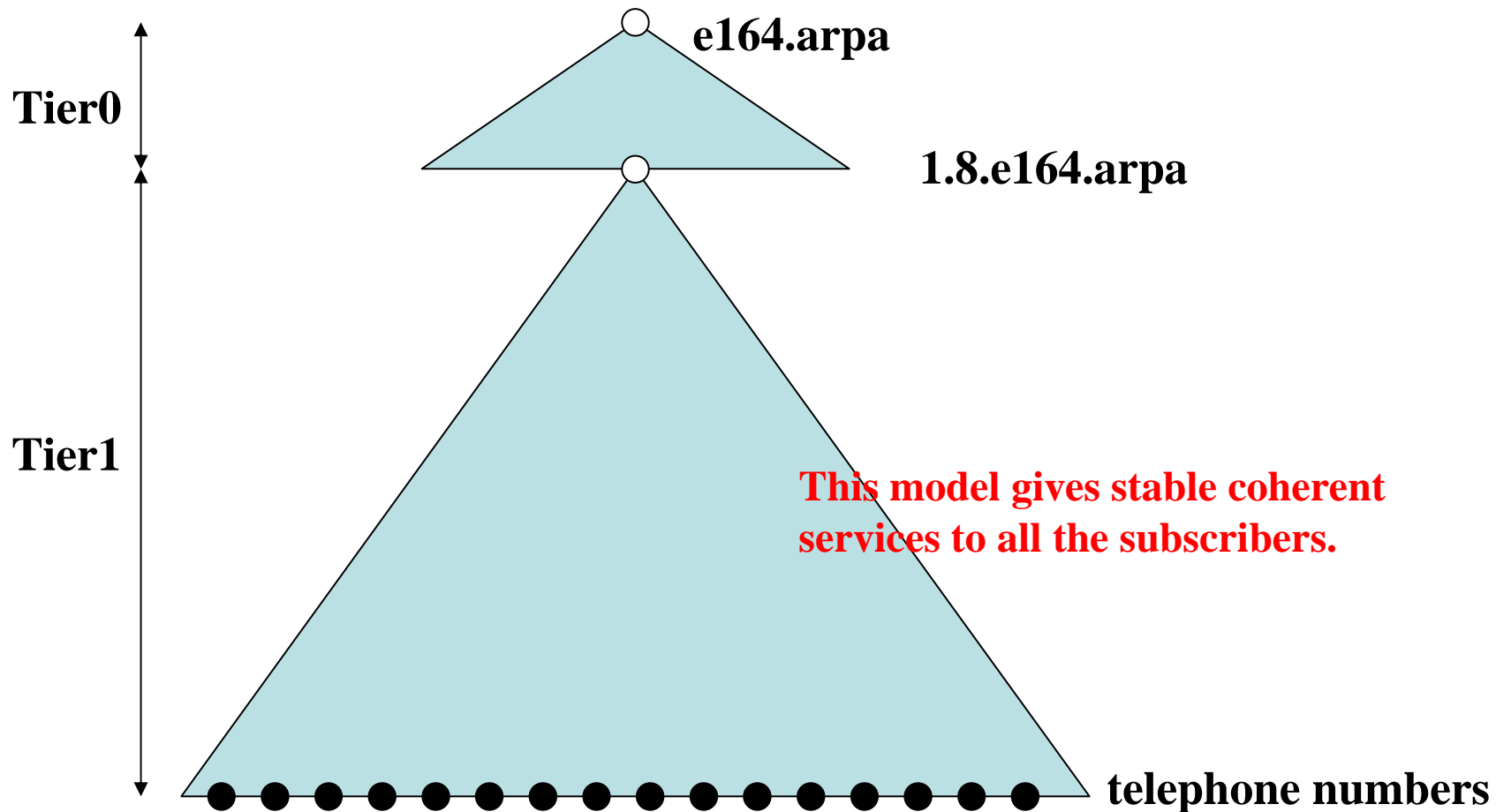
- **ENUM technology itself**
- **Some issues happening after resolving the telephone number mapping is important to implement and deploy the service, but they are out of scope on current Japan ENUM Study Group**
- **Its report in May 2003 covers**
 - **Outline of ENUM**
 - **What are solved by ENUM**
 - **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)

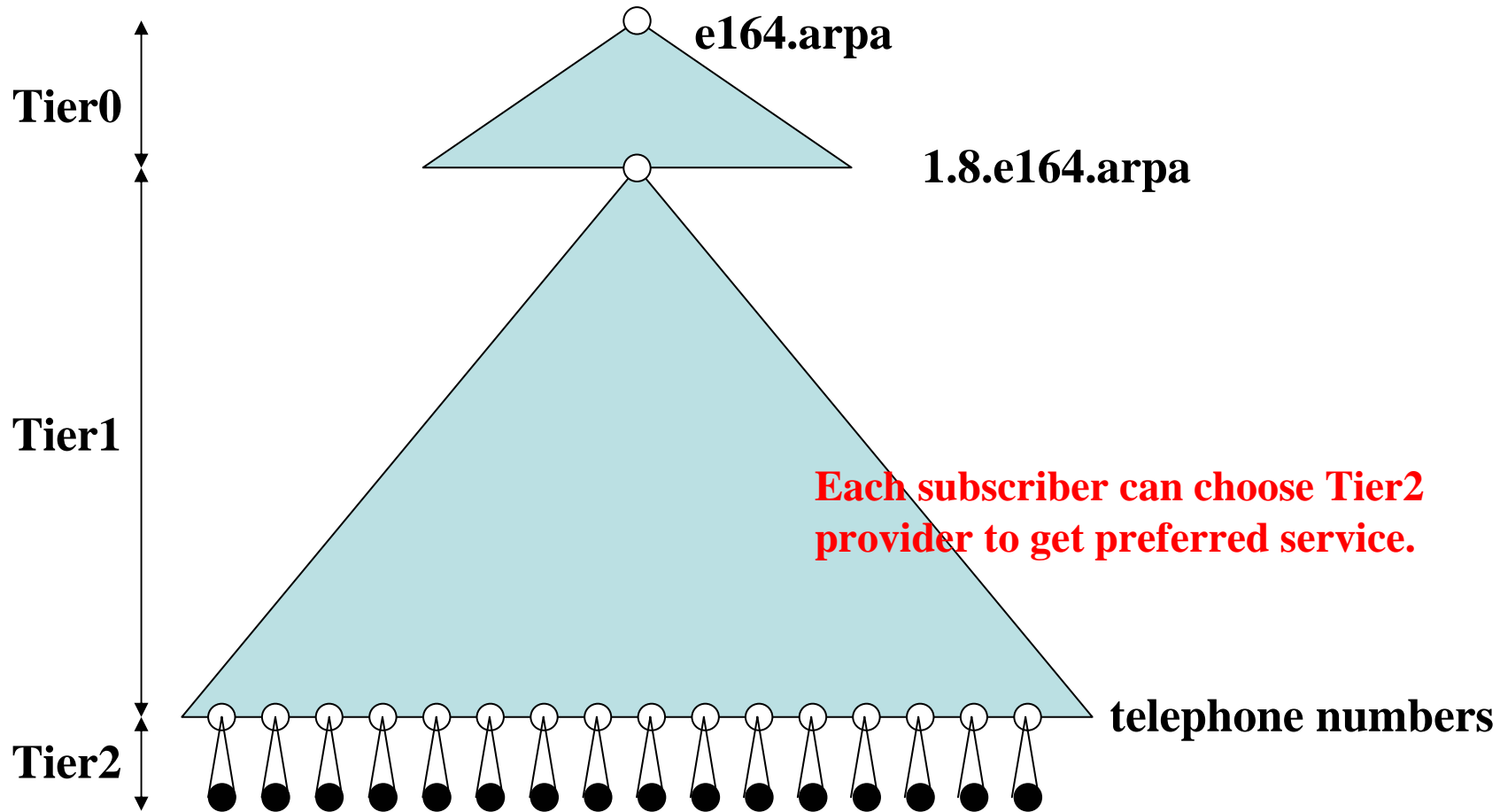
Tier1 has phone numbers in full and no Tier2 is introduced



○ NS record ● NAPTR record

Boundary between Tier1 and Tier2 (model2)

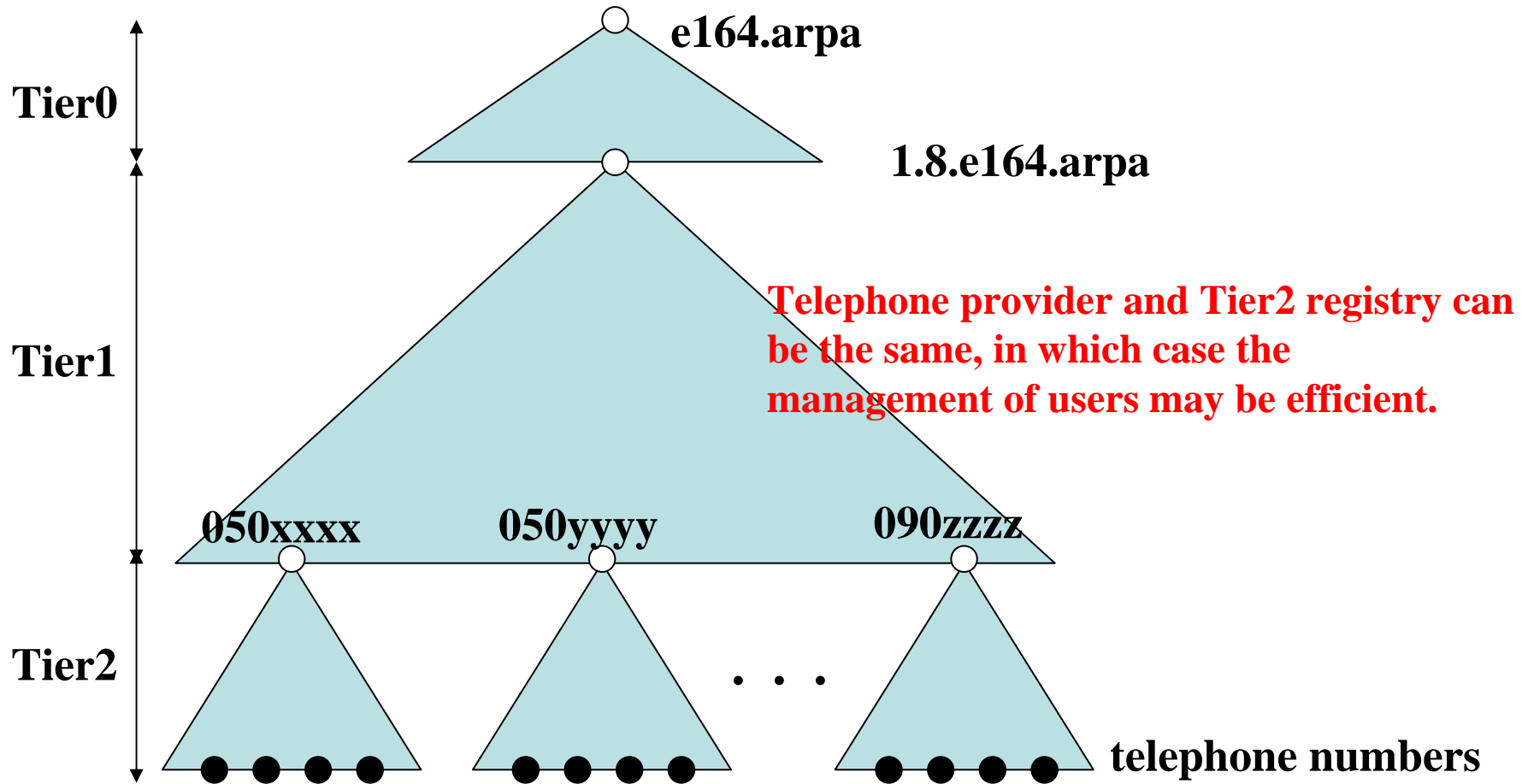
Tier1 has phone numbers in full and Tier2 handles a NAPTR record of each number.



○ NS record ● NAPTR record

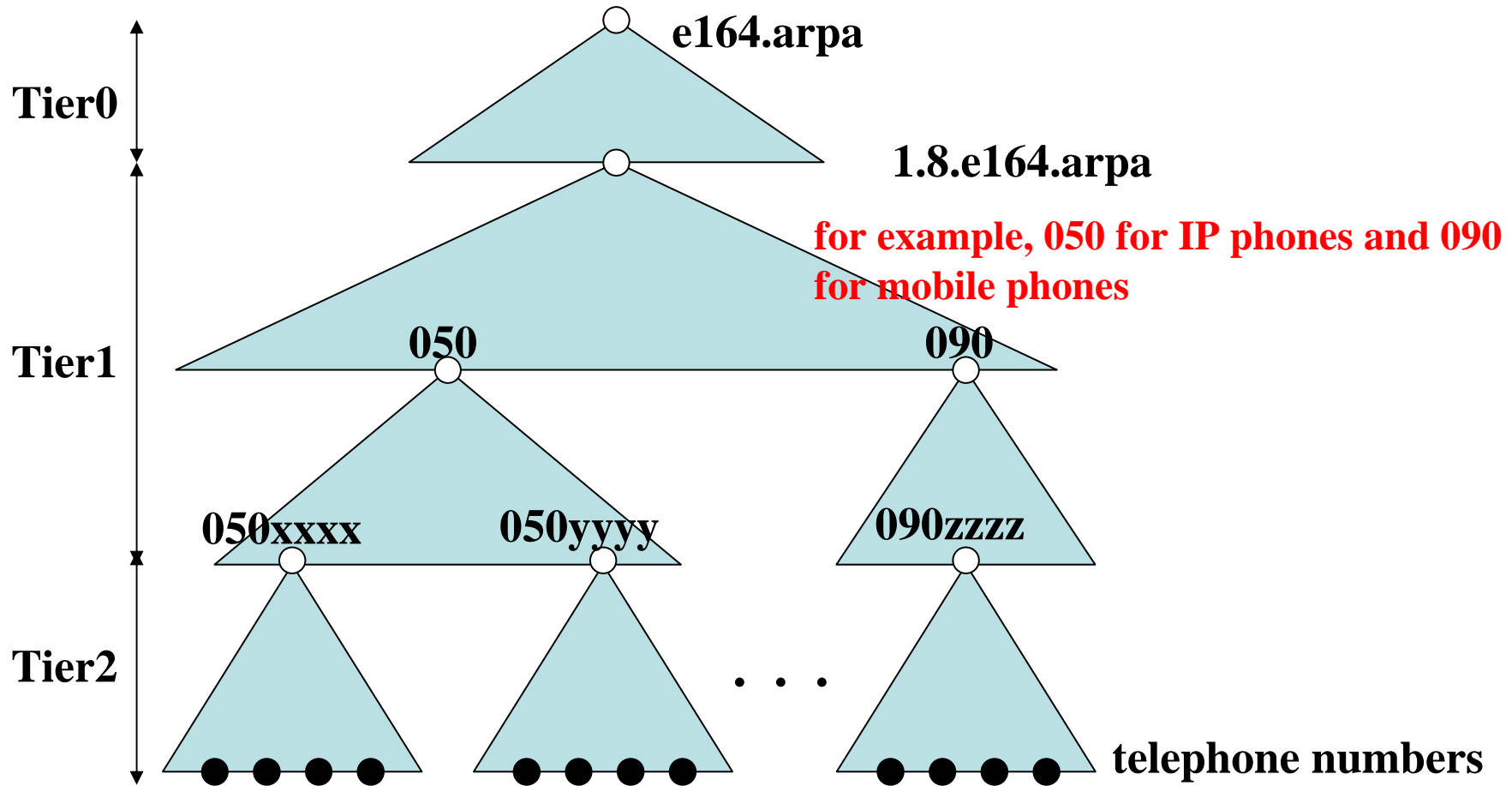
Boundary between Tier1 and Tier2 (model3)

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



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

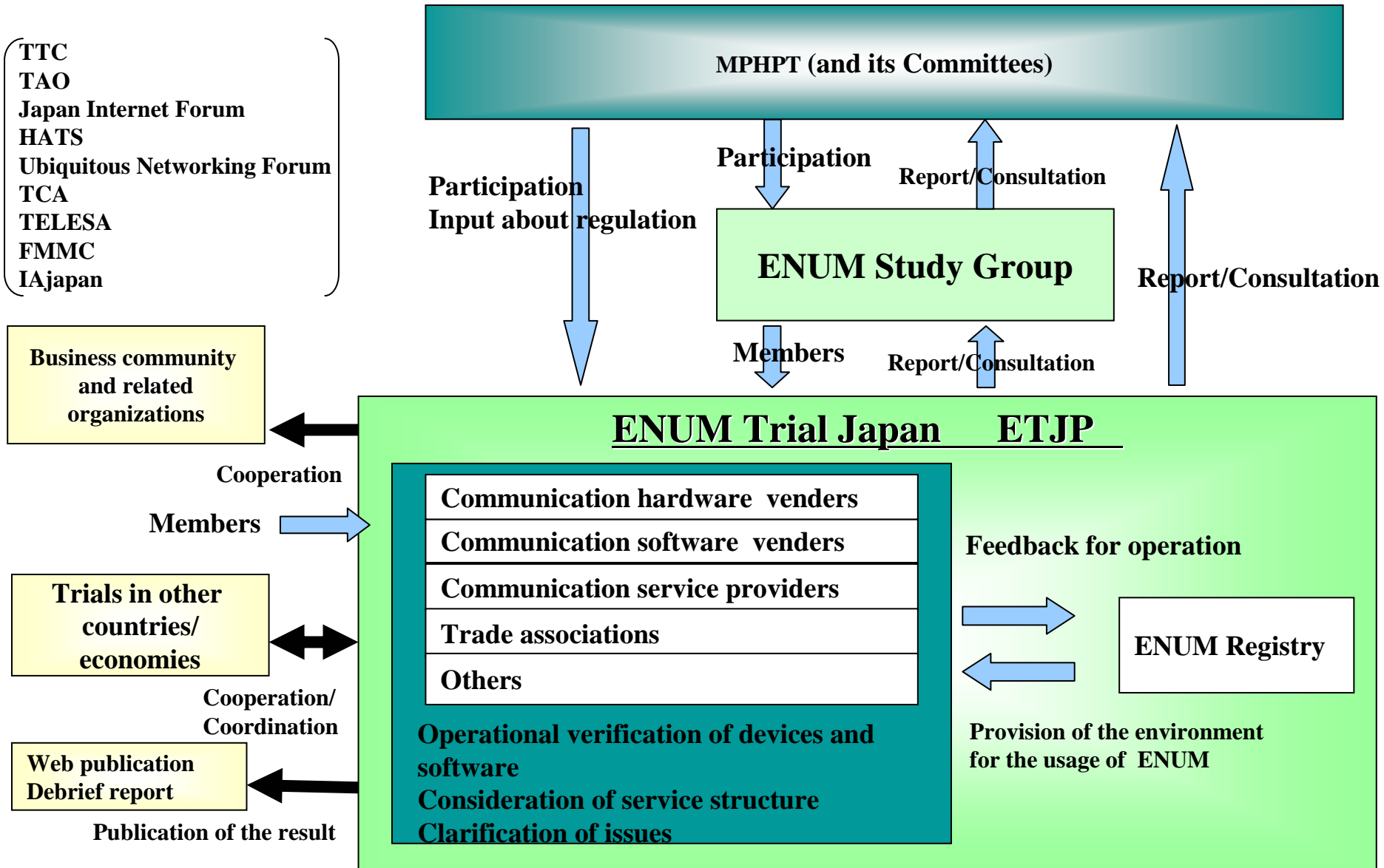
- **Information within ENUM DNS**
 - All users can access the global unique DNS space
 - E.164 number space is globally unique
 - All users can access all the information on ENUM DNS
- **Users or communication providers**
 - may want to restrict the users who can access the portion of the ENUM under 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

- **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
- **Secretariat**
 - JPNIC and JPRS

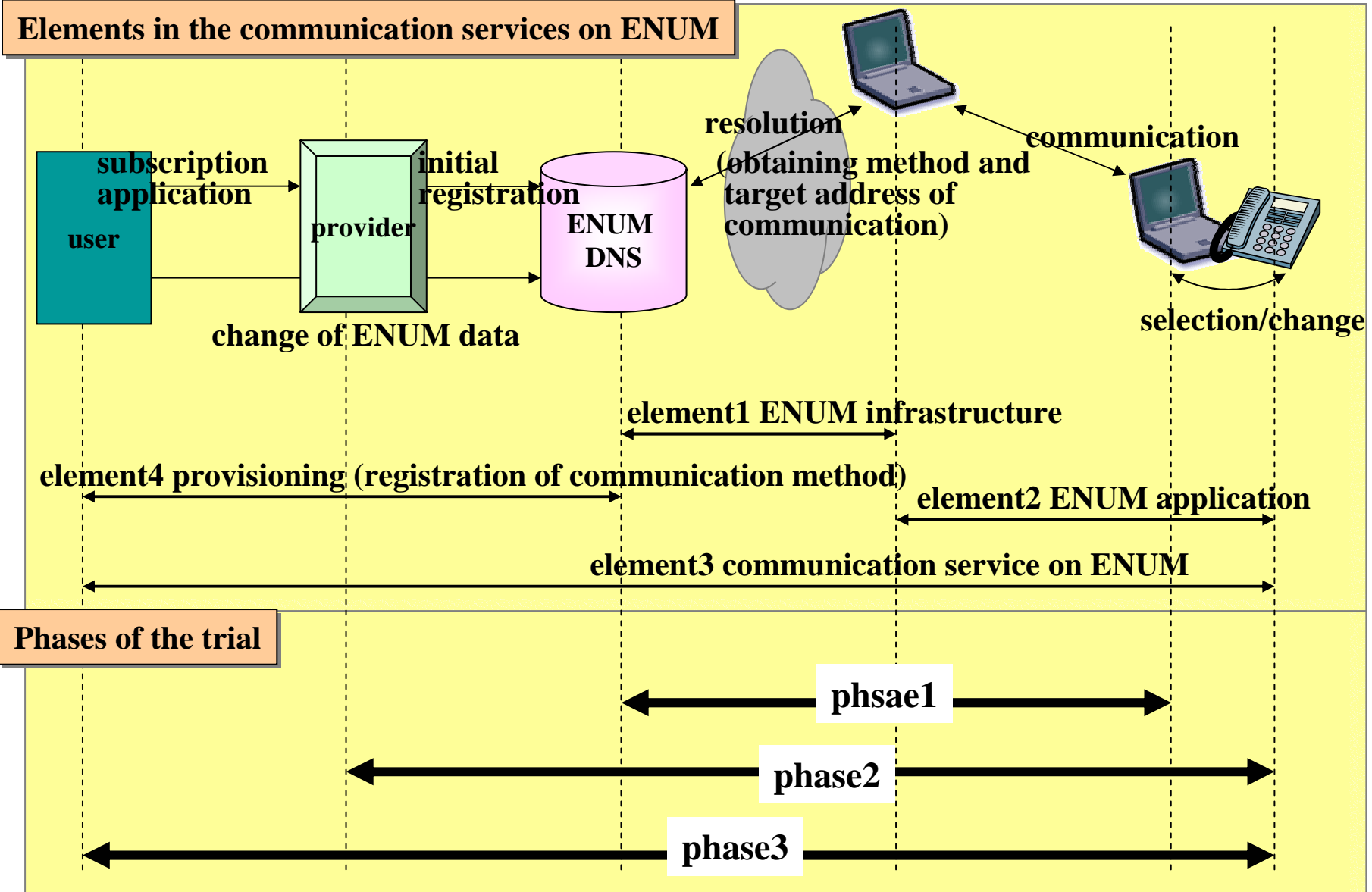
Positioning of ETJP



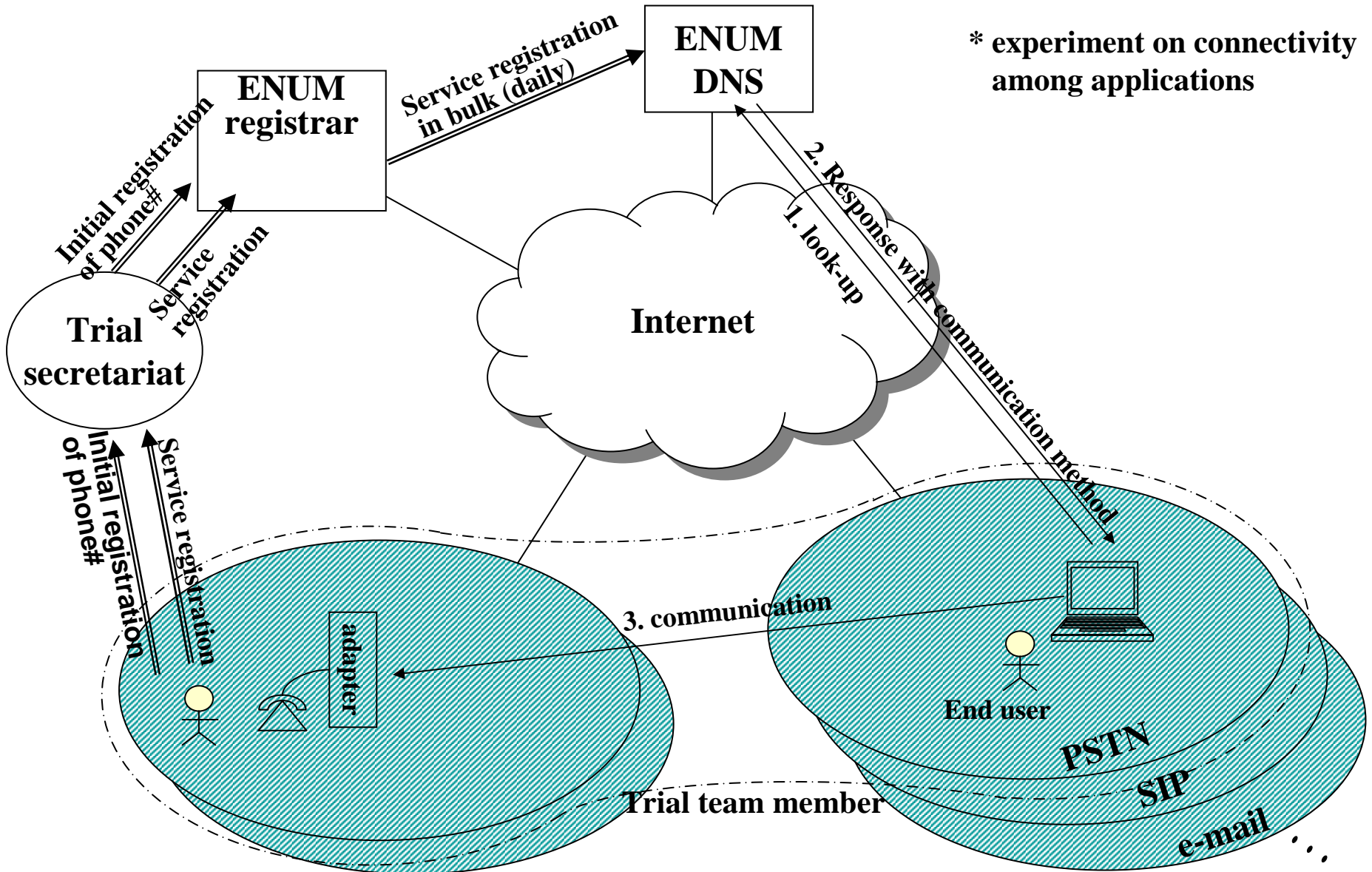
References of the organizations

- **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>

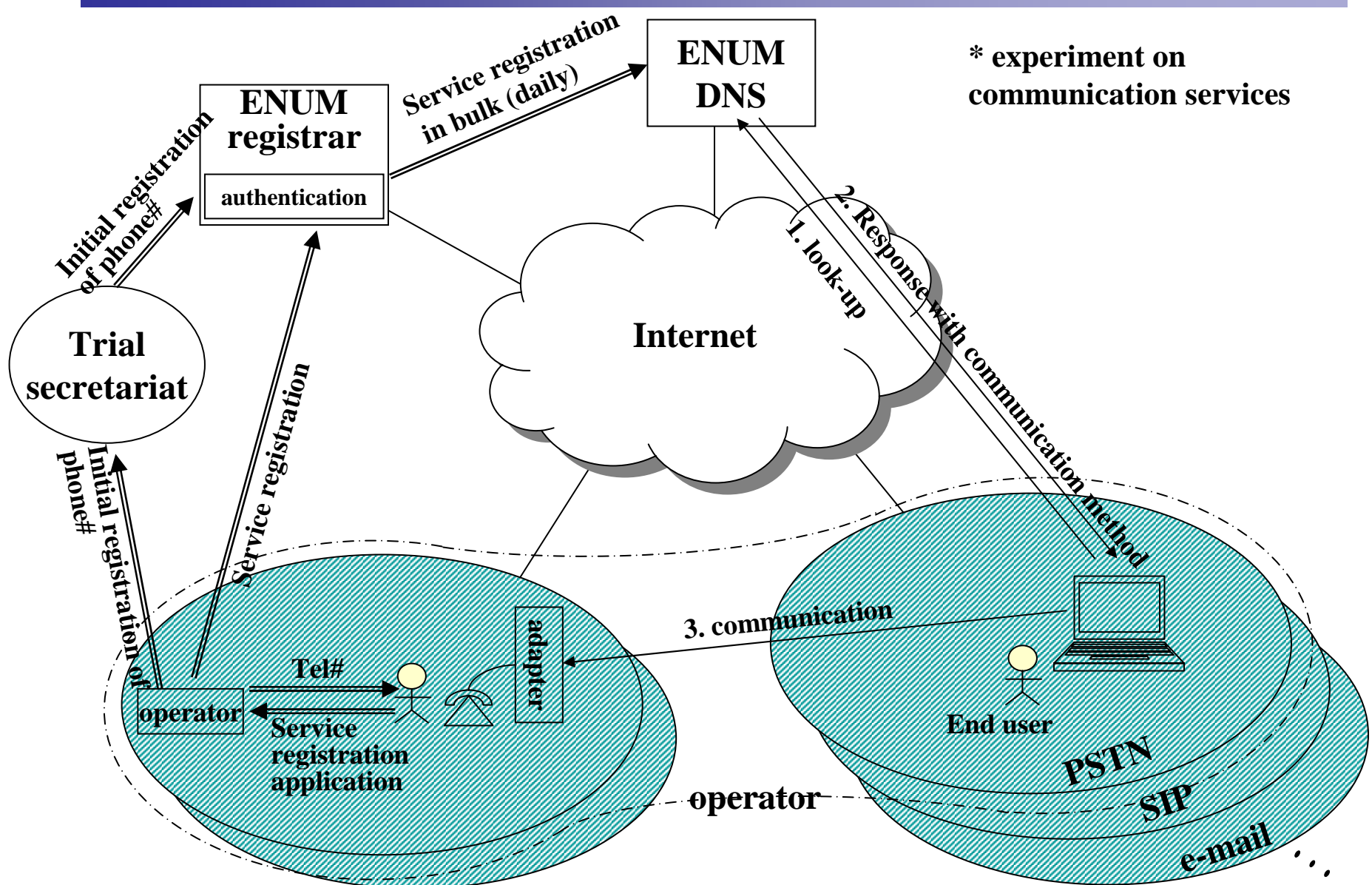
ENUM trial (in preparation)



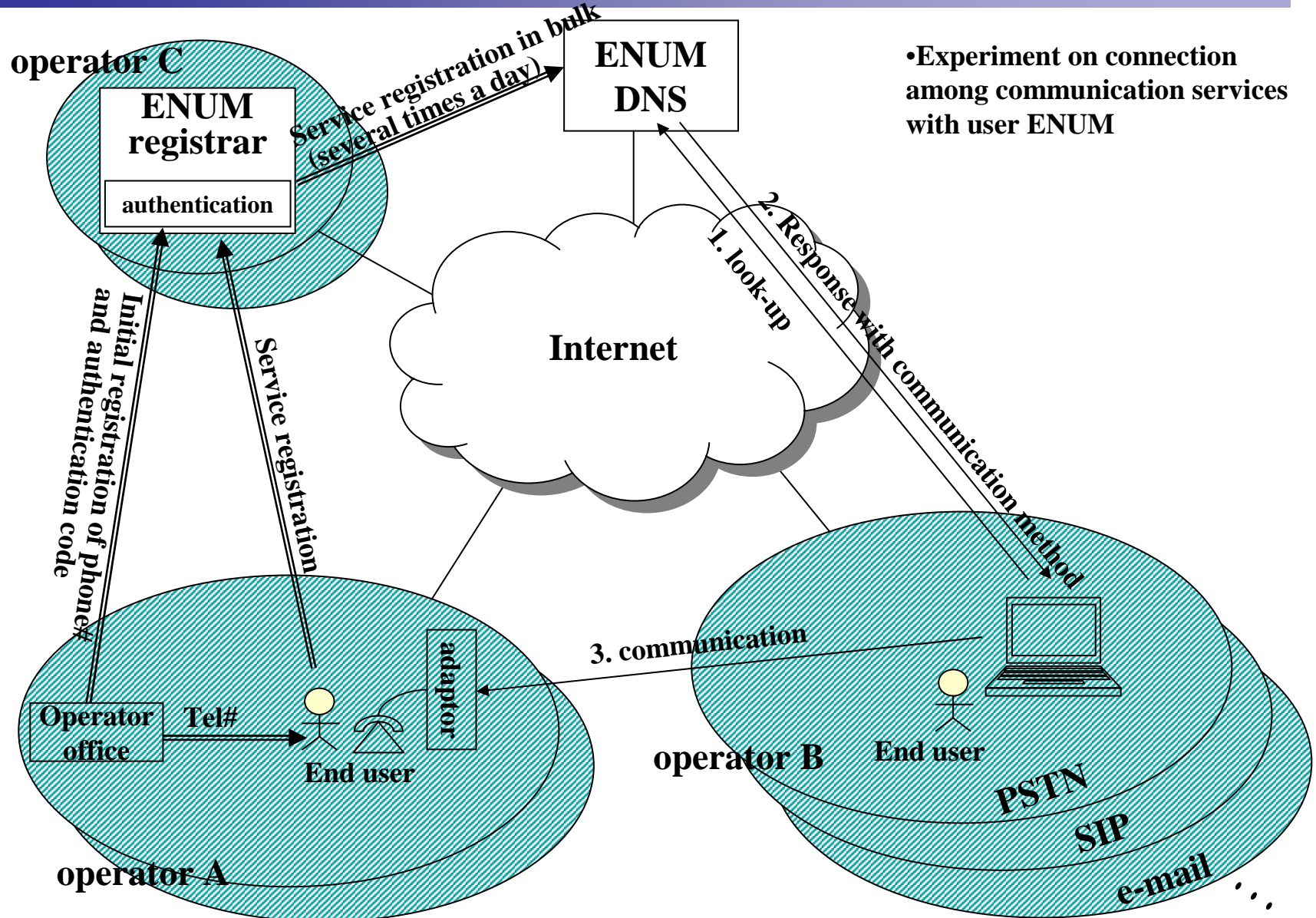
ENUM trial (phase1)



ENUM trial (phase2)



ENUM trial (phase3)



•Experiment on connection among communication services with user ENUM