EAI Status
&
Testbed
(Email Address Internationalization)

Ming-Cheng Liang, Ph. D.
TWNIC

OUTLINES

- THE PROBLEM
- HISTORY OF THE DEVELOPMENT
- MILESTONES
- EAI ROAD MAP
- TWNIC'S ROLE
- EAI TEST BED

Why I-Email Necessary

- Format of Email address
  - *local-part*@domain-part
  - domain-part has internationalized by IDNA
- Required I-Email Format
  - 葉士豪＠臺網中心.tw
  - jeff＠臺網中心.tw
  - 葉士豪＠臺網中心.台灣
  - jeff葉＠臺網中心.tw
- Require Email Address Internationalization
  - not standardized on local-part

Needed Format for I-EMAIL

- $IDN_A @IDN_{DN}.ASCII$
- $IDN_A ASCII@IDN_{DN}.ASCII$
- $IDN_A IDN_B @IDN_{DN}.ASCII$

- *$IDN_A @IDN_{DN}. IDN_{ROOT}$*
- *$IDN_A @ASCII. IDN_{ROOT}$*
- *$IDN_A ASCII@IDN_{DN}. IDN_{ROOT}$*
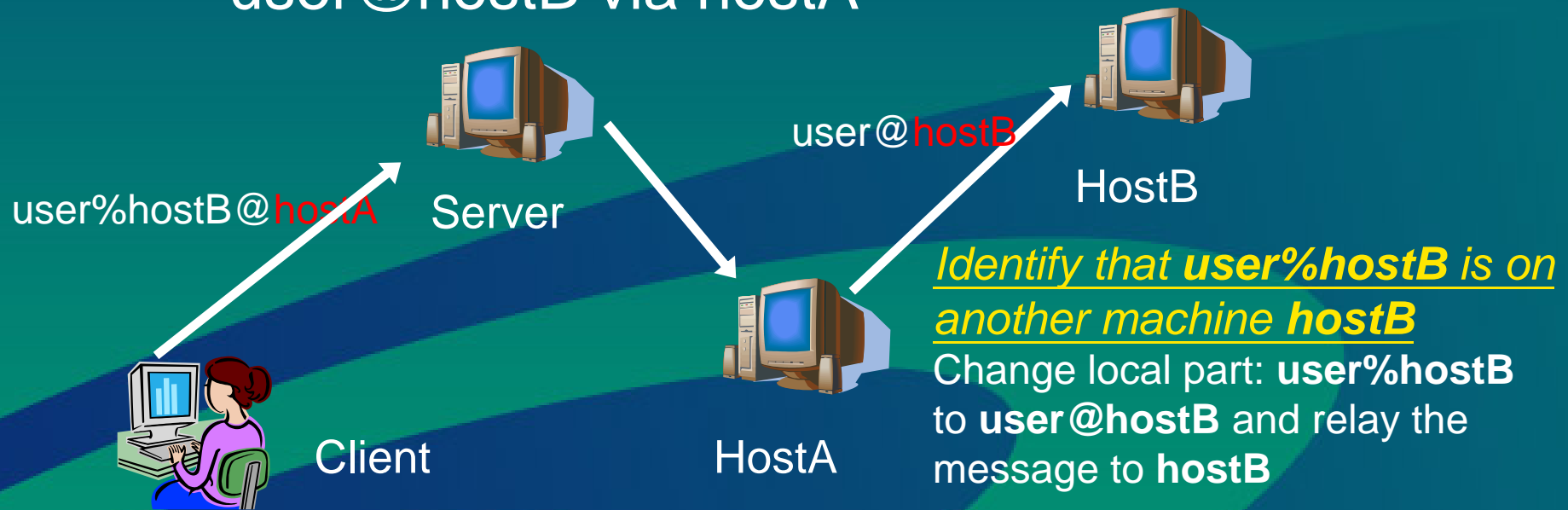- *$ASCII@IDN_{DN}. IDN_{ROOT}$*

What's the Issues?

- Extended complexities (miss interpretation??)
  - Computer to computer communication
    - Store and forward
  - Embedded agent/command
    - Server/client
    - Firewall
    - Spam filter
- Mail routing control information on local-part
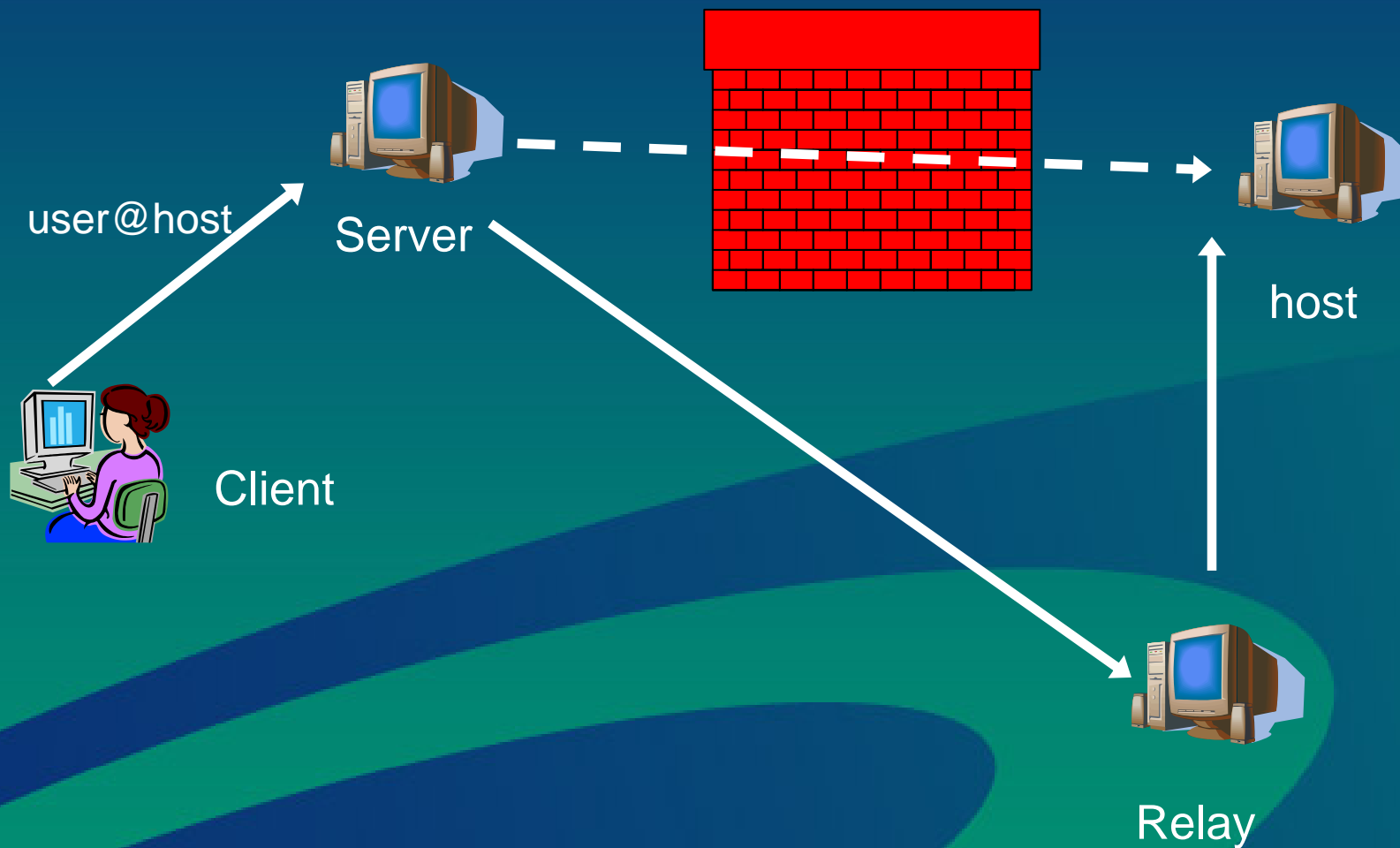 - %, +, !, -, …
  - Locally defined

Mail routing information on local-part

- Ex: some mail servers implement relay function by using '%' on local part
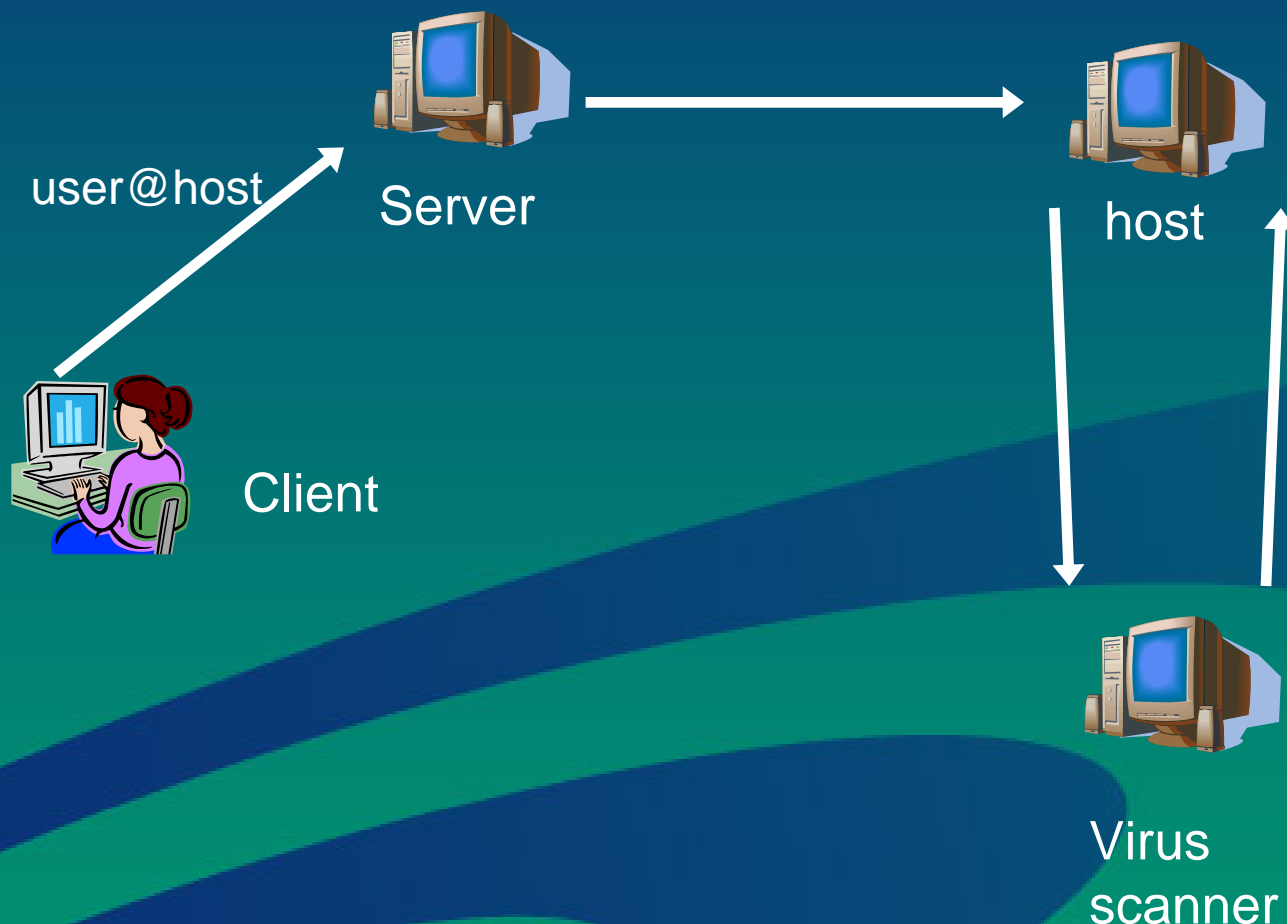 - user%hostB@hostA ➔ mail send to user@hostB via hostA

user%hostB@hostA

Server

user@hostB

HostB

*Identify that **user%hostB** is on another machine **hostB***
Change local part: **user%hostB** to **user@hostB** and relay the message to **hostB**

Client

HostA

Administrator may change the mail routing (Scenario I)

user@host

Server

host

Client

Relay

Ming-Cheng Liang from TWNIC
ICANN IDN Workshop at Marrakech, Morocco

Administrator may change the mail routing (Scenario II)

user@host

Server

host

Client

Virus scanner

Server

Server

Spam filter

Local routing

Firewall

Server

Server

Client

Client
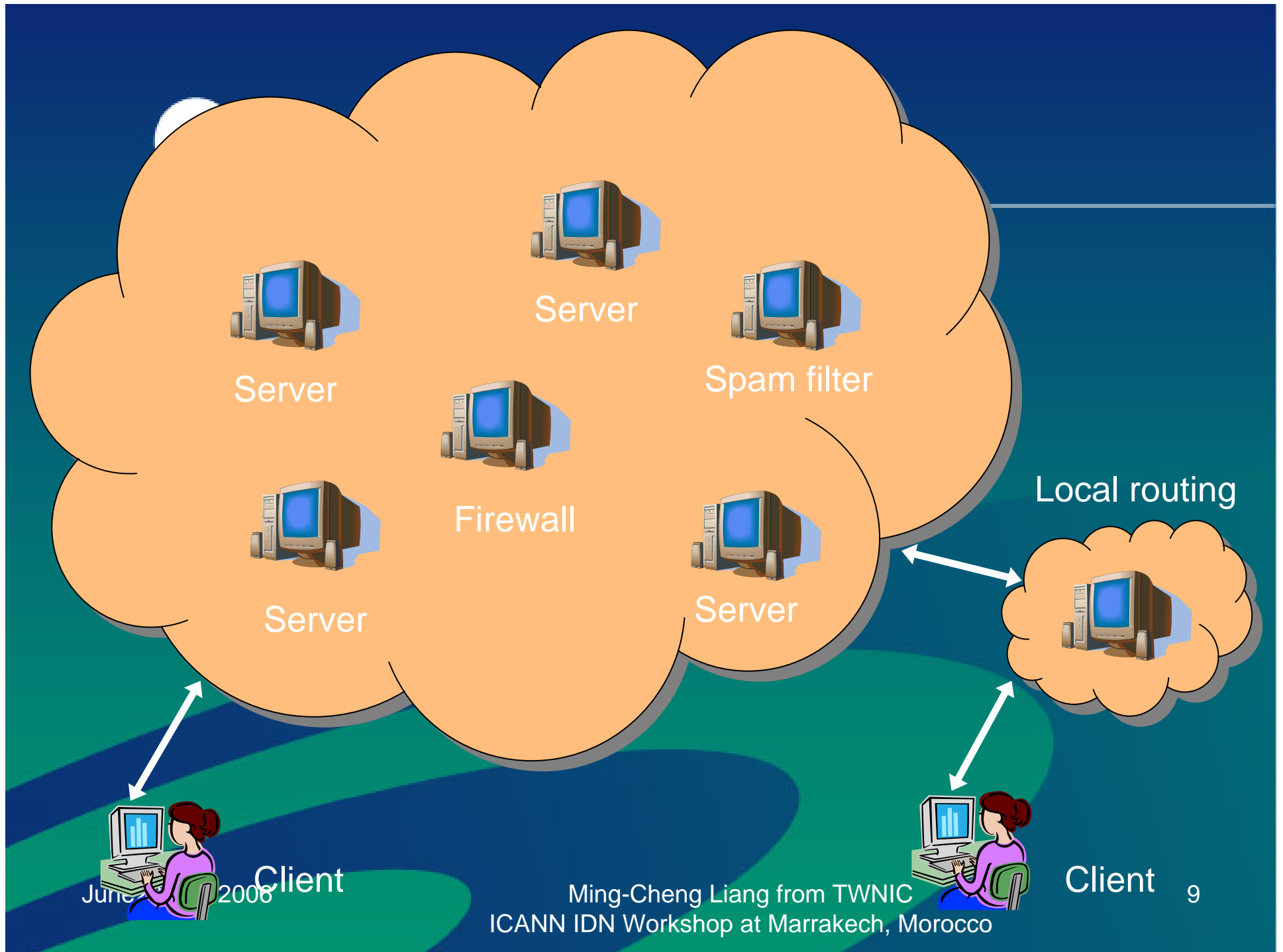
History

- **Before EAI Working group**
  - Aug 2004 – CDNC Meeting
    - Discuss about i-Email issues
  - May 2005 – CDNC Meeting/ JET Meeting
    - Discuss possible solutions
  - Sep 2005 – i-Email Beijing Meeting
    - Experimental RFC
    - Outline the solution framework
  - Nov 2005 – IEE BoF on IETF 64
    - Discuss Internet drafts
    - Apply for WG

- **Mar 2006 – EAI WG on IETF 65**
  - WG established
  - More Internet drafts discussed

Before EAI Working group

- ## Leader
  - John C Klensin
- ## Major Players
  - TWNIC, JPRS, KRNIC and CNNIC
- ## Defined i-Email structure
  - Framework, SMTP Extension, UTF-8 Header, SMTP downgrade

EAI WG

- Chairs:
  - Harald Alvestrand
  - XiaoDong Lee
- Goal:
  - The initial target will be a set of experimental RFCs that specify the details of this approach and provide the basis for generating and testing interoperable implementations.
  - Once the Experimental RFCs are completed and implemented, the experience gathered will be evaluated.
  - If the approach is found to have been successful, the WG will be rechartered to update the documents for processing onto the standards track.
- WG page:
  http://www.ietf.org/html.charters/eai-charter.html
- Mailing List:
  http://www1.ietf.org/mail-archive/web/ima/index.html
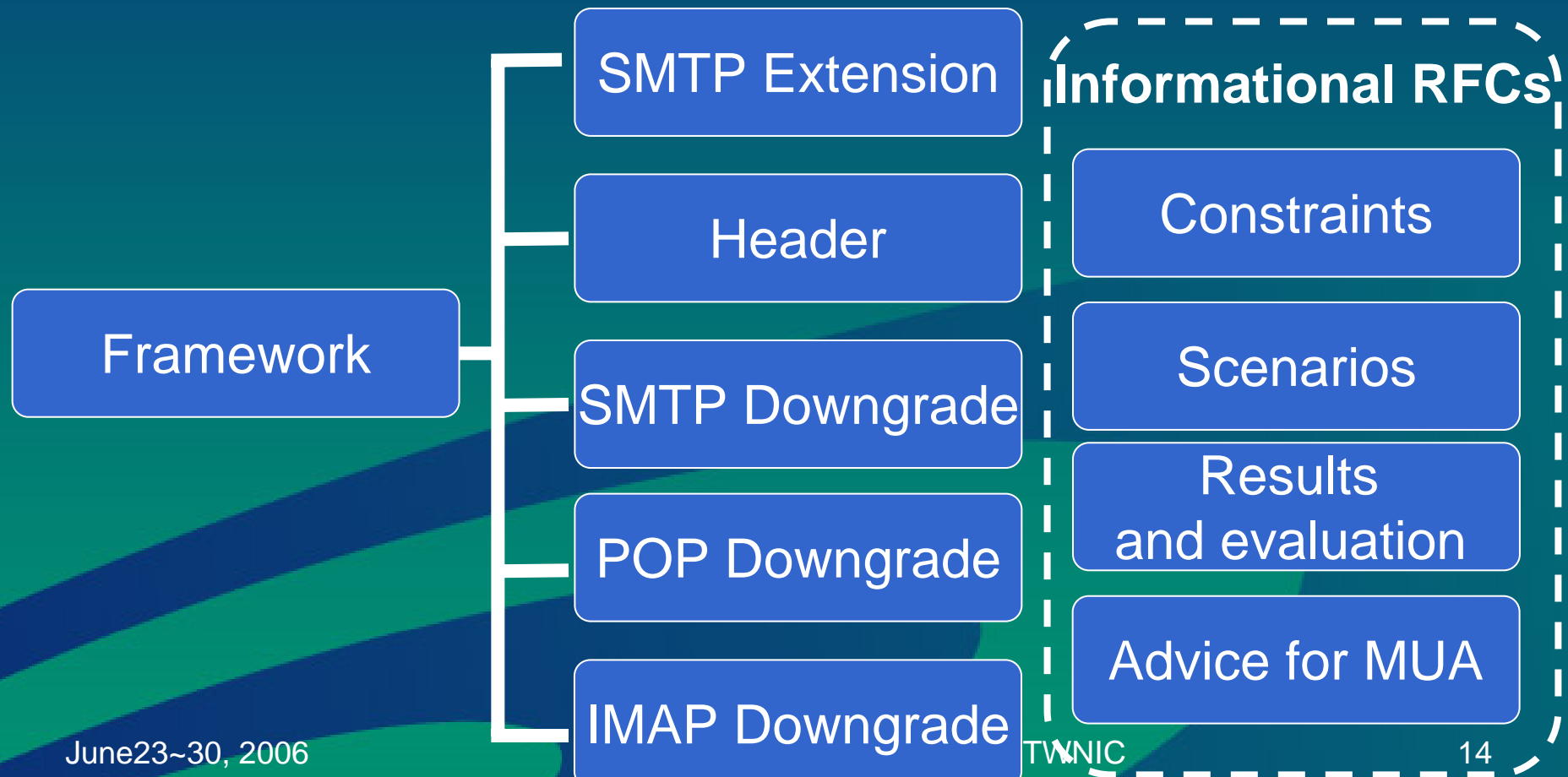
Goals and Milestones

- Done Overview/architecture draft first
- Done Interworking scenarios first draft
- Done SMTP Extensions first draft
- Done Header format first draft
- Done   Downgrading in SMTP first draft
- Done   Downgrading in POP first draft
- Done   Downgrading in IMAP first draft
- Jun 2006 Overview/architecture draft to IESG
- Jun 2006 Interworking scenarios to IESG
- Sep 2006 SMTP Extensions to IESG
- Sep 2006 Header format to IESG
- Sep 2006 Downgrading in SMTP to IESG
- Sep 2006 Downgrading in POP to IESG
- Sep 2006 Downgrading in IMAP to IESG
- Dec 2006 Results and evaluation first draft
- Mar 2007 Results and evaluation to IESG
- Mar 2007 Group recharter for standards track

EAI Document Roadmap

Experimental RFCs

Framework

- SMTP Extension
- Header
- SMTP Downgrade
- POP Downgrade
- IMAP Downgrade

Informational RFCs

- Constraints
- Scenarios
- Results and evaluation
- Advice for MUA

ICANN IDN Workshop at Marrakech, Morocco

Overview of Solution

- SMTP client handshake with next SMTP server check if SMTP extension is supported by the server
  - Yes:
    send internationalized email address and headers
  - No:
    downgrade the email to traditional one (ASCII email address, RFC2821/2822 compatible)

TWNIC role

- **Draft header document**
  - Internationalized Email Headers
    - draft-yeh-ima-utf8headers-01
- **Involve in testing plan**
  - Modify sendmail software to implement EAI WG drafts
  - Develop plug-in for MUA to send, receive and display I-Email address

More Information

- Internationalization in Internet Applications: Issues, Tradeoffs, and Email Addresses
  - http://www.ietf.org/internet-drafts/draft-klensin-ima-constraints-00.txt
- Overview and Framework for Internationalized Email
  - http://www.ietf.org/internet-drafts/draft-klensin-ima-framework-01.txt
- Internationalized Email Addresses: Scenarios
  - http://www.ietf.org/internet-drafts/draft-ietf-eai-scenarios-00.txt
- SMTP extension for internationalized email address
  - http://www.ietf.org/internet-drafts/draft-ietf-eai-smtpext-00.txt
- Internationalized Email Headers
  - http://www.ietf.org/internet-drafts/draft-ietf-eai-utf8headers-00.txt
- Downgrading mechanism for Internationalized eMail Address (IMA)
  - http://www.ietf.org/internet-drafts/draft-ietf-eai-downgrade-00.txt
- IMAP Support for UTF-8
  - http://www.ietf.org/internet-drafts/draft-ietf-eai-imap-utf8-00.txt

EAI Test bed

- i-Email user requirement
  - An i-Email user is able to enter and display the characters of his language in email address.
  - An i-Email user is able to store i-Email addresses in an address book, and use "reply" without destroy the address.
  - If the i-Email solution requires keeping extra information around for an address in some cases, the i-Email user is capable of manipulating that information, including storing that information in his address book.

Test bed

- Modify sendmail software to support i-Email specification
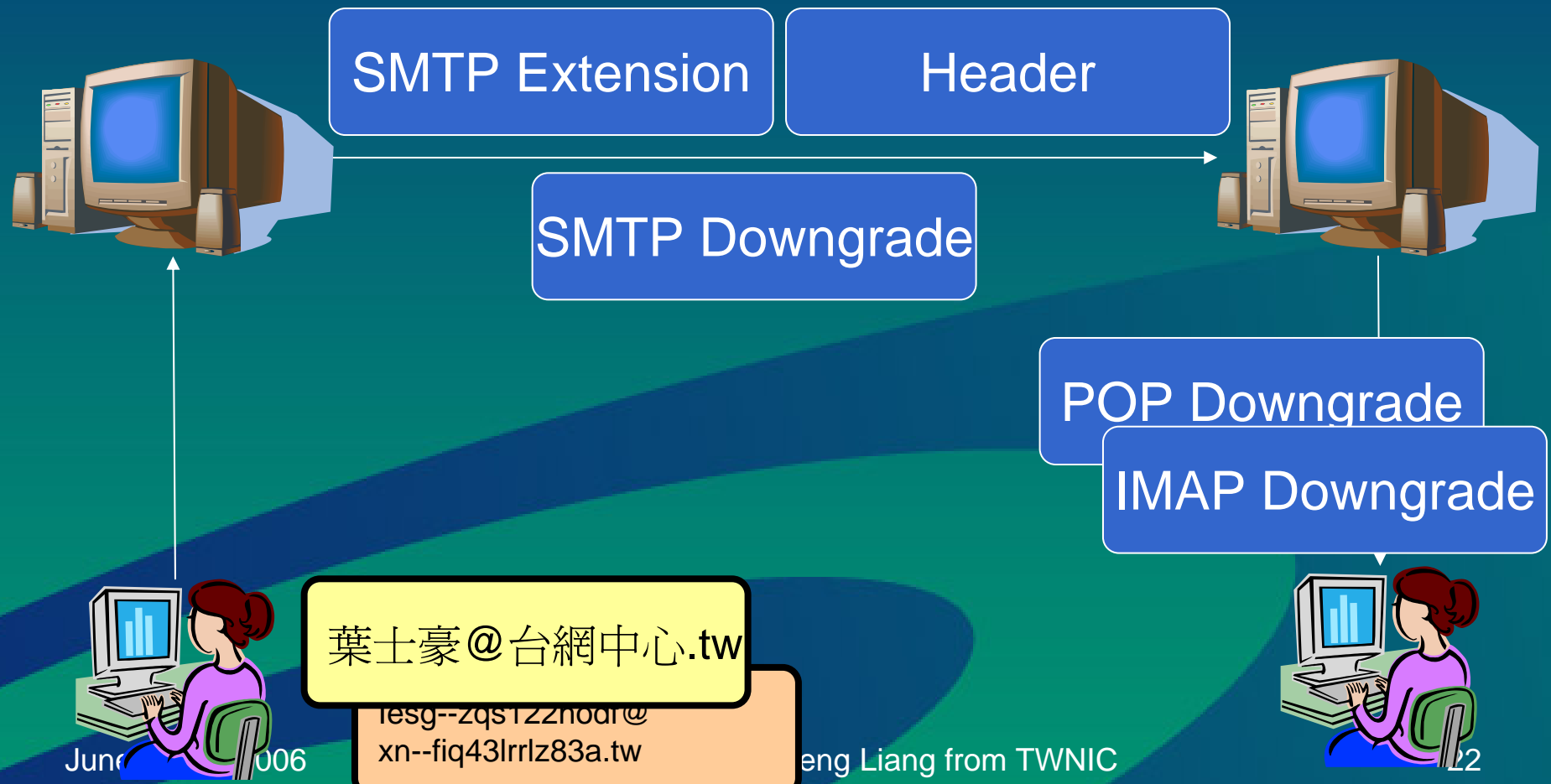 - i-Email SMTP extension
    - http://www.ietf.org/internet-drafts/draft-ietf-eai-smtpext-00.txt
  - UTF8 header
    - http://www.ietf.org/internet-drafts/draft-ietf-eai-utf8headers-00.txt
  - Downgrad
    - http://www.ietf.org/internet-drafts/draft-ietf-eai-downgrade-00.txt

Scenarios

- ## Two i-Email users
  - One i-Email user (A) sends a message to another i-Email user (B). The recipient replies to the message.

- ## Three i-Email users
  - As above, but A sends his message to both B and C. Both reply to all the recipients listed in the message.

Scenarios

- **One i-Email user sends to one ascii user**
  - A, an i-Email user, sends to X, an ascii user. X replies.

- **An i-Email user sends to one ascii user and one i-Email user**
  - A, an i-Email user, sends to B(an i-Email user) and X(a non- i-Email user); both reply.

Ming-Cheng Liang from TWNIC
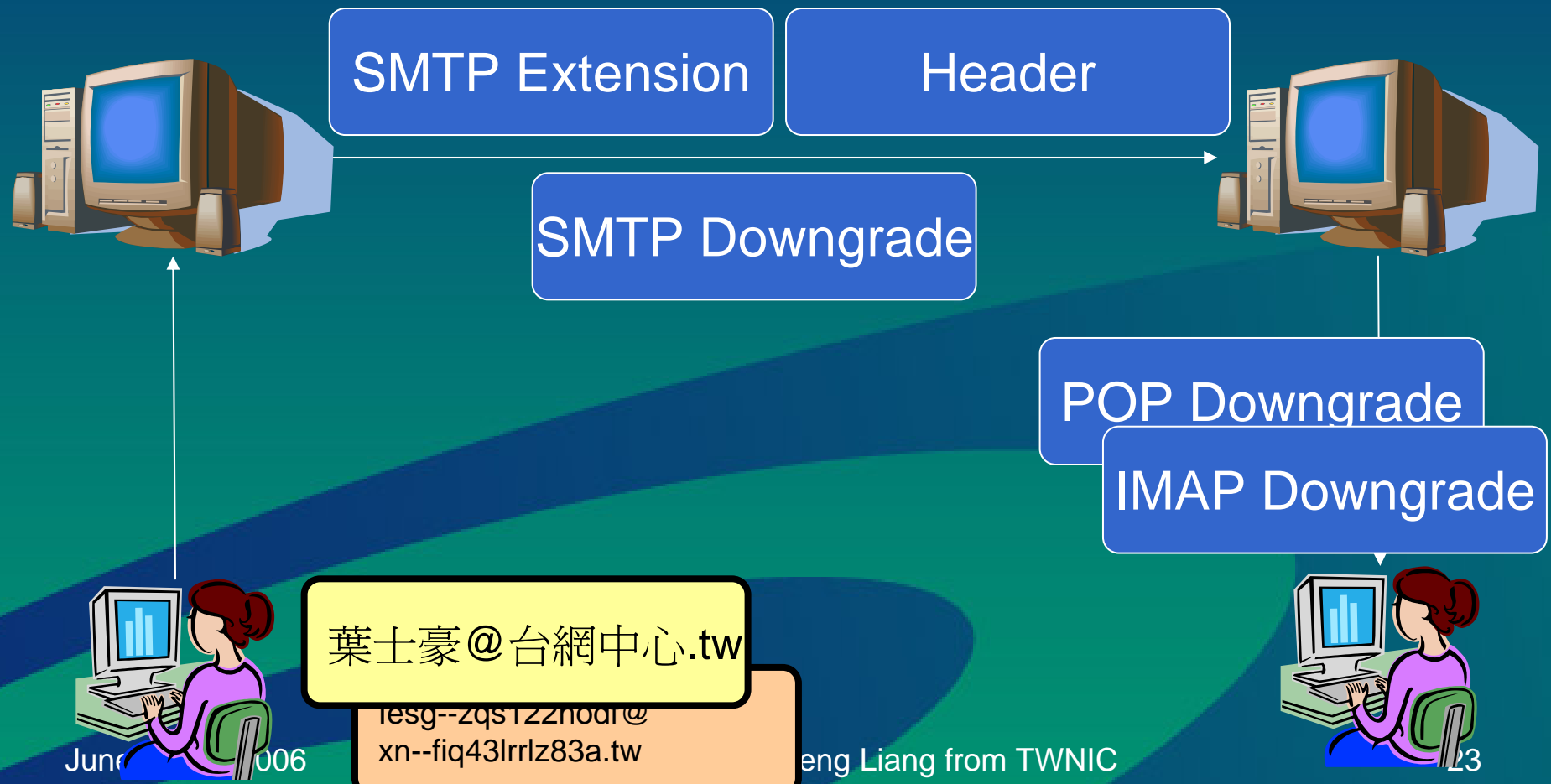ICANN IDN Workshop at Marrakech, Morocco

EAI Test Bed Demonstration

SMTP Extension

Header

SMTP Downgrade

POP Downgrade

IMAP Downgrade

葉士豪＠台網中心.tw

iesg--zqs122hodr@
xn--fiq43lrrlz83a.tw

EAI Test Bed Demonstration

SMTP Extension

Header

SMTP Downgrade

POP Downgrade

IMAP Downgrade

葉士豪＠台網中心.tw

iesg--zqs122hodr@
xn--fiq43lrrlz83a.tw

...eng Liang from TWNIC

ICANN IDN Workshop at Marrakech, Morocco

23

EAI Test Bed Demonstration
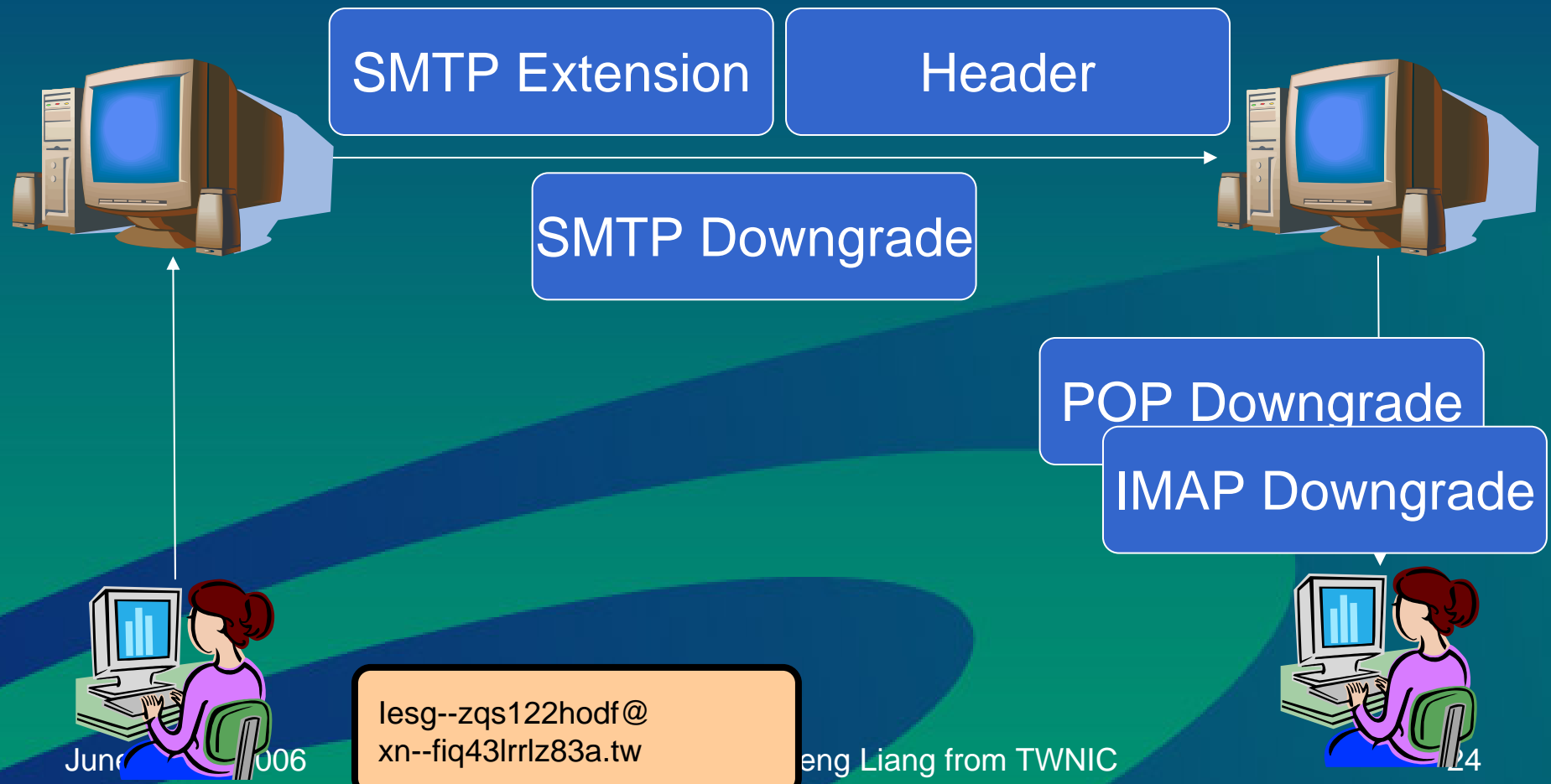
SMTP Extension

Header

SMTP Downgrade

POP Downgrade

IMAP Downgrade

lesg--zqs122hodf@
xn--fiq43lrrlz83a.tw

檔案(F)　編輯(E)　檢視(V)　插入(I)　格式(O)　選項(P)　工具(T)　輔助說明(H)

ABC

寄出　通訊錄　拼字　附件　安全資訊　儲存

寄件人(R): 楊禎葆 <iesg--q5vy06ah6h@eail.twnic.tw> - snv@twnic.net.tw

收信人: 楊禎葆 EAI=ALT-ADDRESS (UTF8@ASCII) <iesg--q5vy06ah6h@twnic.net.tw>
收信人: 楊禎葆 EAI=atomic (UTF8@UTF8) <iesg--q5vy06ah6h@xn--fiq43lrrlz83a.tw>
收信人: 葉士豪 EAI=atomic (UTF8@ASCII) <iesg--zqs122hodf@eai2.twnic.tw>
收信人: 葉A士豪 EAI=atomic (UTF8@ASCII) <iesg--A-q70b354k51g@eai2.twnic.tw>
收信人: abelyang (not EAI mail) <abelyang@downgrade.twnic.tw>

主題(S): EAI Downgrade Testing Thu, 22 Jun 2006 11:26:38 +0800

內文　可變寬度　A A B I U

ABC

這裏是 UTF8 編碼,可以正常看見嗎 ?

EAI Test Bed- SMTP negotiation detail

```
$>telnet eai1.twnic.tw 25
220 eai1.twnic.tw ESMTP Sendmail 8.13.6/8.13.6; Fri, 23 Jun 2006 15:06:41 +0800
ehlo eai2.twnic.tw
250-eai1.twnic.tw Hello log.twnic.net.tw [211.72.210.251], pleased to meet you
-- skip
250-utf8smtp
mail from: <楊禎葆@eai1.twnic.tw> EAI=atomic
250 2.1.0 <楊禎葆@eai1.twnic.tw>... Sender ok
rcpt to: <楊禎葆@twnic.net.tw> EAI=abelyang@twnic.net.tw
250 2.1.5 <楊禎葆@twnic.net.tw>... Recipient ok
rcpt to: <楊禎葆@台網中心.tw> EAI=atomic
250 2.1.5 <楊禎葆@台網中心.tw>... Recipient ok
rcpt to: <葉士豪@twnic.net.tw> EAI=atomic
250 2.1.5 <葉士豪@twnic.net.tw>... Recipient ok
rcpt to: <葉A士豪@eai2.twnic.tw> EAI=atomic
250 2.1.5 <葉A士豪@eai2.twnic.tw>... Recipient ok
rcpt to: <abelyang@downgrade.twnic.tw>
250 2.1.5 <abelyang@downgrade.twnic.tw>... Recipient ok
rcpt to: <許乃文@台網中心.tw> EAI=snw@twnic.net.tw
250 2.1.5 <許乃文@台網中心.tw>... Recipient ok
rcpt to: <許乃文@台網中心.tw> EAI=atomic
250 2.1.5 <許乃文@台網中心.tw>... Recipient ok
DATA
354 Enter mail, end with "." on a line by itself
Date: Fri, 23 Jun 2006 15:06:41 +0800
From: "楊禎葆" <楊禎葆@eai1.twnic.tw>
To: "楊禎葆 EAI=ALT-ADDRESS (UTF8@ASCII)" <楊禎葆@twnic.net.tw>,
"楊禎葆 EAI=atomic (UTF8@UTF8)" <楊禎葆@台網中心.tw>,
"葉士豪 EAI=atomic (UTF8@ASCII)" <葉士豪@eai2.twnic.tw>,
"葉A士豪 EAI=atomic (UTF8@ASCII)" <葉A士豪@eai2.twnic.tw>,
"abelyang (not EAI mail)" <abelyang@downgrade.twnic.tw>,
"許乃文 EAI=ALT-ADDRESS UTF8@UTF8)" <許乃文@台網中心.tw>,
"許乃文 EAI=atomic (UTF8@UTF8)" <許乃文@台網中心.tw>
Subject: EAI Downgrade Testing Fri, 23 Jun 2006 15:06:41 +0800
MIME-Version: 1.0
Content-type: text/plain; charset=utf-8
Content-transfer-encoding: 8bit
Status: O

ABC
這裏是 UTF8 編碼,可以正常看見嗎 ?
.
```

EAI extension

From: UTF8@ASCII

To:UTF8@ASCII EAI=alt-address

To:UTF8@UTF8 EAI=atomic

To:UTF8@ASCII EAL=atomic

To:UTF8+ASCII@ASCII EAI=atomic

To: ASCII@ASCII (Original, no EAI args)

To: UTF8@UTF8 EAI=alt-address

To: UTF8@UTF8 EAI=atomic

This is Header after 'DATA' command

EAI Test Bed-
EAI mail

Ming-Cheng Liang from TWNIC
ICANN IDN Workshop at Marrakech, Morocco

EAI Test Bed-
EAI downgrade mail

www.twnic.net.tw

```
From iesg--q5vy06ah6h@eai1.twnic.tw  Thu Jun 22 11:26:51 2006
Return-Path: <iesg--q5vy06ah6h@eai1.twnic.tw>
Received: from eai1.twnic.tw (eai1.twnic.tw [211.72.210.249])
    by twnic.net.tw (8.13.6/8.13.5) with ESMTP id k5M3QoOB004404
    (version=TLSv1/SSLv3 cipher=DHE-RSA-AES256-SHA bits=256 verify=NO);
    Thu, 22 Jun 2006 11:26:50 +0800
Received: (from smmsp@localhost)
    by eai1.twnic.tw (8.13.6/8.13.6) id k5M3Qoxr025228;
    Thu, 22 Jun 2006 11:26:50 +0800
Message-Id: <200606220326.k5M3Qoxr025228@eai1.twnic.tw>
Received: from eai2.twnic.tw (log.twnic.net.tw [211.72.210.251])
    by eai1.twnic.tw (envelope-sender <iesg--q5vy06ah6h@eai1.twnic.tw>) (MIMEDefang) with ESMTP id k5M3QckW025226
    Thu, 22 Jun 2006 11:26:50 +0800 (CST)
Date: Thu, 22 Jun 2006 11:26:38 +0800
Comments: From:
    "楊禎葆" <楊禎葆@eai1.twnic.tw>
From: "楊禎葆"  <iesg--q5vy06ah6h@eai1.twnic.tw>
Comments: To:
    "楊禎葆 EAI=ALT-ADDRESS (UTF8@ASCII)" <楊禎葆@twnic.net.tw>, "楊禎葆 EAI=atomic (UTF8@UTF8)" <楊禎葆@台網中心.tw>, "葉
士豪 EAI=atomic (UTF8@ASCII)" <葉士豪@eai2.twnic.tw>, "葉A士豪 EAI=atomic (UTF8@ASCII)" <葉A士豪@eai2.twnic.tw>, "abelyang
(not EAI mail)" <abelyang@downgrade.twnic.tw>, "許乃文 EAI=ALT-ADDRESS UTF8@UTF8)" <許乃文@台網中心.tw>, "許乃文
EAI=atomic (UTF8@UTF8)" <許乃文@台網中心.tw>
To: "楊禎葆 EAI=ALT-ADDRESS (UTF8@ASCII)"  <iesg--q5vy06ah6h@twnic.net.tw>,
    "楊禎葆 EAI=atomic (UTF8@UTF8)"  <iesg--q5vy06ah6h@xn--fiq43lrrlz83a.tw>,
    "葉士豪 EAI=atomic (UTF8@ASCII)"  <iesg--zqs122hodf@eai2.twnic.tw>,
    "葉A士豪 EAI=atomic (UTF8@ASCII)"  <iesg--A-q70b354k51g@eai2.twnic.tw>,
    "abelyang (not EAI mail)"  <abelyang@downgrade.twnic.tw>,
    "許乃文 EAI=ALT-ADDRESS UTF8@UTF8)"  <iesg--1iq008cq3z@xn--fiq43lrrlz83a.tw>,
    "許乃文 EAI=atomic (UTF8@UTF8)"  <iesg--1iq008cq3z@xn--fiq43lrrlz83a.tw>
Subject: EAI Downgrade Testing Thu, 22 Jun 2006 11:26:38 +0800
MIME-Version: 1.0
Content-type: text/plain; charset=utf-8
Content-transfer-encoding: 8bit
Status: RO

ABC
這裏是 UTF8 編碼,可以正常看見嗎 ?
1>
```

Address downgrade (iesg—PunyCode)

Original headers for 'Comments'

From used to 'Reply' , need to downgrade

To used to MUA display and for 'Reply All',
need to downgrade, where UTF8 address
rewriting for iesg—(Local-Part to puny code)
or IDNA domain-part

檔案(F) 編輯(E) 檢視(V) 移至(G) 郵件(M) 工具(T) 輔助說明(H)

下載信件 寫信 通訊錄 回信 全部回信 轉寄 刪除 垃圾 列印 停止

主題(Subject): **EAI Downgrade Testing Thu, 22 Jun 2006 11:26:38 +0800**

寄件人: 楊禎葆 <iesg--q5vy06ah6h@eai1.twnic.tw>

日期: 2006/6/22 上午 11:26

收信人(To): 楊禎葆 EAI=ALT-ADDRESS (UTF8@ASCII) <iesg--q5vy06ah6h@twnic.net.tw>,
楊禎葆 EAI=atomic (UTF8@UTF8) <iesg--q5vy06ah6h@xn--fiq43lrlz83a.tw>,
葉士豪 EAI=atomic (UTF8@ASCII) <iesg--zqs122hodf@eai2.twnic.tw>,
葉A士豪 EAI=atomic (UTF8@ASCII) <iesg--A-q70b354k51g@eai2.twnic.tw>,
abelyang (not EAI mail) <abelyang@downgrade.twnic.tw>,
許乃文 EAI=ALT-ADDRESS UTF8@UTF8) <iesg--1iq008cq3z@xn--fiq43lrlz83a.tw>,
許乃文 EAI=atomic (UTF8@UTF8) <iesg--1iq008cq3z@xn--fiq43lrlz83a.tw>

ABC
這裏是 UTF8 編碼,可以正常看見嗎 ?