IPv6 DNS Operation in SOI-Asia Project

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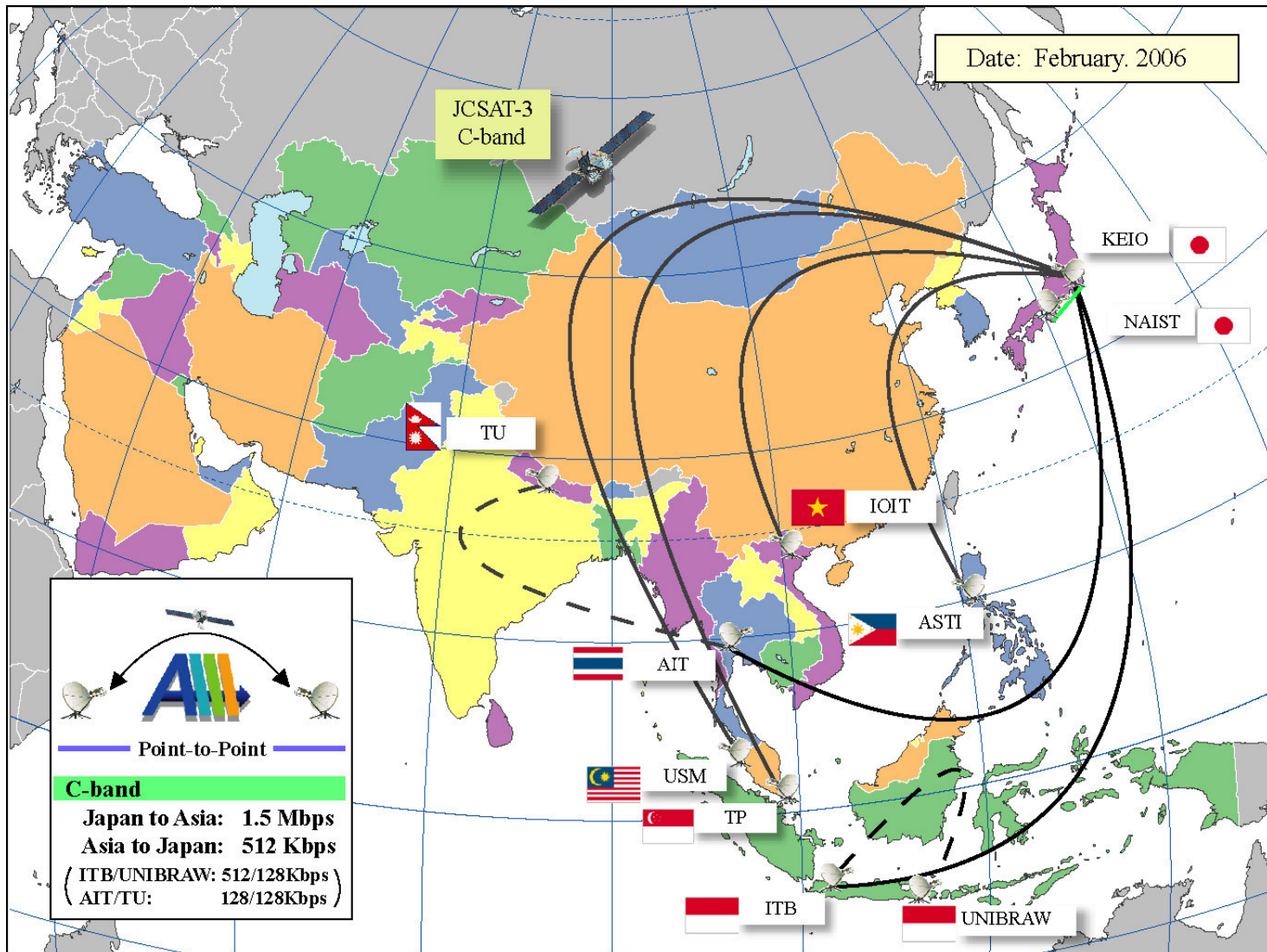
Outline

- What's AI3 and SOI-Asia
- SOI-Asia operation overview
- Deployment strategy
- DNS working example
- Data Example

What's AI3 Project

- Satellite based R and D network in Asia
- http://www.ai3.net

AI3 Topology 1:BiDirection Link

Date: February. 2006

JCSAT-3
C-band

KEIO

NAIST

TU

IOIT

ASTI

AIT

USM

TP

ITB

UNIBRAW

Point-to-Point

C-band

Japan to Asia: 1.5 Mbps
Asia to Japan: 512 Kbps

ITB/UNIBRAW: 512/128Kbps
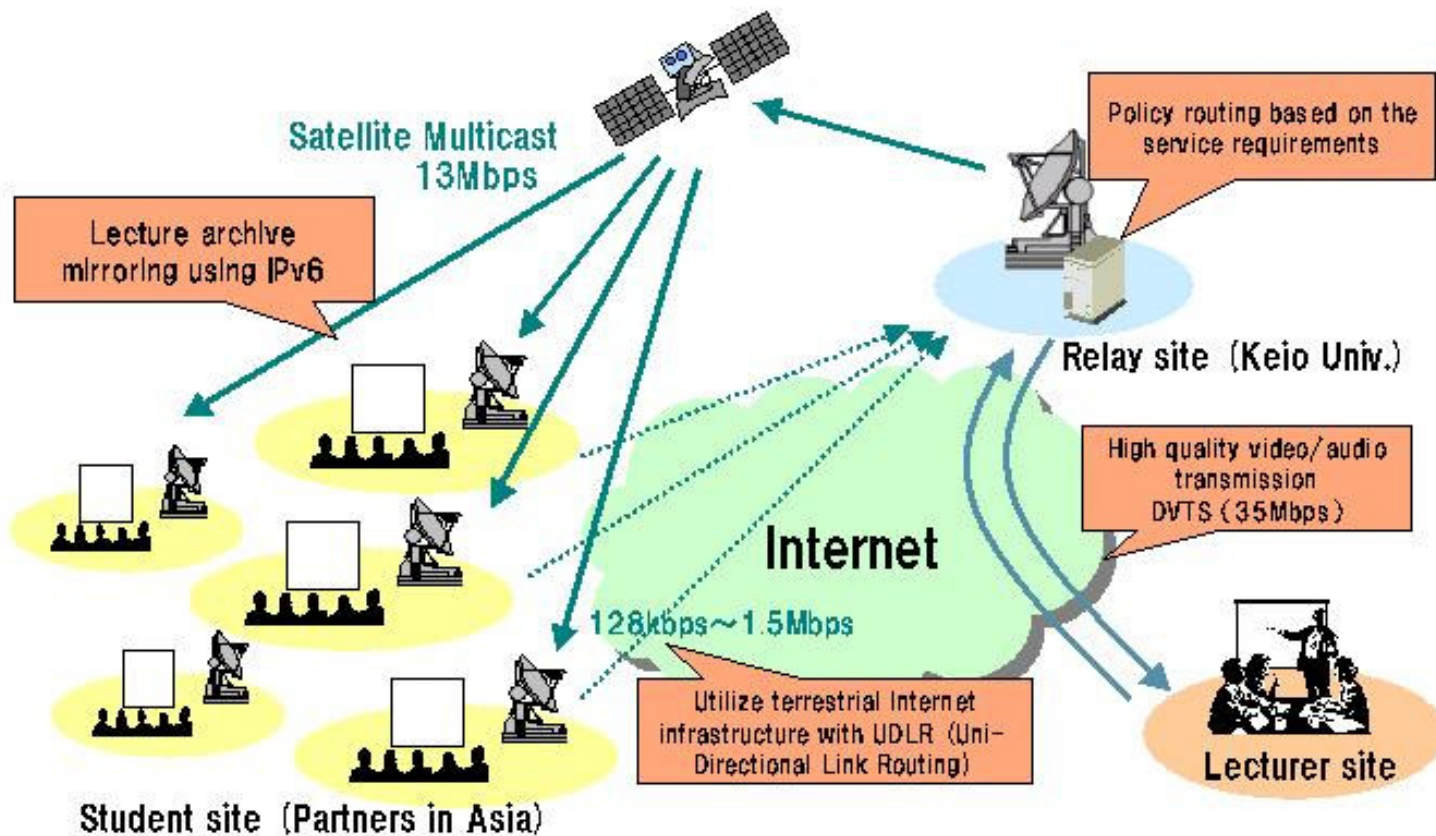AIT/TU: 128/128Kbps

AI3 Topology 2:UniDirection Link

What's SOI-Asia

- Contributing to the higher education development in Asian countries through the utilization of the Internet and Digital technology item As Sept 2007, we have 27 universities and research institutes partners in 13 countries

- We have deployed receive-only satellite earth station at each partner site to share the distribution of live lectures not only from Japan as well as archived lectures

- http://www.soi.wide.ad.jp/soi-asia

SOI-Asia Overview

Satellite Multicast 13Mbps

Lecture archive mirroring using IPv6

Policy routing based on the service requirements

Relay site (Keio Univ.)

High quality video/audio transmission DVTS (35Mbps)

Internet

128kbps~1.5Mbps

Utilize terrestrial Internet infrastructure with UDLR (Uni-Directional Link Routing)

Student site (Partners in Asia)

Lecturer site

IPv6 Operation

- Many experiences in IPv6:
  - Operation: since 1997
  - Education: operator workshops
  - Development: MTM
- SOI-Asia RO sites use IPv6 for:
  - Classes: VIC/RAT, WMT, MTM, LivePresenter
  - Feedback via BBS, VIC/RAT, Chat/Messenger
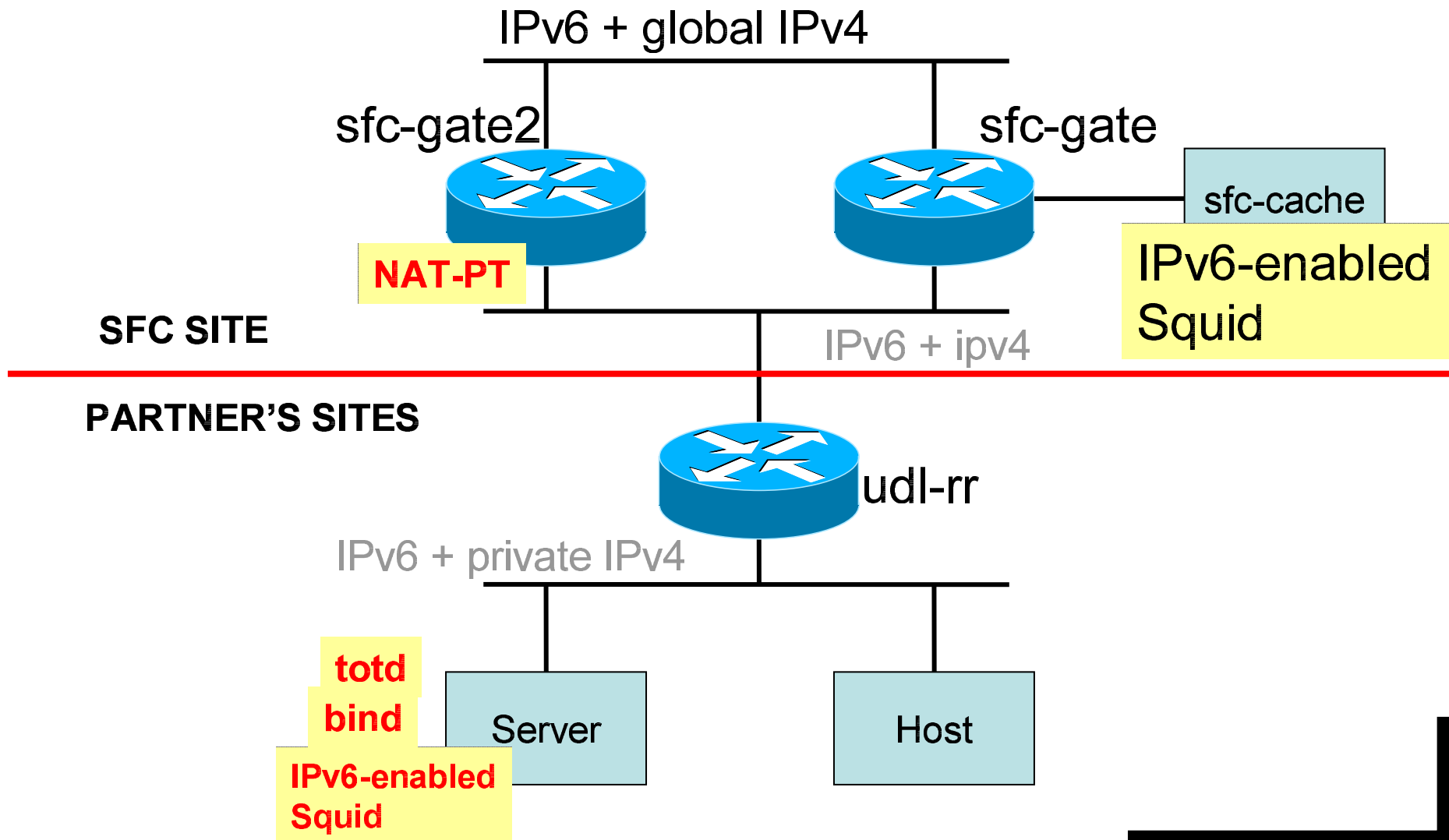- Now, time to higher level: IPv6-only operation (07/07/07)
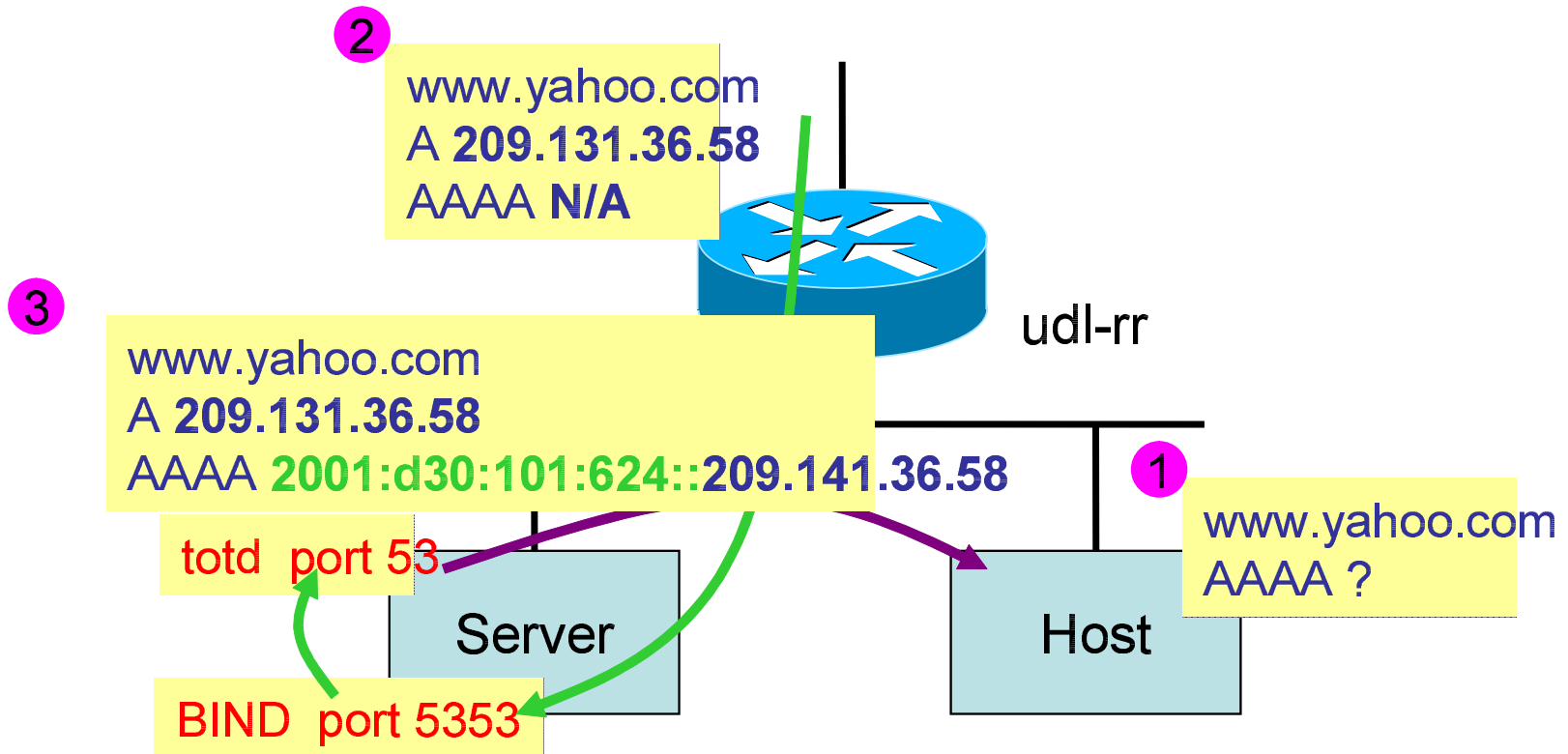
Where We Apply IPv6
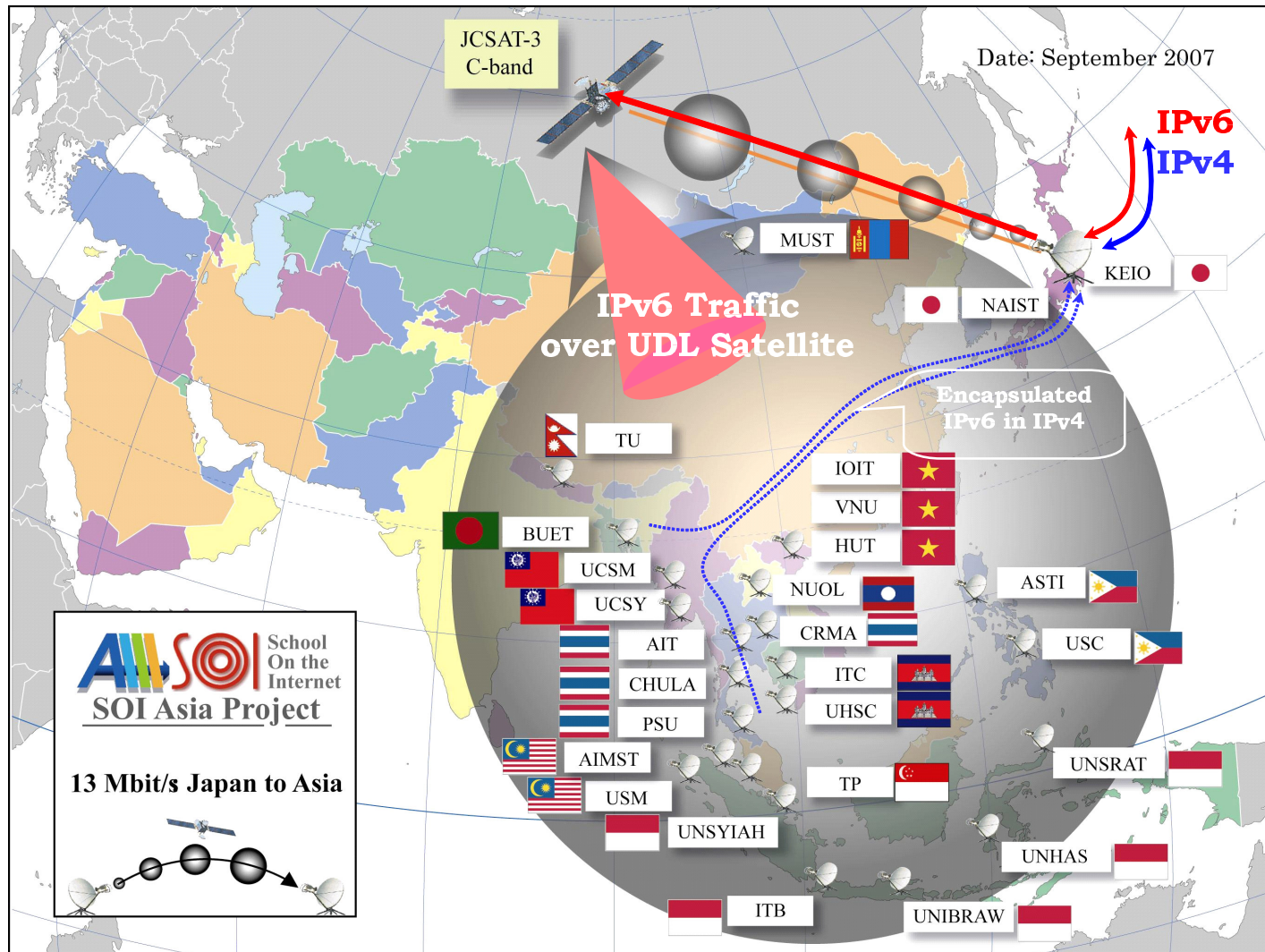
General Deployment Strategy

- NAT-PT deployment

- DNS proxy and nameserver

- IPv6 enabled Squid proxy
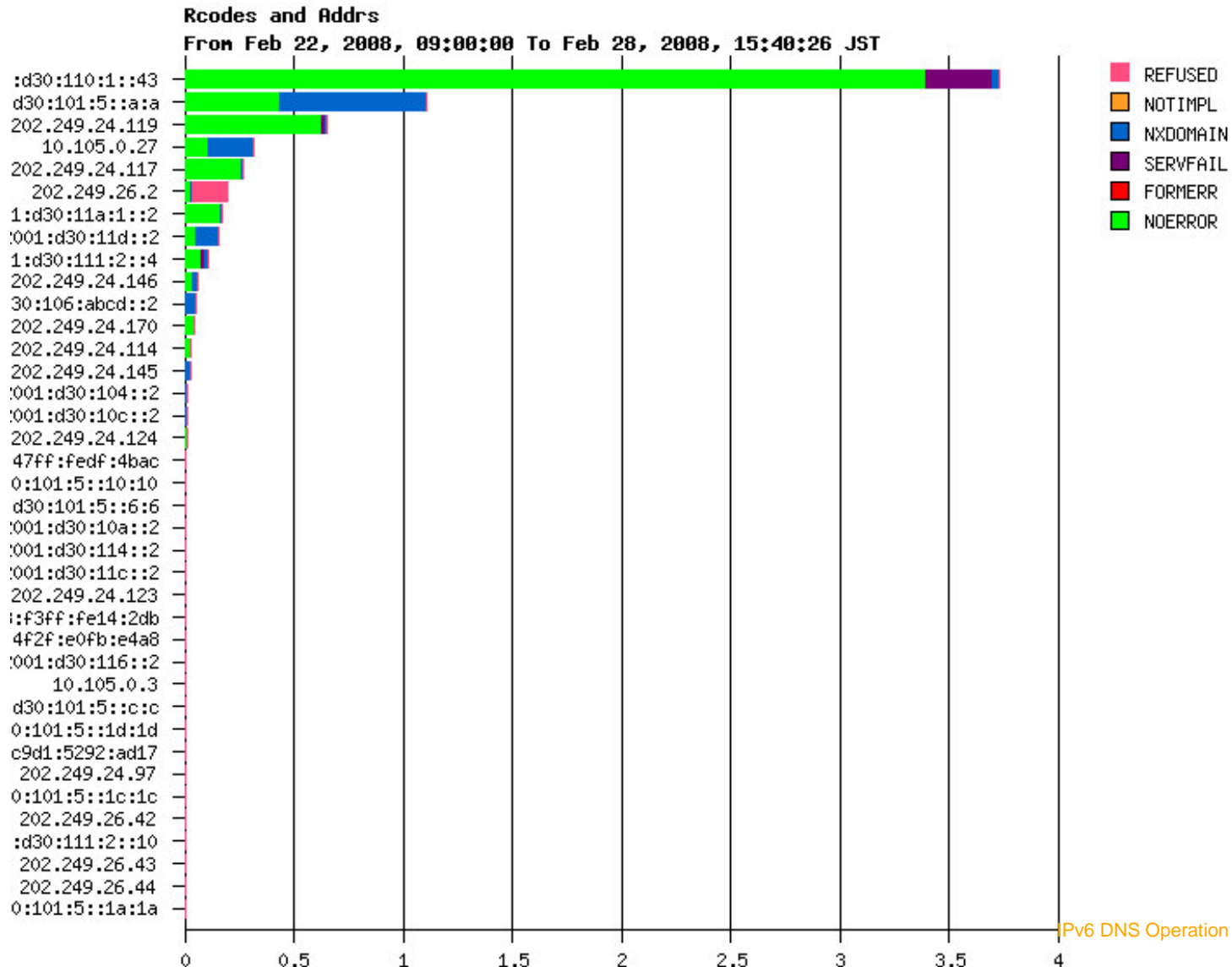
Place of Deployment

IPv6 + global IPv4

sfc-gate2

sfc-gate

sfc-cache

NAT-PT

IPv6-enabled Squid

SFC SITE

IPv6 + ipv4

PARTNER'S SITES

udl-rr

IPv6 + private IPv4

totd bind

Server

Host

IPv6-enabled Squid

DNS Queries Flow

2

www.yahoo.com
A **209.131.36.58**
AAAA **N/A**

3

www.yahoo.com
A **209.131.36.58**
AAAA **2001:d30:101:624::209.141.36.58**

udl-rr

totd port 53

BIND port 5353

Server

1

www.yahoo.com
AAAA ?

Host

Number of Client Access

Rcodes and Addrs
From Feb 22, 2008, 09:00:00 To Feb 28, 2008, 15:40:26 JST

Legend: REFUSED, NOTIMPL, NXDOMAIN, SERVFAIL, FORMERR, NOERROR

Queries send to root

17:48:40.414154 2001:d30:102:1000::1001.3569 > a.root-servers.net.domain
17:48:41.921108 2001:d30:102:1000::1001.3569 > f.root-servers.net.domain
17:48:44.769182 2001:d30:102:1000::1001.3569 > h.root-servers.net.domain
17:48:45.270263 2001:d30:102:1000::1001.3569 > j.root-servers.net.domain
17:49:04.987200 2001:d30:102:1000::1001.3569 > M.ROOT-SERVERS.NET.domain

End of Presentation

THANK YOU