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# eduroam JP update & eduroam/ISP Collaboration

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GakuNin





## ■ Problems

- Difficulties in (large-scale) RADIUS deployment
- Laborious eduroam connection / management work

## ■ Our solutions

- Federated Delegate Authentication System (DEAS)  
with centralized RADIUS server
  - remove RADIUS IdP at each institution
  - Federation using Shibboleth SSO
  - simplify RADIUS tree (higher stability)
- Web-based eduroam IdP / SP management system
  - simplify connection and administration at both the eduroam JP office and each institution

## ■ eduroam / ISP collaboration

- *Successful at last !!*





# Contents

- Delegate Authentication System (DEAS) and “clustered eduroam IdP”
- eduroam/ISP collaboration
- Feasibility of univ./ISP/carrier deployments

# eduroam JP

## ■ National eduroam operation and promotion

- 15 institutions (1.3% of 1,200) joined (Sep. 2010)
- Tutorial & technical documents

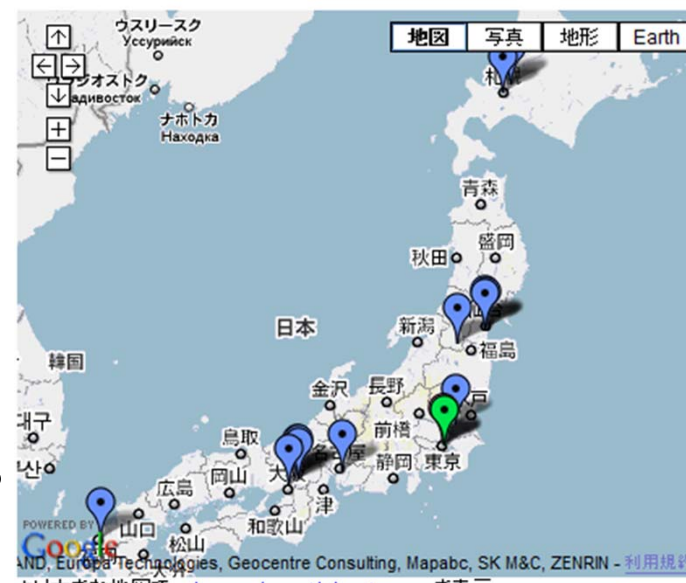
## ■ R&D

- Easy deployment and operation
- Easy configurations
- Location privacy, etc.

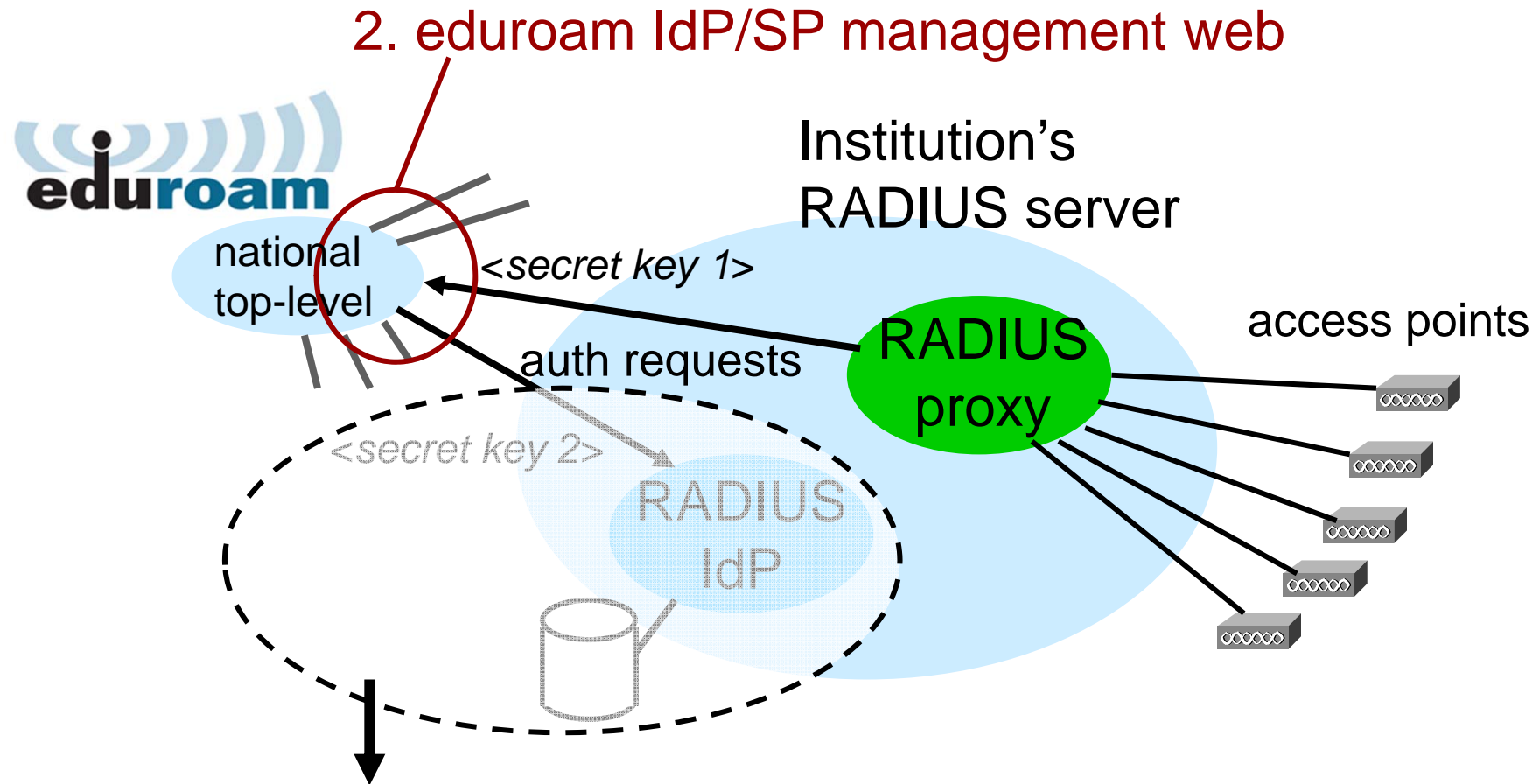
## ■ Collaboration with commercial W-ISPs

- eduroam on commercial hotspots
- Shared access points on campus
- New architecture and business models for next-generation commercial / academic WLAN services

eduroam JP 参加機関マップ



# Easy-to-join eduroam system



1. Delegate Authentication System (DEAS)



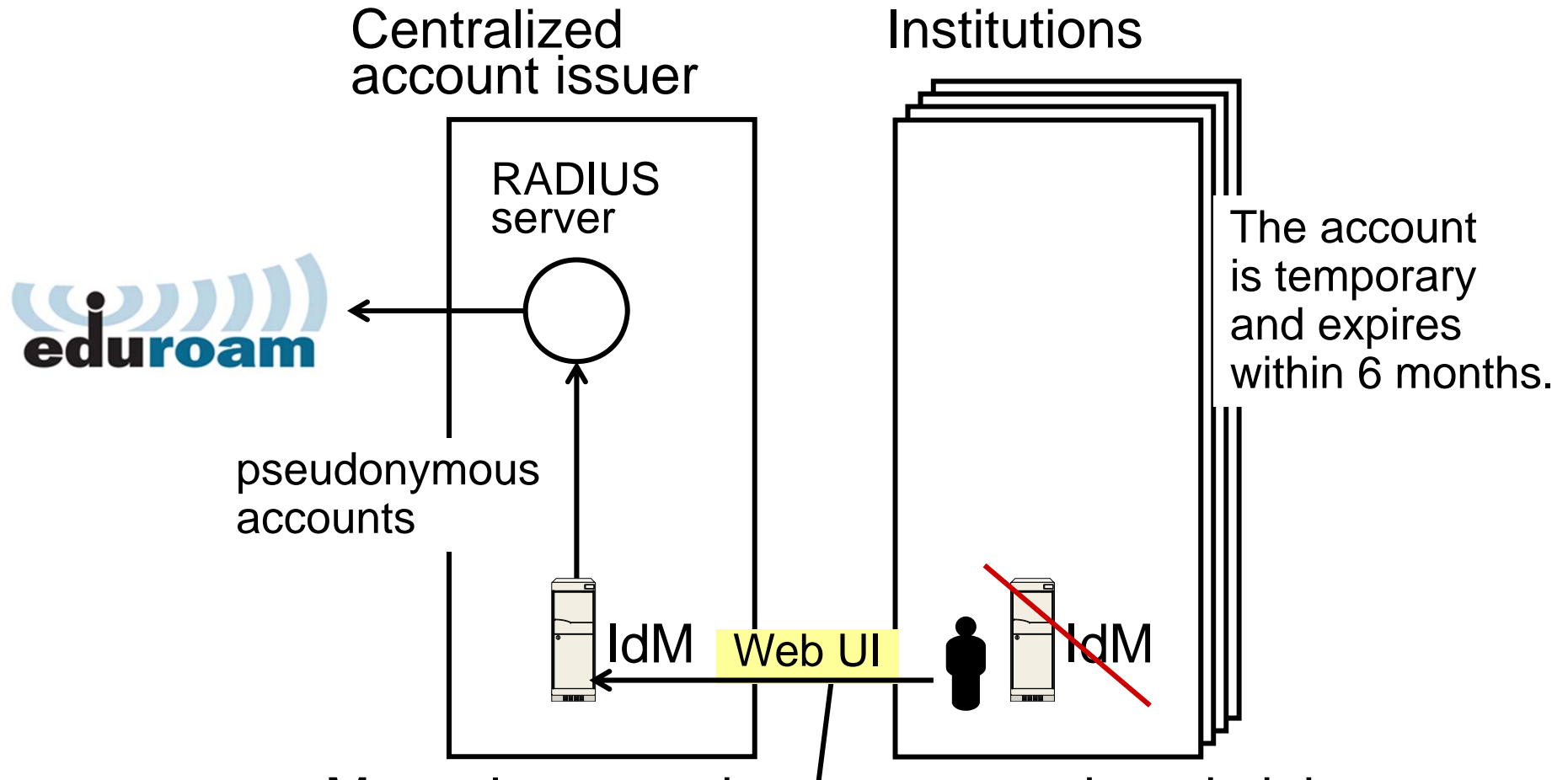


# Federated Delegate Authentication System

- Account Issuer as a *Shibboleth SP* of Japan's GakuNin federation (f.k.a. UPKI federation)
- Centralized / Clustered eduroam IdP to simplify the RADIUS proxy tree
- 3 types depending on the needs and federation level
- Pseudo-anonymized, fixed-term, and traceable roaming IDs



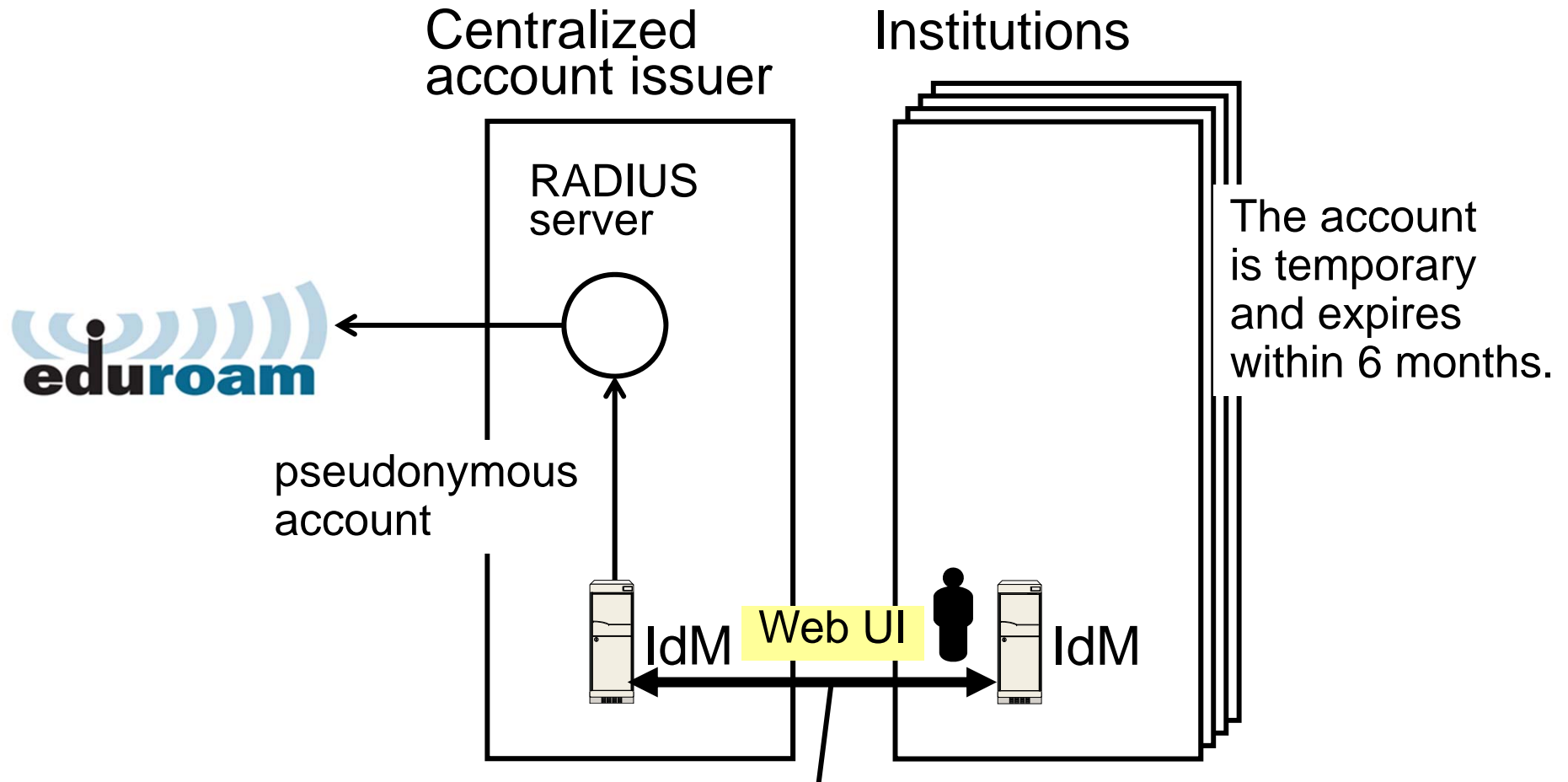
# Delegate Authentication System - Type I



Manual account issue requests by administrators.

- The system can be used even without IdM.
- Issuing Guest IDs is possible.

# Delegate Authentication System – Type II

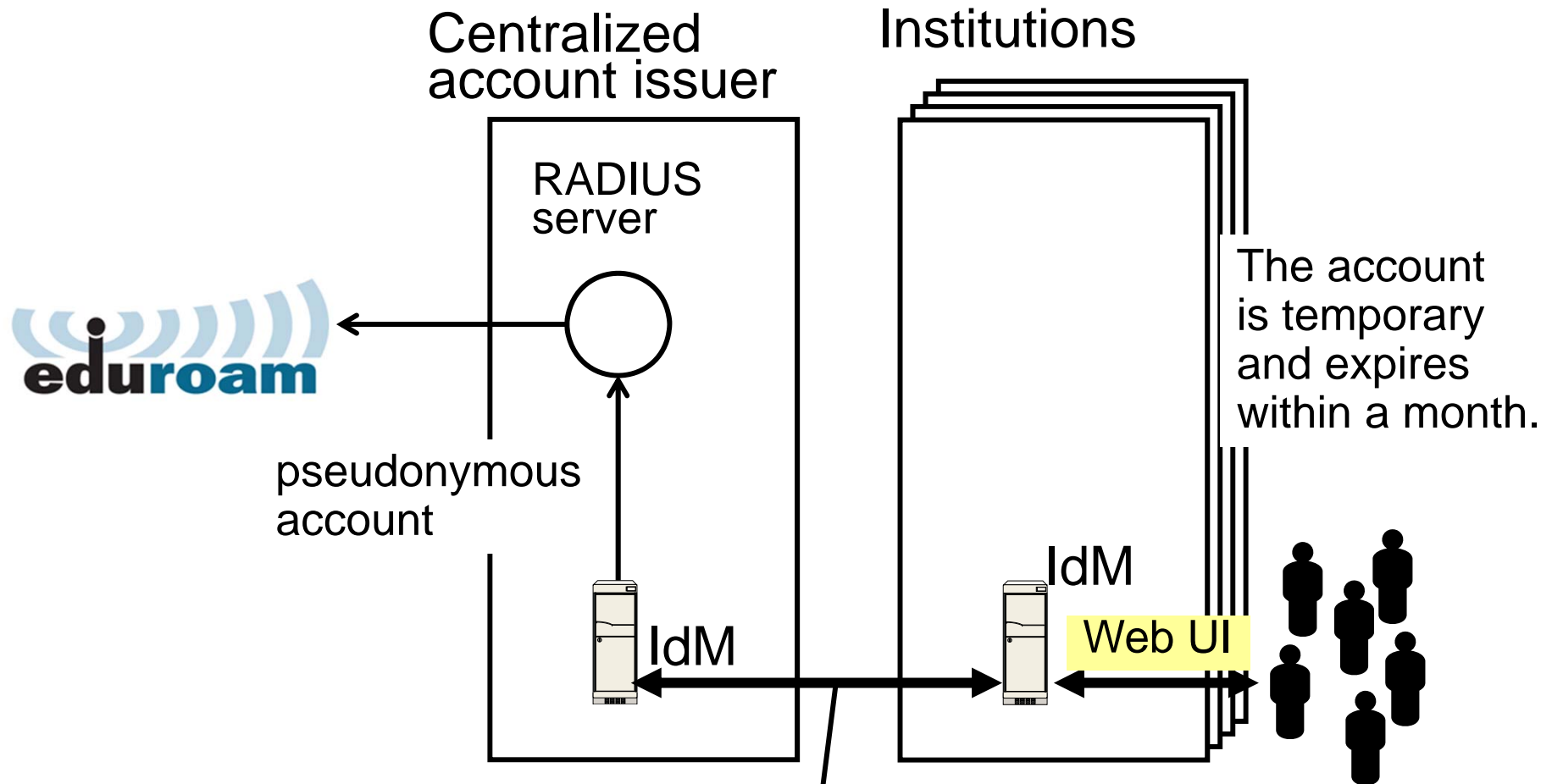


ID federation using Shibboleth/SAML  
for administrators only.

- Administrators can request for user accounts in bulk.
- Issuing Guest IDs is possible.



# Delegate Authentication System – Type III



ID federation using Shibboleth/SAML

- End user can request for *personal accounts* only.

# Current status

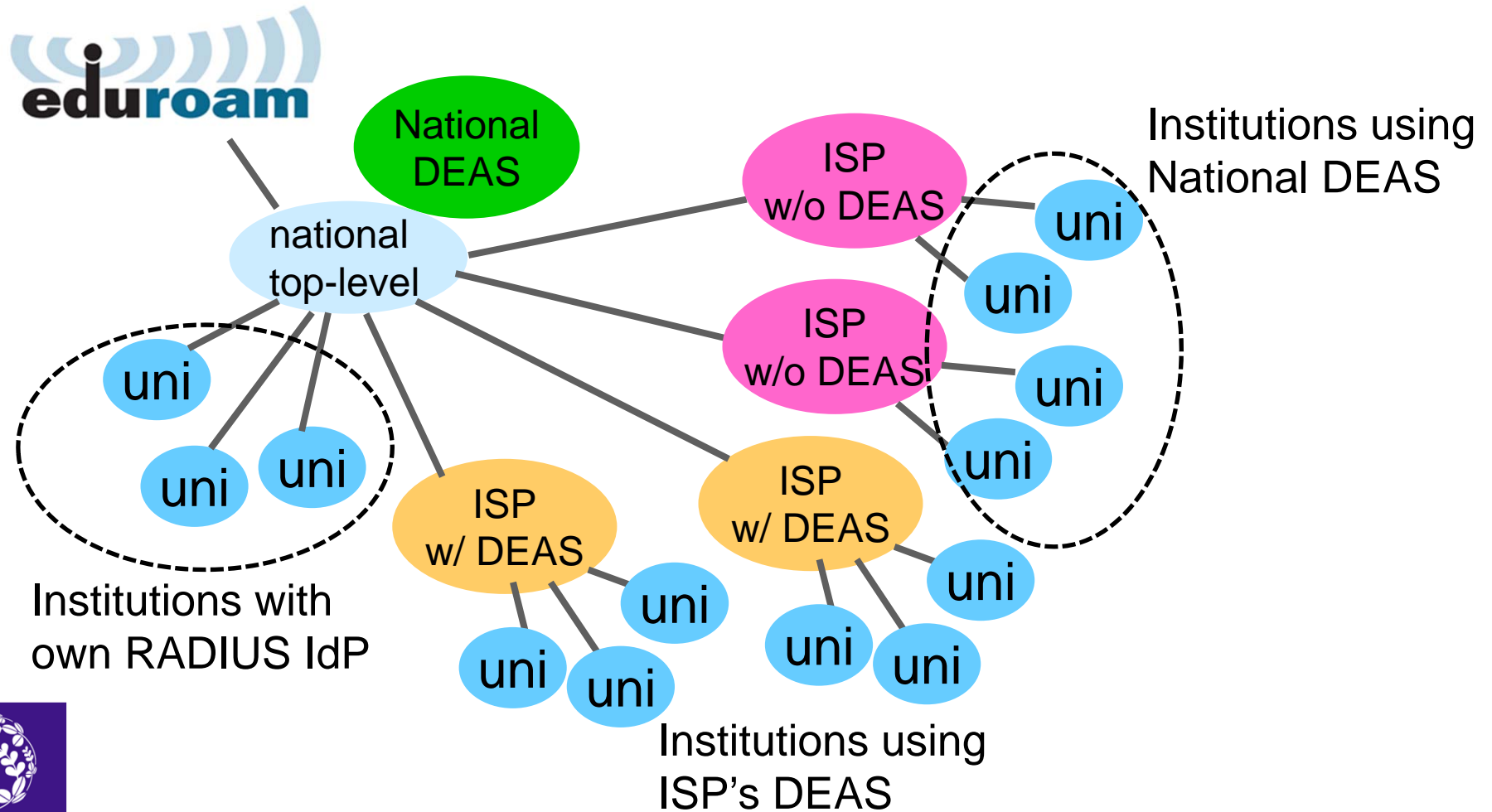
	Deployment	Users
Type I (web UI only)	National DEAS deployed	3 universities
Type II (admin fed)	Under dev.	—
Type III (full fed.)	National Shib. SP for GakuNin deployed	?

(as of Sep. 2010)

- Univ. A : a client of Livedoor (ISP),  
using for main IdP
- Univ. B : using for university's sub IdP  
before constructing main IdP ?
- Univ. C : testing eduroam hotspots (only?)



# Clustered eduroam IdP





## eduroam / ISP collaboration

- Livedoor, an ISP in Japan, provides eduroam service on their commercial hotspots
  - 130+ in-door APs at cafes, conference sites and some large shops in Kanto (in and around Tokyo)
  - 2,200+ out-door APs on power poles in central Tokyo
    - eduroam-livedoor is now available on the streets
    - provides Campus Network solution with eduroam
- Commercial WLAN service using univ. APs
  - shared AP, experimental
- Negotiation is under way with some other ISPs / carriers



# Collaboration with commercial WLAN services

## Virtual expansions of campus networks!!

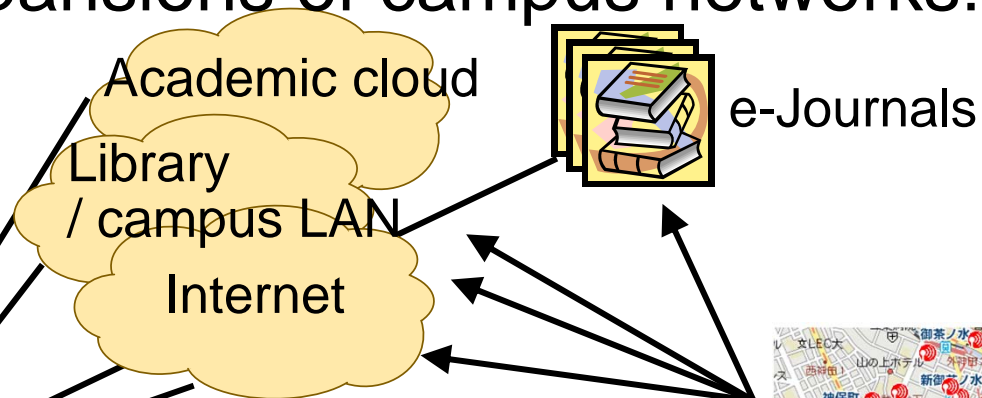
15 institutions in Japan  
(Sep. 2010)



Map of eduroam members



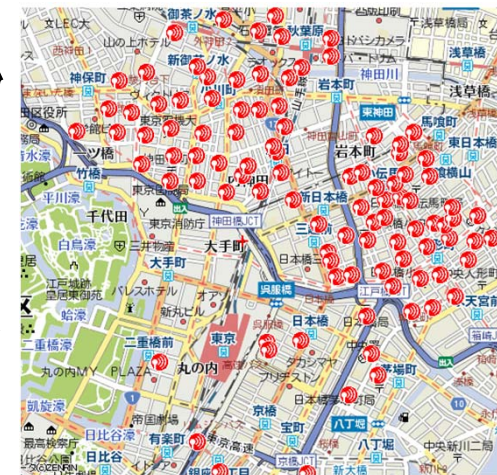
About 50 countries worldwide



Enable accesses to academic NW and contents from downtown areas

**Federation**

NW accesses using universities accounts



130+ in-door APs at cafes, conference sites, large shops in and around Tokyo & 2,200+ out-door APs

Created a new option  
for outsourcing campus WLAN system

## eduroam / ISP collaboration contd.

- Service level ?
  - experimental,  
but almost a regular service at Livedoor
- Cost ?
  - Free !
  - contribution to the society as a WLAN SP
- Any return to ISP ?
  - selling Campus Network solution with eduroam using DEAS as well as commercial WLAN
- Any technical considerations ?
  - Non-standard SSID: `eduroam-<operator_name>`
    - avoid *connection flapping* between different operators





# Feasibility of univ./ISP/carrier collaboration

## ■ Current status

- Low quality WLAN service
- Shortage of technical staff
- Commercial WLAN service not popular on campuses
  - Libraries and many divisions want to have it.
- Limited capacity of 3G
  - often cause connection shortage at conferences
- Commercial traffic not allowed on campus LAN / APs



## Feasibility of univ./ISP/carrier collaboration (contd.)

### ■ Future

#### □ Total outsourcing

- easy operation, easy usage, and cost reduction ?

#### □ Enterprise quality WLAN service

- *Ask professionals !*

#### □ Commercial WLAN service on campus

- Better service for non-academic guests

#### □ 3G off-loading

- much better environment for Smart Phones, etc.
- service area expansion for 3G/Wi-Fi hybrid mobile phones

