

# Eduroam-JP Update

Jan. 25, 2007

Tohoku University, JAPAN

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- Introduction of the eduroam to Japan
- Issues in conventional Wi-Fi roaming and VPN-only policy
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# Introduction of the eduroam to Japan

# What is eduroam?

- Global roaming infrastructure developed by TERENA Taskforce on Mobility in Europe (<http://www.eduroam.org>)
- Method of roaming that spreads in Europe and in some Asia-Pacific countries. (de facto standard)
- Based on IEEE802.1X and hierarchical RADIUS server tree.

# Cyber Science Infrastructure (CSI)

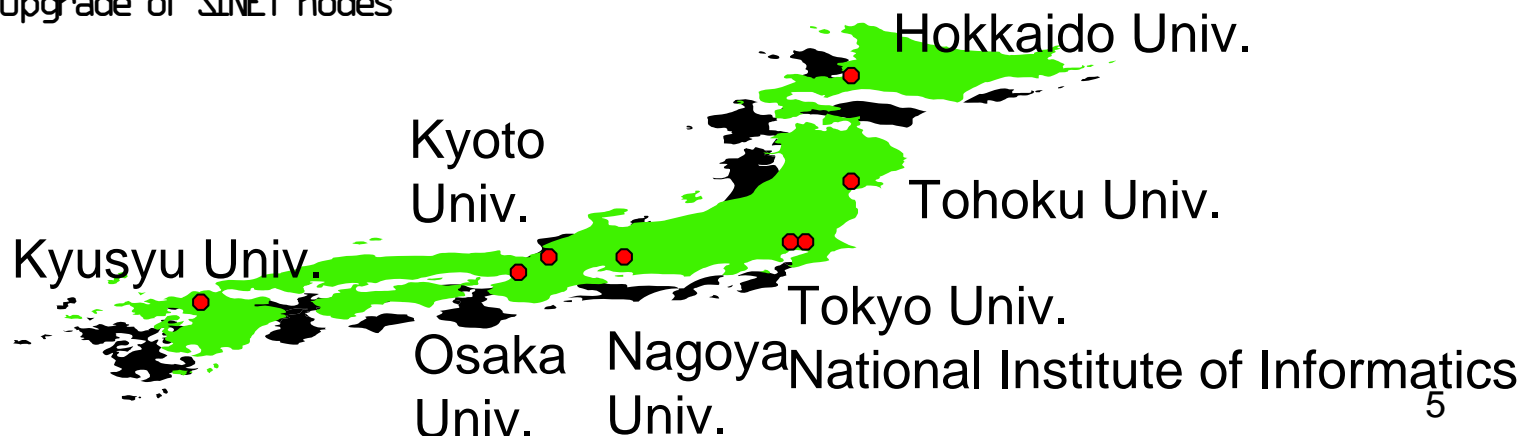
We have been working on campus ubiquitous network with the UPKI (University PKI) which is an authentication infrastructure between Universities.

- UPKI for collaboration between universities

The important infrastructure for safely services.

NII and Information Infrastructure center of seven universities collaborate for research and development.

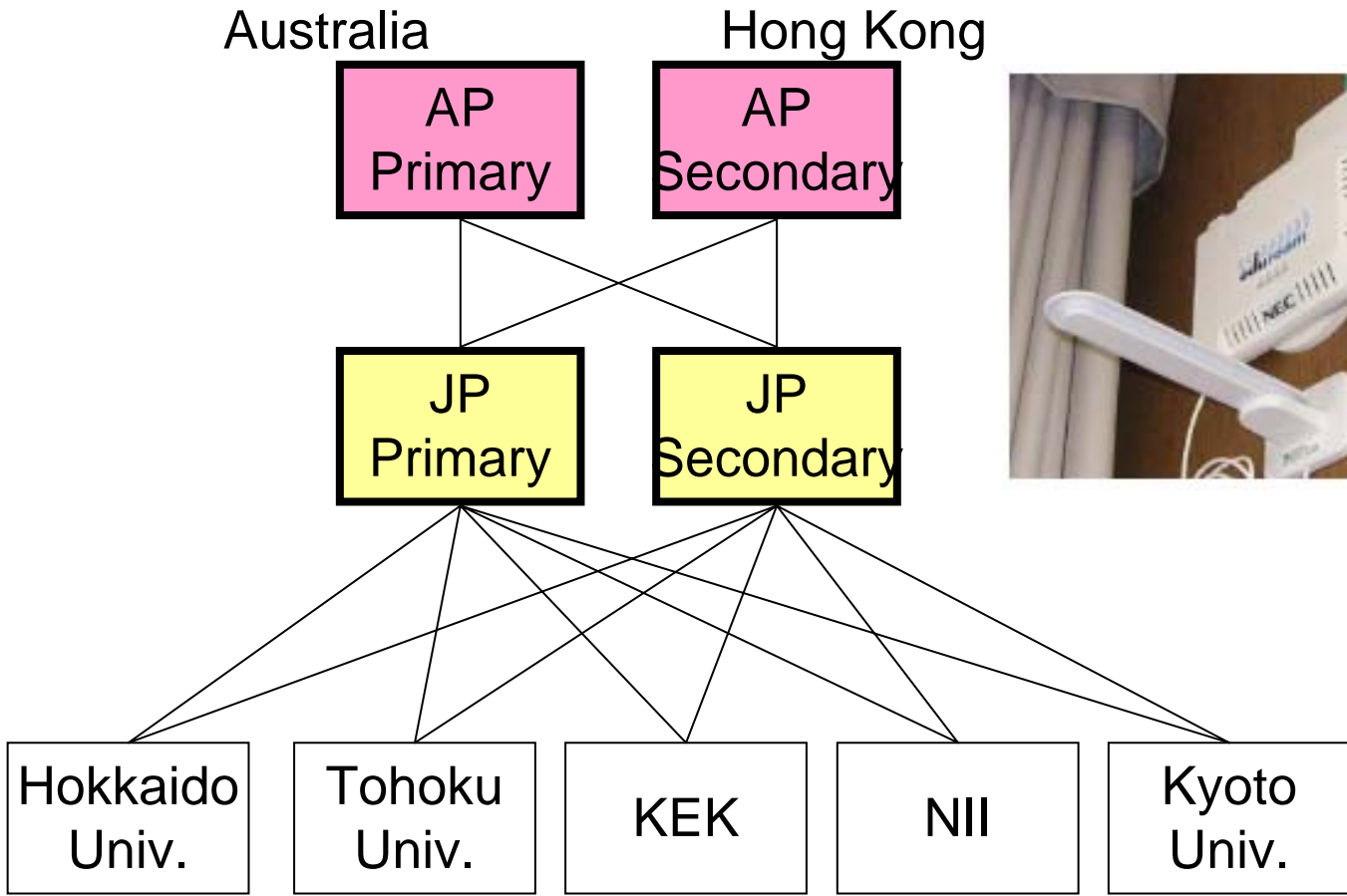
- Maintenance of authentication infrastructure for campus ubiquitous network
- Maintenance of grid environment
- Upgrade of SINET nodes



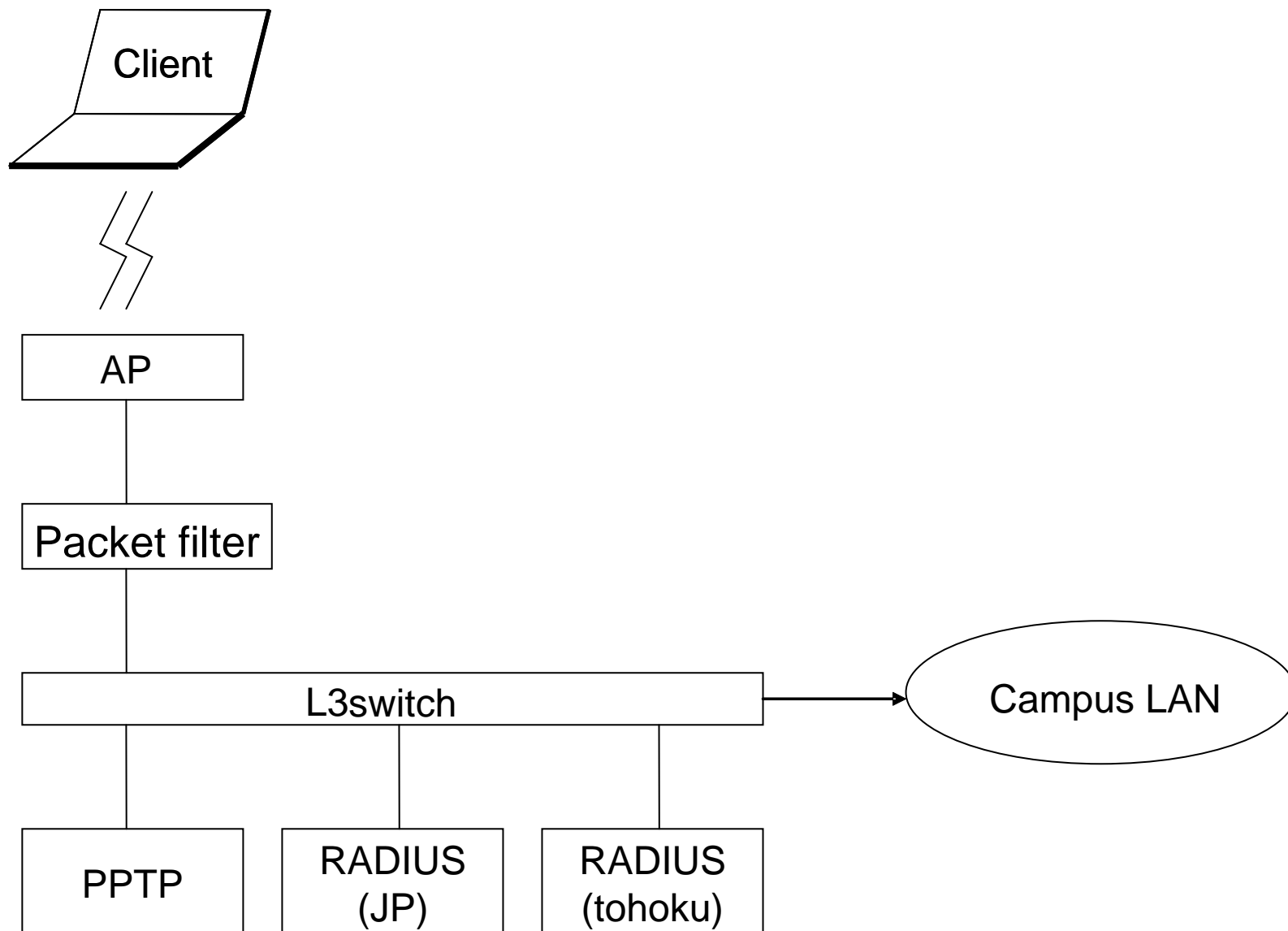
# Joining eduroam

- Aug. 31, 2006. Early Introduction by Tohoku Univ. Information Center
- Sep. 28, 2006. eduroam.jp open
- In Dec., Hokkaido Univ. , Kyoto Univ. , National Institute of Informatics (NII), High Energy Accelerator Research Organization (KEK) have joined to the eduroam.

# eduroam JP network



# Network at Tohoku Univ.





# http://www.eduroam.jp/



The screenshot shows a Microsoft Internet Explorer browser window with the address bar set to <http://www.eduroam.jp/>. The page content includes the eduroam logo, a welcome message, a description of the portal site, a last update date of Jan 6, 2007, and a list of navigation links. The status bar at the bottom indicates the connection is to the Internet.

eduroam.jp - Home - Microsoft Internet Explorer

ファイル(E) 編集(E) 表示(V) お気に入り(A) ツール(T) ヘルプ(H)

戻る 進む 印刷 検索 お気に入り 移動 リンク

アドレス(ⓐ) <http://www.eduroam.jp/>

Google G 検索 検索 ブックマーク PageRank ブロック数: 3 チェック 翻訳 設定

## eduroam

eduroam.jp へようこそ！

こちらは eduroam.jp のポータルサイトです。日本におけるeduroamの動向や関連情報、利用情報、および技術情報などを提供します。

Last update: Jan 6, 2007

- [お知らせ](#)
- [資料](#)
- [ダウンロード / download](#)
- [国内の eduroam 参加機関](#)
- [eduroam に参加するには](#)
- [運用主体・連絡先](#)
- [関連サイト](#)

## お知らせ

2007.1.6

- 「[国内の eduroam 参加機関](#)」のリストを公開しました。

インターネット

# eduroam.jp participants list by XML

eduroam.jp - Participants - Microsoft Internet Explorer

アドレス(D) http://www.eduroam.jp/participants/siteinfo.xml

Google G

## eduroam.jp 参加機関 / Participants

Institution 機関	Department 部所	Site 場所	Prefecture 都道府県	Status 状況	Authn Used 認証方式	Access Granted 許可されたアクセス	Detailed site 詳細サイト
<a href="#">National Institute of Informatics</a> 国立情報学研究所		Chiyoda-ku 千代田区	Tokyo 東京都	Deployed	802.1x ?	VPN	
<a href="#">Hokkaido University</a> 北海道大学		Sapporo 札幌市	Hokkaido 北海道	Development	802.1x ?	?	
<a href="#">Tohoku University</a> 東北大学		Sendai 仙台市	Miyagi 宮城県	Deployed	802.1x TKIP PEAP	VPN	
<a href="#">High Energy Accelerator Research Organization</a> 高エネルギー加速器研究機構		Tsukuba つくば市	Ibaraki 茨城県	Federated	802.1x ?	?	
<a href="#">Kyoto University</a> 京都大学		Kyoto 京都市	Kyoto 京都府	Federated	802.1x ?	eduroam_standard	
<a href="#">Kyushu University</a> 九州大学		Fukuoka 福岡市	Fukuoka 福岡県	Development	802.1x ?	?	

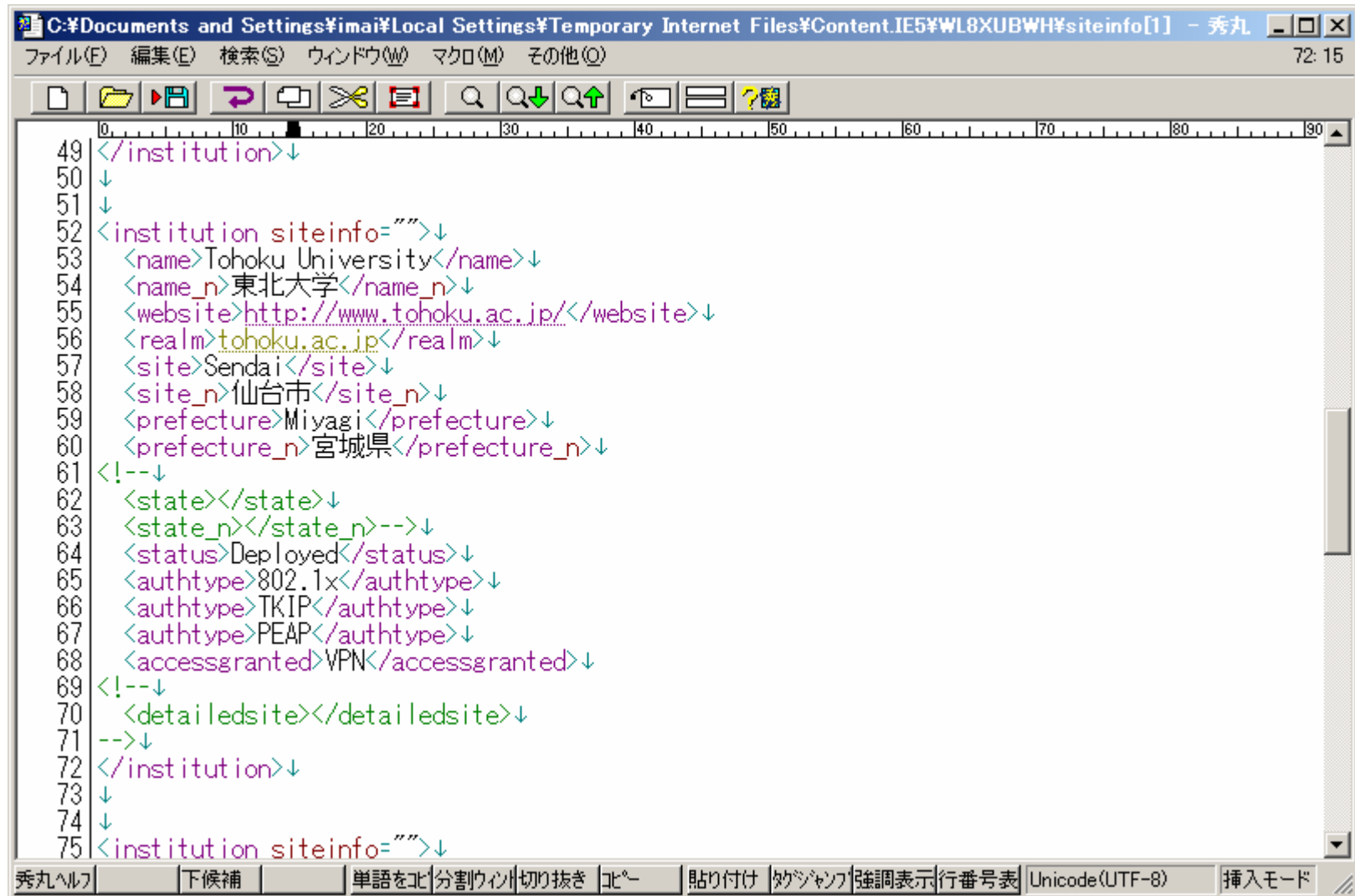
Status key

- Deployed: Site is federated to the eduroam system and wireless deployed.
- Federated: Site is linked to the eduroam system but wireless deployment is still under development or partially deployed.
- Development: Site is under development of eduroam system.
- Consideration: Site is under consideration for deployment.

Key of Access granted

インターネット

# XML document

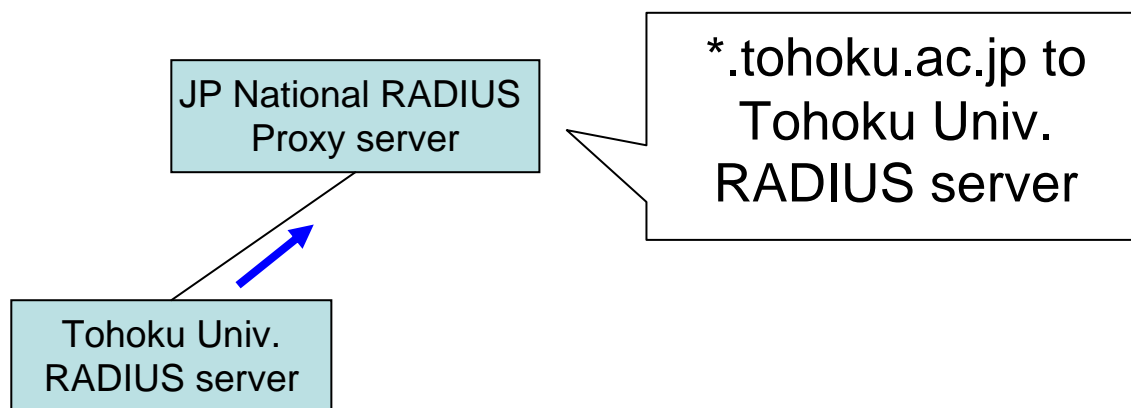


```
C:\Documents and Settings\imai\Local Settings\Temporary Internet Files\Content.IE5\WL8XUBWH\siteinfo[1] - 秀丸
ファイル(F) 編集(E) 検索(S) ウィンドウ(W) マクロ(M) その他(O) 72:15
</institution>↓
↓
↓
<institution siteinfo="">↓
  <name>Tohoku University</name>↓
  <name_n>東北大学</name_n>↓
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  <site>Sendai</site>↓
  <site_n>仙台市</site_n>↓
  <prefecture>Miyagi</prefecture>↓
  <prefecture_n>宮城県</prefecture_n>↓
<!--↓
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  <state_n></state_n>-->↓
  <status>Deployed</status>↓
  <authtype>802.1x</authtype>↓
  <authtype>TKIP</authtype>↓
  <authtype>PEAP</authtype>↓
  <accessgranted>VPN</accessgranted>↓
<!--↓
  <detailedsite></detailedsite>↓
-->↓
</institution>↓
↓
↓
<institution siteinfo="">↓
```

秀丸のヘルプ | 下候補 | 単語を北 | 分割ウィンドウ | 切り抜き | 北へ | 貼り付け | 妙ジャンク | 強調表示 | 行番号表 | Unicode (UTF-8) | 挿入モード

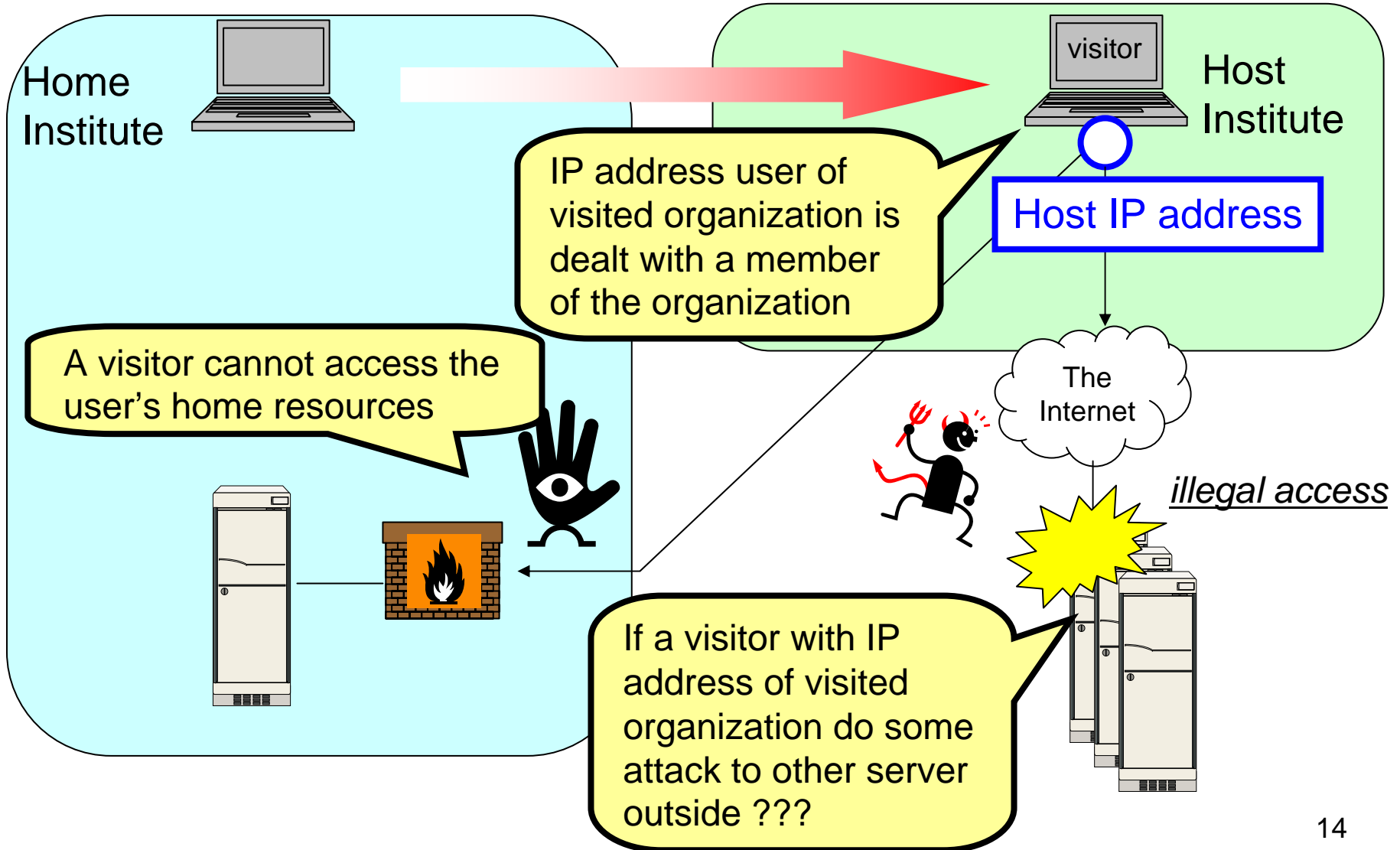
# FreeRadius patch

- A patch that enable proxying with regular expression on FreeRADIUS



# Issues in conventional Wi-Fi roaming and VPN-only policy

# The Problem about traceability



# Traceability : case study 1

Though university A is not subscribing to electronic journal X, another university B is subscribing. A student at univ. A goes to univ. B so he/she can download journal X using the Wi-Fi roaming. Since the student downloaded too many articles at once, the publisher thought it was a violation of the subscription condition and sent a complaint to univ. B.

In University B, NW manager have to analyze the roaming logs, and with telling to University A, have to look for the user.

**Huge human cost is spent.**

Even between departments in a university, such a user tracking is difficult. It is very difficult between universities. It is also very difficult between countries, all the more.

# Traceability : case study 2

Some resources such as local web servers in univ. B are protected by an address-based access restriction. If people in univ.A visit univ. B, they can gain access to the resources using the Wi-Fi roaming system.

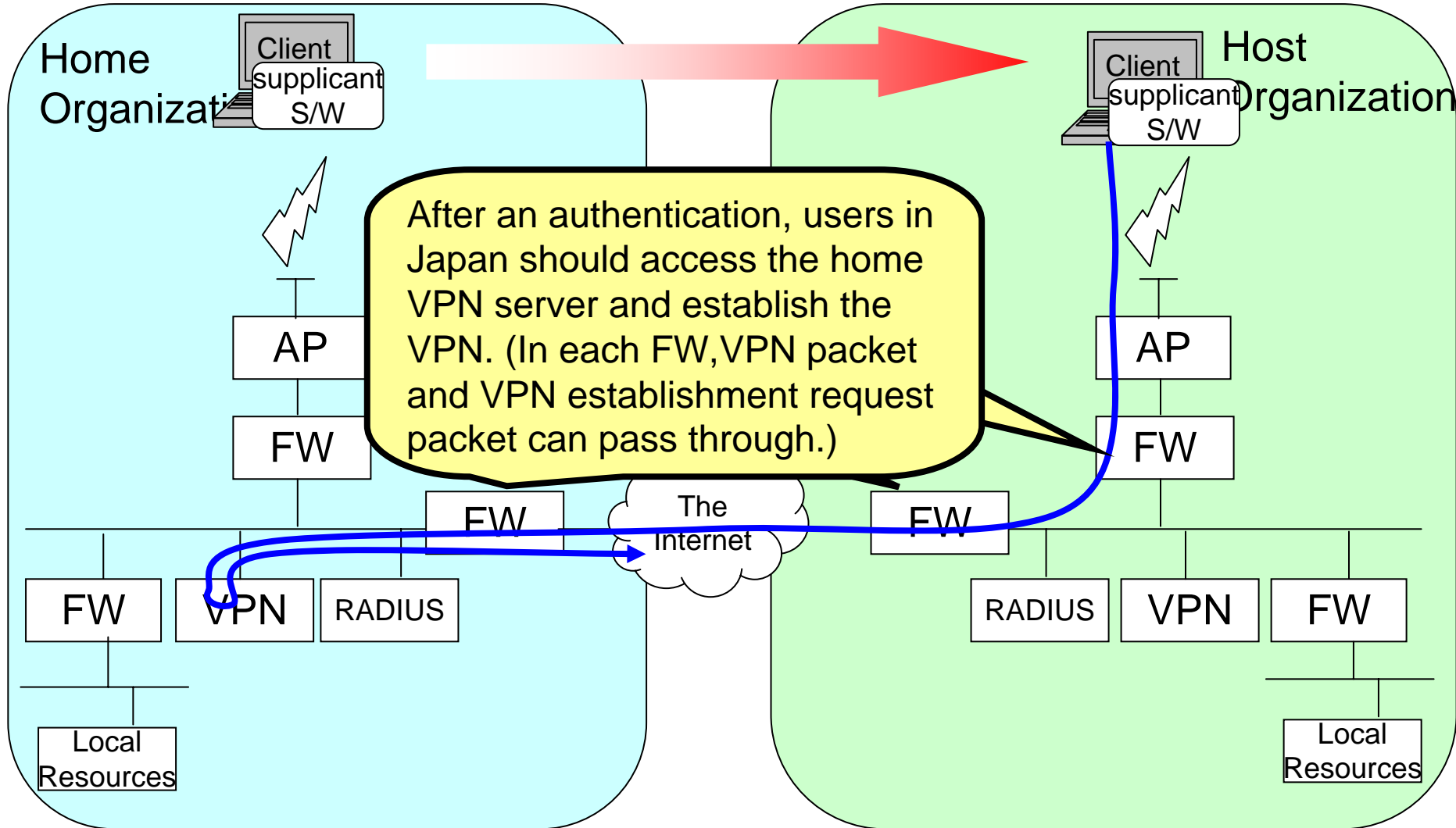
Though the manager of the web server looks the access logs, the outsider's access is not noticed easily because IP addresses inside the university are used.



**Use their home IP addresses**



# VPN-only policy for Japan

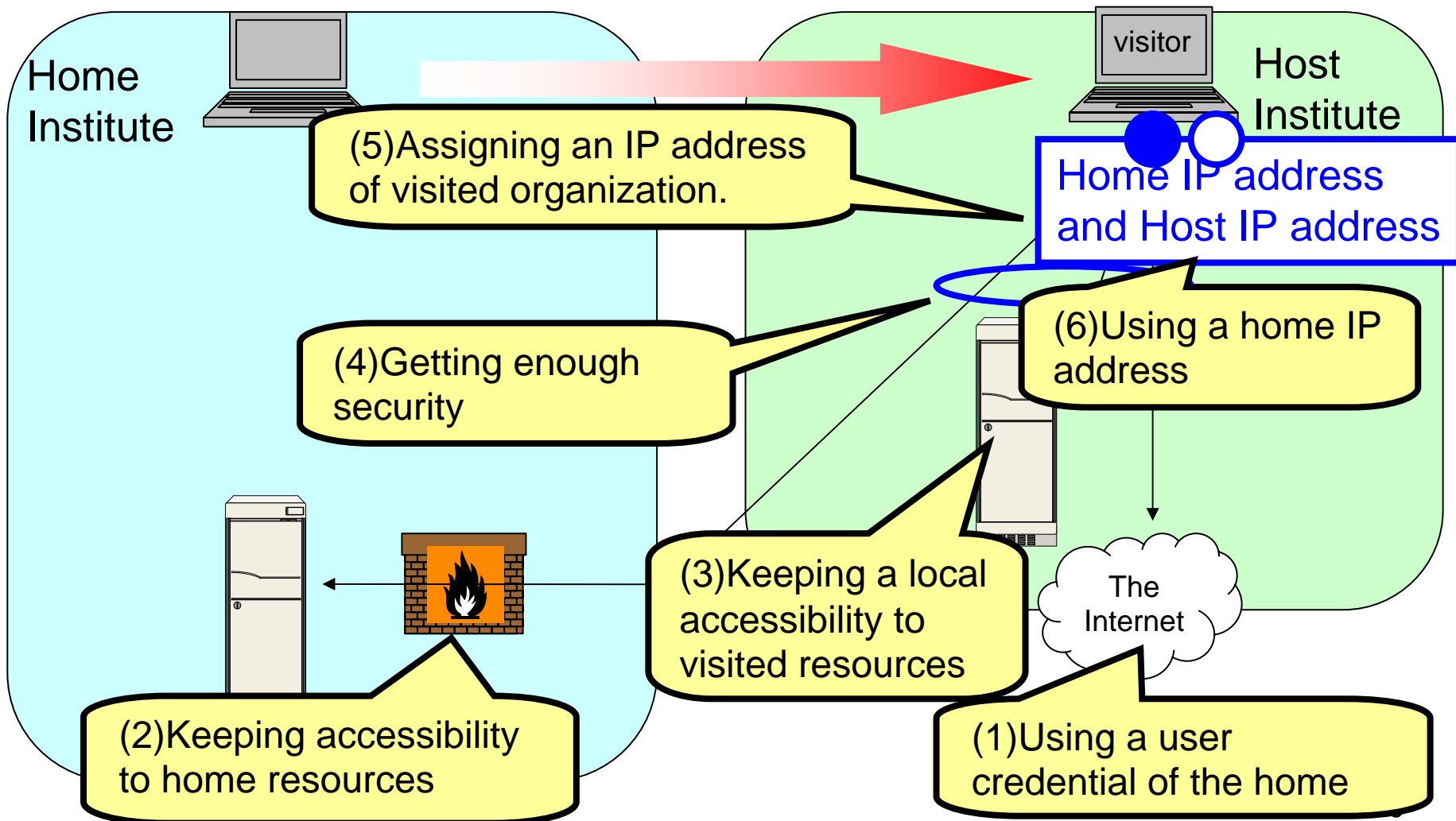


# Available protocols

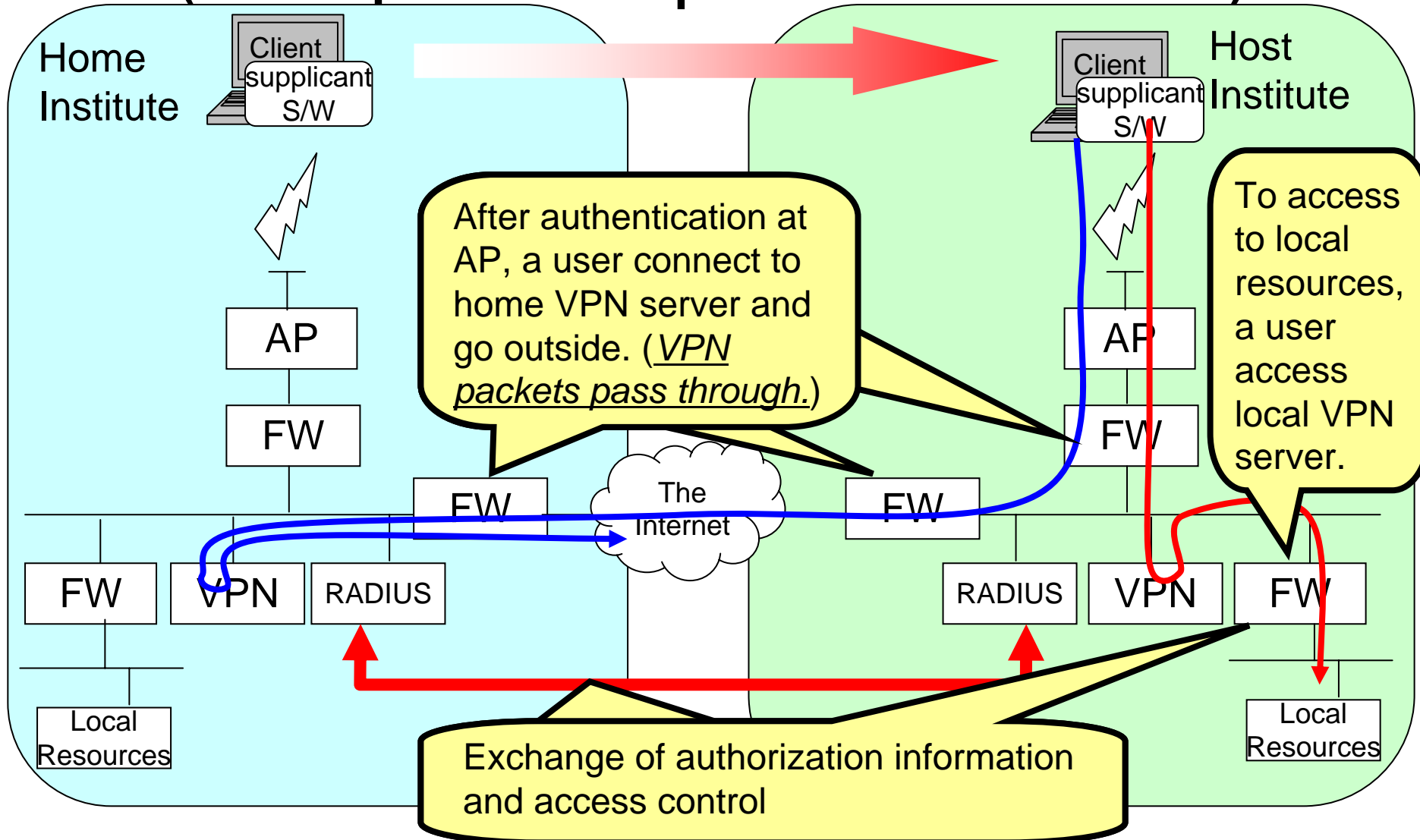
- RADIUS(UDP/1812 □ UDP/1813) □
- Standard IPSec(ESP(50) □ AH(51) □ IKE(UDP/500)) □
- Cisco IPSec(TCP/10000)
- OpenVPN(UDP/1194) □
- PPTP(GRE(47) □ (TCP/1723)) □
- pop3(TCP/110) □
- pop3s(TCP/995) □
- imap4(TCP/143) □
- imaps(TCP/993) □
- ssmtp(TCP/465) □
- msa(TCP/587) □
- SSH(tcp/22)

# R&D of UPKI Wi-Fi roaming infrastructure

# The requirements of roaming system



# Proposing method (Campus Ubiquitous Network)

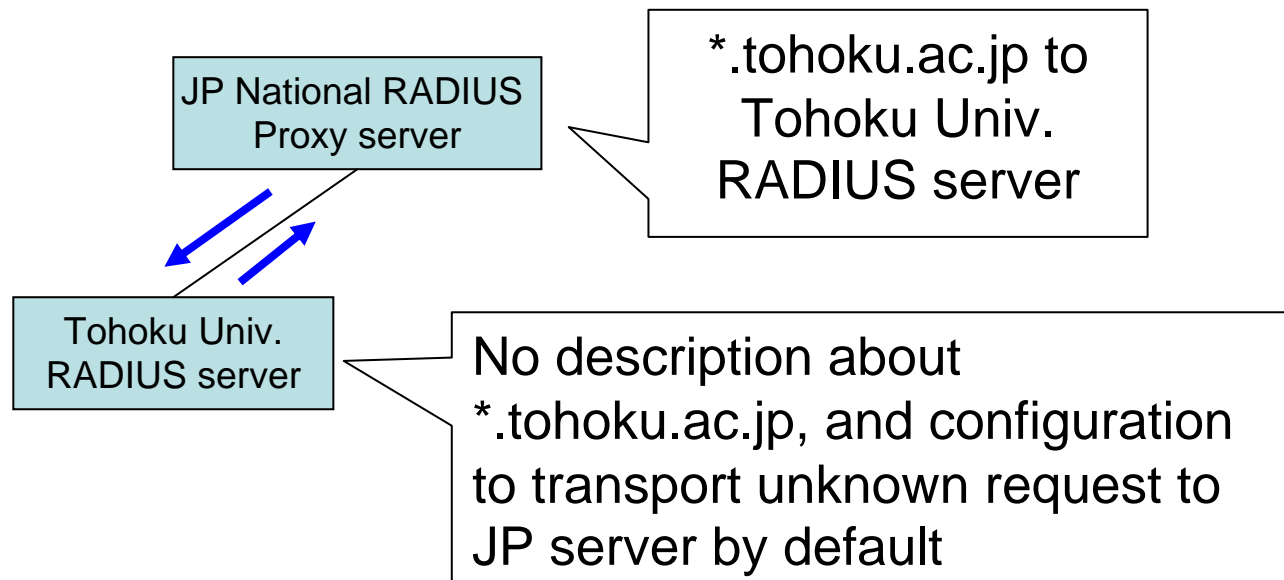


# Summary

- Introduction of the eduroam to Japan
- Issues in conventional Wi-Fi roaming and VPN-only policy
- Proposing campus ubiquitous network (fundamental idea)

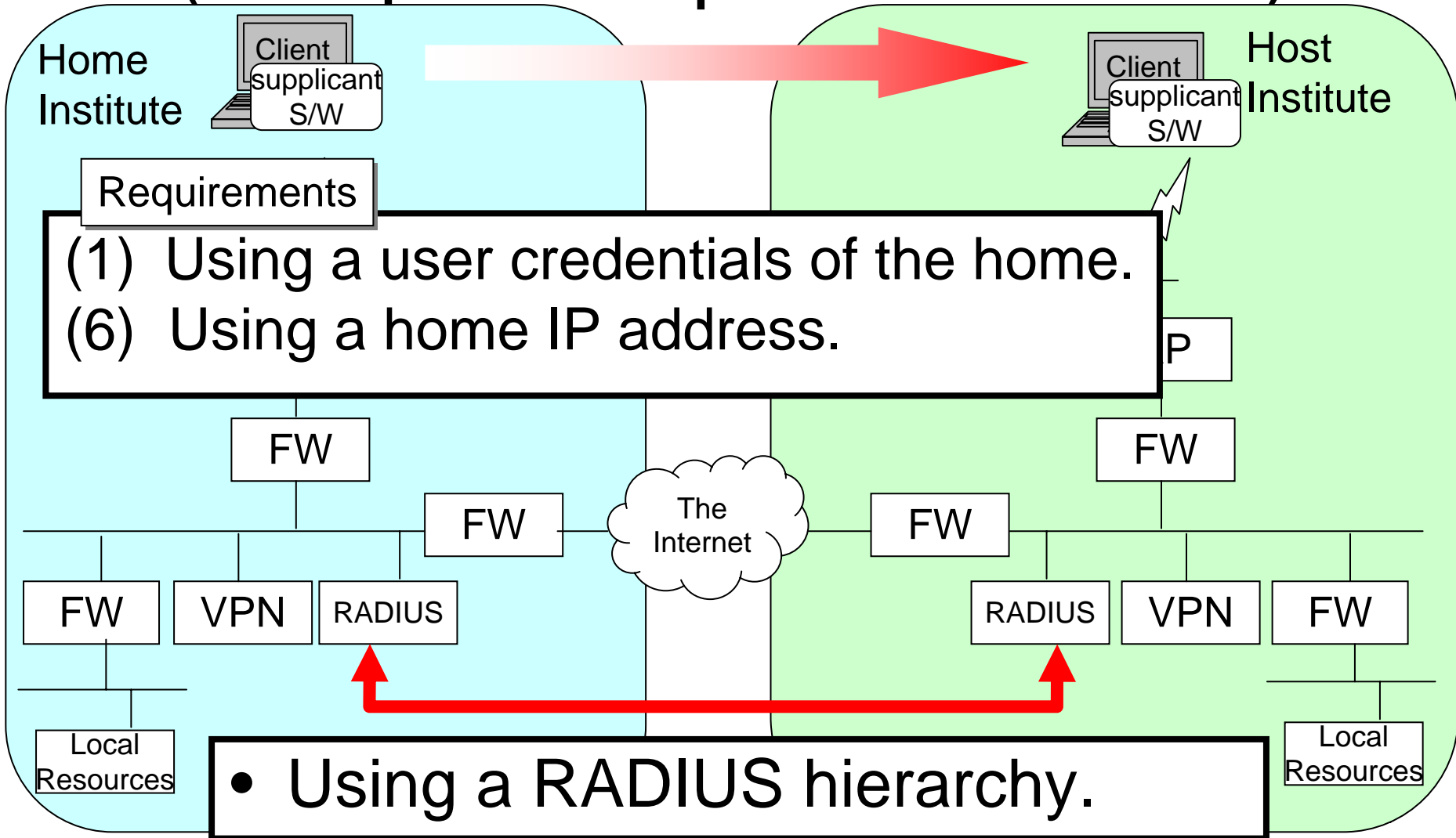
# Attention of the configuration of the FreeRadius(avoidance of loops)

- By the RADIUS configuration of each organization, there is a possibility that the loop is generated between an each organization's server and the JP server.



□ Each organization must describe in proxy.conf that they process requests of their own domain

# Proposing method (Campus Ubiquitous Network)



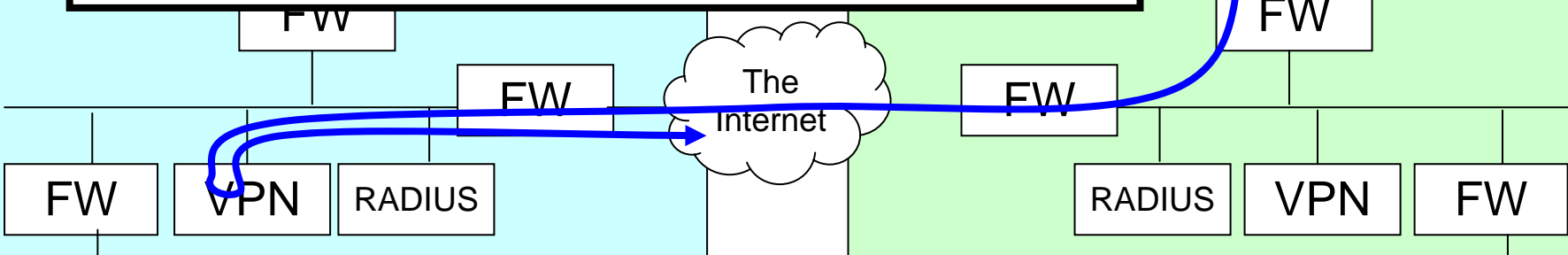
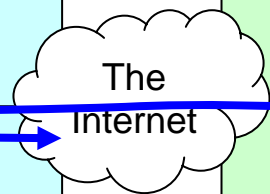
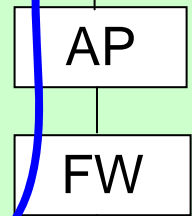
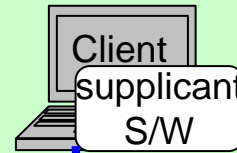


# Proposing method (Campus Ubiquitous Network)

Home Requirements

- (2) Keeping accessibility to home resources.
- (4) Getting enough security.
- (5) Assigning an IP address of visited organization.

Host Institute



- Using a home VPN server and home IP address

# Proposing method (Campus Ubiquitous Network)

