

# Swansea University

An aerial photograph of Swansea University. The university's main campus is a cluster of modern, multi-story buildings with various architectural styles, including some with glass facades. The campus is surrounded by lush green lawns and trees. To the left, a wide, sandy beach stretches along the coast, meeting the blue sea. In the background, the city of Swansea is visible, with residential areas and a large stadium. The sky is clear and blue.

Library and Information Services

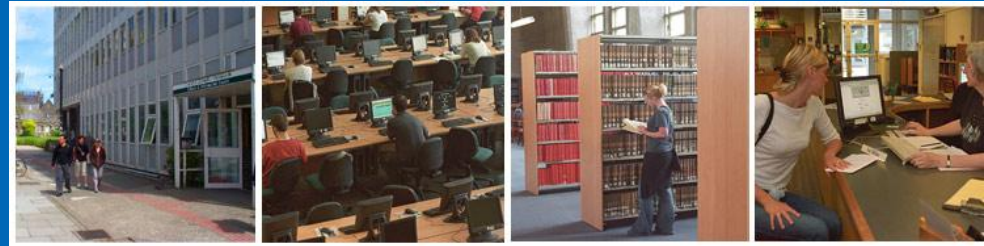
SWANSEA UNIVERSITY  
PRIFYSGOL ABERTAWE

[www.swan.ac.uk/lis](http://www.swan.ac.uk/lis)

# Deploying Eduroam at Swansea University

By Gareth Ayres

RSC Wales Technical Conf 2011



# About Me

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Gareth Ayres – Swansea University / ISS / LIS

- Wireless Network Officer
- PhD Student (par time)
- Member JANET UK LIN project -> JRS = Eduroam
- Member JANET UK Supplicant Group
- Member JANET UK 802.1X-SIG (current)

# Agenda

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- 1.0 Why Wi-Fi and Eduroam
- 2.0 Eduroam at Swansea
- 3.0 Deployment with SU1X

## 1.1 Why Wi-Fi?

### Redundant Slide?!?

- Wireless critical to most institutions.
- Laptops, Mobile Phones, Pad/Tabs....
- E-Book readers, Games Consoles....



## 1.2 Why Eduroam?



**Eduroam is:**

*“eduroam (**education roaming**) is the secure, world-wide roaming access service developed for the international research and education community.”*

**[WWW.EDUROAM.ORG](http://WWW.EDUROAM.ORG)**

# 1.3 Eduroam Explained

**OK, yes, It is complicated:**

- WPA/WPA2 Encryption
- 802.1X over wireless
- EAP Methods PEAP/TTLS etc
- Supplicants and NAS's
- ORPS, NRPS, RADIUS and LDAP



# Youtube video

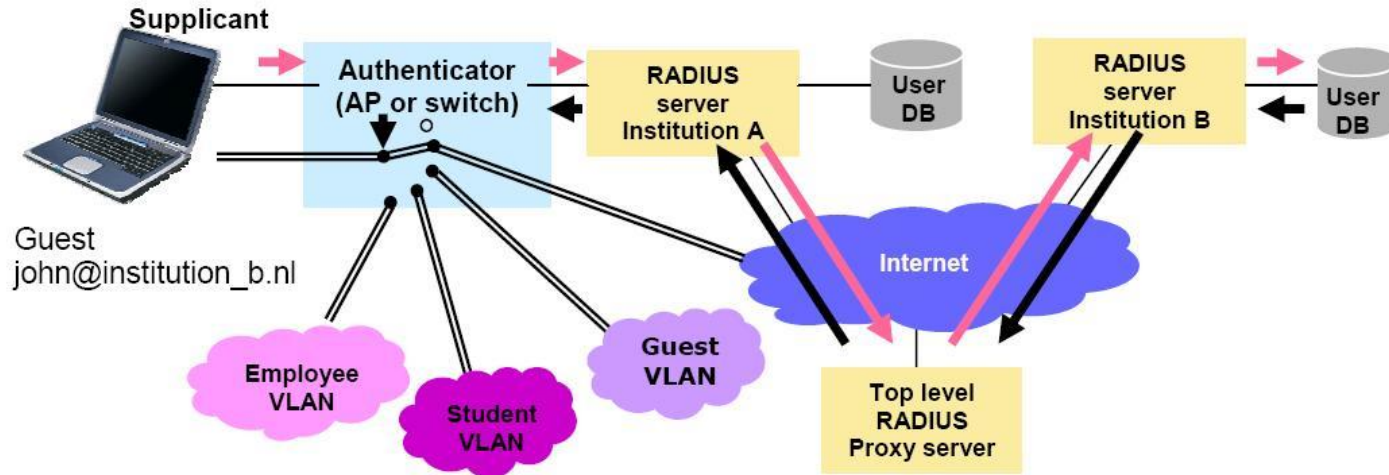
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[http://www.youtube.com/watch?v=TVCmcMZS3uA&feature=player\\_detailpage](http://www.youtube.com/watch?v=TVCmcMZS3uA&feature=player_detailpage)

Australian Explanation of Eduroam



# 1.4 Eduroam Broken Down: Example



→ signalling  
== data

- `USER@REALM`

» `G.jayres@swansea.ac.uk`

# 1.5 Why Eduroam?

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## Advantages:

- Roaming
- Common platform, lots of support

## Disadvantages:

- Infrastructure Complexity
- Deployment** Complexity

# 1.6 Where is Eduroam Available

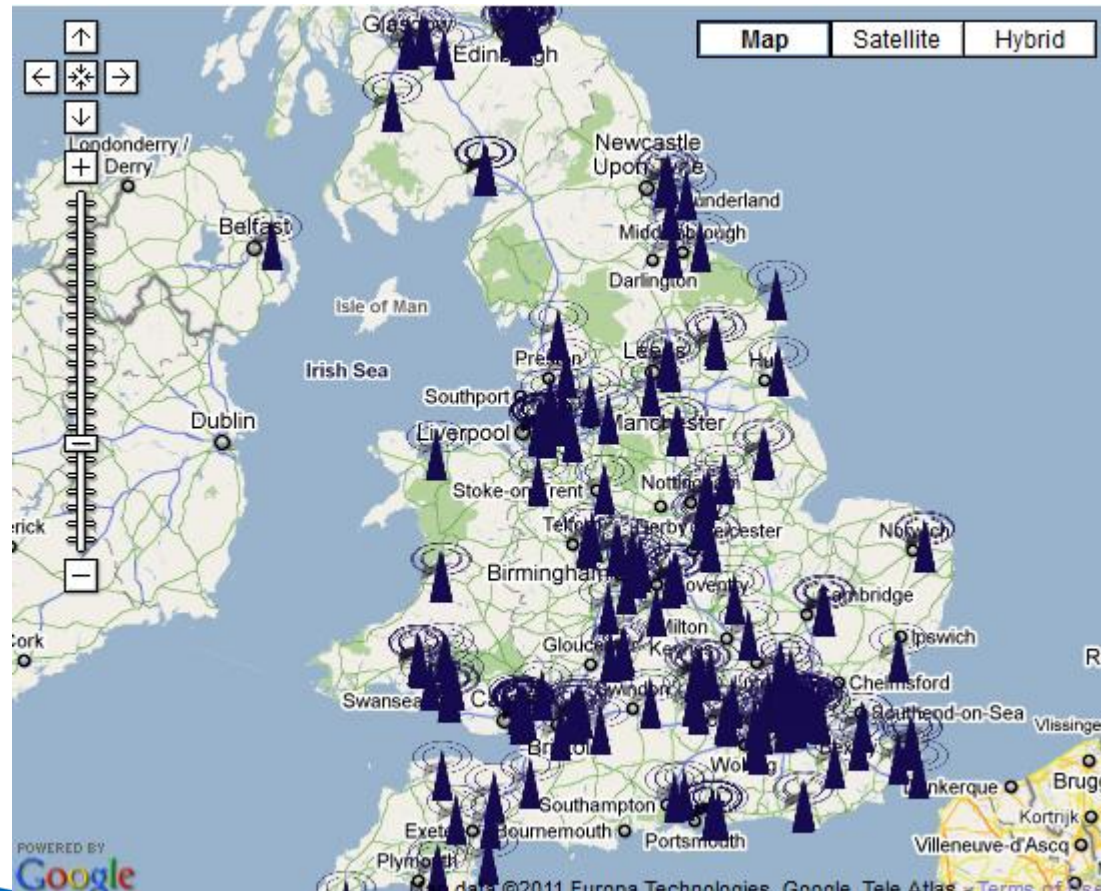
UK: 141

Europe

USA

ASIA/Australia

Canada



# 1.6 Janet Roaming Service

[www.ja.net](http://www.ja.net)

Eduroam in UK managed by JANET UK

Lots of advice, documentation, training available.

**I am a JANET UK JRS mentor if you need me 😊**



**Now  
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**JANET TRAINING**

Implementing  
eduroam  
at your  
Organisation  
July 20th  
London



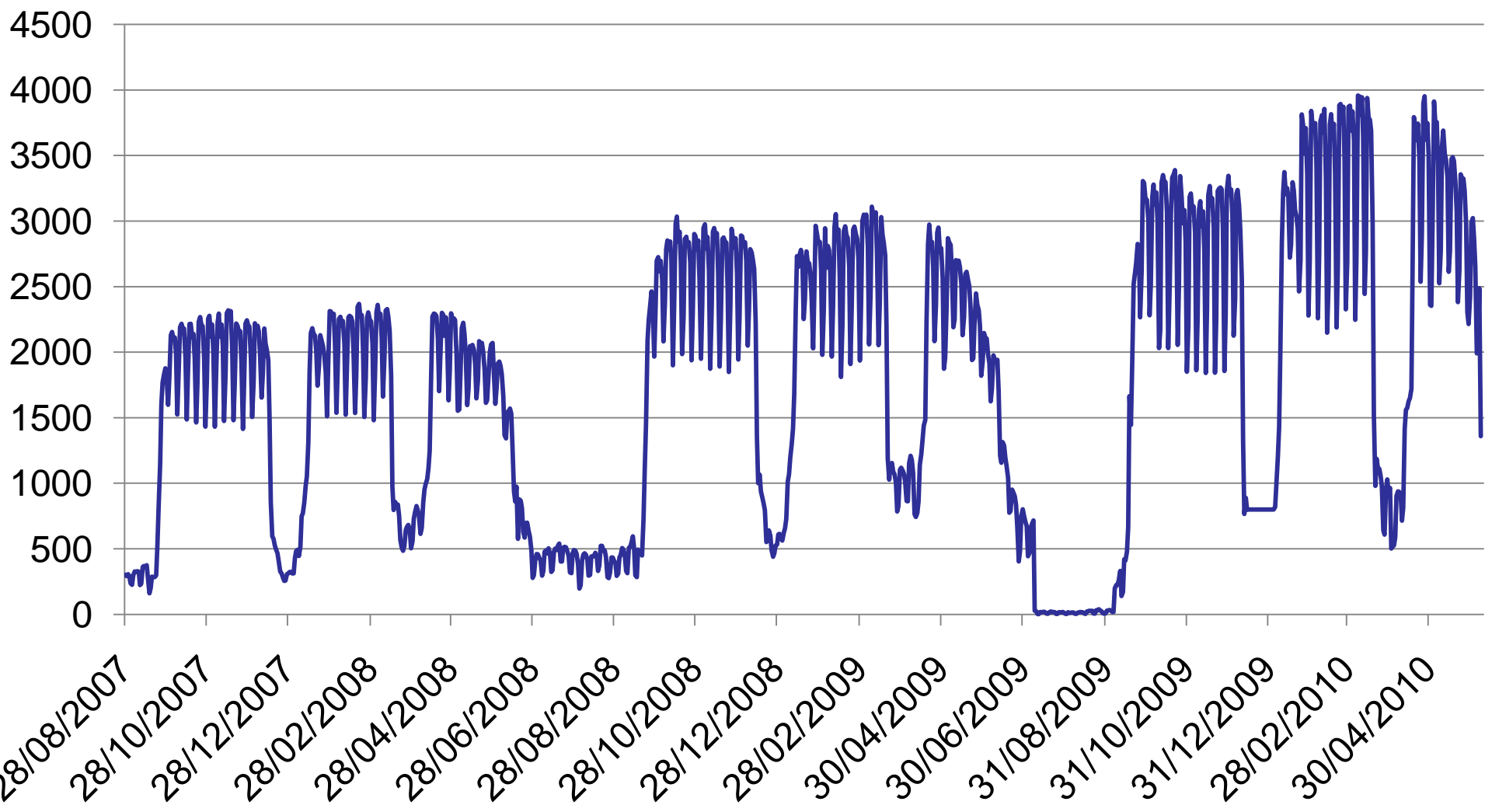
## 2.0 Eduroam at Swansea

# 2011

- Home and Visited site
- ~850 Lightweight access points
- 4 Cisco WiSM's
- ~5800 unique users / day

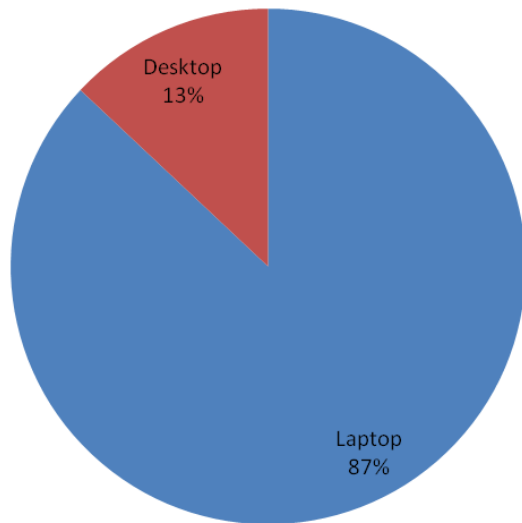


# Unique Users 2007 - 2010

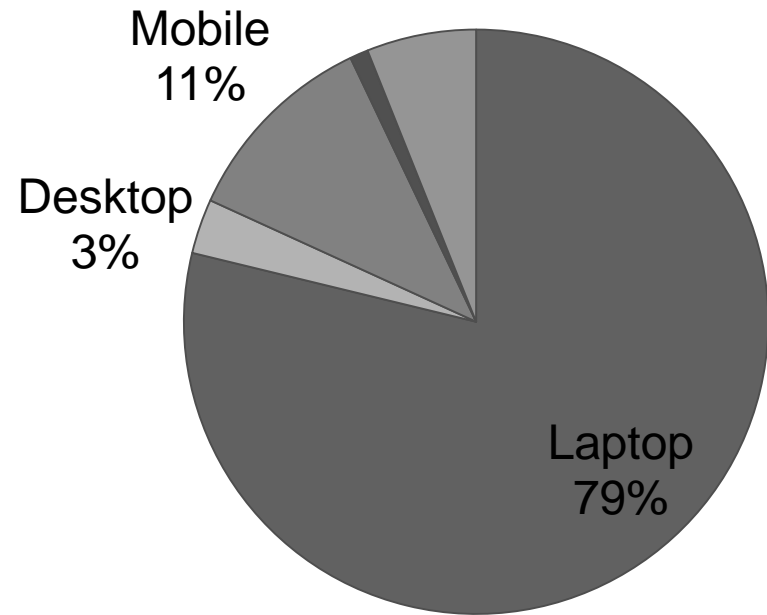


## 2.1 Eduroam Device Types 2007 & 2009

Device Type

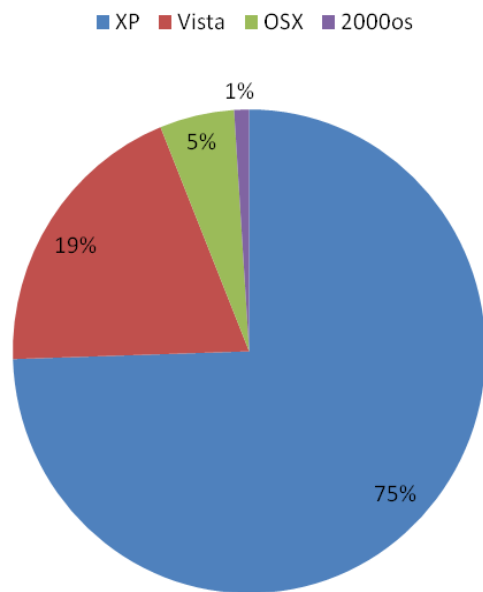


Device Types



## 2.2 Eduroam OS 2007 & 2009

### Operating Systems Distribution

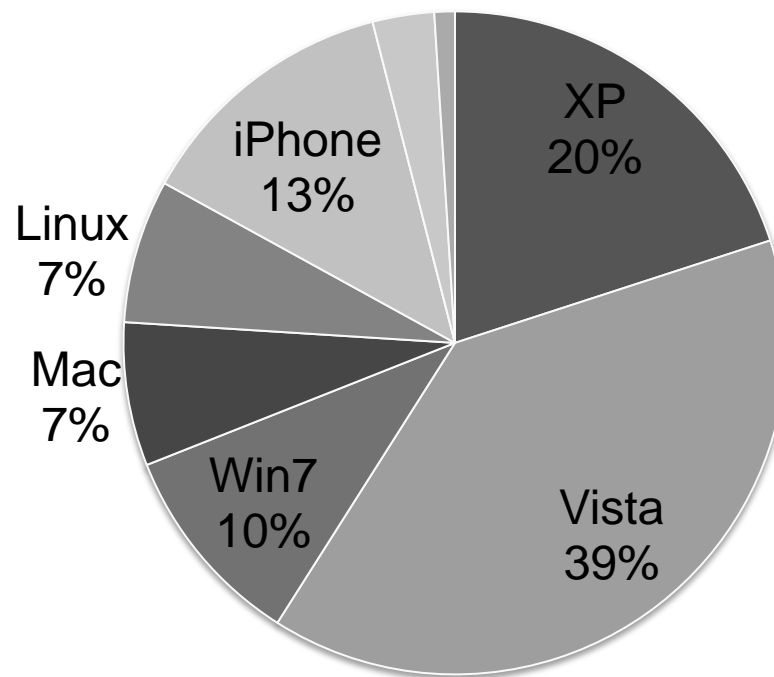


WinMobile  
0%

Mobile  
3%

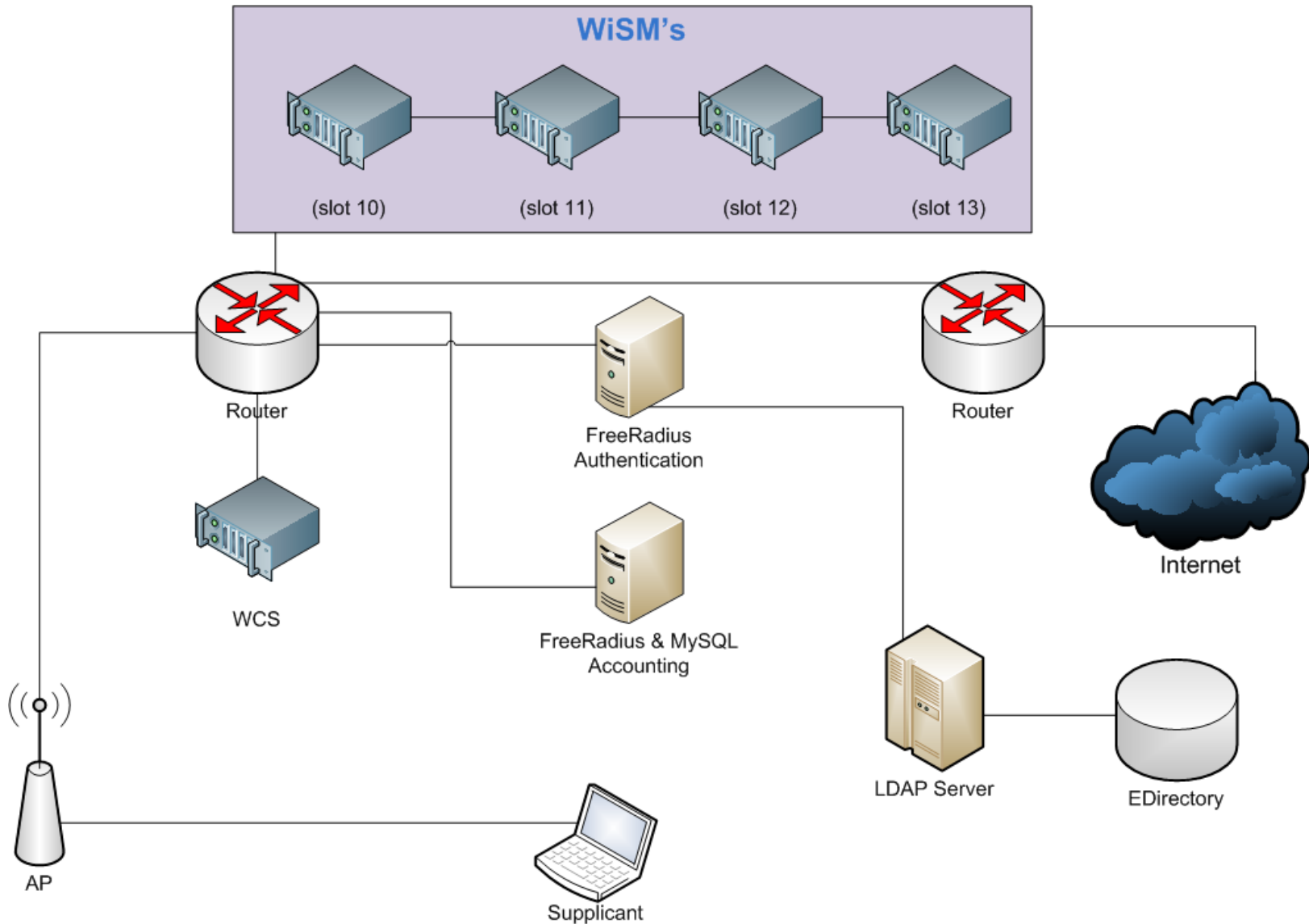
### OS Distribution

Other  
1%





## 2.3 Eduroam Setup at Swansea



## 2.4 Eduroam at Swansea

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Getting users onto edurom:

### THE SUPPLICANT PROBLEM

Secure network, need a configured device, but cant connected.

EDUROAM-SETUP open wireless captive portal network

# 3 Deployment with SU1X

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Defeating the supplicant problem:

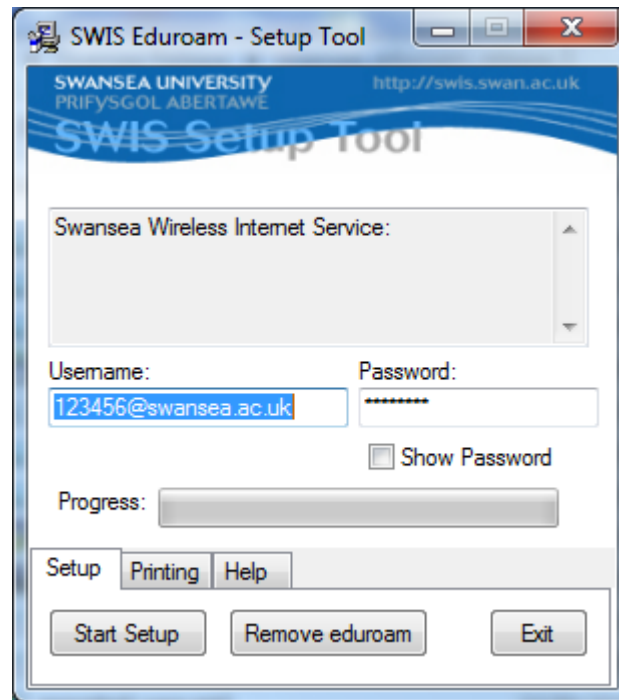
- Configuring a device complicated
  - Windows, linux, mac, iphone, android....
  - Time consuming for users and support staff
  - Long manual instructions = user fail
  
- SOLUTION = SU1X

## 3.1 SU1X at Swansea

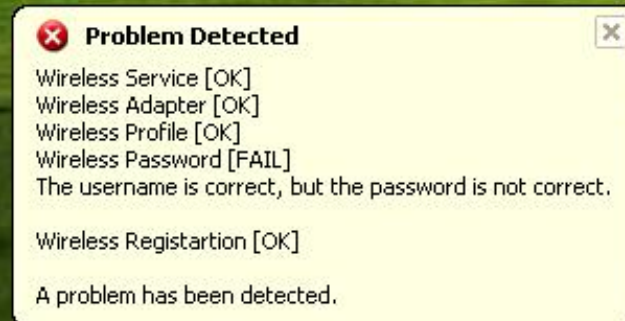
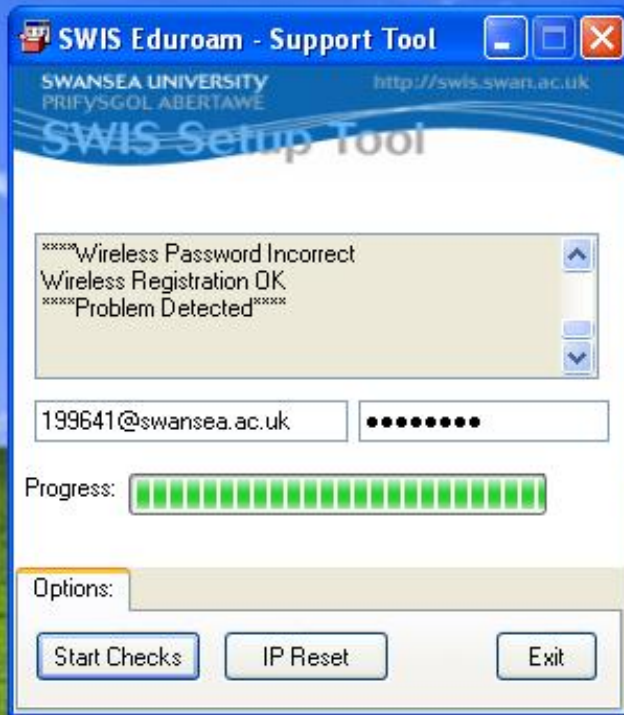
- SU1X – Windows setup tool
  - Automatically configures XP, Vista, 7
  - Installs certs and provides help
  - Deployed from setup SSID during registration
  - <http://su1x.sourceforge.net/>
  - By Swansea University (Janet UK funded)
  - Open Source
  - [http://www.youtube.com/watch?v=SycvGhAF5xw&feature=player\\_embedded](http://www.youtube.com/watch?v=SycvGhAF5xw&feature=player_embedded)



# SU1X - Setup Tool



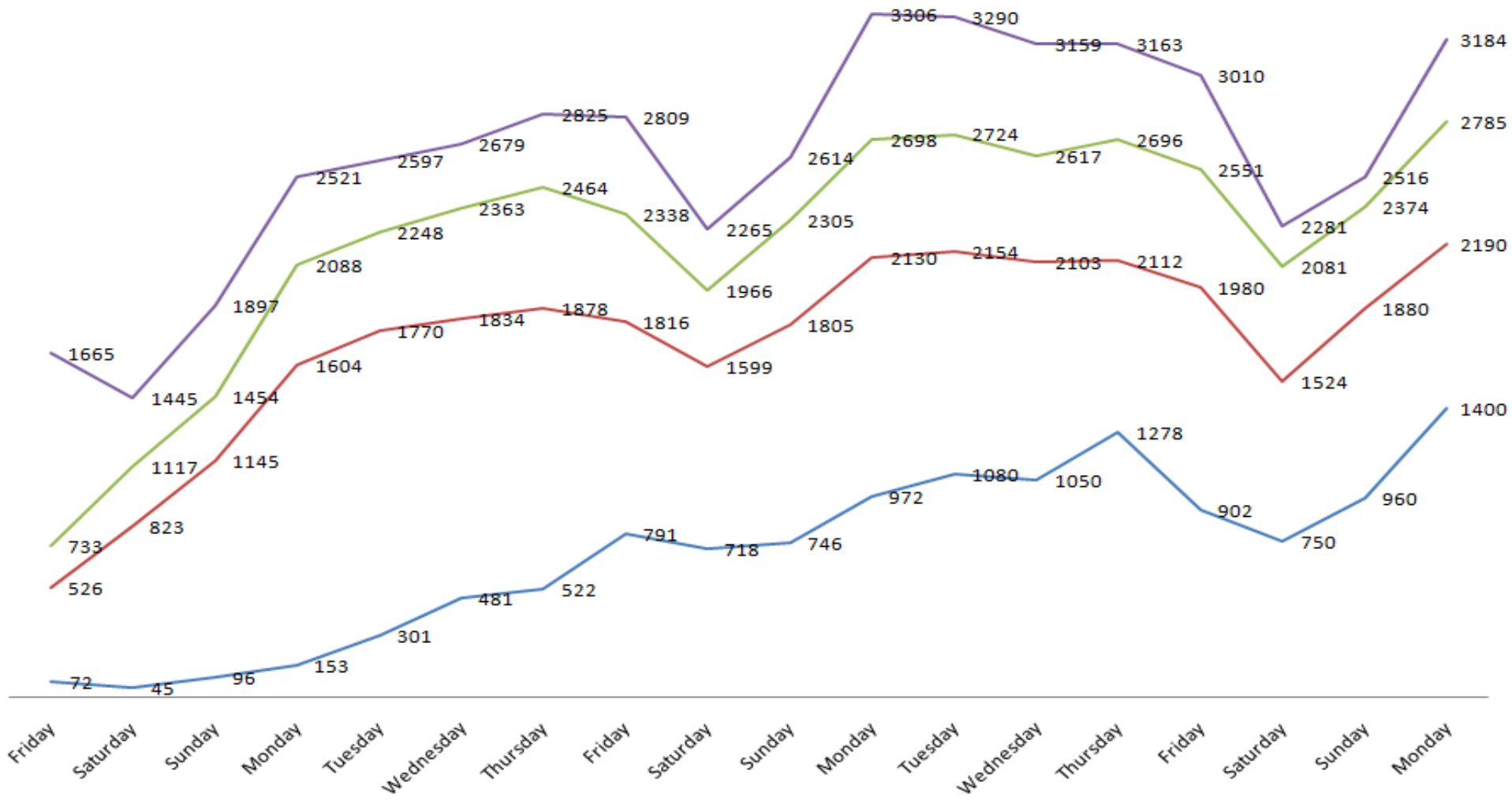
# SU1X - Support Tool



# 3.2 SU1X at Swansea 2009

## Start of Term: Unique Users

— y2005 — y2007 — y2008 — y2009



## 3.3 SU1X Android

SU1X Android App written and in beta:

- Needs a Config Anti Discovery Process
- One app on Market place
- QR Codes for users
  
- Other OS's on the way?





# Thank You – Any Questions?

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Links:

<http://www.eduroam.org/>

<http://www.ja.net/services/authentication-and-authorisation/janet-roaming.html>

<https://github.com/GarethAyres/SU1X>

<https://code.google.com/p/su1x-droid/>