

# Swansea University

An aerial photograph of Swansea University. The university's main campus is a cluster of modern, multi-story buildings with various roof colors, situated on a green, wooded hillside. To the left, a wide, sandy beach curves along the edge of a large bay with clear blue water. In the background, the city of Swansea is visible, extending to the seafront. The sky is a clear, bright blue.

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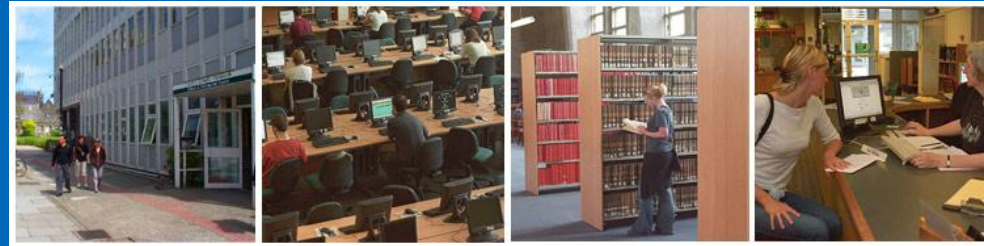
# First Multichannel IPTV over a Wireless Res-Net

## Freewire User Group

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# Agenda

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- 1 The Challenge
- 2 The Solution
- 3 Swansea's Wireless Infrastructure
- 4 The IPTV Cache Design
- 5 IPTV Usage
- 6 Example.com Issue
- 7 Feedback
- 8 Additional Information

# 1 The Challenge

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- Swansea has 8 Halls of Residence on campus
- One Student Village with 233 Flats
- TV originally provided by NTL/Virgin Media via Coaxial to Rooms
- Contract expires with NTL/Virgin Media Summer 2009
- Analogue Terrestrial end in August 2009
- TV Reception in Halls and Village poor/non existent

## 2 The Solution

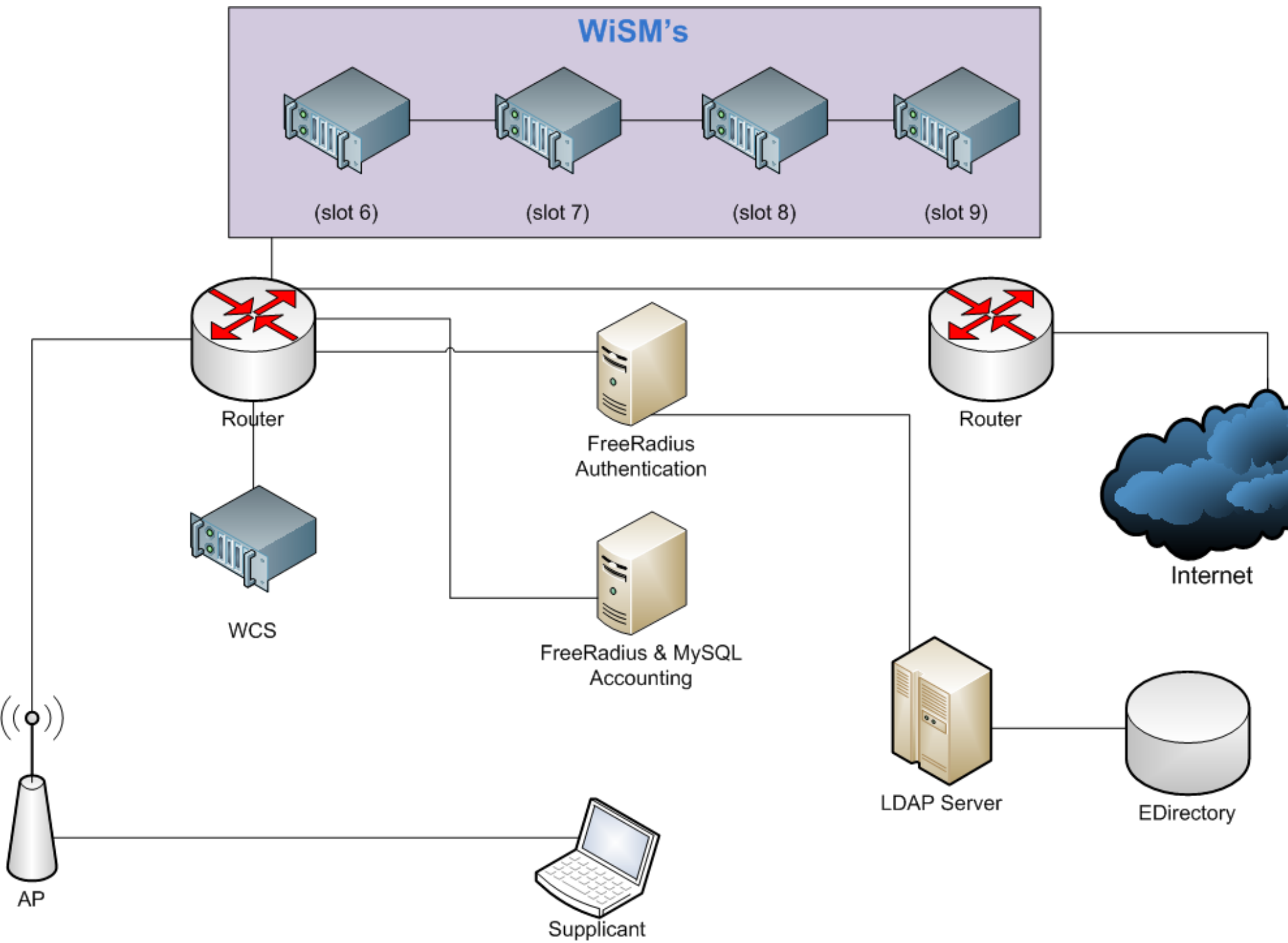
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- Management prefer cost saving solution
- Contract not renewed with NTL/Virgin Media
- IPTV from Freewire proposed as a solution to provide TV to students
- TV boosters for digital put in Halls of Residence and communal room in Student Village

# 3 Swansea Wireless Infrastructure

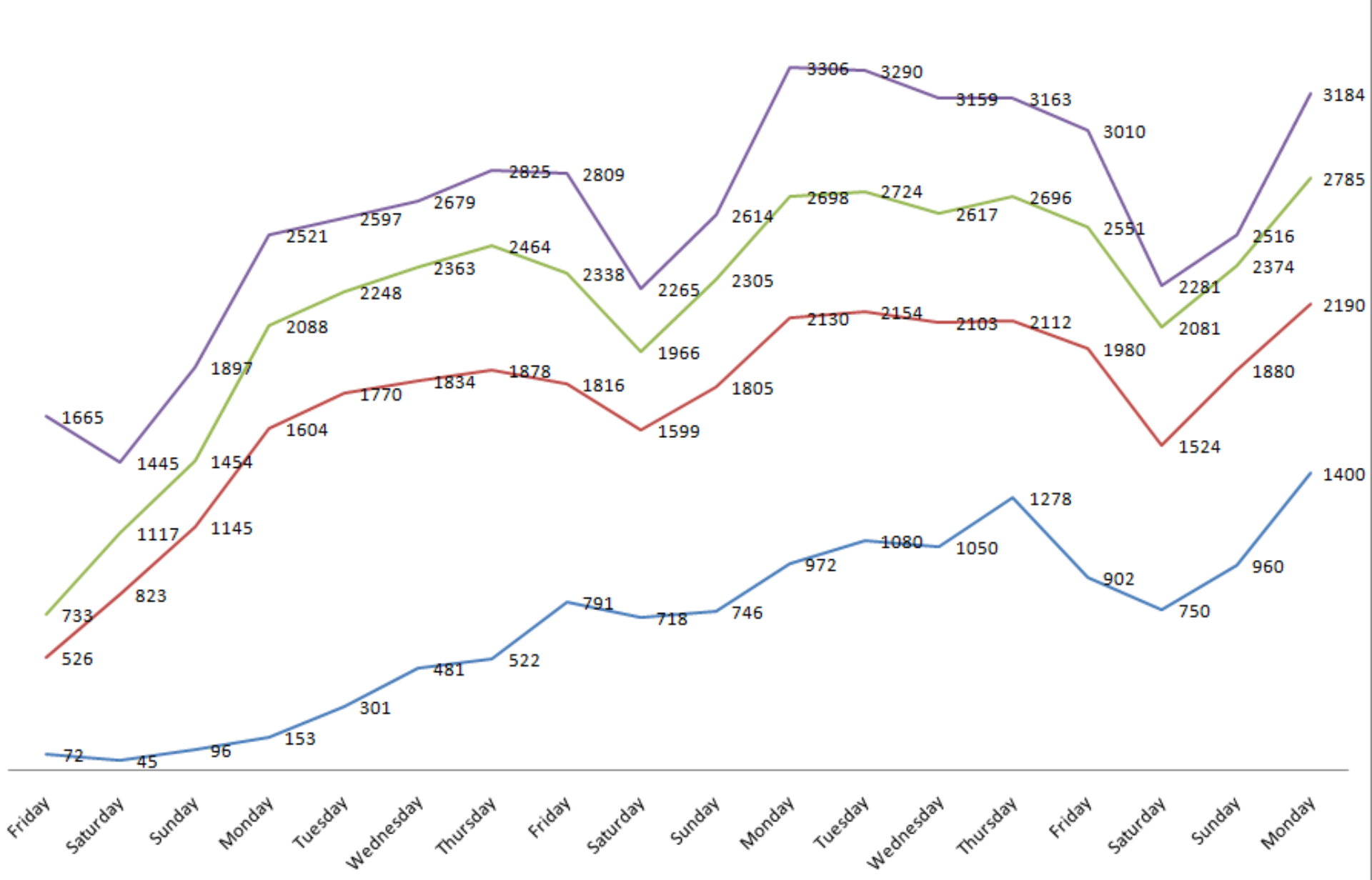
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- 8 Cisco WiSM's in 4 6500 blades
- ~800 LWAPP Cisco AP's
- Eduroam/JRS wireless system with WPA-Enterprise/802.1X
- 1 Gb Fibre link onto PSBA

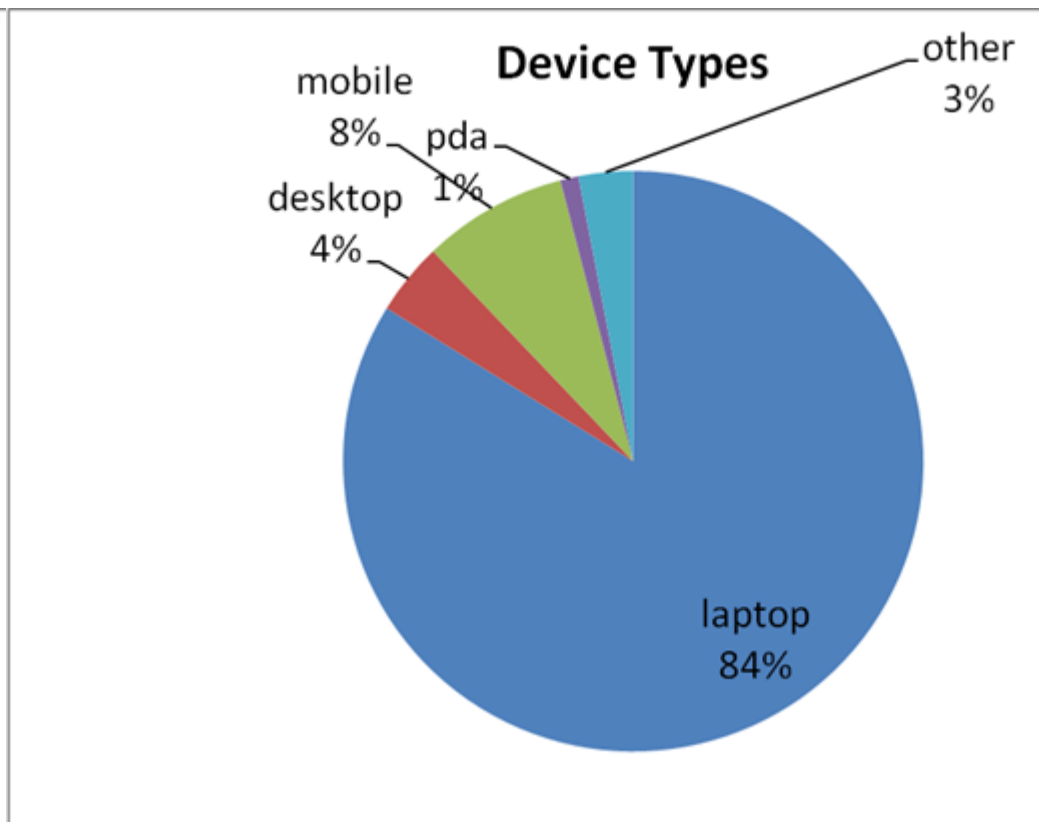
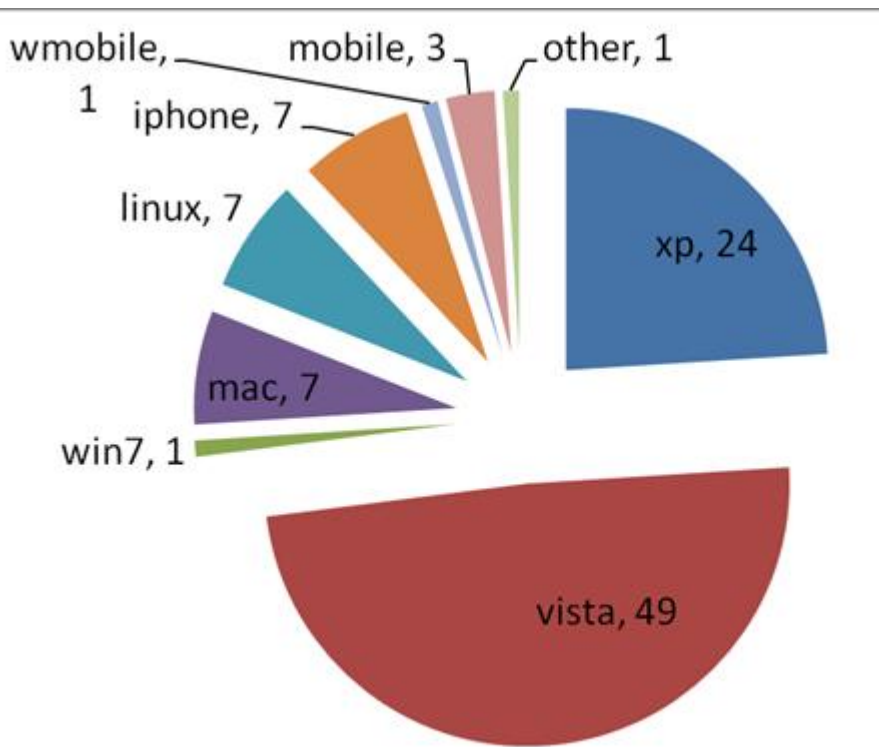


# Start of Term: Unique Users

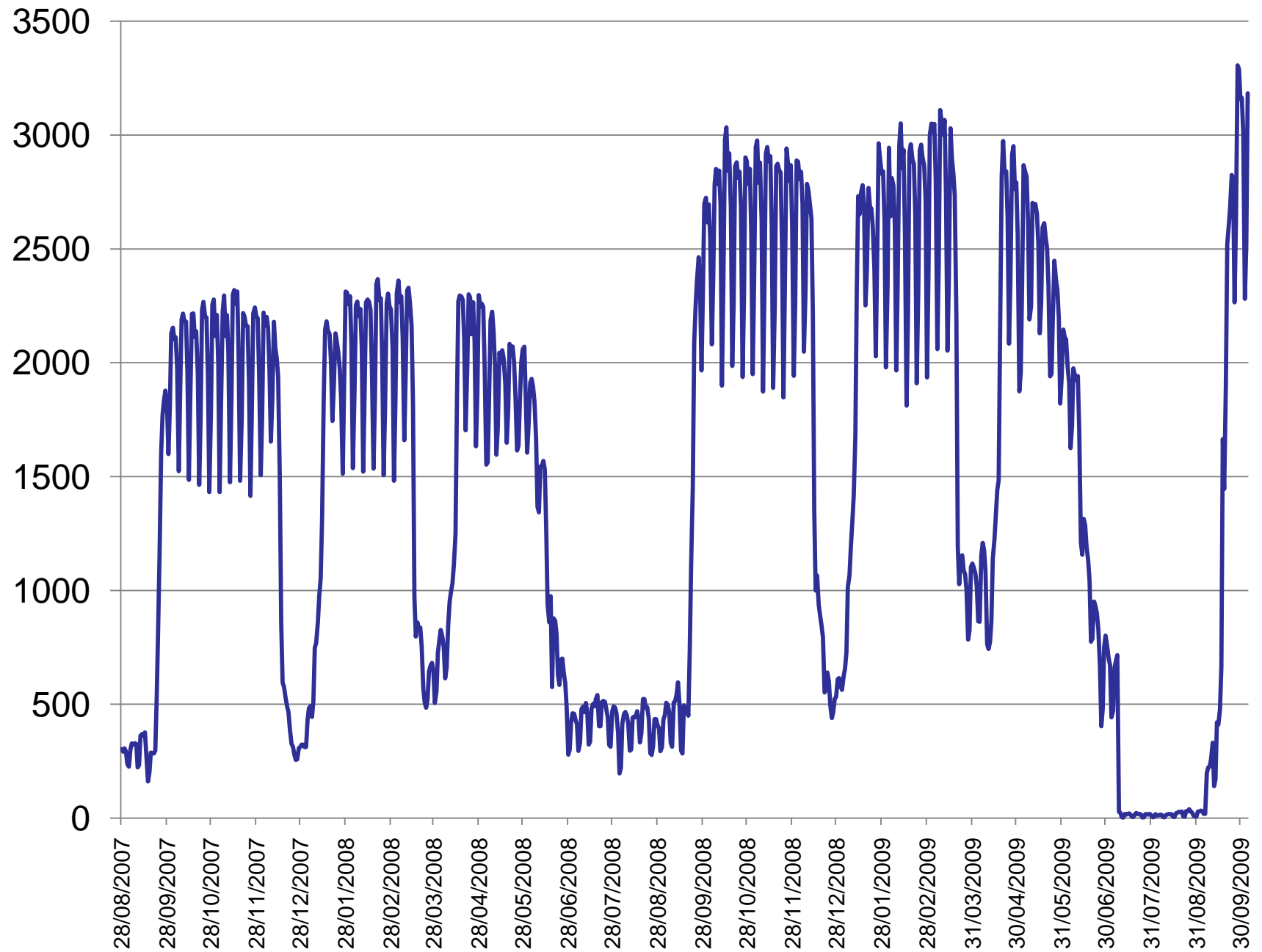
y2005 y2007 y2008 y2009







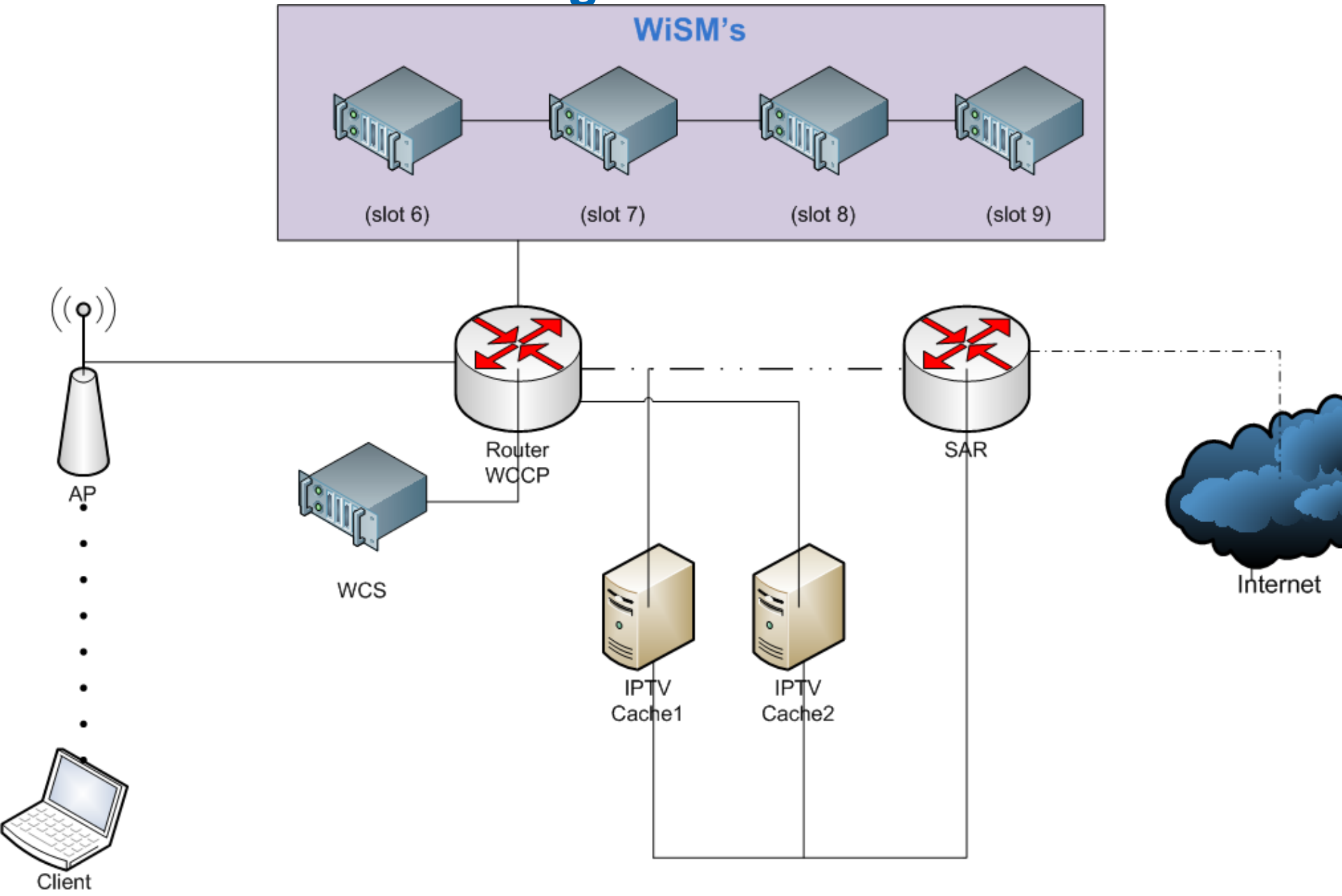
# Unique Conn



## 4 IPTV Cache Design

- Possibility of hundred of users using IPTV consecutively
- If 300 users,  $300 * 1.3\text{Mbs} = 260\text{Mbs}$  on 1Gbs link
- Currently link usage only 300Mbs average
- 2010 World Cup, England – Argentina, 1000 Users, **Link Exhausted**

# 4 IPTV Cache Design



# 5 IPTV Usage

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## 6 Example.com Issue

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- Freewire client does a DNS lookup on **example.com** to check port 80 access.
- **Needs WPAD Support**
- Added a ACL to allow IP of example.com out of campus, then in September IP changed and IPTV stopped!

## 6 User Feedback

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“all seems good to me! Any timescale for releasing other freeview channels as at the moment i can only receive channels 1 to 5?”

“I think the picture and sound is fine but I have had problems with open the program. I have emailed Freewire TV about this and they are working on the problem. I am a bit disappointed that there are only five channels also.”

“Yes, it is very good a real treat for someone who was tired of study can watch and feel relax. Thanks for it. Bye.”

# Thanks

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- Any Questions ?

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