Swansea University

Supporting a Wireless Network

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Agenda

1.0   Overview of Swansea Wireless Internet Service

2.0   Usage Statistics

3.0   Support Issues

4.0   Dirty Network Access Controller

5.0   Future Developments

01 Overview of SWIS

Swansea Wireless Internet Service consists of:

• 255 Cisco 1210 Access Points

• 4 RoamNode Servers

• 1 Cisco Wireless LAN Solution Engine

• 1 Dirty Network Access Controller

• 1 RADIUS Server
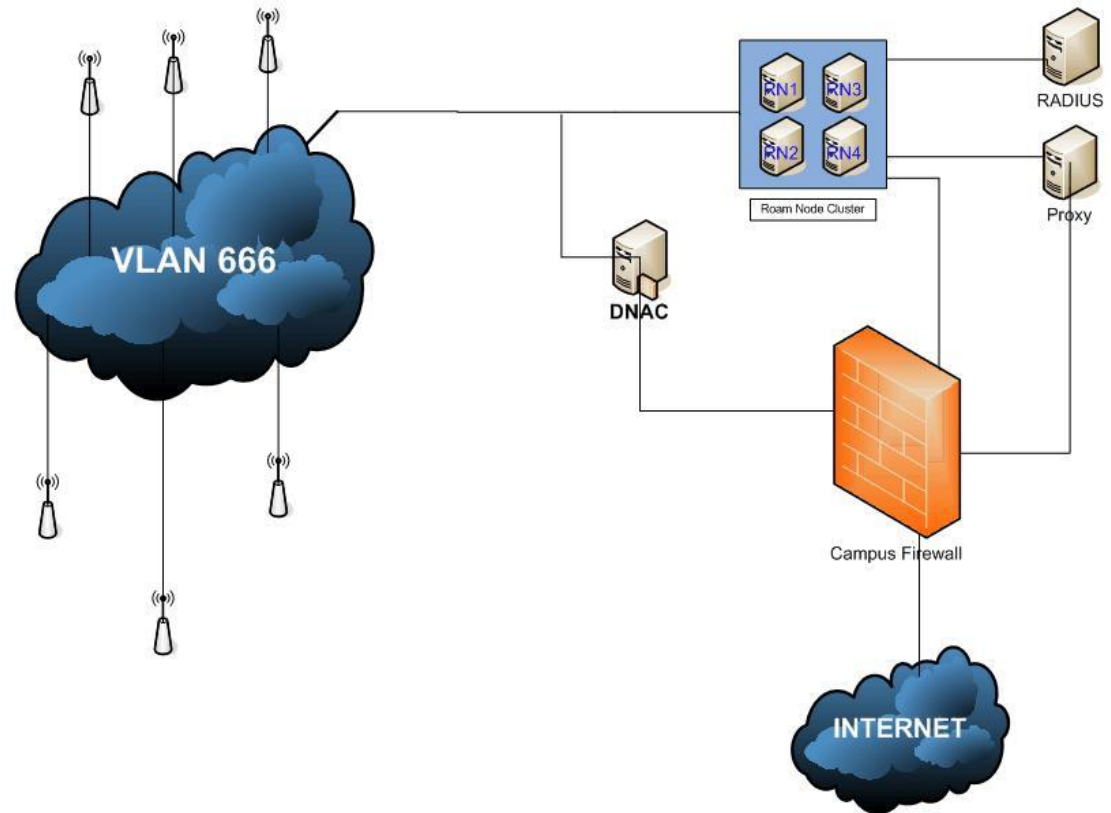
• 1 Wireless Management Interface

01 Overview of SWIS

Coverage Area:

• All Halls of Residence on and off campus (3000+ Students)

• All Open Access labs on campus

• 4 Separate Library Buildings

• 50% of all other Campus buildings

• Hot Spots around campus

Access controlled by RoamNode which was covered by Jezz Palmer last year.

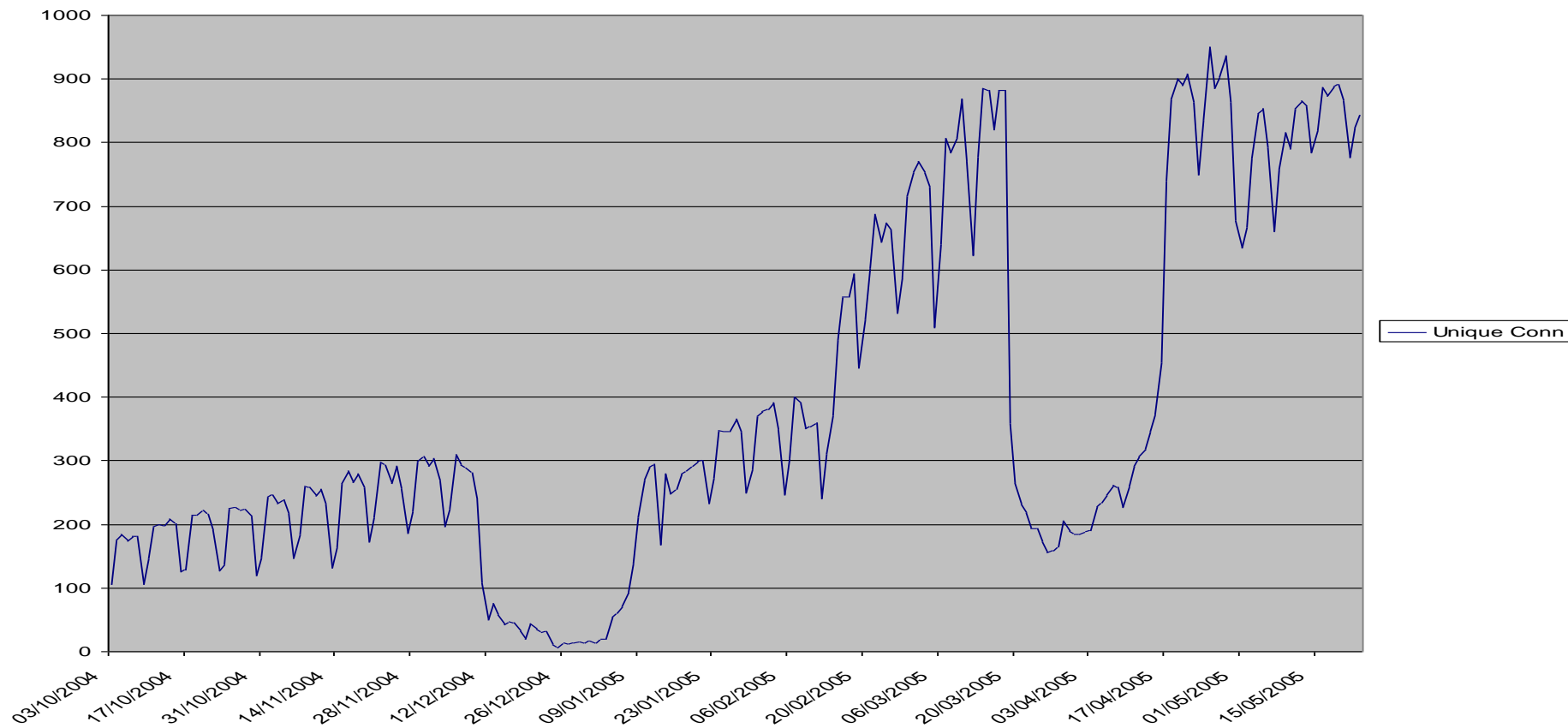Brief overview of network architecture.

02 Usage Statistics

Statistical overview of wireless usage:

• Approx 2000 registered users

• Statistics generated from syslogs and custom java app with a MySQL database and PHP driven web front.

•3 graphs : Unique Users, Connection Attempts, Bandwidth.

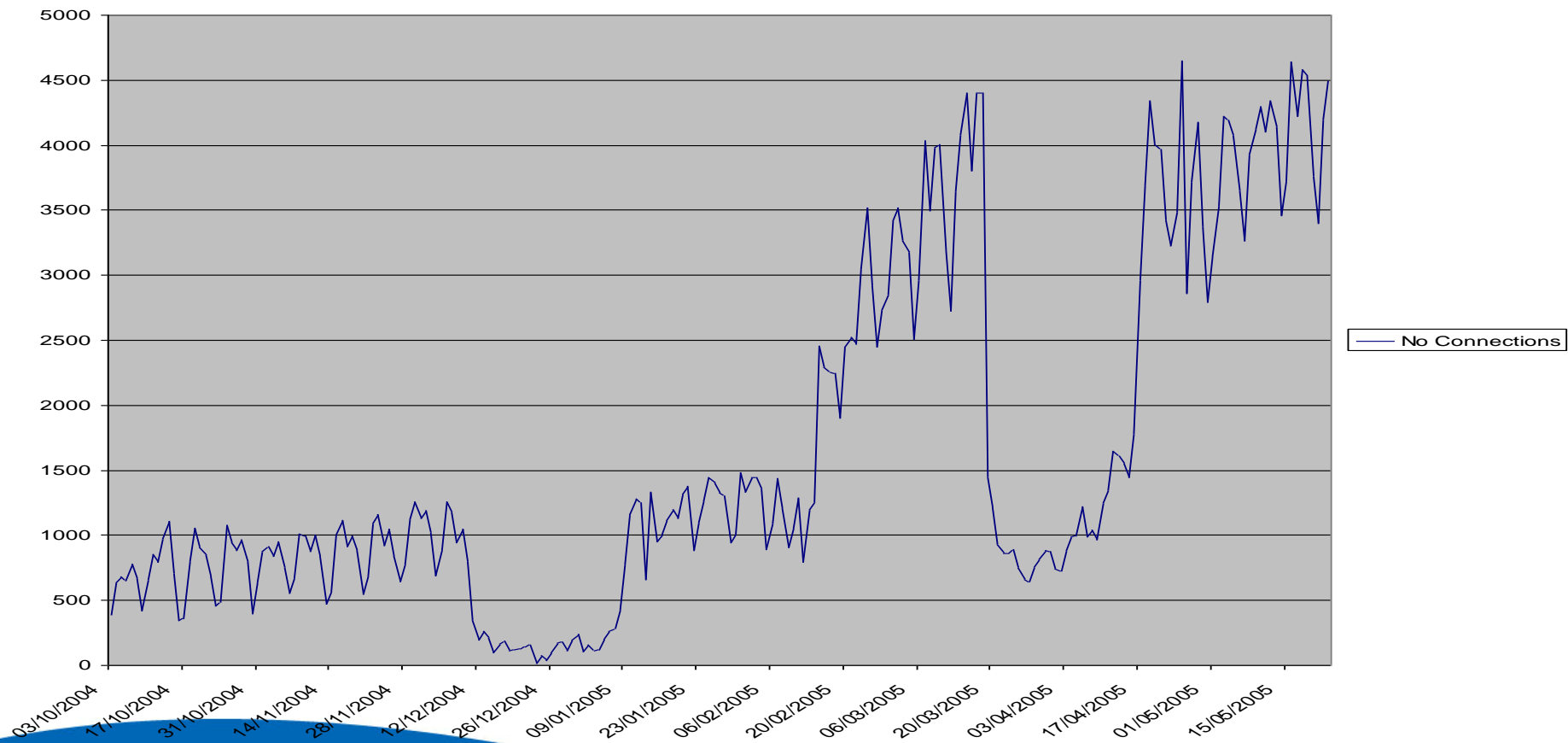Unique Connections

02 Usage Statistics

02 Usage Statistics

Bandwidth
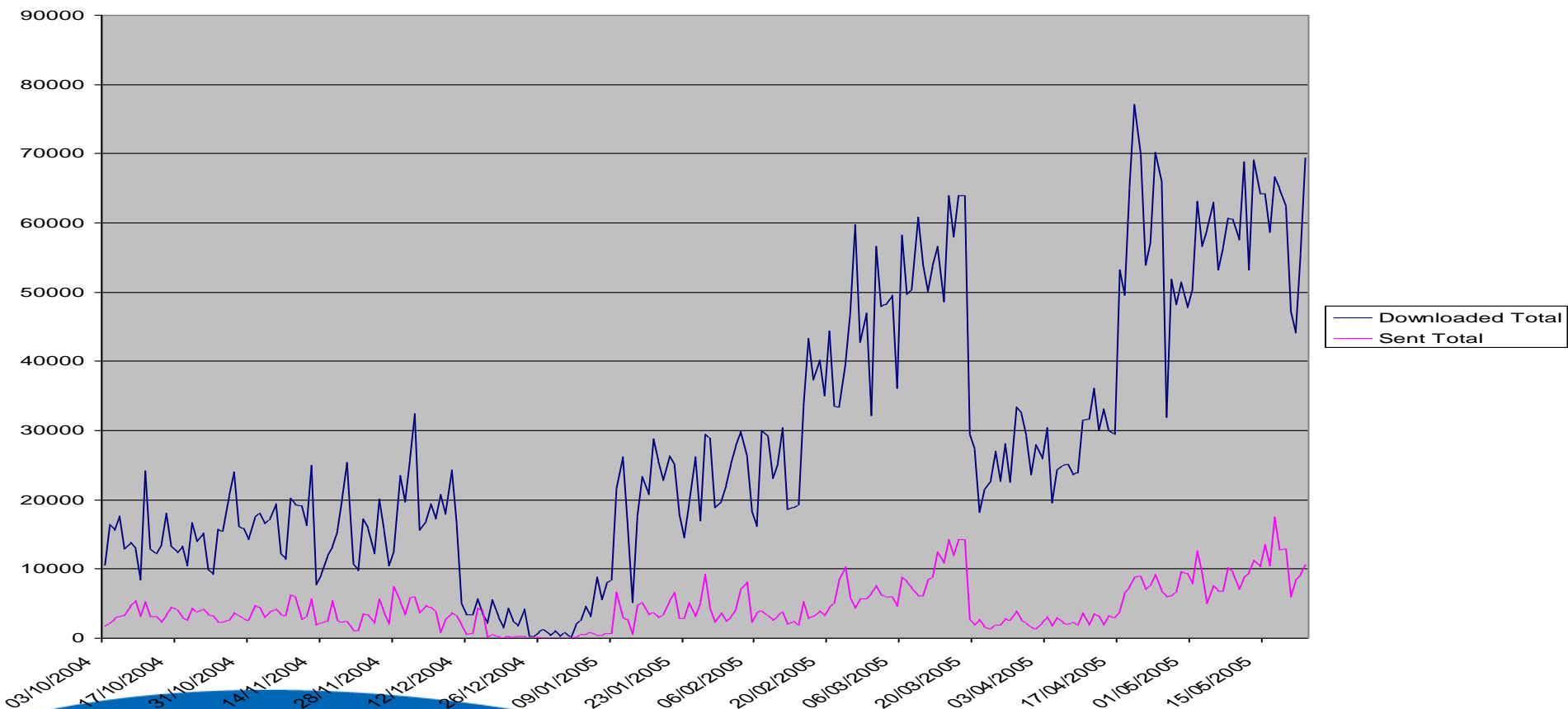
03 Support Issues

Main areas of Support:

- Configuration Problems(50%)

- Security (Malware/Antivirus) (40%)

- Other (hardware, email, other applications) (10%)

03 Support Issues

Issues with Support:

- Time of year determines what problems will occur

- At start of academic year, configuration and security issues

- At start of other terms, mainly security issues

- During terms even mixture

03 Support Issues

Malware most time consuming support problem:

• Malware on students computers is rampant

• Student lifestyle major cause of malware problem - Lazy, illegal software, file sharing, computers/users from all over the world.

• Scans and removal times can be large.

•Some malware very complex to remove without formatting

Support provided in two Tiers :

•Front Line IT Support : Deal with most basic queries and problems. Limited by skill and time available.

•Second Line Support : I deal with problems IT Support can not resolve or are not trained to do. Have access to logs etc.

04 Dirty Network Access Controller

Linux Box with :

• Two Interfaces (vlan 666, vlan 1)

• DHCP Server – Provides 192.168. IP's

• IPTables – Blocks all traffic except port 80 & 445 which is routed to squid port. (ssh is also open to specific ip's)

• Squid – checks all web requests against ACL

• Access Control Lists – Windows Update, Symantec etc

04 **Dirty Network Access Controller**

- Allows Students to get updates without authenticating

- Provides access to instructions without authenticating

- Lets students read instructions from their computers

- Speeds up malware removal time

- Helps IT Support diagnose problems

- Helps IT Support deal with problems faster

05 Future Developments

- Replace Roamnode with 802.1x service

- Incorporate security solution such as Vernier