

Project Management Case Study

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Presented by: Thomas King (Project Manager)
and
David Renaud (Project Coordinator)

Presentation Overview

- Selection Process
- Student Wireless Survey
- Wireless Security Model
- AP Deployment Process
- Marketing Wireless@Griffith
- Support Provisioning
- AP Monitoring/Management
- Looking to the Future

Selection Process

Intro → Eval Panel → Initial Eval Process → Final Eval Process Process → Recommendation

1. Introduction

- Invitation for Submission for the supply of wireless technology to Griffith University was issued to all major wireless vendors by the Project Team on 18 July 2003.
- Closing date for responses was COB 01 August 2003.
- Each vendor was allowed to nominate up to 2 resellers/partners to provide a written submission and onsite presentation/demonstration in response to this request.

[C:\INSS83 Wireless Network Deployment 2003\invitation for Submission.pdf](#)

Selection Process

Intro → Eval Panel → Initial Eval Process → Final Eval Process Process → Recommendation

Wireless@Griffith Deployment Schedule	
Milestone	Start/End Dates
Creation of Deployment Plan	23/06/2003 – 18/07/2003
Student Surveys & Analysis of Feedback	04/08/2003 – 05/09/2003
Invitation for Submission	18/07/2003 – 01/08/2003
Vendor Presentations	04/08/2003 – 15/08/2003
Vendors Short-listed & Notified	18/08/2003
Supported Equipment Testing	22/08/2003 – 10/10/2003
Purchasing of Equipment	24/10/2003
Deployment of WLANs	14/11/2003 – 24/12/2003
Testing and Management of Network	14/11/2003 – 24/01/2004
Development of User/Support Documentation	22/10/2003 – 01/02/2003
Development of Promotional Material	01/12/2003 – 01/02/2003
CSO Wireless Support Training	22/10/2003 – 24/12/2003
Further training, support, tweaking and tuning; Marketing, Outreach activities	01/01/2004 – 31/03/2004
Close of INSS83 Project	31/03/2004
Initiation of INSS82 Wireless Expansion Project	01/04/2003
Complete INSS82 Wireless Expansion Project	01/04/2004 – 01/11/2004

Selection Process

Intro → Eval Panel → Initial Eval Process → Final Eval Process Process → Recommendation

Responses were received from the following nine (9) vendors:

VENDOR	RESELLER
Hewlett-Packard	Commander
D-Link	BES
Enterasys	NEC
Proxim/3Com	Lanlink
Nortel Networks	Netstar
Extreme Networks	Ericsson
Cisco Systems	Getronics
Netgear	Leading Solutions
3Com	3Com

Each vendor was provided with four (4) hours to showcase their wireless solutions via an allocated presentation/demonstration timeslot.

Selection Process

Intro → Eval Panel → Initial Eval Process → Final Eval Process Process → Recommendation

2. Evaluation Panel

The members of the wireless evaluation panel were:

Name	Position	Project Position
Thomas King	Team Leader, Network Services	Project Manager
David Renaud	Wireless Network Support Officer	Project Coordinator
Gary Galbraith	Senior Network Support Officer	Project Member
Vilo Jovel	Senior Network Support Officer	Project Member
Maziar Meshki*	Project Officer	External Project Member

* Only involved in the process of determining the vendor short-list.

3. Initial Evaluation Process

Aim:

To evaluate both the written submission and presentation supplied by the nine (9) vendors who responded to our Invitation for Submission and to be able to short list vendors based on this criteria.

Criteria:

The evaluation criteria were specified in the Invitation for Submission document, sent out to vendor's on 18 July 2003. Criteria is as follows:

- i) Compliance with Compulsory Features
 - Interoperability
 - Hardware Features
 - Software Features
 - Network Management Features

- ii) Ability to Provide Desirable Features
 - Interoperability
 - Hardware Features
 - Software Features
 - Network Management Features
- i) Ability to Provide other Features/Value Added Services
- i) Delivery Schedule
- v) Pricing

- vi) Security
- vii) Support/Warranty/Maintenance
- viii) Demonstration of Wireless Solutions
- ix) Product Roadmap for the Future
- x) Case Studies of Previous WLAN Implementations
- xi) Griffith Confidence in Vendor

<C:\INSS83 Wireless Network Deployment 2003\Vendor Evaluation\Written Submission and Presentation Evaluations\Vendor Evaluation Criteria Template.doc>

Thorough examination of each submission by evaluation panel members and formulation of questions to ask vendors

Meeting between panel members after each presentation, to discuss vendor's written submission/presentation and highlight areas of concern.

Additional clarification questions were raised with each vendor and responses were collated.

To record the history of all communications between Griffith University and Vendors, a communications spreadsheet was created.

<C:\INSS83 Wireless Network Deployment 2003\Communications.xls>

Of the nine (9) written submissions NCS received from vendors, a short-list of three (3) vendors was made.

The process of determining the short-list involved the evaluation of both the vendor's written submission and presentation.

Evaluation reports for each vendor's written submission and presentation were collated.

After all written submissions and presentations were evaluated by the Evaluation Panel members, a meeting was held between all members to discuss the results of each vendors written submission and presentation/demonstration and select which vendors would be short-listed. Feedback from each evaluation panel member was collated into a short-list recommendation document.

<C:\INS583 Wireless Network Deployment 2003\Vendor Evaluation\Short-list Recommendation.doc>

The final list of short-listed vendors was:



Enterasys (by NEC)



Cisco (by Getronics)



Proxim/3Com (by Lanlink)

All vendors were emailed on 20/08/2003, informing them that they had either been successful or unsuccessful.

For the benefit of each vendor, the project team also included both positive and negative feedback regarding their wireless solution .

<C:\INS583 Wireless Network Deployment 2003\Vendor Evaluation\Short-list emails.doc>

4. Final Evaluation Process

Aim:

To evaluate the wireless solutions for the three (3) vendors who were successful in being short-listed for the supply of wireless technology to Griffith University. The evaluation will enable the selection of one (1) successful vendor, which meets the requirements for Griffith University's wireless networking requirements.

Successful short-listed vendors were required to provide equipment for the purposes of performance testing and further evaluation.

This included all equipment they referred to in their written submissions, including access points, wireless LAN cards, and associated backend infrastructure.

Evaluation was based on the following four (4) criteria:

- Throughput Test Results for Access Points
- Evaluation of Access Point Features
- Wireless Network Management Solution Evaluation
- Price Comparison

i) Throughput Test Results for Access Points

Aim: To determine which access point provided the best overall throughput results.

[C:\JNS583 Wireless Network Deployment 2003\Vendor Evaluation\AP Throughput Results\AP Throughput Results.xls](#)

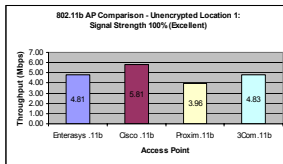
Tests were performed using all three (3) wireless standards – IEEE 802.11a, 802.11b and 802.11g .

Results of the throughput testing, with comparison graphs, are attached as Annexure G.

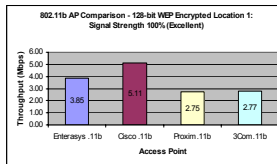
From the throughput results, it was determined that the Cisco 1200 Series access point provided the highest and most consistent throughput results.

i) Throughput Test Results for Access Points

Summary of 802.11b Throughput Results – 100% Signal Strength:



Without WEP Encryption

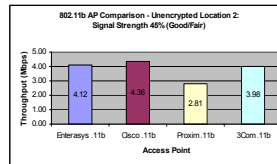


With 128-bit WEP Encryption

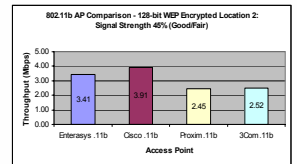
[C:\JNS583 Wireless Network Deployment 2003\Vendor Evaluation\AP Throughput Results\AP Throughput Results.xls](#)

i) Throughput Test Results for Access Points

Summary of 802.11b Throughput Results – 45% Signal Strength:



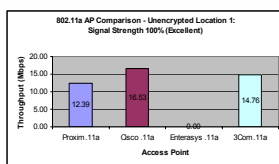
Without WEP Encryption



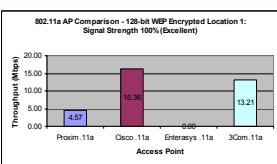
With 128-bit WEP Encryption

i) Throughput Test Results for Access Points

Summary of 802.11a Throughput Results – 100% Signal Strength:



Without WEP Encryption

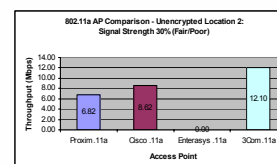


With 128-bit WEP Encryption

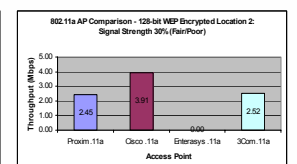
Note: No 802.11a radios were available for the Enterasys AP.

i) Throughput Test Results for Access Points

Summary of 802.11a Throughput Results – 30% Signal Strength:



Without WEP Encryption

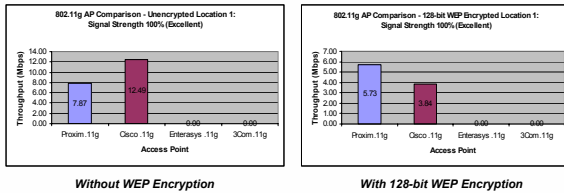


With 128-bit WEP Encryption

Note: No 802.11a radios were available for the Enterasys AP.

i) Throughput Test Results for Access Points

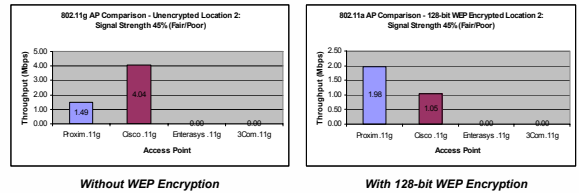
Summary of 802.11g Throughput Results – 100% Signal Strength:



Note: No 802.11g radios were available for the Enterasys and 3Com AP.

i) Throughput Test Results for Access Points

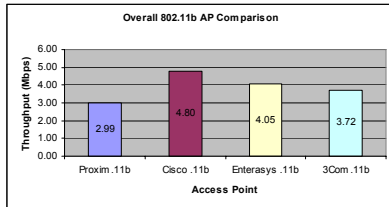
Summary of 802.11g Throughput Results – 45% Signal Strength:



Note: No 802.11g radios were available for the Enterasys and 3Com AP.

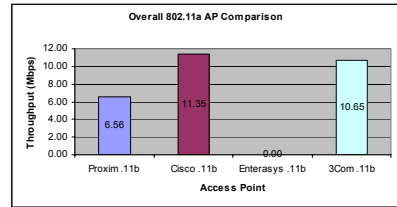
i) Throughput Test Results for Access Points

Overall 802.11b AP Comparison:



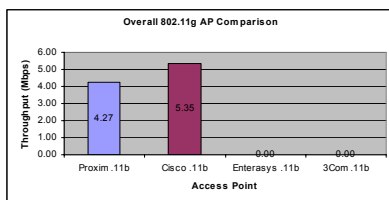
i) Throughput Test Results for Access Points

Overall 802.11a AP Comparison:



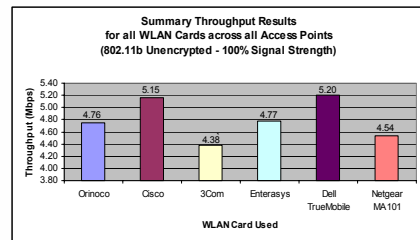
i) Throughput Test Results for Access Points

Overall 802.11g AP Comparison:



i) Throughput Results for Wireless LAN Cards:

(from the results, we could also determine which card produced the best throughput overall)



ii) Evaluation of Access Point Features

A comparison chart displaying each vendor's access point features was created using information obtained in the "Written Submission and Presentation Evaluation" reports mentioned in Section 4.

The big advantages with Cisco Aironet Access Points are:

- Cisco IOS – providing a huge range of debugging capabilities available with other vendor's APs.
- Cisco Compatible Extensions – enabling the reporting of rogue APs and signal strength measurements which can be used to create accurate coverage maps + a whole range of extra features



[C:\NCS83 Wireless Network Deployment 2003\Vendor Evaluation\Comparison of AP Features.doc](#)

iii) Wireless Network Management Solution Evaluation

Each vendor's wireless network management solution was evaluated using the software evaluation versions and manuals supplied by the vendor.

Example: [C:\NCS83 Wireless Network Deployment 2003\Vendor Evaluation\Network Management Evaluation\Network Management Evaluation - Cisco.doc](#)

Evaluation Reports were created for each vendor's solution.

The results of the Wireless Network Management Solution evaluations indicate that Cisco's Wireless LAN Solution Engine (WLSE 2.5) provides the best wireless network management solution for Griffith University wireless deployment, and provides superior management features to the other vendor's management solutions.

iii) Wireless Network Management Solution Evaluation

Major advantages of Cisco's Wireless LAN Solution Engine over other vendor's wireless management solutions are:

- RF Management capabilities, including interference detection
- Rogue AP Detection and Location
- Extensive Mapping Facilities – can import building/campus maps
- Accurate Coverage Maps – shaded on maps and calculated via RF feedback from APs and CCX compliant client cards.
- Site Assisted Surveys – to determine placement of APs
- Dynamic Re-configuration of WLAN according to RF feedback
- Very customisable scheduling utility
- Huge range of reporting capabilities – to gather statistics for the purpose of research and marketing.

iv) Price Comparison

A price comparison was made between each vendors products, based on the BAFO received from each vendor.

The comparison was based on NCS purchasing 70 Access Points (with 802.11b/g radios installed), Power Injectors, and Wireless Network Management Solution.



i) Price Comparison – Advantage of Cisco's Solution

A significant advantage in purchasing Cisco's WLSE product is the potential future cost savings that will result from the easy of deployment and management which the WLSE 2.5 provides.

One of the biggest cost savings from implementing the WLSE would be he savings in staff time required to perform site surveys in order to calculate accurate coverage areas. As site-surveying will be an ongoing expense as more and more APs, the WLSE will greatly reduce this ongoing cost by providing dynamic coverage maps from RF information obtained by APs and CCX compliant cards.

5. Recommendation

That Griffith University authorise the purchase of wireless networking technology from Cisco Systems for a total price of \$xxxxxx as after an extensive evaluation of each vendor's solution, Cisco's wireless solution came out on top in all four (4) evaluation criteria.



Questions so far?

Next  Our Student Wireless Survey

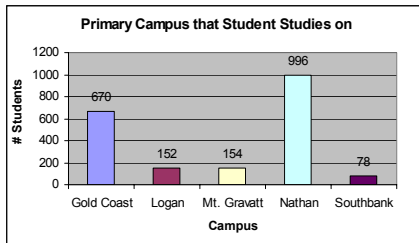
Student Wireless Survey

- Survey conducted from 04AUG2003-05SEP2003
- 2050 students completed this survey
- Survey 100% electronic
- Survey located on the common-use & Griffink homepages
- 2 all student emails went out to inform students about the survey
- 3 x 256MB memory sticks given as prizes for completing the survey
- Very well received survey and we had 559 students providing us with detailed feedback in addition to completing the survey
- On average it took 7 hours to import and vett 150 student surveys into our final spreadsheet

<C:\INS583 Wireless Network Deployment 2003\Student Surveys\INS583 Survey Results.xls>

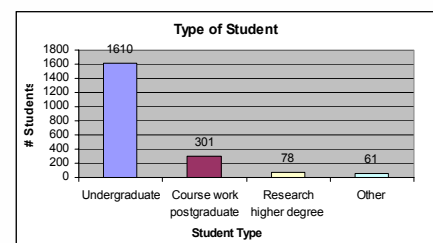
Student Wireless Survey

1. What is the primary campus you study on?



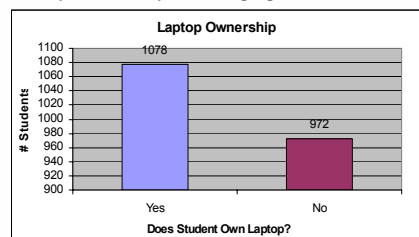
Student Wireless Survey

2. What type of student are you?



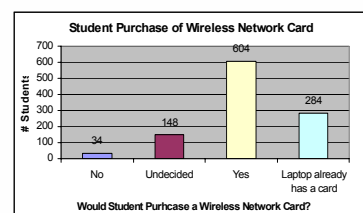
Student Wireless Survey

3. Do you currently own a laptop?

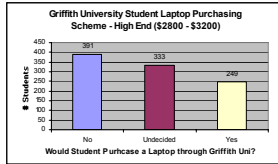
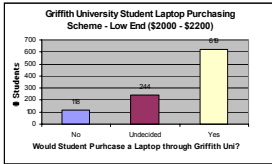


Student Wireless Survey

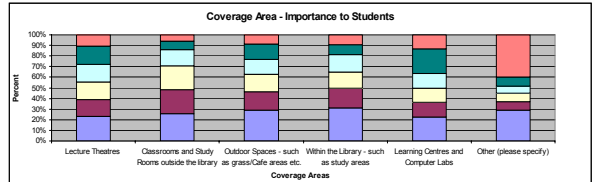
4. If you answered YES to Question 3, would you be inclined to equip your laptop with a wireless network card at a cost of less than \$100, in order to access Griffith's wireless network?



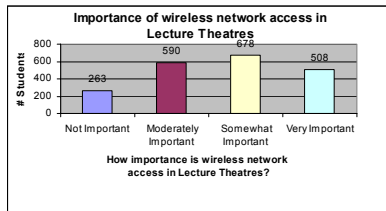
5. If you answered NO to Question 3, would you consider purchasing a laptop, if Griffith University were to offer a price competitive laptop purchasing scheme for students?



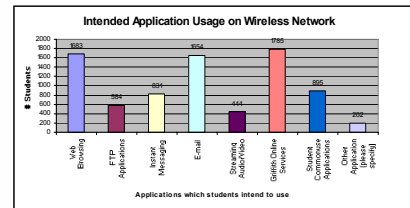
6. Wireless network access would be most important to you in: (Please number from 1 to 6, with 1 being the most important and 6 being the least important)



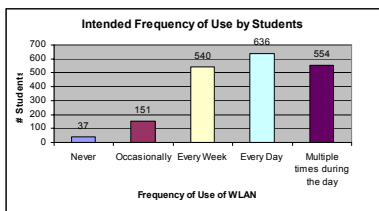
7. How important would it be for you, to have wireless network access within the campus Lecture Theatres:



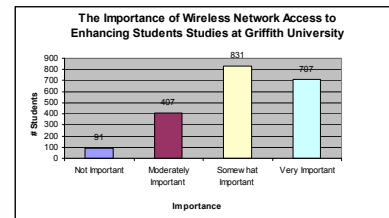
8. For what purposes would you intend to use the wireless network:



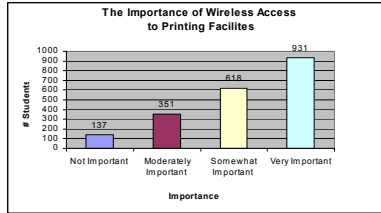
9. If wireless network access was offered at Griffith University, how often would you use it?



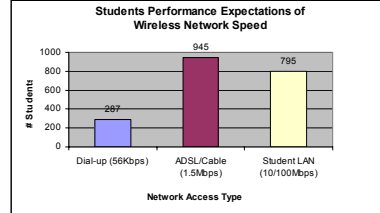
10. How important would wireless network access be, in enhancing your studies at Griffith University?



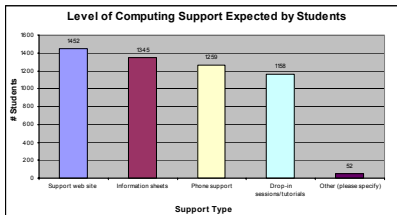
11. How important would it be for you, to have wireless access to printing facilities?



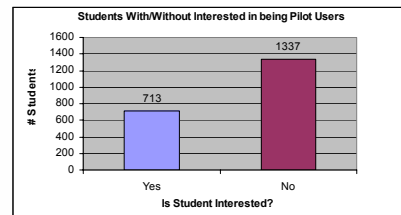
12. Do you expect the performance of wireless network connections to be comparable to?



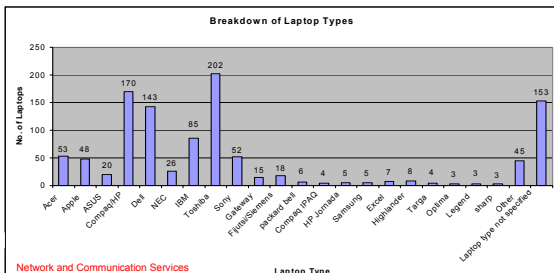
13. What level of computing support would you expect to receive when using the wireless network?



15. Are you interested in helping us test the new wireless network?



Also, from the survey results, we were able to collate a breakdown of laptop types:

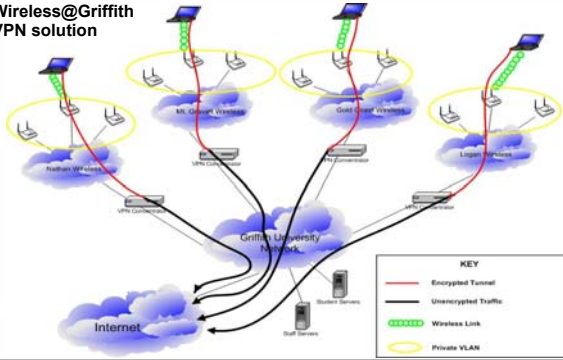


Questions so far?

Next → Our Wireless Security Model

Wireless Security Model VPN Solution

Wireless@Griffith VPN solution



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Wireless Security Model VPN Solution

Why we used VPN to provide security for Wireless@Griffith...

- We felt that current wireless security standards were either too insecure or immature in their development.
- A VPN solution provided synergies with our existing VPN solution for remote users. Benefits included:
 - Clients were already familiar with using the VPN software.
 - Support staff were already familiar with supporting the VPN software.
 - Network staff were already familiar with configuring Cisco VPN concentrators.
- VPN is a proven security technology that is highly scalable. Each VPN concentrator can handle 1000's of concurrent connections. If demand increases, further concentrators can be purchased if required.

Network and Communication Services

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Questions so far?

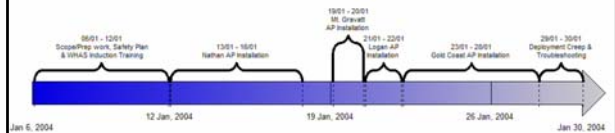
Next **→** AP Deployment Process

Network and Communication Services

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AP Deployment Process Deployment Schedule

All AP installations were performed by Lanlink contractors. The deployment schedule which Lanlink adhered to is shown below:



Network and Communication Services

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AP Deployment Process Installation Checklist

TEST PLAN FOR ACCESS POINT INSTALLATION

AP Name: _____
 MAC Address: _____
 Serial Number: _____
 Asset Number: _____
 Port No: _____
 Mgmt IP Address: _____
 Subnet Mask: _____
 Default Gateway: _____

Signal Strength Measurements⁽¹⁾:
 Location 1: Signal: _____ Noise: _____
 Location 2: Signal: _____ Noise: _____
 Location 3: Signal: _____ Noise: _____
 Location 4: Signal: _____ Noise: _____

Network and Communication Services

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AP Deployment Process Installation Checklist

checklist continued...

Has console cable been attached to access point⁽²⁾: YES / NO
 Has Kensington lock been secured and key labeled⁽³⁾: YES / NO
 Can you ping the management default gateway from AP: YES / NO
 Config Loaded & Tested: YES / NO
 Before and after digital photo's taken: YES / NO

Signature: _____ Date: _____

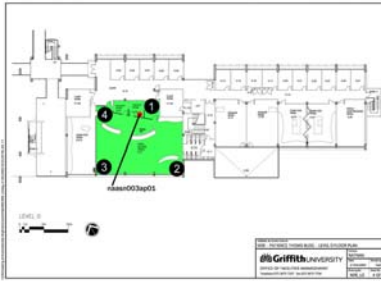
[C:\INS583 Wireless Network Deployment 2003\Deployment Plan\AP Deployment Checklist.doc](#)

Network and Communication Services

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AP Deployment Process

Site Surveys



For all 50 Smart Zones, comprehensive site surveys were performed by Lanlink to ensure that more than 50% signal strength was available in all Smart Zones.

This was achieved by having 4 signal strength measurements being recorded at the coverage map extremes.

Where coverage problems occurred, external antennas were used. But in these locations, an antenna was already provisioned for.

C:\NSS83 Wireless Network Deployment 2003\Deployment Plan\Lanlink Report\G1 Wireless Deployment.xls
Network and Communication Services

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AP Deployment Process

AP Location Photos

Comprehensive photos of all AP installations/locations were taken by Lanlink contractors as part of the installation checklist. This served not only as a quality check, but also as a good reference, as it would be difficult to remember where a particular AP is located after 50 installations.



Photo of AP Installation



Photo of Roof Tile

Network and Communication Services

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AP Deployment Process

Signage Installation



Wireless signage was developed in consultation with our External Relations department, and once approved was sourced from a signage contractor via Griffith's Office of Facilities Management (OFM). Signage was installed just as the service was launched.

The locations of all signage were also recorded on our floor maps, an example is shown below:



Network and Communication Services

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Questions so far?

Next → Marketing Wireless@Griffith

Network and Communication Services

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Marketing Wireless@Griffith

Marketing Strategy

Our marketing strategy included the following:

- Creating a detailed marketing plan.
- Consultation with our External Relations department with regards to the creation of wireless signage for identifying wireless coverage areas.
- Placement of an article in the Griffith Gazette informing the Griffith community to the availability of wireless network access at Griffith University.
- The wireless@Griffith website – which includes detailed coverage maps, support documentation, FAQs etc.
- All student emails were sent out 2 weeks after the launch/

Network and Communication Services

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Marketing Wireless@Griffith

Griffith Gazette Article

Go Wireless@Griffith

THE University's new wireless computer network is about to go live. Wireless@Griffith allows students and staff with laptop computers to use online services without the need for physical network connections. Users can access the Internet, check their email from a laptop or work on a group assignment from any of the 50 'Smart Zones' across the campus. Information Services Director Geoffrey Dring and the wireless network provided increased facilities for study and work. "Wireless@Griffith gives you instant access to the world's knowledge in the common learning areas and wireless staff offices around the campus," he said. "The only difference is you decide when and where you want to access the network using your laptop computer." Some 'Smart Zones' around the campus include the reading room at Nathan, Logan's community place, the

Griffith's link building and the Griffith's sign (pictured next to the sign) is at Nathan. A 'Smart Zone' can be identified if there is

Dring said he expected Wireless@Griffith to be very popular. A survey distributed for the Wireless@Griffith project team in 2003, found more than 50 per cent of respondents agreed to lend access to a laptop computer. Dring said support staff would be available throughout O'Week to help students configure their laptops for the wireless network. Training sessions for students and staff will also be held throughout the semester. Wireless network cards can be purchased at the Nathan or Gold Coast campus computer shops. Staff with laptops, who want access to the wireless network, should contact Information on 075 3875 1515 or visit the website. For a full list of 'Smart Zones' and information about Wireless@Griffith visit www.griffith.edu.au/wireless

By Jenny Walker

Network and Communication Services

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After consulting our External Relations department, it was decided that the chosen name for Griffith's wireless coverage areas would be "Smart Zone". This is in line with Griffith University's Get Smarter campaign.

Therefore, wherever students and staff see the Smart Zone sign displayed on campus, wireless network coverage is available in the surrounding area.

The inclusion of the Wireless@Griffith webpage URL on the sign was also crucial in marketing the wireless website.



We consulted with the Nathan and Gold Coast campus computer shops to ensure they were able to obtain Linksys Wireless-G cards from suppliers, for reselling to students, before the launch of the service.

To provide an indication of the success of this strategic move...

In only 4 months, the Gold Coast campus computer shop has sold over 300 Linksys cards!

Our marketing was kept minimal, as we believed that word-of-mouth would be our biggest marketing tool, and over the course of 12 weeks, this has proven to be the case.

Important Tip:

The key to generating a high amount of word-of-mouth volume was building up the momentum for our wireless project over time. In our case, the wireless survey certainly helped to achieve this objective, because once it was released to students, the amount of excitement and queries generated about wireless dramatically increased.

In fact, before we even announced the official launch date, we had dozens of students connecting.

Questions so far?

Next → Support Provisioning

O-Week wireless support sessions were held at each campus every day, to perform laptop configurations and field wireless enquiries.

Further wireless support sessions (Mon-Fri) were provided by hired casual students during weeks 1 to 10. These proved to be extremely popular with students, with over 350 queries being made over the 10 weeks. Of these 350 students, at least 300 were laptops being configured for wireless access.

Beyond week 10, support sessions were dropped from daily to weekly, and performed by the Wireless Network Support Officer.

Important Tip:

We also ensured that our casual support staff documented each and every laptop configuration they performed, into their support log which we collected on a weekly basis. This captured information such as the students campus, student type, laptop type, WLAN card type, OS and detailed comments.

This information proved to be very useful in identifying common and not-so-common wireless problems, which were then added to the continually updated FAQs and support information on the website.

<C:\INS583 Wireless Network Deployment 2003\Training\Wireless Support Stats.xls>

As an example, it was identified on several occasions that laptops containing Realtek LAN cards, which when enabled, prevents the VPN client from connecting.

Right from the beginning we involved the various support groups with the wireless deployment. To ensure that all computing support staff felt comfortable with supporting wireless, we installed access points in each support groups offices. This enabled Griffith's support staff to immediately begin using the wireless network before it went live.

We also provided wireless information sessions/training to our:

- Information Services Staff (i.e. front line support staff), and
- Computing Support Staff.

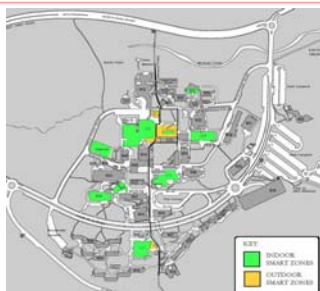
The development of our Wireless@Griffith website was the most important component in providing high quality self-service support for students and staff:

Important Tip:

Before designing the structure/format of the Wireless@Griffith website, we performed "environmental scanning" by researching other Universities web sites from across the world. It was noticed that the quality of wireless sites was far higher in the U.S than in Australia, most certainly due to the maturity that wireless has achieved in U.S Universities.

And now to demonstrate the features of our Wireless@Griffith website...

Key features of the website include the following...



Interactive Coverage Maps:

- The use of imagemaps allows students and staff to click on the shaded buildings & outdoor areas to view detailed information about the Smart Zones located within them.

- ➔ Room names and numbers are provided, along with photos of the Smart Zone

Interactive Wireless@Griffith Coverage Map - Nathan: Technology Building (N44)

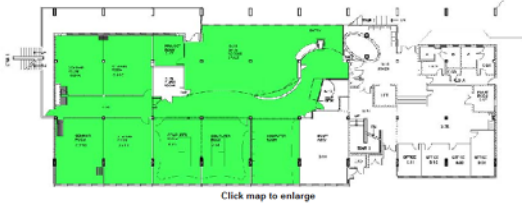
Wireless Coverage Areas include:

Technology Learning Centre	Project Rooms	Room 0.17
	Open Access Space	Room 0.16
	Seminar Rooms	Rooms 0.21A - 0.21D
	Computer Rooms	Rooms 0.18 & 0.20



These photos are very useful to students, as it provides them with a visual aid as to what the Smart Zone looks like. It also promotes Griffith's facilities at the same time.

→ A coverage map of each Smart Zone is also provided. By clicking on the lower resolution map, a higher resolution map is displayed, providing full details of room numbers etc.



But what about wireless coverage area support issues?

It's simple, we have placed a disclaimer on the website which states that:

(1) Coverage maps are based on performance data collected from Cisco Aironet 350 wireless LAN cards. Different makes and/or models of wireless cards can have varying performance results that may not reflect the coverage as shown by the maps.

(2) The Wireless@Griffith service is only guaranteed within the shaded coverage areas on the maps. If you are outside these coverage areas, you may still have network access, but you may also experience problems with your wireless network connection. Unless you move into one of the shaded coverage zones, we cannot ensure that you will receive service.

Frequently Asked Questions (FAQs)

Answers to common questions and troubleshooting information:

What is Wireless@Griffith?
Where can I access the Wireless@Griffith service?
How can I find a Wireless@Griffith Smart Zone?
How much will it cost me to connect?
What operating systems will the Wireless@Griffith network support?
Is there a preferred brand of cards that I should buy?
Where can I buy a supported wireless card for my laptop?
Can I borrow a card for use on the Wireless@Griffith network?
How do I register to use the Wireless@Griffith network?
I've heard that wireless is insecure, what security mechanisms does Wireless@Griffith offer?
How safe are the radio waves emitted from the equipment?
Could potential hackers sniff data transmitted by me on the Wireless@Griffith network?
What services can I access on the Wireless@Griffith network?
Will I be able to access the wireless network via PocketPC/Palm devices?
Why is the wireless connection slower than a wired connection?
What wireless standards does the Wireless@Griffith support?
Will printing be available from the Wireless@Griffith network?
Can I use a Mac laptop with Airport on the Wireless@Griffith network?
Are Linux operating systems supported on the Wireless@Griffith network?
Can I register a fixed IP address on the Wireless@Griffith network?
When will the Wireless@Griffith service be available at the South Bank campus?
How do I protect myself from viruses on the Wireless@Griffith network?
Is there a limit to how many people can use a Smart Zone?
Who can access the Wireless@Griffith network?
How do I know if my laptop has a built-in wireless LAN card?

A Large List
of FAQs
→
(continually updated)

→ Detailed Support Information including:

- Wireless LAN Card Configuration Guides – for supported cards
- Wireless@Griffith VPN Software Packages
- VPN Installation/Connection Guides
- Driver Downloads
- Solutions to wireless connection problems
- Frequently Asked Questions
- Useful support links

→ Feedback Form for gathering student and staff feedback about the Wireless@Griffith service.

Feedback Form

Name:
Position: ☐ Undergrad ☐ Postgrad ☐ RHD ☐ Staff
Campus: ☐ Nathan ☐ Mt. Gravatt ☐ Logan ☐ Gold Coast
Student/Staff ID:
E-mail Address:
Comments:

Note: Please check email address carefully before submitting.

Questions so far?

Next → AP Monitoring/Management

We use a range of tools including:

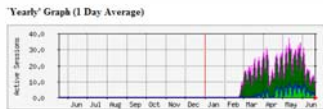
- Cisco's Wireless LAN Solution Engine (WLSE) – which provides extensive RF tools.
- MRTG Logging of VPN Concentrator Sessions.
- MRTG Logging of Associations for each AP.
- Usage Statistics for the “private” cut-down version of the Wireless@Griffith website.
- InterMapper – for monitoring AP “up/down” status.



And now to demonstrate the configuration of our WLSE...

MRTG Logging of VPN Concentrator Sessions:

Nathan/Mt. Gravatt



Gold Coast/Logan



We have logged the number of associations for all Smart Zones – to determine the success of AP placements. To date, all Smart Zones are being continually used by students and staff.

N44 – Technology Learning Centre

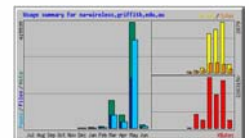


G14 - Visual Arts Coffee Cellar

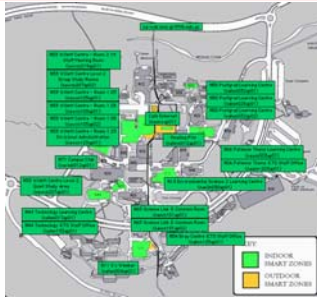


- These usage statistics refer to the cutdown Wireless@Griffith website hosted on the private network.
- This server allows a user to bring their laptop on campus, and after enabling their wireless card, they can open a web browser and access a restricted web site allowing them to download the VPN software and install it, along with instructions on how to connect to Wireless@Griffith.
- This technique has proven to be highly successful, with over 70% of students connecting up to Wireless@Griffith without needing any assistance from our wireless support staff.

These stats allow us to gain further information about our wireless users, such as how many copies of the Windows vs. Mac VPN client are being downloaded etc.



Summary by Month											
Month	Daily Avg				Monthly Totals						
	Pages	Files	Visits	Unique	Pages	Files	Visits	Unique	Pages	Files	Visits
Jan.2009	1942	637	863	44	209	69798	284	6747	3767	12445	12445
Feb.2009	13454	6094	11133	88	437	1081102	2679	344823	196217	402101	402101
Mar.2009	1764	179	642	78	527	1476337	2384	23245	23122	52623	52623
Apr.2009	2118	1819	2480	44	788	2281170	2871	71447	71439	198997	198997
May.2009	392	243	327	23	743	371128	276	2710	3930	7124	7124
Jun.2009	434	36	32	4	74	687429	123	1813	1709	1670	1670
Dec.2009	40	27	13	2	22	20109	69	128	401	476	476
Total						720690	7868	433276	243669	403878	403878



Access points were added to InterMapper to provide our Information Services staff with real-time access to the status of every Smart Zone at Griffith University.

This has proved useful as students and staff can be informed of any outages.

Our ongoing management also includes documenting our wireless network config via the creation of detailed WLAN diagrams that are continually updated:

<C:\INSS83 Wireless Network Deployment 2003\Deployment Plan\WLAN-NETWORK-MAP.pdf>

Questions so far?

Next  Looking to the Future

Looking to the Future

- The Wireless@Griffith Expansion Project (Phase II) will increase the total number of access points to between 250-300
- An academic wireless survey has been created and published on our web site, to gain feedback from academic staff members in relation to the further deployment of Wireless@Griffith.
- A virus/firewall solutions is currently being sought to protect Griffith University's Wireless@Griffith and remote access users; from the increased threat of viruses, as a result of the additional number of student laptops connecting to the network. This solution will be implemented concurrently with the Wireless@Griffith expansion.
- The installation of dedicated wireless data ports in ceilings has been integrated into the standard University building design guidelines.

Questions?