

# Mobile Broadband for R&E Customers

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3rd NGN Workshop - 23 February 2009 - Prague, Czech Republic.

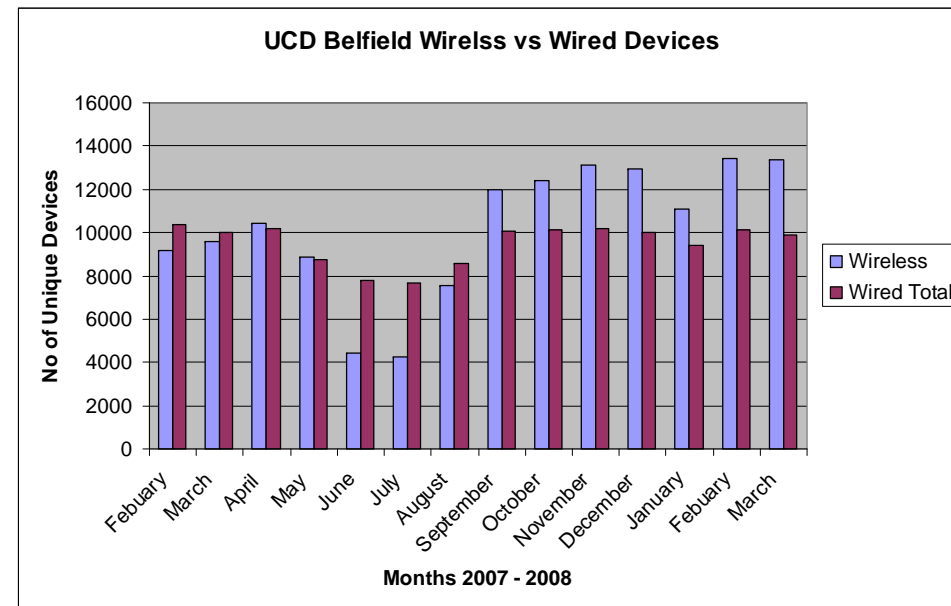
# Agenda

- Campus networks trends
- Access technologies
- Possible outcomes - issues
- HEAnet wireless strategy
- Tender for National Mobile Broadband Service
- Initial results
- Next steps



# Campus Networks are Changing

- On Campus
  - Wireless has already overtaken wired at some campuses!
  - Number of base stations
    - Mean 156
    - Max 900
    - Min 16
  - Laptop penetration up to 80%
- Nationally – Comreg Q3 2008
  - Mobile Broadband Q3 268,705 +203%
  - Total 1,125,080
- Globally
  - 4 Billion Mobile phones Globally (SIMs) – ITU Dec 17th 2008. How many have WiFi and or 3G?
  - Sensor deployments just beginning ~10 Billion sensor devices by 2020



N95 HSDPA, WiFi, Bluetooth



N810 Mobile WiMAX, WiFi, Bluetooth



SPH-H1300 Mobile WiMAX & HSDPA



Acer laptop with Intel WiFi/WiMAX



Cisco BWX 350 Mobile WiMAX



Intel WiFi 802.11a,b,g,N and WiMAX 802.16e

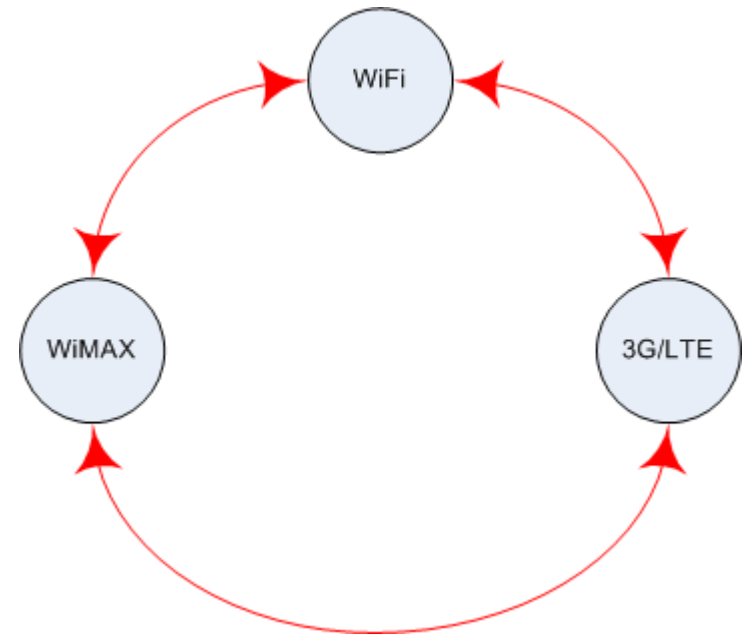


# What access network will your users use to connect to your network in 2010?

- Access technologies
  - Campus Fixed network
  - Campus WiFi - Eduroam
  - WiMAX
  - 3G
  - LTE(4G)
  - Combination of all of the above?
  - Other technologies?

# Possible Outcomes..

- Stick with WiFi only on Campus
- Negotiate 3G/4G service and remove WiFi
- Build, wholesale or negotiate a WiMAX service
- Combination of all of the above?
- Other standards IEEE 802.22 (Cognitive radio in TV Broadcast spectrum) /IEEE 802.20 (Mobile)





# Some More Issues

- Introduces issues:
  - Roaming between WiFi/WiMAX/3G
  - On Campus and off campus
  - Provision of services
  - Mobile portal? More portals?
  - Support – IT helpdesk, operator?
  - Authentication – SIM, Passwords, Identity Management
  - Federation
  - Spectrum issues, licensed, unlicensed
  - Others?



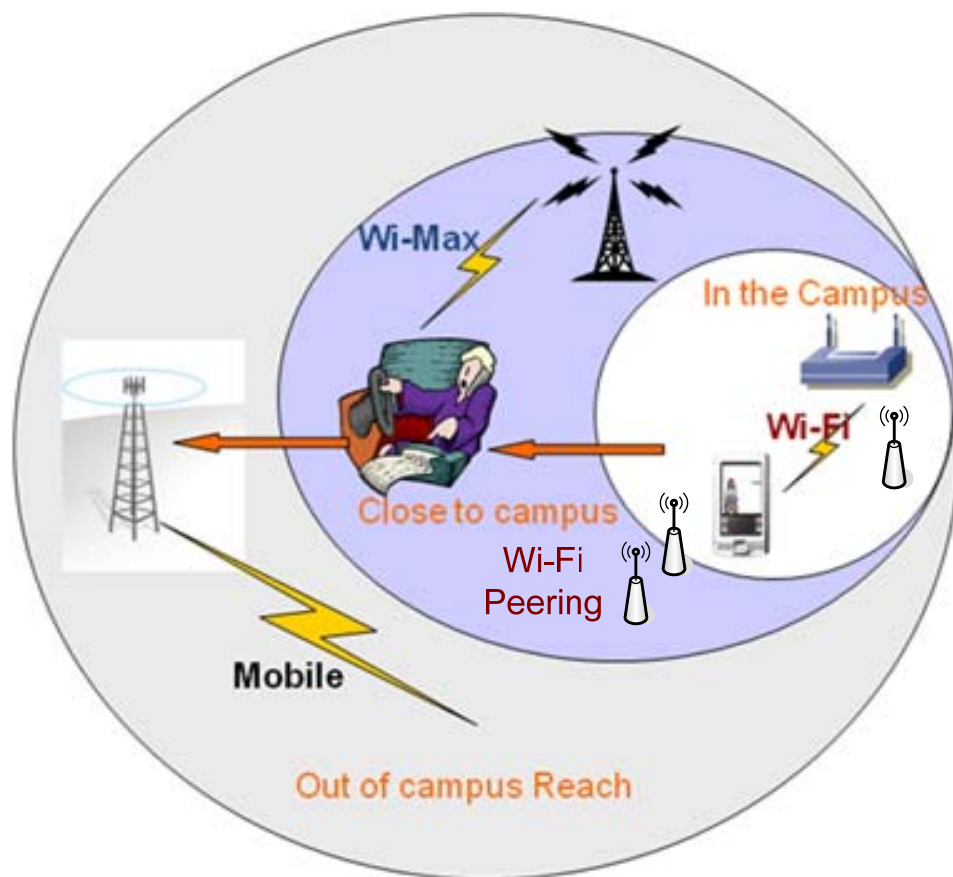
# HEAnet Wireless Strategy

- HEAnet Board decision - Mid 2008
- Consultants selected – Ward Solutions
- Report and Strategy published end 2008

# Brief

- Investigate nationally ubiquitous wireless access to the HEAnet network for all HEAnet clients.
- Identify all potential options
- Identify & Investigate the most feasible options
- Recommend a Strategy

# Approach



**Widespread  
Consultation**

**13 Candidate  
Solutions Initially  
Considered**

**5 Candidate Solutions  
Investigated in detail**

**Strategy Issued to  
board & adopted**

**Procurement exercise  
conducted**

**Tender awarded to O2**

**Service ready Aug 08**

# Some Key Findings

- Overwhelming agreement - extend campus cloud
- Quality of Service
- Price/Cost
- Ease of use
- Regulatory Viability
- Commercial Viability
  - To deliver
  - To maintain
- Mobility
- Ease of delivery
- Inability to fund from existing HEI funds

# Key Recommendations

- Develop, communicate and implement a wireless strategy
  - meets major requirements
  - has widespread sectoral buy-in
  - Is flexible to keep pace with technology and commercial changes
  - Acquisition, Provisioning and Support Mechanisms
  - Funding Plan
- Implement the strategy over 2 major phases
- Put in place review and Governance mechanisms

# HEAnet Wireless Strategy

- Phase 1 (2008-2011)
  - **National Mobile Broadband Service**
  - Continued rollout of eduroam
  - Implement existing middleware strategy to support mobility
  - Licensing and the communications regulator
  - Governance and Review
  - Trials of new wireless broadband technology (WiMAX/LTE)
- Phase 2 (2010)
  - On Campus and extended campus deployment

# Market review & Trial

- In early 2008 UCD carried out a 100 user trial with Vodafone
- HEAnet carried out a survey of our University and Clients to obtain a level of interest and wiliness to promote.
- Results from the user trial and feedback from clients was used as input to the tender.



# Tender Objectives

- Stimulate the use of IT on and off campus
- Provide a quality mobile broadband service in Ireland for students and staff in HEAnet HEI institutions
- National coverage
- Price point at or below 15 Euro per month
- Dongle must not be a barrier to entry
- Different Contract options
- Commitment to track the retail price
- Availability of service
- Quality of service
- Support for IPsec, IMAP, SSH, Voip etc
- Ability to roam
- Support & Reporting
- Limited to 10,000 users

# O2 & HEAnet Offer



- O2 Clear
  - 9 month contract
  - 30 days termination notice
- - E220 Modem. 7.2Mbit/s down, 384kbit/s up
  - 5GB limit/month, 0.02 Euro/MB over this
  - Roaming possible but disabled by default
  - Monthly cost 15 Euro, modem 20 Euro.
- O2 Contract
  - 12 month contract
  - 30 day happiness guarantee
  - E220 modem. 7.2Mbit/s down, 384kbit/s up
  - 10GB limit/month, fair usage applies
  - Roaming possible but disabled by default
  - Monthly cost 13 Euro, modem 20 Euro.

# HEAnet/O2 User Statistics

- Total number of users:
  - Total today 4396 (Sept 08 – Jan 09) with approx 50 new/day
  - O2 Ireland
- Churn rate
  - 8-10% of customers
- Data usage
  - HEAnet 12 month contract average 2.36Gbytes/month
  - HEAnet 9 month average 1.87Gbytes/month
- Contract breakdown:
  - 9 months 8%
  - 12 months 92%
- Sales channel breakdown:
  - Campus sales 37%
  - Retail sales 63%
- Working with O2 to get statistics on:
  - Distribution nationally of users
  - Max and Min speeds by area
  - Average throughput and hourly usage

# Next steps

- Review of the National Mobile Broadband Service
  - Currently reviewing prior to September 2009
- Federation - Identity management and Mobility
- User trials of WiMAX technology in early 2009
- Possible trial of LTE technology late 2009/2010
- Anything else we should be investigating?

# Questions?

