

**NIRAN - a regional computer network
for Education and Research**

Present and Future Developments

NI NHS-HE ICT Forum

October 2006

Lagan Valley Island Business Centre

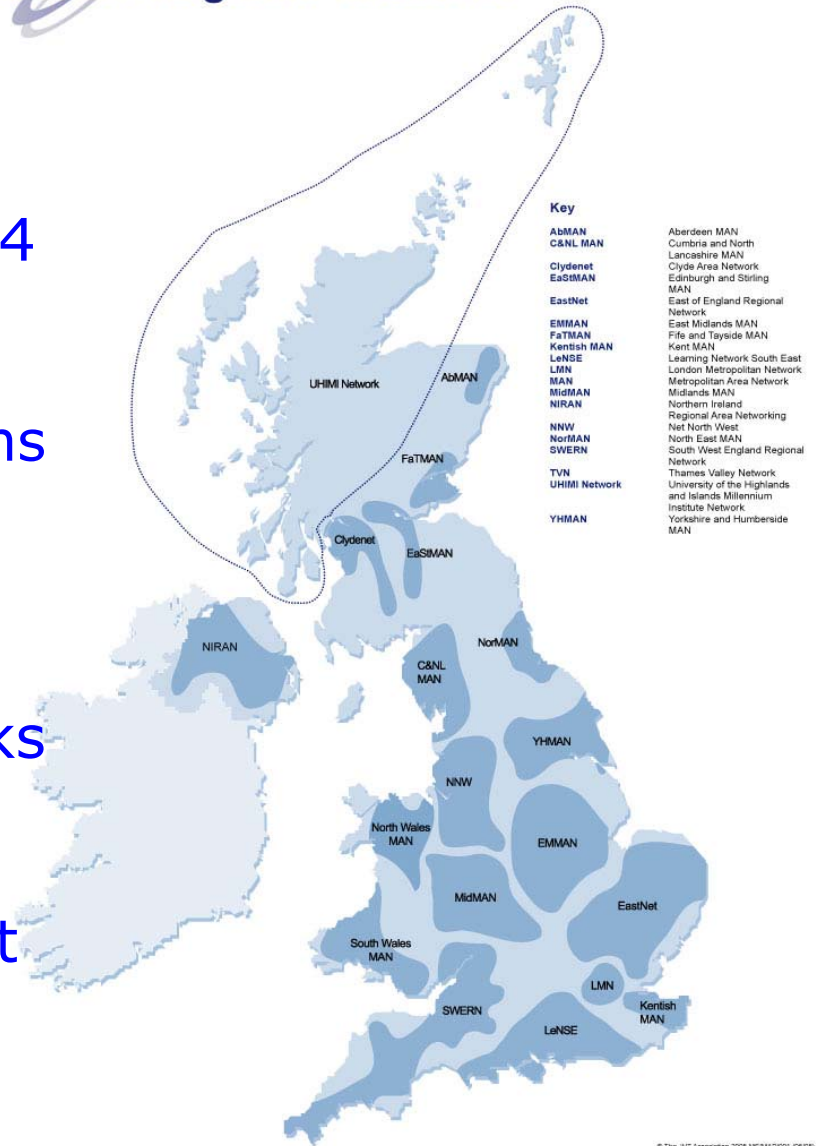
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Overview of Talk

- Present: Status and Benefits
 - NIRAN in the JANET Community
 - Connected Sites and Bandwidths
 - Network Topology
 - Practical Benefits : technical, the pedagogy, to NI
- Future: Developments and Challenges
 - Dual Entry Points to Internet
 - Internal network expansion
 - Belfast – Dublin connection
 - North West NI-RoI connection

NIRAN

- Established November 2004
- Connects 26 NI Sites:
 - 4 NI Higher Ed Institutions
 - 16 Further Ed Colleges
 - 6 Research + Others
- One of 20 regional networks
- Over 200,000 users
- NIRAN + JANET → Internet



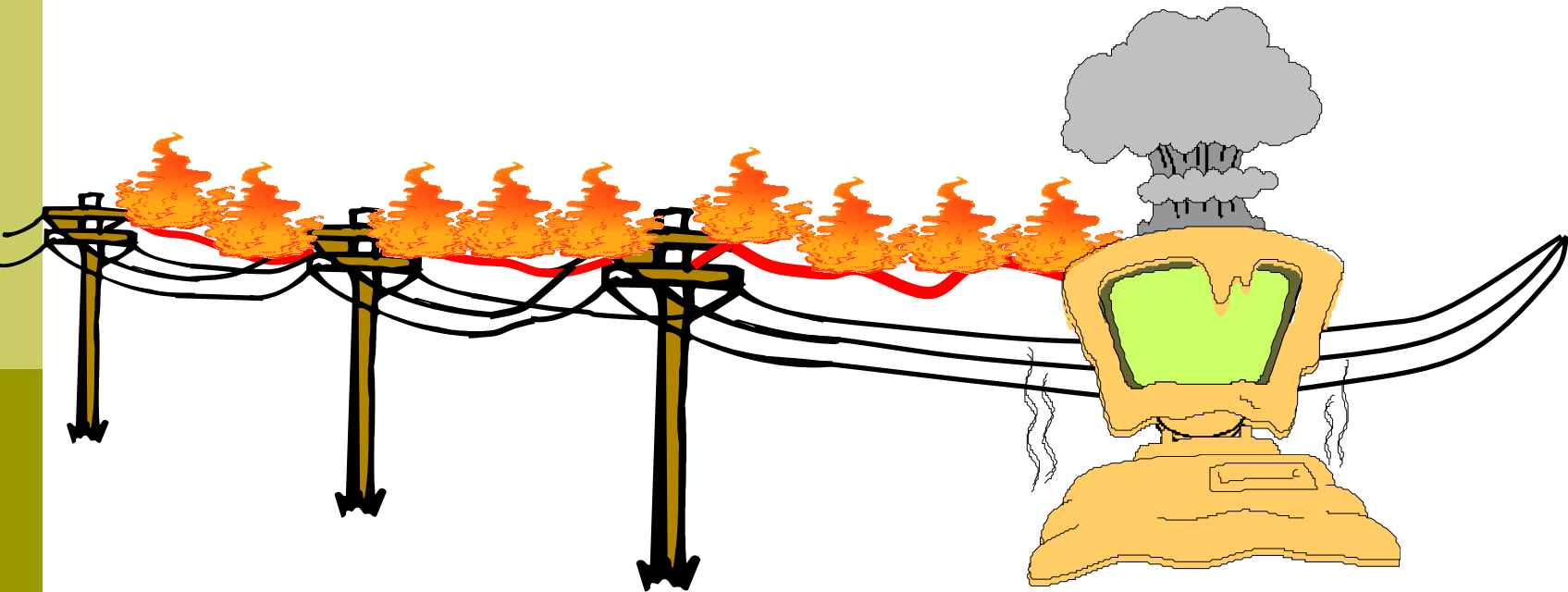
JANET

- **Joint Academic Network**
- Private, Government funded network for education and research
- All FE Colleges, Universities, and Research Councils including Schools in GB & NI
- Developed by UKERNA
- Over 20m+ users
- SuperJANET = JANET Backbone



Major Impetus

- Existing HE and FE Bandwidth running hot
- Long-term sustainable structure & solution



NIRAN Bandwidth Status

	Pre-NIRAN	On-NIRAN
• 5 Research/Other sites	2M	10M
• 2 Higher Ed Institutions	2M	10M
• 16 FE Colleges	2M	10-34-100M
• 1 University	34M	100M
• 1 University	100M	1000M

M = Megabits per second (Mbits/s)

Connected Sites

Higher Education Institutions

1. Queens University Belfast
2. University of Ulster
3. Stranmillis College
4. St Mary's College

Other Institutions

5. Armagh Observatory
6. Dept of Agric Training Colleges
7. Economic Research Institute of NI
8. NICIS
9. LSDA
10. EGSA

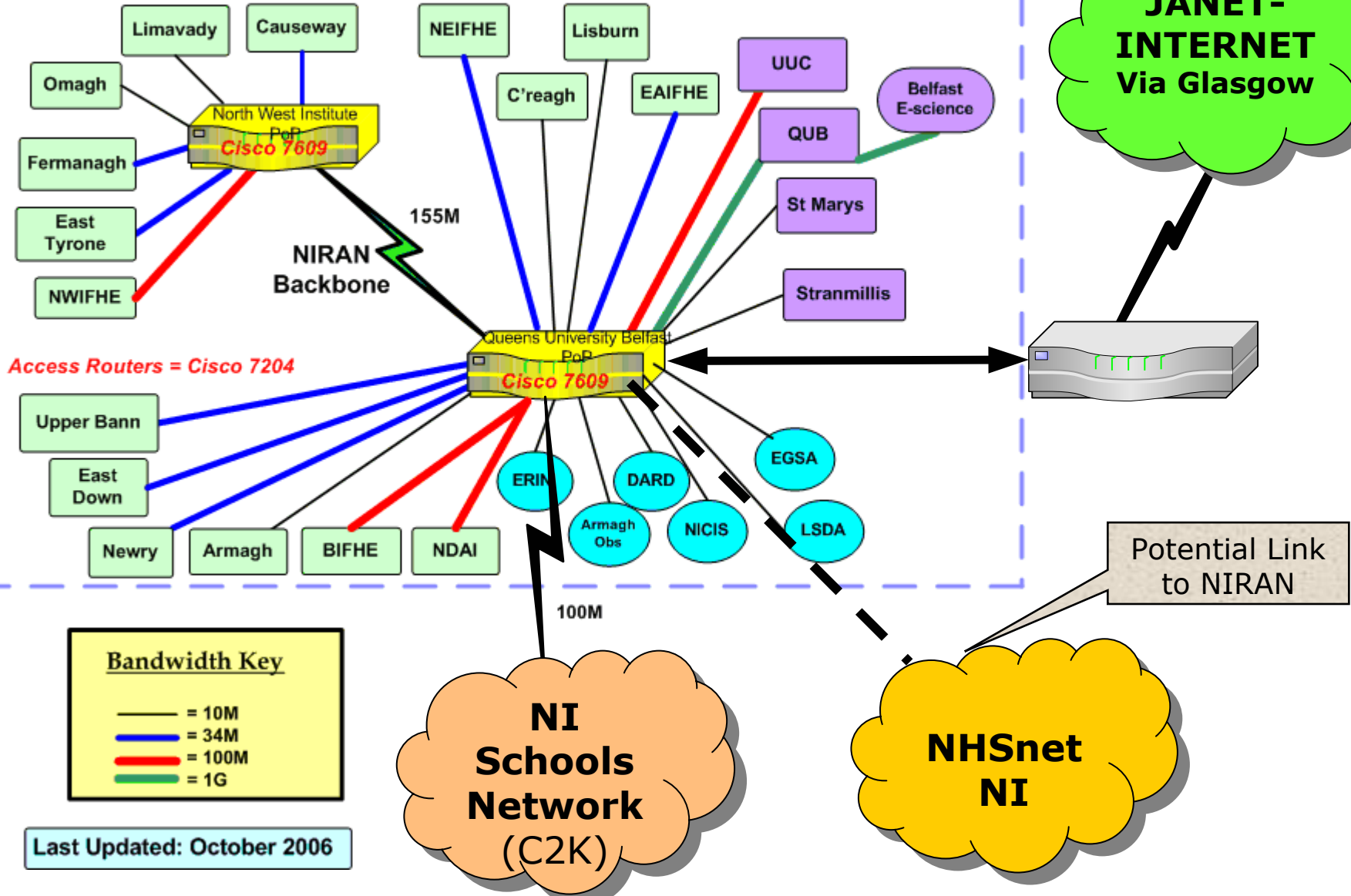
Further Education Colleges

11. Belfast Institute
12. North West Institute
13. North Down & Ards
14. East Antrim Institute
15. North East Institute
16. Upper Bann Institute
17. Newry & Kilkeel Institute
18. Lisburn Institute
19. Castlereagh College
20. East Down Institute
21. Fermanagh College
22. Armagh College
23. East Tyrone College
24. Causeway College
25. Limavady College
26. Omagh College

NIRAN

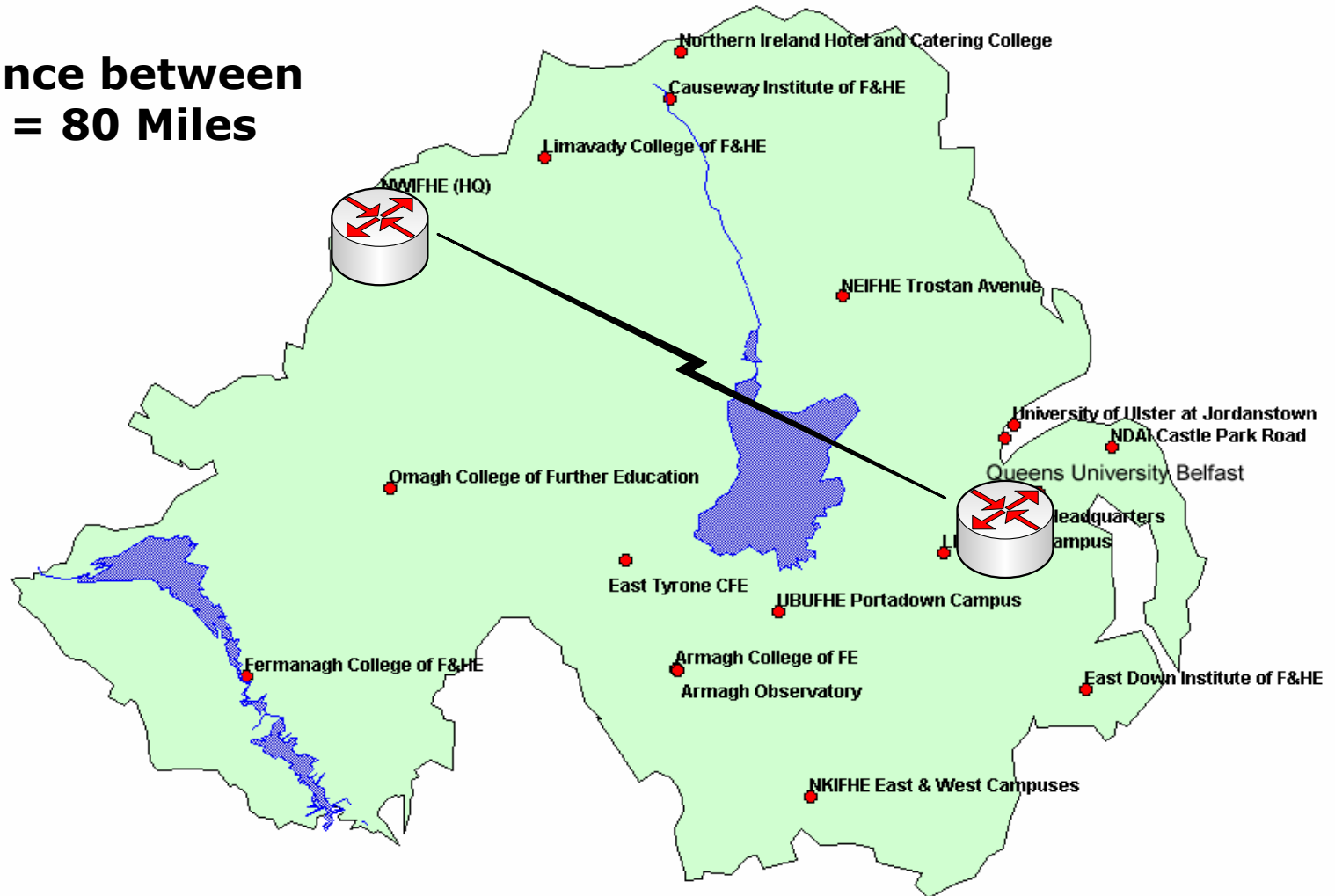
NORTHERN IRELAND REGIONAL AREA NETWORKING

SuperJANET



Geography of NIRAN

**Distance between
PoPs = 80 Miles**



Benefits: Technical

- Bandwidth increase by average factor of 20
- World class bandwidth provision
- 155Mbps backbone - diverse routing
- Inbuilt future-proofing and scalability
- Meeting 99.97% uptime on all circuits
- Bandwidth usage vastly increased across all Colleges
- **Not** a Managed Service – NIRAN is in control

Benefits: Learning and Teaching

Home Working & Study

“...it is clear that the introduction of NIRAN is already providing students and staff with a faster, more enjoyable online experience – both from within the college and from the home.”

Michael Kane, IT Manager
East Antrim Institute

Inter College

“Upgrading our existing 2MB circuit to our new NIRAN 10MB connection has removed the bottleneck that previously slowed our TALIS library system access housed at Queens University Belfast”

Charles Reid, IT Services Manager
Stranmillis University

Teaching & Learning

“With the arrival of the NIRAN 34M connection, the staff and students can now concentrate fully on the content and the learning and teaching experience - rather than be concerned about the means of delivery.”

Gerard McVeigh, Network Manager
Newry Institute

Benefits: Infrastructure for NI Education

- Integration of HE and FE sectors
- Other Education networks – Schools and Agric Colleges
- New education-related sites requesting to join
- Fosters Intra-regional, Cross-border, and Global Links
- Enriching the learning and teaching processes
- Promotes Virtualisation of Learning
- Regional Network, Ownership, and Agenda

Future Developments and Challenges

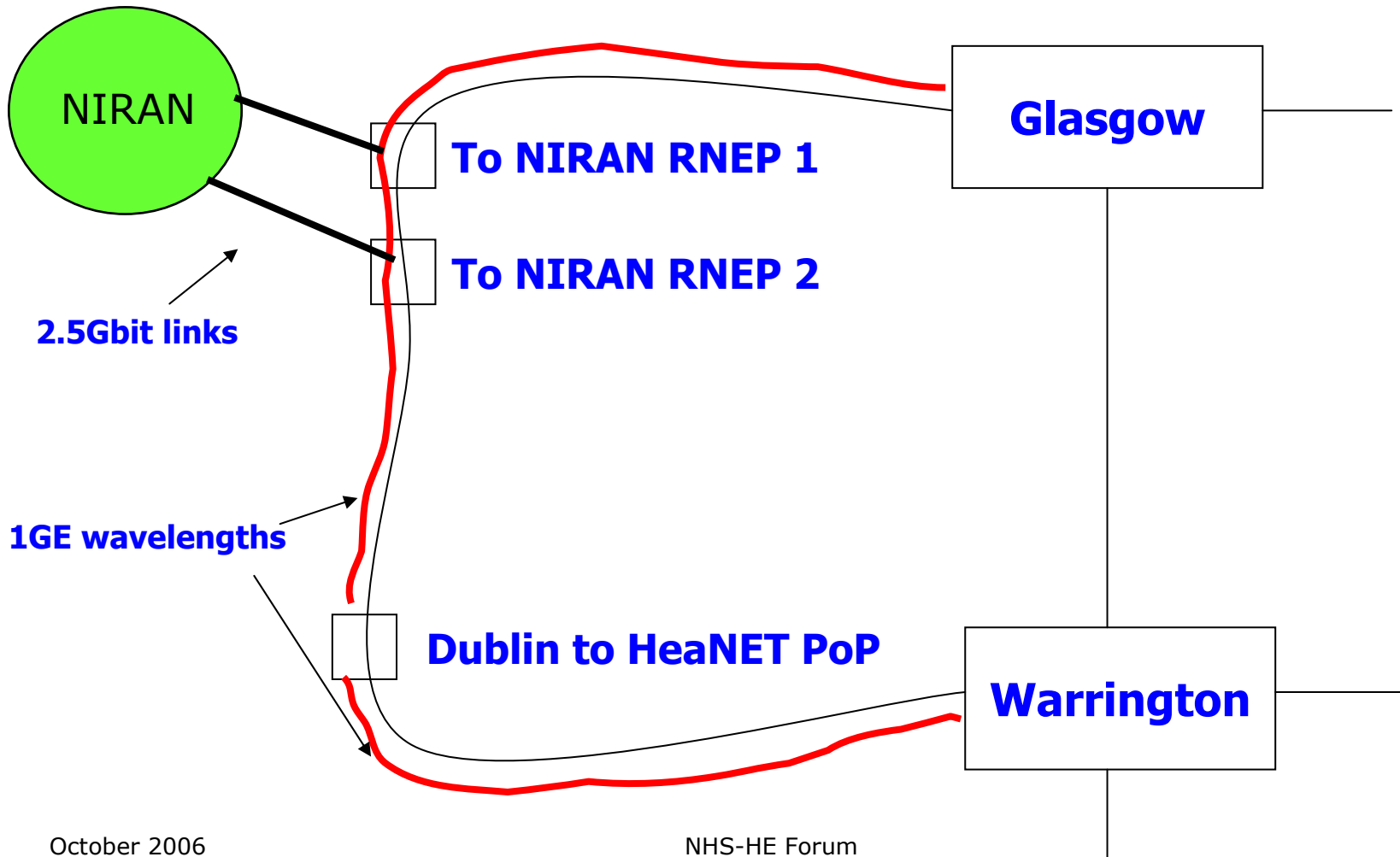
- **Reliability**

- Dual Entry Points to JANET and the Internet
- Internal Network resilience

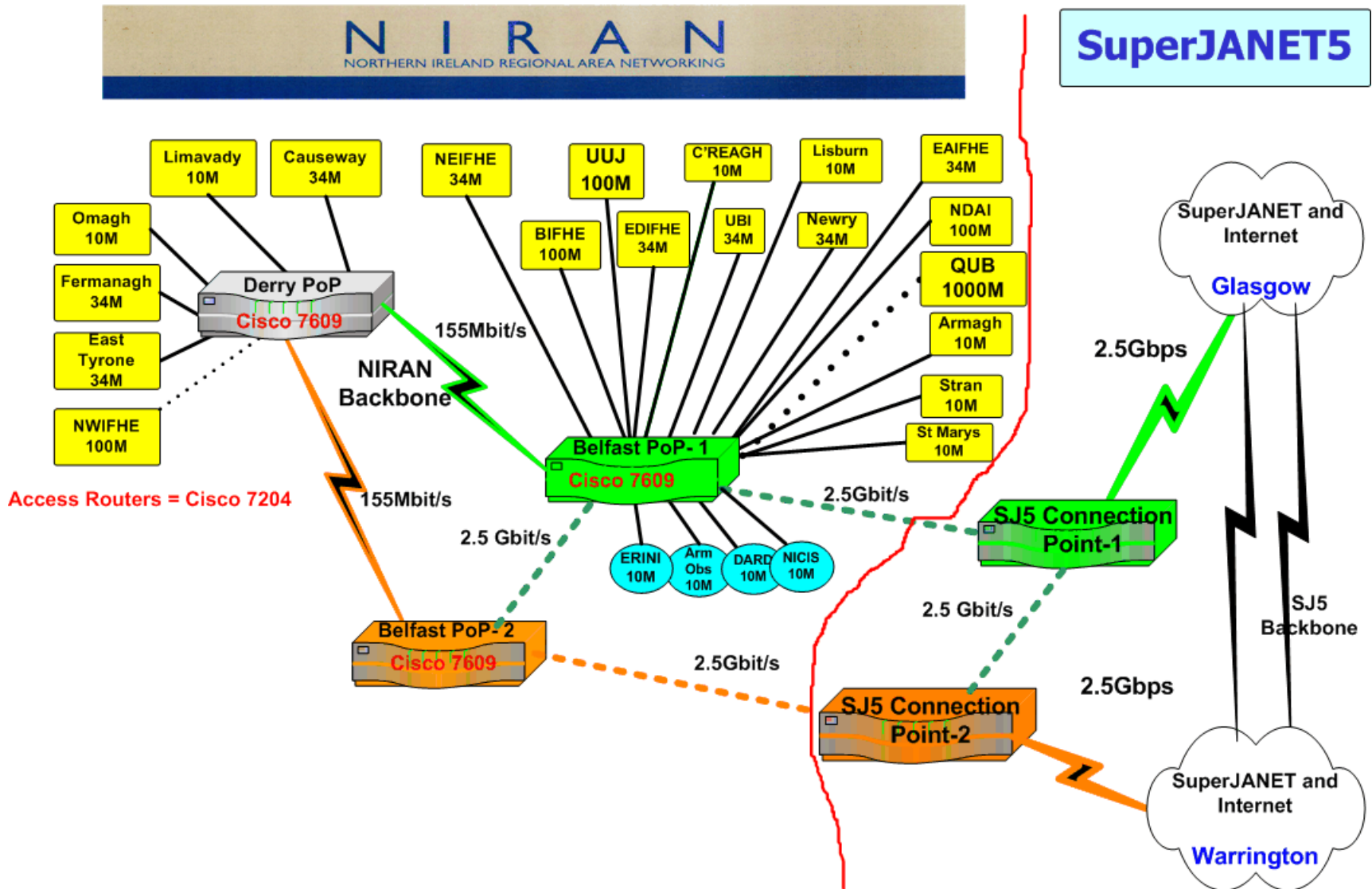
- **Cross-Border Developments**

- Belfast – Dublin Link
- North West link between NIRAN and HEAnet

Dual Entry Points to Internet



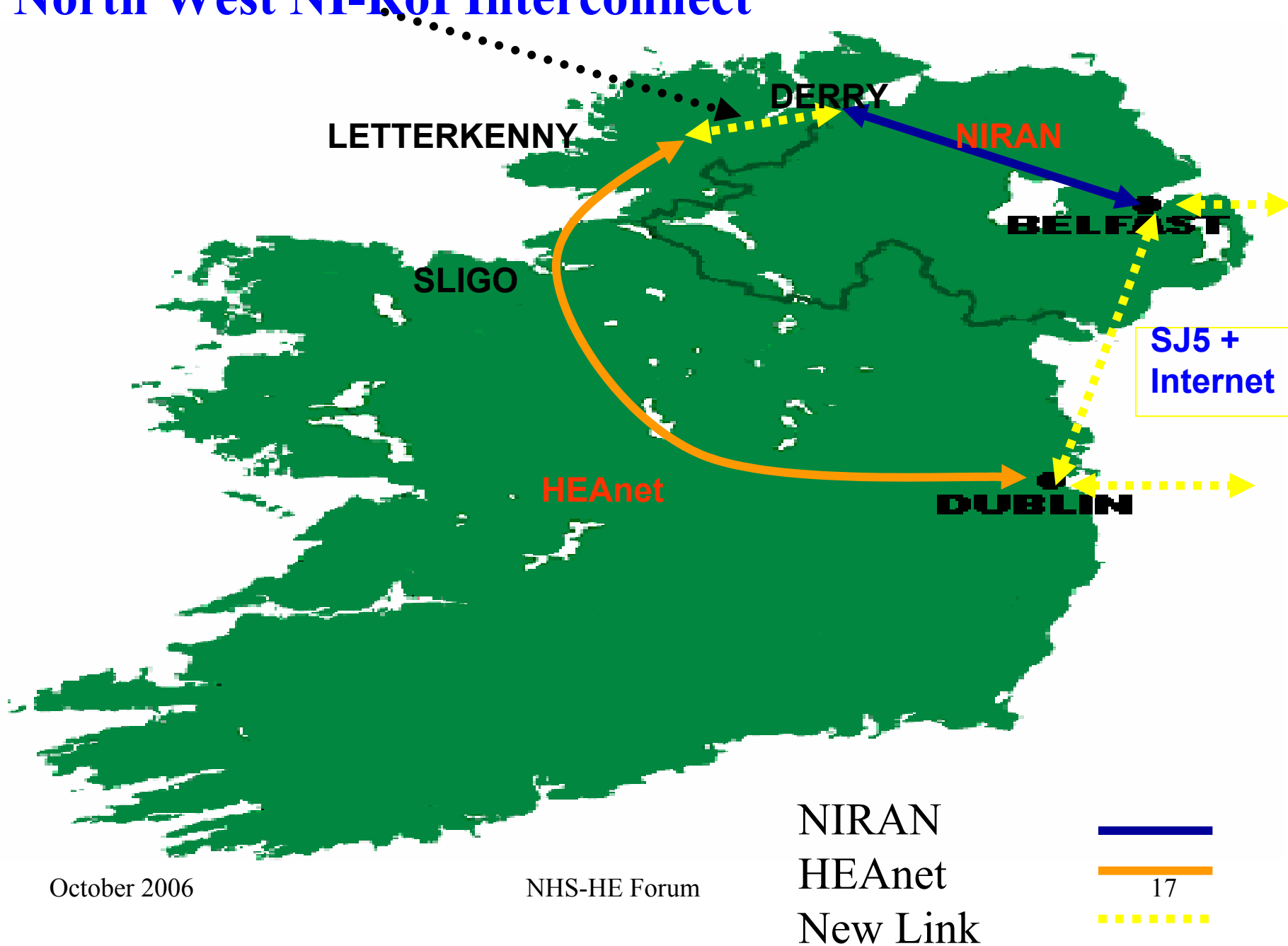
Dual Entry Points + Internal Resilience



North West NI-RoI Connection

- **Plan and Funding**
 - Project to connect NW parts of NI and RoI education
 - Collaborative action between NIRAN and HEAnet
 - Funding approved by DETI via EU INTERREG initiative
- **Specific Objectives**
 - 1G fibre link between NIRAN Derry and HEAnet Letterkenny
 - Improve collaboration in teaching, learning, research
 - Facilitate research and development collaboration
 - Develop new broadband based content in academia

North West NI-RoI Interconnect



October 2006

NHS-HE Forum

NIRAN
HEAnet
New Link

Résumé

NIRAN = regional computer network of 26 Ed & Research sites

- World-class future-proofed bandwidth: 10M, 34M, 100M, 1000M
- Contract with NTL for 3 Years [extendible to 5, i.e. 2009]
- Meeting 99.97% uptime on all circuits
- Funded by DEL + UKERNA + Colleges
- Network owned + managed by NIRAN Ltd

Future Challenges and developments

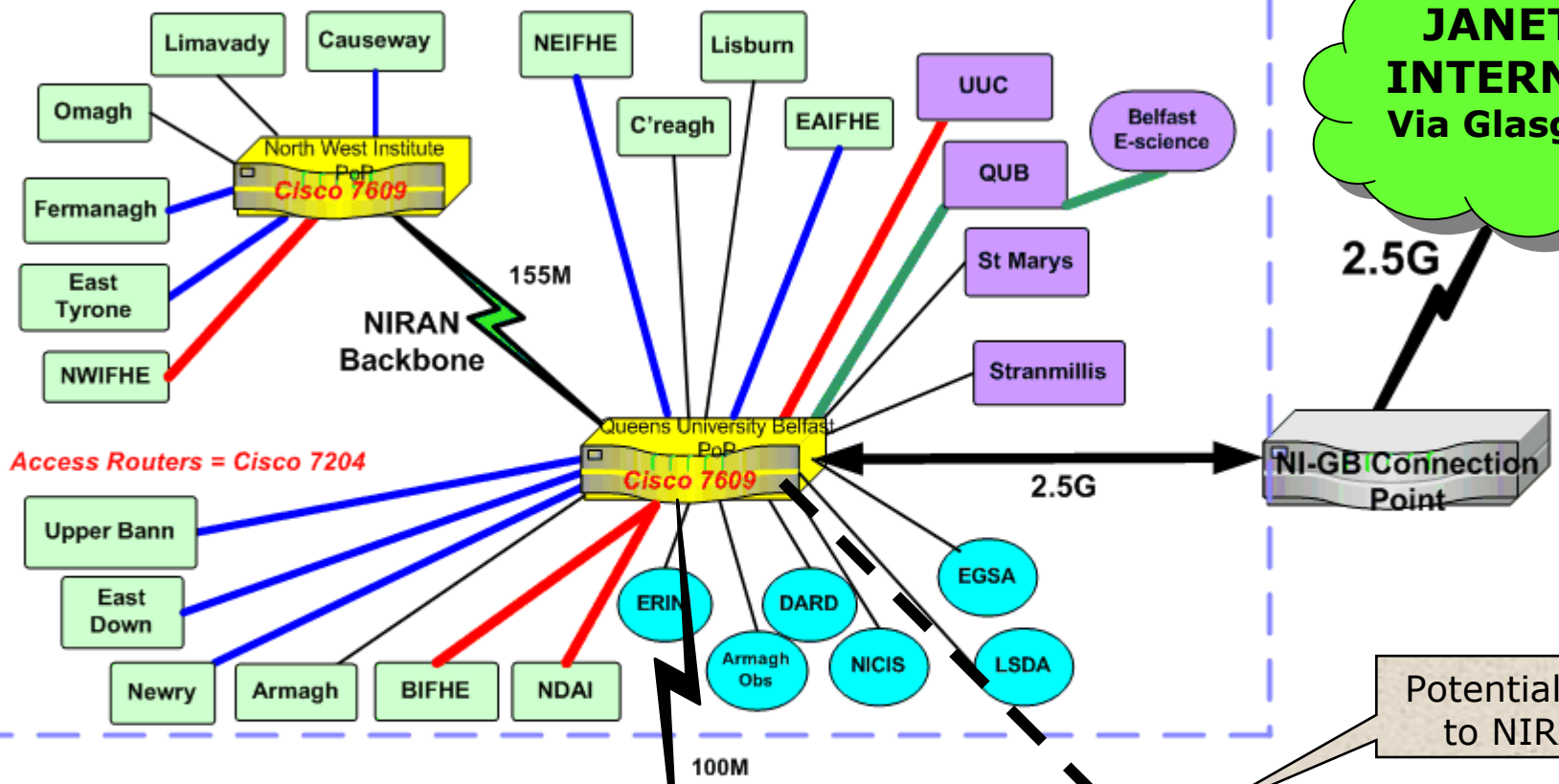
- Reliability via SJ5 Dual Entry Points to JANET/Internet
- Belfast – Dublin link
- North West NIRAN – HEAnet link

More Information at **<http://www.niran.ac.uk/>**

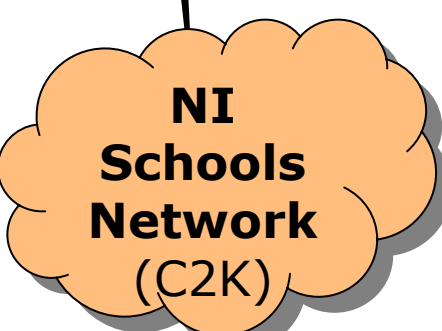
N I R A N

NORTHERN IRELAND REGIONAL AREA NETWORKING

SuperJANET



Access Routers = Cisco 7204



Potential Link to NIRAN

Bandwidth Key	
— (black)	= 10M
— (blue)	= 34M
— (red)	= 100M
— (green)	= 1G

Last Updated: October 2006