

The importance of bandwidth management and optimisation in research and education institutions

Strategies and priorities for action

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Past, Present, and Future of Research in the Information Society (PPF), 13-15 November 2005, Tunis
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The bandwidth challenge and solutions

- Challenge:
 - High value resource, high demand, difficult to significantly expand capacity
- Solutions:
 - More bandwidth and lower cost via local, national and international consortia
 - Better management of the existing resource
 - Improved access, no additional bandwidth costs
 - Combined approach (low cost + management)
 - Half price + double usable speed = quadruple access
 - Increased long-term sustainability
 - Bandwidth management and optimisation

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ATICS: "Improving bandwidth management is probably the easiest way for universities to improve the quantity and quality of their bandwidth for educational purposes."

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Bandwidth management

1. **Monitoring and management** of available resource
 2. **Optimisation** of the resource to ensure value for money and fitness of purpose
- Three key groups to ensure success:
 - Executive management
 - Senior implementation management
 - Technical staff involved in the day-to-day implementation

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Executive management roles in bandwidth management

- Leadership
 - Authority behind a decision or action is essential
- Supportive policy environment
 - Any developments must be sponsored and advocated
- Strategic direction
 - Bandwidth management needs to be integrated within the university policy

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Leadership and strategic direction

- How does bandwidth connectivity help to achieve strategic aims and objectives?
- What implications are there for policy, resources and priorities within the institution?
- How can the strategy be realised by actions and results?
- How can consensus be achieved and mobilised?
 - Changing working patterns may be unpopular

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Supportive policy environment

- Policy is an enabling element of higher education management
 - Some things are denied in order to make other things possible
 - Without policy it is impossible to manage key aspects of bandwidth use
 - Policies will need to restrict how bandwidth is used (and is unlikely to be popular if managed badly)
- Policy development must be consultative, supported and led from the top

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Leadership and accountability

- Successful implementation of bandwidth strategy can only be achieved by ensuring accountability:
 - Within the IT department
 - Within the user community
 - Within the executive management

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Resourcing

- Bandwidth management is a strategic priority
 - no institution of higher education can deliver on its mission without good connectivity
- Resources need to be identified to ensure successful implementation of bandwidth management
- Consider no expansion of connectivity until current resource is well managed

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The IT department as a resource

- The IT department must be adequately equipped and managed
 - appropriate IT governance
 - appropriate alignment of IT operations with institutional objectives
 - appropriate resourcing of IT staff and operations
 - appropriate benchmarking and explanation of bandwidth use

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Recommendations for senior management

- Make bandwidth management a priority
- Be safe (ensure safe Internet access)
- Respond to demands
- Encourage positive behaviour
- Monitor the IT team
- Give everyone an identity (user monitoring)
- Evaluate connection options regularly
- Join forces (collaboration with other institutions)

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Management seminars, training support and information resources to support bandwidth management capacity development

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What is available?

- Information briefing packs targeted at senior institutional managers and ICT professionals.
- Policy development workshops and training materials to support the development of supportive policy environments.
- Network traffic monitoring and analysis workshops, training materials and software tools.
- Community portal for resource distribution and online information exchange.
- Network control and network traffic shaping workshops, training materials and software tools.
- Content caching and filtering and authentication workshops, training materials and software tools.
- Standalone training and documentation resources in bandwidth-friendly Email service provision and scheduled download strategies and techniques.

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When and where?

- Seminars and training will be run at national and local level in:
 - Ethiopia, Ghana, Kenya, Malawi, South Africa, Tanzania, Uganda, Zambia, Zimbabwe
- Regional events for francophone Africa:
 - Rwanda, Senegal, Cote d'Ivoire, Congo and at least one other country
- Timetable
 - Pilot workshops held in October and November 2005, further workshops after this every 1-3 months

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Institutions and NRENs getting involved

- NRENs (where they exist) could host a regional, national or local seminar or workshop events
- Institutional representatives participating in the seminars or training workshops
- Providing additional support to extend the programme beyond the current funding boundaries
- NRENs would seem ideal holders and facilitators of this information
- Technical partners involved in software tool development

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Further information ...

- More information on the Bandwidth Management and Optimisation programme can be found in:
 - *Optimising Internet Bandwidth in Developing Country Higher Education*
In print and also online: <http://www.inasp.info/pubs> in English, French or Spanish
 - <http://www.inasp.info/training/bandwidth/>
More information about the entire support programme, workshops, resources and publications

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Thank you

Further information on bandwidth management and optimisation:

<http://www.inasp.info/bandwidth/>

The bandwidth management and optimisation programme is supported by:
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