Preparing the future – Managing and funding the e-Infrastructures

Matthew Scott – DANTE

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Matthew.Scott@dante.net

Future Developments in Pan European Networking

- User networking requirements are changing
  - Centralised large scale ‘big user’ projects – where and when?
  - Distribution of computer resources across Europe – need scalable dynamic networks
  - Connectivity to ‘hard to reach’ locations- digital divide will improve but may not disappear
- User expectations
  - will become more demanding
  - Prefer to leave it to the specialists
  - Reliability: 4 ‘nines’ Service level (99.99% availability)

- Technical developments MUST continue
  - Breaking technological barriers
    - *Enabling researchers to do more across networks*
    - *Keeping up with traffic growth*
  - Providing innovative new services at point of demand and just before/when needed
  - Multidomain issues/interoperability

Strategy:
GEANT SERVICE *AREA*

- **A**ccessible
  - *Digital divide issues not just about equal opportunity but also maximises research potential*
- **R**eliable
  - *High availability and Low contention - able to cope with both everyday and exceptional demands and*
  - *Be 'always there'*
  - *Stable Structural/governance structures are also vital*
- **E**ase of use
  - *Complexity can be a barrier – interoperability is vital*
  - *Consistent user interface, Common access policies and Standardisation – Coherent proposition*
- **A**ffordable
  - *Common shared solutions will leverage Economies of scale*
  - *Common fully centrally funded resource or (partially) funded by users at point of use? Different solutions may be applicable*
  - *Extra costs of using e-infrastructures sometimes not foreseen in early budgeting plans of users*
    - *Do the users assume it will just be there and 'free' to use?*

Governance model

- DANTE is a not for profit co-operative wholly owned and managed by NRENs
- Some developments foreseen in:
  - inclusiveness : easier to be member of DANTE
    - *currently company has shareholders*
      - *useful for set up capital/cash injection*
      - *can be a barrier for membership as some partners are not allowed to hold shares in company*
      - *Plan to restructure membership*
  - efficiencies: ensuring efficient and clearer procedures for decision making

Funding model

- Long term funding strategy of NRENs for GEANT expressed by ownership and management not by long term service contracts with DANTE
  - DANTE takes a commercial risk but this is on behalf of its stakeholders
    - *Commitments to 3rd parties very rarely match commitments in from stakeholders*

- Long term co-funding strategy by EC (roughly 50%) on four year project funding basis
  - justified according to EC Project assessment criteria
  - But Networking is generally accepted as a Necessary Infrastructure

- Not ideal for longer term commitments and investments (eg in underlying long term assets such as fibre)….still it is manageable and has very successful track record

- Cost sharing of GEANT network cost uses a complex model that several factors takes into account eg
    - *Usage (IP access speed, numbers of dedicated circuits)*
    - *Uneven cost distribution across Europe (bridging digital divide)*