Green
A "Hot" Topic

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Does "Green" matter (to TERENA)?

- Green impacts R&E "e-Infrastructure"
  - Cost (of energy, facilities, cooling, sites)
  - Increasing complexity of equipement, sites
  - Public policy, CO2 footprint
- TF Storage
  - Work Item on power issues
  - Discussion: how much to include, and is this better handled in a separate TF?

Is "Green" Real

- Yes – not all hype
- Commercial "zero-carbon data centres" are being built today
  - "Greening the datacentre" sales pitches
  - Moving to (renewable) energy sources
- "The UK IT sector" has a larger CO2 footprint the the UK aviation sector
- Power is already a dominant cost for computing resources

Approaches

- Cost
  - As energy consumption grows, power becomes the dominant cost

- Policy
  - Be ready for the regulators

- Responsibility
  - As the R&E community we have a responsibility to show the way

- Opportunity
  - A chance to create something new?

Cost

- The pragmatic approach
- Power a dominant cost
  - For a compute cluster with a three-year lifetime, power cost as much as hardware
- power consumption grow with switching speed
  - Heat problems, increasing site cost, increasing opex
- How can cost be kept under control?

Policy

- "CO2 footprint" is becoming an issue with policy makers

- A "green profile" may be important to some organisations in the (near) future

- We may be asked to document our CO2 footprint (and steps taken to reduce it)

Responsibility

- Environmental issues, climate change, etc. is a widespread concern
- Does the R&E community have a special responsibility to respect that?
- Does the IT & Internet community?
- Do we have a role in creating awareness and demonstrating what can be done?

Opportunity

- Can we point to
  - …better technologies (all optical?)
  - …ways of reducing CO_2 footprint through better use of existing technology (i.e., is switching at L2 more power efficient than L3?)
- European collaboration?
  - Reduced CO_2 footprint and/or lower cost
- Is there a proactive role for NRENs?

A TERENA contribution?

- Documenting current state of NRENs, campus networking, campus IT
- Documenting best practice
- Documenting current policy
- Recommentations, guidelines, whitepapers
- Pursue opportunities – technology and policy

TF or Across the Board?

- A TF to focus on green issues
  - Pro: Have experts consider the topic, focused effort
  - Con: may get disconnected from technical efforts
- As TF's to include "green"
  - Pro: will be topical
  - Con: effort could lack coordination, focus. Also, possibly not the right people for the tasks

A TERENA effort?

- Pro
  - Current, important, has attention
  - A two-year effort could cover a lot of ground
- Con
  - Not particular to networking
  - Overlap with efforts of other communities (i.e., HPC)?