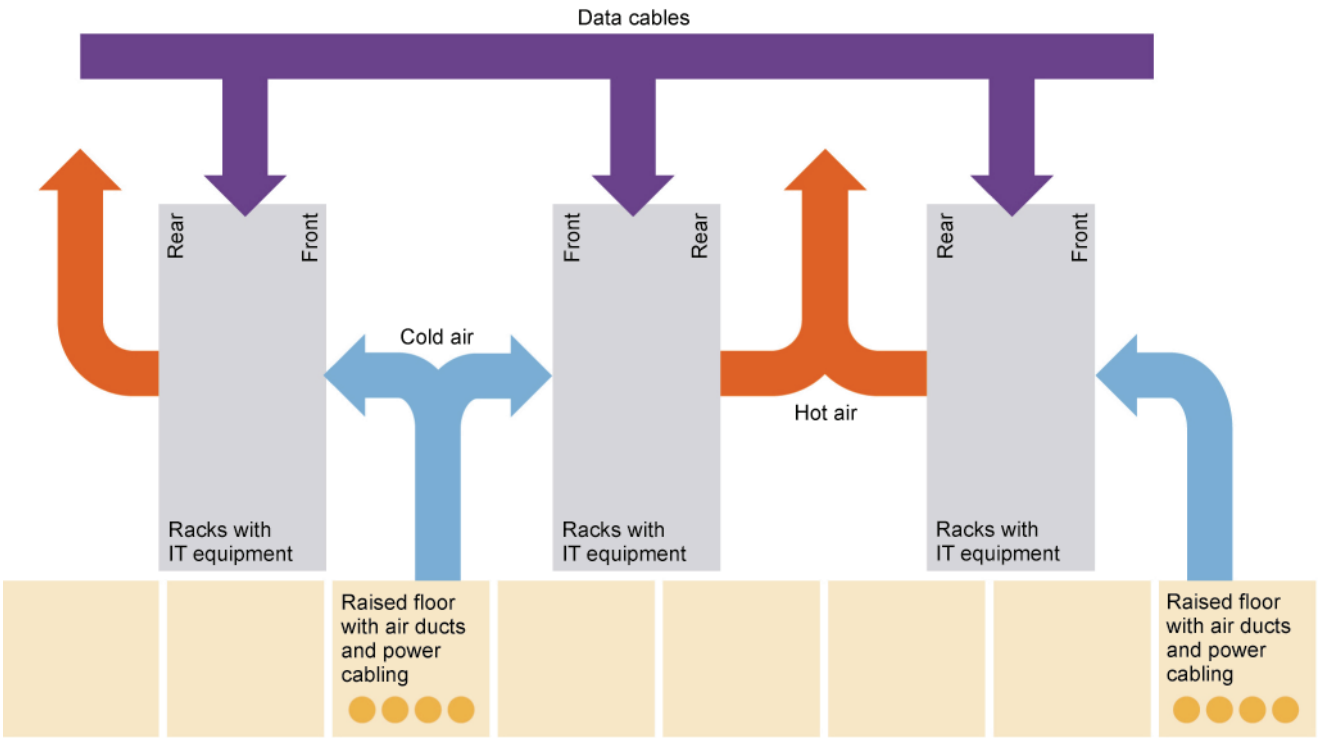
Green Sustainable Data Centres

Course and Project Summary



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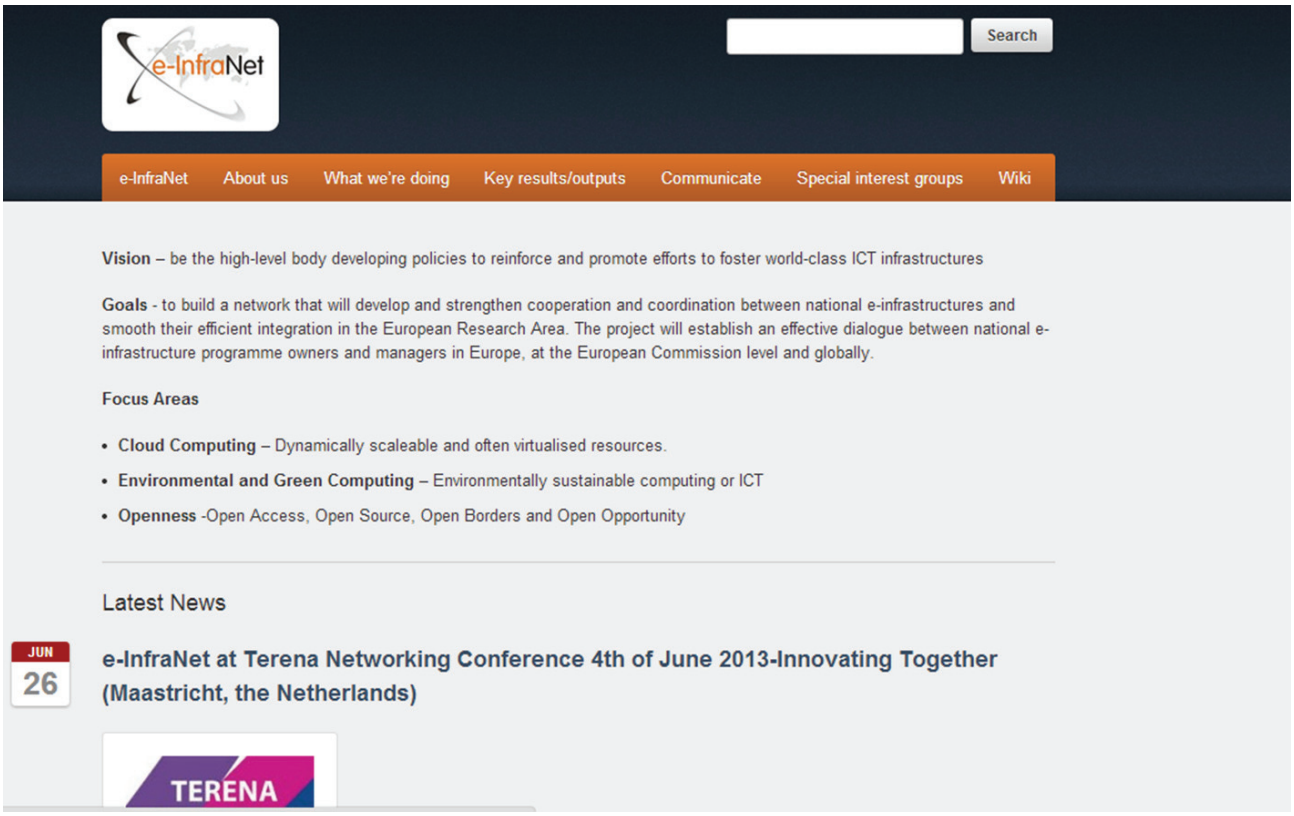
e-InfraNet

- FP7 project, 2010-2013, http://e-infranet.eu
- **Vision** – be the high-level body developing policies for e-Infrastructures
- **Goals** - strengthen cooperation and coordination between national e-infrastructures for efficient integration in the European Research Area.
- **Focus Areas:**
  - Cloud Computing
  - **Environmental and Green Computing**
  - Openness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Vision – be the high-level body developing policies to reinforce and promote efforts to foster world-class ICT infrastructures
Goals - to build a network that will develop and strengthen cooperation and coordination between national e-infrastructures and smooth their efficient integration in the European Research Area. The project will establish an effective dialogue between national e-infrastructure programme owners and managers in Europe, at the European Commission level and globally.
Focus Areas
Cloud Computing – Dynamically scaleable and often virtualised resources.
Environmental and Green Computing – Environmentally sustainable computing or ICT
Openness -Open Access, Open Source, Open Borders and Open Opportunity
Latest News
JUN
26
e-InfraNet at Terena Networking Conference 4th of June 2013-Innovating Together (Maastricht, the Netherlands)
TERENA

EISTER

- **e-I**nfranet **S**ustainability **T**raining **and E**ducational **R**esource
- E-InfraNet Open Call, project 15.08.2013 – 15.01.2014
- Educational programme on green sustainability of ICT
- Specifically aimed at meeting the education and development needs of the community of data centre and IT professionals who will develop, support and maintain the physical reso h comprise the e-Infranet

Partners

- Leeds Beckett University, UK
- Riga Technical University, Latvia
- University College Dublin, Ireland
- Open Universiteit, the Netherlands
- Kajaani University of Applied Sciences, Finland
- University College of West Flanders, Belgium
- IST – Universidade de Lisboa, Portugal
- CénitS Trujillo and University of Extremadura, Spain

The course

- Aim: To provide e-Infrastructure professionals with the knowledge and skills needed to perform a sustainability audit and prepare a strategy to update the Data Centre.
- Based on the EU Code of Conduct on Data Centres
- Allows you to conduct an audit of your Data Centre according to the CoC
- Explores
  - the background to the field
  - Measurements
  - Standards / best practice

The course as OER

-

http://portal.ou.nl/web/green-sustainable-data-centres

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Learning Outcomes

- On completion of this course, students should be able to:
  - Understand the place of the data centre in the overall carbon footprint of IT provision
  - Select, plan and conduct suitable measurement methods to assess the environmental performance of a data centre
  - Make decisions informed by those measurements to modify the behaviour of the data centre to reduce its environmental impact
  - Apply relevant national and international standards, policies and recommendations to their place of work.

Highlights of the Course Project

- On completion of this project you will be able to:
  - Understand the role and purpose of the EU CoC
  - Describe the composition of a typical data centre
  - Show how that composition offers both opportunities and challenges to sustainable operation
  - Understand the measurements required for an audit
  - Carry out an audit according to the CoC
  - Suggest measures to improve sustainability

Course structure

- 13 weeks in total
- 125 hours of study (nominal) 5 ECTS
- Distance learning, supported by workbooks
- Workshop visits to example data centres
- Final assessment a course project:
  - Present a data centre audit according to the CoC
  - Suggest measures to improve sustainability

Course schedule

Week	Topic	Other activity	Workload (hours)
1	Introduction to Programme - Workshop	Study Guide	6
2	Introduction to Green IT		12
3	Data Centre Facilities		8
4	IT Equipment		6
5	Operating Systems & Virtualisation	Homework 1 and test	6 + 3
6	Measurement and Control		12
7	Data Centre Infrastructure Management	Homework 2 and test	12 + 5
8	Roadshow Workshop		10
9	Legal and Regulatory Framework		10
10	Greening by ICT	Homework 3 and test	10 + 5
11 & 12	Course Project/Case Studies	Building up from homework 1-3	12
13	Final Workshop	Presentation and defence	8
	Total		**125**

How to study…

- Introductory Workshop
- The Study Guide
- 3 Homeworks
- Roadshow Workshop
- Course project and Final Workshop

Conclusion

- This is an Introductory course for Master of Science
- MSc. Courses in Dublin and Leeds
- Projects Pedca etc.
- We aim to develop a full Master of Science course
  - 60 ECTS
  - Blended learning
  - Specialisation in
    - Strategic
    - Technical
    - Greening by IT

We wish you a pleasant learning!