

NRENs in Europe

Whales versus minnows

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Europe has some of the oldest NRENs

- For example, JANET (UK) was originally established as SERCNET in 1977.
- Collaboration between NRENs across (Western) Europe since 1985 (and across the whole of Europe since ~1991).
 - embedded as the TERENA organisation and the GEANT network.
- Therefore, network use has been ingrained among scientific researchers in Europe for a generation.
 - less clearly so in non-technical disciplines
 - nevertheless, NRENs serve international research programmes and national education programmes
 - research and teaching now unthinkable without NRENs

Whales vs minnows (1)



SWITCH (Switzerland)
SURFnet (Netherlands)
CARnet (Croatia)

....

Agile, innovative

JANET (UK)
DFN (Germany)
RENATER (France)

....

Longer term approach



Whales vs minnows (2)

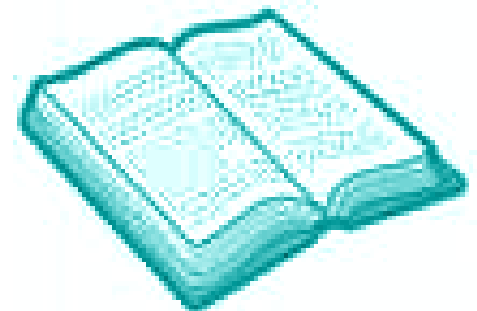
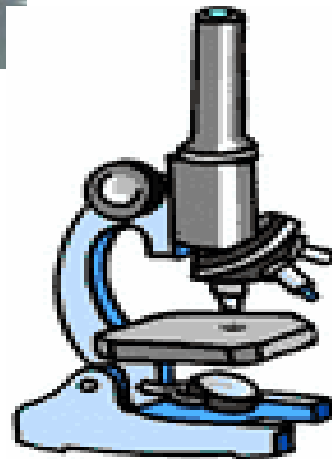


Big Science

- Massive experiments
- Massive data sets
- Massive budgets
- Volunteer to use bleeding edge solutions
- Very international
- Very pushy

Other disciplines

- None of the above apply
- But just as important



Best tactics for the minnows

- Be innovative - there is no reason to be a follower
- Don't be pushed off course by a noisy whale
- NRENs should focus on services for the smaller users; the big ones tend to look after themselves
- Focus on collaboration with other minnows
 - Synergy between disciplines and applications
 - Synergy between NRENs of similar size
 - Team up to connect to other regions

Three layers of collaboration have proved necessary

- Layer 3
 - Europe started organizing continent-wide and trans-Atlantic interconnection in 1987
 - Today, GÉANT2 interconnects 34 countries at up to 10Gbps (+ dark fibre)
- Layer 7
 - European science quickly took up grid computing, and started innovating (gLite instead of Globus)
 - Today, EGEE spans 45 countries and LCG (dedicated to high energy physics) will handle 15 petabytes of data per year.
- Layer 8+
 - TERENA federates NREN activities across Europe
 - DANTE operates network infrastructure across Europe

Pointers

Layer 3

- <http://www.geant2.net>

Layer 7

- <http://www.eu-egee.org>
- <http://lcg.web.cern.ch/LCG/index.html>

Layer 8

- <http://www.terena.org>
- <http://www.dante.net>