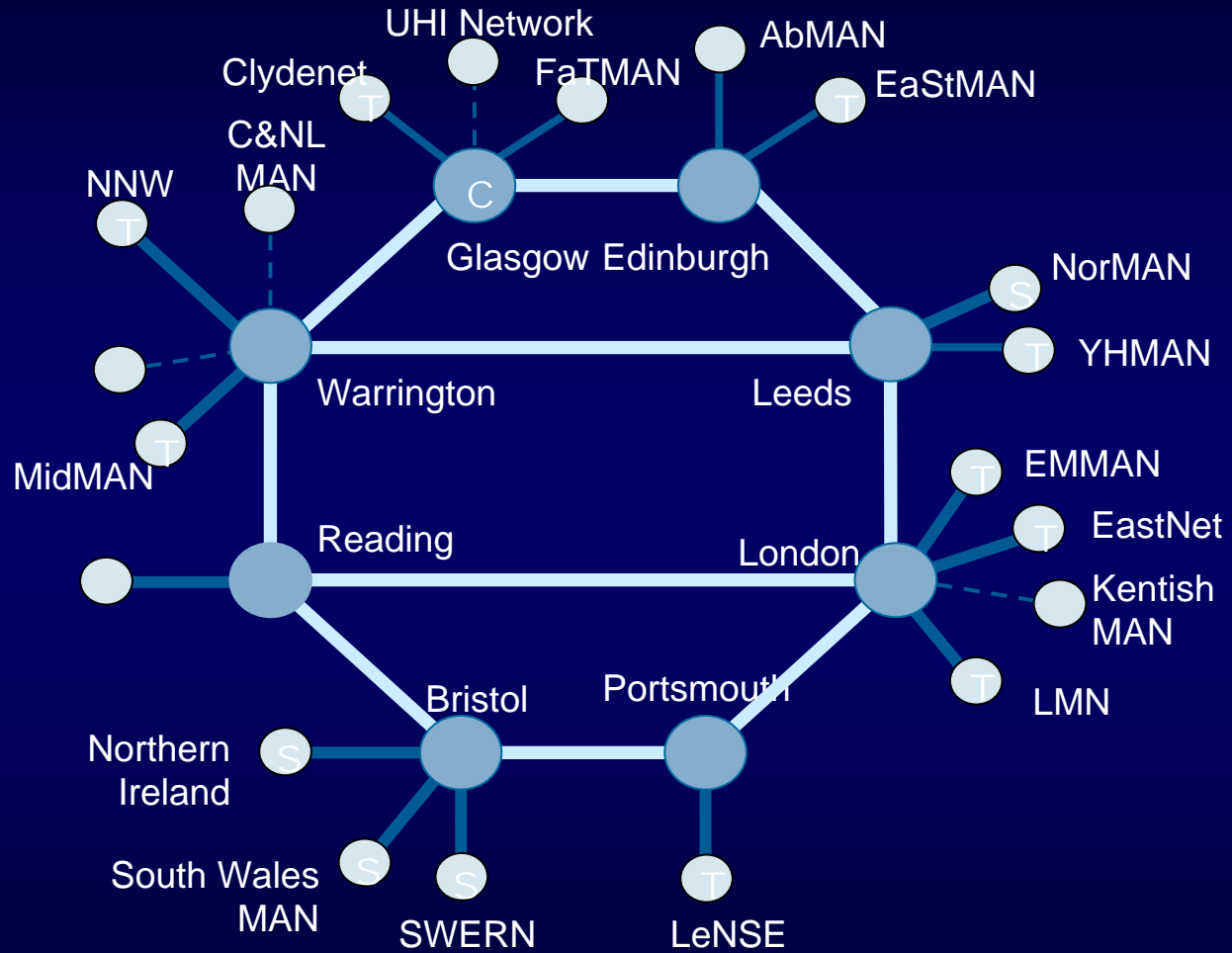


# Networks For Non-Networkers

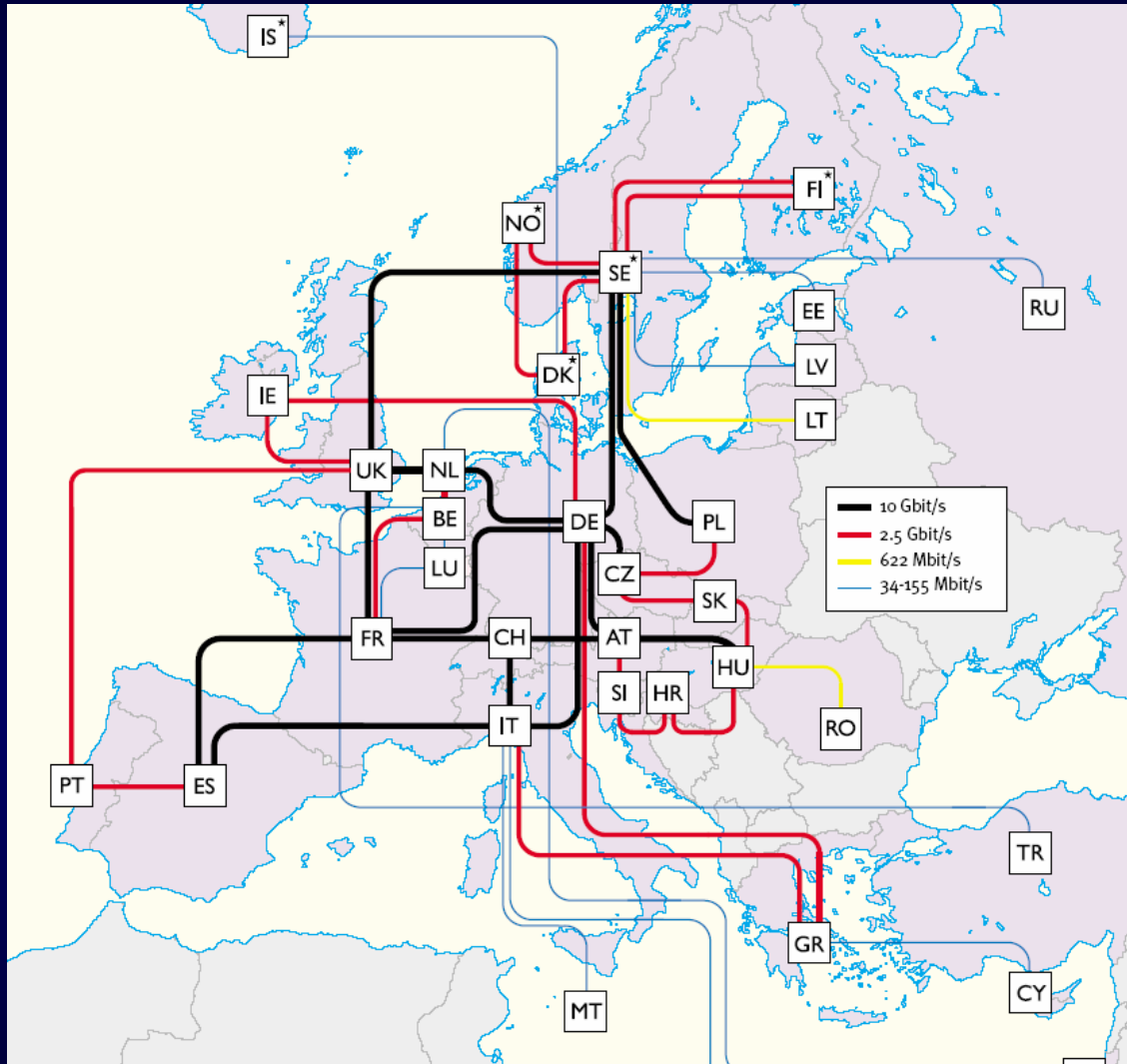
# SuperJANET

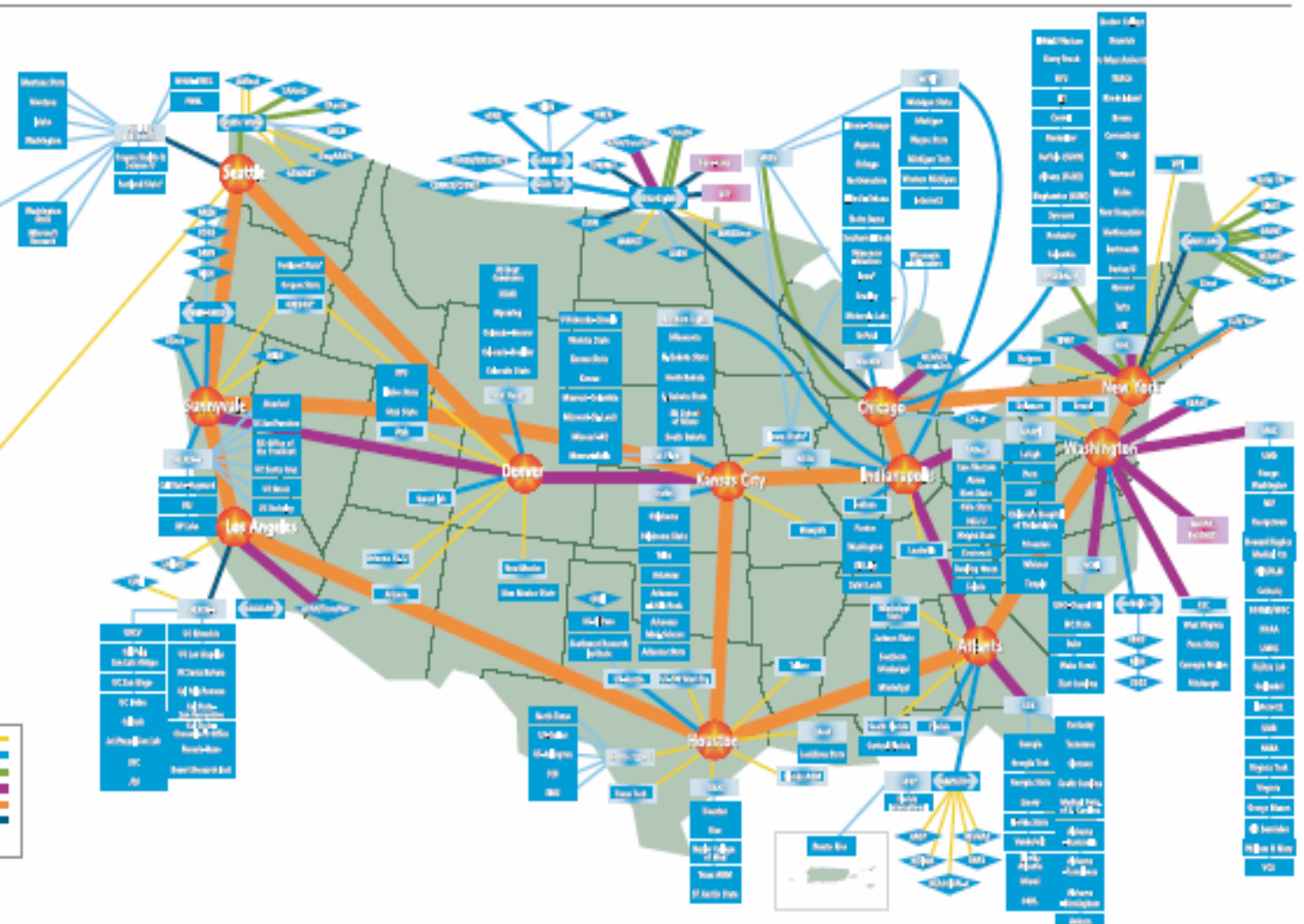
10 Gbit/s backbone

1 - 2.5 Gbit/s access links



# Europe : Geant

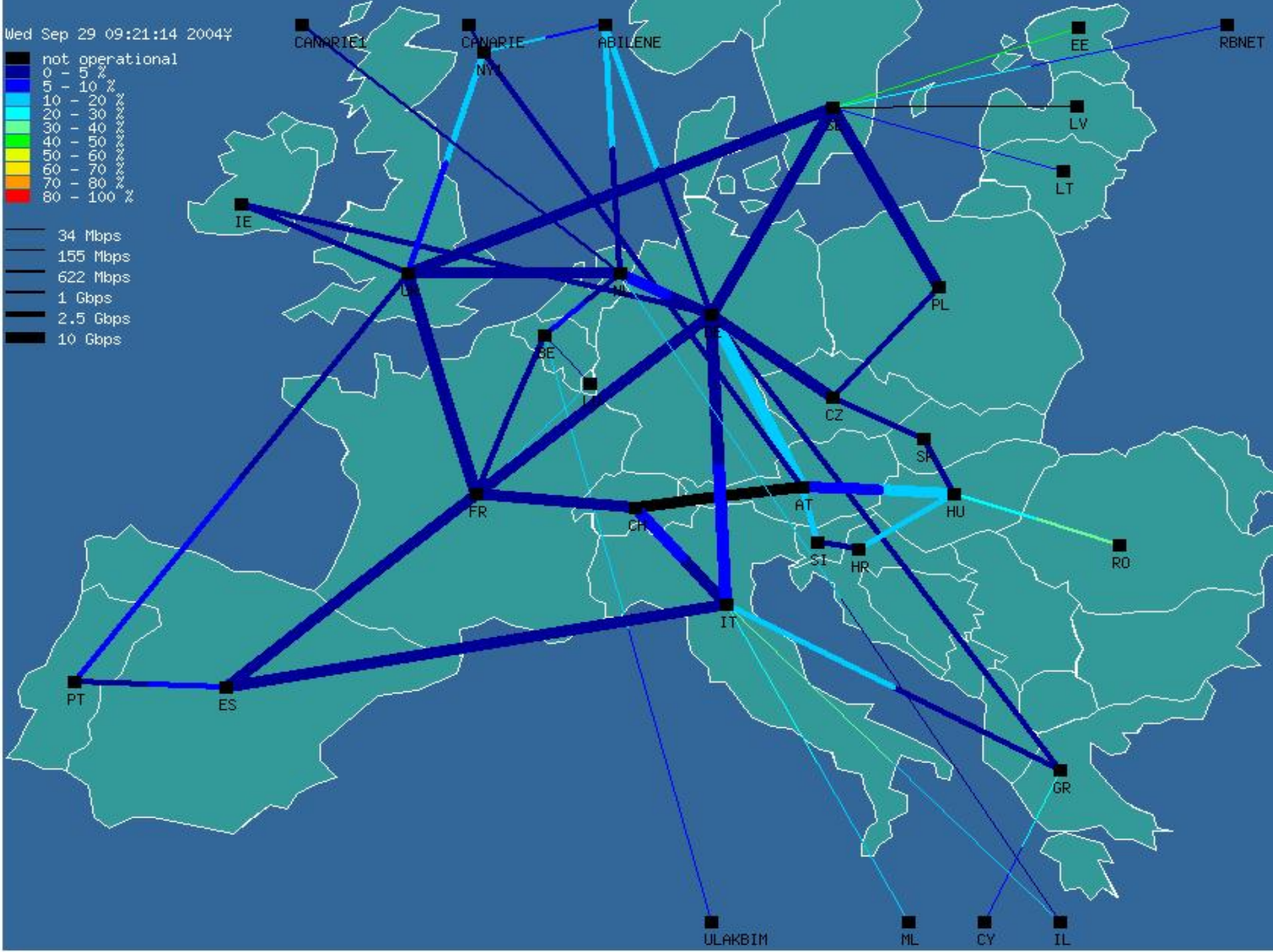
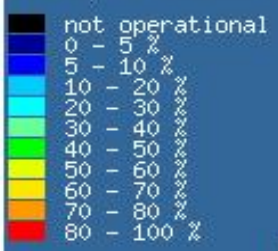




- Abilene Core Nodes
- Abilene Core Links
- Abilene Participants
- Participant Peering
- Participant Interconnect
- Abilene Core Nodes (Secondary)
- Abilene Core Links (Secondary)
- Abilene Participants (Secondary)
- Participant Peering (Secondary)
- Participant Interconnect (Secondary)

10 Gbit/s core  
... but ...

Wed Sep 29 09:21:14 2004



FTP only gets 30 Mbits/s ..the networks crap..

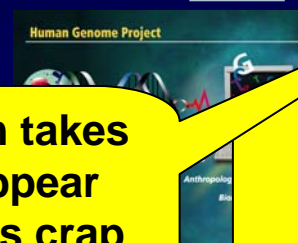
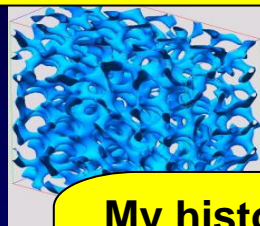
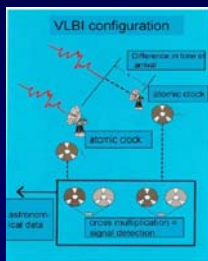
The best we can get is 100 Mbit/s ..the networks not good enough

We cant do visualisation ..the networks unreliable

My histogram takes 5 mins to appear ..the networks crap

We cant replicate our databases ..the networks not good enough

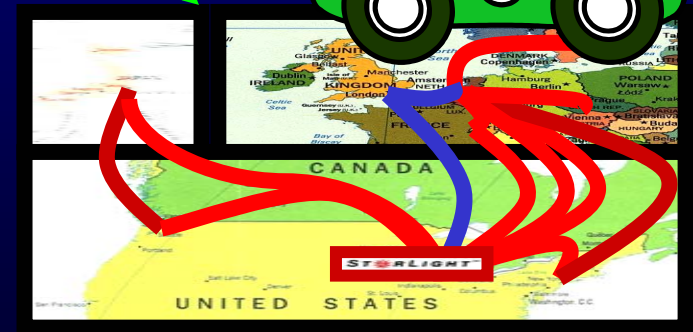
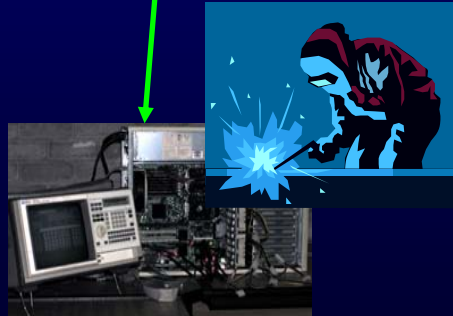
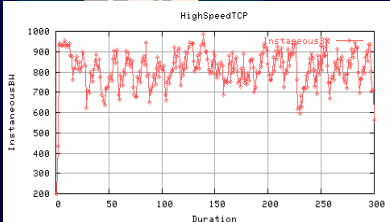
NETWORK



Hey – I can get 1 Gbit/s with my new TCP stack  
The networks great

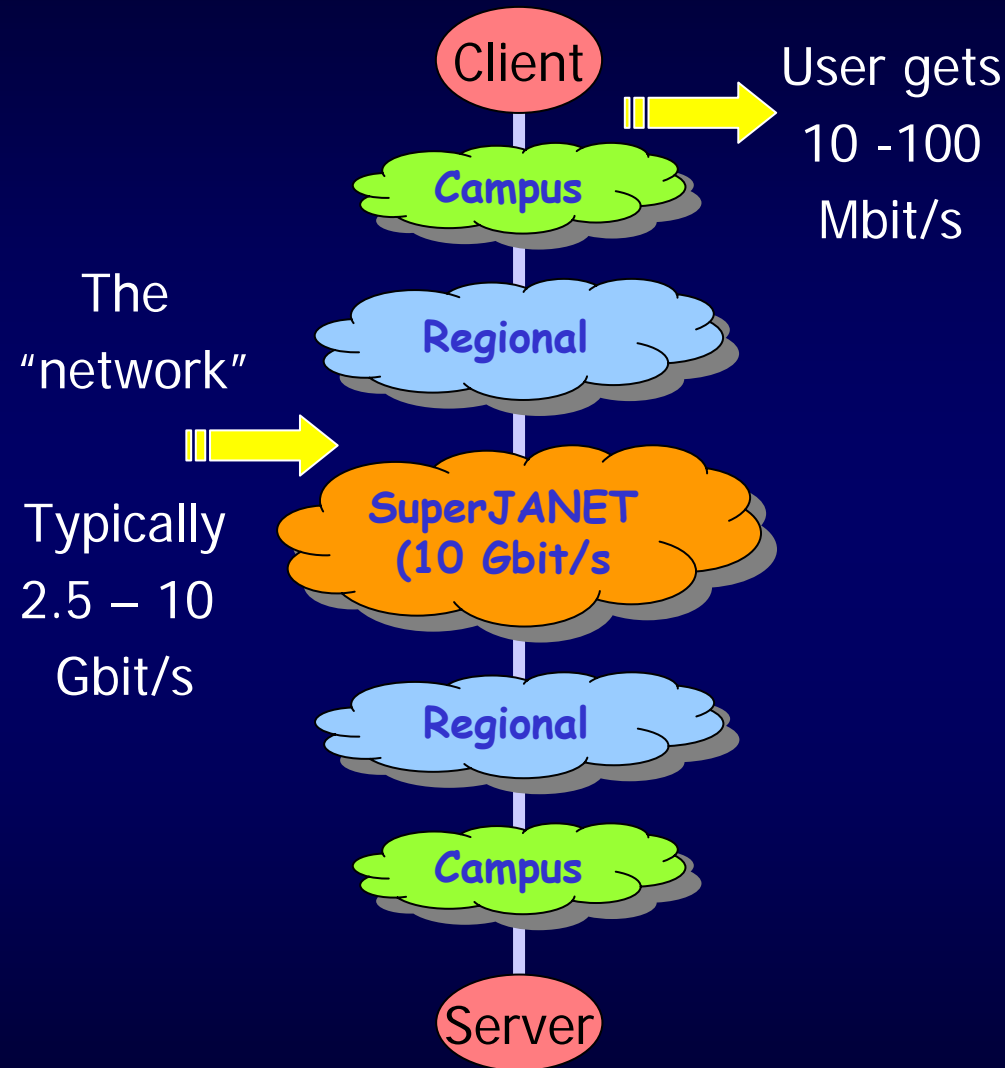
Look – with my sooped-up server I can get 500 MBytes/s onto disk-to-disk  
The networks great

We just beat the land speed record with 100 Gbits/s  
The networks great



CCLRC ATLAS Centre





Issues are:

- TCP - the internet workhorse
- Servers
  - Disk I/O
  - Network Cards
  - Architecture
  - OS
- Local network and firewall

Note: To 1<sup>st</sup> order the wide area network is not the problem

Mission of this workshop (1):

To bring together

The user community who need networks

(to run their facilities and do their science and research)

and the

Network oriented community

(who push networks)

To

Help users to not be limited by  
(or perceive themselves to be limited by)  
the network

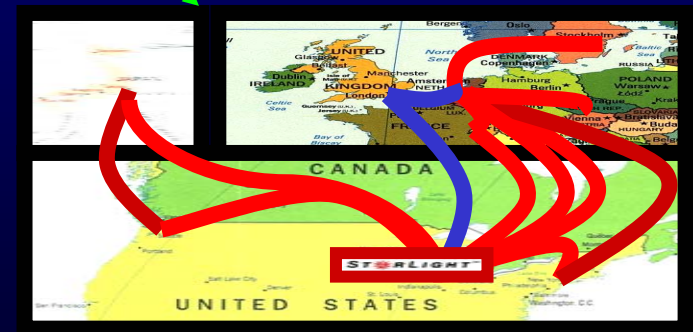
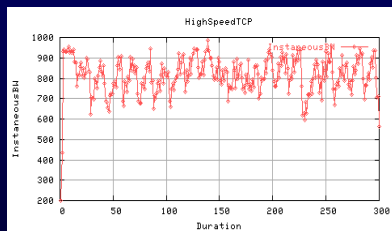
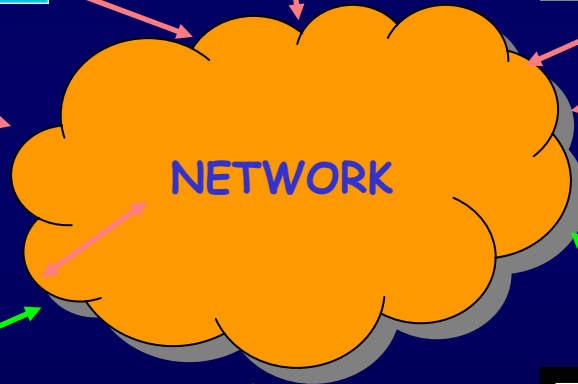
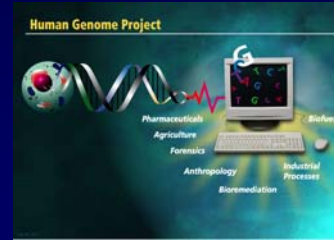
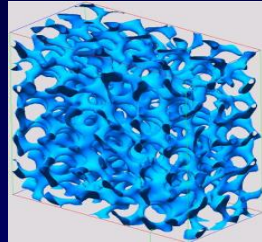
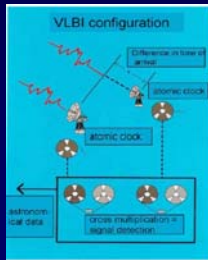
## Mission of this workshop (2)

Even more simply put:

This is meant to be useful to users

It is not an expose of network R&D

Thanks to many, and  
Particular thanks to  
Mark Leese (CCLRC-Daresbury)



CCLRC ATLAS Centre

20-June-2005 NeSC

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Time →

Hope to have convinced you that

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- In “betting order” the most likely source of limitations are
  1. The end hosts (OS, architecture, disks, TCP...)
  2. The end host application itself.
  3. Some local network limitation (switches...)
  4. Firewall
  5. And only then the WAN

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- ..but ... that there is no single “cook book fix”, but that application engineers need to work with network people to understand and mitigate the limitations within a particular context
- There are lots of diagnostic tools you can use to help