

TERENA Networking Conference
7-10 June 2004
Rhodes, Greece

GÉANT 2: A NEW APPROACH TO NETWORKS

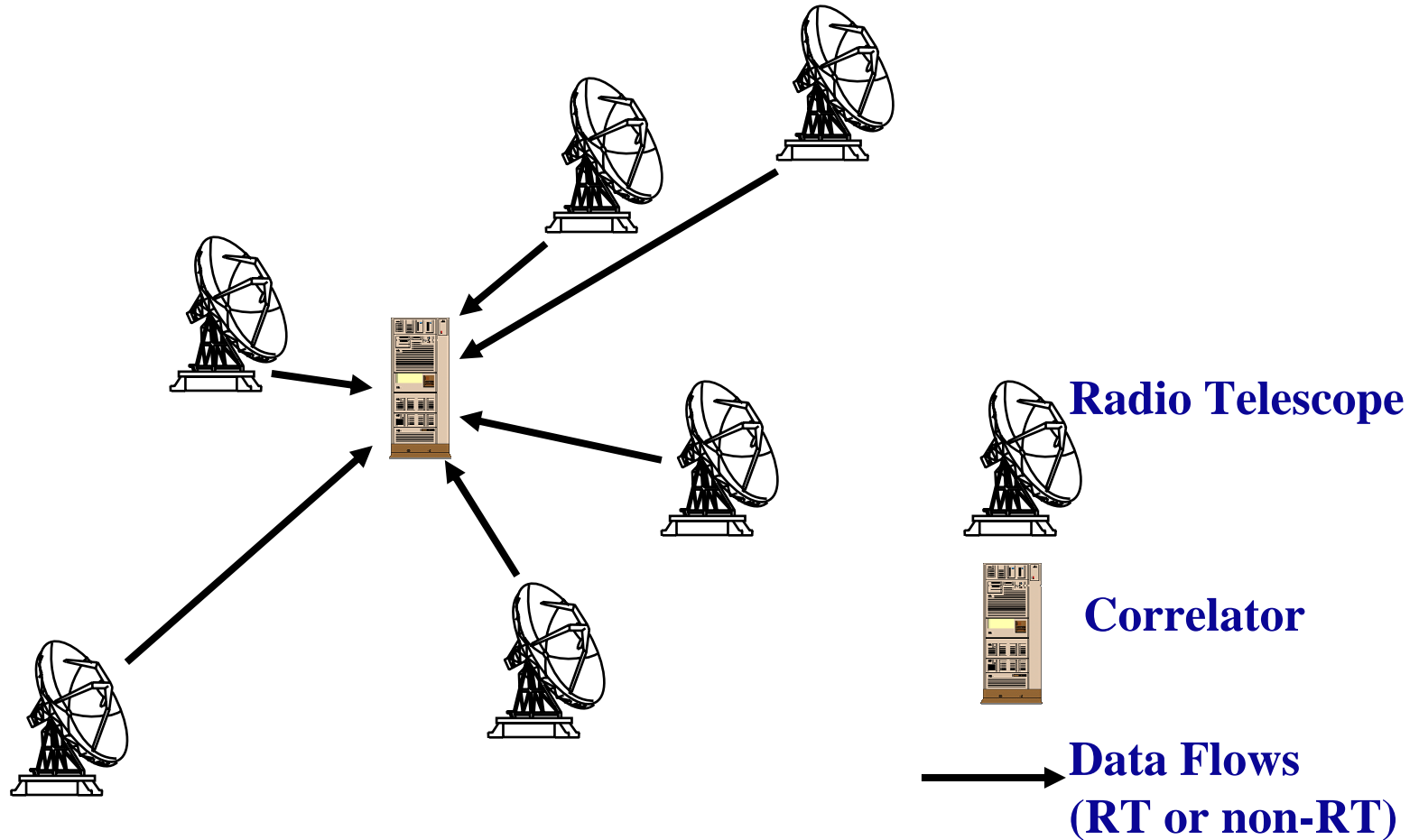
Research Networks

- **By definition**
 - High bandwidth
 - Specialized applications (GRID, high speed FTP,...)
 - Multi – protocol (IPv4, IPv6)
- **International**
- **Innovative**

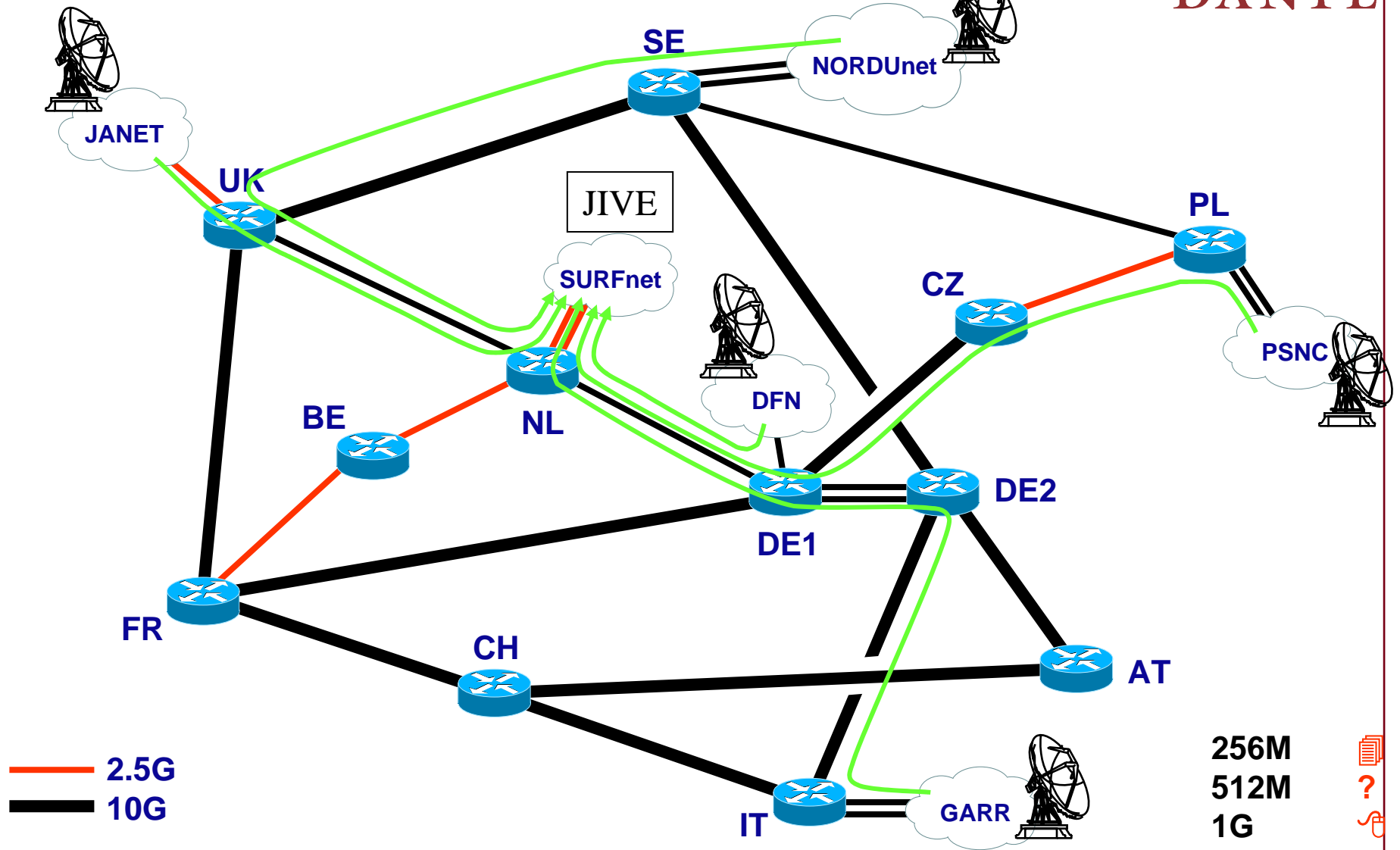
GÉANT 2

- **IP connectivity for NRENs - yearly growth 2x to 3x**
- **High bandwidth for special applications**
- **Services for GRIDs**
- **Establish customer empowered networks**
- **Responded to the expectations of the community**

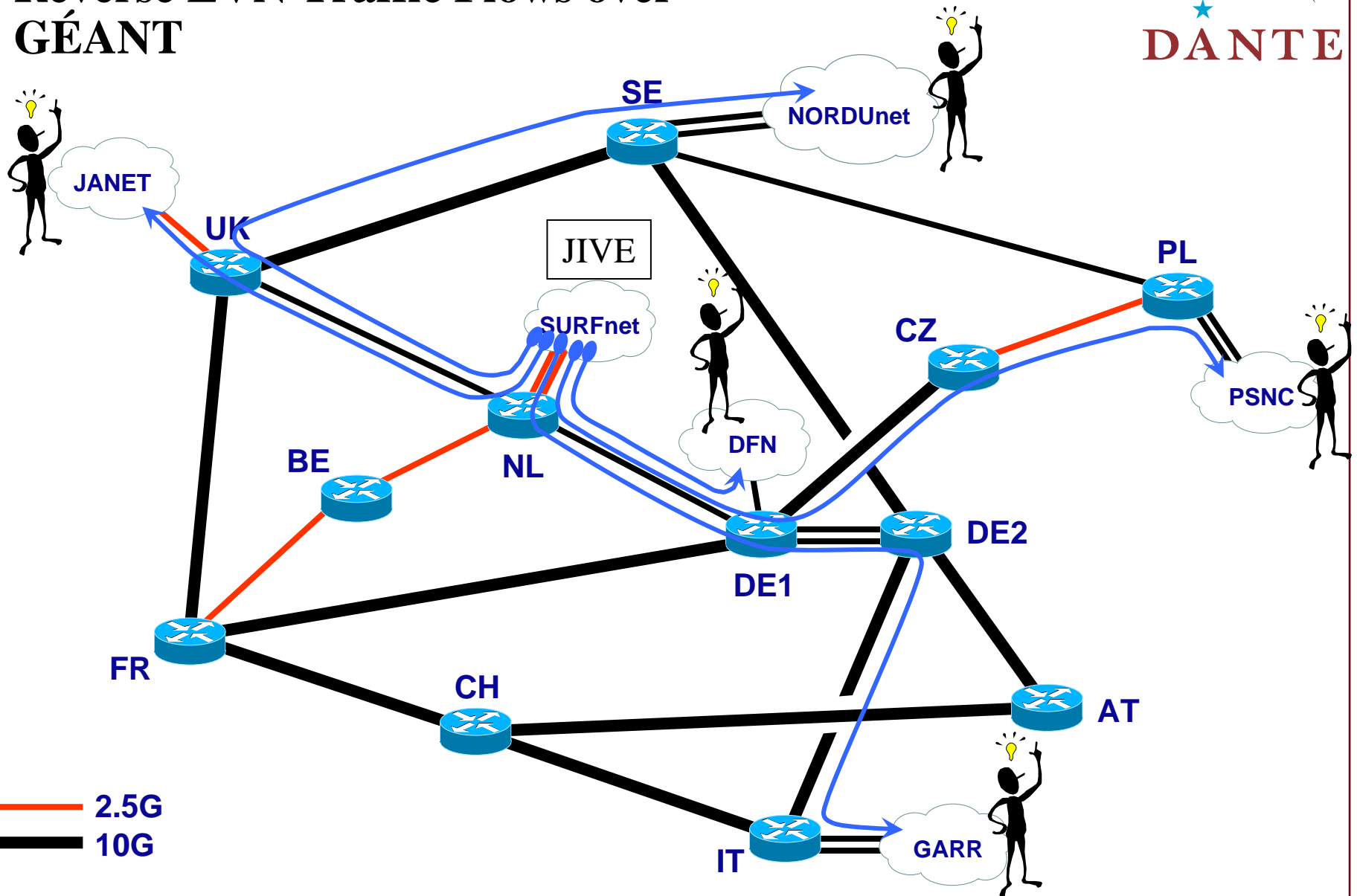
Support for European VLBI



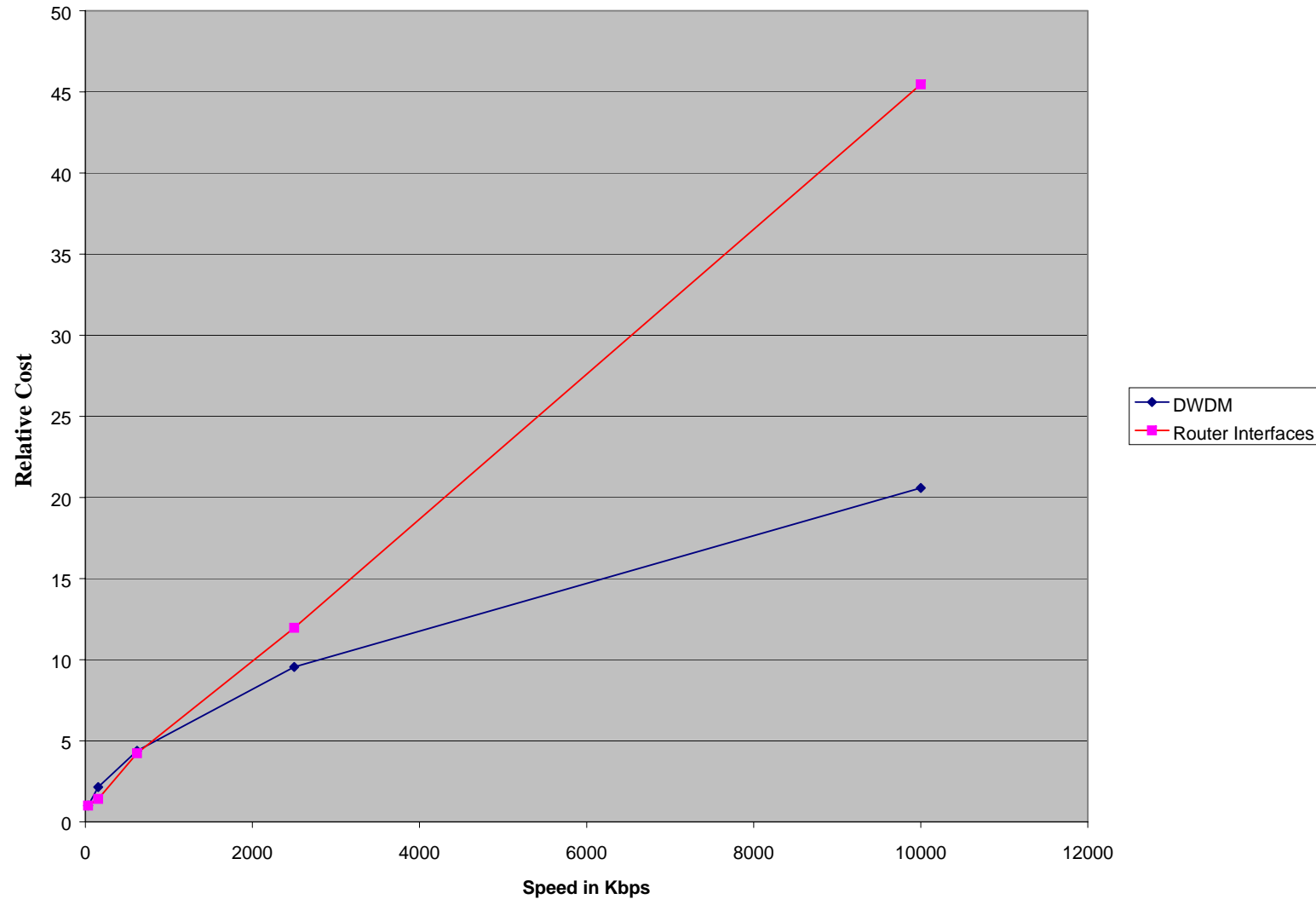
EVN Traffic Flows over GÉANT



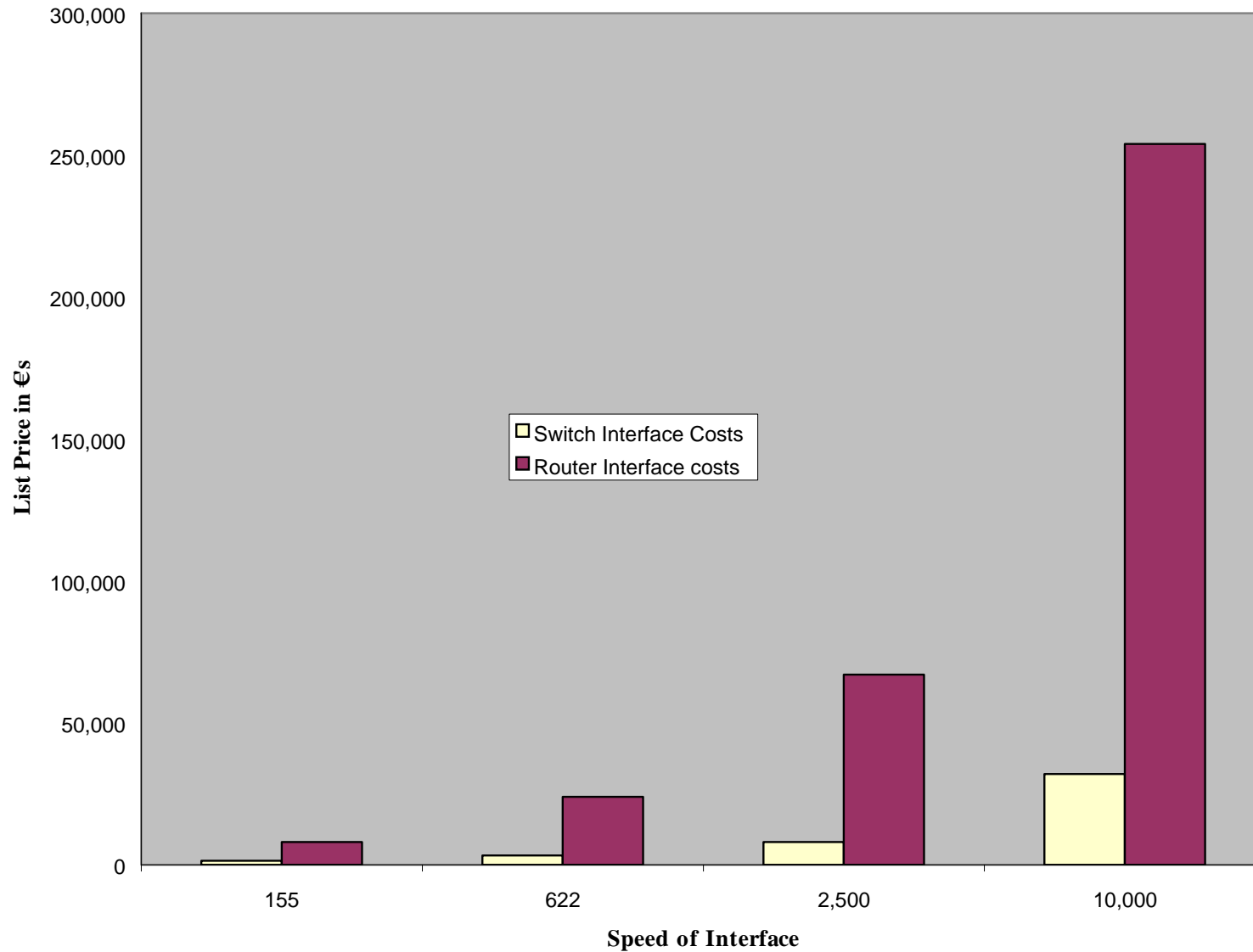
Reverse EVN Traffic Flows over GÉANT



Relative Cost of DWDM Connectivity and Router Interfaces with Speed of Operation

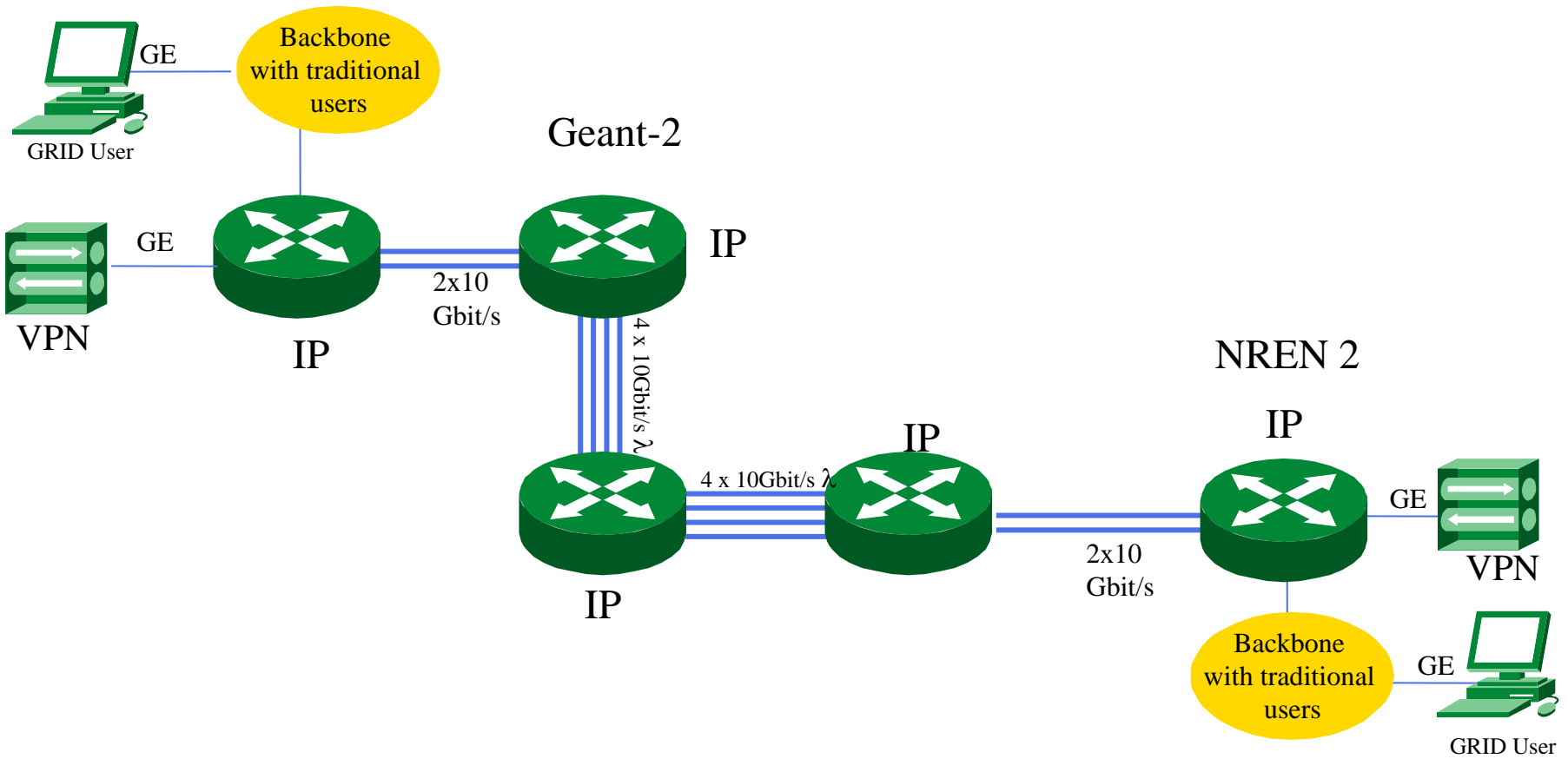


Relative Cost of Switch Interfaces and Router Interfaces

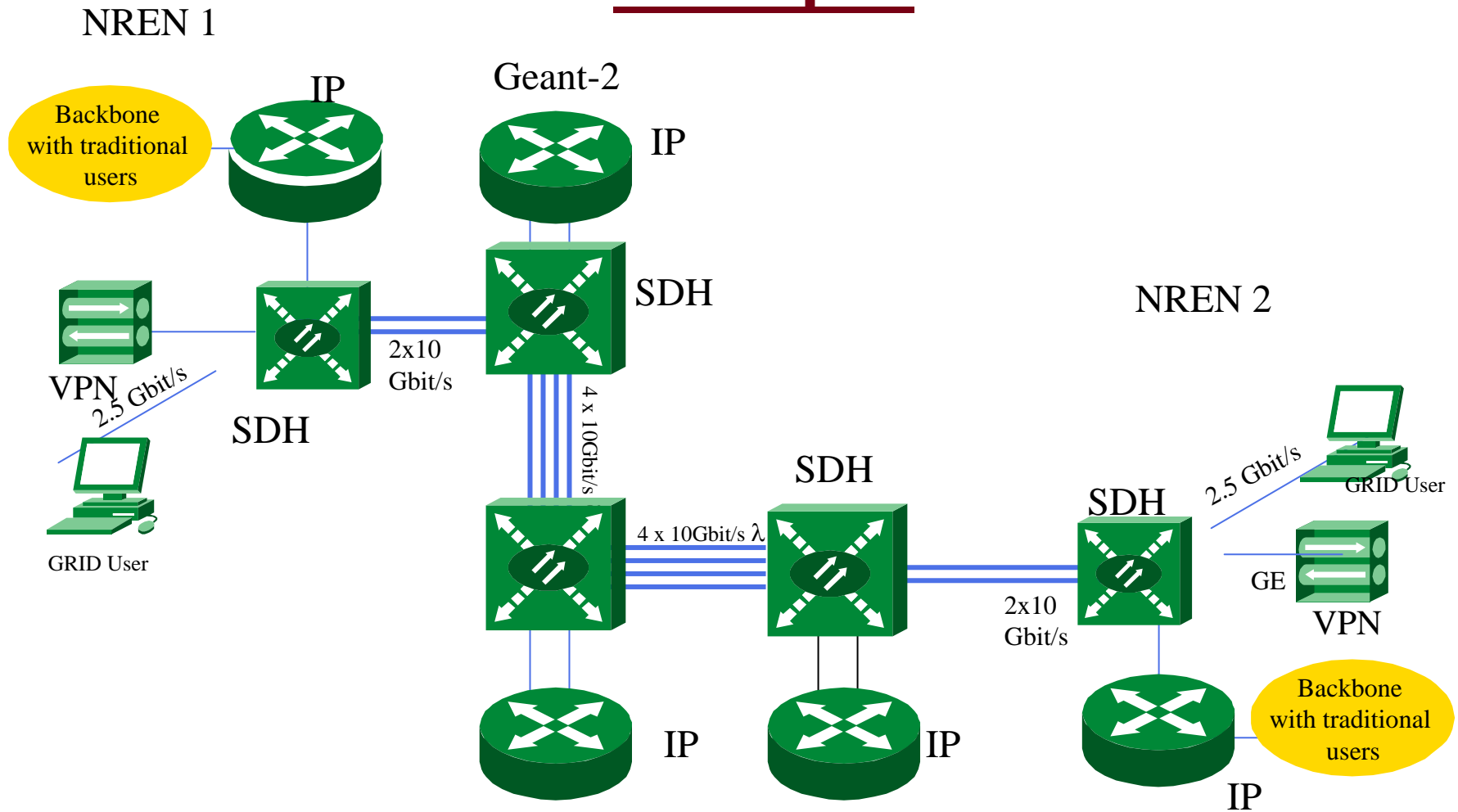


Concept 1

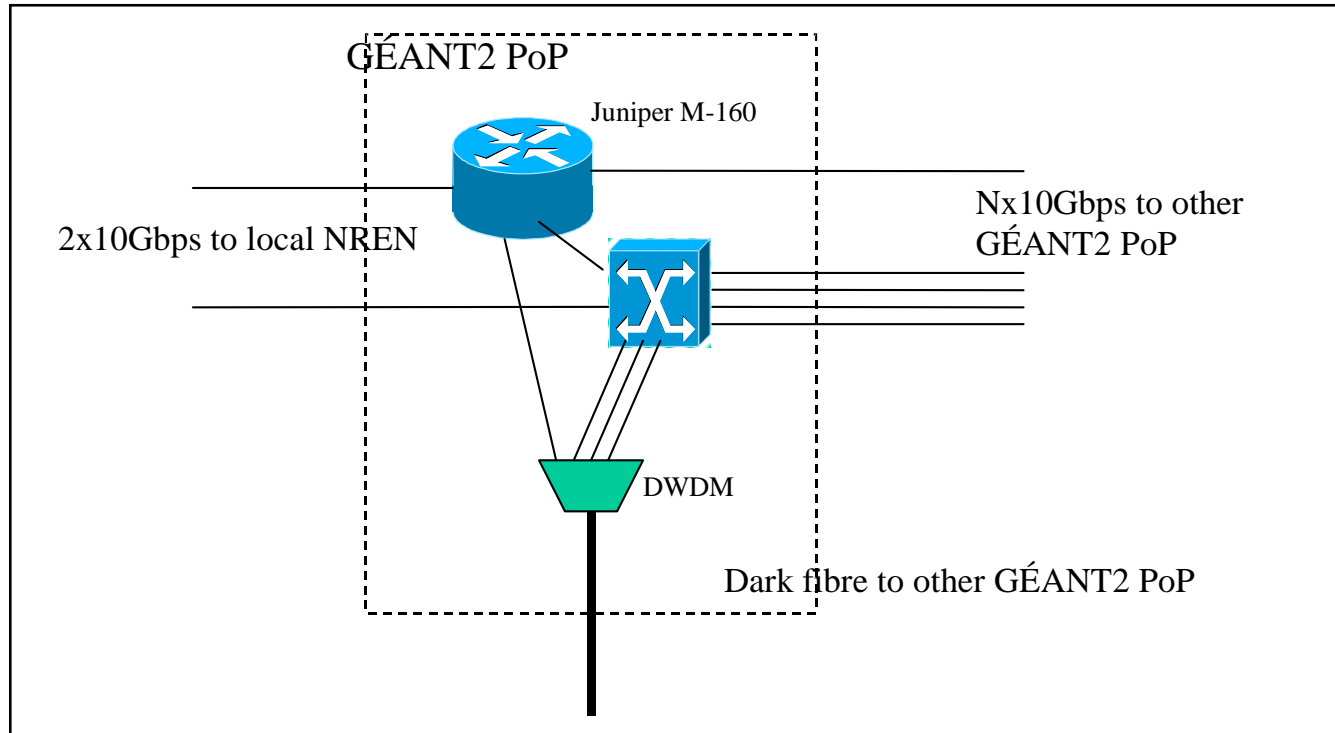
NREN 1



Concept 2



POP Design



Technology

- **Investigation of Transmission Costs**
- **Scepticism *re* 40 Gbps**
- **Interfacing Costs**
- **OEO cross connects interesting**
- **“All Optical” some way off**
- **Emphasis on AAA and Control issues**

CONCLUSIONS

- **Not a lowest common denominator approach**
- **Back to the challenge of the 1930s**
- **There's ALWAYS 80 Gbps**