Global Connectivity
Joint venture of two workshops

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GigaPort

- **Shared and agreed organizations have greatly improved the worldwide landscape.**

- **Still a lot of discrepancies among world regions.**

  In short: various initiatives but still hard to reach locations.

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GigaPort

Global connectivity will never mean Global network, but rather Interdomain, Cooperation, Interoperability etc... The challenge is to provide seamless e2e connectivity over a Multi-domain infrastructure and make sure that there is a smooth migration from pioneering services in the R&E community into the commercial arena. Middleware is the enabler here.

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- **Building blocks are Research and Education Networks, as alternative to commercial Internet only   important for sharing resources, tools etc.**

- **Important point is joint financing of links between countries and continents, especially in relation to developing countries. Agreed model today is equitable cost sharing.**

- **Network research is done as well. (In the USA there is a research network, HOPI, for doing disruptive things.) In Europe there should be a separate testbed or the experiments and the production must be separated in one network.**

Global Lambda Integrated Facility

- **It is no longer sufficient to connect researchers to the internet, they have to be connected to each other.**

- **GLIF community shares a common vision of building a new grid-computing paradigm, in which the central architectural element is optical networks, not computers, to support this decade's most demanding e-science applications.**

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Hybrid networking

IP + lambdas

- Packet switched internet for regular many-to-many usage
- Light Paths for new high speed few-to-few usage

- Is now becoming mainstream in R&E networking.
- GEANT2 will be a Hybrid network

GigaPort

- **Reaching out to the users. For L3 IP services we solved this problem, but…**
- **So far most researchers have to come to the emerging GLIF infrastructure**
- **Challenge is to bring LightPaths to the desk top of the researchers and to their scientific instruments**
- **This means dark fiber to remote instruments and hybrid networking functionality into the NRENs and LANs at the campuses**

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- **Open Neutral Lambda Exchange Points will be crucial to facilitate the interworking with the commercial domain and to allow for the smooth migration from the research area to the market**

- **You need global standards, but there has to be a balance between out-of-the-blue specifications and heuristic implementations.**

- **Prices will be orders of magnitude lower in a few years.**
- **The problem with lightpath is where to put the firewall.**
- **Lightpath will be user-controlled soon.**
- **Perhaps GLIF will be out of date in a few years. What will we propose on top of it? Dark fiber will stay here for a while, probably.**