**EARNEST Initial Workshop**
**Berlin, 23-24 May 2006**

# Parallel Session on Campus Issues

**Discussion Paper**
**by Martin Price and Jean-Paul le Guigner**

## Introduction

In SERENATE, relatively little time was spent investigating issues at the local level within universities and research institutes. However, there was strong anecdotal evidence identifying "campus infrastructure as the weakest link in the chain of research network provision". Therefore, SERENATE recommended that universities and research institutes and their supervisory and funding authorities need to ensure that their campus networks are appropriately resourced.

There is no evidence that the situation in institutions has changed significantly since the SERENATE Summary Report was published in December 2003. Moreover, a number of new issues are arising concerning network and service provision on campus and the relation with network and service provision at national and international level. Therefore it is one of the main objectives of EARNEST to focus more on campus issues.

## 1. Campus Bottlenecks

There have been enormous developments in network connectivity at international and national levels in recent years, but evidence continues to show that investment in campus infrastructures is lagging behind. Obviously this field is the responsibility of local decision makers.

How do we assess the extent of campus bottlenecks? What arguments should we use to persuade institutions to increase investment in local infrastructures? Which benchmarks should be used? (For example, bandwidth, financial investment, service provision etc.)

## 2. Providing Networking-Related Services

There is a steady shift in emphasis for local network teams from providing connectivity to providing networking related services. This is having considerable impact, both in organisational structure and in the mix of skills required. Examples of the services provided, and of some of the issues arising, include:

- end-to-end service provision
- service quality guarantees
- end-to-end lightpaths (Will these become widespread or will it be a service that is limited to large institutions and will not be available in remote or rural areas?)
- wireless networks on campus and/or to connect a campus to the outside world (Will there be commercial alternatives?)
- mobility; authentication and authorisation
- security (One issue is that too much security results in blocking legitimate traffic)

Are campus network service providers adapting to their changing roles? What are the specific issues to be addressed collaboratively?

3. Rollout of IPv6

The rollout of IPv6 is another area where local institutions appear to be lagging behind the national and international research network providers.

Why is the rollout of IPv6 proceeding slowly in institutions? Which measures would speed up the process?

4. Training Local Network Staff

In some institutions there are shortages of appropriately trained staff to develop and support networks and services. This could be caused by a variety of factors, including competitive local job markets and limited opportunities for appropriate training in new technologies.

Is there a widespread shortage of properly trained campus network staff? Would a Europe-wide initiative to develop and provide training for campus network staff be useful?

5. Interaction Between Research Networking at Local, National and International Level

The model of best-effort IP is very much a model where traffic is handed over from one domain to the next, and interaction and collaboration between those responsible for the different domains can be relatively limited. End-to-end service provision, service quality guarantees, end-to-end lightpaths require much more intensive collaboration between the network service providers at local and national level. The same holds for mobility and for running an (inter)national Authentication and Authorisation Infrastructure.

Is the division of roles and the collaboration between research network service providers at local and at (inter)national level changing fundamentally? Are new organisational arrangements necessary to accommodate this change? If so, which ones?

6. Regional networks

In some larger countries, regional networks or Metropolitan Area Networks form a link in the research network provision chain between the local (campus) networks and the national networks.

What are the specific benefits and what are the specific problems of these regional networks? Can general recommendations be made regarding the organisation, management and funding of regional networks, and regarding their collaboration with national and campus network providers?

7. Collaboration

For many reasons it is becoming increasingly important for those responsible for networks and services at campus level to work more closely together. It would be useful to look at existing models for collaboration, e.g. in France (CRU), which could be adopted elsewhere in Europe. Is there scope for closer collaboration between those responsible for networks and network services at campus level? Nationally and/or at international level?