On recent trends in Euro-Mediterranean Academic & Research Networking

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High - performance networking infrastructure is considered an inseparable part of any Academic and Research environment. This kind of networking is an important tool in all Academic disciplines supporting also University Hospitals, libraries, museums as well as cultural institutions. Academic and Research Networks also initiate new research activities in networking since they often play a leading role in such technologies world-wide. In this position paper we present very briefly three of the main projects in Euro-Mediterranean Academic and Research Networking: TEN-34/155, Q-MED and MEDNET.

The TEN-34/155 project

TEN-34/155 is the first Europe-wide high speed computer network, co-funded by the European Commission (DGIII and DGXIII) offering high quality of service INTERNET facilities to the European Academic and Research Community. In effect, it is a European initiative similar to American and Japanese ones. An increasing number of National Research Networks (NRNs) in Europe have set up a national high speed computer network infrastructure, interconnecting Universities and Research Institutes within their country. These NRNs have enabled researchers to use, among others, sophisticated multimedia and real-time applications (e.g. video-conferencing, which requires constant bit rate and isochronous streams of data) on the network. However, a high speed backbone facility among these national "Information Superhighways" was previously missing, thus seriously hampering international collaboration of European researchers. TEN-34/155 emerged as a breakthrough for co-operation between the European NRNs and also achieved a new level of collaboration between them and the major European Public Network Operators (PNOs), who are all involved in the project. ***TEN-34/155 has been established as a major part of networks forming the global INTERNET.***

The Q-MED project

Q-MED (Quality Network Technology for User Oriented Multimedia in the Eastern Mediterranean Region) aims to offer high quality INTERNET interconnection services to the Academic and Research Networks of Israel (MACHBA) and Cyprus (CYNET), by providing a reliable and high speed gateway to the European Academic and Research Networking infrastructure (project TEN-34/155). The creation of such a high speed backbone network will promote and enhance the scientific co-operation and mutual understanding among the academic and research communities of the countries involved. This initiative will enable the Academic and Research Communities of Israel and Cyprus to have access to scarce expertise, strengthen the potential to create an open market, promote economic and social cohesion, promote collaboration between Academics and Researchers among Mediterranean and European countries thus enabling the formation of collaborative teams, and contributing to the development of the Euro-Mediterranean Information Society.

The Q-MED Project will closely co-operate with TEN-34/155 in the trials of protocols for real time multi-media services, as well as the QoS management inherent in the ATM technology, and will utilise the results in order to develop real time multi-media services to the Euro-Mediterranean region.

The main objectives of the project include:

1. Creation of a regional Academic Network and to provide connectivity to the QUANTUM service, for Eastern Mediterranean region, initially for Israel and Cyprus.
2. Investigation and identification of some pilot applications, that will improve QoS for the region; and
3. Promotion of Academic Networking within the region, in order to get more countries involved.

Q-MED will also investigate potential applications for new technologies, improving QoS for the region, through collaboration to TEN-34/155 testing activities. It will also explore how to use new technologies - with high demands for QoS - into some pilot applications addressing the needs of a limited group of interested users in the region. The deployment of the Q-MED backbone network consists of a 34Mbps line from Israel to the TEN-155 Point of Presence (PoP) in London, and a 4Mbps line from Cyprus to the TEN-155 PoP in Athens. The line from Cyprus is expected to be upgraded to 34 Mbps within the MEDNET project.
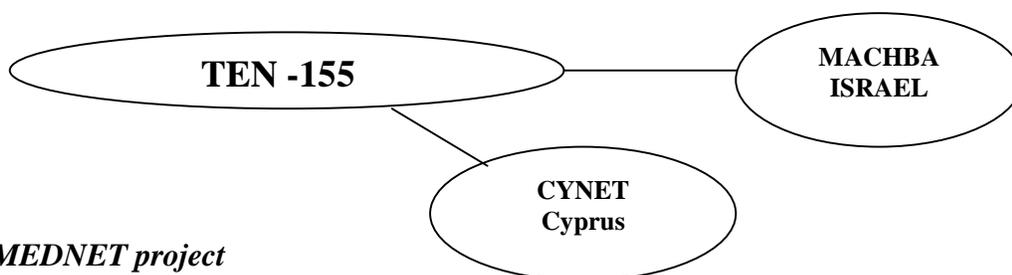
The MEDNET project

The MEDNET project, under preparation from a consortium involving most Mediterranean countries (Lebanon, Syria, Jordan, Israel, Turkey, Palestinian Authority, Egypt, Algeria, Malta, Cyprus, Morocco, Tunisia) will aim to provide the necessary research network interconnection infrastructure and services. The consortium is co-ordinated by the National Technical University of Athens and the University of Cyprus. MEDNET is expected to enable transfer of know-how and support collaboration between countries in the Mediterranean region, as well as between the Mediterranean region and Europe. The MEDNET infrastructure is expected to take the form of high-speed interconnections between National Academic, Research and Education facilities, achieving in parallel the introduction of international network services as a forerunner of commercial services. This initiative will provide tangible benefits to the whole Mediterranean Community. This project proposal will be submitted for funding to the MEDA programme of the European Union.

MEDNET aims to be a high quality regional network for the countries of the Mediterranean region providing a reliable regional gateway to the European Academic and Research Networking infrastructure via TEN-34/155 Points of Presence (PoP). It is expected to support considerable co-operative regional development activity in the area of multi-media services and applications on a Euro-Mediterranean basis and create important spill-over effects from research and academic communities to a wider range of social groups. Real time interactive multi-media applications, such as multi-media conferencing, require predictable quality of service, as well as a high bandwidth network infrastructure.

Therefore, MEDNET will provide the opportunity to introduce, in the Euro-Mediterranean basis, new generations of users in the exploitation of modern communication technologies. Its main objective include among others the creation of *a main regional backbone infrastructure to interconnect the 12 Third Mediterranean countries*, as well as the provision of connectivity to the TEN-34/155 pan-European Academic & Research Network. It aims also to facilitate and accelerate the collaboration between Academics and Researchers, provide training, investigate specifications for a number of pilot application projects and advanced networking services that will improve quality of services. Last but not least it will also enhance Cultural Exchange and capitalise on the richness of heritage in the region, where cultural civilisation is reported to have been born, spanning over 4000 years.