SEE-GRID
South Eastern European GRid-enabled eInfrastructure Development

The gradual deployment of broadband networks throughout the research community and the fact that network capacity grows with much greater rate than CPU power and storage capacity (Moore's Law vs. storage improvements vs. optical improvements) have led to the creation of a distributing environment for sharing resources known as the Grid paradigm.

This integrated networking & middleware environment is also called eInfrastructure. The technologies of the Grid-enabled eInfrastructure, which are being developed around the world, allow new methods of global collaborative research – often referred to as e-Science.

A number of research initiatives in Europe and the world (building on the availability of high-speed networks and broadband access, advanced virtual environments and the Grid-middleware technologies) are creating pilot implementations and collaborative models for use of computing and data resources across technological, administrative and national domains.

In addition to the above-mentioned initiatives, some national programmes in Europe are creating a model for the shared use of resources on the national level across institutional and user application domains.

On the other hand the current infrastructure in South-East Europe lacks the technology advancements and know-how needed to be part of and exploit the current trends in research and technology in the above fields.

SEE-GRID aims to provide specific support actions to assist the participation of the SE European states to the pan-European and worldwide Grid initiatives by establishing a seamless and interoperable pilot-Grid infrastructure that will expand and support the European Research Area (ERA) in the region.

The SEE-GRID vision is to pave the way towards the provision to distributed research communities in the region with an independent of geographic location, round-the-clock, common market of computing resources. The interconnection of the regional infrastructure to the pan-European and worldwide Grid initiatives will translate into benefits for the smaller, less-well resourced sites in SE Europe to access computing power that would otherwise be unaffordable. In this perspective, the proposed initiative will ease the digital divide and release the scientific & productive talents of the region and will allow equal participation of the targeted countries in pan-European Grid Efforts in the immediate future.
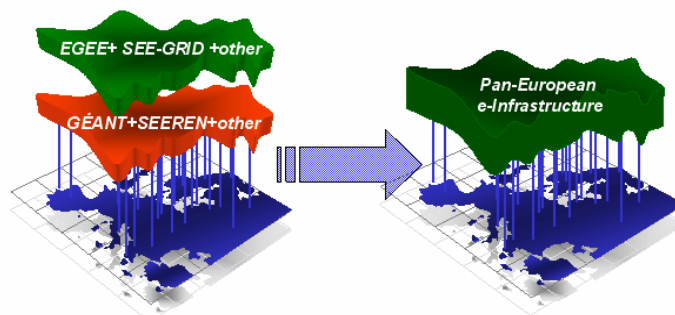
Description of Work

The major thrust of the SEE-GRID project will be the strengthening of the bonds among the scientific communities of SE Europe and the overall European research initiatives in the fields of high performance computing, storage and application sharing over high bandwidth networks, towards a unified distributed eScience platform.

Apart from human networking activities and dissemination of European experience the project will provide a proof of concept pilot grid infrastructure to serve selected applications, e.g. in research and development efforts that are of particular importance to the region (earth quake prediction, water resource management, weather forecasting, virtual teaching and laboratory environments) and at Pan-European level.

The rather modest physical infrastructure requirements of the Grid, with its intrinsic geographical dispersion and high degree of scalability, coupled with the scientific talents of a traditionally rich intellectual human potential, is triggering a wealth of Grid test-beds in SE Europe; some of these are already organised in National Grid Initiatives (NGIs) after the National Research & Education Network successful paradigm. With the recent fortunate timing of GEANT – NREN – SEEREN proliferation, the circumstances are ripe for the inclusion of SE Europe to European Grid efforts, thus bypassing the digital divide in research efforts that were so far centred in the most economically developed geographical regions of the continent.

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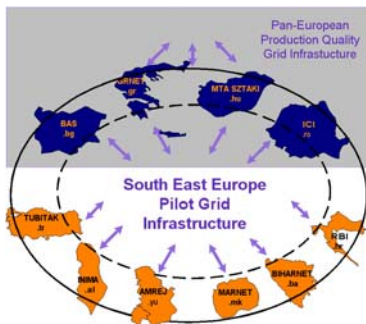
Project Objectives

Objective 1 – Human Network

The key objective of SEE-GRID is to establish a human network in the area of Grid-empowered eInfrastructures for eScience in SE Europe. The involved end-user communities will be identified through appropriate online questionnaires, aiming at capturing their respective requirements in resources' needs and their current state and progress in Grid deployment. CERN, assisted by the common partners to EGEE and the other consortium members, who already have related technical expertise, will disseminate their experience to the region.

Objective 2 – Pilot Grid infrastructure

The project will integrate National Grid infrastructures and will tie them to the Pan-European Grid initiatives. Cooperation with related efforts such as the EGEE and LCG projects will be of paramount importance. Feasibility studies and roadmaps will be developed to ensure the formation of the National Grid infrastructures and their integration to the Pan-European initiatives. SEE-GRID will try to establish Grid clusters in each of the participating countries by installing and deploying the appropriate middleware dictated by EGEE and international standards organisations such as the Global Grid Forum. The SEE-GRID clusters will be interconnected through GEANT and SEEREN research networks. EGEE applications and one more Grid application of regional interestwill be deployed in order to demonstrate the benefits of the distributed Grid testbed.

Objective 3 – Sustainable Development

The project must ensure that its results are appropriately exploited and disseminated. This will be accomplished by demonstrating proof of concept experiments in various disciplines, distributing publicity material, delivering seminars and scientific presentations including cookbooks and hands-on training, setting demonstrations in academic events and organizing workshops to present the new opportunities provided by SEE-GRID. These activities will promote the widespread knowledge to the research and academic communities of SE Europe as well as to the rest of the continent. This process will also promote awareness of eScience projects outside the extended ERA, and may serve as a paradigm for bridging the digital divide in other areas.