SEERA-EI: South East European Research Area for eInfrastructures

From eInfrastructure Technology Provision to Regional Vision and Sustainable Cooperation in South East Europe

Background

South-East European initiatives aim at ensuring equal participation of the region in European electronic infrastructure trends. SEEREN initiative has established a regional network and SEE-GRID the regional Grid – with most of the countries now fully integrated in pan-European GEANT (networking) and EGI (Grid) initiatives. SEE-LIGHT project is currently establishing a dark-fibre backbone in the region, while HP-SEE is setting up the regional High-Performance Computing infrastructure and opening it up to a wide range of user communities. Close collaboration of National Research & Education Networks (NRENs) and National Grid Initiatives (NGIs) in the region was crucial in implementing this vision. The above initiatives have also raised national ministries' awareness for the necessity of local programmes and financial support for eInfrastructures. SEERA-EI aims at capitalizing on this momentum and linking national-level programme managers providing an open forum for information exchange, in order to enable coordination of national programmes in eInfrastructures, and to set the framework for a common regional agenda. SEERA-EI gathered and exchanged information regarding ongoing programmes and carried out a state-of-the-art analysis; produced a set of best practices, cook-books and guidelines for national eInfrastructure programmes; and identified areas for joint regional activities, ranging from short-term soft actions and mid-term policy-level actions which have been implemented in project duration, and carried out preparatory activities for long-term actions.

SEERA-EI aimed to reduce fragmentation of national programmes, create a harmonised approach to national-level initiatives in eInfrastructures, ensure local commitment, and pave the way towards common regional vision, strategy and sustainable cooperation, which will give the region a common voice on European and international stage and strengthen the ERA as a whole, enabling collaborative high-quality research across a spectrum of scientific fields.

SEERA-EI http://www.seera-ei.eu kicked-off in April 2009 and ran until March 2012. SEERA-EI has been an initiative carried out within European Commission's Seventh Framework Programme under the "Research Infrastructures" action, and in longer term aspired to contribute to the stabilisation and development of

South-East Europe, trying to cope with the digital divide and stimulating eInfrastructure development at both national and regional levels. The initiative was coordinated by the Greek Research and Technology Network (GRNET) and the project consortium consists of 19 beneficiaries, representing 10 programme owners – Ministries and Research councils involved in national funding of electronic infrastructures and 9 "operational" partners, typically coordinating the infrastructures in the respective countries and implementing the programmes (National Research & Education Networks or National Grid Initiatives) from Albania, Bosnia - Herzegovina, Bulgaria, Former Yugoslav Republic of Macedonia, Greece, Montenegro, Romania, Moldova, Serbia, and Turkey.

Objectives and Results

The core objective of the SEERA-EI project was to engage the national key programme owners in the field of electronic Infrastructures (eInfrastructures) in SEE in a common dialogue and planning, to establish a communication platform, and to undertake activities targeting durable cooperation in building the common regional eInfrastructures vision, strategy and action plan. The key results of the project are the following:

Dialogue and information exchange – the communication platform

In order to enhance communication among national-level programme managers in South East Europe, SEERA-EI established a platform for information exchange on eInfrastructure issues. The platform consists of two core means of communication: digital and face-to-face. The digital communication tools, active beyond project lifetime, include mailing lists, private and public website, and specifically the dynamic communication tools including wiki, online forum, and survey tool, which form the basis for interactive communication and content management. The simplicity of the tools is the core advantage, allowing easy and dynamic access and editing of information. The face-to-face programme managers' networking meetings were held collocated with Project Steering Committee meetings, and were supported by the tools including calendar and agenda tools. SEERA-EI successfully carried out ten face-to-face networking meetings in Athens (GR), Bucharest (RO) - twice, Belgrade (RS), Sofia (BG), Budva (ME), Sarajevo (BH), Chisinau (MD), Tirana (AL) and Istanbul (TR). Two regional workshops were also organised and held in Sofia and Istanbul, bringing together high-level policy-makers from all countries in the region; while one large East European partnership event was co-organised with related initiatives and brought together and even wider policy-makers audience as well as the EC.

Analysis of programmes and regional collaboration areas

SEERA-EI formulated a questionnaire for systematic data collection regarding the details of programmes which encompass eInfrastructure funding actions in South East Europe. The questionnaire had two distinctive parts. The first part was dedicated to NRENs and NGIs, while the second part was targeted at the programme managers in the eInfrastructure. The NREN questionnaire was related

to networking infrastructure component and its evolution as well as it covered the penetration extent of NRENs infrastructures into academic and research communities, funds and its structure, capabilities of networking infrastructure, and relationships with GÉANT. The NGI questionnaire regarded the structure of NGI organisation, NGI affiliations, funding sources and the middleware and operational components. The second part of questionnaire, focused on programme management, collected information about the objectives, funding details, thematic area, policy-makers identification, methods used for preparing the programme and its structure, methodology strengths and weakness, inputs and outputs, dissemination, evaluation, international co-operation and recommendations. Additionally, a set of metrics that are to be used for national programmes analysis and assessment has been defined.

Based on the data collected via two rounds of questionnaire and assessed by related metrics, an in-depth analysis of management of existing programmes in the wider area of eInfrastructures at the national level in SEE countries was made, as well as an analysis of the status of main components of eInfrastructure: NRENs and NGIs. The first systemized data on past and existing eInfrastructure-related programmes was provided, via an analysis for each programme and overviews for each country and for all SEE region. The analysis pointed out the specificities of eInfrastructure programmes from the region, their strengths and weaknesses, upon the set of related metrics. Methodologically the two deliverables were created based on the results of a two-phase questionnaire circulation so that the differences and developments can be easily tractable and updateable for each one of the programmes and simultaneously flexible comparisons between thematically similar programmes can be conducted. Twenty nine programmes were surveyed and assessed, individually and comparatively.

Finally, the regional priority areas were defined as: the stability and sustainability of network operations, specifically dark fibres; the emerging computing paradigms such as High-Performance Computing and cloud computing (as compared to the established Grid paradigm); transnational access and regional end-user applications; ESFRI integrations; as well as softer actions focused on trainings and similar.

National programme management best practices and the cookbook

The project produced two core documents supporting the national policy-making process and programme management.

First, “National Programmes Best Practices” provides the national programme best practices for e-Infrastructures regarding relevance, quality, and performance of the programmes. The collected best practices are evaluated under the main assessment criteria which are management, impact, efficiency, sustainability and integration; and conclusions are drawn.

Second, the “National Programme Cookbook” is a base-level guide on e-Infrastructure programmes for national programme owners in the SEE region. The national programme cookbook provides fundamental framework, with strong alignment with the corresponding EC Framework Programme, for an e-Infrastructure programme considering the main pillars: programme identification

and programme implementation. It is not only a guide and template specifically for national e-Infrastructure programme managers but also for policy makers, funding authorities and e-Infrastructure operators. Practically a wide community related to e-Infrastructures and research infrastructures in the SEE region could benefit from this cookbook in terms of e-Infrastructure concept, programme preparation period and the main pillars of a national e-Infrastructure programme. Beside the national level usage, this cookbook also aims to contribute to the current regional collaboration and communication level for the future activities.

The programme m managers were provided with these documents at the right level of administration and consulted them at the right points in the process.

Planning and implementation of joint activities

Within the first project period, the joint action plan was prepared, specifying the plan of join activities to be carried out. The methodology for identifying joint actions was very coherent, where each action was described succinctly in a tabular format, with clear timelines and partner responsibilities. The short-term actions laid the ground for longer-term activities and allowed the consortium to comprehend more deeply the requirements and needs of particular joint long-term activities. This plan was implemented mainly in the second project period.

In the context of soft short-term actions two main topics have tackled: studying national programmes and their evaluation; and strengthening bilateral relations, and joint dissemination and training activities. Three best-practices trainings are flagship achievements, held in Chisinau ("Cloud Technology for e-Government and beyond"), Sofia ("HPC policy and programmes") and Belgrade ("Networking and long term sustainability"). Moreover, four bilateral focused visits took place. Finally, the guideline for evaluation of national programmes and actual post evaluation has been carried out, and the joint database of experts in the field of eInfrastructures is operational.

Under short term policy-level group of actions major results are as follows. Several joint official documents, such as the MoU and the joint common vision and regional strategy of eInfrastructures were created and signed which is very important for future work beyond the project lifetime. Moreover, several studies examined possible sources for funding the regional eInfrastructures and opportunities for representation of the SEE eInfrastructures in the national and European policies and plans (eIRG, EGI, etc). Finally, two very concrete studies have been produced for regional operational bodies for SEELIGHT network and the regional HPC operations centre. More details follow.

Four Memoranda of understanding (MoU) were signed: SEE MoU on Grid and eInfrastructure development; MoU for High-Performance Computing resource sharing in SEE; MoU on networking collaboration in SEE; and most importantly MoU on eInfrastructures in SEE. The latter described the long-term collaboration in the SEE region, and endorsed the regional common strategy and vision. The vision agreed stated that by 2020, South-East European countries will in all aspects be an equal partner within European infrastructures, while a number of regional infrastructures (networking, grid, HPC, cloud computing, data and VRCs) will be further strengthened. The sharing of those resources between the

countries of the region is supported, as well as concepts of joint regional operations and of a mutual open access policy for researchers from the region to national computing infrastructures. The parties agreed to continue sharing best practices and data about national programmes and policies and to preserve the communication platform to facilitate this information exchange in the future.

The concept of formulating joint SEE Initiative led to two studies addressing the setting up a SEE-level operations body for SEELight network, or the possible regional grouping for High-Performance Computing. The first study focused on the establishment of a regional Network Operations Centre (NOC). For the mid-term phase, it was recognised that the only realistic approach is the peer model, where all involved NREN NOCs coordinate their activities in a multi-domain peer (federated) way at the service level. For the long-term phase, two possible implementation models were identified: it was found that the Distributed model was slightly more advantageous than the Centralised model. The feasibility study of a HPC Operations Center in the region of SE Europe investigated the basic features of such a center that could be used in the future to manage on the regional level the federation of the national HPC infrastructures. Based on the performed SWOT analysis, it was also concluded that the most realistic approach is the distributed model.

Finally, the long-term policy-level actions of the SEERA-EI project explored different possibilities of common initiatives resulting in a draft of the regional joint action plan for a joint pilot regional call on Research Cloud Computing. The objective of the SEERA-EI Pilot Joint Call for proposals for projects in “Research and Skill Building in Scientific Cloud Computing” is to promote this nascent field in the SEE region and explore its potentials. The expected impact is the increase in regional know-how in cloud computing and its potential applications, and paving the way for the regional cloud computing open environment for research and education. Six countries participating in the SEERA-EI project and signing implementation agreement will make national contributions into a “Virtual Common Pot” to fund successful joint research projects. The total budget for this Pilot Joint Call is 650K Euro for the next 3 years.

International collaborations and dissemination

The project developed liaisons with ESFRI, e-IRG, EGI, PRACE, GEANT, WINS-ict, eINFRAnet, EuroRIsNet, and other initiatives, supported in some cases by the signed MoUs. Liaisons with these initiatives improved the sharing of the know-how in terms of policies, programmes and vision within the region and beyond, enabled transfer of knowledge to improve the regional infrastructure and ease the digital divide. With the regular exchange of information with the main European actors in e-Infrastructure, the region can reduce the fragmentation and increase the coherence in the policies and strategies regarding e-Infrastructures. Moreover, the project improved visibility of the region in the European scene. Concrete actions, supported by SEERA-EI, facilitated the representation of countries from the region at European level to achieve stronger impact.

The project has developed websites (official SEERA-EI web portal and wiki and local websites) and a promotional package, including the project brochure,

presentation, poster and other material. The project partners used the material and tools to perform effective dissemination and outreach activities at national, regional and international scale.

In the first project period, SEERA-EI dissemination-related achievements included the release of 2 newsletters; carrying out dissemination in a number of public media: TV (2); press releases (5); newspapers and e-newspapers (>10) and fact sheets (>5). One dedicated SEERA-EI regional event with the participation of high-level ministerial representatives and policy-makers was organized in Bulgaria, for the regional audience; and in Greece a dedicated-project high-level national policy meeting was organized. Furthermore, the representation of the SEERA-EI project at external events has been classified in four categories as follows: Representation in an international forum (9); Representation in a related project event (12); Representation in a national event (11).

In the second project period, SEERA-EI dissemination-related achievements included the release of a new brochure targeting the industry, 2 new posters with interim and final project results and 2 newsletters; carrying out disseminations in a number of public media: press releases (5); newspapers and e-newspapers (>20) and fact sheets (>10).TheA closing SEERA-EI conference with EU participation was organized in Istanbul, and dedicated SEERA-EI events were carried out at 6 countries. Furthermore, the representation of the SEERA-EI project at 56 external events has been classified in five categories as follows: Representation in international forum (12); Representation in a related project event (9); Representation in a national event (15); Representation in industry events (13).

Building the collaboration and liaison with a number of European Fora and initiatives, the project staff provided SEERA-EI presentations and distribution of brochures and other materials, leading to strengthening of a multinational collaboration on the development of e-Infrastructures.