

# **Cooperation Agreement**

## **between**

### **The PHOSPHORUS project and National Research and Education Network**

#### **Purpose**

The purpose of the present CA is to:

- Explore the possibility to share the experience and technical knowledge between PHOSPHORUS and NREN during the series of workshops foreseen within the scope of PHOSPHORUS, organised by Phosphorus project for the research community.
- Explore the possibility for NREN to join the PHOSPHORUS testbed and participate in the tests of new technologies and services.
- Formalize the dissemination and promotion of the Phosphorus results in research community.

#### **Background**

**PHOSPHORUS** <http://www.ist-phosphorus.eu/>

The Phosphorus project focuses on delivering advanced network services to Grid users and applications interconnected by heterogeneous network infrastructures. The project is addressing some of the key technical challenges to enable on-demand end-to-end network services across multiple domains. The PHOSPHORUS network concept and test-bed makes applications aware of their complete Grid resources (computational and networking) environment and capabilities, and enables dynamic, adaptive and optimized use of heterogeneous network infrastructures connecting various high-end resources.

The main innovation introduced by Phosphorus is a network Service and Control Planes concept where the network (lightpath) and Grid (computational, storage) resources are provisioned in a single-step: network and Grid-specific resources are controlled and set-up at the same time and with the same priority, with a set of seamlessly integrated procedures. From a user's perspective, this results in a real, node-to-node deployment of on-demand Grid services.

PHOSPHORUS will enhance and demonstrate solutions that facilitate communication among applications middleware, existing Network Resource Provisioning Systems, and the proposed Grid-GMPLS Control Plane. The main technical objectives are: 1) enhancements of the GMPLS Control Plane (G<sup>2</sup>MPLS) to provide optical network resources as first-class Grid resource, 2) implementation of interfaces between different NRPS to allow multi-domain interoperability with PHOSPHORUS' resource reservation system, 3) middleware extensions and APIs to expose network and Grid resources and make reservations of those resources.

To disseminate ideas and developments the Phosphorus consortium will strongly interact with other relevant programmes, research activities and initiatives at the European and international level. Various network-oriented R&D projects are encouraged to share results and exchange ideas with Phosphorus project.

**NREN** <http://www...../>

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#### **Timeframe**

The collaboration is foreseen to be performed until the end of the Phosphorus project.

#### **Main Participants**

The work will be carried out by PHOSPHORUS partners in co-operation with the NREN community

**Financial Conditions**

No transfer of funds between the PHOSPHORUS project and NREN is anticipated. However, partners may decide to transfer some of their existing resources into one or more of the co-operation activities mentioned above.

Signed:

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(on behalf of the NREN)

Artur Binczewski  
(on behalf of the PHOSPHORUS Consortium)