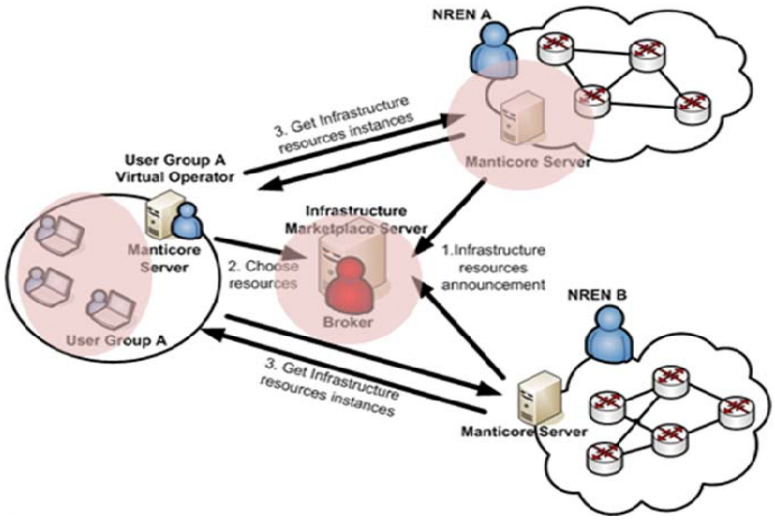
Mantychore

Summary: Mantychore exploits the Infrastructure as a Service paradigm to enable National Research and Education Networks (NRENs) and other e-Infrastructure Providers to enhance their service portfolio by building and deploying the software and tools to provide IP Networks as a Service to virtual research communities.

IP Network as a Service (IP Network Service) is a key enabler of the flexible and stable e-Infrastructures of the future. Today a myriad of tool prototypes to provide point-to-point links to researchers have been developed. These tools, while providing high bandwidth pipes to researchers only address one side of the problem. Researchers that want to create a virtual community to address scientific problems are still connected to each institution's networks, and it is a hard problem to directly connect them with high bandwidth pipes because it causes a number of issues such as security or routing integrity. One of the ways of efficiently solving this problem is to create a logically separated IP network (on top of the high bandwidth pipes), or by using separate instances of virtualised routers, or a combination of both, and dedicating it to the virtual research community. In order to maximize the flexibility and convenience of this IP Network Service, the users of the virtual community should be able to modify the characteristics of their IP network by themselves (such as the addressing, dynamic routing protocols, routing policies, quality of service and so on).

The IP Network Service follows the IaaS paradigm, consisting on offering remote access and control of infrastructure elements to third party organisations through software web services. By using IaaS services these organisations can control the remote infrastructure as if they owned it and be billed either per use or based on a monthly fee, promoting the reuse of existing infrastructure and avoiding the purchase of new devices on the provider and customer sites.



Mantychore services enable community controlled virtual networks on top of multiple infrastructure providers

Objectives: i) Enable HEAnet and NORDUnet to provide IP Network Services to their Grid and e-heatlh customers through the Mantychore tools, enhancing their service portfolio; thus providing virtual research communities with a useful service that can improve their research activities and optimize the efficiency of use of e-Infrastructures.

ii) Refine and expand the Mantychore services provided by means of the integrating the results of the privately funded MANTICORE II project with the IaaS Framework based solutions for optical (Argia) and Ethernet/MPLS networks (Ether); thus being able to provide integrated services at levels 1-3 to the research community.

Project acronym: Mantychore

Contract n°: 261527

Project type: CP & CSA

Start date: 01/10/2010

Duration: 30 months

Total budget: 1,564,386€

Funding from the EC: 1,399,740€

Total funded effort in person-month: 156.5

Web site: www.mantychore.eu

Contact person: Sergi Figuerola
email: sergi.figuerola@i2cat.net
tel.: +34 93 553 25 10
fax.: +34 93 553 25 20

Project participants:

I2Cat	ES
NORDUnet	DN
HEAnet	IR
UNI-C	DN
U. Essex	UK
TID	ES
TCD	IR

Keywords: IaaS, Router, IP Networks, Virtualization, Provisioning.

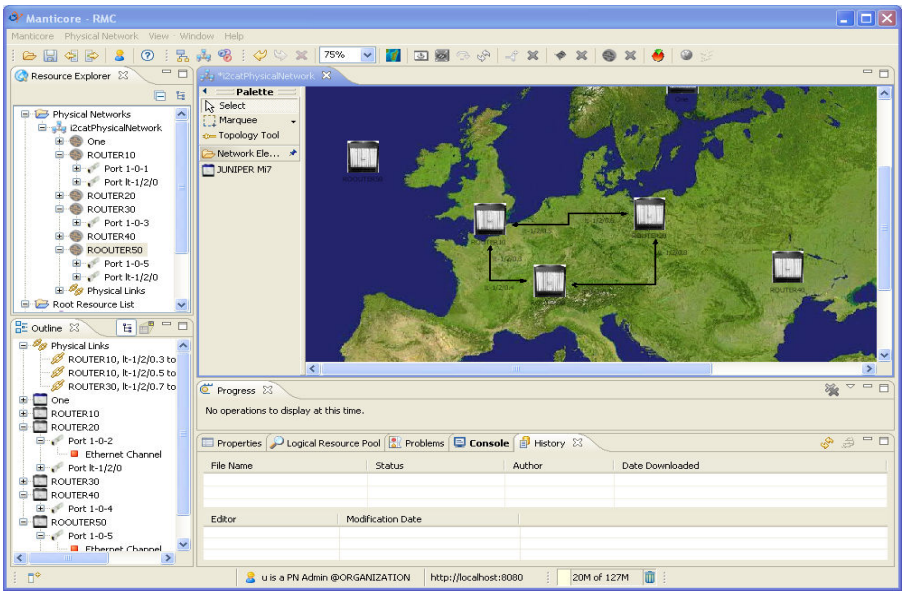
Collaboration with other EC funded projects: GEANT3, CLARIN, NOVI and others.

iii) Innovate in the business model used in services based on IaaS, establishing a marketplace where all Infrastructure Providers can announce their available resources and all customers can automatically negotiate the SLAs getting the best resources combination for their needs.

iv) Use Mantychore services to contribute to the research performed in the GreenStar Network (GSN) project to enable carbon-neutral infrastructures.

Action plan: The core activities of the project will consist in i) developing the tools to operated and use the IP Network Service, based on the requirements of the e-Infrastructure providers and the user communities and ii) use these tools to allow initially HEAnet and NORDUnet to provide the IP Network Service to the 3 research communities targeted by Mantychore: e-health, grid and media – later in the project other NRENs, user communities and even commercial operators may be considered.

Mantychore will not develop new software tools from scratch, instead it leverages the successful results from different privately funded projects –MANTICORE II, IaaS Framework, Argia- and integrates, enhances and adapts them to the operational environment of the NRENs and the research community, providing a robust and usable tool to manage and provision virtual IP Networks.



Screenshot of the tool developed by the MANTICORE II project

Besides the core activities, a number of complimentary tasks will be carried out to: i) implement a prototype of an infrastructure resources marketplace that allows easier and faster transactions between infrastructure providers and user communities, ii) develop tools that allow for energy consumption monitoring and fast resource migration to support renewable energy powered virtual infrastructures and iii) develop and expand the initial Mantychore user community

User communities: The Mantychore project will serve a user community that uses and takes benefit of Mantychore services offered by the NRENs. Three research user groups form the initial user community in Mantychore, where each user group will use individually the Mantychore services for its own interests. These three user groups include the Danish HDN (Health Data Network), the British UHDM (Ultra High Definition Media) group, and the Irish Grid network.