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On June 1<sup>st</sup>, 2006 the European project XtreemOS has started.

**With the help of the European Commission, *YOUR INSTITUTION* intends to play a driving role in the development of computing grids**

*TEAMLEADER* at *INSTITUTION* is participating in the four year integrated project XtreemOS ([www.xtreemos.org](http://www.xtreemos.org)) which aims to conceive, build and promote a grid operating-system based on Linux to underpin future computing grids. Computing grids are built from thousands of separate computers belonging to various institutions, all connected by the Internet. XtreemOS will allow secure, reliable, and efficient sharing of the resources of these computers within the framework of virtual organizations. These virtual organizations bring together distributed resources and partners into a manageable collaboration that can tackle large-scale, demanding and complex application areas in a secure and efficient environment. The objective is to enable users to use the grid as easily and as safely as their own PC.

The projects' budget is close to 30 million euro, financed half by the European Commission and half by the partners. The consortium, lead by IRISIA (Rennes, France), is formed of 18 industrial and academic partners, 16 from Europe and two from China. The two Chinese partners will promote and push XtreemOS into the fast growing Asian market

A grid allows execution of applications requiring a huge amount of resources, e.g. computational power and storage. Many applications can benefit from being deployed in a grid environment: current grid applications target the fields of medicine, bioinformatics, engineering, scientific and financial computations, and support wide area collaboration, resource and data sharing, and much more.

The goal of the project is to build an operating system simplifying the management, programming and usage of very large collections of resources distributed in a grid. The XtreemOS operating system will be built for individual PCs and computer clusters, as well as mobile devices (PDAs and mobile phones) which will have access to the resources in a grid. It will offer an alternative to grid middleware, e.g. Globus toolkit, which in spite of its complexity and the difficult deployment and management, is currently the most widespread middleware for managing computing grids.

Several scientific challenges have to be faced. Efficient management as well as easy administration is necessary for resource sharing within virtual organizations that may span several administrative domains. Security and protection of shared and unshared data/resources are further important research goals. Because any individual node may break down or be withdrawn from the grid at any time, the XtreemOS system must implement sophisticated mechanisms to provide a reliable platform for distributed applications.

Different test platforms from the partners will allow real experiments with thousands of computers to be carried out using the Grid'5000 platform (France), DAS-3 system (Netherlands), and CNGrid (China).

The software designed and built within the framework of the XtreemOS project will be founded on the Linux operating system and distributed under a free license. This should strengthen the position of Europe in the research fields of operating systems and of grid systems. Today, even though the Linux operating system was born in Europe, the United States prevail in these fields. The XtreemOS project will help restore balance in these fields.