BSC releases COMPSs version 1.2 at SC14

The new release includes features that benefit from multicore architectures and enable multiple task implementations.

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The Grid Computing and Clusters team at Barcelona Supercomputing Center is proud to announce a new release, version 1.2, of the programming environment COMPSs, which is already available in three main programming languages: Java, C/C++ and Python.

This version of COMPSs updates the results of the team's efforts over the last few years to provide a set of tools that helps developers program and execute their applications efficiently on distributed computational infrastructures such as clusters, grids and clouds. COMPSs is a task-based programming model known for notably improving the performance of large-scale applications by automatically parallelising their execution.

For some years, COMPSs has been available to users of the MareNostrum supercomputer and to the Spanish Supercomputing Network. It has been adopted in several research projects, including OPTIMIS, VENUS-C, EUBrazilOpenBio and EGI. In these projects COMPSs has been used to implement use cases provided by different communities across diverse disciplines, such as biomedicine, engineering, biodiversity, chemistry, astrophysics and earth sciences. It is also currently being extended and adopted in applications as part of projects including ASCETIC, EUROSERVER, EUBrazil CloudConnect, transPLANT, the BSC Severo Ochoa program and the Human Brain Project flagship.

The new release supports several implementations of task methods, enabling the scheduler to choose that which best suits the constraints of the user. Combined with future scheduling policies, this will allow code to be automatically optimized for power or to better suit heterogeneous architectures. To enable new scheduling policies, the runtime has been extended to support pluggable schedulers. The constraint-aware resource management of the runtime has also been improved, while support for multicore tasks is now available as a new feature. The COMPSs IDE has also been extended to support new features and deployment in clouds. See the release notes for the complete list of new features.

COMPSs was **downloaded more than 500 times** last year and is used by around **20 groups** in real applications. COMPSs has recently attracted interest from areas such as genomics and biodiversity, where specific courses and dissemination activities have been carried out.

During the last few years, the team's efforts have focused on the virtualisation technologies adopted by cloud environments which have been emerging recently. In such systems, COMPSs provides scalability and elasticity features by dynamically adapting the number of resources to the actual workload.

COMPSs is interoperable with public and private cloud providers like Amazon EC2 and OpenNebula and with OCCI-compliant providers.

The packages and the complete list of features are available on the Downloads page. A virtual appliance is also available to test the functionalities of COMPSs through a step-by-step tutorial that guides the user to develop and execute a set of example applications.

Additionally, a user guide and papers published in relevant conferences and journals are available.

For more information on COMPSs please visit our webpage: http://compss.bsc.es

More Info about Barcelona Supercomputing Center

Barcelona Supercomputing Center (BSC) is the national supercomputing centre in Spain. BSC specialises in high performance computing (HPC) and its mission is twofold: to provide infrastructure and supercomputing services to European scientists, and to generate knowledge and technology to transfer to business and society.

BSC is a Severo Ochoa Center of Excellence and a first-level hosting member of the European research infrastructure PRACE (Partnership for Advanced Computing in Europe). BSC also manages the Spanish Supercomputing Network (RES).

The Grid Computing and Clusters team at Barcelona Supercomputing Center aims to offer tools and mechanisms that enable the sharing, selection and aggregation of a wide variety of geographically distributed computational resources in a transparent way. The research undertaken by this team is based on taking the expertise of the group and extending it towards the aspects of distributed computing that can benefit from this expertise. The team at BSC has a strong focus on programming models and resource management and scheduling in distributed computing environments.

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