

Dynamic Nimbus cloud deployment wins Challenge Award at Grid5000 conference

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The Nimbus toolkit, developed by researchers at the U.S. Department of Energy's (DOE) Argonne National Laboratory and the University of Chicago as an open source set of software tools for providing cloud computing implementations, played a major role at the Grid5000 conference in France.

Grid5000 is a highly reconfigurable [testbed](#) for studying large-scale parallel and distributed systems and comprises thousands of nodes geographically distributed over nine sites in France and one site in Brazil. Distributed computing allows scientists to divide computational problems into many tasks across multiple computers to solve problems more quickly and efficiently.

At the Grid5000 conference held in Lille, France, earlier this month, Pierre Riteau, a student from the University of Rennes, used the unique properties of the testbed to deploy Nimbus over hundreds of nodes at three different Grid5000 sites and to create a distributed virtual cluster, a technique that makes multiple physical systems appear to function as a single logical system. This deployment resulted in one of the largest-ever distributed computing "clouds" and won him a Grid5000 Large Scale Deployment Challenge award.

Nimbus provides an "Infrastructure-as-a-Service" cloud computing solution that includes an extensible architecture, specifically designed for scientists, enabling them to customize components to meet large-scale project needs.

Each cloud provides computing cycles and storage resources to support real-time demands. The paradigm of [cloud computing](#), more familiar to the commercial world, has long generated interest in the scientific community.

Kate Keahey, a computer scientist in Argonne's Mathematics and Computer Science Division and a lead developer of Nimbus, said that the deployment of Nimbus on the Grid5000 was one of the largest to date—involving hundreds of nodes on each of the three Grid5000 sites. Moreover, deploying a virtual cluster over those sites creates a distributed yet easy-to-use environment with interesting properties—what has been described as a "sky computing" cluster, as it combines the several clouds and opens up even more computational opportunities for scientists.

Provided by Argonne National Laboratory

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