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## Special Guest Lectures

**A Cost-based Multi-Unit Resource Auction for Service-oriented Grid Computing****Roman Beck, Institute of Information Systems, Johann Wolfgang Goethe University, Frankfurt, Germany**

E-Finance and Services Science Chair

Johnston Hall 338  
March 11, 2008 - 03:00 pm**Abstract:**

The application of Grid technology is finally spreading from engineering and natural science related industrial sectors to other industries with a high demand for computing applications. However, the diffusion of Grid technology within these sectors is often hindered by a lack of the incentive to share the computational resources across departments or branches even within the same enterprise. A promising way of overcoming these barriers is the introduction of a pricing mechanism for the use of Grid-based resources. This work introduces such a pricing approach to Grid computing and provides three simulation scenarios to illustrate the effectiveness of such an economized Grid solution. The simulation results indicate that the pooling of IT resources can produce a reduction of 33% in cost compared to individual and dedicated servers. However, with a price-based allocation of computing resources, a further 10% of cost reduction can be achieved by introducing an auction mechanism. Therefore we claim that there is huge cost reduction potential in departmentalized enterprises beyond the savings that can be achieved by a utility-based allocation of computing resources, if economically measured allocation methods are combined with advanced refining and learning methods in the allocation process. The presentation and provided results are developed within the Financial Business Grid (FinGrid) project, coordinated by Dr. Roman Beck, E-Finance Lab at the J.W. Goethe University at Frankfurt and supported by the German Federal Ministry of Education and Research under Grant No. 01IG07004A.

**Speaker's Bio:**

Roman Beck is the E-Finance and Services Science Chair at the Institute of Information Systems at the Johann Wolfgang Goethe University, Frankfurt, Germany. Roman is initiator and project coordinator of the BMBF-funded joint research project "FinGrid" and the research on IT project risk management within the E-Finance Lab. Previously, Roman coordinated the research project "IT Standards and Network Effects", funded by the German National Science Foundation. Since 2001 he was responsible for the German part of the multi-national research project "Globalization and E-commerce", coordinated by CRITO, University of California at Irvine, CA, USA. He is a member of the academic network in IT standardization of the European Commission (DG Enterprise). His research focuses on the role of IT in creating new business models and services, the diffusion of IT innovations, IT project management, and the role of externalities and network effects on the adoption of new standards. He received the "Innovation 2010 Award" in 2003 for his EDI-based SME integration solution and the "Innovation Award 2005" together with one of his students. As visiting scholar, he spent three months at CRITO, University of California at Irvine in 2003 and further two months at the School of Information, University of Michigan at Ann Arbor in 2004. In 2008, he was visiting professor at the CIS Robinson College of Business, Georgia State University at Atlanta for three months. He publishes on a wide array of topics in the field of Grid and IT Services, as well as IT standards. His academic research has been presented at several international IS conferences and has been published in proceedings and academic journals such as EM-Electronic Markets, Wirtschaftsinformatik, Journal of Grid Computing, JGIM, Information Polity, or CAIS. Until today, Roman has raised € 3.23 Mio research grants from the German National Science Foundation, the German Federal Ministry of Education and Research (BMBF), and others.

