Special Guest Lectures

ASKALON: An Application Development and Runtime Environment for the Grid

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Abstract:
Many existing Grid application systems provide the application developer with a non-transparent Grid. Commonly application developers are explicitly involved in selecting software components deployed on specific sites, mapping applications onto the Grid, or selecting appropriate computers for their applications. Moreover, many programming environments are either implementation technology-specific or force the developer to program at a low-level middleware abstraction. In this presentation we describe the ASKALON Grid application development and computing environment whose ultimate goal is to provide an invisible Grid to the application developer. We will present the full development and execution cycle of scientific workflows in the ASKALON Grid application development and computing environment based on the following components: 1) a graphical UML modeling tool for high-level workflow composition; 2) an XML-based Abstract Grid Workflow Language; a resource management service for resource discovery, deployment, provisioning, and capacity planning; 3) an enactment engine service for fault tolerant distributed execution; 4) and a tool for online performance monitoring and analysis. The presentation is split into two parts. A slide presentation is used to describe the overall objectives, architecture and services of ASKALON. Thereafter, we will demonstrate our software for two real-world workflows: a simple movie rendering application, and a more complex material science workflow.

Speaker's Bio:
Thomas Fahringer received his Ph.D. in 1993 from the Vienna University of Technology. Between 1990 and 1998, Fahringer worked as Assistant Professor at the University of Vienna, where he was promoted as Associate Professor in 1998. Since 2003, Fahringer is a Full Professor in Computer Science at the Institute of Computer Science, University of Innsbruck, where he is leading a research group developing the ASKALON Grid application development and computing environment. Fahringer's main research interests include software architectures, programming paradigms, compiler technology, performance analysis, and prediction for parallel and distributed Grid systems. Fahringer is currently coordinating the IST-034601 edutain@grid project and is involved in numerous Austrian (SFB Aurora, Austrian Grid) and European Grid (EGEE, CoreGrid, K-Wf Grid, ASG) projects. He is the author of over 100 papers, including three books, 20 journal articles, and three best paper awards (ACM and IEEE). Radu Prodan received his MasterÃ¢ï¿½ï¿½s degree in Computer Science from the Technical University of Cluj Napoca, Romania, in 1997. Between 1998 and 2001 he served as Research Assistant in Switzerland at ETH Zurich, University of Basel and the Swiss Centre for Scientific Computing. In 2001 he joined the Institute for Software Science, University of Vienna, where he earned his Ph.D. in 2004 from the Vienna University of Technology. Prodan is currently an assistant professor at the Institute of Computer Science, University of Innsbruck. He is interested in distributed software architectures, compiler technology, performance analysis, and scheduling for parallel and Grid computing. Prodan participated in several national and European projects and is currently workpackage leader in the IST-034601 edutain@grid project. He is the author of over 40 papers, including one book, seven journal articles, and one IEEE best paper award.

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