Karen Karavanic

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Open Source

Dr. Karavanic's interest in open source software started with her participation in IBM's DPCL project in 1997. Her interests in Linux focus on issues of scalability for high end systems -- high capacity servers and clusters -- and of performance measurement and diagnosis. Her recent SC2004 paper described recent work to provide performance tool support for MPI-2 applications running on Linux clusters. Other relevant projects include a comparative performance study of different MPI libraries on a Linux cluster; the use of a Globus based grid for sharing heterogeneous data between remote scientists; and a study of web server load balancing algorithms for workloads including dynamic content. She has recently started a project focusing on techniques for assessing the role of operating system software in application performance bottlenecks.

Dr. Karavanic's research currently focuses on the measurement, analysis, and automated diagnosis of the performance of tera- and peta-scale applications. This branch of High End Computing focuses on the extreme edge of our current and near future capabilities for large-scale scientific simulation. This work requires a combined expertise in architecture, systems, middleware, and parallel applications using MPI or OpenMP. She is currently collaborating with scientists at Lawrence Livermore National Laboratory on the PerfTrack project.

Karen Karavanic earned her Ph.D. in Computer Science at the University of Wisconsin under the direction of Bart Miller. Her areas of expertise include operating systems, middleware, performance evaluation, and parallel and distributed systems. At PSU, Dr. Karavanic teaches undergraduate and graduate courses in Operating Systems, plus special topics courses related to performance evaluation, tools, and parallel and distributed computing.