

Three Tools to Help with Cluster and Grid Computing: SANS-Effort, PAPI, and NetSolve

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In this tutorial, we will look at some methods for generating automatically fast robust numerical kernels for numerical operations and methods for measuring the performance on today's processors. In addition, we will look at a system called NetSolve that allows users to access computational resources, such as hardware and software, distributed across the network. This project has been motivated by the need for an easy-to-use, efficient mechanism for using computational resources remotely. Ease of use is obtained as a result of different interfaces, some of which do not require any programming effort from the user. Good performance is ensured by a load-balancing policy that enables NetSolve to use the computational resource available as efficiently as possible. NetSolve offers the ability to look for computational resources on a network, choose the best one available, solve a problem (with retry for fault-tolerance) and return the answer to the user.