Abstract:

Roadrunner was the world's first supercomputer to break the 1 Petaflop/s barrier and it was also the first large-scale hybrid supercomputer. Its fast performance comes from the use of IBM PowerXCell 8i Cell processors, a variant of the chips in the Sony PlayStation3, used as attached devices to standard AMD Opteron compute nodes in a large cluster configuration. Roadrunner became fully operational at Los Alamos in early 2009 and was used for approximately 9 months while the machine was also being stabilized and tested before being switched to classified production use. The goal was to create new simulation codes, or to mature some early prototypes, and use them for challenging science problems of interest to LANL and the world. This talk will summarize the ten selected efforts and their experiences and accomplishments while using Roadrunner.