

Joint Experimentation on Scalable Parallel Processors (JESPP)

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ABSTRACT

The JESPP project exemplifies the accessibility and the utility of High Performance Computing for large-scale simulations. In order to simulate future battlespaces, US Joint Forces Command's J9 required expansion of its JSAF code capabilities: number of entities, behavior complexity, terrain resolution, infrastructure features, environmental realism, and analytical potential. Synthetic forces have long run in parallel on networked computers. The JESPP strategy exploits the scalable parallel processors (SPPs) of the High Performance Computing Modernization Program (HPCMP). SPPs provide a large number of processors, inter-connected with a high performance switch and a collective job management framework. JESPP developed software routers that replaced multicast with point-to-point transmission of interest-managed packets. This article lays out that design and development. It also details several events that have simulated up to one million clutter entities, which were "fought" from Suffolk, VA. These entities were executed on remote SPP's, one in Maui and one in Ohio. This paper sets forth the authors' experience in scoping the hardware needs, developing the project with HPCMP, and implementing the system.

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