Hybrid-Parallelism Improves Visualization Performance on Large, Multi-core Systems

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Hybrid parallelism, which is a blend of traditional distributed-memory, message-based and shared-memory programming concepts, when used for visualization algorithms on modern parallel platforms comprised of multi-core processors, offers several distinct performance advantages over traditional approaches. We present results that show hybrid-parallelism concepts, when applied to visualization, can result in better overall runtime, lower memory consumption, and lower communication costs when compared to traditional MPI-only based approaches.