

SC13 Short lecture @ AICS

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Name	Dr. Shinichiro Takizawa (AICS HPC Programming Framework Research Team)
Title of your Presentation	Supporting Workflow Management of Scientific Applications by MapReduce Programming Model
Abstract	<p>There are many applications that run many tasks as a workflow, such as ensemble simulation and data processing, in scientific applications. We surveyed various applications that run on large scale parallel systems, extracted their workflow patterns and then investigated requirements for building the workflow on the MapReduce programming model. To fulfill the requirements, we implemented them to 'K MapReduce' MapReduce implementation. To illustrate the scientific applications' workflows on the MapReduce model, we implemented two application workflows on the K MapReduce; Replica exchange molecular dynamics and Genome analysis. As a result of comparison with implementations without MapReduce, we confirmed a performance benefit in the former case and a coding benefit in the latter case.</p>