A service composition framework for market-oriented high performance computing cloud

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Abstract: Despite the success High Performance Computing (HPC) across a number of application domains, the adoption of HPC resources and applications is still limited, primarily due to its high capital cost, system complexity, application availability, and service delivery model. Recently, several research efforts have shown that the emerging Cloud Computing service model can improve on-demand access to HPC capacity as utility. This paper introduces a framework for on-demand composing and deploying available HPC applications as services on HPC clouds. The composition is enabled by an ontology that describes dependencies and relationships among HPC software and resources. Copyright 2010 ACM.

Index Keywords: Application domains; Capital costs; Cloud computing; High-performance computing; Research efforts; Service compositions; Service delivery; System complexity; Ontology

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