The State of Cloud-Based High Performance Computing

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Abstract: *HPC applications have been gaining lot of attention in the cloud computing world. Most of these applications are scientific applications that require large CPU capabilities and are also data intensive requiring large data storage. Traditionally they have always required large number of computers interconnected in a network such as clusters or supercomputers. These clusters are difficult to setup and maintain both technically and financially. With the advent of cloud computing and benefits of Infrastructure as a Service (IaaS) and Platform as a Service (PaaS), scientists and researchers are able to deploy their HPC applications in the cloud without worrying about the costs associated with the infrastructure and other costs involved. They also give guarantees on the quality of service (QoS). This paper focuses on documenting some of the research already done in the field of HPC applications and their current state in cloud computing.*

Keywords: High Performance Computing, Cloud Computing, EC2, S3

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