# PARALLEL COMPUTING WITH CLOUD TECHNOLOGY PLATFORM

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In the last few years there has been a growing interest in High Performance Computing (HPC) with cloud technology. The cloud offers applications a range of benefits such as elasticity, small startup and maintenance costs and economic scale. High performance computing technology faced with the challenges of dealing with highly heterogeneous environments. Dedicated infrastructure for parallel computing is very complex effort that requires a long lead time, high capital expenditure and large operational cost. The main objective of this research is to implement a high performance computing cluster in a cloud environment. This paper demonstrates an overview picture of the current state of high performance cloud computing technology and research illustrates whether cloud computing services are suitable for high-performance computing (HPC) workloads. This research explored why and who should use parallel computing in cloud environment, what applications are integrated with HPC in cloud and finally build a high performance cluster with message passing interface on the cloud platform. Furthermore data present how to leverage the cloud to rapidly build and scale a HPC cluster for real-time data processing while removing the dependency on physical infrastructure. From the research that has been carried out it is possible to conclude that if cloud computing are serious about targeting the HPC, different models must be explored. Future research is intended to concentrate on better interconnection between parallel nodes to overcome the slower network.

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