



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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SHORT ABSTRACT

Cloud computing is the new form of service model which is provided through the Internet. Now it emerged as the versatile form of utility computing, where applications and infrastructure can be leased from a very large (or virtually infinite) pool of computing resources in the form of a pay-as-you-use model. The benefits offered by cloud computing comes with associated challenges. Among various challenges, performance, multi-tenancy, cost, and reliability related issues in cloud system are very critical and those are the focus of this thesis. More precisely the focus of this thesis work is to address the following three specific issues in cloud system: (a) performance degradation due to interference of the co-located applications' multi-tenancy through virtual machines in a single host, (b) task placement constraints induces scheduling delay when not handled properly and that causes loss of revenue for the service provider and hence the effective cost of the user services, and (c) lack of effective problem determination and mapping framework to enhance the reliability of the cloud system. Towards this pursuit, the entire thesis work is segregated into four contributions, which address the scheduling problems in cloud environment.