

**CHENNAI – PONDICHERRY**

**A COST-OPTIMIZED RESOURCE PROVISIONING POLICY FOR HETEROGENEOUS CLOUD ENVIRONMENTS**

**Abstract:**

To avoid the drawbacks of a pricing mechanism in heterogeneous cloud environments that considers only single resources, we propose a multi-resource combinatorial pricing mechanism in this paper. This approach jointly considers the principal resources (i.e., CPU, memory, storage, and bandwidth) with the goal of minimizing the total cost. Then, a cost-optimized resource provisioning policy (CORPP) based on game theory is applied to this mechanism that considers the Nash equilibrium between cloud users as well as the Stackelberg equilibrium between users and the cloud provider. The experimental results show that the proposed combinatorial pricing mechanism is more suitable in a heterogeneous cloud environment when running various types of cloudlets. Moreover, CORPP is effective in reducing users' total costs when using both random cloudlets and PlanetLab cloudlets.