

# Integration of Resource Assignment and Migration for Effective Resource Optimization in Cloud Utilization

**Aruna. A<sup>1</sup>, Aarthy S<sup>2</sup>, Asha Nandhini G<sup>3</sup>, Deva Dharshini J K<sup>4</sup>**

Assistant Professor, Department of Computer Science<sup>1</sup>

Students, Department of Computer Science<sup>2,3,4</sup>

Dhanalakshmi College of Engineering, Chennai, India

**Abstract:** Numerous processing opportunities and heterogeneous resources are available through cloud computing, which also satisfies the needs of numerous applications at different levels. Resource allocation is one of the most important aspects of cloud computing. The performance of the entire cloud environment is directly impacted by its efficiency. Thus, in cloud computing, resource allocation, and management are crucial. Resource allocation is a method of distributing the available resources—such as the CPU, RAM, storage, and network bandwidth—among users in cloud data centers in a way that promotes efficient use of those resources, provider profitability, and user pleasure.

**Keywords:** Cloud computing, resource migration, cache memory, Task scheduling, data centers, Cloud service provider

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