# Chapter 1 Introduction

*In this chapter we introduced our thesis overview, our work, motivation, objective and organization. In section 1.1 we discussed about thesis introduction; in section 1.2 we discussed about work; in section 1.3 we discussed about our thesis motivation; in section 1.4 we discussed about our thesis objective; in section 1.5 we discussed about the whole thesis paper organization; in section 1.6 we should give a short discussion about this chapter.*

### Introduction

cloud computing is a computing paradigm that can provide dynamic and scalable virtual resources through the Internet service to users on demand, and also it is further development of distributed computing, parallel computing and grid computing [1]. Cloud computing incorporates concepts of parallel and distributed computing to provide shared resources; hardware, software and information to computers or other devices on demand [2]. These are emerging distributed systems which follows a “pay as you use” model. The customer need not buy the software or computation platforms. With internet facility, the customer can use the computation power or software resources by paying money only for the duration he/she has used the resource. load balancing is another task in the cloud environment. Load balancing helps to distribute the dynamic workload across multiple nodes to ensure that no node is overloaded [3]. Load balancing helps in the fair allocation of computing resources to achieve a high level of user satisfaction and proper use of resources. High resource utilization and proper load balancing help minimize resource consumption. This helps to implement fault tolerance, scalability and avoid difficulties [4]. Many cloud providers are available nowadays like amazon web services, google cloud, etc. Cloud provider provides many services to the user which is Reliable, Efficient and Low cost. Using virtualization technology, cloud data centers become more secure and flexible and provide better support for on-demand allocation.

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### Our Work

Different researchers have worked on Load Balancing in Cloud Computer in previous and find different kinds of algorithms for balancing the load. In this section we focused on what is cloud load balancing and the importance of it.

Cloud load balancing is the process of distributing workloads and computing resources in cloud computing environment. Load balancing allows enterprises to manage applications or workload demands by allocating resources among multiple computers, networks or services. Load balancing provides maximum throughput with minimal response time In our paper we have worked on an algorithm for minimizing the work load in cloud environment which will be able to measure the overall response time. Our base algorithm is Modified Ant Colony in load balancing algorithm which we have modified for better work performance in cloud environment.

### Motivation

Many of the previous works mainly focus on how balance the load in cloud environment dynamically. Mostly the paper showed a wonderful performance in balancing the load using their developed algorithm inspired from the base algorithm “Modified Ant Colony Load Balancing Algorithm”. We want to develop such an algorithm, for that case we take in concern the task scheduling of various load, response time of virtual machines, datacenter processing time. We have shown our improvement result of our modified algorithm and also discussed how we can further improve our algorithm for better performance in future.

### Thesis Objective

The objective of this paper is to propose a load balancing algorithm aims to distribute the dynamic workload smoothly to all the hosts in the cloud to gain an improvement in both the utilization of resources and the speed of execution time. It allocates the incoming tasks to all available VMs. In order to achieve fairness and avoid congestion, the proposed algorithm allocates tasks to the least loaded VM. This leads to a reduction of the overall response time and the processing time of hosts. In the proposed algorithm, variation of processing time of VM is the key limiting factor during the task allocation process because it avoids underutilization and over utilization of VMs.

The main objective of our proposed work is,

* + To distribute the workload among server to main the load.
  + To improve resource utilization, minimum completion time and improve

Performance of system

* To optimize the resources while maintaining the budget with less response time and execution time.

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### 1.5 Organization of the Thesis

In this section we discussed about the organization of the thesis.

This chapter (CHAPTER 1: Introduction) presents an overview of the background of our work such as related work, motivation and our objective.

CHAPTER 2: Literature Review presents an overview of thesis literature, a clear concept of Cloud Computing, Load balancing, Different types of cloud services, About load balancing algorithms and previous works of others researcher in this field.

CHAPTER 3: System and Architecture represents has the contents about the problem statement, mathematical representation of the problem’s solution. Moreover, it also describes about our work flow and proposed method.

CHAPTER 4: This chapter is the most important chapter as it contains all important chapter as it contains all the details information about our work, work implementation process and how we have implemented it.

CHAPTER 5: In this chapter we have our output of work, we have shown validation of work and also compared our proposed algorithm with other base algorithms and also provide our decision in which way we have done a better job.

CHAPTER 6: Conclusion is the last chapter in this paper. These chapter represents a clear discussion about all the workflows with results analysis. Then a short description about the future work availability in these research fields. Finally, a short conclusion presented as ending of our work.

###### Discussion

This is the introduction chapter and this chapter just introduces about our thesis, previous

related work done by different authors and our goals. Also, it shows the blueprint of our work