

# Experimental Cloud Using Commodity Hardware

*A Project Report Submitted  
in Partial Fulfillment of the Requirements  
for the Degree of*

**Bachelor of Technology**

*by*

**Kaushal Kishore**  
(111601008)

*under the guidance of*

**Dr. Sandeep Chandran**



INDIAN INSTITUTE  
OF TECHNOLOGY  
**PALAKKAD**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

# CERTIFICATE

*This is to certify that the work contained in this thesis entitled “**Experimental Cloud Using Commodity Hardware**” is a bonafide work of **Kaushal Kishore (Roll No. 111601008)**, carried out in the Department of Computer Science and Engineering, Indian Institute of Technology Palakkad under my supervision and that it has not been submitted elsewhere for a degree.*

**Dr. Sandeep Chandran**

Assistant Professor

Department of Computer Science & Engineering

Indian Institute of Technology Palakkad

# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Cloud . . . . .	1
1.2	Cloud Services . . . . .	2
1.2.1	SaaS . . . . .	2
1.2.2	PaaS . . . . .	2
1.2.3	IaaS . . . . .	2
1.3	Experimental Cloud using Commodity Hardware . . . . .	2
1.4	Organization of The Report . . . . .	3
<b>2</b>	<b>Review of Prior Works</b>	<b>5</b>
2.1	Section name . . . . .	5
2.2	Conclusion . . . . .	5
<b>3</b>	<b>Algorithm I</b>	<b>7</b>
3.1	Conclusion . . . . .	7
<b>4</b>	<b>Algorithm II</b>	<b>9</b>
4.1	Construction . . . . .	9
4.2	Improved Method . . . . .	9
4.3	Conclusion . . . . .	9
<b>5</b>	<b>Conclusion and Future Work</b>	<b>11</b>



# Chapter 1

## Introduction

### 1.1 Cloud

Cloud computing is the on-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user. The term is generally used to describe data centers available to many users over the Internet.

Cloud services refer to any IT services that are provisioned and accessed from a cloud computing provider. This is a broad term that incorporates all delivery and service models of cloud computing and related solutions. Cloud services are delivered over the internet and accessible globally from the internet. There are three basic types of cloud services:

- Software as a Service (SaaS)
- Platform as a service (PaaS)
- Infrastructure as a service (IaaS)

## **1.2 Cloud Services**

### **1.2.1 SaaS**

SaaS is a software distribution model in which applications are hosted by a vendor or service provider and made available to customers over a network, typically the internet. Examples include G Suite – formerly Google Apps, Microsoft Office 365, Salesforce and Workday.

### **1.2.2 PaaS**

PaaS refers to the delivery of operating systems and associated services over the internet without downloads or installation. The approach lets customers create and deploy applications without having to invest in the underlying infrastructure. Examples include Amazon Web Services' Elastic Beanstalk, Microsoft Azure – which refers to its PaaS offering as Cloud Services – and Salesforce's App Cloud.

### **1.2.3 IaaS**

IaaS involves outsourcing the equipment used to support operations, including storage, hardware, servers and networking components, all of which are made accessible over a network. Examples include Amazon Web Services, IBM Bluemix and Microsoft Azure.

## **1.3 Experimental Cloud using Commodity Hardware**

The objective of this project is to create an experimental cloud by repurposing commodity hardware. The cloud we create would be made available to students as virtual desktops which may be used to host web services which can vary from simple static page to complex web applications.

## 1.4 Organization of The Report

This chapter provides an overview of cloud computing and cloud services. In the next chapter we will introduce MaaS(Metal as a Service), which is a relatively new approach for cloud based service. In chapter 3, we will discuss some of the tools that we need to be familiar with to break the ice. In chapter 4, we will discuss the approach by which we can create a MaaS based cloud environment. And finally in chapter 5, we conclude with some future works.





# Chapter 2

## Review of Prior Works

Survey comes hear

### 2.1 Section name

write ....

### 2.2 Conclusion

This chapter provided details of the some of the existing distributed algorithms for constructing a CDS in wireless ad-hoc networks. The results of these evaluations are summarized in table ?? . In next chapter, we discuss our distributed Algorithm I, for constructing a small backbone in ad-hoc wireless network.



# Chapter 3

## Algorithm I

give details of your algorithm

### 3.1 Conclusion

In this chapter, we proposed a distributed algorithm for construction of xyz. The complexity of this algorithm is  $O(n \log n)$ . Next chapter presents another distributed algorithm which has linear time complexity based on xyz.



# Chapter 4

## Algorithm II

The algorithm presented in previous chapter has  $O(n)$  time complexity. We further propose another distributed algorithm in this chapter based on xyz which has linear time complexity.

### 4.1 Construction

Write ...

### 4.2 Improved Method

Write...

### 4.3 Conclusion

In this chapter, we proposed another distributed algorithm for XYZ. This algorithm has both time complexity of  $O(n)$  where  $n$  is the total number of nodes. In next chapter, we conclude and discuss some of the future aspects.



# Chapter 5

## Conclusion and Future Work

write results of your thesis and future work.





## References