TABLE OF CONTENTS

		Page
ACKNOWLEDGEMENT		i
ABSTRACT		ii
TABLE OF CONTENTS		iii
LIST OF FIGURES		vi
LIST OF TABLES		x
CHAPTER	**TITLE**	
1	INTRODUCTION	1
	1.1. Introduction to Virtual Data Center	1
	1.2. Introduction to Cloud Computing	1
	1.3. Historical Context and Evolution	2
	1.4 Introduction to Datadog	2
	1.5 Aim and Objective	3
	1.6 Structure of the Thesis	3
2	BACKGROUND THEORY	4
	2.1. Overview of Cloud Computing	4
	2.1.1. Clout Computing Characteristics	4
	2.1.2. Services of Cloud Computing	5
	2.1.3. Deployment Model of Cloud Computing	6
	2.2. Amazon Web Services (AWS)	9
	2.2.1. AWS Core Services	10
	2.3. Introduction to Virtualization Technology	12
	2.3.1. Key Concepts of Virtualization Technology	12
	2.3.2. Benefits of Virtualization	13
	2.4. Monitoring and Analytics in IT Infrastructure	13
	2.4.1. Monitoring	14
	2.4.2. Types of Monitoring	14
	2.4.3. Tools and Techniques	14
	2.4.4. Analytics	14
	2.4.5. Types of Analytics	15
	2.4.6. Benefits of Monitoring and Analytics	15

2.5. Datadog Monitoring Framework 15
2.5.1. Key Components of Datadog Monitoring Framework 15
2.5.2. Benefits of Datadog Monitoring Framework 17
3 METHODOLOGIES AND SYSTEM DESIGN 18
3.1. Foreword 18
3.2. AWS Identity and Access Management (IAM) 18
3.2.1. Key Features of IAM 19
3.2.2. Benefits of IAM 19
3.3. Amazon Virtual Private Cloud (VPC) 20
3.3.1. Key Features of VPC 20
3.3.2. Benefits of VPC 21
3.4. Amazon Elastic Compute Cloud (EC2) 21
3.4.1. Key Features of EC2 21
3.4.2. Key Features of EC2 22
3.4.2. EC2 Instance Types and Use Cases 22
3.5. Amazon Simple Storage Service (S3) 23
3.5.1. Key Features of Amazon S3 23
3.6. Amazon Relational Database Services (RDS) 23
3.6.1. Key Features of Amazon RDS 23
3.7. Amazon Elastic Block Store (EBS) 24
3.7.1. Key Features of Amazon EBS 24
3.8. Elastic Load Balancing (ELB) 24
3.8.1. Key Features of Elastic Load Balancing 24
3.9. Amazon CloudWatch 25
3.9.1. Key Features of Amazon CloudWatch 25
3.10. AWS Auto Scaling s26
3.10.1. Key Features of Auto Scaling 26
3.11. AWS Lambda 26
3.11.1. Key Features of AWS Lambda 26
3.12. Datadog Monitoring Framework 27
3.12.1. Key Features of Datadog 27
3.13. System Design Flow Charts 28
3.13.1. Design Phase 28
3.13.2. Implementation Phase 28

3.13.3. Testing Phase 28
3.13.4. Deployment Phase 29
3.13.5. Step-by-Step Guide to Creating Virtual Data Center on AWS 29
4 IMPLEMENTATION AND FINAL RESULTS OF CREARING VIRTUAL DATA CENTER USING AWS AND DATADOG 30
4.1. Preface 30
4.2. Step-by-Step to Create and Sign Up an AWS Root User Account 30
4.3. Assign Multi-Factor Authentication (MFA) for Root User and Create Alias 37
4.4. Create IAM User, Assign MFA for IAM User and Sign Up 41
4.5. Sequential Guide to Configure S3 (Simple Storage Service) 48
4.6. Detailed Instructions for Deploying DynamoDB 52
4.7. Create Role for EC2 to Access S3 and DynamoDB 54
4.8. Step-by-Step Guide to Create Virtual Private Network (VPC) And Set Up Networking Configuration 56
4.9. Step-by-Step Guide to Launch Elastic Compute Cloud (EC2) 65
4.10. Sign Up Datadog Monitoring Framework 68
4.11. Integrate Datadog with AWS 69
4.12. Testing and Validation 73
5 CONCLUSION 80
5.1. Conclusion 80
5.2. Future Work 80
REFERENCES 82