

Preface

Cloud Computing has emerged as a cost effective alternative to managing complex computing systems. Traditionally organizations of all sizes required computer networks within their businesses. Managing a network requires specialized expertise which many businesses lack. In many cases network management was outsourced but it still required the attention of businesses since computing service was considered essential. This is where the emergence of Cloud Computing is trying to fill a void where companies would want to focus on their core strengths and let others deal with managing their computing needs. From the start the Cloud Computing model has been attractive because it offers the users the ability to grow incrementally and scale back when services were no longer needed. Moreover, a business could pay only for the services that they use. When there are so many businesses and people who want to use more sophisticated forms of computing services the Cloud Computing model fits well. At the same time it gives a major incentive to cloud providers to offer the necessary services by benefiting from economies of scale.

In this book under the Springer Briefs Series, I will present all the essential details that a potential user would want to consider before deciding on the use of cloud service. The book is divided into seven chapters. In Chapter 1, I will trace the history of the evolution of Cloud Computing as a viable service today and how it is helping entrepreneurs and small businesses have access to advanced services at a fraction of the cost. Chapter 2 will cover the details pertaining to the different forms in which one could use a cloud service. In particular, the reader will be able to understand the three basic types of service that the cloud service provider offers. These services offer varying levels of control to the user regarding their infrastructure. These are known as Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS). Besides these three basic types, there are four different deployment modes in which cloud service is used. The most common form of cloud service is known as the Public Cloud. This is more like the Internet where there is nothing proprietary owned by the user. The Private Cloud is often used by large businesses that want to use the architecture of the Public Cloud but keep the computing resources all to themselves without sharing with others. The Private Cloud architecture is usually held in-house as a managed service. It can also be used as a hosted service. There are also two other models of cloud usage—Hybrid Cloud

and Community Cloud. The Hybrid cloud comes in two flavors—one in which the user owns a private cloud for much of their computing needs and uses a public cloud primarily for archival purposes. Another way of defining a hybrid cloud is one in which the user uses their computing resources for business critical applications and sensitive data and uses a public cloud for other general uses such as hosting a web site. The Community Cloud is more specialized in that it is used by a group of people with a common interest or a group of businesses that specialize in a particular industry such as automotive, health care or finance. Next I will describe how the cloud is used heavily today for storage and backup.

Chapter 3 discusses the many benefits that Cloud Computing offers as well as the drawbacks associated with the cloud. The details presented here would help a prospective cloud customer as to the things that they should look for in selecting a cloud service provider. Main expectations for the cloud customer are the service availability and the security and privacy of their data. To put things in proper perspective concerning the cloud service I will highlight some of the major outages in cloud service in the recent past so that businesses will be aware of some of the risks associated with a cloud service. Chapter 4 amplifies further on this theme where I describe about the major cloud providers and their services. In this chapter I provide detailed analysis of all the major cloud service providers and niche cloud service providers. In Chapter 5, I address the security aspects related to Cloud Computing. This is an important aspect of Cloud Computing that every user must be concerned with. In this chapter I describe the tools available to protect sensitive data in the cloud. Often businesses are faced with providing evidence to authorities about the compliance requirements such as HIPAA. This chapter will discuss the compliance aspects that a business must consider if it is necessary for them. In this regard I discuss about all the major federal laws in U.S. concerning data and privacy protection that a business may have to comply with as well as industry standards such as the Payment Card Industry Security Standards. Another important aspect that is discussed in this chapter deals with access control that is critical to security.

In Chapter 6, I provide the necessary details that a business would need from a cost and risk perspective in using cloud services. There is detailed discussion on the various types of risks that a business might face when moving their computing resources to the cloud. This discussion sheds light on how using a cloud service is similar to outsourcing. A detailed look at these two aspects shows the similarities and differences between the two types of services. Chapter 7 is the concluding chapter in the book which provides details on what businesses should look for in a Cloud Computing contract in order for them to know how reliable the service would be and how they could limit their liability. Extensive details are presented on what to expect from the cloud service provider and what remedy, if any, the cloud customer would have when a Service Level Agreement provision is violated. The material presented throughout the book focuses on making the cloud customers understand the complexities involved in dealing with the cloud and how they may already be dealing with a cloud service without their knowledge. My goal in this book is to present the material in a simple and easy to understand manner, with several examples highlighting the various topics discussed.

In each chapter I have provided extensive references to validate the points raised and for further exploration of ideas. Many of the web references provide currency of material as of the publication date. Each chapter has Review Questions. This book is aimed at the general business user for them to know the details about cloud computing and also as a learning resource for junior and senior college students in Computer Science and Information Systems programs. The author will be maintaining a companion web site for the book through the publisher which will provide content updates in the blogs. For instructors planning to use this book for classroom use there will be supplemental materials available consisting of PowerPoint Presentations for each Chapter, Question Bank and Answers to Questions. I have carefully checked the validity and accuracy of all the statements in the book. I have carefully proofread all the material in the book. It is very likely that some errors might have escaped my attention. I welcome feedback from the readers on any aspect of the book, including omissions, typos and errors of any type. Please send all communications to the author via email at mvmsrini@yahoo.com.

Houston, Texas
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S. Srinivasan, Ph.D.

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Srinivasan, S.

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