Chapter 4
Developing Audit Strategy for PaaS Applications

Harshada Dayasagar Samant
University at Buffalo, SUNY, USA

Raghvendra Singh
University at Buffalo, SUNY, USA

ABSTRACT

The adoption of cloud computing has become a mainstream strategy in IT today. Both product-based and service-based industries benefit greatly from the cloud model because of its ability to reduce an enterprise's Capex and allow focus on the growth of core business lines. However, before jumping onto the cloud bandwagon, evaluating the advantage and suitability of cloud technology for an enterprise is important. This chapter focuses on platform-as-a-service (PaaS) cloud computing offerings. The objective with this chapter is to understand the utility of PaaS and analyze and evaluate its risks, vulnerabilities, and impacts. The authors have carried out our investigation from an auditor's lens by studying the risks associated with the PaaS cloud service offering, understanding the methods to thoroughly assess these risks, and identifying controls that must be used to effectively mitigate them. They have aligned this research with the COBIT control framework as we recommend the formulation of cloud governance and business strategies in alignment with enterprise objectives and goals.

INTRODUCTION

The advancement of technology and encompassing networks, storage, and processing power has led to the epitome of computing, known as cloud computing. Since it's impossible to explain PaaS without explaining cloud computing as they are intertwined terms, we will first look at cloud computing. Cloud Computing is a paradigm that allows on-demand distributed network access to shared computing resources virtually (Lewis, 2010). A model for managing, storing, and processing data online via the internet. Clouds are essentially data centers or multiple data centers comprised of compute and storage resources linked by a network, but what distinguishes a data center as a cloud is that all of those resources have been virtualized into one large, shared pool of resources that can be intelligently and automatically orchestrated. This means it can adapt to meet the ever-changing needs of your applications and the ever-changing utilization and availability of each resource (Goyal, 2014). Today's clouds are smart, automated, and adaptive. Applications can be deployed far more quickly without custom provisioning boxes and once deployed those apps can dynamically scale on demand. Resources used like congestion or failure can be resolved automatically. Cloud computing can, in fact, be more efficient and cost-effective than traditional data centers. Consumers who utilize cloud services as required, use shared resources as a service that can quickly and elastically scale up or down as needed, pay only for what is consumed, and access services across a networked infrastructure are characteristics of cloud computing (Carroll et al., 2011). Cloud computing is one of the most popular technologies these days due to the following benefits (Carroll et al., 2011): (a) On-Demand Services, which means utilize the service when you need it. This ensures that the services are used effectively; (b) Network Access, which means it uses the Internet as the medium; (c) Shared Resources, which means resources are shared for usage by numerous consumers; (d) Scalability, which allows resources to elastically move up or down.

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