Chapter 25
Cloud Enhances Agile Software Development

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ABSTRACT

The software industries follow some patterns (i.e., process model to develop any software product). Agile methodology is the most famous and used process model. It is a trend to develop efficient software products with high client satisfaction. In this chapter, the authors discuss agile methodology and its components, benefits, and drawbacks while using the cloud computing in agile software development, existing frameworks for agile-cloud combination, and some security measures.

CLOUD COMPUTING

Introduction

The cloud computing is the most trendy domain for e-Business due to its services that facilitate the customers. These customers include large scale organizations, IT experts, Data Storage, and handling industries and e-commerce businesses. Now cloud computing is emerging with many fields like smart

health, mobile e-commerce, online education systems, and social business interactions. Cloud computing is playing an enormous role in software development due to its inimitable features that make the software development efficient. These features include data storage, use of servers, network infrastructures, data security, pay as per use, the data controller and use of hardware and software tools. The pay as per use is the most owing feature that enhances cloud adoption in industries. The second reason is, the user only needs to pay for services that use not for the entire package and it is the main reason for the organization's shift on the cloud (Qureshi, 2015 ; Pandey, 2009). For accessing these services the cloud computing has different infrastructures that include the three types of clouds and three types of services platforms. These three clouds types are public cloud, private cloud, and hybrid cloud and three types of services are IaaS (Infrastructure as a Service), PaaS (Platform as a Service) and SaaS (Software as a Service). The combination of these services and cloud types has a great impact on cloud adoption (Buyya, 2011).

Cloud Services

Figure 1 is explaining the cloud's services with facilities that the cloud provides to organizations. Every service of the cloud has different facility and support for single user and organizations. The **SaaS** provides the user different types of services as like incorporates enterprise services (ERP), digital signature, CRM applications, the board applications (explicit to coordinated associations financial support, increase sales, seek instruments and so on. This service is used when the information is confidential for the organizations. The **PaaS** supports the consumer for development applications, testing applications, and database integrations. The **IaaS** is a model that gives customers the likelihood to store data, data backup & recovery, services management, capacity, organize resources (which might be utilized to run any software product, including working frameworks) and platform hosting (Leaf, 2011).

The approach these services the cloud has 3 types of infrastructure, **Public Cloud**: this infrastructure is publically available and owned by the cloud service provider, **Private Cloud:** this infrastructure is owned for a single organization and managed by organization internal or external. The **Hybrid Cloud:** is the combination of these cloud infrastructures. The infrastructure is formed by at least two public networks or on another hand private cloud interconnected to guarantee the transportability of information and applications as shown in Figure 2 (Leaf, 2011 ; Xu, 2012).

PROS AND CONS OF CLOUD

Benefits of The Cloud for e-Commerce Industries

The cloud computing provides different types of benefits that engage the users to use cloud's resources. Some of these benefits are as follows:

1. It's providing the cost and scale benefit to e-commerce and global business industries. The cost benefits directly influence the scale benefit i;e means that when the organization increases the resource scale than the cost increase. But it still facilitates the industries in term of money saving (Zhang, 2014 ; Uscatu, 2014).

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