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Study of agile methodology with the cloud

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ABSTRACT

This paper reviews different Cloud computing and agile development methodologies with new technologies that have come with new approaches. In the future, we can develop better quality software and can also provide computing services. However, the synergy between the two is bonded with technical and non-technical challenges. Agile methodologies are considered very competent in software development. Agile development techniques are very practical for accepting information and are necessary when the industry atmosphere changes.

1. Introduction

The techniques of agile software development have become popular during the last few years. For traditional Project Management, the agile methodology is widely used in software development to increase the quality of a project as well as to enhance customer satisfaction. Agile methods are light-weight software schemes (Misra et al., 2006). The old traditional techniques (Waterfall, Unified Process, prototyping Model and Spiral Model) are not capable for software development nowadays because new requirements are taking place in the market. The new software development techniques include XP, Scrum, Crystal, FDD, DSDM, and ASD (Mani and Deebitha, 2014).

Cloud computing is entirely based on Internet facility. During the recent past, cloud computing has reached great esteem and developed an important style in IT. Cloud computing is a model that enables suitable, on-demand networking access to a pool of public and configurable computing resources that are quickly provisioned with the negligible management attempt or services supplier contact (Bogdan et al., 2014). A cloud, in fact, is a network of computers serving as a "service-oriented" construction to bring software and data. The cloud research design at high speed focuses only on newly joined customer (Gangadhar et al., 2015).

A number of organizations all over the world are trying out a variety of accessible agile development methods.

2. Literature review

A number of studies have been carried out in the literature show that agile methodologies and cloud computing has based its features on the necessities for small and large organizations as well as on an understanding of the project group. In the following section of the paper, two different methodologies for cloud computing and agile methodologies that are widely used in business are discussed. Agile development methodologies and cloud computing are an excellent combination. A brief review of important research studies carried out in last two decades has been presented in following section of the paper. Boehm and Turner (2005). Generally, agile methods are lightweight processes that utilize short iterative cycles. It enthusiastically engages users to establish, prioritise, and ensure that necessities are taken care of as well as relies on a team's unspoken knowledge as different to certification (Boehm and Turner, 2005).

According to Cho (2008), he highlights the differences connecting agile and traditional software development methods and describes the scrum framework, which is a well-known agile method. The author also discovers issues and challenges in scrum in an in-depth case study. The identified issues are comprised of certification, user participation, operational environment and scrum ceremonies. The issues and challenges exposed by the authors on the foundation of one holder study and the dialogue of nine employees is inadequate to set-up a statement concerning the method (Cho, 2008).

As stated by Cao et al. (2009), the agile advancement is predictable for considering the challenges connected to the developers, which could influence its achievement considerably. The

method generally depends on the contained knowledge of the developers. The developers might not document vital decisions, and the deficiency of prescribed record-keeping regarding the project may possibly make things more complicated for the teams to sketch and comprehend the structure (Cao et al., 2009).

As per Hneif and Ow (2009), the discussion on three agile methods of extreme programming, scrum, and agile modelling illustrate the differences amongst them. The authors also present a number of suggestions concerning how these methods should be followed by the practitioners (Hneif and Ow, 2009).

According to Pallis (2010), in view of present demand from employment, the individual requirements for online appointments, and the expansion of the net, cloud computing could be a demonstration of an innovative paradigm of a large-scale circulated computing efficacy for business and social order solutions (Pallis, 2010).

Consistent with Hochmuller (2011), in agile software development, the purchaser or client ambassador is responsible for explaining supply. For a while, clients did not contain the essential skills to illustrate their needs. To rise above this subject, the prerequisite engineer should co-operate with the developers and customers. The author also highlights several reimbursements that can be achieved if the engineer works shoulder by shoulder with the customer. This move towards customer–developer relationships is the foundation for the agile software development process. To achieve real benefits, the engineer should be a specialist in other areas of software engineering, such as cost estimation, requirements confirmation, and corroboration (Hochmuller, 2011).

According to Mazni et al. (2011) the agile methodology has an important impact on software development. The methodology positively influences the developers since it can be introduced and included into the services offered for the team members (Mazni et al., 2011).

As per Khajeh-hosseini et al. (2012), development methodologies, such as agile methodologies, emphasise detailed practices that may perhaps carry issues of concern in the form of non-technical and technical problems related to cloud computing. The user and developer communicate the restrictions, and the programming environment incorporates examples of non-technical and technical problems, respectively (Khajeh-Hosseini et al., 2012).

In view of the existing demand from work and personal requirements for online arrangements and the expansion of the web, cloud computing could demonstrate a new paradigm of a large-scale disseminated computing efficacy for business (Venkatraman and Wadhwa, 2012). Cloud computing has many benefits, but it also has challenges, such as security concerns; data ownership concerns; lock-in and interoperability concerns; enterprise support and service development issues; condition for online connectivity; and there is concern among developers about a new cloud computing stage without suitable supervision, which is focuses on how to successfully make use of typical cloud computing architecture (Venkatraman and Wadhwa, 2012).

Consistent with Werfs et al. (2013), in principle, the cloud computing environment facilitates agile development teams also add their expertise by continuously developing software manufactured goods (Werfs et al., 2013).

3. The significance of the study

This article provide an overview of various agile methodologies with an overview on the literature of this methodology, which identified the key practices of agile methodologies and comparatively analysed the five methodologies on the basis of identified practices. This paper provides an analysis of unique practices for agile methodologies, a comparison between the methodologies, a summary of the practices that are common to agile methodologies, and provides an understanding of appropriate methodology combinations.

4. Agile modelling

Agile modelling is a methodology that will help for further document software systems based on optimum practices. It is an assembly of standards and ethics that agile software increasing uses (Moniruzzaman and Hossain, 2013). Moreover, agile modelling is similar to other methodologies, such as Scrum, Excessive Programming (XP), and Rational Unified Process (RUP). Like XP, agile modelling expounds that changes are simple in software development. Agile modelling also highlights the difference between everyday models whose solitary reason is to assist face-to-face communication and models for system documentation (Rajasekhar and Mahammad Shafi, 2014).

5. Agile methodologies

The difference between agile development and traditional software is not negligible and code oriented. The most important agile methods are listed in (Singh and Chana, 2013; Tuli et al., 2014; Werfs et al., 2013) (Fig. 1).

- Crystal methodologies family
- Extreme Programming
- Feature-Driven Development
- SCRUM

5.1. Crystal methodologies family

In 2000, Alistar Cockburn discovered the Crystal Methodologies families. They focus on effectiveness and habitability of tools for project safety (Moniruzzaman and Hossain, 2013). There are different types, including Clear Crystal, Yellow Shining, and Orange Crystal. Moreover, Red Crystal is good due to the different number of people. It is also best depending on the load of projects. All of the Crystal methodologies urge especial roles, platform standards, and lines must be adopted. Crystal Clear, which is one of the Crystal methodologies, is for development teams of six to eight members with a focus on activity on non-life sensitive systems (Hasaba and Faraahi, 2014; Kumar and Bhatia, 2012).

5.2. Extreme Programming (XP)

Extreme programming (XP) is programming that helps agile, lightweight software development. It became popular during the
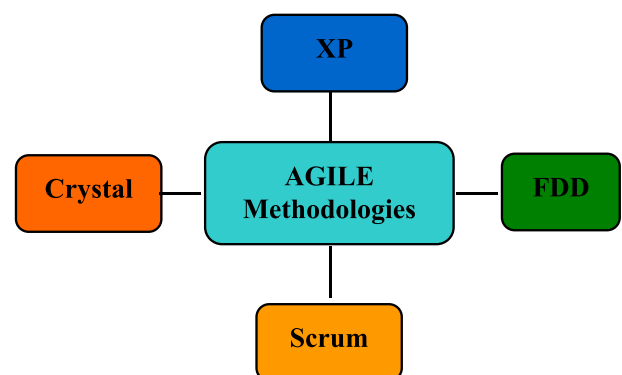

Fig. 1. Agile methodologies.