Agile Development Methodology with cloud computing

Neha Jain[1] And Shipra Dubey[2]

[1]Master of Technology(IT)
nehash9@gmail.com
[2]Master of Technology(CS)
shipradubey2010@gmail.com
Banasthali VidyaPith ,Jaipur, Raj ,India

ABSTRACT

Combining agile development methodologies with cloud computing brings the greatest of both worlds. Agile development methodologies are very hopeful in the software industry. Agile development techniques are very practical in accepting the fact that prerequisite in a business environment changes regularly. This method used by artistic people who have understood the faults of regular software management processes & and provide a lot of opportunities to assess the direction of a project throughout the development lifecycle. Agile development processes optimize the opportunity provided by cloud computing by doing software releases iteratively, receiving user opinion more regularly & facilitate the organizations to examine quality standards at each section of the improvement. In this paper we are trying to analyze the Agile Management & development methods and its benefits conjunction with cloud computing.

Keywords: Agile Methodologies, Cloud Computing, Software Management Processes.

1. Introduction

Agile methodology is an approach to project management, generally used in software development. It helps teams respond to the unpredictability of building software through incremental, iterative work cadences, known as sprints. Agile methods are a response to the inability of traditional methods to embrace change in a turbulent business environment that demands software to meet its needs quickly. Agile methods are light weight software schemes. Agile development methodology attempts to provide a lot of opportunities to assess the direction of a project throughout the development lifecycle. Highly artistic people who have understood the faults of regular software management processes are using agile development methods in organizations. Many organizations all around the world are trying out the various available agile development methods.

Cloud computing has recently reached popularity and developed into a major trend in IT. While industry has been pushing the Cloud research agenda at high pace, academia has only recently

joined, as can be seen through the sharp rise in workshops and conferences focusing on Cloud Computing. Lately, these have brought out many peer-reviewed papers on aspects of cloud computing, and made a systematic review necessary, which analyses the research done and explains the resulting research agenda. In this paper we are trying to analyze the Agile Management & development methods and its benefits conjunction with cloud computing.

2. Agile Development with Cloud Computing:

Agile development methodologies and Cloud Computing go together each other extremely healthy. Cloud Services take arrogance in gathering user necessities rapidly; delivering applications whenever and to whatever coverage they are desirable. Agile methods offer tall credibility to user relationship in necessities detection. The agile system of software development aims to break down project requirements into little, achievable segments. This approach guarantees user feedback on all task of the project. Segments can be intended, urbanized and tested independently to preserve high superiority standards and just about no bottlenecks. The development stage of every component thus becomes a single "iteration" process. Additionally, lean agile software methods place enormous highlighting on developing a mutual relationship among application developers with end users. The complete development process is see-through to the end user. Feedback is required at the entire stages of development, and changes are made consequently.

Using lean agile development in conjunction with cloud computing provides a highly interactive as well as collaborative environment. The moment developers finalize a feature, they can push it as a cloud service; users can analysis it instantly and offer valuable feedback. Thus, a lengthy feedback cycle can be eliminated, reducing the probability of misstated or misunderstood requirements. This considerably curtails the time and efforts for the software development organization while increasing end user satisfaction.

Following the agile approach of demand-driven production, end user needs are integrated in a extra cohesive and efficient manner with software delivery. This approach stimulates a greater degree of innovation and requirement discovery and validation in cloud computing. This approach will also help generate quick user feedback and enable the organizations to monitor quality standards at each segment of the development. The key benefits, therefore, of using lean agile software development in conjunction with the cloud computing paradigm include: enable organizations to strengthen their IT portfolio for better service delivery while lowering costs.
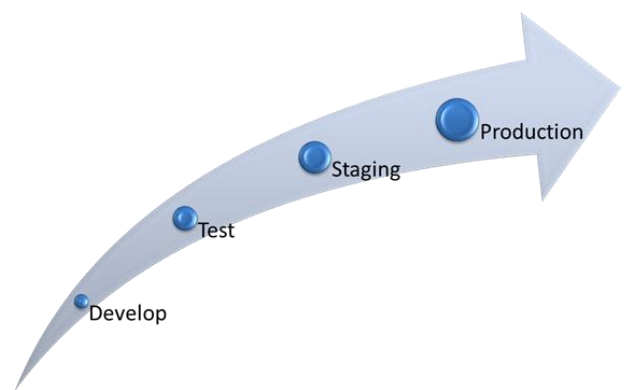
**Figure: 1 Agility of Software Development Process with Cloud Computing**

Importance of Agile Methodology

Agile development methodology attempts to provide a lot of opportunities to assess the direction of a project during the development lifecycle. This is achieved through regular cadences of work, well-known as sprints or iterations, at the end of which teams must present a shippable increment of work. Thus by focusing on the repetition of shortened work cycles as well as the functional product they yield, agile methodology could be explained as "iterative" and "incremental." In waterfall, development teams just have one chance to get each aspect of a project right. In an agile paradigm, every aspect of requirements, development, design, etc. is continually revisited during the lifecycle.

2.2 Elementary principles of agile methodologies:

- Individuals are more important than processes and tools.

- Working software is more important than comprehensive documentation.

- Customer collaboration is more important than contract negotiation.

- Responding to change is more important than following a plan.

2.3 How Cloud Computing payback a corporation:
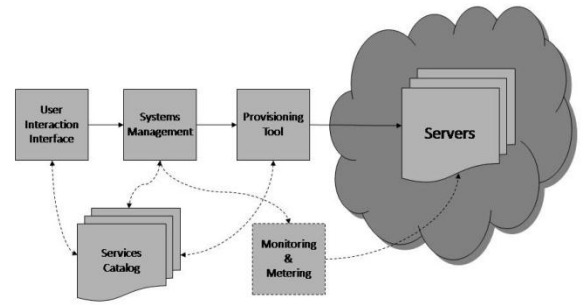
Figure 2: Architecture of Cloud Computing

The structural design at the back cloud computing is a huge network of "cloud servers" unified as if in a grid consecutively in parallel, from time to time using the procedure of virtualization to make the most of computing power per server.

A front-end interface allows a user to select a service from a catalog. This request gets passed to the system management which finds the accurate resources, and then calls the provisioning services which carves out resources in the cloud. The provisioning service may install the requested stack or web application as well.

- User interaction interface: how users of the cloud interface with the cloud to ask for services.

- Services catalog: the list of services that a user can demand.

- System management: the piece which manages the computer resources obtainable.

- Provisioning tool: This tool carves out the systems from the cloud to distribute on the requested service. It may also organize the obligatory images.

- Monitoring and metering: This is the optional piece tracks the usage of the cloud so the resources used can be attributed to a assured user.

- Servers: Servers can be either virtual or real and are managed by the system management tool.

Cloud computing refers to the condition of computational resources on demand by means of a computer network. It enables tasks to be assigned to understanding of software and services over a network. This network of servers is the cloud. Cloud computing is a brand new gesture of IT infrastructure that permits businesses to run their applications on a collective data center space. Contrasting conventional qualified software, cloud knowledge brings in efficiency by removing the unwieldy processes linked to software development, testing, installation and failovers.

The key reward of cloud computing includes:

• No hardware or software required used for cloud computing services.

• Trouble-free mixture with other project solutions.

• Greatly customizable environment.

•Speedy operation, joined with less possibility of failovers.

• Optimum consumption of in-house IT resources.

3. COMPUTING AND AGILE DEVELOPMENT: An Immense Mishmash

Cloud computing is the wonderful environment for agile development. It lets you get valuable functionality to your customers quickly, collect instantaneous feedback, and make quick changes based on that feedback. This rapid development cycle, an inherent benefit of cloud computing, are impossible to implement in the conventional development model because of the huge cost of distribution.

Customer feedback is now wicker into the process at each stage—an email sent or idea posted on the idea Exchange today may drive tomorrow's functionality. As a result, the team supports only the present production release and next release—not years of legacy releases. That means that each day, hundreds of people check into the same code base. When someone makes a change that may break existing code, everyone immediately knows about it, so there's no time wasted in the merge and integration processes later in the cycle.

Benefits of Cloud Computing with Agile Development:

• Condensed growth cycle-time of 75%.

• Superior stability of work-loads.

• Privileged utilization of work-load

• Advanced quality by prior response from the clients.

• Higher elasticity to modify of Management and development plans.

• Condense the cost of moving information connecting public.

• Situate people physically closer.

• Decrease the elapsed time between making a decision to seeing the consequence of that decision.

• Replace documents with talking in person and at whiteboards, and

• Improver the team's amicability-its sense of community and morale- so that people are more inclined to relay valuable information quickly.

4. Future Scope & Conclusion

Combining bend over agile development methodologies in the company of cloud computing brings the superlative of both worlds. Software applications are delivered today by

means of cloud computing. It is the consequence of advances in knowledge, ranging from increased processing, and improved complexity of storage region networks which made storage flawlessly scalable, pervasive high-bandwidth network access, and the improved security and trustworthiness of the internet. Agile development processes optimize the prospect provided by cloud computing by doing software releases iteratively and receiving user opinion added regularly. It is very necessary for software expansion organizations to regard as agile development methodologies while coming up with their cloud computing approach.

Agile development methods are very pragmatic in understanding the fact that requirement in a business environment changes constantly. Highly creative people who have understood the shortcomings of normal software management processes are using agile development methods in organizations. Many organizations all around the world are trying out the various available agile development methods. Agile development processes optimize the opportunity provided by cloud computing by doing software releases iteratively and getting user feedback more frequently.

REFERENCES

[1].AgileAlliance. (2001, February). History: The Agile Manifesto. Retrieved Sept 22 2004, from the World Wide Web: http://agilemanifesto.org/history.html

[2]. Amber, Scott. (2002). When and when aren"t you Agile Modeling? Retrieved Sept 22 2004, from the World Wide Web: http://www.agilemodeling.com/essays/whenAreYouAgileModeling.html

[3].Aoyama, Mikio. (1998, November). IEEE Software: Web-based Agile Software Development. Retrieved Sept 22 2004, from the World Wide Web: http://rockfishcs. cs.unc.edu/COMP290-S02/Aoyama-98.pdf

[4]. Lean Agile Methodologies Accentuate Benefits of Cloud Computing. Web: www.thetechnologygurus.com/.../LACC_white_paper_ed_v5.320180428.

[5]. Chromatic. (2001, May). O"Reilly Open Source Convention: An Introduction to Extreme Programming. Retrieved Sept 22 2004, from the World Wide Web: http://linux.oreilly.net/pub/a/linux/2001/05/04/xp_intro.html

[6]. Cockburn, Alisair., Highsmith, Jim . (2001, September). Agile Software Development: The people Factor. Retrieved Sept 22 2004, from the WorldWideWeb: http://www.adaptivesd.com/Articles/IEEEArticle2Final.pdf

[7].Cockburn, Alistair. (2001, October). Philosophy of crystal Methodologies. Retrieved Sept 22 2004, from the World Wide Web: http://crystalmethodologies.org/philosophy.html

[8]. Control Chaos. (2001). SCRUM software Development process. Retrieved Sept 22 2004, from the World Wide Web: http://www.controlchaos.com/scrumwp.htm

[9].Control Chaos. (2002). What is Scrum? Retrieved Sept 22 2004, from the World WideWeb:http://www.controlchaos.com/scrumo.htm

[10].Disaster. (2001, July). Recipes for Disaster. Retrieved Sept 22 2004, from the World Wide Web: http://www.cio.com/archive/070101/secret_sidebar_2_content.html

[11].DSDM. (2001). Overview: Why is DSDM different. Retrieved Sept 22 2004, from the World Wide Web: http://www.dsdm.org/en/about/overview.asp

[12].Fowler, M. (2000, December). Put your process on a diet software development. Retrieved Sept 22 2004, from the World Wide Web:

http://www.sdmagazine.com/articles/2000/0012/0012a/0012a.htm

[13]. "Agile Software Development, Principles, Patterns, and Practices," by Robert C. Martin, Prentice Hall.

[14]. "Agile Software Development with SCRUM," Ken Schwaber, Mike Beedle, Prentice Hall.