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A Comparative Study of Agile & Devops Methodology

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Abstract: In order to enhance software development with client satisfaction, business has embraced techniques that emphasize on client partnership, continuous delivery, persistent response, reaction and communication among all stakeholders while providing software progressively in small releases. Hence many have brought into practice the agile way. However, to enhance IT service performance, maintenance and provide organizations with competitive advantages, DevOps was introduced. It enhances the collaboration amid development & operations teams to eliminate the unwanted impediments for the delivery of application and service by practicing agile & lean concepts. To achieve this purpose, DevOps is termed as the combination of various software development methodologies, operational processes and social psychological beliefs for changing the IT service delivery. In this outlook, DevOps is an interesting way of thinking, a spirit and a philosophy for transforming organizations helping them to achieve their goals.

Keywords: Agile, DevOps, scrum, Lean Thinking.

I. INTRODUCTION

A. What is DevOps?

DevOps is a software development technique which emphasizes on communicating, integrating, and collaborating amid IT professionals to allow quick distribution of products.

DevOps encourages cooperation and partnership amid Development & Operations Team. It permits to deploy code to production in a quickly through automation. It helps to increase an organization's delivery speed to deliver applications and other resources. It can be interpreted as an backbone of development & IT operations. DevOps significantly helps to improves efficiency, uniting agility, and assists to increase productivity. DevOps helps to achieve flexibility, accuracy, a higher scope of automation, managing complex problems and producing favorable solutions. DevOps interacts regularly to observe the development that serves the client and business requirements. It uses tools such as Application Performance Monitoring tools like Sensu, PagerDuty , Librato etc..which indicates if there are any chances of a project to fail.

B. What is Agile?

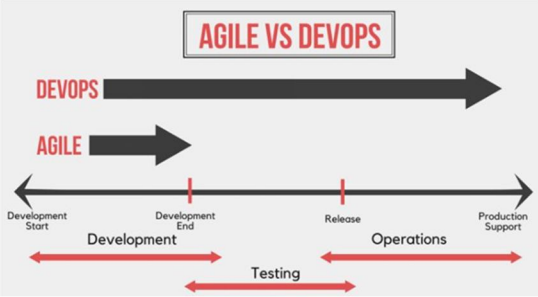
Agile Methodology consists of constant repetition of developing as well as testing in the SDLC. This software development method focuses on iterative, incremental, & evolutionary development.

Agile development process distributes the product into portions & integrates them finally for testing. It can be executed by different means like Kanban, Scrum, XP, etc. AGILE methodology practices the technique of concurrent iterations of testing and development activities of an SDLC. The Agile practices defines an organizational culture that provides importance to clients and focuses on:

1) Interactions for the task assigned and to be achieved individually as well as with the management.
2) Agile emphasizes much on the process rather than the documentation, constantly delivering working software to customers.
3) Involves the client at all the different stages of product development and welcomes changing demands even late during development of the product.
4) Responds to change.

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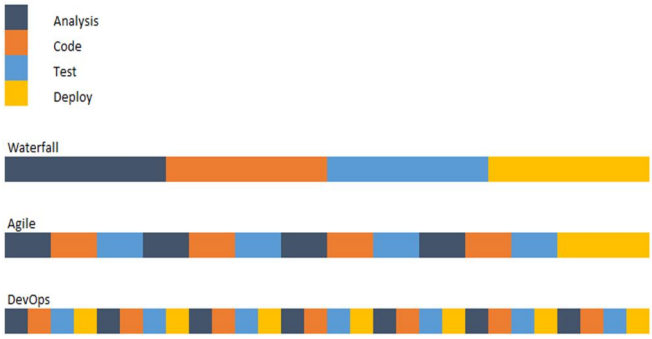
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II. HOW DEVOPS IS DIFFERENT FROM THE AGILE METHODOLOGY

DevOps is popular for its relentless cycle of testing, integration, development and deployment routine. Although Agile and DevOps both have their importance and complement each other, DevOps is kind of an addition to Agile. Agile acts as a foundation for DevOps to stand successfully. Agile is efficient in the absence of DevOps but can come to aid when it goes hand in hand with the DevOps practices.

While Agile is easily recognized as scrum and continuous testing & deployment ,as with DevOps this is apparently true. The below diagrammatic representation gives an overview that the ,*Waterfall approach requires much more time for a release cycle than Agile and DevOps.* The Waterfall model is built around a few significant opinions and occasions like, e.g. design review and sign-off, code completed, testing etc. Agile is all about starting swiftly, cumulative enhancements, rapid prototyping, testing and validation. Time to value (TtV) is much higher quality and there are numerous possibilities to engage with the major stakeholders to make sure things are on track or to make mid-course corrections as necessary. Nevertheless, *Agile is all about working on major things first.*



III. CHALLENGES OF AGILE SOFTWARE DEVELOPMENT

Agile practices the method of creating quality products that is; the developing software in a appropriately .But the problem arises when, this exercise involves people who are working in Silos. In Silos, there are individuals who work as either Developers, Testers, or ITOps with limited conversation amongst. Due to which, many are unaware what the others are operating and functioning on in spite of involvement in the same exercise. This Silos-ed functioning of different groups is a major cause of the fabled “Blame Game” that starts when a software shows the signs of being deficient and imperfect.

A. The Blame-Game

When the customer points out flaws regarding a software, the blame is tossed at one another internally. The ‘Dev’ team would blame at the ‘QA’ team. ‘QA’ team will then blame the ‘ITOps’ team, who would indirectly accuse the ‘Dev’ team for the issues faced. In such manner everybody blames each other in a team.

Despite of the flaw present in the developed code ,or in the environments on which the code was deployed ,the issue present is isolated, as nobody wants to take the responsibility of this mess.

B. Solution For This Never-Ending Problem is -DevOps.

DevOps overcomes this problem by practicing an approach quite different from that of an Silos-ed one.

In DevOps, there is only one team consisting of the ITOps, 'QA' team and the 'Dev' team rather than having different teams for each of them.

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IV. COMPARISION

The below table differentiates Agile from DevOps based on the following parameters:

Parameters	Agile	DevOps
Basic Philosophy	Integrates business, dev and QA for rapid delivery of software. Iterative 'sprint' cycles. Assumes priority of business needs may change. Adjust scope to preserve schedule.	Cross-Functional teams utilize automation to enable continuous deployment of change. Constant feedback loop. Adjust scope to preserve schedule.
Documentation level	Light	Light
Automation level	Varies	High
documentation level	Rapid(Daily/Weekly)	Continuous
Business Ownership of Project?	Yes	Yes
Response to new business needs (flexible requirements)	Responsive-Iterative Delivery enables Prioritization	Highly responsive-cross functional teams define business needs more precisely
Collaboration	Improved - Business is highly engaged, short Dev Cycles	High-all stakeholders involved from Project start
Quality	Improved - issues identified after every 'sprint'	High-automated unit testing during development
Risk	Decreases as project progresses	Decreases as project progresses
Customer Feedback	Frequent- after every sprint	Continuous
Communication	Scrum is most familiar method for Agile software development. Daily scrum meeting is common in organizations.	DevOps communications involve specs and design documents. It's essential for the operational team to fully understand the software release and its hardware/network implications for adequately running the deployment process.
Speed vs. Risk	Teams using Agile support quick change, and a strong application structure.	In the DevOps method, the teams must ensure that the changes made to the architecture never develop a threat to the whole project.
Team skill set and size	Trains all team members to have a wide diversity of skills. Agile has a Small Team of skilled people .	A larger team consisting of stakeholders along with teams consisting of skill set divided equally.
Tools used	JIRA, Bugzilla, Kanboard are some widely accepted Agile tools.	Puppet, Chef, TeamCity ,OpenStack, AWS are some widely accepted DevOps tools.

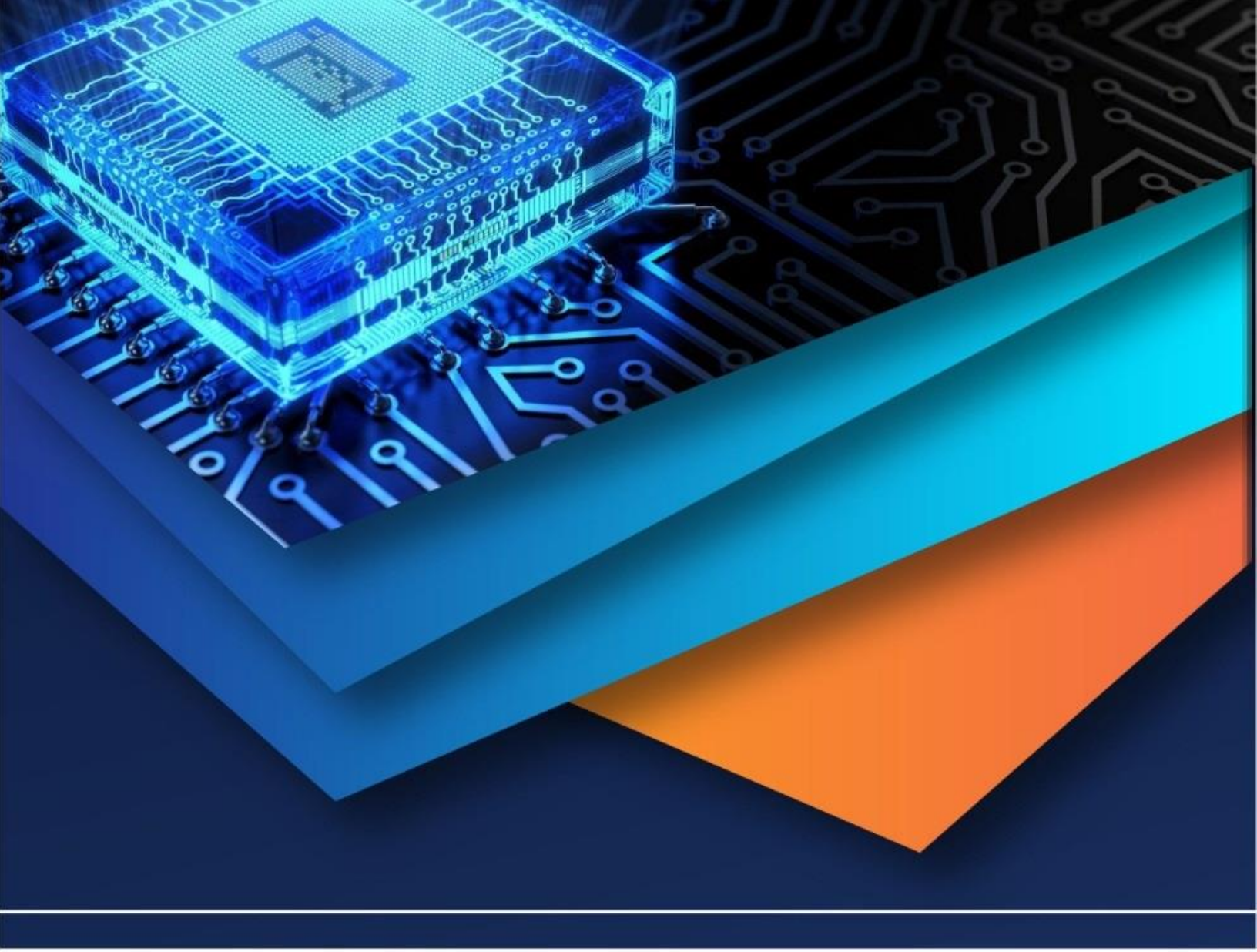
V. CONCLUSION

After understanding the major differences amongst Agile and DevOps, it is clear that DevOps isn't a totally different concept. Therefore, instead of replacing Agile completely, DevOps is just a mere extension of Agile, or in simple words DevOps is Agile's offspring. Because of some differences like Agile focuses more on software development only and not on deployment, DevOps came into practice. It helps to achieve the goal of both software development and deployment, achieving the budget goals, compatible software components and collaborating amid development and IT operations team. Developments in technology and the altering client requirements are vulnerable and required the need for a exquisite software delivery process. Both share a common vision; that is to motivate and inspire teams to join forces and take decisions together in a way to benefit from their combined skills.

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