The Mindtree DevOps Approach

Aligning IT with business agility

Background

In order to keep pace with the changing customer needs and market dynamics, companies need to incorporate agile processes and embrace the changes in technology. However, it is often seen that Development and IT operations are two organizational entities which do not get along very well. The common goal should be to get Products/ Applications deployed quickly and efficiently for faster time to market and continual improvement. While developers are using agile frameworks and drastically increasing the frequency of their release cycles, the right meshing with IT Operations practices and tools are yet to be leveraged.

At the end of the day, the business goal is common. IT Dev and Ops should be working together for quicker deployments combined with stable operations.

What is DevOps?

DevOps (a portmanteau of Development and Operations) is an IT Service Delivery methodology where both the entities merge their operating principles towards the common goal of quicker Time to Market while maintaining a stable delivery environment.

IT Ops team see the downstream effects of Dev teams activities, and enable Dev team to anticipate issues effectively by way of continuous delivery. It is achieved through the discovery, fine-tuning and optimization of repeatable processes. The majority of time required to deploy an application to the end-user lies not only in provisioning application or the environment, but in provisioning them in the context of the entire application delivery chain. DevOps is about how best you can integrate processes from each of the cross functional teams into a complete, application-focused operational deployment process. At Mindtree we provide meaningful and tailored integration solutions that make collaboration between people and process easier.

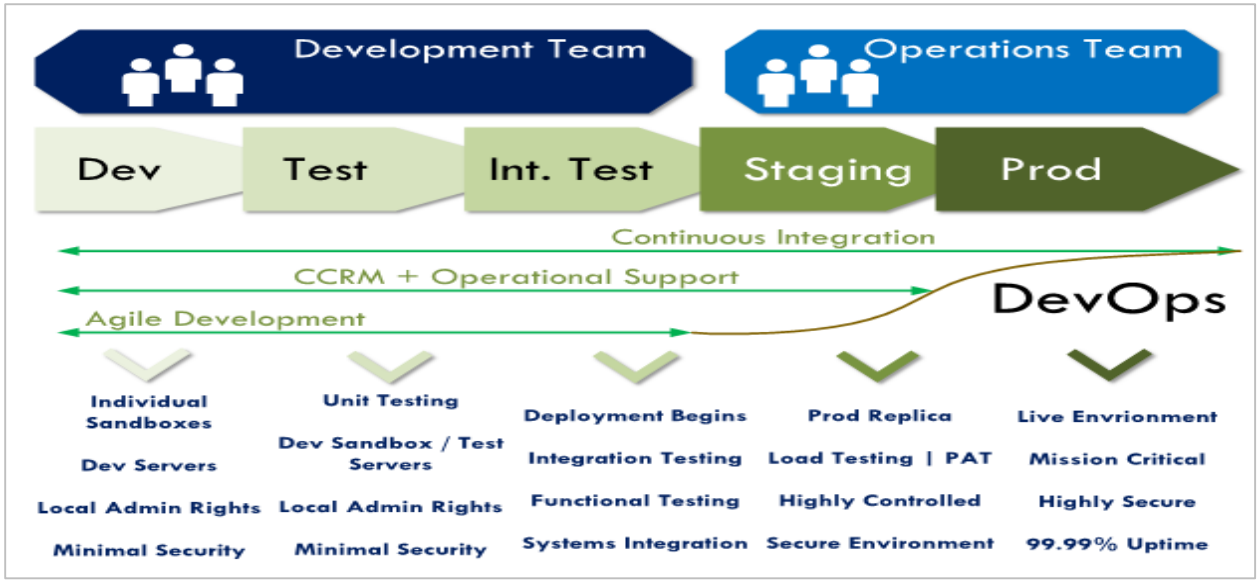


Figure 1: DevOps – A Mindtree Methodology View

In order to understand DevOps better, let us look at some of the challenges in supporting production applications.

a. Continuously changing requirements resulting in changes in the application
b. Reduced release cycle based on business needs with releases every day, week, month
c. First touch resolution demanded by customers
d. 99.x% application availability as a minimum hygiene
e. Consistent experience for globally distributed customers

Mindtree DevOps Model

Mindtree has a two tier support model for real time triaging and faster service restoration. Fixes are deployed in the support service from an operational insight. Integrated tools are used for real time collaboration between engineering and operations. This is achieved by common workflow and inter-related KPIs aligned for business outcomes controlled by robust governance models.

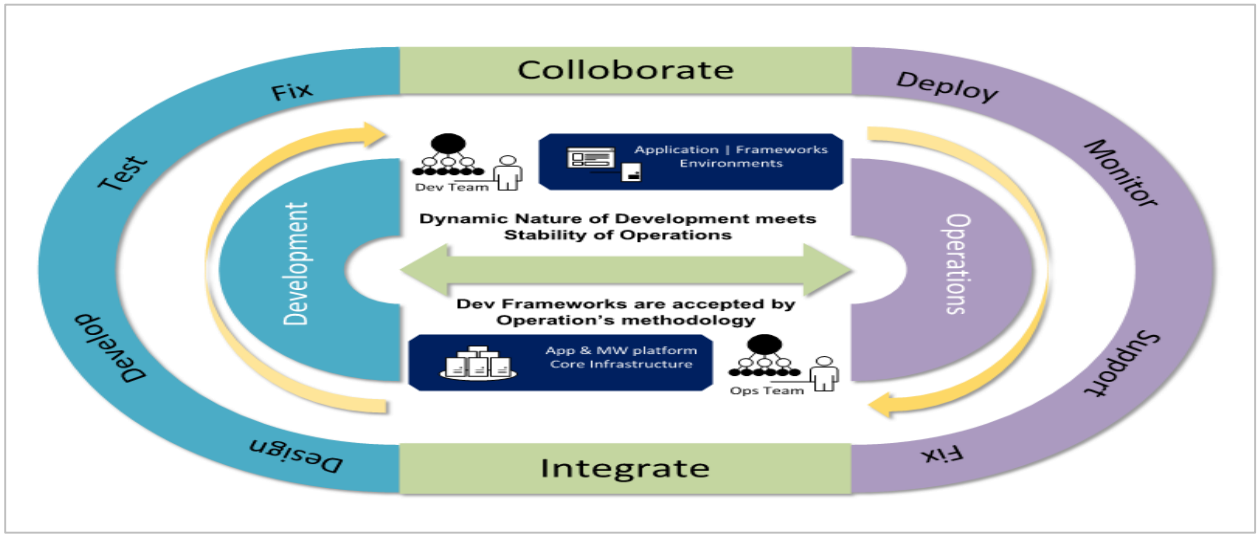
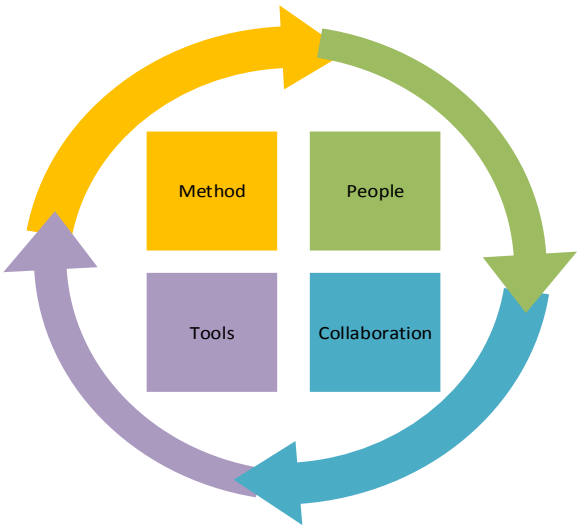


Figure 2: DevOps Integration Environments

The Drivers:

a. Understand and plan the support operations based on upcoming release cycles.
b. Deliver real time diagnosis and resolution of an issue across hardware, OS, network, storage, database, middleware and application layers.
c. Intense engagement with engineering team to enhance the availability and functionality of applications.
d. Identify root cause of bugs early in the cycle.
e. Provide actionable insights to the engineering team to fix bugs.
f. Deliver real-time analysis of health and stability of components.
g. Build fixes for low complexity repeat issues.
h. Adapt faster to a changing application/ business landscape.
i. Deliver business outcome based "inter-related" KPIs.
j. Support business growth in a non-liner model.

The Enablers:



Method:

There are two levels of support with empowered first line support, which reduces the number of hops.

Tools:

Mindtree has integrated tools for monitoring and managing the 7 layers. Automated, real-time and transparent dashboard and reporting is used for achieving operational control.

Collaboration:

Willing and participative teams drive our delivery.

People:

Our people are multi-skilled across infrastructure and application technologies. They demonstrate automation expertise to develop on demand tools / scripts to reduce the operation cycle time. The support engineers are oriented to the "big picture" and how their operations impact the business. Also, continual training is provided to the support engineers on changing application landscape.

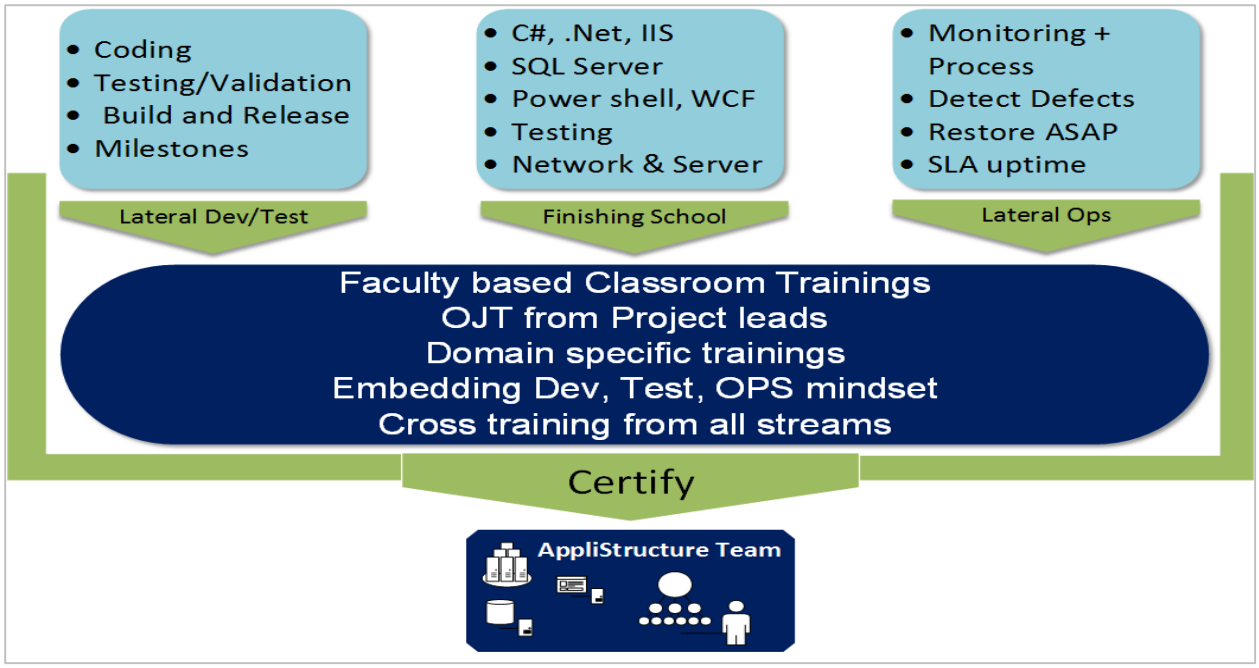


Figure 3: DevOps Talent Pool creation Model

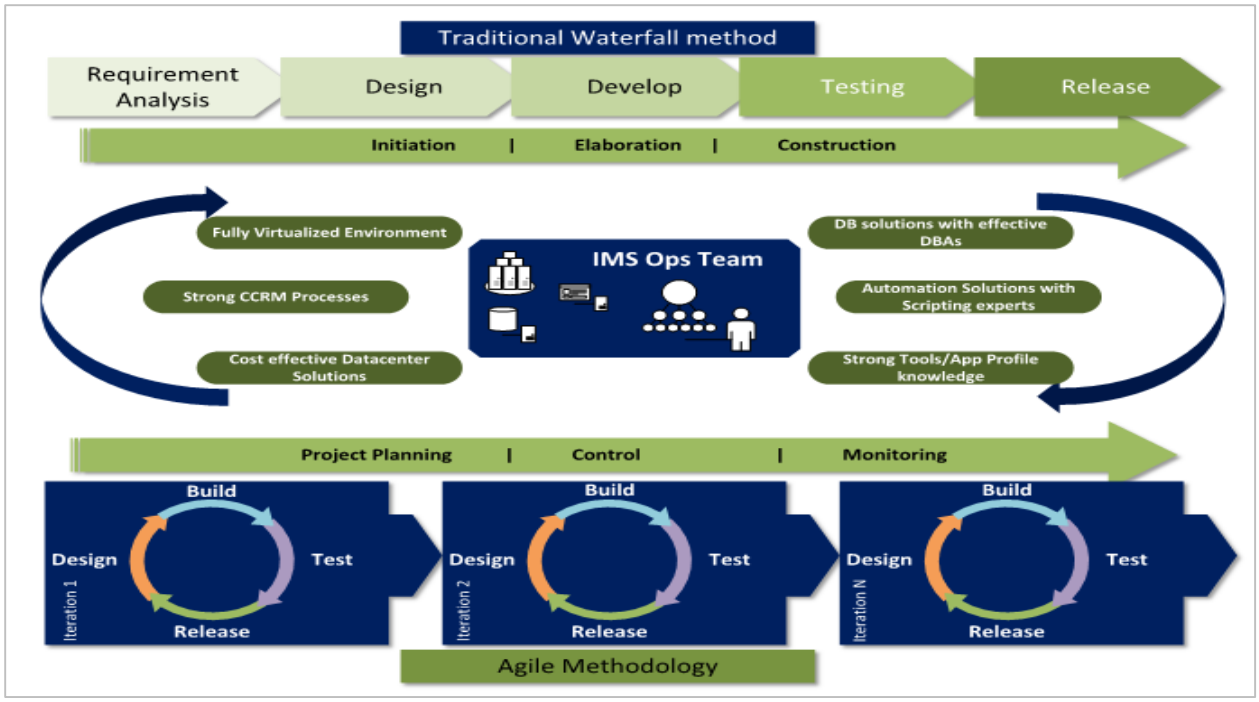


Fig 4: Mindtree Enabler Integration

Few DevOps framework implemented for our customers

1. **Early availability of environments:** It is all about introducing IT Operations into development and testing codes in stable environments with appropriate tollgates across these environments. In agile we modify the agile sprint policy so that instead of having just viable code (as agile states) at the end of each sprint, we also ready the environment that it is deployed into.
2. **'Development' into IT Operations:** We can put Development into the IT Operations chain or even have development completely responsible for the success of the code deployments, either rolling back or fixing forward until service is restored to the customer. This shortens and amplifies the feedback loops, and brings development closer to the customer experience (which includes IT Operations and the end-users of the service being delivered).
3. **Automated environment provisioning:** Instead of having IT Operations responsible for creating the specifications of the production environment, we build an automated environment creation process. This mechanism creates not only the production environment, but also the environments for Dev and QA.
4. **Environment Agnosticism:** By keeping sizing variance between the different stages (Development, Test, Acceptance, and Production) as small as possible, we find and fix interoperability issues between the code and environment long before production deployment.
5. **Automated Orchestration Layer:** The deployment mechanism to be built is completely automated. Tools that can be used include Shell scripts, Puppet and Chef to mention a few.

Conclusion

DevOps is the next big thing among the Out-of-the-Box methodologies being sought after by companies that love to innovate. Like its predecessors – Mainframe, Client-Server, Cloud et al, DevOps will soon become the de-facto framework within an industry that tries to enable the fastest delivery and time-to-market for businesses. With DevOps more can be done. This is due to faster resolution of problems, continuous software delivery and reduced deployment failure. Thus, a company is free to introduce new features as per the changing customer requirements without worrying about stability of the environment.

Mindtree realizes the vast benefits this paradigm shift will bring and has the required value driven expertise in the DevOps framework. Mindtree currently is servicing various businesses in employing this framework and is an enabler in their DevOps success story.

About the team:
This white paper is written by a team of experts from the Mindtree IMS business. This is also a clear reflection of the fact that DevOps Methodology will bring in multiple perspectives based on the point of view of the individual. The team includes Prachi Ravichandra, Vijaya Rajan Shankar, Ananthanatarajan Muthuswamy, Jharna Laskar and Venkatesh KB Shankar.

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