Mindtree

Welcome to possible

DevOps - Are we there yet?

Have you ever found yourself in one of these situations?

John, the CIO of a large multinational organization, is a dynamic person who continuously tries new technologies and procedures to improve his delivery process. His competition is responding to the market by rapidly releasing multiple products to market while John's team is taking months for each release. So, John created a DevOps function, as part of his digital transformation vision, and hired a key person to head it. He was confident that this would move them ahead of the competition. Three months later and John is not seeing any improvements in release times. In fact the cycle times have increased.

Susan, the CIO of an international IT organization, faces a different situation. Her Dev and Ops teams understood the need for adoption of DevOps. But the Dev team went ahead and implemented DevOps process without collaborating with Ops as they thought Dev was the starting point for all software delivery. On the other hand, the Ops team felt they should lead the pack as build and release is the key in DevOps. Now, Susan is not sure which team should lead this initiative.

Rao, the CIO of a large airline, tells his service provider, "We understand what DevOps is and what Continuous Integration (CI) and Continuous Delivery (CD) are. We know CD can resolve our problem. But, as a large organization with 3000+ applications and more than 15000 people in IT, tell us where we start? Can we take few portions of an application and demonstrate how DevOps works? What is the benefit I can get from adopting DevOps?"

These are not unique situations. Many organizations find themselves in similar challenges. On one hand, DevOps is often a misunderstood concept and treated as a cool technology implementation that will help organizations transform overnight and deliver products faster to market. On the other hand, there are people who understand the value of DevOps, but don't know how to adopt it.

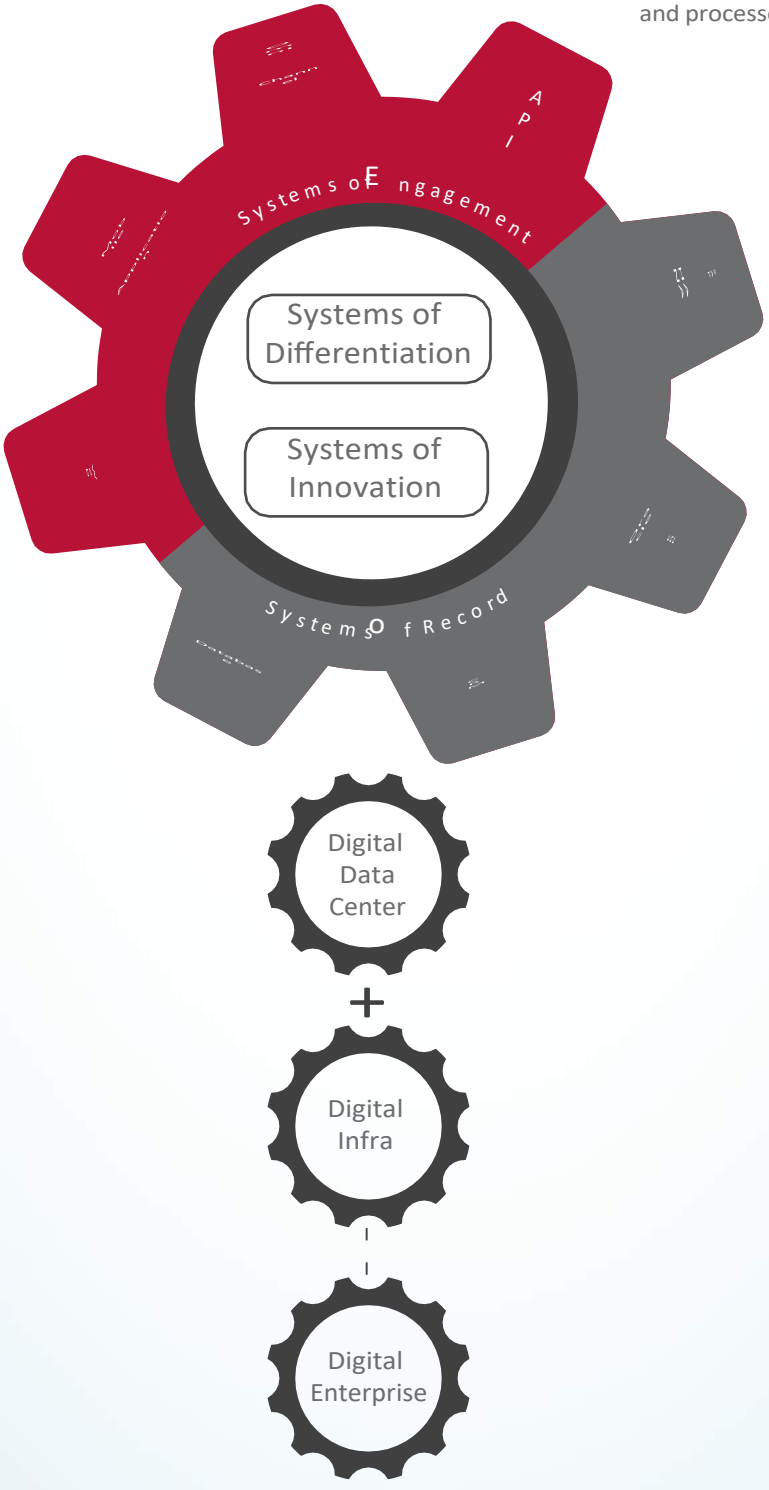
This whitepaper gives a practical view of DevOps and how to apply it – especially for organizations on the digital transformation journey. However, DevOps doesn't work by adopting it. It only works when applied in the correct way.

DevOps in the digital world

Organizations around the world are now focusing on digitizing Systems of Engagement and Systems of Innovation with a focus to improve the consumer experience. They are doing this by developing “Systems of Differentiation”. Eventually, every organization will have to digitize their “Systems of Record” in order to make it an end-to-end Digital Enterprise.

Today, the priority is on Systems of Engagement and Systems of Innovation. Soon it will move to Systems of Differentiation and Systems of Records. A digital enterprise should imply that it is touching all the four systems and working with the digital data center and infrastructure. Unless these systems are digitally bound to each other one cannot respond to dynamic requirements and stay ahead of the game.

DevOps is the approach that will help you to create, connect and orchestrate all these digital components to work in tandem. DevOps enables organizations to “fail fast and fail cheap”; in other words it enables faster release cycles by taking advantage of faster (agile) development cycles, faster (cloud and virtualized) provisioning of core infrastructure or platforms, increased collaboration between stakeholders and consumers, application developers and operations engineers, and tools and processes.



Myths and challenges for enterprises to apply DevOps

There are a number of myths that are presenting challenges for organizations to successfully implement DevOps. Here are a few:

Agile is the same as DevOps, right?

"We are already doing DevOps. We have Agile". While Agile is important for DevOps, it is not the same as DevOps. Agile is required for DevOps to quickly develop an application and validate it against the requirements. But, it only solves one part of the equation for DevOps - continuous integration. The other key parts of DevOps include continuous deployment and continuous delivery.

Just give us more DevOps engineers

In ramping up to build an ecommerce site with a true DevOps approach, a client asked to expand the scope of the project as the site had to be rolled out to 40 countries. And, the client requested a few more DevOps engineers. What they didn't understand was there was no role called DevOps engineer. One cannot hire a DevOps engineer as these are two separate people – a Developer and an Operations Engineer. In fact, the word DevOps is finally being replaced in many circles by Continuous Integration and Continuous Delivery, which gives the right perspective to the approach.

DevOps is our silver bullet

When cloud technology came into picture, many organizations saw it as a silver bullet for all of the deployment challenges. The same thing is happening with DevOps. DevOps is not a silver bullet for all the challenges. DevOps aids the acceleration of Systems of Innovation and Differentiation. But by themselves they do not create innovation and differentiation. And there are still non-critical applications that don't need the DevOps approach.

There are many other myths or misunderstandings about DevOps that include:

These misunderstandings lead to a lot of confusion for organizations about what DevOps is and how to get started.

Faster and successful rollout in 7 countries with smooth and predictable process

Eng`neer`ng an ecommerce app`cat`on for a arge te ecommun`cat`ons equipment manufacturer.

Challenge

- Lack of customization and architectural design maturity in each geo
- Increase the market share with frequent trade promotion cycles
- Global diversity of applications required region wise customization, `nfrastructure setup, C and CD setup

Solution

- Setup C and env`ronment prov`s`on`ng for da`y build
- ntegrated d`fferent test automat`on frameworks
- Parameterized and customized CI and CD for various regions until project stabilized
- Zero touch deployment

Benefits

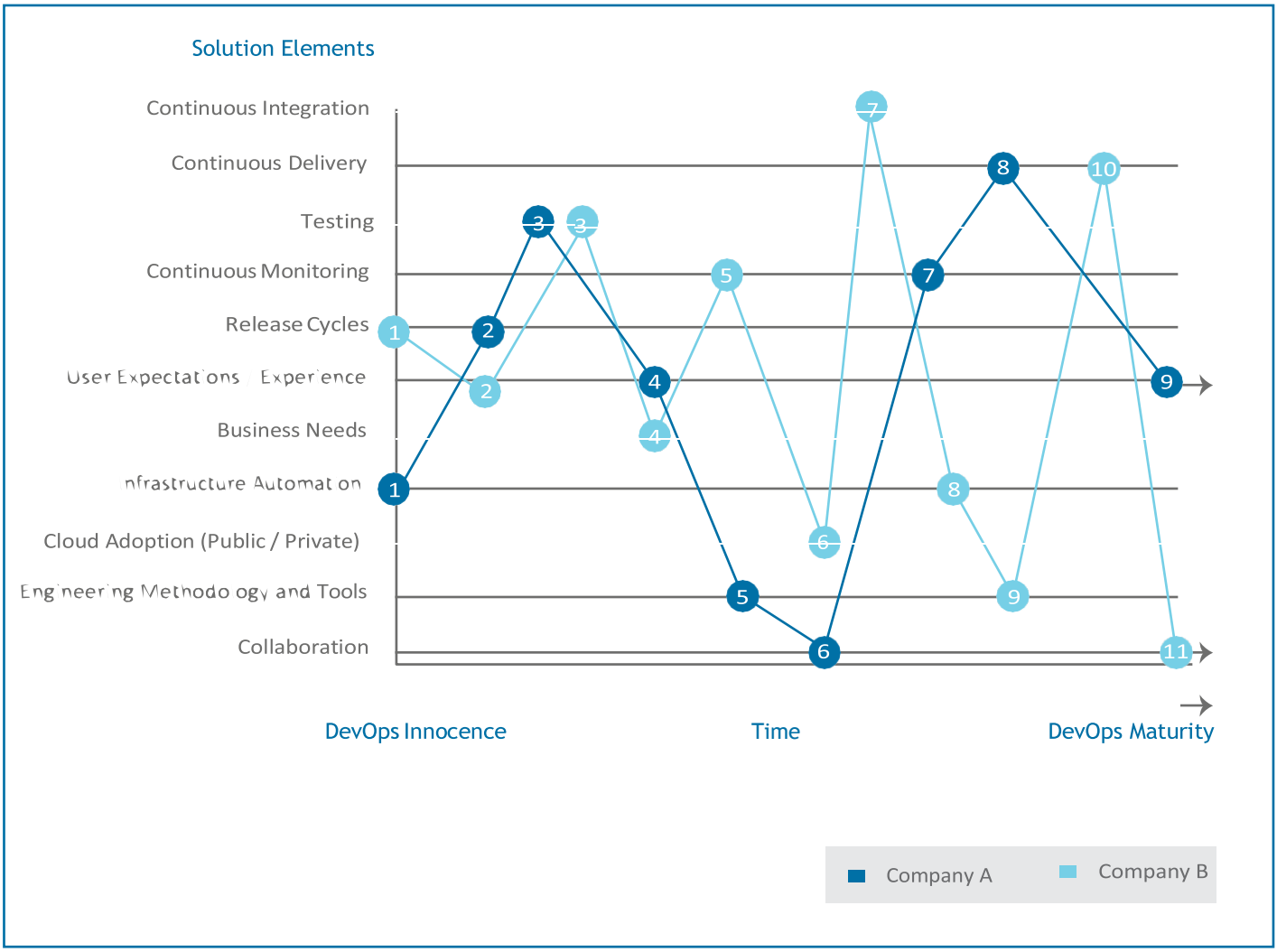
- Achieved build once - deployment anywherestage
- mproved re ease ag``ty and collaboration
- Accelerated delivery and removed delays and dependencies by automated environment provisioning
- S`gn`fcant y reduced defect ea<age `ntoproduction

The big question - where do we start?

Despite years of talk in the IT industry about breaking down siloes between various technology groups, the collaboration between application developers and IT operations is often described as “throwing over the fence” into production. This means that a mythical wall stands between these groups and hinders true collaboration. This is where DevOps helps you.

The primary goal of DevOps is making reliably performing production software that can be changed rapidly. This results in conflicting goals for the Developers and Operation Engineers, since one views the other as the source of their problems. Developers feel operators find problems with their code and push it back to them, while Operators feel the instability in the environment is purely because of the new code changes. The two groups historically worked in silos, but disruptive trends such as mobility, big data, cloud and social are driving demand for quality apps and services up at faster rates than traditional approaches can accommodate and the business is starting to notice.

While on the surface the groups seem to have different agendas: application developers want the freedom to create, test and deliver apps; and IT operations need control over application performance in production environments. However, the goal is the same: high-quality apps and services for the business. To achieve the end-objective, development teams have to accept the feedback of operational teams, and Operations, in turn, must accept frequent updates to the software that it's running.



How you do DevOps depends specifically on the realities in your organization. There is no “one-size-fits-all” or “well-defined path” for DevOps. Each organization can have its own path to achieve the level of integration and maturity required to derive the benefits of DevOps. It's an approach or culture of IT that seeks Security, Reliability, Availablity and Performance, at the same time that it speeds deliveries to the business. Ensure you are taking into account your industry, applications, culture, and people when developing your DevOps strategy; then apply DevOps principles against that foundation.

	SCM	CI	Automation	Testing	Monitoring	Performance	App Server	Rep Mgmt	Build Tools	PAAS
Tool Stack 1	GIT	Cruise Control	Vagrant	JMeter	Logstash	Redis	Weblogic	Nexus	Maven	Open Shift
	SVN	Babmoo	Docker	SonarQube	Graphite	Memcache	JBoss	Artifactory	Ant	Windows Azure
	ClearCase	Jenkins	Chef	Coverty Save	Zabbix	varnish	WebSphere	Archieve	Make	Cloud Foundary
Tool Stack 2	Mercurial	Team City	Puppet	Selenium	Nagios		Apache		MS Build	
	CVS	TFS	Packer	Load Runner	IBM Tivoli Network Manager		Ngnix		Install Sheild	AWS
	Perforce	Shippable	Ansible				IIS			
	Rational Team Concert	Electric Commander	Salt				Tomcat			

There are plenty of tools available across the various functions required to form the tenets of such a platform that enables seamless communication. It is important to have a set of integrated tools across these functions, and have the most preferred tool stack as applicable to your environment. This should be suited to manage the workflow from Development to Testing to Acceptance to Production. It’s about continuous feedback loops, continuous collaboration, continuous delivery, and continuous innovation.

By adopting DevOps practices to realize the goals of effective collaboration, smoother operations, and cleaner code, it’s a win-win-win for Developers, Operations Engineers and the business.

Reduced environment setup from 7 to 1 day with process and quality improvements

The hospitality industry’s most admired company with more than 535,000 hotels and timeshare rooms. It operates 3,000 properties across 19 brands in the United States and 66 other countries and territories.

Challenge

- Deliver innovative solutions faster to market with highly scalable next generation CI/CD solutions
- Dependency on multiple integration points led to effort and productivity loss
- Build the QA / UAT / production environment
- Migrate application from public to private cloud environment.

Solution

- Rapidly understood and configured the environment architecture
- Define a flexible software configuration and release plan
- Setup build environment in the RackSpace cloud
- Ensure build stability and code coverage with Artifactory, Maven, Jenkins (CI tool) and Sonar
- Automate QA deployment

Benefits

- Delivered highly scalable next generation CI/CD solution on cloud
- On time release of applications to market
- Reduced deployment period from 2 hours to 10 minutes
- Zero downtime with minimal impact on end customer

Key success factors for DevOps

While there are many challenges to implementing DevOps successfully, there are also a few key success factors you should look for and develop within your organization.

Software delivery should be everyone's responsibility

The entire team within the delivery process works towards a singular goal – delivering a high quality product on time and within budget. However, in some projects developers throw their work over the wall to testers. Then testers throw it forward to the operations team who configures the product and releases it. If anything goes wrong in the release process the blame game starts sacrificing the common goals. In fact, the amount of time spent in blaming is almost equal to the amount of time spent to fix the issue.

Here are several ways to address this issue:

- Get everyone who is involved in the delivery process together from the beginning – not at the end or in the middle, but from the beginning of the new project
- Align the KPIs of the entire team with a common goal – if one fails, everyone fails
- Give each team a chance to communicate and raise their concerns
- Keep continuous communication up for the entire team
- Install a common dashboard to see the application health at all times
- Reward the entire team equally for the success – no one is less or more important

Software Configuration Management should initiate DevOps

Some organizations are unsure about who should initiate DevOps. In some places, the Dev team thinks they should initiate it and started planning what and how Dev should handover the code to Ops. In some other places, Ops teams have initiated it as they feel that they are responsible for the final release. But, the projects where the initiation happened by Dev or Ops have a low maturity and success rate. On the other hand, the projects where the configuration management team has initiated DevOps, the project is reaching the maturity stage rapidly.

Traditionally the Software Configuration Management team acted as a tollgate for the code to move from source code to binary. Hence, the Software Configuration Management team is best suited to adopt and initiate as this is the team that brought the Dev and Ops cycles closer to each other. However, as mentioned in an earlier point, it is important to communicate that the ownership of making DevOps work is on everyone.

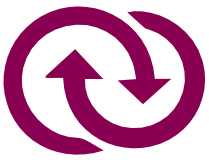
There are several other success factors too, but these are the critical ones that can keep the benefits continuous.

Go with a DevOps Leader

The specific goals of your DevOps approach can span the entire delivery pipeline. They can include improved deployment frequency, which can lead to faster time to market, lower failure rate of new releases, shortened lead time between fixes, and faster mean time to recovery in the event of a new release crashing or otherwise disabling the current system.

And using a DevOps approach can make simple processes increasingly programmable and dynamic, which aims to maximize the predictability, efficiency, security, and maintainability of operational processes. DevOps integration targets product delivery, quality testing, feature development, and maintenance releases in order to improve reliability and security and provide faster development and deployment cycles.

Mindtree can help you apply a DevOps approach. We offer some unique differentiators such as:



Digital DNA that understands the true model of Continuous Delivery

Agile Center of Excellence helping large organizations in Continuous Integration

Azure emerging partner

Pioneer in Digital DevOps for years

Author: Himanshi Mundeja, Sales & Solutions Lead - IMS

About Mindtree

Mindtree [NSE: MINDTREE] delivers digital transformation and technology services from ideation to execution enabling Global 2000 clients to outperform competitors. Mindtree was 'Born Digital' and continues to bring extraordinary depth across the entire digital value-chain. With a strong blend of expertise and execution, Mindtree delivers remarkable customer experiences while driving greater efficiency and modernizing business operations. Mindtree's expertise in infrastructure and applications management, combined with the unique Agile Center-of-Excellence, ensures that our clients release products and services to market faster and more cost-efficiently.