INDIUM


# Tale Of Two Worlds

Role Of iSAFE/iMobi In Seamless Integration Of The DevOps Environment

IP-led test automation framework supported by blueprint for product evelopment in DevOps environment can ensure automation in true sense

A Whitepaper

# Abstract

DevOps is fast becoming adopted as the environment for product development. It facilitates closer integration of development and operations teams, reducing the time needed to develop and deploy a product. However, it is still in its early stages, and the teams continue to tools they need to be suited to their needs.

An IP-driven testing framework like iSAFE can be the bulwark on which the development, testing and operations teams can integrate more seamlessly, as it provides one key feature needed when handling such a comprehensive environment – traceability. The other advantages, of course, are reusability, automated alerts and shorter testing periods, thus aiding in the quick time-tomarket needs of the organisations.

# The Great Wall Of SDC

Development and operations teams may belong to the same company, but reside in two different worlds. While the former is constantly introducing improvements and new features, the latter has the unenviable task of maintaining stability in an environment of constant change. To synergise their goals and improve the transition from development to operations, process methdodologies such as Extreme Programming, Agile, Lean and Six Sigma have improved time to market while assuring quality.

### DevOps Crumblings Differences

DevOps – which seamlessly integrates development and operations – for quick turnaround of features and their deployment - has become possible due to CI or Continuous Integration.

It creates an environment that encourages

- Collaborative Development, bringing together development and operations teams.
- Continuous Integration and Testing, encouraging seamless integration between the three aspects of the application lifecycle.
- Quick Release and Deployment due to shorter and integrated application lifecycle.
- Constant Monitoring at every stage, right from development to deployment .

## Market Perspective

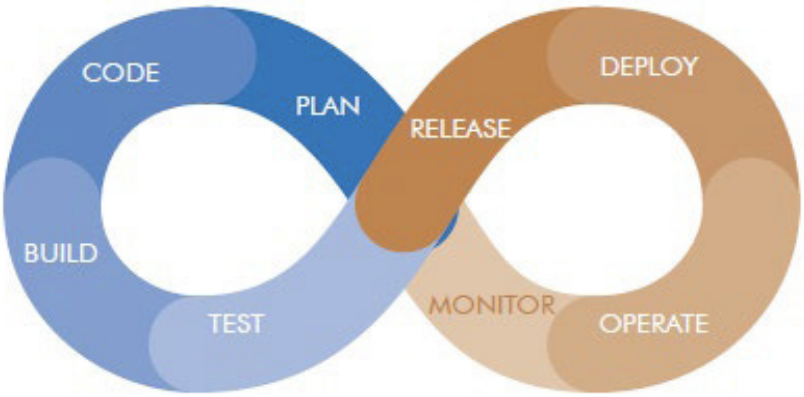
Given its impact on shortening development time and aiding in faster releases of new features, analysts Research and Markets peg the growth of the global DevOps platform market at a CAGR of 19.42 percent from 2016 to 2020.

According to a survey by Right Scale of 1060 technology professionals at large and small enterprises across various industries, DevOps adoption grew from 66 percent in 2015 to 74 percent in 2016 in the enterprise segment. Enterprise adoption of DevOps is higher at 81 percent compared to that of SMBs at 70 percent.

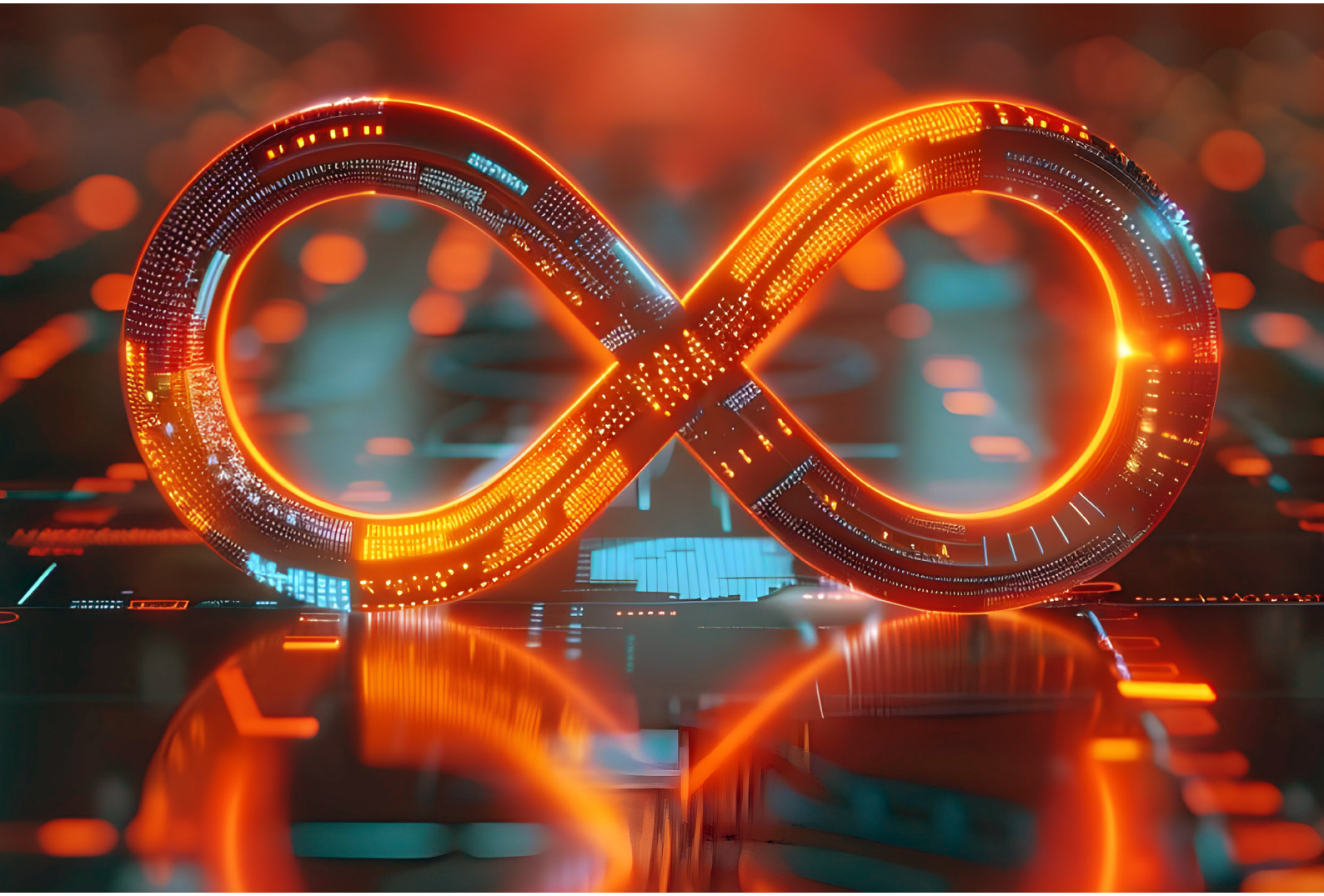
Some of the other findings include the bottom-up approach of enterprises in adopting DevOps, driven by projects or teams, which accounted for 29 percent, and business units or divisions, at 31 percent. Only in 21 percent did top-down adoption occur.

However, the environment is still in its nascent stages. While 'DevOps' aspires to break the wall, Development and Operations still work in silos due to using Each other. This is especially true in legacy organisations, where the mindset and processes and tools that integrate the entire process need to change, as well as processes and tools that integrate the entire process.

In this scenario, test automation framework has a critical role to play in helping the two integrate better.




"DevOps Can Create An Infinite Loop Of Release And Feedback Seamlessly Integrating All Your Code And Development Targets."



# QA In DevOps

Traditionally, Development and Operations implemented their own set of tests based on their individual needs. In an automated DevOps environment, the role of QA has become even more critical.

### The Foundation Block

Some of the responsibilities that rest on QA include:

### Change Management

Given change is the only constant in the development environment, managing the changes, improvements and new features and testing them at development and deployment stages is crucial.

### Release Approvals

Traceability of change processes right from requirement stage to release to avoid disruption.

### Continuous Integration

Continuous Integration requires developers to integrate code into a shared repository several times daily; it must be verified to detect problems early.

### Health Check

Short checks need to be run post-deployment to ensure services are running

### Defect Management

Any bugs in the software development lifecycle must be reported accurately for quick fixing.

# DEV QA To DevOPS QA

| Test Automation DEV QA | Activities | Test Automation DevOps QA | |
|---|---|---|---|
| ✓ | Feasibility Study | ✓ | Development |
| ✓ | Environment Setup | ✓ | |
| ✓ | Test Case Analysis | ✓ | |
| ✓ | Build Test Scripts | ✓ | |
| ✓ iSAFE/iMobi Framework | Execute Scripts & Analyze Results | ✓ | |
| ✓ | Modify/Fix Scripts | ✓ | |
| ✗ | Multiple Tool Set Selection | ✓ | Operations |
| ✗ | Monitor Environment Health | ✓ | |
| ✗ | Fix Issues At The Earliest | ✓ | |

# Manual Testing Vs Automated Testing

Traditional manual testing, which was part of development and operations, runs counter to the needs of the DevOps environment to be fast and ensure shorter development lifecycles.

In this scenario, automating the testing process has also become imperative. Some of the advantages include:

- Repetitive and monotonous manual tasks can be eliminated
- **8x** more frequent production deployments
- **50%** lower change failure rates 3x reduction in cost
- **12x** faster service restoration times when something goes wrong
- Entire automation is version Controlled Eliminate human errors
- Most of the activities in Dev Ops can be automated

As a result of automation,

- Jumpstart the testing process
- Free up resources to focus on explorative and context-based testing
- Communicate bugs accurately

# Automation Tool Vs Framework

## Automation Tool Challenges

With several automation tools available in the market, it may seem like testing is a plug-and-play process. However, testing is more than that. It needs:

**Skilled resources –** Even to create the correct test cases, domain as well as technical expertise is needed. The tool is a mere facilitator.

**Tools Management –** Product development is a continuous process, creating new features to suit customer demands. A tool cannot anticipate all needs, and reusability is compromised as a fresh set of test cases needs to be written every time. This brings of automation.

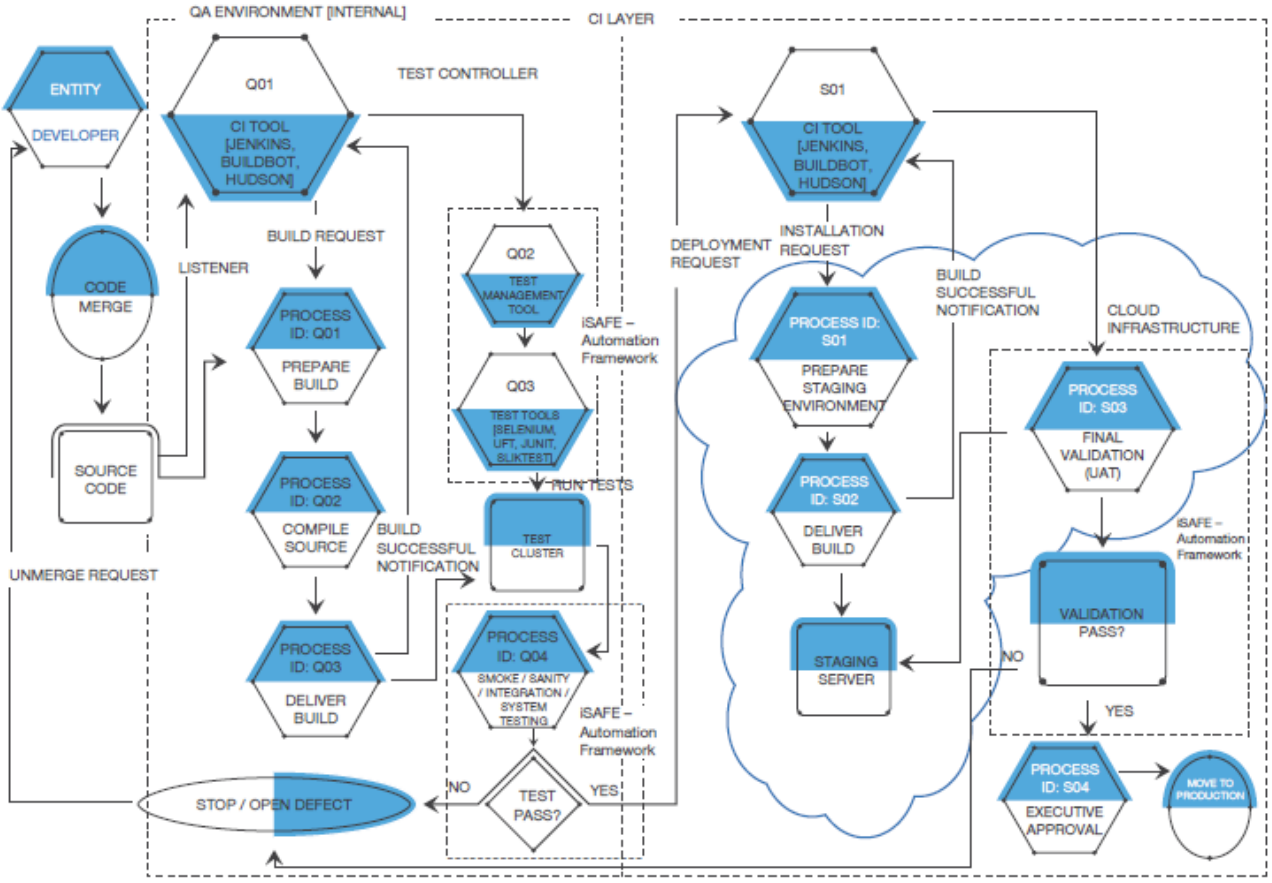
**Legacy to Cloud migration –** This creates its own set of requirements, making manual intervention mandatory. This again runs counter to the automation philosophy and greatly hinders quick time to market.

**Collaboration within teams –** The DevOps environment is meant for collaborative development. Be it development, testing or operations, every team has to work seamlessly with the other two for it to succeed. Human resource management in itself is a great challenge.

**Consistently passing Smoke and Sanity checks –** Smoke test ensures all key features are operational, without any defects blocking their performance. Sanity is a cursory test to ensure the product is performing as required.

Creating a blueprint of the product before the actual development can prove to be an affective guide at every stage of the development lifecycle, giving development, testing, and operations teams a quick referral to ensure it is as planned and on schedule.

## A Working Model




## Automation Framework Reusability

A test automation framework such as iSAFE, which is part of Indium's suite of IP-driven accelerators – branded as do not require new scripts to be written every time. The reusable test cases are stored in a library that can be recalled as and when needed, thus enabling quick tests and retests.

## Jumpstart Testing

It is key/action-driven and does not need testers to know how to code, making it easy for them to write scripts only for new features quickly. It also has built-in intelligence that helps testers understand how much automation is needed for an app. Since DevOps involves multiple builds even in a single day, the framework can handle 7-8 builds per day.

## Traceability

The traceability feature in the framework ensures easy identification of features that are affected due to any changes easily, thus reducing bug-fixing time.

## Smoke and Sanity Tests

The IP-driven framework does smoke, screen tests, and health checks to ensure the app functions as planned.

## Automated Communication

Whenever the test encounters a bug or a feature that is not working, an alert is automatically generated and sent by mail, message, and any other specified method. This ensures a quick response and bug fixing. In addition, iAccelerator's iFACT and iMobi frameworks ensure cross-browser and cross-device compatibility as needed, ensuring the product/app's performance is checked comprehensively.

**IACCELERATE-IP Frameworks**

iSAFE - For automated regression testing

iFACT - For all combinations of OSs and internet browsers testing; supports multiple tools

iMobi - For all types of mobile applications & devices

**The Benefits Of Test Automation Framework**

Faster time to market

Constant additional enhancements

Reduced regression run time

Enhanced test coverage

# Proprietary Tools

Proprietary test accelerators plug into every stage of the SDLC to bring in the best-in-class enablers for reducing the TCO and delivering tangible RoI. Open-source/licensed solutions that are tool agnostic ideally meet this requirement.

## Key Differentiators

IP-led testing frameworks are:

- Customizable
- Re-usable
- Portable
- Assure quick ROI on test automation

They are capable of enhancing test coverage, and running target based parallel execution and efficiently analyse root-cause.

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## About Indium

Indium is an AI-driven digital engineering company that helps enterprises build, scale, and innovate with cutting-edge technology. We specialize in custom solutions, ensuring every engagement is tailored to business needs with a relentless customer-first approach. Our expertise spans Generative AI, Product Engineering, Intelligent Automation, Data & AI, Quality Engineering, and Gaming, delivering high-impact solutions that drive real business impact.

With 5,000+ associates globally, we partner with Fortune 500, Global 2000, and leading technology firms across Financial Services, Healthcare, Manufacturing, Retail, and Technology–driving impact in North America, India, the UK, Singapore, Australia, and Japan to keep businesses ahead in an AI-first world.


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