Hyper-Testing
- An AI led Test Automation To Boost Your Business

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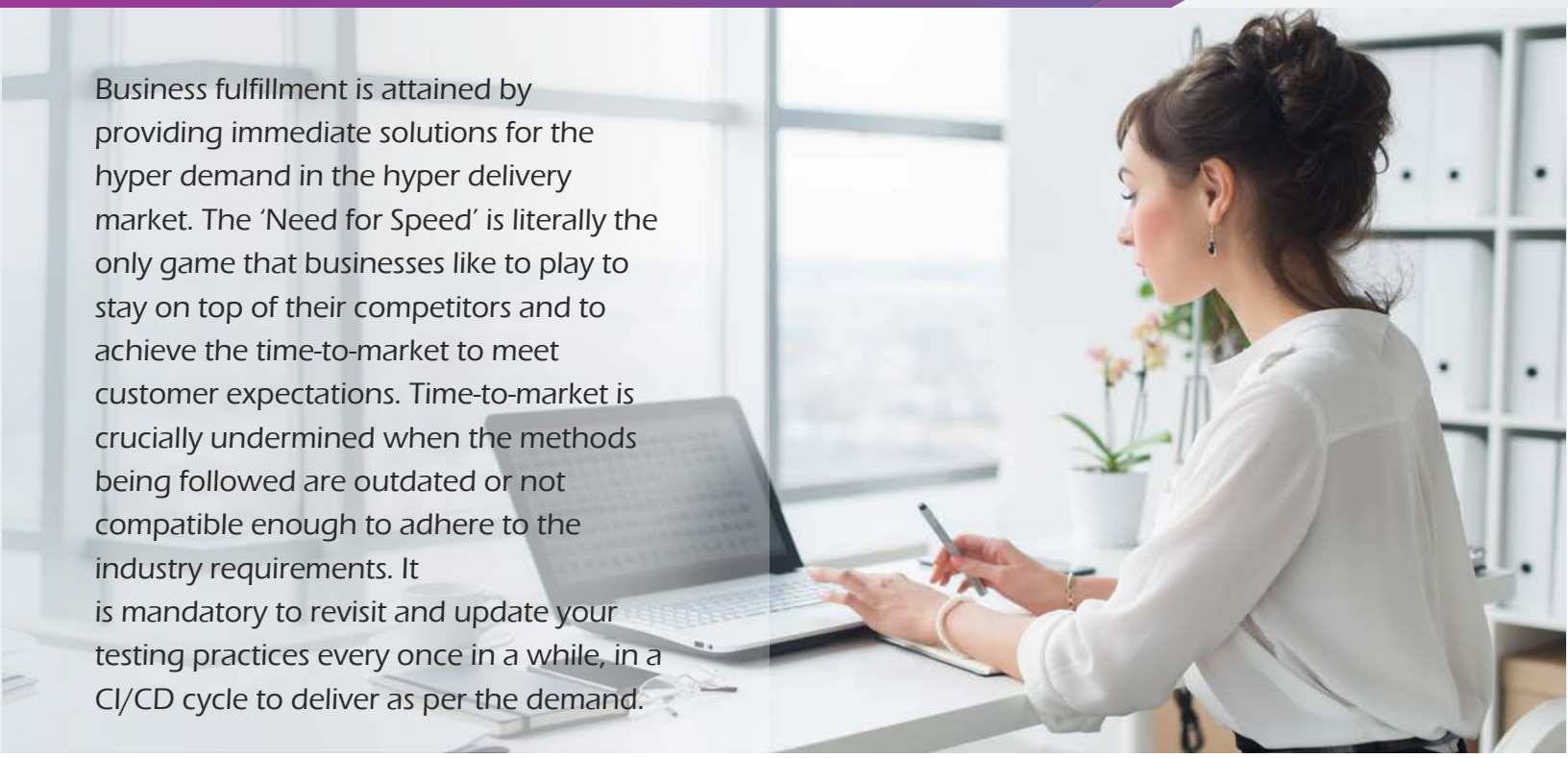
AN AI LED TEST AUTOMATION TO BOOST YOUR BUSINESS



Business fulfillment is attained by providing immediate solutions for the hyper demand in the hyper delivery market. The 'Need for Speed' is literally the only game that businesses like to play to stay on top of their competitors and to achieve the time-to-market to meet customer expectations. Time-to-market is crucially undermined when the methods being followed are outdated or not compatible enough to adhere to the industry requirements. It is mandatory to revisit and update your testing practices every once in a while, in a CI/CD cycle to deliver as per the demand.

1. LEADING MARKET TRENDS

New age testing practices play a vital role in reducing the time-to-market as they deal with automated scenarios along with cross-platform, cross-channel testing across devices using Performance Engineering, AI-enabled testing and DevOps Testing in an agile environment and many more. AI led testing comes into the picture as the need to maintain the correct scripts to run the codes grew largely. Using machine learning, this kind of testing improves the entire testing team's productivity and saves a lot of time.

A PwC study of 2,500 U.S. consumers and business decision makers found that "Business leaders said they believe AI is going to be fundamental in the future. In fact, 72% of them termed it as a 'business strategy'."

Similarly, organizations begin to adopt Performance Engineering that allows the testing team to work along with the development team to initiate the testing process along with the development of the product. In short, the testing phase is shifted to left to detect errors in the initial stages of development to avoid any last minute issues.

Testing needs to be deemed centralized, with the other stages in the CI/CD-cycle revolving around Continuous testing, to make a unified approach into frequent error detection, correction and speeding the product development with incessant feedback, thus hurtling the time-to-market into achieving Continuous Delivery.

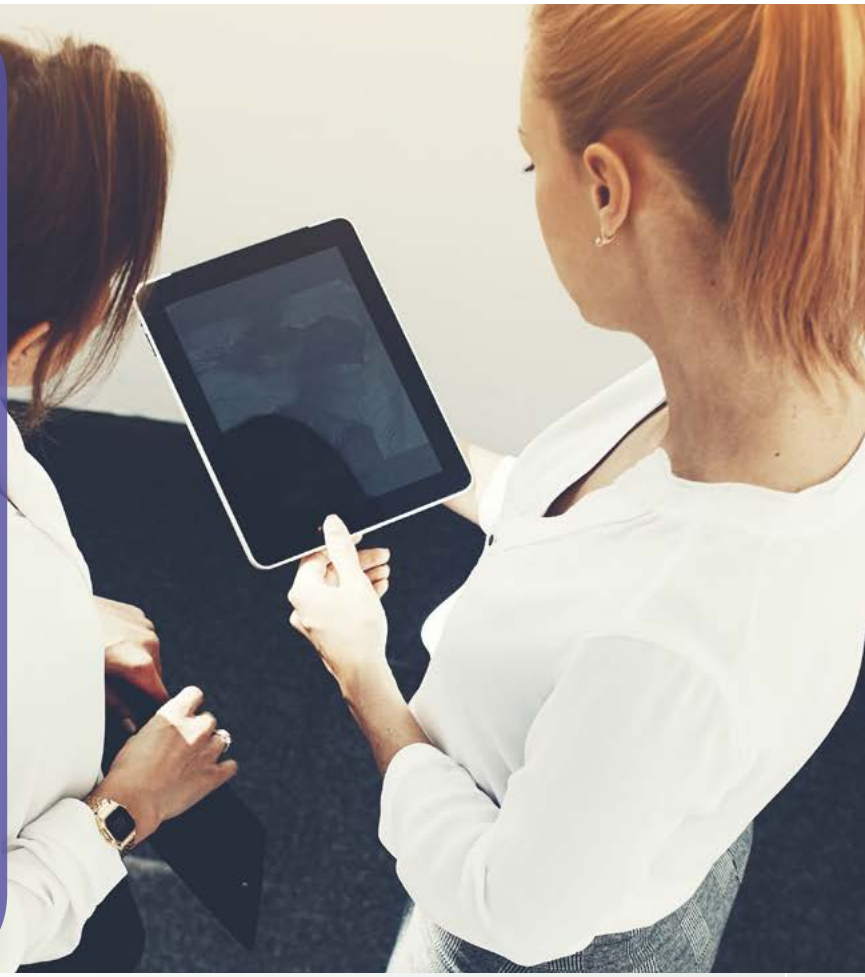
The Rigorous testing approach includes various testing practices that take care of functional and non-functional testing with the most integrated disruptive tools is what we term Hyper-Testing.

2. IS HYPER-TESTING MANDATORY FOR YOUR PROCESS?

The concept of 'test early- test often' is adopted in this Shift Left testing method. It is advisable to test right from conceptualization, design and through the development and production to avoid bottlenecks with uniform post-production testing as per pre-agile building processes.

How Do We Define Hyper-Testing?

"Hyper-Testing is an agile and unified approach towards designing and executing a test strategy that covers end to end testing of all application layers (Functional, UI, API/Microservices, Mobile, etc.) as well as non-functional requirements (security, performance, load, availability, etc.) by leveraging the best of breed tools (cloud, open source, etc.), resulting in lower TCO (Total Cost Of Ownership) and Higher ROI (Return On Investment).



IS HYPER-TESTING MANDATORY FOR YOUR PROCESS?

Why Do You Need Hyper-Testing?

The constant market requirement to release products every few hours has propelled organizations into adopting robust, resourceful and proactive Quality Engineering strategies. The Agile and DevOps methodologies that were providing standard and smooth process flows paved the way for innovation in development cycles to adhere to industry standards. Hyper-Testing helps taking this one-step further in boosting your ROI (Return on Investment) by endowing custom-made tailored-solutions such as Performance Engineering and AI led Testing that focuses mainly on testing the software immediately, along with the development phase. Therefore, what happens when we test simultaneously is that the job of the testers is made easy time spent, and the cost incurred to test or appraise the quality of the product reduces gradually. In short, there is enough scope for better productivity and good reputation in the market.

Hyper-Testing can also be applied to Cloud Testing platforms, where it can be used across thousands of tools and a plethora of devices, cross-browsers and innovative technology integration. The inclusion of Frameworks, testing solutions and end-to-end methods with best-integrated tools such as JMeter, SoapUI, TestComplete, etc. paves the way for engineering quality into the whole development process right from the beginning through each stage with perfection.

3. HOW TO GO ABOUT HYPER-TESTING?

Hyper-Testing is engineered to maximize success from development and production to the market release. This state-of-the-art testing approach is expected to focus on multiple-scenarios and dimensions to help differentiate the challenges and solutions according to the requirements.

Hyper-Testing provides solutions such as Cloud-based automation, AI led automation framework, Continuous Testing and Agile Model that help in, not only just automating most of the process, but also in taking up the Continuous Testing/ Continuous Integration game to the next level.

This is made possible as it embraces converging testing cycles to span across the process with integration and implementation of frameworks and cloud based testing, while individual attention to separate test cycles are made redundant.

Hyper-Testing incorporates 3 key dimensions that addresses cost efficiency and hyperspeed in product development through a glut of processes and practices such as Agile, DevOps, Framework integration, cloud based automation testing and through tools and reusable assets.

The manifold dimensions of approaching Hyper-Testing by covering all aspects of enhancing development of a product are:

01 Incorporating resilient and sturdy set of Frameworks and vital tools integrating Cloud Based Automation and Continuous Testing in supporting the end-to-end product-development-cycle

02 Heightening the involvement of testing in each and every phase over the application and technology stack, to ensure that the whole product performance among multi-domain, browser and multi-technology stack is uninterrupted without even a minor escape of bugs and to avoid errors while testing

03 Delegating multitude of process methodologies to verify requirements, validate functional and non-functional end-to-end testing requirements and also validate end-to-end system integration testing to help in enhancing the digital customer experience

4. CHALLENGES FACED THROUGH OLD-SCHOOL TESTING

Testing in general turned out to be a bottleneck when it revolved around manual testing for the most part. The traditional testing processes included testing the product manually after the development stages are completed, by testing them for various deployment scenarios and platforms, which generally takes a lot of time for the bugs to be rectified after each testing scenario has been executed.

The software manufacturing industry faced a horde of defects that proved to be a bottleneck for the whole process in the matter of testing and quality, which reared not only higher production hours and increased the time-to-market with each bug-removal phase and testing, but also lower ROI.

5. THE NEED-FOR-SPEED TO THE MARKET

It was detrimental to avoid testing, which everyone thought had become a necessary evil, as testing was done by the development engineers and production managers during most phases after automation came into view. The outbursts of end-to-end testing solutions right from Performance Engineering, Agile, Continuous Testing, Continuous Integration made testing a mandatory process to improve quality as well as create a successful co-working environment between Testing, Development and the Production teams.

The close integration of various teams and processes aided in leveraging multi-testing platforms to consort testing through each scenario: reducing the need to concentrate on selected phases and investing more time for testing in them. Hyper-Testing is the only prospective methodology that supports functional and non-functional testing into each development-cycle to consider every testing element and make them result-oriented. This in turn managed a speedy delivery of the product to the end-customer's use by eliminating constraints and bottlenecks in the name of errors, manual concentration and by avoiding escape of bugs during each phase.

6. IMPROVE YOUR PRODUCTIVITY WITH AI

AI in test automation helps in achieving greater improvement of the testing team's productivity through the step by step testing of each phase, right from the beginning until the end. This practice manages to improve the time-reduction in terms of hours. The implementation of Hyper-Testing, in terms of using AI led automation has managed to reduce time-to-market by 70%, which is in line with the realization of the Agile Manifesto. A research by Forrester states that testing is currently the "most popular phase of the software delivery life cycle in which to apply AI." Embracing AI led automation manages to abide well by the industry standards when it comes down to complete solutions to save time, resources and lesser investments. Similarly, Performance Engineering has successfully replaced Performance Testing as the shift results in organizations delivering error-free software applications in shorter timespan by testing them right from the development phase to avoid error identification towards the end.

7. INSUFFICIENT TESTING PLATFORMS IN THE GAME

Testing platforms play a major role when it comes to improving testing approaches and frameworks, open source tools and cloud automation platforms are in-built with testing for various platforms, browsers and multiple devices. AI based Automation and Cloud Automation are the best opportunities to develop and test your product for complete quality and speed, which also minimizes the TCO (Total Cost of Ownership) as well.

Solutions that support Hyper-Testing, aim to engage, evaluate and elevate the QA process cover end-to-end continuous testing, which proves vital for a smooth customer experience. Challenges like shorter time-to-market, higher TCO, dependency on manual testing, lack of skilled testers, lesser-automation can be overcome by implementing proper Quality Engineering practices in the form of Hyper-Testing, to design, test and release products at lightning-speed.

8. SOLUTIONS IN THE FORM OF HYPER-TESTING

Hyper-Testing brings out the best in Quality Assurance by implementing customized tailored solutions for all testing woes such as the need to automate testing completely, to achieve higher ROI and to gain the customer confidence. Being able to achieve faster delivery of products in the market makes your continuous delivery pipeline the most sought-out one. Microservices is the most sought-out method of testing as it cuts down on most of the costs and efforts incurred due to the older methods. Researchers say, "60 percent of the respondents have already adopted Microservices in one form or another." Organizations that are in need of a strong testing strategy to overcome the adversities of testing loosely coupled services adopt Microservices. This can be taken care of by implementing Test Automation that ensures the system works together as a whole. With Hyper-Testing, you will be able to access a broad spectrum of QA Dashboard and metrics to enable informed release decisions and access 1000+devices or platforms on cloud.

Some of the tailor-made solutions to undergo Hyper-Testing that integrated your Testing process right from Conceptualization till the product reaches the markets are:

- **Testing Solutions in a Box (TSiB)**
- **AI empowered Test Automation**
- **Aspire's Framework for Test Automation (AFTA)**
- **Testing as a Service (TaaS)**

9. TESTING SOLUTIONS IN A BOX

Attending to your testing needs individually becomes a burden at a point of time and the cost and time incurred are unavoidable in the usual situation. Testing throughout the process, without taking care of them separately demands profitable solutions and Aspire's Testing Solutions in a Box (TsiB) is one such solution that provides lesser defect leakage, cuts on operational costs and improves outcomes based on SLA (Service Level Agreement), Cost of Quality(CoQ) and centralized testing.

Testing Solutions in a Box (TsiB) is a suite that integrates and combines all aspects of testing such as Functional Testing, Non-Functional Testing, Security testing, Test Consulting, Compatibility Testing and Globalization Testing in a complete package.

10. AI EMPOWERED TEST AUTOMATION

AI led test automation is highly efficient which functions through machine learning, reasoning and repetitive patterns brings out the complete solutions for your testing needs. With its AI-based scalable plug and play components, Hyper-Testing offers the technological compatibility and the flexibility to test new age product components in an agile and lean manner. Its ability to self-heal scripts and inbuilt support for non-functional testing like security, performance and web services testing using tool integrations such as Jmeter, SOAP UI, OWASP ZAP, makes AFTA a clear winner in the market.

Some of the great impacts of AI are:

- Self-healing scripts to identify changes in the application
- Analysis of the test automation results
- Defect Analytics on the severity of the bugs
- Auto Update of defects in defect tracking tool
- Build Analytics on the previous runs
- Live Streaming of the test results with Intelligence

11. ASPIRE'S FRAMEWORK FOR TEST AUTOMATION (AFTA)

AFTA is an optimum, homegrown selenium-based framework to ensure continuous testing and continuous delivery. This framework caters to codes in Java, Ruby and C# and supports DevOps practices such as Continuous Integration/ Continuous Testing. An increasingly existing need for seamless co-ordination with agile development and AFTA definitely adds value by enabling Continuous Integration and Continuous Delivery. It allows API/Microservices Integration to facilitate test data management and significantly cuts down NFR testing, provides real-time analytics and live metrics, keeps up low degree of maintenance, allows re-using the automation scripts for performance and security testing. It is also capable of creating customized test reports with test scenarios, execution status, duration and screenshots. AFTA is the ultimate Framework for Test Automation requirements, which conducts Functional Testing effectively and leverages the functional automation tools to conduct Non-Functional Testing in a successful manner.

Using Selenium Grid based components AFTA minimizes the environment needs and the turn-around time. It is an **Open Source Framework** based on **Continuous Integration/Continuous Delivery (CI/CD)** model, which provides cross platforms, browsers and devices testing solutions without the need to add more code. It is a dynamic framework engineered to handle multiple testing requirements without more efforts, such as functional automation test scripts used for security and performance testing without further ado.

Some of the added advantages of AFTA

- Supports End-to-End Testing
- Provides Real-Time Analytics and Live Metrics
- Facilitates Continuous Integration
- Leverages Open Source Tool and hence Zero Cost
- Reuses Automation Scripts
- Reduces Turn Around Time through Parallel and Distributed Execution
- Provides Low Degree of Maintenance
- Reduce Automation Effort by 40%

12. TESTING AS A SERVICE (TAAS)

Testing as a Service (TaaS) is an enterprise solution that is integrated with the cloud, which enhances the testing experience for a company with a model just like a mobile Postpaid Bill service. It is a pay-per usage solution that offers all the testing needs of a company, without an ownership on the QA team, but as a flexible outsourced service to an experienced team with highly skilled testers and professionals.

Testing as a Service (TaaS) provides services under Regression Testing, Test Automation, System Integration Testing, User Acceptance Testing, Data Warehousing Testing and Performance Testing.

Aspire provides end-to-end test automation integrated with cloud with services such as API or Microservices, Performance Engineering and Security Testing. It provides CI/CD Integration with tools such as Jenkins, TFS, SOAP UI, Jmeter and OWSAP ZAP. It also provides Cloud Services Integration with Sauce Labs for Mobile and Web testing and it conducts parallel cross browser testing without scripting.

13. CONCLUSION

As we have seen across the breadth of this White Paper, Hyper-Testing is an all-encompassing one-of-its-kind Testing approach results in significant gains for your business. It enables shortening of feedback cycle time up to 40% from the slackening older testing methods and slashes CoQ up to 30%. Aspire's solutions for Hyper-Testing and Continuous Delivery is a top-notch industry leading practice assuring superior Customer Satisfaction.

Having known that AI is the future of the digital market, Hyper-Testing does more to integrate test automation with high-end Frameworks and Services to map an end-to-end Quality process for the product Development Pipeline and is expected to play a bigger role in the organization's TestDevOps agenda in the days to come.

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- Global technology services firm with core DNA of Software Engineering
- Specific areas of expertise around Software Engineering, Digital Services, Testing and Infrastructure & Application Support
- Vertical focus among Independent Software Vendors and Retail, Distribution & Consumer Products
- 2750+ employees; 150+ active customers
- CMMI Maturity Level 3, ISO 9001:2008 and ISO 27001 : 2005 certified
- International headquarters in Singapore with presence across US, UK, Benelux, Middle East and India
- Recognized 9 consecutive times as "Best Place to Work for" by GPW Institute

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