Why the Nexus of iPOT and Managed Testing Model Can Make POS Testing Better than Ever?

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Introduction

Due to rapid change in customer behavior and consumption pattern retailers have a tough time analyzing the market and design highly innovative solutions to keep them hooked. It is an obligation for retailers to provide the best quality product out in the market. Downtime, Application error, and Security threats are some of the high level and basic concerns that any retailer should address before their product hits the market. To put a quality check across all applications would potentially be a massive yet high impact process that every retailer must consider. Ignorance of the QA process could mean low customer satisfaction, high deterioration of product/offering, and loss in market share.

Despite knowing the business and emotional value their product brings among their customers, retailers still lose hundreds of thousands of dollars just because of a lack of preparedness. All this happens because of the mismanagement of different applications along the retail landscape that would inadvertently affect the whole business.

POS applications need to be reliable, scalable, highly secured, and easy to maintain especially when POS systems are widely used under changing business requirements with budgets and aggressive schedules. Usually Operating testing - as many organizations would follow is different from owning testing. Focusing on one area to approaching the problem from a holistic angle has made many firms shift towards Managed Testing Services. By this method, during the autopsy of a defect, it is very clear by product/area/region and even line of code where it went wrong, making the rectification process clearer than before.

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There have been few grey areas where testing cannot be penetrated like testing the EMV devices. Robotic arms are used in the Retail industry to test the performance and productivity of the POS systems. For a computerized network like POS that connects several checkout terminals and hardware devices like barcode scanners, cash drawers, etc. it is often difficult to handle testing manually. This is one of the major reasons why robotic arms are introduced to test the POS system. These arms are designed to perform multiple POS-related tasks to offer the best possible omnichannel experience to the end-users. Before we discuss in detail more about the robotic arms, let's get to know the device first. The robotic arm is similar to a human arm that is programmed to perform multiple tasks in much lesser time but more efficiently and accurately. When compared to the tasks performed manually, robotic arms are way faster and much reliable.

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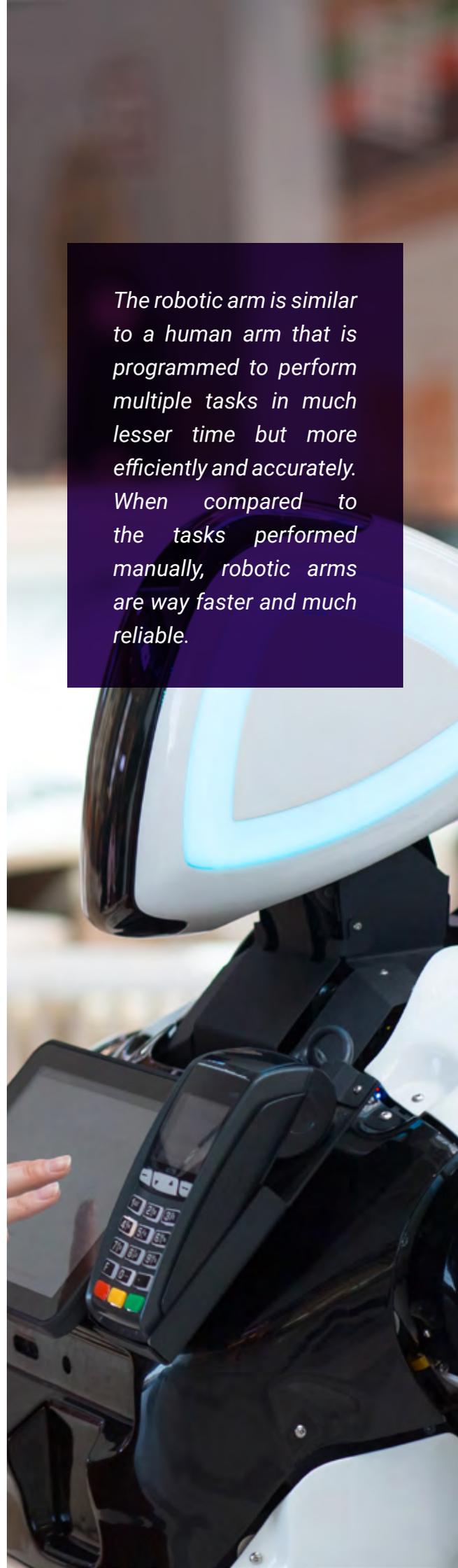
Role of Robotic Arms in POS systems

As mentioned earlier, POS systems involve tasks like swiping or inserting a card, pin pad entry, bar code scanning, etc. which are often carried out manually. As an initiative to save a lot of time and resources, in terms of both cost and labor, enterprises are adopting robotic arms that can do the same in less time. Successful implementation of the arm has resulted in better and more accurate results that eventually increased the rate of achieving business goals. The benefits of the robotic arm does not stop there because despite the fact that POS systems are a boon to the retail industry, there are many challenges while testing them because of the complex integrations and repetitive processes involved in it. A minor error or malfunctioning of the POS system may result in adverse consequences like losing customers or even ROI. Many of these challenges can be addressed with automation solutions. However, the remaining challenges like scan bar code, swipe card, pin-pad-entry, handling cash-drawer that involves human intervention can be very easily taken care of by the robotic arm.

To take things up a notch, Aspire is proud to present the new and improved Robotic Arm 2.0 called iPOT - (Intelligent Point of Sale Operational Testing) - built using industry state of the art best hardware and software.

Aspire – A Pioneer in the Industry

The steady-state of a project is always governed by metrics representation of activities involved in the project. However, to achieve a steady-state the fundamental layers involved must be consistent and balanced to meet the goal laid out. Managed POS Testing would be successful only with partners who have a better understanding of the domain along with the incorporation of a substantial change in the way testing is been perceived. The pillars for successful Managed POS testing would be to have three significant functions that would bring discipline to the entire QA structure.

Process:

Managed POS testing can be achieved only when the organization approaches a problem in a holistic manner. Hyper-Testing is a thought-process engineered to reduce the time-frame from development and production to the market. Eventually, organizations can scale up in terms of speed and quality to promote faster innovation and enhanced customer experience at the same time. It leads many enterprise-level applications to function consistently, and make them robust and secure to deliver the desired performance and expected convergence across a variety of POS systems.
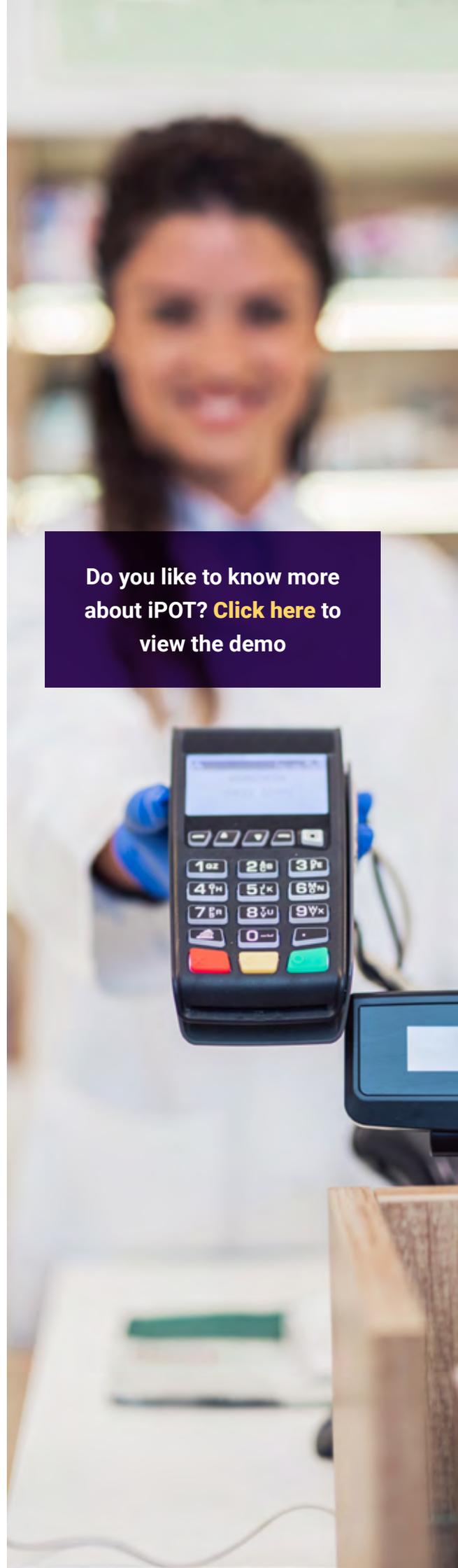
Do you like to know more about iPOT? Click here to view the demo

People:

Having a consultative approach with best in class test consultants boosts the approach on deciding the right tool to be used for business software requirements. It is also important to define a test strategy best suited to eliminate the chaos and have a streamlined process. Having resources skilled with both domain knowledge and test automation skills are essential for high yield productivity and faster progress in assignments.

Technology:

As a growing sector, businesses must make sure their shopping experience to the customer is been made seamless through their available brands. The constraint of having to address different businesses aligned against one roof, which in turn uses different technology tools, is tedious. A robust test automation framework that could support different technology and software – being cost-efficient and scalable would be an ideal match. With the help of the right test management tools and continuous integration, businesses get a chance to be scalable and reliable with faster time to market.

As a pioneer in the industry, Aspire always aims to come up with solutions that can make the job of the end-user much easier. DCqaf (Digital Commerce Quality Assurance Framework) is the most promising solution to address most of the testing challenges in the retail industry. Though the framework could automate almost 60% of the entire test suite, there was a need for manual help test case scenarios related to card transactions and peripheral devices. 30% of test cases are related to Europay Mastercard and Visa (EMV) and testing each test case manually was burdening in terms of resources and cash flow. That is when the experts at Aspire managed to design and develop a robotic arm that can solve the challenges many enterprises in the retail industry faced while handling a POS system. The Robotic Arm along with DCqaf built with the retail industry in mind is the one-stop solution to be more productive and stay ahead in the industry.

Robotic Arm 2.0, iPOT – The One–Stop Solution

The first version of the robotic arm was highly efficient and it was able to overcome many major challenges in the POS systems and resulted in achieving many business goals. The robotic arm was developed as an automation solution for executing EMV test cases that could reduce the speed of the execution of **250 EMV** test cases from **10 days** to **2.5 days**. Eventually, the result was a **25%** increase in automation test coverage and **75%** effort savings in the first year for EMV test cases alone. To make the arm even better and enhance it to be more efficient, we recently launched an advanced version, **Robotic Arm 2.0 – iPOT**. The comparison of both the arms results in the fact that the performance speed of the iPOT is much greater than its prototype. iPOT is created and crafted in a way to handle more than **40** actions within an hour and further cuts down the automation efforts from **2.5 days** to **1.5 days** for **250 EMV** test cases. Thereby, the newer version of the arm can help retail enterprises to save **85% testing** efforts and about **40%** testing cost in the first year for EMV test cases alone.

Mechanics of the iPOT

The iPOT is connected to the POS device and built with a high torque stepper integrated with a **Graphical User Interface (GUI)**. The GUI combines the automation code and the arm and the setup also has a card rack to hold up to **5 cards simultaneously** or more if required. The arm is capable of calibrating in different dimensions of the pin pad device. Three sensors connected to the machine could detect all the actions performed by the arm. Once the action was detected, a pop-up gets triggered to confirm the completion of each action. The speed of testing encounters a massive transformation with the new and improved version of iPOT. Aided by faster communication mechanisms between GUI and iPOT, it can handle about **40 actions** in an hour and further reduce the automation efforts to **1.5 days for 250 EMV** test cases.

Managed POS Testing – A Success Story

The numbers are not just impressive but the arm actually proved its efficiency by helping a large hospitality world leader in the market save up to 90% of their test automation efforts. The retailer runs one of the world's largest dining companies that has about 3600 branches across 17 countries, and serve their end-users for nearly 100 years now. In order to retain as a franchisor of choice in the industry and to serve their customers better, they preferred to invest in technological enhancement that would ensure a smooth and seamless hospitality experience. However, they faced a huge challenge while trying to attain seamless end-to-end automation testing. It was

Does achieving 100% automation of EMV test cases seem difficult? Continue reading the article to know how a world-class dining company managed to make it possible with iPOT.

A leading American restaurant chain decided to leverage iPOT to achieve seamless process flow and maintenance of their POS systems in order to provide the best user experience to their customers.

The suitable combination of iPOT and DCqaf helped to do the following.

- *Create a Unified Test Automation Framework to automate their eCom, POS, and Mobile applications*

- *Achieve 100% test automation of EMV cases*

- *Reduce regression routines by 90%*

- *Reduced testing time from 230 hours to 25 hours*

- *Reduced Testing time of EMV test cases from 16 hours to 2 hours*

mainly because they had two different frameworks for their web & mobile and desktop application for testing A1POS through which the restaurant Front of House (FOH) and Back of House (BOH) activities were maintained. They were required to handle two different applications - desktop and website & mobile which caused a lot of ambiguity. Therefore, they wanted a unified testing solution to harness the chaos of multiple frameworks they were experiencing in their POS. Their future vision was to:

- **Enhance the operational performance of their restaurant chain**

- **Introduce sustainable same-restaurant sales momentum**

- **Augment the effectiveness of their marketing strategies**

Approach through Managed POS Testing Model:

A robust quality center was essential for the retailer to simplify, secure, and modernize their organization from legacy environments to the digital age. At Aspire Systems QA is been reimagined with intelligent and automated processes taking organizations to the podium every single time with faster time to market and higher quality products with a connotation of better customer experience.

Business Case

Based on the requirements, they were looking out for an ideal testing partner who could automate their BVT (Build Verification Testing) and Regression test suites. There were more than 1000 cases across their desktop POS (Point of Sale) applications (A1POS & MICROS), web, and mobile (Android and iOS) application platforms. The fundamental idea of aligning retailers' business objective was by ensuring the problem statement is well-read and analyzed with a 360 view. With Retail test consultants involved with the customer, the business case was ensured with a holistic solution proposed that would synchronize with the mission statement of the customer. A definitive roadmap with milestones was charted that would make the entire project experience more transparent and responsible. Also by defining essential KPI's it enabled the retailer to make smarter business decisions.

Analysis and Design

This is the phase where the core business objective is met. The solution developed with a test automation framework, workbench solution, and accelerators was customized according to the customer need.

Calibration of a test suite and implementation of DcQAf (Digital Commerce Quality Automation Framework) that would be customized and altered according to customer's business needs was built here. This robust and artificial intelligence-enabled framework has been a differentiator in the market that has made retailers achieve goals faster with better quality.

Aspire proposed to perform the following to help them overcome their challenges and ensure a seamless service to their end-users:

- Streamline order placing using A1 and MICROS POS for FOH and close payments using the Pin Pad devices

- Integrate their online orders from web and mobile with A1 and MICROS POS for take away and dine-in orders

- Develop a single automation suite to handle multiple configurations, peripheral devices, and complex interfaces

- Automate the EMV test cases

- Fasten their regression test case routine

- Build a robust and reliable end-to-end POS test solution including the EMV cases

- Easily integrate with the POS components like back-office tools, promotion, loyalty modules, and other third-party applications

- Automate online orders placed through OLO online ordering and order received in FOH

- Process BYOD orders and table booking placed through mobile apps

Implementation

Metrics play an important role in the identification of areas of improvement and what could have been done better. This ensures that stakeholders make decisions that would have a direct impact on their businesses. Major components such as readiness to market, test quality, flexibility, and innovation to further improve the process and method of execution are being detailed here. This helps businesses to react faster in case of any deviation from the goal to be achieved.

The QA team executed test automation right from system requirements to interfacing with backend applications to automate their POS system. An improved version of our robotic arm built using state-of-the-art hardware and software called **iPOT** (intelligent Point-of-Sale Operational Testing), augmented by a promising test automation framework, crafted especially for retail enterprises, DCqaf was offered to them. The arm has the potential to massively accelerate POS testing as it is aided by faster communication mechanisms and high endurance motors. It can handle about 40 actions in an hour thereby, substantially decreasing the effort and time taken to automate POS test cases.

Business Benefits

The steady-state of a project is always governed by metrics representation of activities involved in the project. However, to achieve a steady-state the fundamental layers involved must be consistent and balanced to meet the goal laid out. Aspire's Managed POS Testing was able to offer help and support to this retail chain and many retail enterprises to test the next-gen software applications faster and more fastidiously mostly by implementing our artificial intelligence induced iPOT and DCqaf. There have been several monetary and non-monetary benefits that we can lay down for Managed POS Testing.

Reduced Cost

The idea of scaling to demand and reducing testing costs without reducing quality has shifted many retailers towards Managed POS Testing. The cost-saving has been from 30-40% overall when compared to conventional testing methods. This also helps the customer choose between the traditional method of testing to the new age AI and ML-based frameworks, whichever relevant to test their applications. The other overall reduction in costs is through applying DevOps culture to all the projects, which in turn reduces cycle time and testing costs. By the pay-for-what-you-use method, it not only helps retailers decide on their high functional areas that need more concentration but also helps to collectively test the entire landscape without any compromise on quality.

Accountability

Owning QA right from defining test strategy to test planning, test execution, test management, defect management, reporting, and optimization; has made the entire SDLC process seamless and smooth. With well-pooled QA individuals with domain and technology knowledge, it has made it easy to scale up and scale down resources based on business requirements. This has supported retailers to make a rapid change to their IT offerings based on market responsiveness. With that said Aspire has helped many organizations move from legacy to new-age applications without any spillover of data by supporting both the platforms till the time of transformation. By defining SLAs, organizations have benefitted with high-test coverage, Y-o-Y reduction in the cost of testing, defect reduction, and schedule adherence.

Scalability

Due to the dynamic nature of the domain, it is important for organizations to keep a regular check on the market to see for any changing trends. This has bought a change in the dynamics of the way they operate and scale. For a viable and rapidly scalable process, managed POS testing service has the offering to choose from high performing accelerators to scalable automation framework along with individuals who can contribute to prompt changes in the process. This helps organizations to be on par with market trends without compromising on quality. With innovation and investments in the latest technology available in the market, Aspire has always stayed ahead in bringing transformation solutions. With significant cost reduction and improved quality, the perception of working with tools, processes, methods, and people has changed mindset in the way businesses operate.

Would you like to know more about iPOT or DCqaf? Please **click here** or write to us at **info@aspiresys.com**

About the Author

Practice Head
Janaki Jayachandran
Vice President - Testing

Janaki is the Head of Testing and Test Automation Service Line at Aspire Systems with an industry experience of about 19 years spanning across the SDLC. Janaki also heads the Testing Center of Excellence at Aspire that has produced innovative AI-based frameworks and Robotic Arm Testing solutions. Janaki has the delivery experience of managing a 600+ people team with in-depth expertise in designing and implementing a test strategy for both cloud-based SaaS products and enterprise applications for various domains.

Author
Christina Sridhar
Research Consultant

Christina is a Senior Content Writer in Aspire Systems with an experience of about 4 years. She is closely associated with the Independent Testing Services team. She writes research-driven content such as blogs, whitepapers, articles, and solution pages about recent market trends to increase company branding.

To know more about our testing services, please write us to: **info@aspiresys.com**

About Aspire

Aspire Systems is a global technology services firm serving as a trusted technology partner for our customers. We work with some of the world's most innovative enterprises and independent software vendors, helping them leverage technology and outsourcing in our specific areas of expertise. Our core philosophy of "Attention. Always." communicates our belief in lavishing care and attention on our customer and employees.

Contact Us

For more info contact

info@aspiresys.com or visit www.aspiresys.com

NORTH AMERICA	POLAND	INDIA	MIDDLE EAST	EUROPE	SINGAPORE
+1 630 368 0970	+44 203 170 6115	+91 44 6740 4000	+971 50 658 8831	+44 203 170 6115	+65 3163 3050