

Point of Sale (PoS) Test Automation – Challenges and Approach



Introduction:

Great shopping experiences that engage customers has become more complicated today than ever for Retail stores. Payment processing, Loyalty Management, Coupons and Store sales must work seamlessly and securely with backend systems like order management and fulfilment, inventory, and customer experience management. Most large retailers have embraced multichannel sales strategies, including e-commerce, online advertising and mobile product information. Despite the huge growth of Omni channel and multi commerce Internet re-tailing evolution in retail, today's brick-and-mortar stores process 95 percent of sales transactions through a traditional POS terminal.

The latest buzz in retail and payments space is around mobile POS. Will it revolutionize the retail industry? Or will it replace traditional POS? The evolution of personal mobility devices and capabilities has led retailers to take a new look at mobile POS. Retail stores are doing multiple levels of experimentations with consumer devices as mobile POS plat-forms. The intent is to augment the traditional POS terminal and enable more personalized experience between shoppers and store sales person. Mobile POS will be handy for tradeshows, near product sales, or events. However, in high volume environments, 100% mobile POS does not make sense except during festive periods.

Mobile PoS Vs. Terminal PoS:

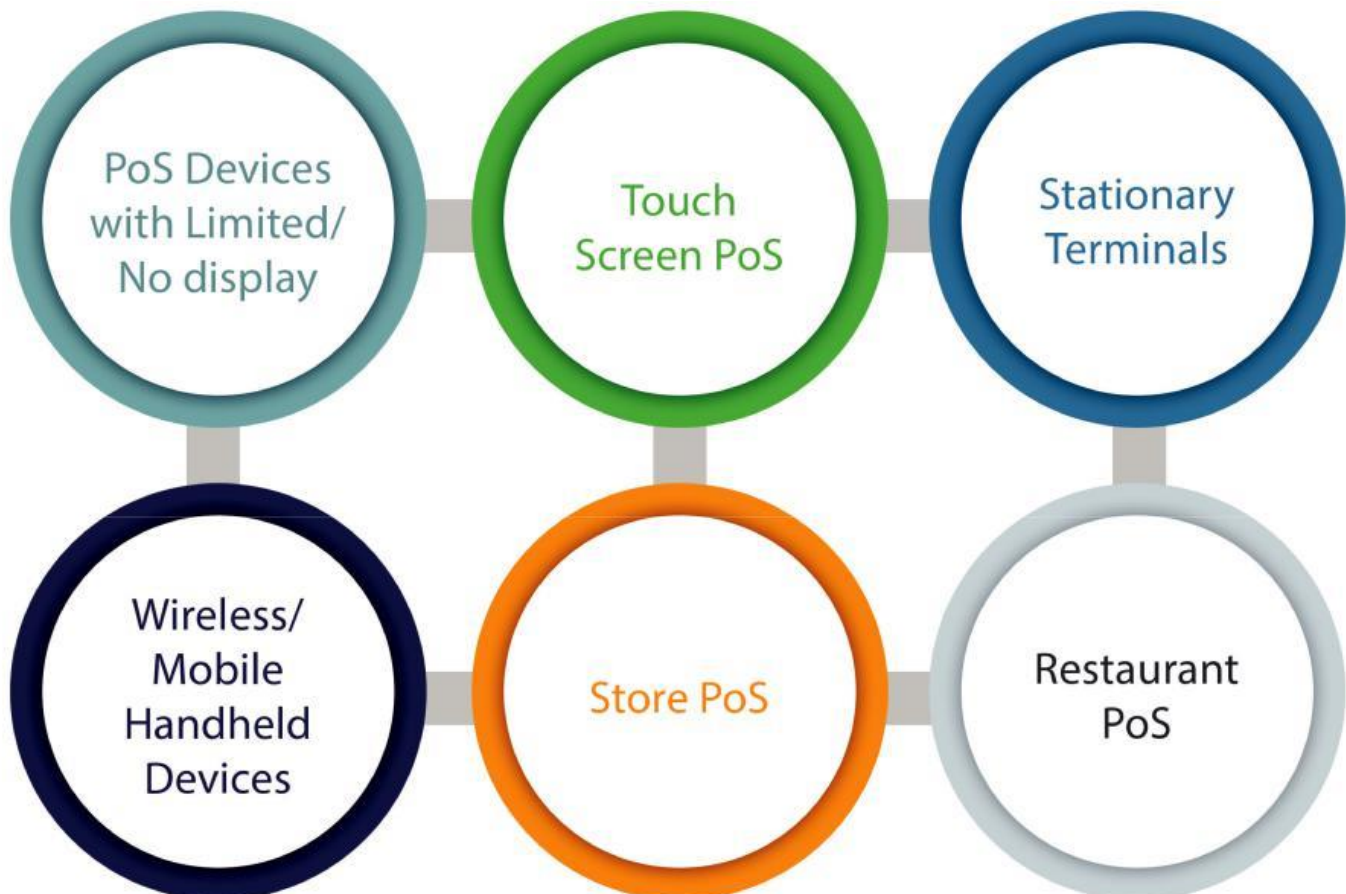
- **Security concerns:** Mobile PoS network must be separated from internal networks so that it will comply with payment card industry (PCI) auditors. There is close scrutiny to ensure appropriate encryption and operational best practices
- **Guidelines:** PCI guidelines are pretty vague with the recent developments in the payments space. Retailers must be sure that they should not save any customer payments related data in non-volatile memory on the mobile device.

In competitive business such as retail, a POS either Terminal or Mobile system can be a key differentiator. Good POS software package increases efficiency and customer loyalty by eliminating unnecessary queues and can manage the entire business intelligently. With PoS systems accounting for a major IT spend portion, implementing automation testing

A single security breach can result in significant impact in the retail brand and serious effects on customer loyalty associated with the brand.

- **Integration:** If a retailer decides to carry both PoS terminals and Mobile PoS devices, it will create a huge complexity in synchronizing and maintaining consistent rules for selection, prioritization and calculation of promotions between two systems. One cannot charge different prices for the same transaction.

for PoS systems can add more value and reduce ambiguities around Point of Sale Integration. Unlike the regular test automation for web applications, Test Automation for PoS is bit more complicated than the rest. Let us look at the scenarios in detail with the following diagram.



Test Automation Challenges - PoS

- **Human Machine Interface (HMI):** There are certain scenarios such as swiping bank cards, bar-codes, cash-drawer trigger and these contribute to 20% of test automation design level configurations. Scenarios can be tricky and finding the right automation tool will get tougher.
- **Back end systems integration:** PoS applications integrate and interface with external systems such as CRM, Merchandising, E-commerce and finance. Each system is built with different languages and test automation scripts for multiple versions of the systems can be highly complex and technically infeasible to think and write scenarios.
- **Multiple Configurations:** Implementing Test automation for a POS application with different settings and configurations is a cumbersome task. Test cases should be created for all scenarios and maintaining scripts with incremental changes will be time consuming.
- **PCI Compliance:** Customer data security is the first and foremost critical criteria for any retail organization. PoS systems should be compliant to PCI guidelines to protect cardholder data and identity. Non-standard objects can-not be recognized by standard automation tools and it will be difficult to automate the PoS system.

How can Automation Testing help?

Test automation strategy is important to reduce the testing timelines for PoS systems. Even more important is to identify the right possible scenarios and automate it using the right tool. Typical transactions that can be designed and automated are:

1. Sales/ cash management/ Cards and loyalty Management
2. Discounts promotions and customer management
3. Merchandise locator and partner management

Based on the inputs (such as releases planned per year, number of regression test cases, size of manual testing team etc), an ROI report can be generated which:

- Analyzes the implementation cost involved
- Estimates the ratio between manual testing and test automation efforts
- Defines business processes and validation rules
- Ensures robust, scalable and re-usable automation suite

How to select the right automation testing tool?

For automating test cases of POS software, a test automation tool that can recognize objects and UI controls of the application. There are plenty of commercial and open source automation test tools available in the market such as quality center, Selenium, Watir and Test complete. A proof-of-concept (PoC) exercise should be performed to select the best-suited tool for the POS application based on the capability and fitment for an AUT.

Our approach:

Test automation is a skill that most testing organizations don't possess. However, they would have quality professionals engaged in ensuring software quality. In such situations, we get involved with their automating team and we enhance, optimize and transfer their test automation execution to their testing organization seamlessly. The process that we follow is this:

Our Engagement Model

ENHANCE

- Application Understanding
- Assess Suitable Automation tools
- Decide on degree of Automation to the Product
- Develop the Automation Framework
- Demo the test automation Scripts
- Provide expert process on engagement model

2-4
Weeks

Phase 1
ASSESSMENT

Based on Success >>

1
Weeks

Phase 2
PLANNING

- Derive the test plan for automation
- Setup the required automation infrastructure

Based on Success >>

OPTIMIZE

- Enhance & Implement the automation framework
- Automate Functional Test Cases
- Perform Dry runs & share report for review & sign-off

20-24
Weeks

Phase 3
EXECUTION

Based on Success >>

TRANSFER

- Extend test coverage by an efficient Test Strategy (Manual driven/Automation driven)
- Shorten test cycles
- Maintenance of test suite

Ongoing

Phase 4
MAINTENANCE

Conclusion:

We can conclude by saying that for a complicated and business critical system like POS, QA is all about formulating the right strategies and balancing the

right combination of automation and manual testing efforts. The approach should overcome highly complicated challenges and mitigate risks.

ABOUT ZADO

Zado is an independent QA Solution provider with specific focus on testing web, mobile and cloud applications. Our framework-driven approach to test automation ensures reliability and performance of your applications in diverse environments and complexities.

Our Center of Excellence works towards ensuring the success of every test automation initiative of our customers, irrespective of the stage that they are in – startup, transitional or mature. We have successfully helped Startup, e-Commerce and Independent Software Vendors with their automation needs. Our goal is to ensure quality of your software using test automation optimally.

We are open to doing POCs and Pilots that prove our credibility. We also have an innovative engagement model, Enhance – Optimize – Transfer (EOT), where we implement automation testing and transition it to your local teams. Our points of intervention after that, will be only towards enhancing the automation framework.

Zado automation frameworks help manual testers write their own test scripts without the necessary automation expertise. This qualifies manual testers into automation testers, providing better economies of scale and faster ROI of your automation efforts.



Email: contact@zado-tech.com
Twitter: <https://twitter.com/@ZadoInfoTech>
Website: www.zado-tech.com