

# How Astegic Helped One Medical EMR Improve Their Patient Care Service Delivery by Providing a Robust Electronic Medical Records Application

## Case Overview

One Medical EMR is an electronic medical records solution created for providing client-practices (doctors) with the latest and the most efficient technology-enabled solutions using which patients can register through a web portal and provide all of their medical records for faster and more accurate diagnostics and treatment.

One Medical EMR approached Astegic seeking a QA/Testing solution for their application. The application is a specialty based EMR solution to digitize and automate healthcare service delivery. The solution enables practices to provide personalized services by learning user behavior captured using analytics, and helps healthcare providers and practices make more informed and intelligent decisions on patient care.

One Medical EMR hired Astegic's QA services to test their application to ensure that the application provides ease of use; while also making sure that all regulatory standards of the healthcare industry are met.

## The Requirement

One Medical EMR wanted to test their web portal along with the Windows® Desktop application.

The objective was to test the suggested line of treatment (output) given by the system for a set of specific inputs (symptoms).

The recommended output is generated on the basis of knowledge-based documents created with data inputs from various medical practitioners. The information is stored in the database, and the system fetches the outputs based on algorithms that identify the exact cause of illness and thus recommended the right treatment.

One Medical EMR wanted to test the backend system to ensure that all of the data gathered from various practices / clinics synchronizes with the central database on cloud premise -- including patient files such as X-Rays, MRIs, CT-Scans and so forth. All data needed to be HIPAA compliant.

A critical requirement was that the data should be encrypted in both rest state as well while traversing.

## Our Approach

Astegic team studied the client's existing legacy systems and observed that the existing Windows® application was not automation friendly -- since many of the elements did not have control IDs, and many of the control IDs were not defined correctly. Now identifying such controls was going to be a difficult and challenging task for the QA Team. Also, automating Windows® application was another challenge, as the legacy application was developed on a framework that was introduced long before test automation became popular.

Astegic's testing team also found that the performance of the legacy application was low, resulting in high loss in productivity, as well as testability challenges due to incompatibility with legacy Windows® application.

Astegic started off QA execution with the requirements analysis phase by narrowing down use cases for the ideal number of users (number of users in a real case scenario) to the maximum number of users that the application was going to support. This served as a key input for Load Testing parameters.

Testing of any small set of scenarios was easy and quick as it was executed manually. But to test multiple variations required highly skilled staff on a tight deadline -- as manual testing was not consistent, unscalable, non-repeatable and not reliable. Astegic QA team used their Testing Requirement Analysis Framework -- TRAF to establish ideal response time for the application.



31%

Quality improvement



29%

Faster release



23%

Cost savings

## Our Solution

Astegic delivered an automation testing solution to get meaningful, scalable, repeatable and reliable results in a timely fashion. Automation of repetitive tasks proved critical in reducing the time and effort required during the migration phase. Reduction efforts spent on repetitive tasks enabled the EMR team to focus on test results and discoveries. The client was also able to improve customer experience delivery leading to a higher engagement level with their end users.

Astegic created a testing automation solution which supported their Windows® and Web framework. The QA solution had Regression Test Suite, Smoke Test Suite and Functional Test Suite with more than 1000 automated test cases. We integrated this solution with Hudson for (CI) continuous integration with their upcoming builds. This innovative solution ensured that the tests would run automatically as soon as a new build is published.

Testing of the application prior to its release was carried out by Astegic's testing team. The team addressed the client's time and resource constraints to deliver automation testing services like:

- Regression Testing
- Build Verification Testing
- UAT Testing
- HTML reports of Test Case execution

All of the newly developed interfaces were integrated with the client's existing PMS solutions. This was done via a third party provider of digital adapters used for middleware integration. Astegic's QA teams, liaising with the third party, wherever necessary, that developed and deployed middleware web services, tested each functionality across various parameters.

Test automation scripts were run to validate integration performance and compatibility of One Medical EMR's software with the third party provider's PMS solutions using various HL7 based messages.

Tests were performed to verify and validate the data that was being transferred from one system to another in encrypted form.

Network Detective network compliance tool was used for HIPAA compliance.

Following was the Technology Stack we used for Automation:

Technology	Function
Soap UI	Web testing Services
Selenium	Functional Automation of the Web application
jMeter	Load testing
QTP & Autolt with Selenium	Windows® Desktop
Hudson	CI (Continuous Integration)

## About One Medical EMR

One Medical EMR aims to improve the quality of patient care service delivery through the use of technology. One Medical EMR's solution provides a prioritized list of diagnostics based on data points collected from a patient, develops a treatment plan for the medical practitioner to review and approve; and finally develops an on-screen treatment plan and doctors note, that could modified or updated on the fly -- thus helping automate some of the manual services performed by the provider.



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### About Astegic

Astegic is a US-based Quality Assurance (QA) company with an offshore global delivery center. At Astegic we have 15+ years of independent software QA experience, we have written more than 50,000 automation scripts and conducted over 800,000 test cases for clients in a vast number of industries, including: fortune 500 companies, federal government and non-profits. We have domain-specific knowledge in the consumer, enterprise, eLearning, healthcare, and telecom sectors. Astegic has a dedicated Testing Center of Excellence (TCoE), specializing in providing solutions across Mobile, Cloud and API testing.