

# Medicine · On · Time<sup>®</sup>

Filled with Confidence

# OVERVIEW

Medicine-On-Time (MOT), the pioneer in multi-dose prescription packaging, needed to completely rewrite its software application to meet the modern needs of its pharmacy customers and to position the company for future growth. Kanda played a critical role by helping MOT to secure investment capital, and by becoming their dedicated development partner charged with architecting and developing a new software application that can scale with the company's North American expansion.

## A HISTORY OF INNOVATION

*The First of its Kind*

1984

MOT started with a mission to revolutionize the way pharmacies dispense medication.

In 1984, MOT created the first ever multi-dose prescription package, utilizing heat seal technology, as well as the first multi-dose software. This hardware / software combination distinguished them as a trailblazer in the pharmaceutical world. The company has spent the last three decades improving patient quality of life through safe, accurate solutions to medication management. MOT's "calendar card" blister pack system promotes a high level of patient adherence to prescribed multi-medication regimens.

*Over 250 pharmacies*

1995

*Three private equity firms*

2015

By 1995, 250 pharmacies across 46 states implemented MOT. For the next two decades the company continued to innovate and evolve to meet the growing needs of their pharmacy clients. Today, the company has over 450 pharmacy clients and is the largest provider of multi-dose prescription packaging in the southern part of the United States. In 2015, three private equity firms (HealthEdge Partners, Brook Venture, and Eagle Private Capital) acquired MOT with the plan to dramatically increase their network of pharmacies throughout the United States and Canada.

*Over 450 pharmacies*

2017

2018

# THE PROBLEM

Business growth for MOT required a next generation product but it was important not to disrupt the existing pharmacy customers who were accustomed to the out-of-date interface and functionality. This required careful consideration, keeping the best of the legacy system while reworking the areas that needed to be changed and improved. Up to this point, any changes to the product required extensive hands-on customer support. This was extremely costly, inefficient, and unscalable. Further, the 18-year-old system relied on outdated technologies and a cumbersome user interface.

The time had come to completely rewrite the MOT prescription application software to position the company for the future.



## KANDA & MEDICINE-ON-TIME COLLABORATION

To start, the Kanda team conducted a thorough product due diligence to provide an accurate assessment for the investors of what a complete rewrite of the software entailed. In fact, the company's acquisition by the private equity firms depended on having a clear picture of the project scope and the technical resources required for development.

Once the due diligence process was complete, Kanda was awarded the project because they were known and trusted by the investors.

Kanda swiftly assembled a team consisting of project and account managers, a business analyst, a software architect, software developers, and a QA engineer.

The team hit the ground running as they moved into the full project lifecycle which included the following phases:

### Project Definition and High Level Technical Architecture

In this phase, the Kanda team identified the main requirements for the new application (both functional and non-functional), selected the technology stack, and created the project plan.

### Minimum Viable Product (MVP) Requirements

Using iterative Agile Methodology, the team developed the main use case functionality and UX, ensuring that the product met the explicit and implicit needs and requirements of MOT's prescription platform clients.

### Alpha and Beta Releases.

This phase consisted of developing the full-featured product and putting it through comprehensive Integrated Iterative testing and Quality Assurance.

### Rollout and Deployment.

Upon successful completion of the Alpha and Beta Releases phase, the product is ready to be rolled out to the client base.

Support and Maintenance. After deployment, the Kanda team will provide MOT with 24\*7 help desk, as well as ongoing patches and enhancements.



# EXPECT THE UNEXPECTED

Unexpected challenges arose during development as MOT discovered that many of their 450 pharmacy clients had small customizations that needed to be worked into the software. Kanda knows to expect the unexpected so they never let these challenges derail or disrupt the project.

*“The Kanda team was unflappable even when faced with significant mid-project changes. Their team just digs in and gets it done.”* said Medicine-On-Time CTO, Peter Jenney.

The project also ended up including a 3rd party system integration via Gateway which was not part of the initial requirements. A smooth transition from existing prescription systems and data migration from the MOT legacy system to the new system was necessary. There were many unforeseen complexities to be considered: functionality relations, hidden settings, as well as undocumented reports that were lacking in data extraction logic.

When MOT wanted to accelerate development and address the customization requirements, Kanda was ready, quickly adding skilled developers to increase the sprint velocity.

## THE TECHNOLOGY

The technology for the new MOT application followed the HL7 standards for interoperability and communications as it applies to pharmacy transactional data.

### Architecture

Highly sensitive patient data in the MOT system required a complex, multi-level architecture that was designed for maximum application and data security. Kanda’s experienced and highly trained staff specialize in working with enterprise-class applications that have stringent confidential and security requirements, including HIPAA-regulated entities.

Using N-tier architecture, Kanda set up the product architecture for a flexible future, making an eventual move to the Cloud and SaaS delivery possible. Using the REST API with JSON as its data format ensured that the new MOT was Web-ready. Further,

Kanda created a Pharmacy Systems Integration Abstraction Layer that allowed for a more seamless integration with current and future record management systems.

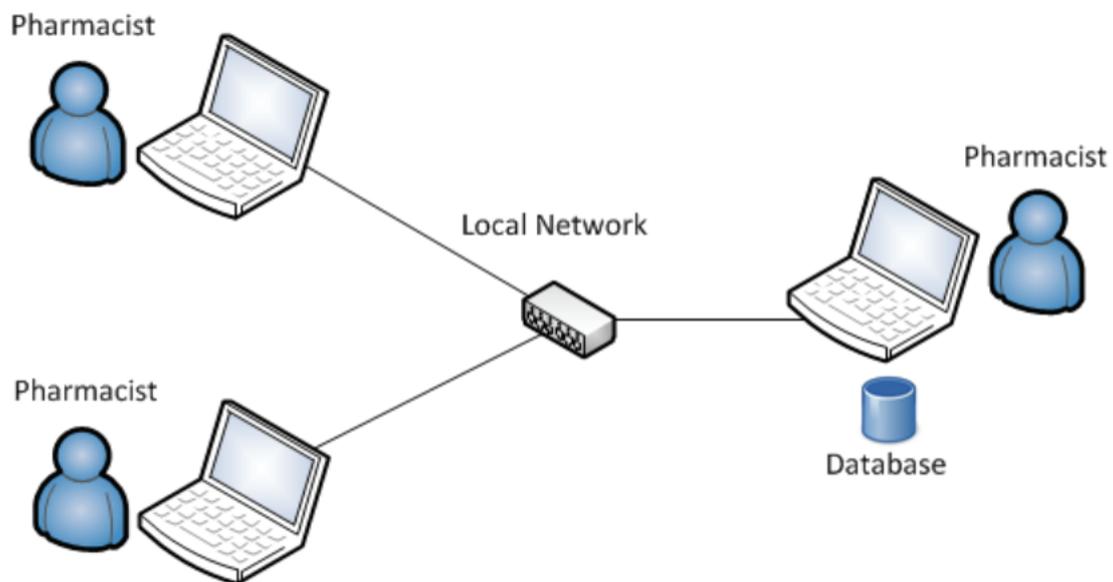
## Database

Kanda migrated the database to PostgreSQL, an open-source, enterprise-class relational database that has a strong reputation for reliability, data integrity, and accuracy—which is essential when dealing with highly confidential personal data. Kanda layered on specific protections to make the database secure and HIPAA compliant.

## Installation

For most of their current client use cases, the MOT application can be installed and run either locally on a single PC or in a small local network (2-5 PCs in the network). Taking this into account, Kanda created the application for Windows Desktop. This gives MOT full control over the application and data on their client's PCs.

The below diagram shows the MOT application deployed on a local network.



Below is a full list of technologies and libraries which were used to develop the complete MOT technical solution.

Component	Technology	Description
Platform	.Net Framework 4.6	Most widely used platform for developing Windows desktop applications. 4.6 is the most recent version which supports WPF.
Programming language	C#	It is most widely used .Net Framework language for applications which run under Windows.
UI	WPF	Most modern foundation for developing rich UI for Windows applications.
IoC	Autofac	Extensible and flexible IoC. We had good experience with this container in many projects.
DB integration	EF (Entity Framework) 6.1.3.	Open-source ORM framework for .NET applications.
Testing	MS Tests	Native unit-testing framework which has good support by Visual Studio.
Installer	Windows Installer	Native installation tool for Windows. Visual Studio have support for it.
IDE	Visual Studio 2013	Major tool for developers on .Net.
Controls	DevExpress	Rich UI controls for WPF.
Reporting	XtraReports by DevExpress	Strong robust reporting tool with nice viewer and ability to customize layouts by user. Please look at pricing for both Controls and Reporting component here. WPF subscription includes Control and Reporting.
DB	PostgreSQL	Most recent version of the DB with less limitations than the previous ones.

# THE OUTCOME

Today, MOT has a newly designed application that can scale as the company expands its reach to new and larger pharmacies throughout the nation. The new software offers all of the features of the legacy software but has the built-in flexibility for limitless integration and Web-based expansion, as well as the latest in security and encryption technology. This full-featured product, developed by the Kanda team, enables pharmacies to manage patient prescription information, prepare customized medication calendar cards, process prescription renewals, and plan for medicine inventory. Thanks to this project, MOT has the stable infrastructure to grow its business with greater efficiency while providing superior customer service to pharmacies and patients. Kanda continues to be a partner to MOT, supporting and maintaining the application while continuing to meet its ongoing development needs.



1

## Comprehensive Workstation

All-inclusive workstation houses a complete set of components to simplify medication management.

2

## Integrated Software

Robust workflow software seamlessly integrates into top pharmacy management systems.

3

## Compliance Packaging

Air-tight, Board Approved compliance packaging provides safe, accurate medication delivery.

Medications are organized into detailed color-coded calendar cards and customized to a patient's individual needs.



# CONTACT US

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