



SAAS BASED INVENTORY  
MANAGEMENT SYSTEM  
WHITE PAPER

# ABOUT

Client is a California based Software-as-a-Service (SaaS) provider for remote stock room inventory management solutions. Client was founded in 1994, has hundreds of satisfied customers in industries where it is critical to have good remote inventory management at the last step of the supply chain: the point-of-use (POU). Client provides organizations with real-time visibility into remote storeroom inventories and then automates replenishment. Whether the inventory is consigned or customer owned, Client manages inventory at the point-of-use to increase sales and service levels, optimize inventory and eliminate stock outs. While items at the POU may be inexpensive or commodity products, the cost of a production line shutting down from a stock out or an inoperable machine is prohibitive. Client service productively and cost effectively optimizes inventory while maximizing service levels at the remote stockroom, store, or service van.

No matter what their clients' approach is to inventory ownership, inventory location or inventory replenishment, they can accommodate their method and automate the process of tracking and replenishing their client's inventory at the POU. Industries that can benefit most from their service include: manufacturers; suppliers and wholesale distributors (electrical, electronic, fasteners, wire, industrial, MRO/spare parts, etc); food service; and fleet maintenance.

# ABSTRACT

This is a Web Based SaaS based remote Inventory Management System running on a Windows Server. Along with Web Based Application Windows Mobile Application with scanning and high performance features to capture transactions at the Point-of-Use is also developed. Web and PDA Based application is developed as per the client's requirement. This application is having facility to manage inventory of multiple enterprise with multiple administrators. Administrator of each enterprise can manage their inventory separately. Enterprise user can also create multiple customers under them. PDA version is having off line storage so if network / internet connectivity is not available, data can be stored locally on PDA and can be synced with the server whenever network / internet is available. Only authorized users will be able to access this system due to role based access control. Sensor based automated stock taking is one of the most important functionality.

# PROJECT

## KEY CHALLENGES:

- SaaS based remote stockroom inventory management
- Agile methodology for module wise development
- Multi lingual web site with company wise resource label management
- Many 3rd Party Integrations

Name	Short Description
BarcodeLib	To generate dynamic barcodes
CsvHelper.2.5.0	To read Comma separated value(CSV) files and generate new file
Elmah	To log errors in database
Jquery 1.7.1.1 and different plug ins	Jquery helper library
Signal R	Run time visual effect on web site on all clients
Newtonsoft json	Use to parse the json string to C# Objects
Dynamite	LINQ Query Helper Library
ItextSharp	To Export data in PDF File
NPOI	To read xls file and generate XLS file by Code.
Jquery Datatable	To view data in list format same as grid view
FCK Editor	For maintaining mail template text
Microsoft Chart	To Show visual implementation of data in form of charts

- Offline PDA Sync and transactions
- eVMI sensor reading and inventory bins stock checking / counting
- Email template management Language wise and room wise with FCK editor and fetching of same customized text on triggering the mail.
- Jquery plug-in data tables customization for filtering, sorting, re-order columns and multi delete data
- Label Printing with customized Labels and Printing Barcodes
- Dashboard with high level overview of inventory stock and Inventory tuning
- User Defined Fields in each module for additional information as per user's need
- Customized export and import data
- Drag & drop panel as per user's requirement in dashboard
- Automated update notification for application update in PDA. It updates only latest changes instead of whole application

# PROPOSED SOLUTION:

Considering client's requirement Silver Touch proposed and developed Stock Room Management Inventory System in ASP.NET (Web Application) and Windows 6/6.5 (PDA (POU) Application) with Agile Methodology. Web Application is developed with MVC 4. As client was planning to sell this product to their end clients giving them facilities to manage their individual inventory, SaaS based application is developed. PDA devices were suggested by the client, which was having inbuilt scanning facility for quick and easy stock management. Unique offline functionalities is developed for PDA so user can use PDA application where internet connectivity is not available. In such case data is stored locally on the device and whenever internet connectivity is available these data can be synchronized with the central database. 3rd Party Control (jQuery Data Tables) and 3rd Party equipment (Sensors) are also implemented and integrated with this application for fast and accurate data management

As a requirement client can create as many enterprises as they wish and each of them can have as many companies under them and then as many Stockrooms under that. End Client also has their own account from which they can manage their own inventory and generate reports. Items can be stored at single or multiple locations and they are also tracked through this application. Critical, Minimum, and Maximum Levels can be managed at item or location level and if on hand quantity of any item goes below its minimum level then application automatically adds that item into the cart for procurement process. A completely customized reporting capability is developed for Reports. Category, Supplier, Manufacturer and Cost filter and search functionality is available for items.

## Enterprise Management

System gives facility to create as many enterprises as required. It also allows creating companies, rooms, and locations for that enterprise(s) as per the requirement.

## User Management

Administrators will have rights to assign different roles and permissions to the various levels of users.

## Supplier Management

It allows the user to setup multiple suppliers. Users can create supplier orders. After placing the order, supplier will receive an email for that order. Alternatively, orders can be sent via EDI, xml, or flat file to the suppliers.

## Company Management

Application allows the administrator at enterprise level to create and manage companies. Users at company level can create or add items in their company inventory list.

## Role Management

Enterprise Administrator can manage the roles and rights for different users. Administrator at enterprise level can assign Roles and permissions to various users for specific modules.

## Room Management

Application allows the company administrator to create and manage rooms as per their requirement of inventory management. Administrator can also create locations and racks in rooms for easy maintenance of items.

## Inventory Management

System allows users to view inventory items and their attributes.

### Inventory Count

System allows users to setup cycle counts, perform cycle and manual counts as per their requirement. Users can set time to count the inventory and can select random or inventory classification cycle counting whichever is applicable. User can define customized time setup also.

## Asset Management

This module allows users to maintain asset lists and setup asset maintenance schedules. Company administrator can manage company's Assets using this module.

### Asset Maintenance

Assets maintenance alerts can be created and application will send an email alert when maintenance is due. Each maintenance of the asset (Planned or not) updates the next maintenance calculation for the asset. It allows users to update mileage or operational hours without performing maintenance.

## Order Management

This feature allows users to replenish inventory by submitting a list of items and quantities to a replenishing supplier. Users can select vendors and set delivery date for entire order. They can add items using quick list and create barcode label for order.

### Change Order

Change Order functionality allow users to request changes to an order after it has been transmitted to the supplier.

## Tool Management

This module allows users to maintain tool cribs, setup tool maintenance schedules, keep track of tools using check in and checkout functionality. It also displays consumed tools and available tools using checkout / check in functionality and tool's location value. Check in/-checkout report displays which tools are checked out and to whom.

### Tool Maintenance

Administrator can create maintenance alerts for tool. Alerts can be set daily, weekly or monthly as required.

## Cart Management

User can create cart for items as per their requirement. After adding to the cart, user can order that item(s). Item will be automatically added to the cart when its stock goes below minimum level. After placing the order, the item will be removed from the cart

## Quick List Management

User at company level can create quick lists of items or manage frequently ordered items list as quick list. All the items in the quick list may or may not be inter-related. This enables the user to place orders of frequently used / ordered items quickly.

## UDF (User Defined Field) Management

UDF (User Defined Fields) are additional fields provided to the user so that they can use as per their requirement. Each module allows the users to capture transaction data based on their unique needs. Users can create dynamic fields with dynamic values as per requirement. UDF is available for all modules for additional information.

## Pull Management

Pull module allows users to track consumption of inventory. User can select item, bin location, quantity and add specific information for each transaction. Pull All functionality allows user to pull multiple items with one click.

## Bar Code Management

Allow users to cross reference barcodes to inventory items and assets. Administrator can create customized barcode labels for items with PDF format. After creation of label it can be configured with specific item template. Barcode labels can include the Enterprise Logo and an image of the item. Users will be able to determine which barcodes are associated to items and assets and tools.

## Kitting

Kitting module allows the users to group components together. Users can build kits or break them into individual components when needed. They can purchase whole kit from outside and then break it and divide it into different items. Kit inventory will be updated automatically when kit is built.

## Export / Import Management

NPOI 3rd party tool integration is done to achieve this functionality which allows the users to export the web data to excel files and vice versa. Users can save customized data from excel to application. After making the changes in the excel data, user can Import the data to application. Imported data will be stored in the database. Users can export current screen data in PDF, CSV or Excel format and import changed data back to application to save it in database. User can import an item, item location quick list, assets, and tools.

## Catalog Management

Catalog Management feature allows the users to format and print inventory catalogs with barcodes. It also allows user to create separate catalog templates for Items, Assets and Inventory.

## eVMI

It allows client to automate the inventory management process through weight sensing scales. It also allows user to poll any individual sensor from the location screen to determine quantity in the bin at that location. User can poll all the sensors by clicking a "Poll All" button. poll times per day or single elapsed time interval can also be set as required.



# Material Staging

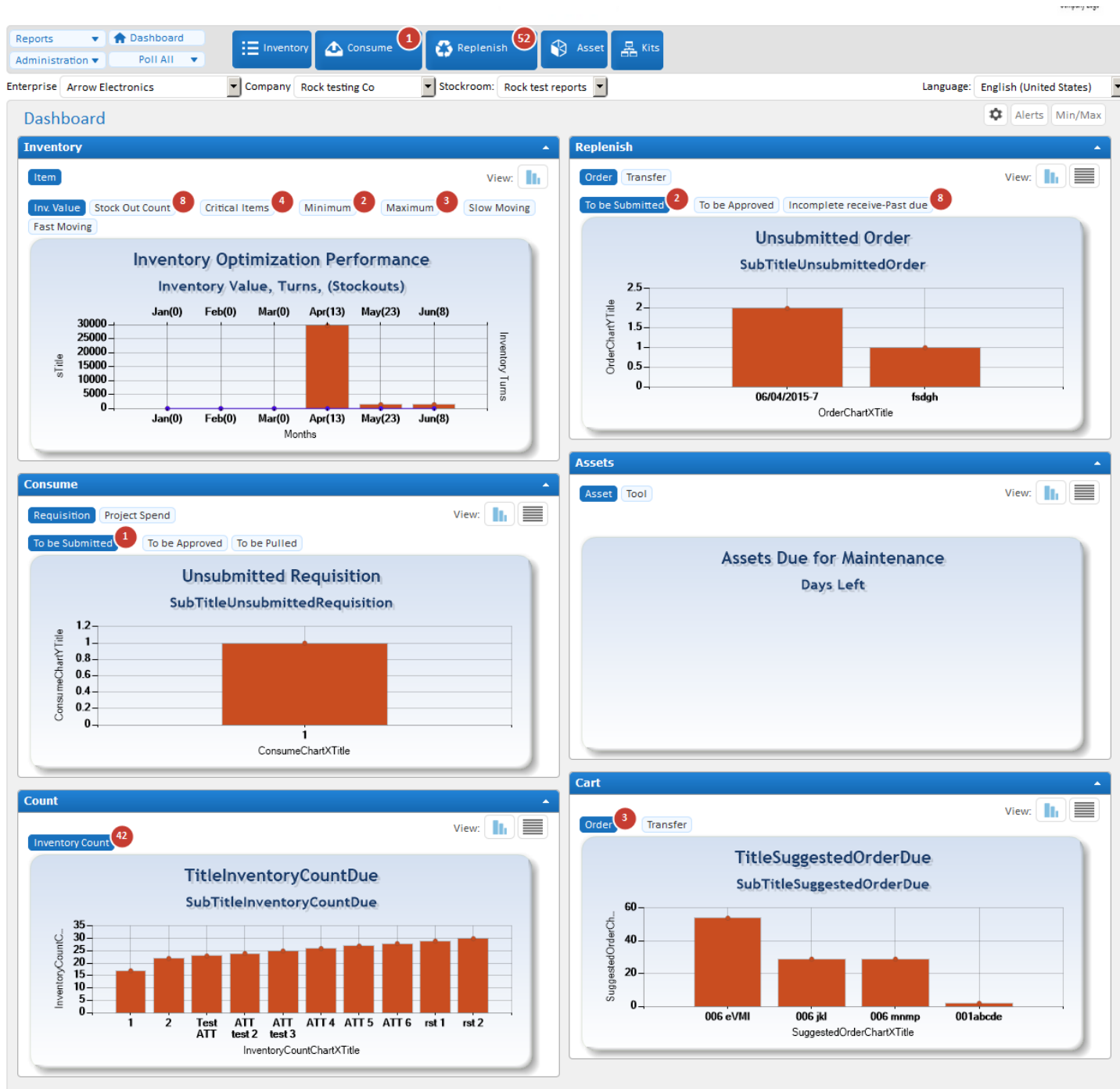
Staging allows user to reserve materials and set them aside for another use. User can move it into a separate location. User can pull all of the material at one time in a single click. Unused material can be moved back into general inventory.

# Transfer

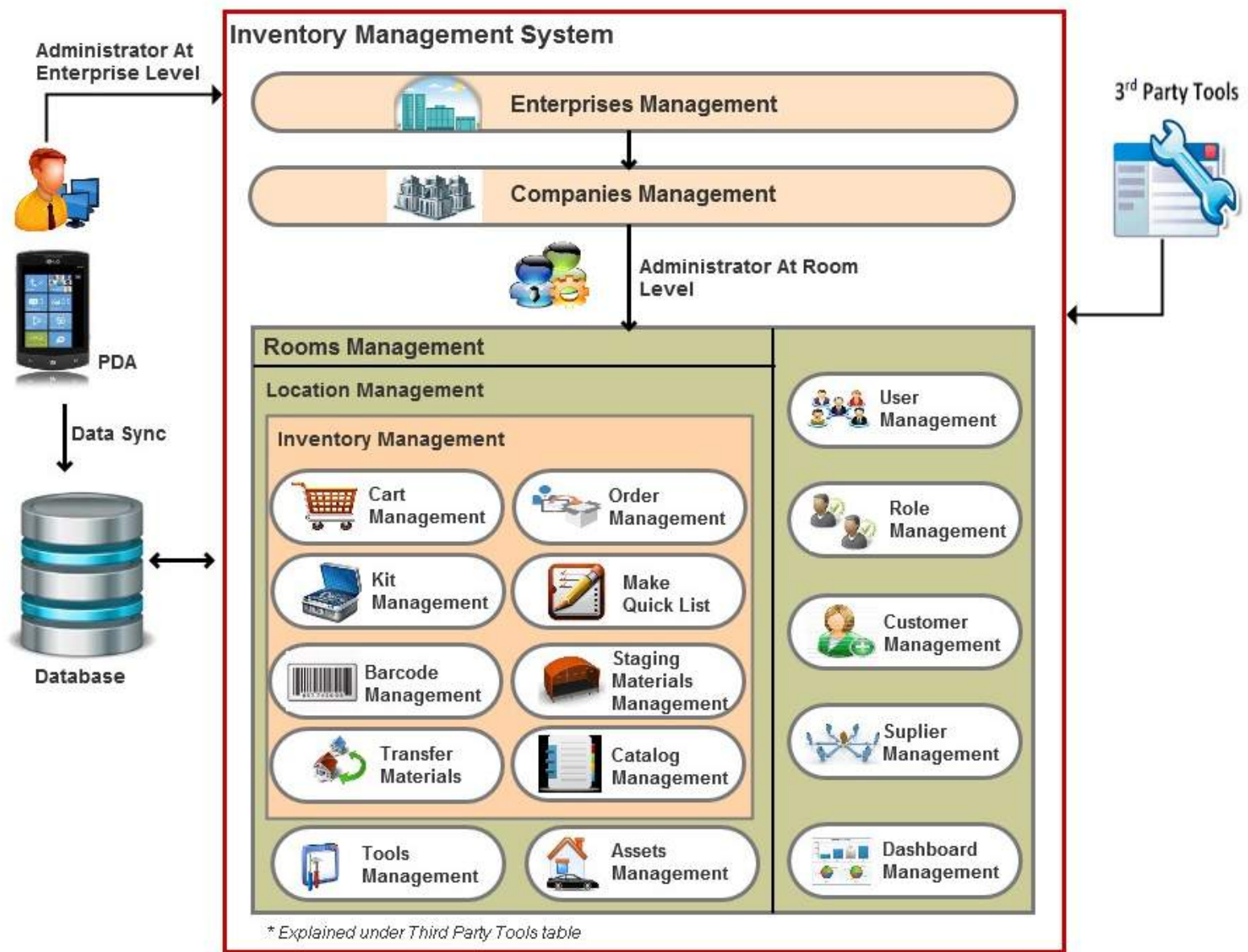
Transfer functionality allows users to replenish inventory by submitting a list of items and quantities to another replenishing room. This module is usually used to manage material between a warehouse and contractor service trucks.

# Dashboard Management

Dashboard allows users to view turns, stock outs, recommended min / max levels, slow moving items and fast moving items. Only users with access to the dashboard will be able to view and act upon the dashboard data.



# Solution Architecture



## Technology:

### Development Platform (Web)

Technology	Specifications
Technology & Framework	Microsoft .Net 4.0 Framework, Microsoft Asp. Net MVC 4
Languages	C#, JavaScript
Database	SQL server 2012 Express Edition
Web Server/Hosting Platform	IIS 7
Operating System	Windows 7 sp1



## Development Platform (Mobile)

Technology	Specifications
Technology & Framework	Asp. Net 3.5 CE (Windows Mobile), MicroMicrosoft Sync Framework 2.1
Languages	C#
Database	SQL CE 3.5
Operating System	Windows Mobile 6 & 6.5

## User Base

There are mainly three types of users using this solution.

- Super User
- Enterprise User
- Company User

Super User can create as many Enterprise Users as required. There could be one or many company users under each enterprise user as per enterprise user requirement. There is no limitation for number of users.

## Key Highlight of the Project

- SaaS Based Development
- Web farm application as it is deployed on cloud with multiple web servers
- Customized Report Builder
- Multi Threaded Windows Services
- SQL Database Mirroring Automation
- User wise Dashboard with Localization
- Customized Import Export
- Customized Reporting
- Customized Grid View (With Drag & Drop Facility)

- Label Printing And Scanning
- eVMI Integration for Bin Quantity Auto Check
- Off-line data from PDA and Sync Framework
- Report Scheduling
- Multilingual With Resource Management Per Company
- Regional settings and time zone consideration and customization
- Integration with other ERP data
- iPhone Web Services
- Automatic Replenishment Feature
- Data Analytic, Turns and Trending Formulation And Reports
- Parallel programming to serve multiple requests at same time.
- Real Time Notification Updates
- Eliminate Stock Outs
- Transfer inventory between locations
- Supports multiple internal or external locations or points-of-use
- Receive email alerts before maintenance is due so you can plan
- Manage consigned or customer-owned inventory

# DELIVER BEST PRODUCTS, SOFTWARE SOLUTIONS AND SERVICES, ON TIME WITH QUALITY, AND AS PER CUSTOMER EXPECTATIONS

## About SilverTouch

SilverTouch, a company established in 1992 is widely accepted for its IT solutions with a huge customer base in more than 20 countries across the world.

SilverTouch is actively engaged in Enterprise software development, enterprise content management, document management and IT consulting services such as Business process optimization, process consulting, implementation and customization of ERP. SilverTouch leads brilliantly in new technical developments such as: Mobile Application development services on iPhone, iPad, Blackberry,

and Windows mobile platforms. Even now, SilverTouch helps its global clients for major developments, deployments and managements of their mobility solutions and enterprise application development programs.

SilverTouch has alliance with several industry leaders such as Microsoft, Apple, Cisco, IBM, Oracle, SAP, Java, Dell, VMware, Symantec, Sonic Wall which provides a competitive edge over other industry peers and targets to understand and cater to all types of requirements that concern our clients, thereby, leading to serve them precisely to their satisfaction.

For more information, please visit [www.silvertouch.com](http://www.silvertouch.com) or email [info@silvertouch.com](mailto:info@silvertouch.com)

## Why Silver Touch?

Established in

**1992**



**20+**

Years of  
Experience in IT



**CMMi**

Level 5  
Company



**2500+**

Projects Delivered  
Successfully



**1000+**

Highly Skilled  
IT Professionals



**100+**

e-Commerce  
Websites Developed



**1200+**

Clients all over  
the world