

Solution Architecture

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Team ID	LTVIP2025TMID30494
Project Name	Medical Inventory Management

1. Solution Architecture Strategy

To address operational inefficiencies in tracking medical stock, expiries, and procurement, we propose a **Salesforce-based inventory system**. This solution streamlines supplier management, automates stock updates and expiry alerts, and replaces siloed spreadsheets with a unified, auditable system.

We evaluated various technologies and confirmed that Salesforce offers:

- A **low-code/no-code configuration layer** (Flows, Validation Rules)
- Robust **automation and reporting capabilities**
- Seamless **integration support** (CSV import)
- Fine-grained **role-based access controls**

This architecture ensures high data visibility, stock accuracy, and fast decision-making with minimal manual intervention.

2. Architectural Blueprint & Behavior

System Components:

- **Custom Objects:** Product, Supplier, Purchase Order, Order Item, Inventory Transaction
- **User Roles:** Inventory Manager, Purchase Manager
- **Process Flows:** Stock level monitoring, PO creation & approval, inventory updates, expiry alerts
- **Reporting:** Supplier performance, PO analytics, expiry forecasting
- **Automations:**
 - Apex Trigger on Order Item for amount calculation
 - Scheduled Flow for expiry reminders
 - Flow to populate Actual Delivery Dates
 - Validation Rule for Expected Delivery constraints

Behavioural Highlights:

- If stock falls below the minimum threshold, the system triggers a reorder recommendation.
- Upon product delivery, Flows automatically update the inventory.
- Scheduled checks issue proactive alerts before medicine expires.

All system interactions are traceable, secure, and optimized for real-time performance.

3. Feature Modules & Delivery Plan

Key Functional Features:

- Product & Supplier Management
- Automated Purchase Order lifecycle
- Inventory Transactions with audit trail
- Expiry and reorder automation
- Role-based Dashboards & Reports

Non-functional Requirements:

- **Security:** Field-level access, Login IP restrictions
- **Performance:** Dashboard loads under 2 seconds
- **Scalability:** Supports growing hospital branches and product lines
- **Reliability:** 99.9% uptime during hospital hours

Development Phases:

Phase	Focus Areas
MVP	Product tracking, PO management, basic automation, and dashboards
Pilot Rollout	User role refinements, expiry alerts, and supplier analytics
Full Rollout	Integration with barcode systems and optional third-party tools

4. Technical Specifications

Component	Specification
Platform	Salesforce (Lightning Experience + Mobile)
Database Design	Custom objects with lookups, M-D, rollups; structured for high-volume data
Automation Layer	Flows (Record-triggered & Scheduled), Apex Triggers, Validation Rules
Security	Profiles, Permission Sets, Field-Level Security, Role Hierarchy
Reporting Engine	Custom Report Types, Dashboards, Summary/Matrix Reports