

Arborists Work Force Automation

Objectives and Challenges

Our client, the leading Arborists in the North America and United Kingdom, retained Elyxor to design and build a work force automation tool improve the productivity and reporting accuracy for the field workforce of over 1000 specialists.

Goals of the new system would be to;

- Replace the existing paper based system that has all the property work order requirements.
- Replace the handwritten notes on the work order with a standardized results recording method to eliminate the need for translating and entering the data manually into the invoicing system.
- Accurately capture work order and travel time components.
- Accurately capture equipment utilization.
- Accurately provide teams proper safety notifications and protocols.
- Accurately capture all treatment activities in a standardized fashion using standard treatment metadata and business rules for regulatory and billing purposes.
- Ability to update and redirect field teams efficiently.
- Reduce days sales outstanding by automating the billing processes.

Elyxor Approach

Elyxor, working with our partner Bar Code Direct, was able to jump start the project using our propriety framework for work force automation projects. Partnering with Bar Code Direct, a leader in work force automation, we deployed the system on hardened field ready Android OS tablets from Zebra. Elyxor developed the Android based multi-lingual tool, using very simple workflows, swipe, select and click with minimal data entry required by the user.

A middleware solution was developed to insulate the new workforce automation tool from the limitations of the legacy order management system. We designed a new web based admin tool to manage workorders allowing for filtering, sorting, and prioritizing work orders, and assigning to field teams to be completed. The admin system allows the sales and administrative teams to manage work in real-time, dynamically change priorities, release new work to the field in real-time, receive updates on work order and field team status in real-time. Integration of completed work orders for billing are done automatically throughout the day, no longer requiring any intervention by the office administrators to retype data into the legacy order and invoicing systems. Figure 1 depicts the logical architecture of the system.

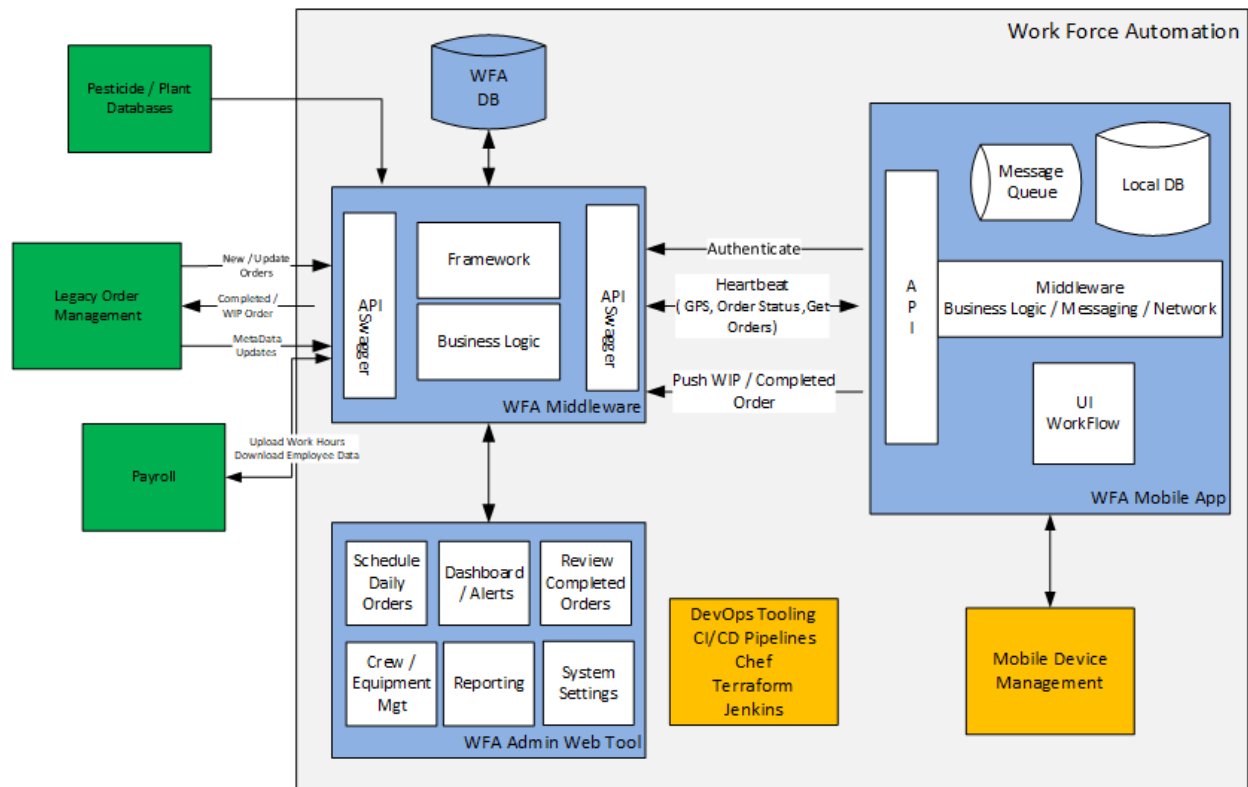


Figure 1 WFA Architecture

The system is supported by Elyxor, with end user help desk and device management provided by Elyxor’s partner Bar Code Direct. Over 1000 Mobile devices in 150 offices throughout the US, Canada and United Kingdom are secured and remotely managed using MDM software.

Fully configured DevOps tooling is used to manage development, UAT and Production builds and infrastructure all hosted on the Amazon AWS Cloud with a high availability configuration.

Results

The WFA application has proven to be quick and simple to use for the teams to manage and report work order results. The main objective to be able to capture work order results and post those results in near real-time for billing purposes has reduced invoicing time from days to hours.

Additional benefits have already been seen by increasing awareness of job site safety requirements review prior to starting the work. They have also been able to standardize how work results are recorded and reported making centralized reporting on costs, productivity, and customer integration for billing accurate and with valuable insights to staff and equipment



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utilization. With all work order treatment records now being online, reporting at the local office for regulator compliance inspections has been simplified and can be accomplished with little effort.

Tech Stack

- Kotlin
- Swagger
- Angular 8
- MongoDB
- Java - Android OS
- Zebra ET Tablets
- Bitbucket Pipelines
- Chef
- Terraform
- Amazon AWS