# NWHMD – Data capturing application

**Customer:** Northwest Horticulture
**Web Site:** www.northwesthort.com
**Customer Size:** small
**Country or Region:** United States
**Industry:** Manufacturing

**Customer Profile:**
NWH is is a private company categorized under Flowers and Nursery Stock.

**Business needs:**
NWH business needs ask for an integrated solution for all their departments. At the same moment, it should capture all information from fields, to be available to key business users enhancing business process execution reducing manual intervantion in data processing.

**Benefits:**
- Option for creating an intuitive and easy to use interface;
- Scalability and flexibility;
- Short service activation and system update time;
- Easy maintenance required.

**Technologies used:**
- Windows Mobile Envoirnment: .Net Compact Framework 3.5
- Microsoft Dynamics NAV
- MSSQL Server 2008
- SOA: Windows Communication Foundation; .Net Framework 4

Windows Mobile Platform, in a seamless integration with Microsoft Dynamics NAV made it possible to integrate all the departments and create an on-line interaction platform between the fields and ERP system.

## Business needs

Departments at NWH were using standalone Excel based tools to capture data from fields, customner EDI and logistics, resulting in a lot of reconcilations causing delays in the process and hampering revenus of the company. Also employees were capturing lot of information on papers and replicating that recorded information back to their custom tools involving a lot of rework.

NWH decided to use Microsoft Dynamics NAV to map all their processes for smooth execution of the business and powered it with wireless data capturing through Windows CE based handhelds that are be used to capture information in the fields. This information is used in NAV for further business processes to reduce the time spent is data capturing and replication.

## Solution

Microsoft Dynamics NAV was implemented in early 2010 at NWH and the system was customized to map customer requirements.

Windows CE applications were developed for field data capturing and inventory transfers. These applications use WCF services and interact with NAV in online and offline modes, depending on the wireless signals availablity.
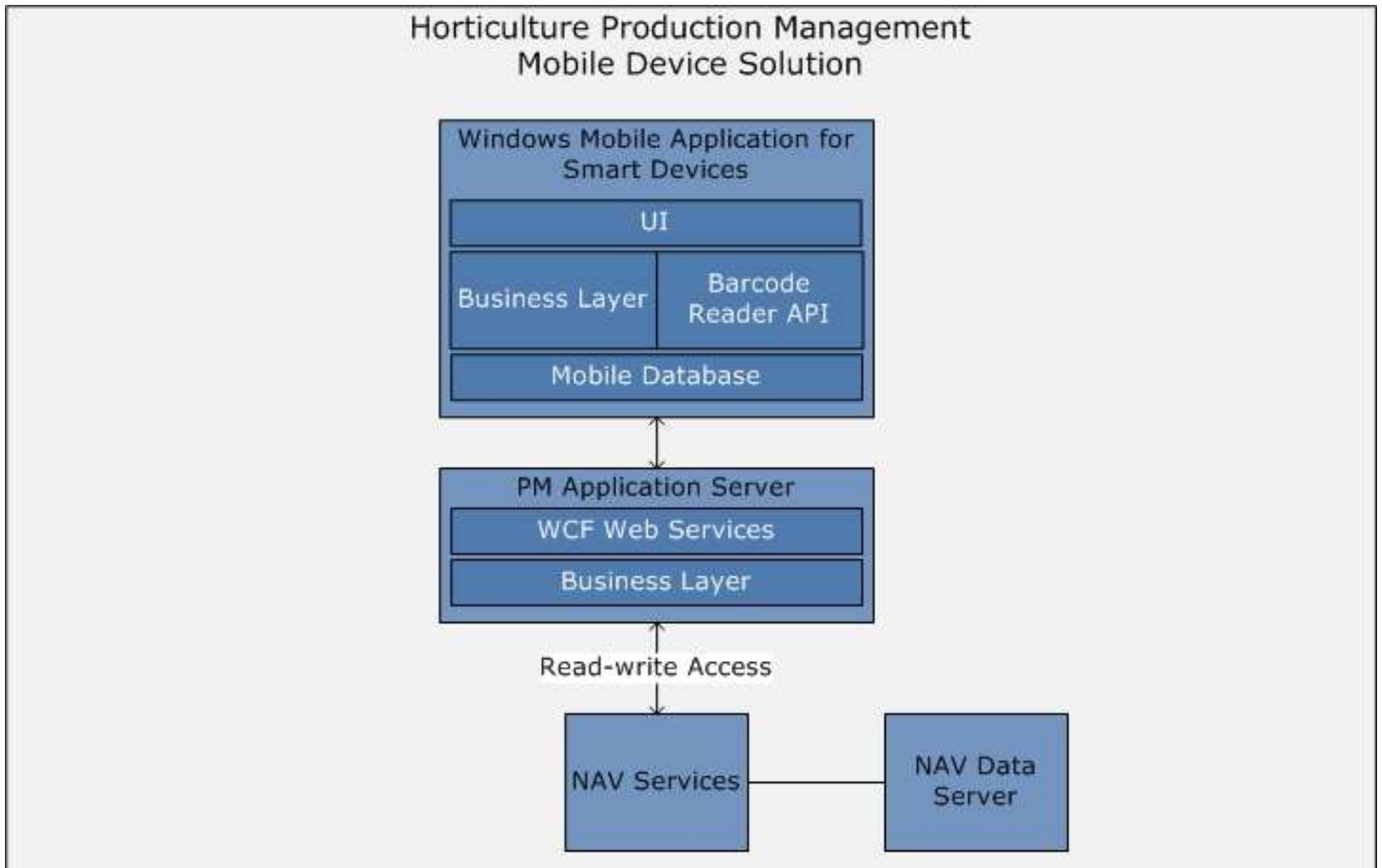
Please see solution details in the next section.

## Benefits

Scalability and ease of use of Microsoft's technology were the key features that helped NWH smoothen their business processes. Costs and time spent on the processes are reduced and almost realtime information from fields is now available to all the concerned departments.

With the introduction of customized planning tool, the time of sales team is reduced to half, and they need no reconcilation task to get the realtime stock positions.

## Win Mobile Solution Overview



Horticulture Production Management
Mobile Device Solution

- Solution consists of multiple applications that can be accessed according to the rights allocated to user
- Applications work on windows mobile devices (Intermec devices) running on Windows Mobile 6.0 and above
- Captures bar-coded records and display relevant information to the user. Solution supports following different symbology codes:
  o Code39
  o Code128
  o Interleaved2Of5
  o Pdf417
  o QrCode

- Works in both offline/ online mode. In offline mode (in event of non-availability of data-connection) information is stored on mobile device using MSSQL CE. This information can be used for:
  o Displaying master information to user
  o Capture transaction records by user

- The solution provides an option to synchronize information across offline and online database as and when data-connection is available and user chooses to do the synchronization
- Applications donot directly communicate with NAV database. The communication is routed via a secure server based web application. Server application connects to NAV services for all NAV comunications

## Technical Specifications

- Targetted Environment: Solution is targetted to be deployed at Intermec Windows Mobile devices (www.Intermec.com).
  - o Hardware
    - CN4 is a fully rugged and feature-rich Intermec CN4 Series mobile computer with QUERTY keys. It is powered by an in-built Barcode reader with support to all major symbology barcodes. http://www.intermec.com/products/cmptrcn4/index.aspx
    - CK3 – The Intermec CK3 mobile computer supports businesses in their pursuit to improve their operational performance. This device meets rugged, standards-based environmental specifications for the rigors of warehouse use in a slim, well-balanced form factor. http://www.intermec.com/products/cmptrck3/index.aspx

  - o Software
    - Windows Mobile 6.1
    - .Net Compact Framework 3.5
    - Intermec barcode API

- Access Authentication – Active Directory Controller:
  Identity of every user is verified before providing any application access. At the onset, user is asked to enter his/her credentials (issued in advance separately, out of the system). Credentials are verified against Active Directory based domain controller. On the basis of credential verification, system allows users to interact further.
  Mobile devices may be shared among the employees. User ensures to be in connectivity zone while logging-in as the application authentication will be performed in online mode only.

- WCF Services
  IIS based WCF services are developed for all interactions. Server application acts as central point of communication between mobile application and Navision. It ensures zero direct exposure of NAV Data to any third party applications. In this solution, server application communicates with mobile application as well as Navision services. The application consists of following architectural design:

  - o <u>Service Layer</u>
    Service Layer is accessed by its consumer applications. It exposes different web methods to cater to all the specified requirements of mobile applications.  There is no business rule directly implemented here.

  - o <u>Business Layer</u>

This is second tier of server application and is responsible for data communication and synchronization between SL and Navision. The business complexities of production management process are implemented through standard .net classes.

This tier acts as an interface to Navision tier and is supported by NAV data synchronization engine.

o <u>Navision Layer</u>

Navision Service Layer is accessed by PM server application. It exposes different methods to cater to all the specified requirements of Mobile Device applications.