

Dispatch

Architecture

Revision History

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# Introduction

## Overview

The Dispatch System is used by Argix employees to manage the movement of freight and trailers into and out of the Argix National terminal (i.e. Jamesburg), the northeast Argix local terminals (i.e. Ridgefield, South Windsor, Wilmington), and Argix agent terminals. The Dispatch System supports the following business services:

* Pickup vendor freight for sorting at our national and northeast terminals
* Receive vendor freight for sorting at our national terminal
* Deliver sorted freight from our national terminal to our agent terminals
* Pickup returns freight from stores serviced by our northeast terminals

The Dispatch System supports Argix National operations to:

* Schedule pickup and delivery appointments for freight inbound to the Argix National terminal
* Dispatch Argix National drivers and contracted drivers for moving trailers and freight
* Schedule pickup appointments for vendor freight and returns freight inbound to the northeast Argix local terminals
* Schedule line haul freight outbound from the Argix National terminal to Argix agent terminals using Argix National drivers (for agents within 1 day transit time) and Argix contracted carriers
* Track trailers into and out of the Argix National terminal
* Verify pickup requests for our clients
* Assist with transportation safety concerns

This document details known requirements and a candidate design. It does not address manpower requirements or project scheduling, although these can be determined from this architecture.

*How to read this document:*

Management- Introduction, Analysis (Overview, Business Activities, Actors), Project Planning

Operations- Introduction, Analysis, Project Planning

IT- Introduction, Analysis, Design, Project Planning

Context

The following diagram provides context for the system under discussion. This is a high level view of the structure of the system; it helps us to understand the people, hardware, and external systems that interact with the system under discussion.



## Scope

#### Solution Boundary

The scope of the solution will be limited to replacing the existing Client Inbound Sheet, Inbound Schedule, Outbound Schedule, Pickup Log, and Trailer Log. The solution will provide the same information to the stakeholders. The solution will not provide direct interaction with any other systems. The solution will be as similar as possible to the current Outlook-based system while moving from a folder-based approach to a table-based approach.

#### Constraints

* Provide the same application functions and features as the current Dispatch System in order to minimize training and ensure that current operational activities can continue

## Risks

## Business Activities

The following diagrams show the business activities for Dispatch. Business activities are modeled using activity diagrams. Activity diagrams show a series of activities, the actors responsible for each activity, and the information consumed and created during the process. These diagrams use the language of the business. Activity diagrams drive the discovery of Actors, Use Cases, and Key Abstractions.

Manage Pickup Appointment

A Shipper requests a pickup appointment.



Manage Pickup Request

A Store requests a pickup...



Manage Line Haul Delivery

The Shipping Supervisor publishes the local schedule...



# System Analysis

## Overview

The purpose of defining system behavior is to discover, capture, and analyze the requirements of the system under discussion. This is achieved by describing the requirements (i.e. the conditions or capabilities to which the system must conform) well enough so that an agreement can be reached between the business users and the system developers on what the system should and should not do. It begins by modeling the business processes with a series of activity diagrams. These diagrams drive discovery of the users of the system (i.e. Actors), the system functionality (i.e. Use Cases), and the vocabulary of the system (i.e. Key Abstractions). From these artifacts, an analysis model is created that drives system design and development.

## Actors

An actor specifies a role played by a user or any other system that interacts with the system under discussion. Actors influence UI design and security concerns. The list below provides definitions for the actors surrounding the Dispatch system.

* Dispatch- the system under discussion.
* Dispatch Supervisor- manages pickup and delivery appointments for inbound freight; manages trips to inbound/outbound freight and trailers; manages trailers and drivers; and schedules pickup requests for the Argix local terminals.
* Dispatch Clerk- validates and imports pickup requests; manages route planning and driver assignment using Roadshow.
* Window Clerk- arrives and departs trailers at the terminal gate; receive inbound freight.
* Client Rep- enters and updates pickup requests from stores; and answer customer inquiries concerning pickup requests.
* Tsort Clerk- view freight on the inbound schedule to coordinate sorting activities.
* Shipping Clerk- view freight on the outbound schedule to coordinate shipping activities.
* Safety Manager- views Driver Settlement Sheets to resolve discrepancies concerning driver settlements, and searches the trailer log to answer safety inquiries.
* Gate Guard-
* Driver-
* Agent-
* Shipper-
* Carrier-
* Store-
* Roadshow-
* AS/400-
* Ship Schedule-

## Use Cases

A Use Case is a list of steps, typically defining interactions between a role (i.e. Actor) and a system to achieve a goal. The actor can be a human or an external system. Use Cases describe the functional view of the system under discussion as a set of business transactions. Use Cases influence UI design, domain models, application service interfaces, and define business transactions. The following Use Case diagram shows some, if not all, of the actors and use cases involved in LTL Quote.

## Delivery Appointments Use Cases

A delivery appointment schedules a third-party carrier to deliver a load containing Tsort freight to the Argix National terminal for sorting operations. The load may be a trailer or loose freight. The shipper or carrier requests an appointment and is given an appointment number. The Dispatch Supervisor captures information about the appointment, which is generally scheduled for the next business day or later. The Window Clerk arrives the trailer at the Operations Center- the trailer is delivered and an empty trailer is taken, or the trailer is a “live unload” and the Receiving Supervisor is contacted concerning unloading the freight. The Tsort Supervisor schedules sorting operations for the freight. The following drawing shows the use cases involving delivery appointments.



### Schedule Delivery Appointment

The Dispatch Supervisor needs to schedule a delivery appointment for Tsort freight inbound to the Argix National terminal by a third-party carrier. This is initiated by a phone call or an email from a shipper or carrier and is generally scheduled for the following business day. The delivery appointment captures information including shipper, load, carrier, arrival, and sort center (always Argix Logistics National). The system records the delivery appointment (scheduled) and an appointment number is returned to the caller.

### Schedule Delivery Appointment from the Shippers Ship Schedule

The Dispatch Supervisor needs to schedule a delivery appointment of Tsort freight inbound to the Argix National terminal per the Shippers Ship Schedule. The deliveries are serviced by a third party carrier.

### Schedule Recurring Delivery Appointment

The Dispatch Supervisor needs to schedule a recurring delivery appointment.

### Create Next Day Delivery Appointment Sheet

The Dispatch Supervisor needs to create the Delivery Appointment Sheet containing delivery appointments for Argix National terminal for the following business day. This sheet is used by the Warehouse Supervisor to schedule next day sorting activities. The sheet is published M-F at 5PM.

### Arrive Trailer for Delivery Appointment

The Window Clerk needs to arrive a delivery appointment into the Argix National terminal. The appointment needs to be verified (must be on the schedule). The appointment is updated (arrived) with trailer number and arrival time, a BOL is received and attached to a new or existing TDS is the AS/400. The Tsort Supervisor is notified of the freight arrival. The trailer is either dropped in the yard and an empty trailer is assigned to the carrier, or the trailer is a live un-load and the Receiving Supervisor is contacted to determine a door to unload the freight.

### View Delivery Appointments

The Tsort Supervisor needs to view delivery appointments concerning sort date and scheduled arrival time in order to staff and schedule sorting operations for the day. Once the freight has arrived, he needs to know the trailer number and TDS number.

## Pickup Appointments Use Cases

A pickup appointment schedules Argix to pick up a load containing Tsort freight from a vendor and bring it to the Argix National terminal or a northeast Argix local terminal for sorting operations. The Dispatch Supervisor captures information about the pickup, which is always scheduled for next business day or later. The Dispatch Clerk schedules and coordinates driver activity. The Window Clerk arrives the trailer at the Operations Center which contains one or more loads. The Tsort Supervisor schedules sorting operations for the freight. The following drawing shows the use cases involving pickup appointments.



### Schedule Pickup Appointment

The Dispatch Supervisor needs to schedule a pickup appointment for Tsort freight inbound to the Argix National terminal or a northeast Argix local terminal. This is initiated by a phone call or an email and is generally scheduled for the following business day. The pickup is almost always for a full trailer; but occasionally for loose freight. The pickup appointment captures information including the vendor, load, pickup time, and sort center. The system records the pickup appointment (scheduled).

### Schedule Recurring Pickup Appointment

The Dispatch Supervisor needs to schedule a recurring pickup appointment.

### Assign Driver for Pickup Appointment

The Dispatch Clerk needs to assign a driver for a pickup appointment. This is done as part of route planning for the day. The driver is assigned to the pickup appointment, and the pickup appointment is updated (assigned).

### Confirm Driver for Pickup Appointment

The Dispatch Clerk needs to confirm that a driver can complete the trip assigned to him. The driver is called to confirm he accepts the pickup appointment, and the pickup appointment is updated (confirmed).

### Arrive Trailer for Pickup Appointment

The Window Clerk needs to arrive a trailer containing one or more loads (pickup appointments) into the receiving terminal. Each appointment is updated (arrived) with trailer number and arrival time, and a BOL is received and attached to a new or existing TDS is the AS/400 for each load. The trailer is dropped in the yard.

### View Pickup Appointments

The Tsort Supervisor needs to view pickup appointments concerning sort date and scheduled arrival time in order to staff and schedule sorting operations for the day. Once the freight has arrived, he needs to know the trailer number and TDS number.

## Pickup Requests Use Cases

Pickup requests schedule northeast Argix local terminals (i.e. Ridgefield, South Windsor, and Wilmington) and some Argix agent terminals (i.e. Nordol) to pick up vendor Tsort freight and store returns; occasionally, a pickup is serviced by the Argix National terminal for large vendor freight. The Dispatch Supervisor captures information about the pickup request, which is always scheduled for the following business day or later (although some agent terminals may service a pickup on the same day). The Dispatch Clerk uses Roadshow to create routes and assign drivers. The Window Clerk arrives trailers and receives paperwork. The following drawing shows the use cases involved with pickup requests.



### Schedule Local Terminal Pickup Request

The Dispatch Supervisor or a Client Rep needs to schedule a pickup request from a shipper serviced by an Argix local terminal. This is initiated by a phone call or an email and is generally scheduled for the following business day. The system records the pickup request (scheduled).

### Schedule Agent Terminal Pickup Request

The Dispatch Supervisor needs to schedule a pickup request from a shipper serviced by an Argix agent terminal. This is initiated by a phone call or an email and is generally scheduled for the following business day. The system records the pickup request (scheduled). The servicing agent is notified of the scheduled pickup request.

### Schedule National Terminal Pickup Request

The Dispatch Supervisor needs to schedule a pickup request serviced by the Argix National terminal for large vendor freight (i.e. 10+ pallets) that is sorted at an Argix local terminal. This is initiated by a phone call or an email and is generally scheduled for the following business day. The system records the pickup request (scheduled). This requires scheduling an inbound trip to the receiving local terminal serviced by the Argix National terminal.

### Notify Agent of Pickup

The Dispatch Supervisor needs to notify the servicing agent of a pickup. This is done by phone call??

### Export Pickup Requests

The Dispatch Clerk in the local terminal needs to export pickup requests for his terminal into a file that can be imported into Roadshow. Pickup requests that do not have a shipper number need to be printed for manual driver assignment.

### Update Driver to Pickup Request

The Window Clerk in the local terminal needs to update a pickup request with an assigned driver. This is done after the route solution is created in Roadshow and drivers have been assigned to the routes.

### Arrive Trailer for Pickup Request

The Window Clerk needs to arrive a pickup request into an Argix local terminal. The request is updated with the actual arrival time.

## Line Haul Deliveries Use Cases

Line Haul deliveries are scheduled from the Argix National terminal to deliver sorted Tsort freight from the Local schedule to Argix agents carried by Argix, to deliver sorted Tsort freight from the Jamesburg Ship Schedule to Argix agents using third party carriers, and to deliver return freight and shipping containers to Argix clients and vendors. . The Dispatch Supervisor… The Dispatch Clerk… The Window Clerk…



### Publish the Local Schedule

The Shipping Supervisor needs to publish a schedule of local (one day transit) deliveries for sorted Tsort freight. The schedule is published daily.

### Schedule Line Haul Delivery from the Local Schedule

The Dispatch Supervisor needs to schedule an outbound delivery of Tsort freight to an Argix local/agent terminal per the Shipping Departments Local Schedule. The deliveries are serviced by the Argix National terminal and are within one day transit only.

### Schedule Line Haul Delivery from the Jamesburg Ship Schedule

The Dispatch Supervisor needs to schedule an outbound delivery of Tsort freight to an Argix local/agent terminal per the Jamesburg Ship Schedule. The deliveries are serviced by the Argix National terminal and are within one day transit only.

### Schedule Line Haul Delivery for Returns

The Dispatch Supervisor needs to schedule a delivery to return something to an Argix client or vendor. The delivery could be for return freight or shipping containers (i.e. totes, pallets, etc.). Some deliveries can be made when ready; others require a call ahead to schedule an appointment. Most returns are for a live unload.

### Update Jamesburg Ship Schedule

The Dispatch Supervisor needs to update the Jamesburg Ship Schedule for local loads with driver names, load numbers, and scheduled delivery times.

### Assign Driver to Line Haul Delivery

The Dispatch Clerk needs to assign a driver to a local delivery. This is done as part of driver route planning for the day. The driver is assigned to the delivery, and the delivery is updated (assigned).

### Confirm Driver for Line Haul Delivery

The Dispatch Clerk needs to confirm that a driver can complete the trip assigned to him. The driver is called to confirm he accepts the delivery, and the delivery is updated (confirmed).

### Depart Trailer for Line Haul Delivery

The Window Clerk needs to depart a trailer outbound to an Argix local terminal or Argix agent with sorted Tsort freight. A BOL must exist or the trailer cannot be departed. The actual departure date/time is updated for the BOL in the AS/400.

## Driver Dispatch Use Cases

Create driver runs, transfer freight, move empty trailers, deliver the mailbags.

### Create Driver Runs

The Dispatch Clerk needs to organize one or more trips into assignable driver runs. In addition, LTL deliveries of loose ISA freight are added to existing trips.

### Assign Driver to a Trip

The Dispatch Clerk needs to assign a driver to a trip or a run.

### Confirm Driver for Trip

The Dispatch Clerk needs to confirm that a driver can complete the trip or run assigned to him. The driver is called to confirm he accepts the trip, and the trip is updated (confirmed).

### Schedule Transfer between Argix Terminals

The Dispatch Supervisor needs to schedule a transfer of freight between two Argix terminals (not Z loads).

### Schedule Empty Trailer Move

The Dispatch Supervisor needs to schedule to move an empty trailer between two Argix locations.

### Schedule Mailbag Delivery

The Dispatch Supervisor needs to schedule to deliver Argix mailbags between Argix terminals.

## Trailer Tracking Use Cases

Trailer tracking records the history of trailers inbound to and outbound from the Argix National terminal yard. This history is used to inventory trailers in the Jamesburg yard and to investigate the history of a trailer.

### Record Inbound Trailer

The Window Clerk needs to capture information about a trailer arriving to the Jamesburg yard.

### Record Outbound Trailer

The Window Clerk needs to capture information about a trailer departing from the Jamesburg yard.

### Yard Check

The Freight Clerk needs to determine what trailers are in the Jamesburg trailer yard or an overflow yard (i.e. Hermann’s yard) in order to maintain trailer pool counts and to inform outside carriers of the location of one of their trailers.

### Search Trailer History

The Safety Manager needs to research the history of a specific trailer in the Jamesburg trailer yard.

## Administration Use Cases

Administation.

### Depart/Arrive Trailer from an Argix Terminal Gate

The Gate Guard needs to depart/arrive a trailer from an Argix terminal gate. Every trailer that departs or arrives at the gate is logged on the Gate Sheet.

### Schedule the Local and Line Haul On-Call Drivers

The Dispatch Supervisor needs to schedule the local and line haul operators who will be on call for the upcoming weekend.

### Create Mailbag Reminder Notice

The Dispatch Supervisor needs to send an email reminder for the mailbag containing outside driver checks from the HR department.

### Create Weekend Access List Notice

The Dispatch Supervisor needs to email the weekend access list that advises employees, managers, and operators of those people who need access to the Jamesburg and Ridgefield facilities over the weekend.

### Create Hours of Operation Notice

The Dispatch Supervisor needs to email ...

### Create Weekend On-Call Notice

The Dispatch Supervisor needs to email ...

### Create Next Day Tractor Trailer Sheet

The Dispatch Supervisor needs to create a Dispatch Sheet that confirms local operators of their start for the next day.

### Update Tractor Trailer Operators Settlement Sheet

The Dispatch Supervisor needs to update the Tractor Trailer Operators Settlement Sheet with daily trip information for each driver. This sheet is used by the Safety Manager to determine an operator’s compensation for completed trips.

### Create Truck to Dock Sheet

The Window Clerk needs to create a Truck to Dock Sheet (TDS) for a freight arrival.

## Business Rules

1. Driver cannot operate more than 70hrs per 7/8 days.
2. Mailbags are scheduled for delivery by 4PM and delivered by the following morning at 8AM.
3. Clients can have specific cutoff times for pickup appointments (i.e. Amscan should be picked up by 1PM). The default cutoff time is 3PM.
4. Clients have sort dates that are the same day or the next day after pickup; this affects cutoff time. In addition, some clients have specific sort days (i.e. Vitamin Shoppe Monday and Thursday).
5. Pickup requests larger than 10+ pallets require pickup by Argix National.

## Non-functional Requirements

Presentation

Desktop access only; no mobile access required at this time; maybe web access to allow clients to request an appointment; a list of client’s should include Argix as a client selection (to pick-up stuff for us).

Performance

Fast response when entering new pickup requests; <30sec.

Security

Authentication

Employees will be authenticated by the Argix network domain.

Authorization

Role-based authorization (i.e. administrator, supervisor, clerk) using domain accounts.

Availability

24-7.

Concurrency

60-70 total users; 10-15 concurrent users; generally, there is a user per Argix Local terminal and a few users in the Argix National terminal.

Interoperability

Roadshow- required to route pickup requests in the local terminals. Pickup Requests shipper locations must be existing Roadshow delivery points to be part of a Roadshow route solution; otherwise, routing is done manually. Pickup requests are imported into Roadshow via an export file; otherwise, Roadshow services are exposed as SQL stored procedures.

Ship Schedules-

* Create trips from the Jamesburg Ship Schedule for “local” agent deliveries.
* Update driver, load number, and scheduled delivery time on Jamesburg Ship Schedule when trip is assigned and confirmed.
* Update actual arrival time on Jamesburg Ship Schedule when trailer arrived.

AS/400- none.

## Key Abstractions

The class diagram below shows the key abstractions involved in Dispatch. Key abstractions are the key concepts and abstractions that the system needs to handle. They are those things that, without which, you could not describe the system. Key abstractions drive design of the database schema and the domain model (if applicable).



* Trip-
* Carrier-
* Driver-
* Trailer-
* Seal-
* Schedule-
* Location-
* Load-
* Inbound Trip-
* Outbound Trip-

## States

The state machine view describes the dynamic behavior of objects over time by modeling the lifecycles of objects of each class. Each object is treated as an isolated entity that communicates with the rest of the world by detecting events and responding to them. Events represent the kinds of changes that an object can detect. Anything that can affect an object can be characterized as an event.

Appointment

An Appointment…



Pickup Request

A Pickup Request…



# System Design

## Overview

The system design includes a thin web client for Internet access by anonymous users for obtaining quick rate quotes and optionally to enroll as a client of Argix Logistics. Also, it enables approved clients to obtain quick rate quotes, book the quotes, and manage their shippers, consignees, and shipments. The design also includes a rich Windows client that provides management of Clients (i.e. approval) and reporting. Both user interfaces access back-end databases through web services arranged in a Service Oriented Architecture (SOA). Integration is accomplished with Microsoft BizTalk Server, an enterprise service bus that provides application integration and orchestrated workflows across disparate systems in an SOA environment. Security is provided by an ASP.Net membership database hosting roles for domain accounts. Program services are secured using pre-defined user roles.

## Design Model

Structure

The design is a n-tier physical and logical design composed of a .NET 4.0 Win Forms client (PalletShipment.exe) and an ASP.NET 4.0 Web Forms client (http://<server>PalletShipment), several .NET 4.0 WCF Services (Argix10.Freight.Services), and a SQL Server 2008 R2 database. The design as a whole is built to conform to a Service Oriented Architecture. Service Oriented Architectures describe ways to build loosely-coupled systems composed from individual services. Application integration (i.e. scheduling pickups in Dispatch) is accomplished in an SOA environment using Microsoft BizTalk Server 2010. All software components are built with Microsoft Visual Studio 2010 and compiled to operate in.Net 4.0 framework environments. The structures of the design are defined by drawings of the components and interfaces. The behaviors of the design are defined by sequence diagrams involving the interactions between the components.

Enterprise Patterns

In [software engineering](http://en.wikipedia.org/wiki/Software_engineering), a [design pattern](http://en.wikipedia.org/wiki/Design_pattern) is a general reusable solution to a commonly occurring problem within a given context in [software design](http://en.wikipedia.org/wiki/Software_design). It is a description or template for how to solve a problem that can be used in many different situations. Patterns are formalized [best practices](http://en.wikipedia.org/wiki/Best_practice) that the programmer must implement in the application. [Object-oriented](http://en.wikipedia.org/wiki/Object-oriented) design patterns typically show relationships and [interactions](http://en.wikipedia.org/wiki/Interaction) between [classes](http://en.wikipedia.org/wiki/Class_(computer_science)) or [objects](http://en.wikipedia.org/wiki/Object_(computer_science)), without specifying the final application classes or objects that are involved. The following enterprise design patterns are used in throughout the design:

Transaction Script- a Transaction Script organizes business logic by procedures where each procedure handles a single request from the presentation. They are an excellent choice when we don’t have a middle tier domain model. Transaction scripts are used in the web services to provide business transactions and security for one or more use cases.

Gateway- a Gateway is an object that encapsulates access to an external resource such as a web service or database server. Gateways are used throughout the design for user interface access to middle tier web services, for web service access to backend database services, and for web service access to external hardware including a label printer.

Record Set- a Record Set is an in-memory representation of tabular data; record sets (i.e. DataSet) work well with .NET user interface components.

Data Transfer Object- a Data Transfer Object (DTO) is an object that carries data between processes in order to reduce the number of method calls. Data Transfer Objects are serialized classes exposed by the interfaces of the web services for transactional calls to the middle tier (i.e. Dispatch::SchedulePickup(PickupRequest pickup)).

Dispatch Structure

The following drawing shows the components and interfaces (structure) of the Dispatch design, and the connections between the various components. Components are denoted with tabbed containers. The rectangles within the components are software units stereotyped with their functional purpose such as a gateway or transaction script. There is one user interface component, a WinForms client (Dispatch.exe). Each user interface component uses the recordset for data caching; each accesses the middle tier web service using a gateway. The Freight web service (Argix10.Freight.Services) exposes two interfaces from a single transaction script: Dispatch: IDispatchService provides methods that support the use cases for clients to obtain quotes and manage shipments; IDispatchService provides methods for Argix employees to view and approve clients. The Dispatch communicates with a Tsort database through a gateway; with a web service front end (BizTalk.Freight.Services) to a BizTalk server through a gateway, and to a web service front end (Argix10.Enterprise.Services) to an SMTP server through a gateway.



Behavior

Dispatch Behavior

The following drawing shows…

[Design Behavior]

User Interfaces

Windows Client

The Dispatch Windows application is built using .NET WinForms for the .NET 4.0 Framework. It communicates with a middle-tier Wcf service using the WcfHttpBinding binding. It is secured using an ASP.NET Membership services database through a Wcf Role Service.

The following drawing shows the design structure that supports loading 50,000 shippers from Roadshow and auto-refresh.



The application is built using Visual Studio 2010 and is deployed onto a LAN-based IIS 7.5 web server where it is deployed to client computers using the Click-Once technology.

Persistence

Database Schema

The database schema is largely derived from the Key Abstractions. The following drawing shows the core schema required; what is not shown are tables concerning pallet rating and valid pickup/delivery locations.

The database is built and deployed with a SQL Server 2008 R2 database server. The schema is exposed through stored procedures.

[Database Schema]

## Availability

As dictated by the platform.

## Concurrency

There are no entities that require concurrent access.

## Security

AuthenticationWindows network login.

Authorization

The windows application uses ASP.NET role-based security to authorize access to application features and services. The RoleServiceGateway encapsulates the details to access the RoleService from the MembershipServices web service. The RoleServiceGateway also acts as a policy file where role-based access is queried by user interface objects. The following drawing shows the processes and components that realize the application authorization design.



## Deployment

The current deployment consists of a centralized application on the Jamesburg local area network (LAN) with client computers running on the Jamesburg LAN as well. Access to the application will be via the Argix Corporate Portal (i.e. SharePoint) using a Click-Once deployment that assumes the deployment server is always available; although the deployment is cached on the client, the server is always checked for a version update. Additional information concerning the click-once deployment can be found in the release notes accessible from the Help menu.

The deployment platform is as follows:

* Client- Windows7 operating system with .NET Framework 4.0 (full, not client)
* Web/Application Servers- Windows Server 2008 R2 and IIS 7.5 with .NET Framework 4.0
* Database Servers- Windows Server 2008 R2 and SQL Server 2008 R2
* Enterprise Service Bus- Windows Server 2008 R2 and BizTalk Server 2010
* Reporting Server- Windows Server 2008 R2 and SQL Server Reporting Services 2008 R2



# Project Planning

## Iteration 1

The iteration 1 design is similar to the existing system with the exception that folders are replaced by a single table. This reduces maintenance since the Dispatch Supervisor doesn't have to move records between folders. For instance, in the morning, the Dispatch Supervisor reviews yesterday’s schedule items in the schedule folder, then moves these items to the archive folder, then moves advanced items to the schedule folder (advanced and templates). With a single table containing all schedule items, this folder paradigm is replaced by having filtered views of the items (i.e. Today, yesterday, Advanced, Archive, etc.).

Letting go live push further analysis

Implement the following Use Cases:

## Iteration 2

# Appendix

## Reports

Driver Settlement Sheet