

# CIM Concepts Custom Application Development

## Case Study: Truck Scheduling

A polymer manufacturer was using Lotus Notes Appointment Scheduler to track incoming and outgoing truck shipments. Lotus Notes allowed them to enter and print the daily truck schedule, but did not support generating annual trucking volume and efficiency reports by vendor.

Leveraging existing technology at the site, CIM Concepts implemented a Linux-based web application. The new solution can do everything the original application did, while adding the additional desired reporting capability.

### Challenges

- Separate vendor and product lists for incoming vs. outgoing shipments, with some overlap between them.
- Split shipments, with multiple products loaded on the same tanker.
- Main office personnel (located in another state) need to be able to review the local truck schedule.

### Critical Issue

- The company standardized on Microsoft Office tools, and had no reason outside of this application to maintain or license Lotus Notes.



### Solution

- Web application using PERL CGI running under Apache on an existing Linux server.
- A small new dataspace, piggybacked under an existing Informix database license.
- Ability to add, update, and delete truck schedule entries. Immediate access to today's, yesterday's, and tomorrow's schedule, with other days available by query.
- Prebuilt reports for daily schedule, weekly shipment details, and a monthly shipment summary.
- Ad-hoc report capability for arbitrary queries against three different database views.

### Result

- The new custom-built application is much more intuitive to use. This eliminated a worrisome "single-point-of-knowledge" issue with a soon-to-retire employee.
- Shipment schedules are available in printed form as before, but also in online form so that operators can update truck statuses directly.
- The truck schedule is viewable at any time from any workstation using a standard web browser, both locally and from the main office.
- Management can generate reports of total volume sent and received by each vendor, along with incidences of lateness by cause. They have hard facts, and no longer have to rely on anecdotal evidence or gut feel.

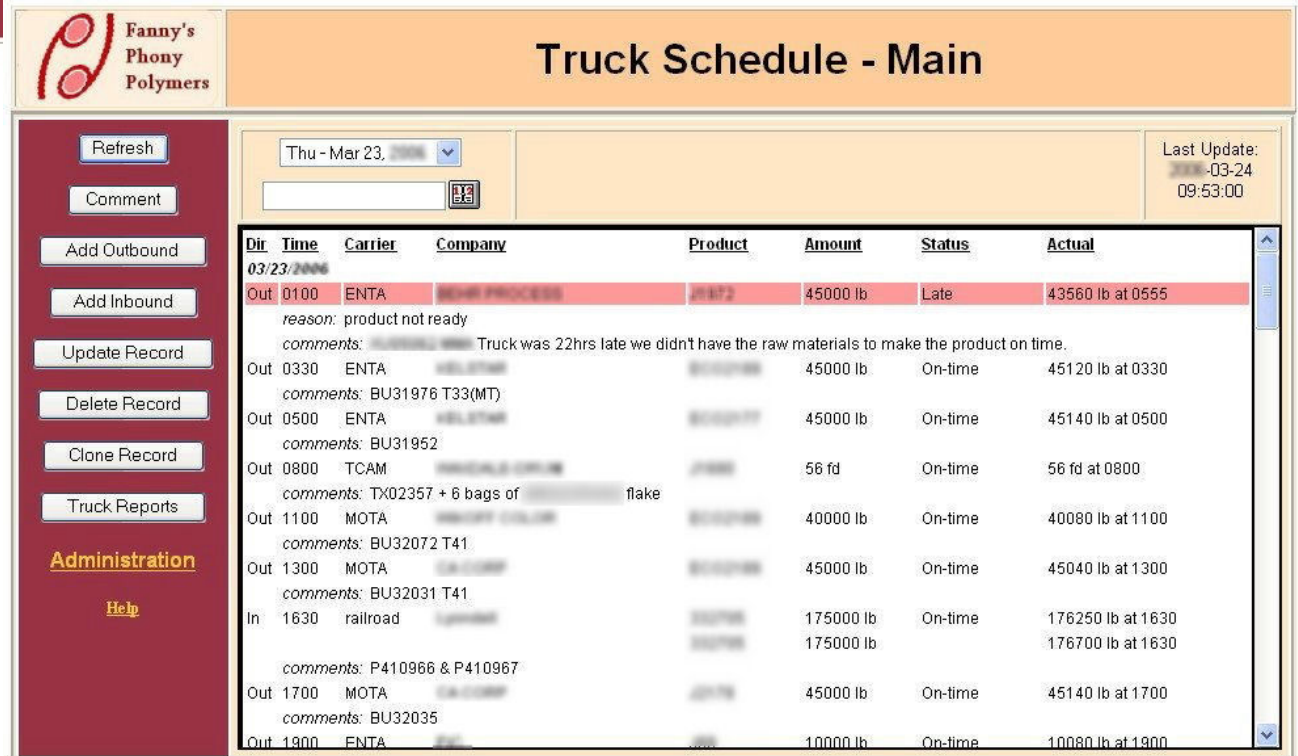
**Project Details:**

The choice of platform for this project was driven by the desire to use existing servers and existing software licenses at the plant site. The client already had an underutilized Linux server with an IBM Informix database and Apache web environment, so the solution was designed to run in this environment.

The dynamic web pages use the PERL CGI library, while static pages like online help are written in straight HTML.

The database contains three main data tables containing the actual truck schedule, plus 15 other tables with supporting information like products, carriers, and status codes, along with various data views and an ID-generation sequence. The application includes a simple login screen for three role-based users (operators, administrators, and report-only users).

**Sample application screens:**



Dir	Time	Carrier	Company	Product	Amount	Status	Actual
03/23/2006							
Out	0100	ENTA	REAR PROCESS	21872	45000 lb	Late	43560 lb at 0555
							<i>reason: product not ready</i> <i>comments: Truck was 22hrs late we didn't have the raw materials to make the product on time.</i>
Out	0330	ENTA			45000 lb	On-time	45120 lb at 0330
							<i>comments: BU31976 T33(MT)</i>
Out	0500	ENTA			45000 lb	On-time	45140 lb at 0500
							<i>comments: BU31952</i>
Out	0800	TCAM			56 fd	On-time	56 fd at 0800
							<i>comments: TX02357 + 6 bags of flake</i>
Out	1100	MOTA			40000 lb	On-time	40080 lb at 1100
							<i>comments: BU32072 T41</i>
Out	1300	MOTA			45000 lb	On-time	45040 lb at 1300
							<i>comments: BU32031 T41</i>
In	1630	railroad			175000 lb	On-time	176250 lb at 1630
					175000 lb		176700 lb at 1630
							<i>comments: P410966 &amp; P410967</i>
Out	1700	MOTA			45000 lb	On-time	45140 lb at 1700
							<i>comments: BU32035</i>
Out	1900	ENTA			10000 lb	On-time	10080 lb at 1900


**Sample Reports:**

### Truck Schedule

Last update: 2006-03-24 09:53

Friday March 24, 2006

Time	Carrier	Company	Amount	Product	Comments
Out 0100	ENTA	SPECTRAWHITE	40000 lb	SK 2	BLDG001
Out 0330	ENTA	WELSTAR	45000 lb	BLD02188	BLDG001 (empty)
Out 0500	ENTA	WELSTAR	45000 lb	BLD02177	BLDG001
In 0705					
In 0905					
Out 0910					
Out 1100					
Out 1300					
Out 1500					



## Truck Schedule - Report Criteria

**Start Date/Time:**

**End Date/Time:**

**Filter by:**  ship date  scheduled date

**Inbound/Outbound:**  **Day of Week:**

**Data Order:**  separate  interleaved **Shift Number:**

**Carrier:**  **Customer:**

**Product:**  **Vendor:**

**Status:**

**Cause:**

**Comment:**

Submit

Reset

### Truck Shipments

03-20 to 03-26

Last update: 2006-03-24 09:53

**Pounds scheduled:** 2,995,600  
**Pounds shipped :** 2,752,072  
**Number of shipments:** 59

Monday March 20, 2006

Status	Time (sched)	Carrier	Company	Amt/Product	(sched)	Cause	Comments
Out Late	0242 (0100)	GRTT		45000 lb (45000)	(45000)	truck late	BLDG002 Truck was late
Out Late	0427 (0330)	ENTA		45060 lb (45000)	(45000)	other	BLDG003 T41 Prior truck was late making this load late
				5000 lb (5000)	(45000)		BLDG006 T41(MT)
				0 bag (20 bag)	(20 bag)		T300177
				d (8 d)	(8 d)		

### Polymer Shipment Summary for March

Last update: 2006-03-27 08:30

**TOTAL SHIP March:** 5,369,170  
**TOTAL SHIP YTD:** 19,348,500

COMPANY	LBS/MONTH	%BUSINESS	LBS YTD	YTD %
1	44,340	0.8%	87,360	0.5%
2	0	0.0%	44,000	0.2%
3	90,120	1.7%	360,400	1.9%
4	0	0.0%	43,660	0.2%
5	133,140	2.5%	443,640	2.3%
6	1,027,380	19.1%	4,501,760	23.3%
7	0	0.0%	0	0.0%
8	134,840	2.5%	494,780	2.6%
9	43,580	0.8%	129,500	0.7%
10	0	0.0%	34,320	0.2%
11	0	0.0%	0	0.0%
12	45,000	0.8%	268,200	1.4%
13	135,200	2.5%	404,820	2.1%