

International Shipping and Distribution System Benefits from Automation

Motorola's PPG had a well-developed automated shipping process for their customers in the United States, but special international shipping requirements could not be taken into account through this system. Product received at Motorola's international warehouse at Dallas-Fort Worth International Airport had to be manually consolidated before shipping out of the country, a laborious and sometimes inaccurate process.

PowerVision helped design an automated system which seamlessly interfaces with the company's existing domestic shipping and order entry system, taking into account international standards, the airport warehouse environment and added security considerations. The new system efficiently facilitates the consolidation and shipping of millions of dollars in infrastructure equipment to Motorola's international customers.

The Need for Consolidation

Motorola's Paging Products Division (PPG) ships pagers and infrastructure equipment to international customers from a consolidation warehouse at the Dallas-Fort Worth International Airport. (They have similar facilities in Ireland and Brazil.) Goods arrive at the warehouse from various Motorola manufacturing facilities and external vendors to be consolidated and shipped according to international transportation and customs rules and regulations.

Several problems were inherent in this process. Since shipments arrived at different times, it was necessary to store parts until the entire order was received. The process also required overpacking smaller packages into large cartons while keeping track of each item in the order. Once the order was consolidated, a packing list and shipping labels had to be generated. These obstacles made the process cycle time unrealistically high. Also, the process data was not always in sync with that in PPG's Order Entry System which tracks customer orders and invoices.

The benefits of the new system, efficient and easily tracked consolidation and shipping, were immediate and highly visible.

Business Area:

- Shipping and Distribution System Automation

Key Technologies:

- Jyacc JAM®
- Informix®
- ESQ/L/C
- OLTP

PowerVision's Role:

- Design
- Implementation

Motorola's PPG has a well-developed automated shipping process for their customers in the United States, but special international shipping requirements could not be taken into account through this system. PowerVision was contracted to build a global system that would seamlessly interface with the existing domestic system. The system, which would be used directly by the shipping operators, had to be robust and user-friendly. Data security also had to be addressed because of the airport warehouse location, which is outside of the corporate firewall.

PowerVision Solution — International Shipping and Distribution System Benefits from Automation

The Ability to Deliver

PowerVision designed the system based on a three-tier client/server architecture in Unix environment and Informix 7.11 database. The client GUI was built with JAM by Jyacc. The client HP-UX workstations are located at the Dallas-Ft. Worth International Airport consolidation warehouse.

The workstations are connected to the server residing at the Motorola facility in Fort Worth via a wide area network (WAN) and use Teknekron Information Bus (TIB). The server, which was constructed with C and ESQL on a HP workstation, communicates with the Informix database server and passes information back and forth to the client. The TIB interface ensures the separation of the client network from the server while maintaining firewall integrity.



Remote laser printing for packing lists and labels also is available at the client location. The server is designed to maintain all other interfaces with the shipping system located in Fort Worth, Boynton Beach (Florida) and Puerto Rico. It also interfaces with the Global Paging Order Entry System (GPOE) server in Florida.

The IPDC system was thoroughly tested before being placed in production in August 1996. The system is successfully being used for consolidation and shipping of millions of dollars in infrastructure equipment to Motorola's International customers.

The benefits of the new system, efficient and easily tracked consolidation and shipping, were immediate and highly visible. Motorola is considering incorporating the concept and design of international paging and distribution center (IPDC) in other business areas.