

# The Journal of Commerce

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## On the cutting edge of commerce for the 21st century

No one could ever accuse the authorities at the Port of Charleston of not harboring ambitions to be the number one container port in the U.S. In December 1997 it was announced that Charleston had become the fourth highest ranked port in the U.S. in terms of total container tonnage, having surpassed both Seattle and Oakland in the previous year. This statistic is testament to the Port of Charleston's extremely impressive 40 plus gross container moves per hour.

There would also appear to be no let up in the port's activities with the development of the 1,300 acre Daniel Island continuing apace.

However with expansion comes new problems.

The sheer quantity of cargo now moving through the port makes the collation and recording of data concerning the movements of containers extremely problematic. With every movement of a container there is a need to update information. The Port of Charleston's authorities have recognized the fundamental importance of recording each piece of data and having that data instantly accessible to their customers. The port is therefore in the process of designing a fully integrated real-time container Yard Management System (YMS) in an effort to not only increase productivity but also to make optimum use of available terminal space.

The Port of Charleston has been aided in its efforts by a team from Communication Technology for Business (CTB). The CTB team has been able to identify various shortcomings in the present system. This system, a mainframe based computer system known as Orion and design in cooperation with the U.S. Customs Service, it has been in use at the port since the early 1980s.

In today's ultra competitive market place there is a need for a more dynamic yard gate management system to be installed to complement Orion. According to Bill McLean, vice

president of operations for the Port of Charleston, "Orion has certain physical limitations due to the fact that it is a mainframe based system. It is also far from being the client server based system that is demanded by today's customers."

The entire system is therefore being upgraded to a PC based system. This means that eventually all facets of the port's operations, from handling the port's finances to the recording of detailed container movements, will be controlled by the new system. This will have a fundamental impact on the handling of cargo and the optimal use of all available terminal space. Any activity inside the port whether it takes place at the truck gate, the railhead, a ship's berth, or in the yard itself, will be recorded in real-time.

"Any information requested by a customer will be immediately available," Mr. McLean notes. "Since the system is planned to be fully integrated with systems both inside and outside the port, the customer will be able to access the information from anywhere."

So how will this new system work? "The yard system which we are building will use a state-of-the-art radio frequency which will be relayed by either hand held or cabin mounted computers," he explains. "Therefore yard employees will be able to log transactions the second they occur."

For example; a container arrives by ship at the port. After it has been removed by the ship crane the yard crane operator updates the information concerning its location onto the system. The broker who is arranging for transportation of the container will have been in contact with Orion in order to monitor the passage of the container through Customs. He will also be in contact with the trucker who has been contracted to deliver the container to its destination.

The instant the container clears Customs, the  
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broker can inform the trucker who will then send a message through the Internet to the yard staff indicating that he is ready to collect the container.

The trucker then proceeds to the specified location where he receives an entry pass from an employee who enters this data on a hand held computer. This data is then relayed by radio frequency to a computer in the cabin of a top lifter who then loads the container onto the truck. The trucker then enters his bar coded entry pass at an exit gate and goes on his way. The container movement record is updated immediately to reflect his departure. The broker will be able to trace the movement of his container at every stage of this process.

- The Analysis Phase: During this phase research was conducted into the system design and what would optimally be required of the system.

- The Infrastructure Phase: During this phase all the required hardware for the sys-

tem has to be rolled out. (This is presently being carried out.)

- The Construction Phase: This will take approximately six to seven months during which time all the programming of the hardware will take place.

- The Pilot Test: After the completion of the first three phases of the system will be tested. This is presently scheduled for December. If no operating problems are detected during the pilot test then the system will be on line within 45-60 days. "At this time it will be the most up-to-date system of its kind in the U.S." says Mr. McLean.

This move to a client server based system is essential, in Mr. Mclean's opinion, if the Port of Charleston is to continue to raise its profile as a premier shipping destination. "There is no doubt that the shipping industry needs to invest more in its systems as it is presently somewhat backward. A great deal of its customers are on the cutting edge of technology and therefore it is no use if you cannot com-



*The historic city of Charleston is home to the fourth highest rank port in the United States.*