



## Optimize Terminal Equipment Dispatching

As the world's leading provider of terminal operating solutions (TOS), Navis offers the most innovative technologies for optimizing container terminal operating processes that improve the efficiency of container movements through container terminal facilities. As a module of Navis N4, Navis PrimeRoute enables optimal, real-time routing, dispatching and monitoring of equipment within the container terminal. In addition, Prime Route provides comprehensive statistical equipment performance reporting.

In traditional operations, each asset is dedicated to a single quay crane or yard stack. The equipment is then dispatched on a first-come, first-served basis according to a move sequence, traveling laden in one direction and returning empty in the other. This inefficient method of operation creates excessive demand for carriers in order to match yard capacity to the productivity level required at the quay. Navis PrimeRoute pools carriers across a wide array of work assignments breaking them up into discrete “job-step” components, allowing the for optimal, real-time dispatching of the equipment to the work available.

As a result, fewer straddle carriers or terminal tractors are required to do the same amount of work, while maintaining productivity, lowering capital investments and variable costs for labor, fuel and maintenance.

### Navis PrimeRoute For Straddle Carriers Benefits:

- 1 Reduce unproductive travel and wait time
- 2 Minimize unladen movements
- 3 Decrease costly crane delays
- 4 Maximize visibility of equipment
- 5 Increase equipment utilization
- 6 Achieve a significant return on your IT investment
- 7 Optimize work assignments
- 8 Easily manage operational priorities
- 9 Reduce traffic congestion at operational bottlenecks
- 10 Minimize delays caused by human errors
- 11 Accurately predict, analyze and optimize equipment productivity

## Navis PrimeRoute Features

- Uses job stepping for optimal job dispatching
- Replaces the “first-come, first-served” process with service oriented dispatching
- Automatic Rehandles
- Quay crane buffering for vessel discharge
- Road job prioritization
- Equipment Control console
- Tracks the position and status of each straddle carrier
- Calculates the distance between upcoming moves between each available straddle carrier
- Computes the time required for completing each move
- Gives priority to moves considered to be late
- Monitors current productivity and compares this with target rates
- Flexibly adapts to out of sequence moves with job swapping and dynamic resequencing
- Delivers detailed productivity and utilization reports including
  - Individual carrier productivity
  - Overall carrier productivity
  - Utilization time breakdown: idle, traveling empty, traveling full and waiting
  - Detailed job-step analysis: distance traveled, empty, or full, travel time, etc.
- Central location for system configuration and operational monitoring
  - See at a glance how quay cranes are performing
  - Set maximum number of carriers that are sent to each crane
  - Set the “push rate” to prioritize a specific quay crane

### PrimeRoute helps to improve operational productivity by providing the following functionality:

- **Dynamic Re-sequencing** allows an out-of-sequence job that arrives at a quay crane for loading to be loaded in its planned position without interruption to the QC cadence and productivity of the vessel operations.
- **Dynamic Swapping** allows an out of sequence job that arrives at the quay crane for loading to automatically exchange its sequence number and position on the vessel with the work instruction that was previously expected at the quay. Navis PrimeRoute validates the stow factor and weight for this container and adjusts subsequent jobs in the work queue accordingly. Again the QC cadence and productivity are maintained despite out-of-sequence jobs.
- **Vessel Load and Discharge pre-dispatch** dispatches work against a currently-stopped Point of Work, which is about to start. This feature allows the system to account for work instructions to ITVs that are imminent and to maintain optimized dispatching against a global pool of equipment based on the current location and job status of that equipment.
- **Global Pooling** balances work among all active quay cranes, yard cranes and other points of work (POWs), and to drive more productive use of the ITVs. A productive ITV move is one which is laden with one or more containers. An unproductive ITV move is one in which the ITV must drive un-laden to a designated yard location.

#### About Navis

Navis provides operational technologies that unlock greater performance and efficiency for our customers, the world's leading terminal operators. The Navis N4 terminal operating system (TOS) represents more than 25 years of experience and innovation that enables terminals to optimize their operations and move cargo smarter, faster and more efficiently. As an industry leading technology, more than 250 container terminals worldwide have partnered with Navis to improve performance, reduce costs and minimize risk.

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