

# Dock, Drone, & Drive: The Future of Flow

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## Abstract

Maritime ports need to take an active role in chassis management, running chassis pools to aid in reliable chassis availability. The biggest issue at many terminals is fluctuating volume combined with congestion, resulting in an average truck turn time of 86 minutes, with 26% of transactions taking 2 hours or longer. Chassis dislocation is a major driver of this. The efficient location of chassis at the port can have a significant impact on intermodal transfer.

## Introduction

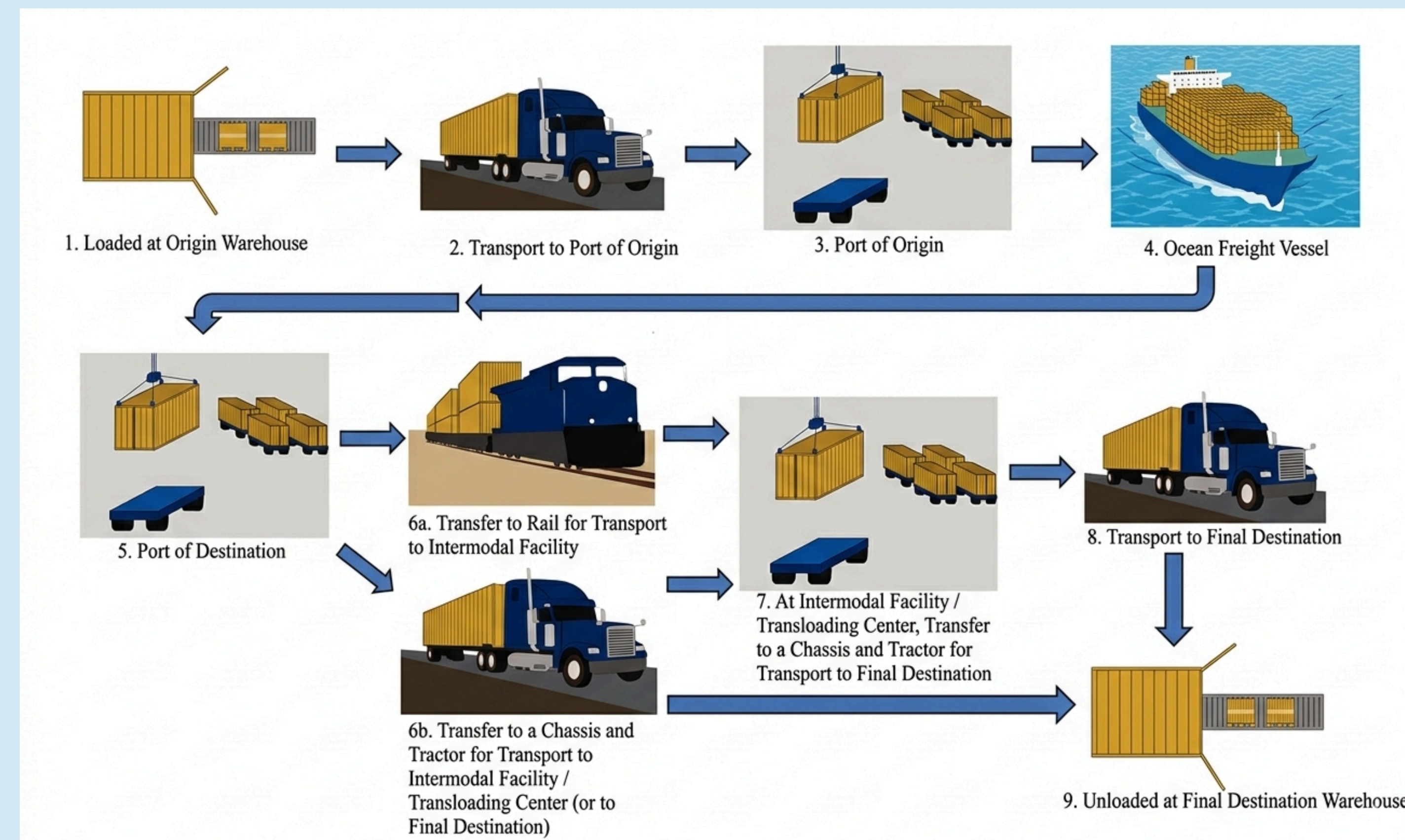
Chassis availability directly affects port performance and supply chain reliability. Every containerized shipment moving by truck requires a chassis, making chassis a critical complementary asset. Ocean carriers, who historically owned ~30% of the U.S. chassis fleet, are actively divesting, creating a serious supply vacuum. The central question is: who will fill that gap as intermodal traffic grows?

## Solution + Methodology

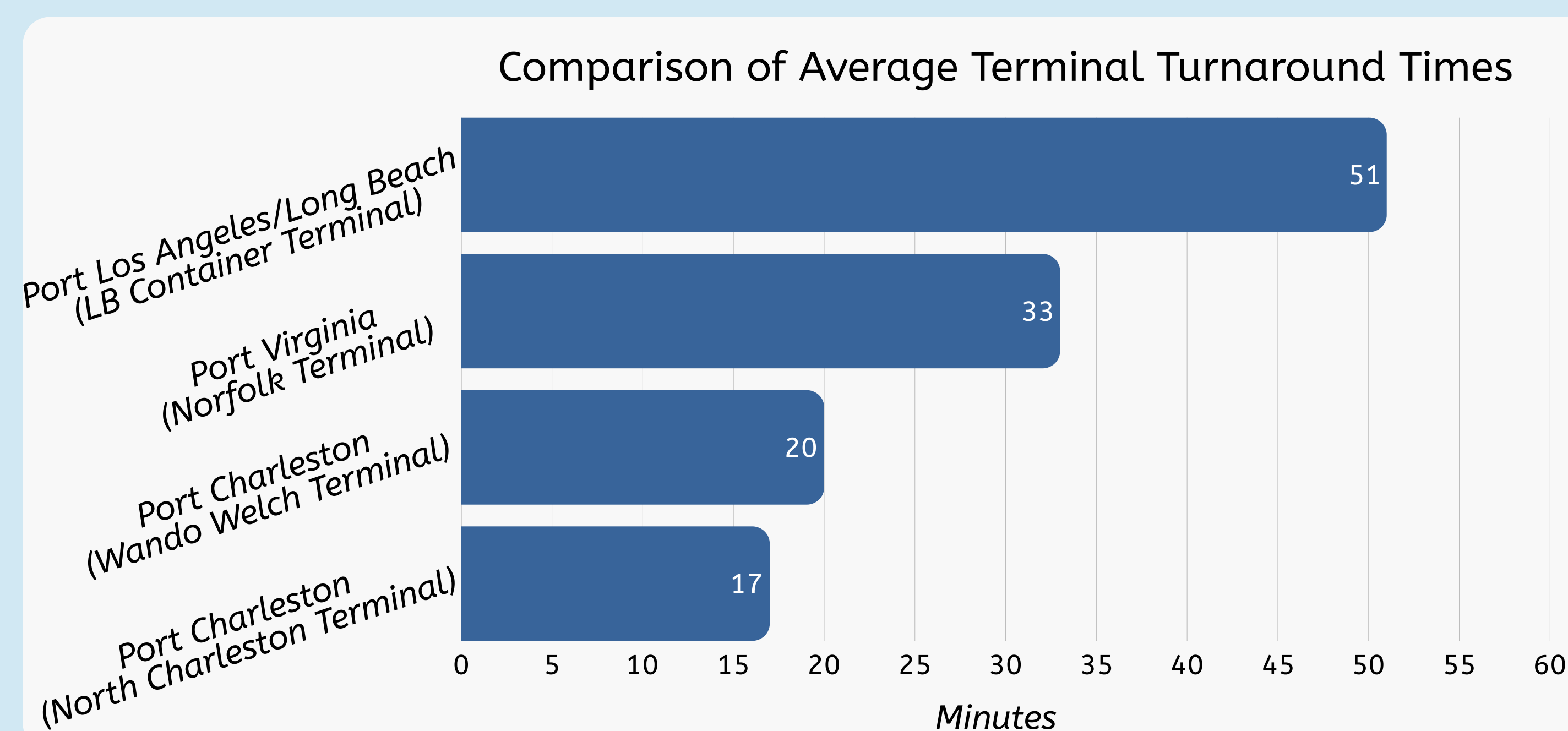
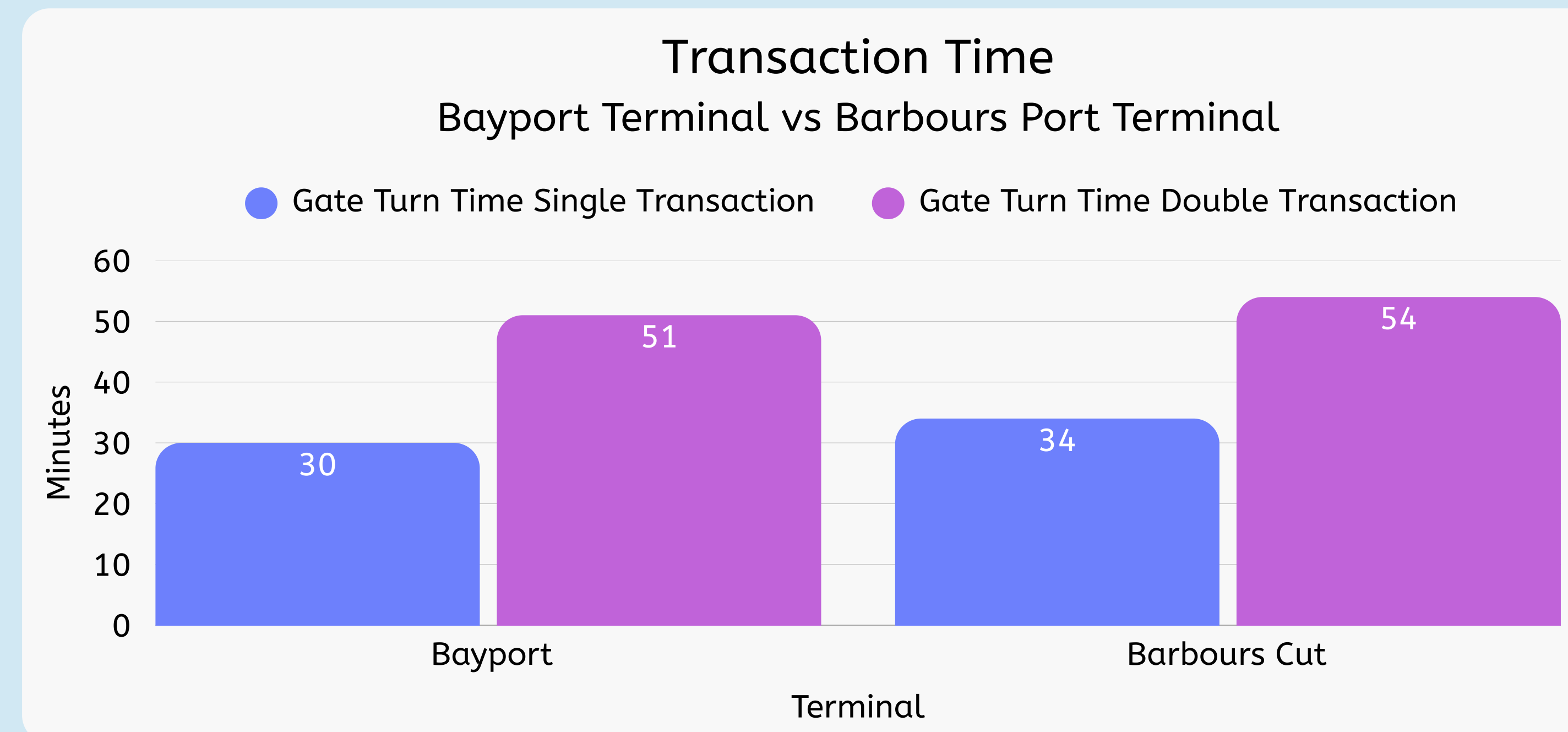
Implementation of aerial drones for port operations to gain better visibility of chassis management at the port.

- Analyze aerial drone models to implement at the port. Consider factors such as cost, ease of operation, technology specifications, drone policy, etc.
- Procure approved drones for operation.
- Train respective personnel on drone operation and safety.
- Launch permissible aerial drones around port aerospace.
- Utilize drones to monitor chassis activity, allowing yard managers to redistribute them to truck gates before a bottleneck forms.

## Gate Turnaround Time

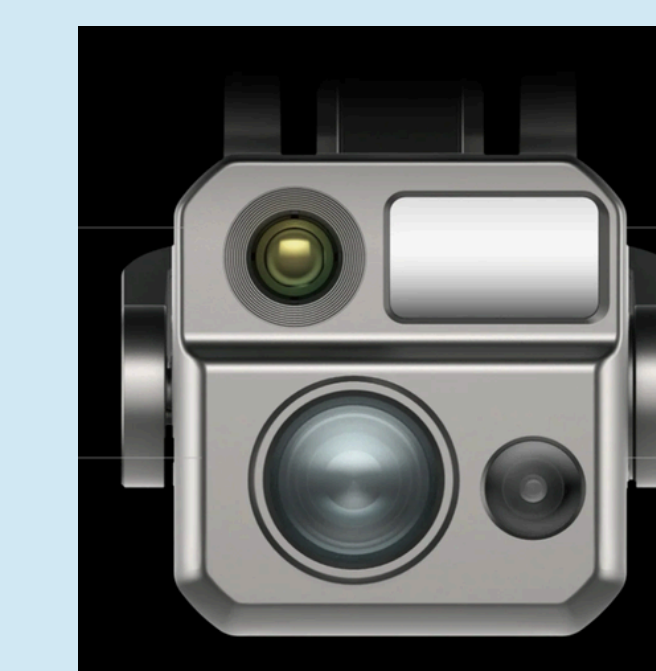


Example of a high-level container move from its origin to its final destination.



## Drones + Equipment

Through integrated software, drones like EVO Max can link visual data with inventory management platforms, creating a dynamic, real-time map of chassis availability across the terminal. This improves coordination between trucking companies, rail operators, and maritime terminals strengthening overall intermodal efficiency.



EVO Max Camera



EVO Max Drones

## Challenges

- Airspace Regulations
- Weather & Coastal Conditions
- Operational Training
- Bird Collisions & Wildlife
- Data Security & Cyber Security
- Public & Worker Privacy
- Maintenance & Operational Cost
- Ownership & Liability

## Advantages

- Reduce the time spent on large-scale industrial surveys and inventory checks by **70-90%**
- Raise inventory accuracy from **97% to over 99%**
- Reduce the cost of industrial land and asset surveys by **85%**



Work Cited

## Conclusion

Intermodal connectivity depends on the smooth coordination of ships, trucks, rail, and port equipment to move cargo efficiently between modes. At major port complexes like the Port of Houston, congestion often occurs not just from vessel traffic, but from chassis shortages, misplaced equipment, and inefficient yard visibility. When chassis are unavailable or difficult to locate, trucks experience delays, terminal gates become congested, and cargo transfer between maritime and land transportation slows down.



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