ED ARENBERG, DAKARAI MCCOY, AND NATHAN CHANG

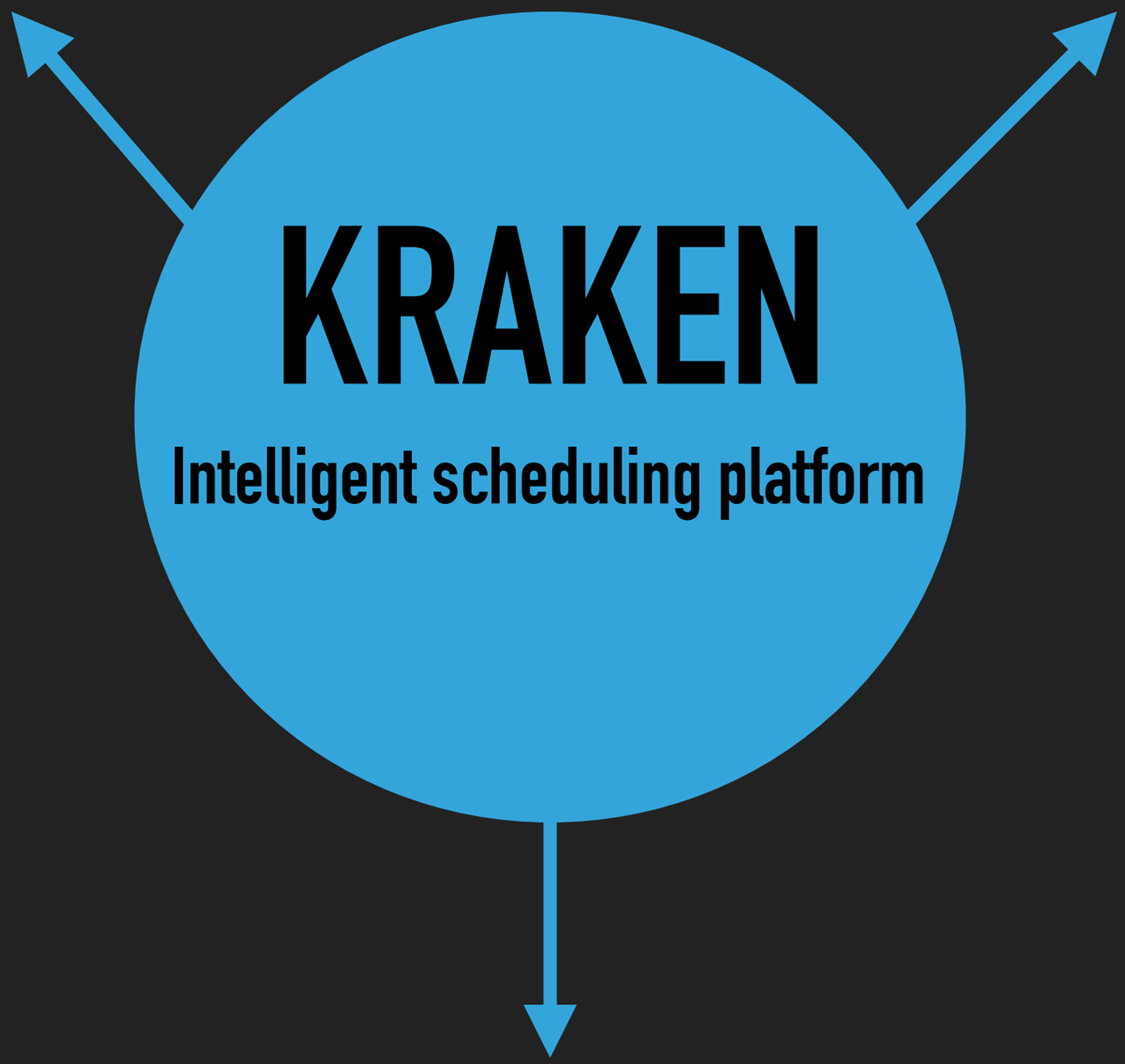
THE KRAKEN

CURRENT PORT SITUATION

- Fixed cargo scheduling
- Decentralized system
- Inefficient scheduling = Idle trucks = Wasted resources
  Excessive emissions

PERIODIC ROUTING

USER-FRIENDLY INTERFACE



MINIMIZE EXPENSES, MAXIMIZE T.E.U.S

MARINE TERMINAL TRAFFIC OPTIMIZATION: KRAKEN

- Use of dual transactions
- Periodic routing constantly adjusts for new complications
- Java-based package with flexible constraints

Static

Dynamic

Fleet

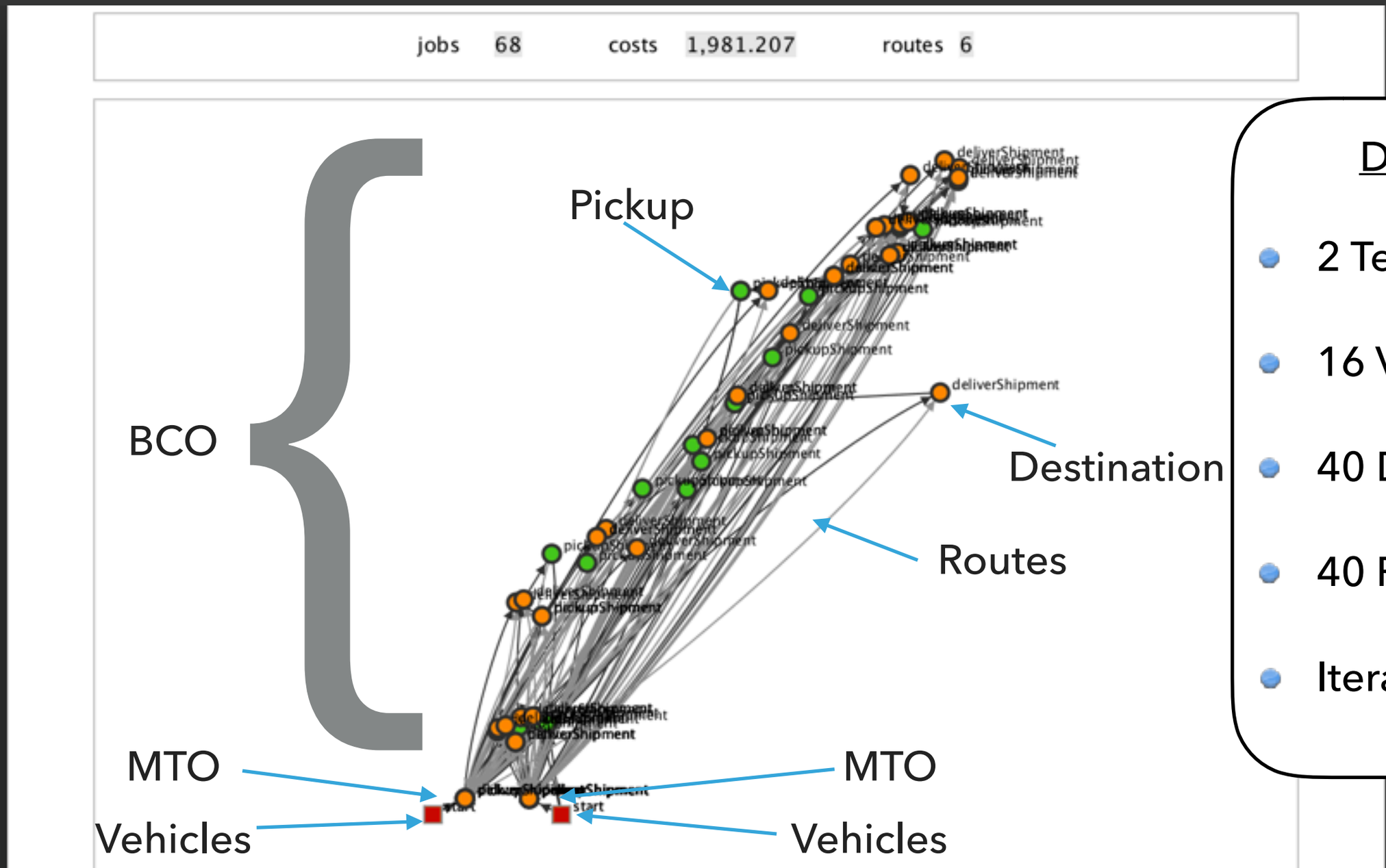
DEST

PICKUP

DEST

PICKUP

TERMINAL-BASED FLEET ROUTING



Demo

- 2 Terminals
- 16 Vehicles
- 40 Destinations
- 40 Pickups
- Iterative routing

ROUTING DEMO

[dimValue=-1]]][twStart=0][twEnd=oo]

S34

[type=pickupShipment]
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[dimValue=1]]][twStart=0][twEnd=oo]

s16

[type=deliverShipment]
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[dimValue=-1]]][twStart=0][twEnd=oo]

s16

[costs=1666.3711769790095]

[#vehicles=2]

V13

V9

s26

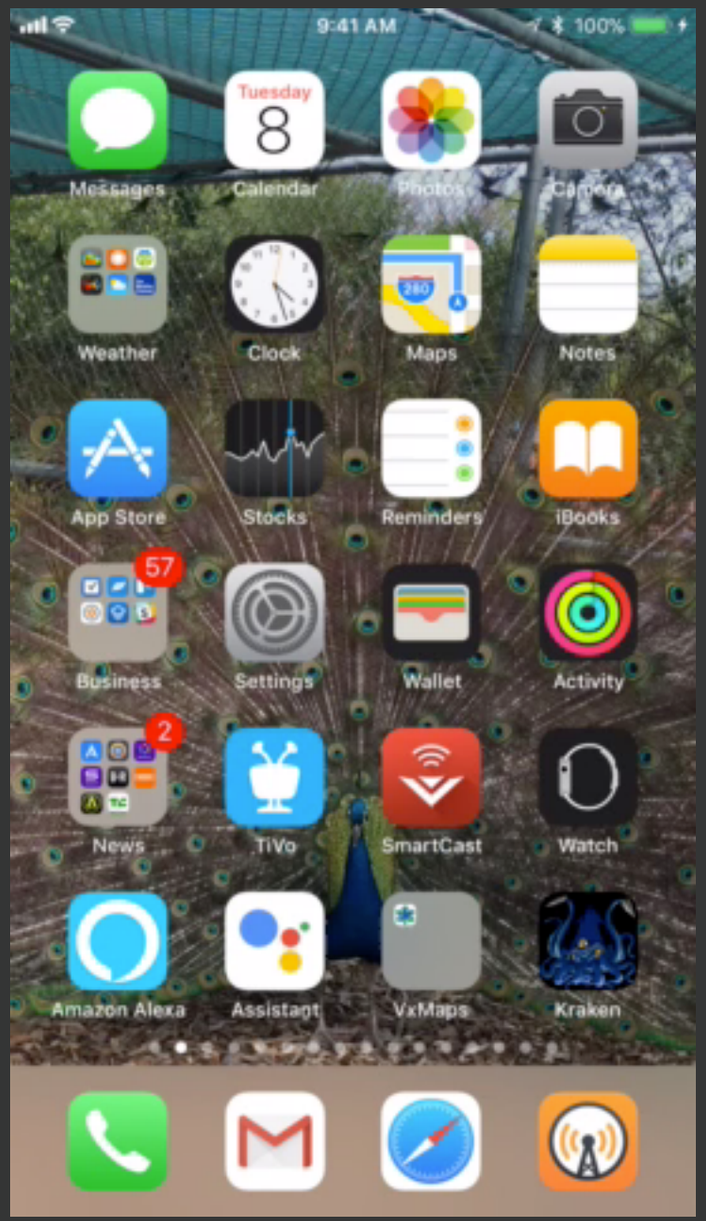
S22

S34

s16

s26

COMPANION APP – DRIVERS



CONCLUSION PORT BENEFITS

- Centralized scheduling
- Maximizes net T.E.U.s
- Minimizes idling
- Facilitates existing goals of Freight Efficiency strategy of Clean Air Action Plan
- Increased revenue for ports, shippers, and B.C.O.s

KRAKEN POTENTIAL

- The Driver App:
  - Driver-MTO communication network
- The Platform:
  - Dashboard master-view with maps of route status for MTOs
  - Integration of AI bots to handle anomalies
  - Support for rail and ocean transport

KRAKEN

- Robust core technology allows for adaptive scheduling
- Scalable, user-friendly, and open design allows for easy integration
- Less time waiting, more time closing