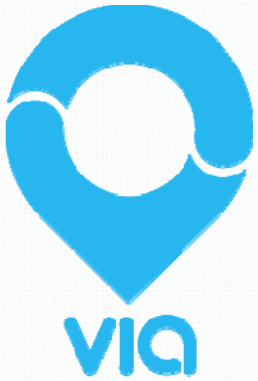


On-demand Transit

UTRC Symposium, November 19, 2014

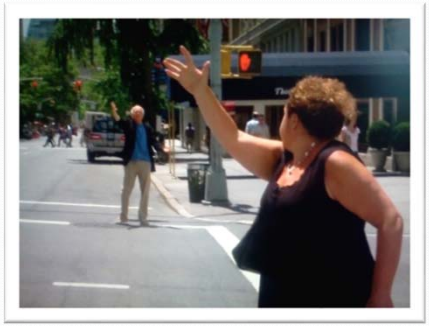
Daniel Ramot

Getting around cities is a challenge

Public transit
Inexpensive but inconvenient

Car
Expensive (ownership, gas, parking) and inefficient use of time

Taxi
Expensive, inconsistent availability



+ continued urbanization…

Rigid route solutions offer high capacity at affordable fares, but coverage is sparse

Subway

Light Rail

BRT

On-demand private transportation offers a convenient alternative

Limo

Taxi

Ridesharing

Side·car
a whole new way to get around

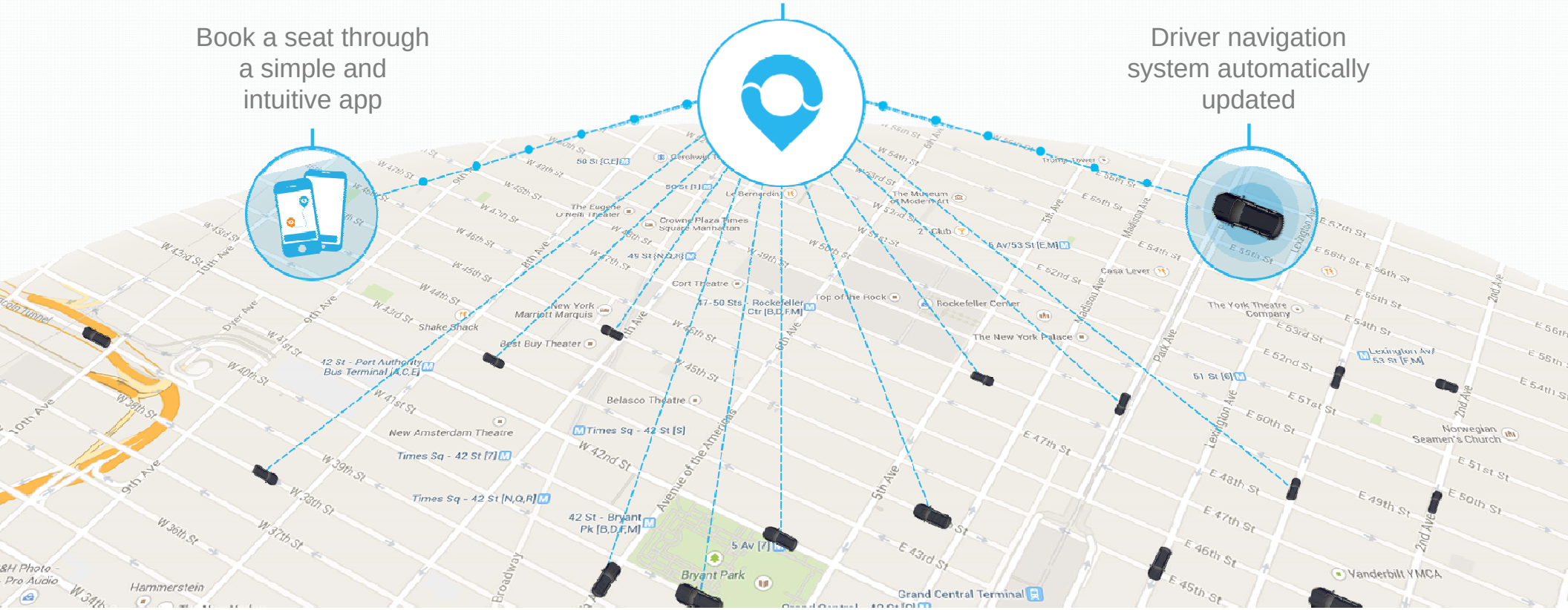
Can we combine
on-demand convenience with
shared affordability?

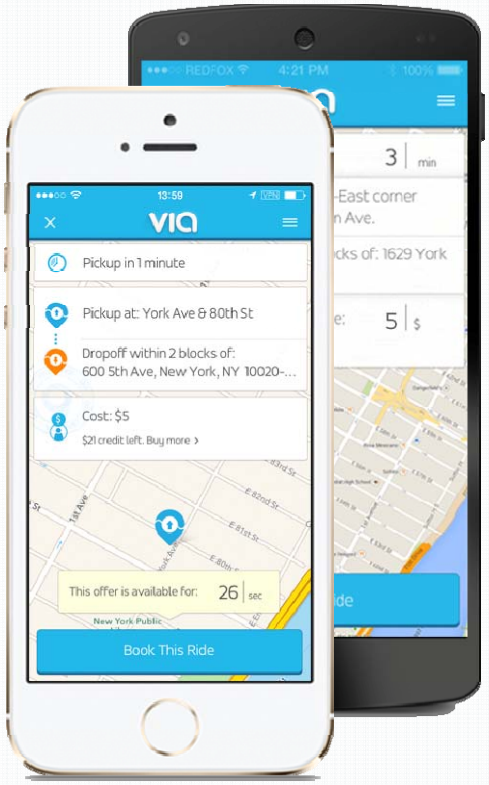
On-demand mass transit

Algorithm matches you with a vehicle headed your way so sharing your ride is seamless

Book a seat through a simple and intuitive app

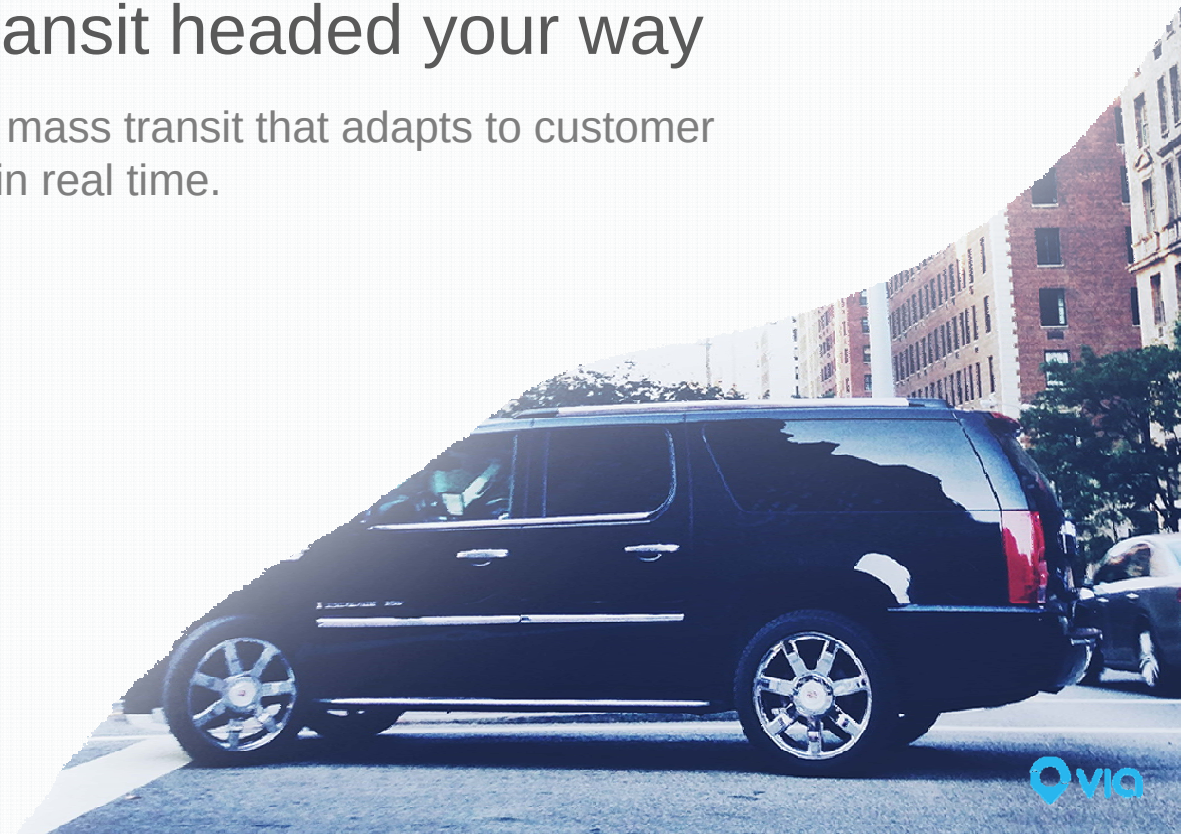
Driver navigation system automatically updated





Via: transit headed your way

Dynamic mass transit that adapts to customer demand in real time.



Fundamentally, this is more efficient use of resources

airbnb

Book and pay for a room
(within a residence)

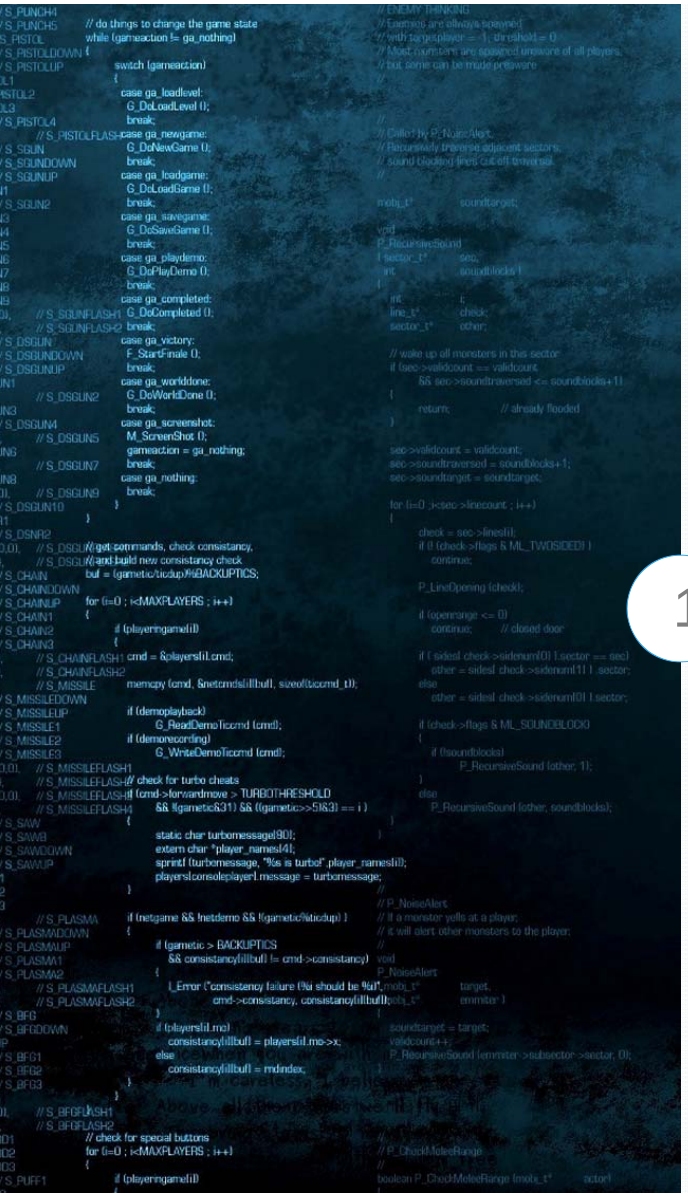
zipcar

Book and pay for an hour
(within a day of car rental)

VIA

Book and pay for a seat
(within a car)

VIA

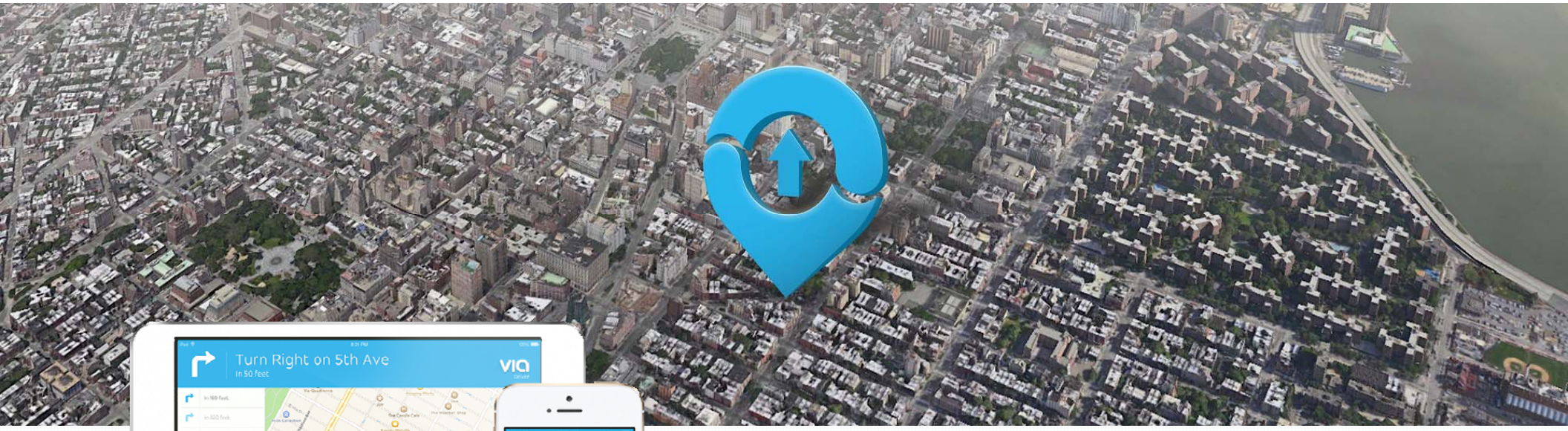


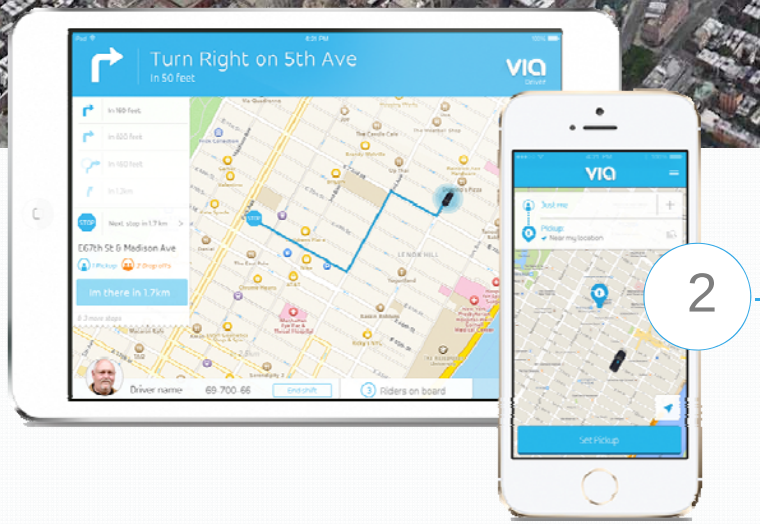
Passenger—van matching and dynamic routing poses an algorithmic, computational, and data challenge

1

Intelligent algorithm

- Match passengers with seats headed the “right” way
- Automatically update vehicle routes
- Optimize resources and system performance (vans, routing, service quality) to account for demand (current and predicted) and traffic
- A derivative of the “traveling salesman’ problem





2

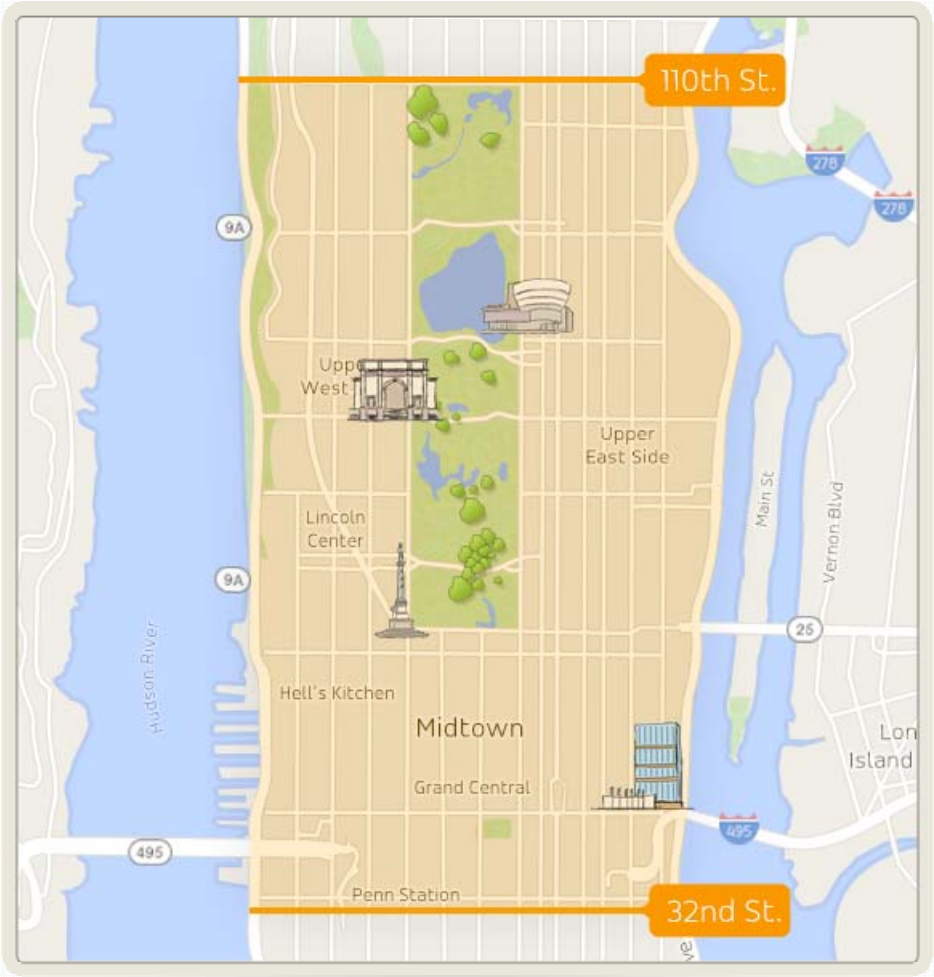
Exceptionally efficient pickups

- Coordinate passenger and driver arrival at a precisely-defined location (in time and space)
- Requires a large amount of “local knowledge” – traffic, street, business data

via

Via has been operating in Manhattan since August 2013

- Rides are $5 anywhere within our zone.
- Pickup within minutes on your corner.



STOP
HERE ON
RED
SIGNAL
ONE WAY
via