



On-demand Transit

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Getting around cities is a challenge



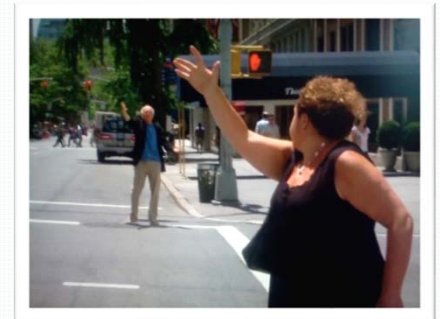
Public transit
Inexpensive but inconvenient



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

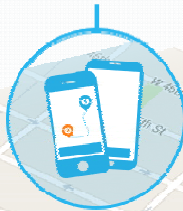


Can we combine
on-demand convenience with
shared affordability?

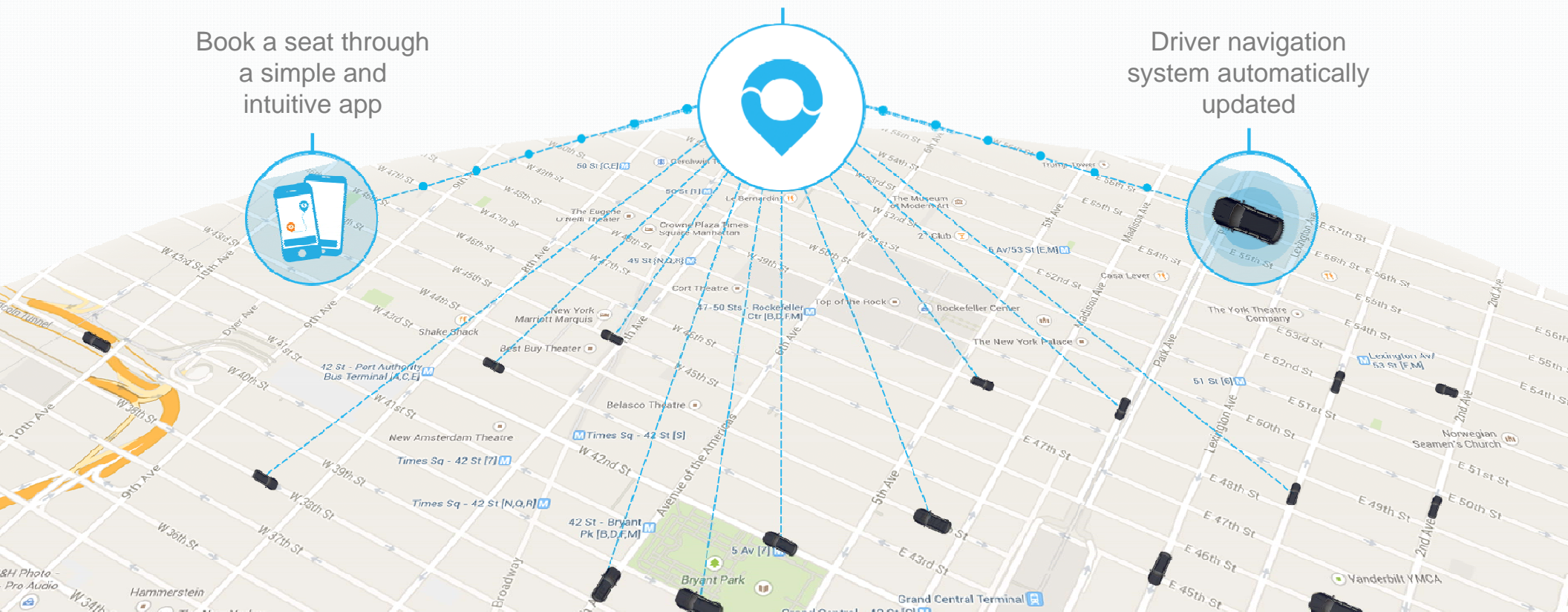
On-demand mass transit

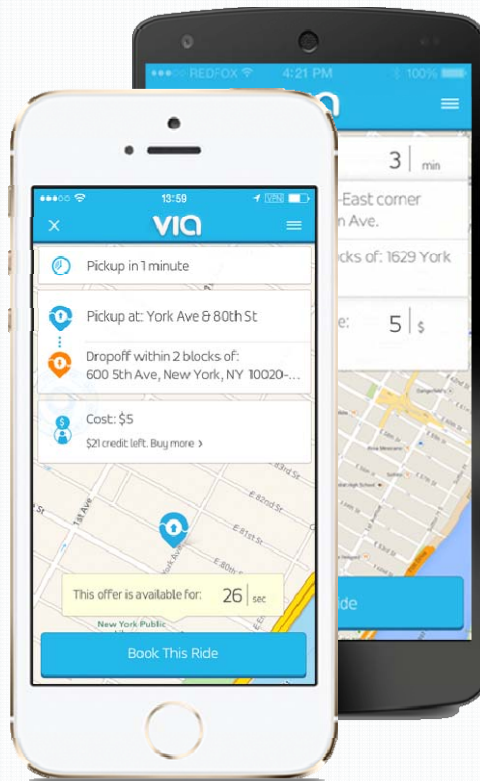
Algorithm matches you with a vehicle headed your way so sharing your ride is seamless

Book a seat through a simple and intuitive app



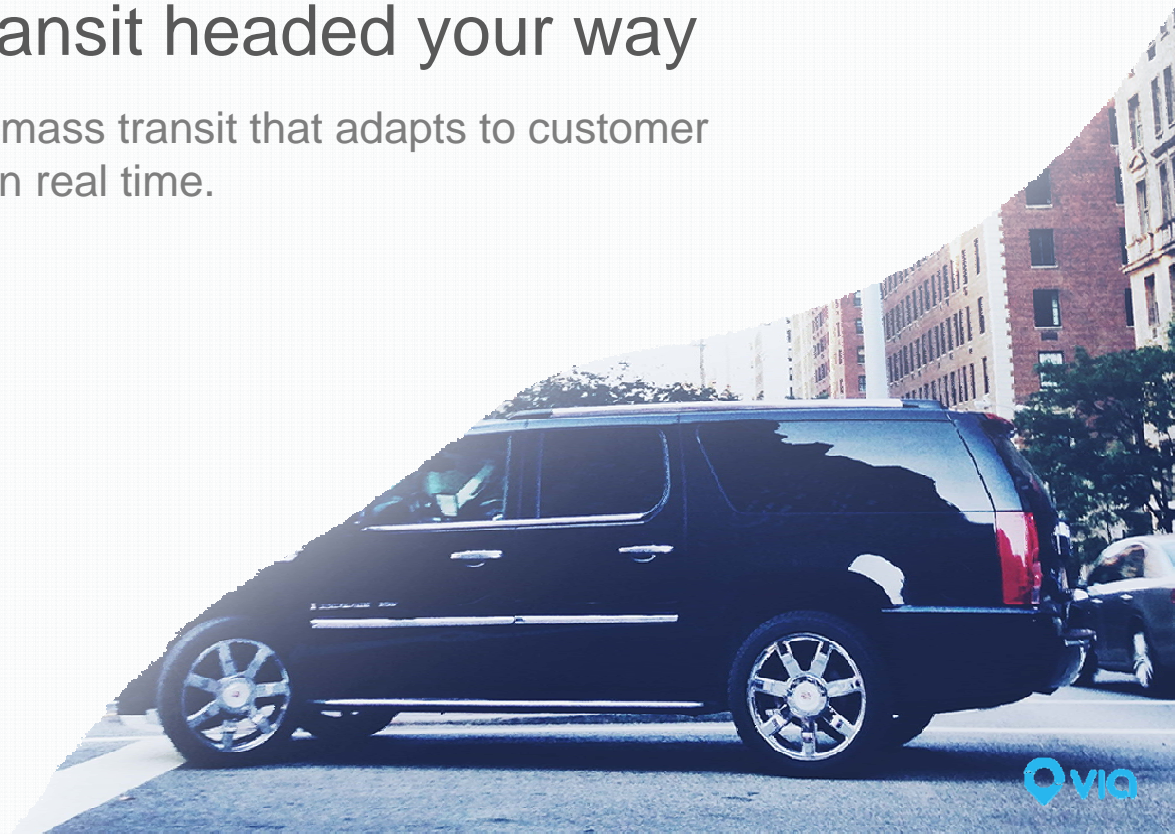
Driver navigation system automatically updated





Via: transit headed your way

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





Fundamentally, this is more efficient use of resources



Book and pay for a room
(within a residence)



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



Book and pay for a
seat
(within a car)




```
// SOUND - Monitors
// Enemies are always spawned
// with target player = 1, threshold = 0
// Most enemies are spawned unaware of all players
// but some can be made prewarned

// Called by P_NoiseAlert
// Passively traverse adjacent sectors
// Sound created from cut off forward

int g_t^1 soundtarget;

void
P_PassiveSound
{
    sector^1 sec;
    int i;
    while(1)
    {
        if (check >= flags & ML_TWOSIDED) continue;
        P_LineOpening (check);
        if (openarea <= 0) continue; // closed door
        if (sound check >= idiomon(0) i sector == sec)
            other = sound check >= idiomon(1) sector;
            else
                other = sound check >= idiomon(1) sector;
        if (check >= flags & ML_SOUNDBLOCK)
        {
            if (!soundblock)
            {
                P_PassiveSound (father, 1);
            }
            else
            {
                P_PassiveSound (other, soundblock);
            }
        }
    }
}

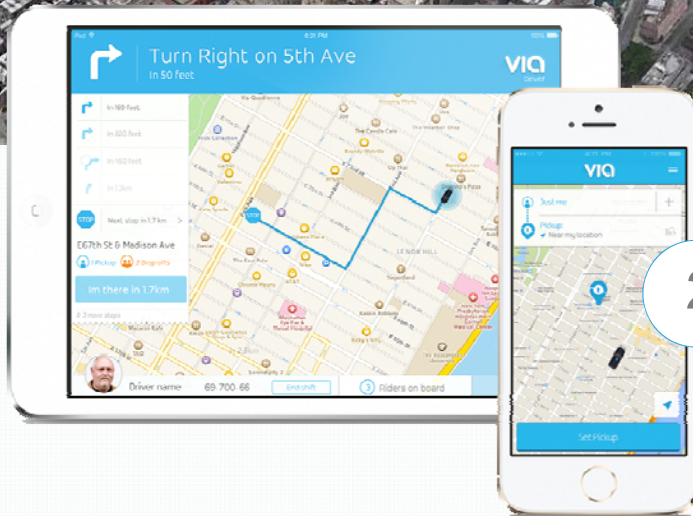
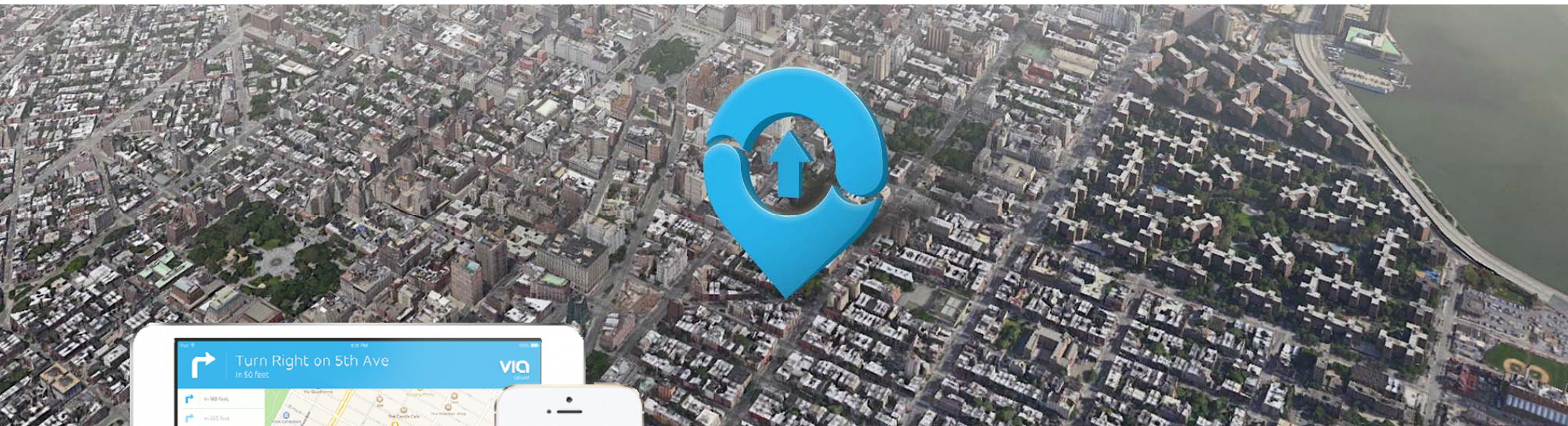
// Silence;
// No;
// // P_NoiseAlert
// // A monster yells at a player;
// // It will alert other monitors to the player;
// void
// P_NoiseAlert
// at^1, mode^1^1 target,
// null^1^1 emitter^1
//
// soundtarget = target;
// yellcount++;
// P_PassiveSound (emitter->radiusector->sector, 0);
//
// // P_ChasePlayerRange
// boolean P_ChasePlayerRange (mode^1^1 actor^1)
```

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

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





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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 has been operating in Manhattan since August 2013

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

