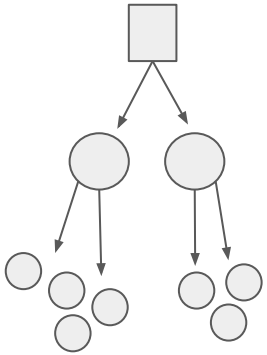
Technology and Mutual Aid Networks: case study
03.07.2021

- Lecture, walk-through of mutual aid network system design
- Break
- Lab: design sprint!

- Early March 2020
- Spontaneous, reaction; at the same time, there is a deep history of these movements
- Started both analog & digital: Slack, Facebook, posters
- “The real threat to Power is breaking their monopoly on creating” (Mutual Aid Disaster Relief, lessons learned)

Designing a system: know your requirements

- political aims of group: non-hierarchical
- “Building power from below”
- Work with the tools you have, DIY
- Be incredibly flexible, ready to adapt to changing circumstances
- Other systems always involved



❌ HIERARCHICAL,
❌ TOP-DOWN

"Starlings' murmuration consists of a flock moving in synch with one another, engaging in clear, consistent communication and exhibiting collective leadership and deep, deep trust. Every individual bird focuses attention on their seven closest neighbors and thus manage a larger flock cohesiveness and synchronicity (at times upwards of over a million birds)."

—Sierra Pickett

PHOTOGRAPH BY **THI BUI**

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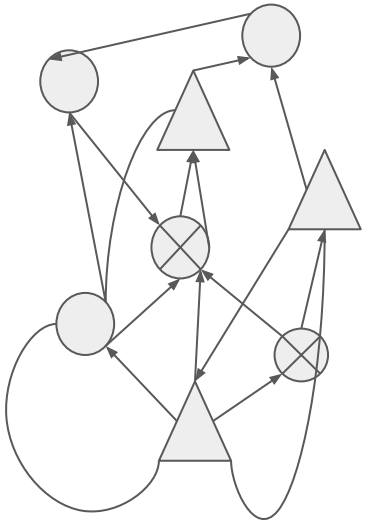


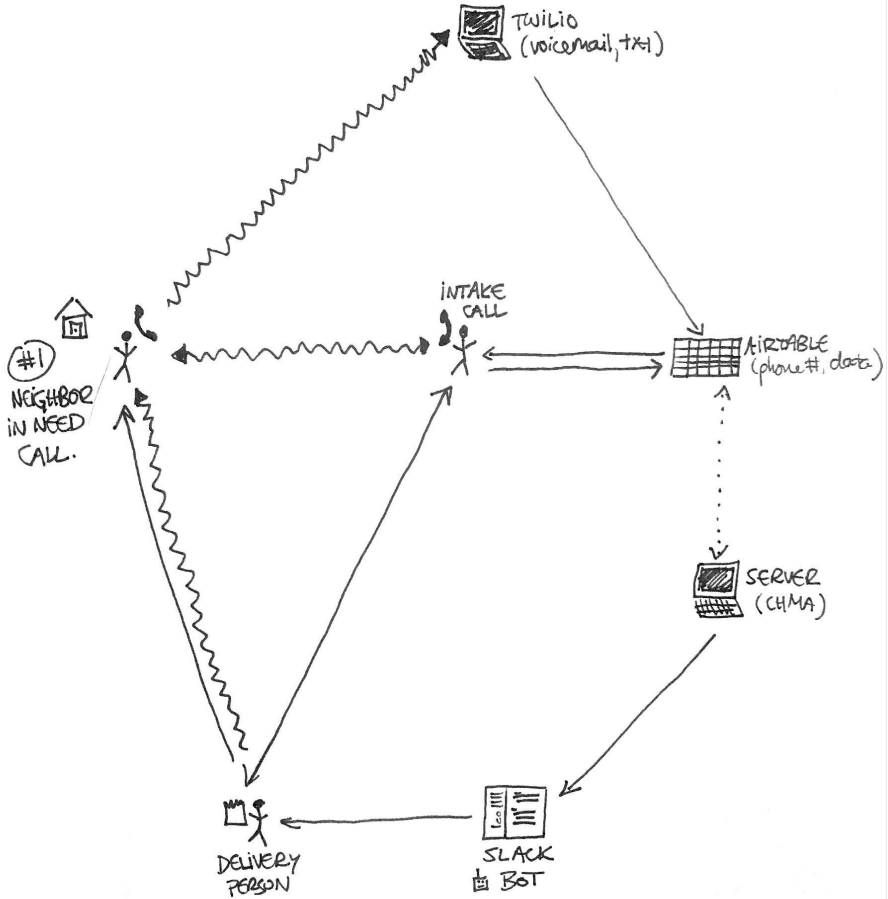
Build a **SYSTEM** that facilitates connections, and build **TECH** that fuels that system

What we had:

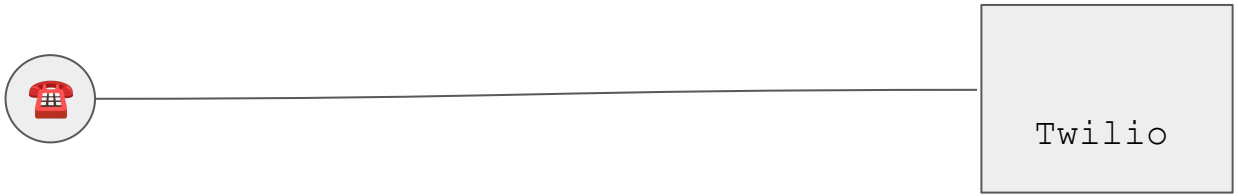
- **Need** list (growing) - turning to new places, everything shut
- **Volunteer base** (growing) - time, interest: delivery, phone calls, donations
- **Technical** savvy, for some (Slack, Facebook, Twitter, etc. - so much time on these platforms)
- **Small team** of coders (3-20), larger group using system
- **Security minded**

What we needed:

- Way to **connect** local neighbors in need with local neighbors able to give


TWILIO
(voicemail, txt)
INTAKE
CALL
AIRTABLE
(phone#, data)
#1
NEIGHBOR
IN NEED
CALL.
SERVER
(CHMA)
DELIVERY
PERSON
SLACK
BOT

Step 1: call



*note: eventually system allowed for request via text, SMS

Serverless functions, Node.js:

- When receive call, play audio message; offer options
- record caller's audio
- save audio file to cloud; save link
- Send link, phone number, timestamp, other metadata parameters to database

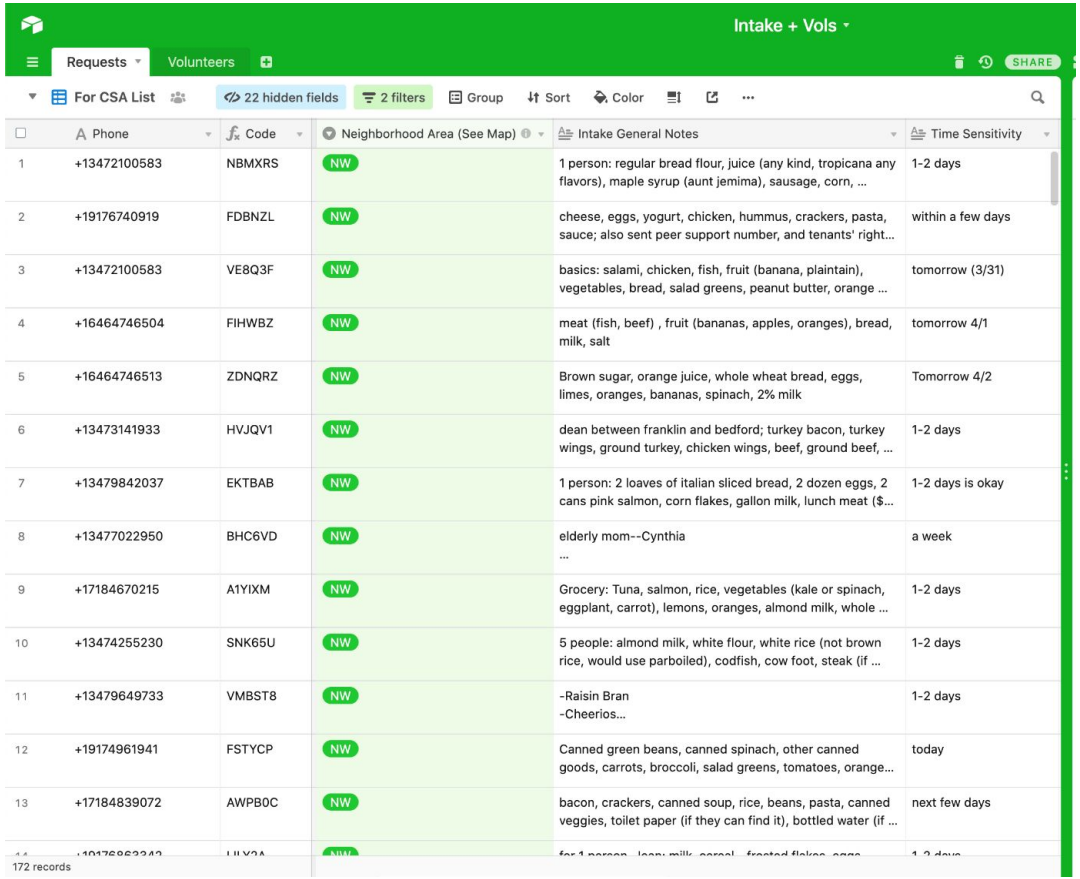
curl | JavaScript | show API key

CODE

```
var Airtable = require('airtable');
var base = new Airtable({apiKey: 'YOUR_API_KEY'}).base('apppK7mrvMPcwtv6d');

base('Requests').create([
  {
    "fields": {
      "First Name": [redacted]
      "What type(s) of support are you seeking?": "Deliver groceries or supplies to me",
      "Text or Voice?": "voice",
      "Time Sensitivity": "within a week",
      "Twilio Call Sid": "CA1ce1d33e7efa38f4d3955bfb25900966",
      "Status": "Request Complete",
      "Cross Street #2": "New York Avenue",
      "Neighborhood Area (See Map)": "NW",
      "Household Size": "3",
      "Last Processed": "2022-03-06T04:16:28.862Z",
      "Date Changed to Delivery Needed": "2021-03-03T23:22:47.000Z",
      "Phone": "+1347[redacted]
      "Languages": [
        "English"
      ],
      "Intake volunteer": [
        "recOoiMRZm1dcmUQF"
      ],
      "Delivery volunteer": [redacted]
      "Meta": "{\"lastValues\":{\"First Name\":\"Earley\",\"What type(s) of support are you
seeking?\":\"Deliver groceries or supplies to me\",\"Text or Voice?\":\"voice\",\"Time S...",
      "Neighborhood MA-NYC": "Crown Heights",
      "Cross Street #1": "Saint Marks Ave",
      "Intake General Notes": "#1: chicken drumsticks, #2: chicken wings, #3: whole chicken,
#4: ground beef, #5: bacon (2 packs), #6: beef sausage (ideally the one in a yellow box)...",
      "Would you like a vaccine callback?": true,
      "Vaccine Volunteer": [
        "recxK1kPr9PJqiBze"
      ],
      "Vaccine NOTES": "3/25 Called back, left a message\n3/22 Texted to request good time to
call\n3/3 Got VM, but mailbox was full, sent text. Earley replied that they'd call..."
    }
  },
```

Step 2: database, intake

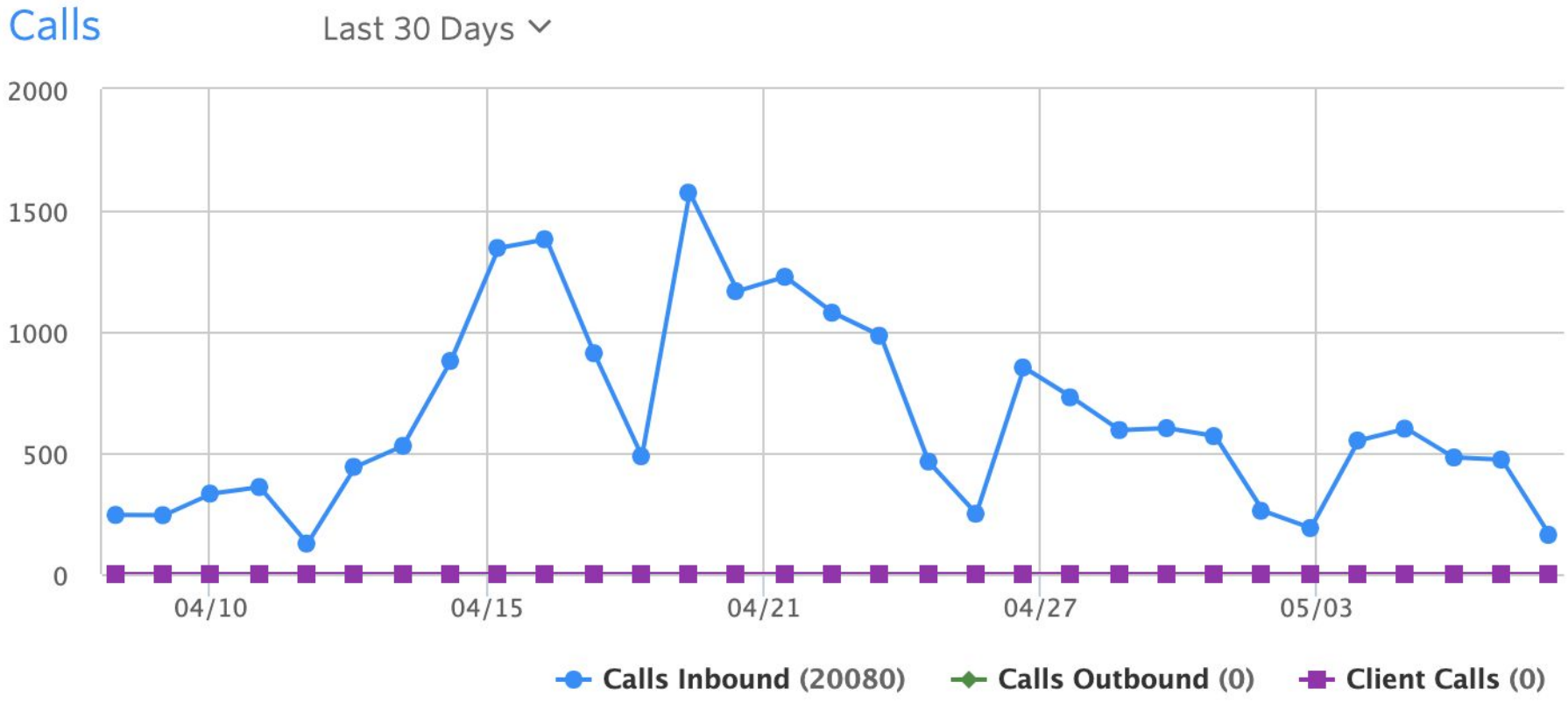


	Phone	Code	Neighborhood Area (See Map)	Intake General Notes	Time Sensitivity
1	+13472100583	NBMXRS	NW	1 person: regular bread flour, juice (any kind, tropicana any flavors), maple syrup (aunt jemima), sausage, corn, ...	1-2 days
2	+19176740919	FDBNZL	NW	cheese, eggs, yogurt, chicken, hummus, crackers, pasta, sauce; also sent peer support number, and tenants' right...	within a few days
3	+13472100583	VE8Q3F	NW	basics: salami, chicken, fish, fruit (banana, plaintain), vegetables, bread, salad greens, peanut butter, orange ...	tomorrow (3/31)
4	+16464746504	FIHWBZ	NW	meat (fish, beef) , fruit (bananas, apples, oranges), bread, milk, salt	tomorrow 4/1
5	+16464746513	ZDNQRZ	NW	Brown sugar, orange juice, whole wheat bread, eggs, limes, oranges, bananas, spinach, 2% milk	Tomorrow 4/2
6	+13473141933	HVJQV1	NW	dean between franklin and bedford; turkey bacon, turkey wings, ground turkey, chicken wings, beef, ground beef, ...	1-2 days
7	+13479842037	EKTBAB	NW	1 person: 2 loaves of italian sliced bread, 2 dozen eggs, 2 cans pink salmon, corn flakes, gallon milk, lunch meat ($...	1-2 days is okay
8	+13477022950	BHC6VD	NW	elderly mom--Cynthia ...	a week
9	+17184670215	A1YIXM	NW	Grocery: Tuna, salmon, rice, vegetables (kale or spinach, eggplant, carrot), lemons, oranges, almond milk, whole ...	1-2 days
10	+13474255230	SNK65U	NW	5 people: almond milk, white flour, white rice (not brown rice, would use parboiled), codfish, cow foot, steak (if ...	1-2 days
11	+13479649733	VMBST8	NW	-Raisin Bran -Cheerios...	1-2 days
12	+19174961941	FSTYCP	NW	Canned green beans, canned spinach, other canned goods, carrots, broccoli, salad greens, tomatoes, orange...	today
13	+17184839072	AWPB0C	NW	bacon, crackers, canned soup, rice, beans, pasta, canned veggies, toilet paper (if they can find it), bottled water (if ...	next few days

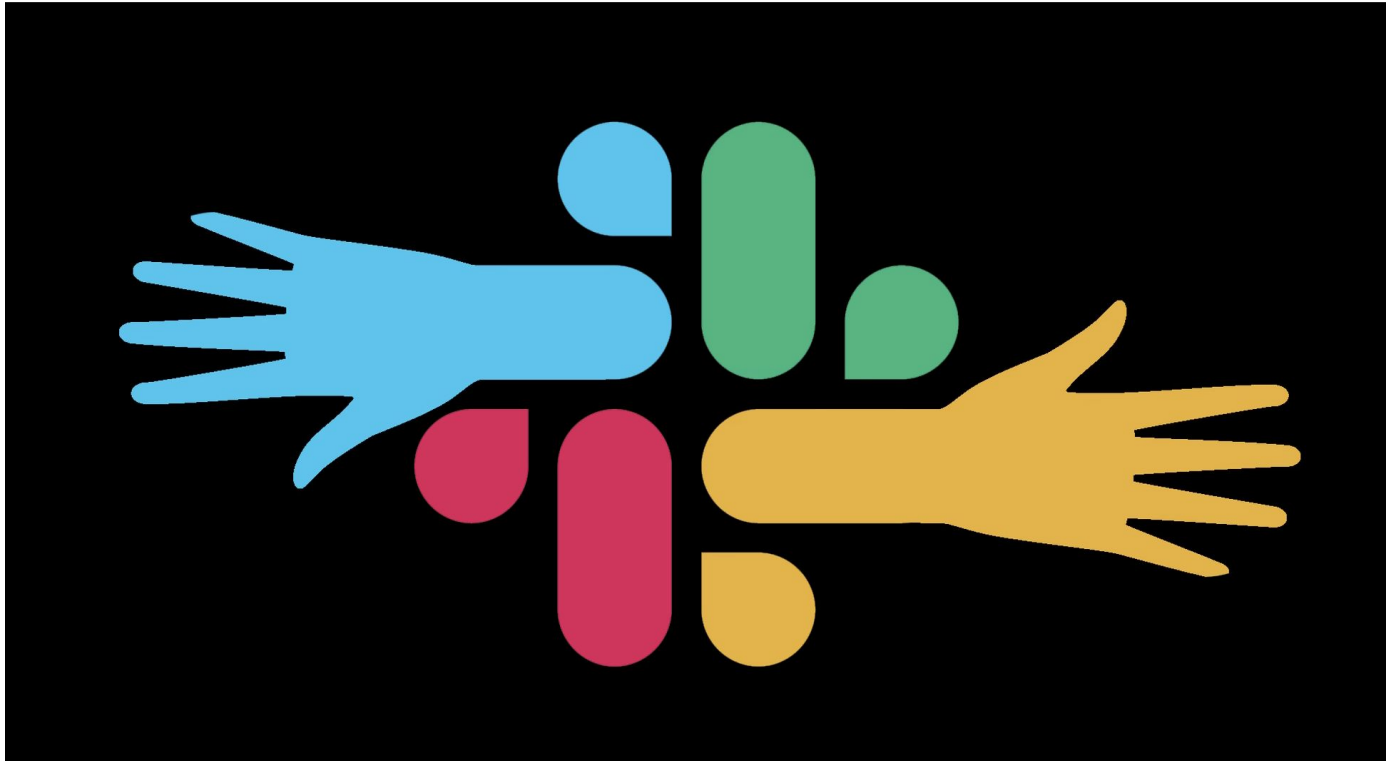
172 records

- "Intake" volunteer, uses the **relational** database (Airtable) like a call sheet; unique code generated
- First connection made: neighbor in need to neighbor on the phone (shifts, parties)
- Fills out fields that are empty from phone conversation
- **DATA SECURITY**: vulnerable; but only keeps first names, and cross street
- Volume …

SCALE SCALE SCALE SCALE SCALE SCALE



Step 3: finding delivery



Version 1.0: all data fields (columns) from database sent via Slack API to a Slack bot; delivery volunteer would pick up one near them via **threads/replies**

Slack bot: Node.js, listening on Heroku, microservice (PaaS)

Tip: Try ⌘ F to search this channel ×

✔️ REQUEST COMPLETED

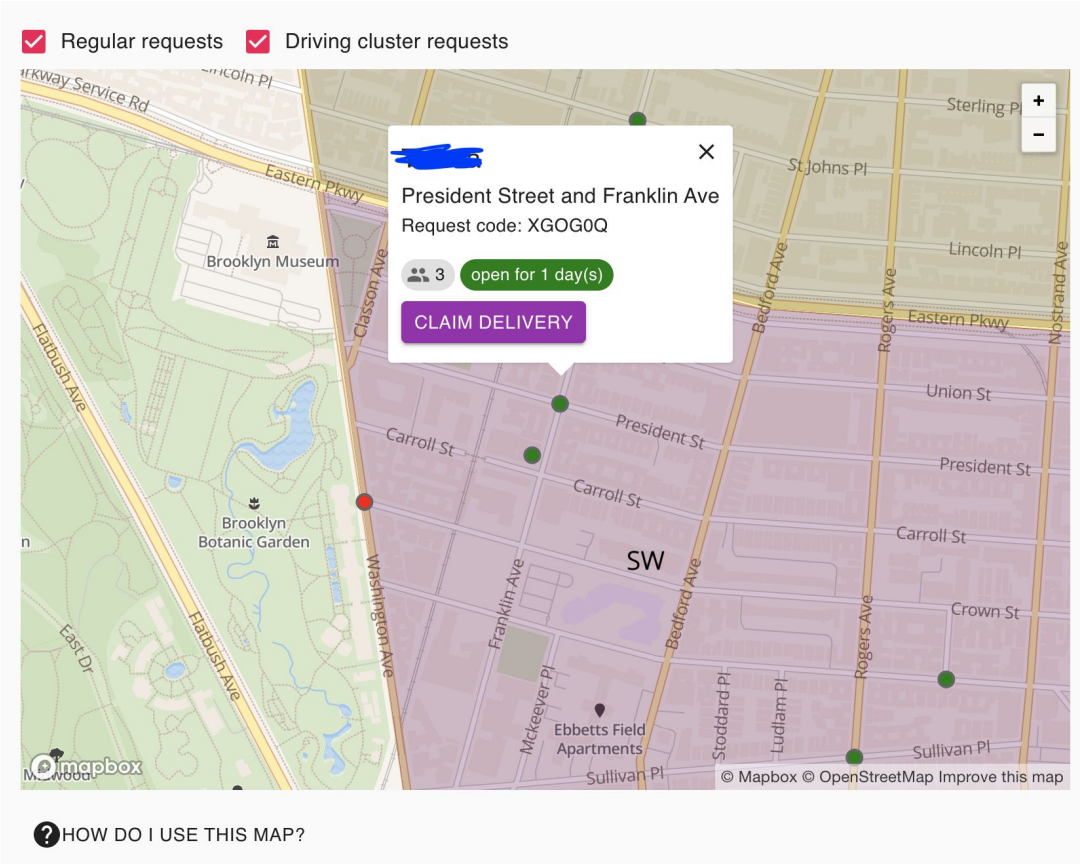
Hey Crown Heights, we have a new request from our neighbor Garfield at Prospect & New York in **NW Crown Heights**:
Timeline: week
Neighborhood: NW Crown Heights
Household Size: 1
Need: Groceries / Shopping
Cross Streets: Prospect & New York
Language: English
Description: Wesson Gallon, Chcicken wings 2 large packs, Olive oil Filipio Berio can, salmon 2 packs, cabbage, 3 packs frozen mixed vegetables, 2 eggplant, oxtail 3 packs, Tide pods, 3 pack cinnamon and spice instant oatmeal, Nesquik, Carnation milk 10 cans, 2 box corn flakes, brown sugar, corn muffin, smoked pigtail, 20 lb uncle bens rice, pork stew, country crook butter.
Code: CKV5IR
Want to volunteer to help our neighbor Garfield? Head to our online SMS pickup map to find the code and click "Claim Delivery"!
Reminder: Please don't volunteer for delivery if you have any COVID-19/cold/flu-like symptoms, or have come into contact with someone that's tested positive. If you have been in large crowds or demonstrations, please self-isolate for 14 days or wait 5 days to get a test, and resume deliveries after testing negative.
For more information, please see the delivery guide. (edited)

Crown Heights App APP 5:45 PM

✔️ REQUEST COMPLETED

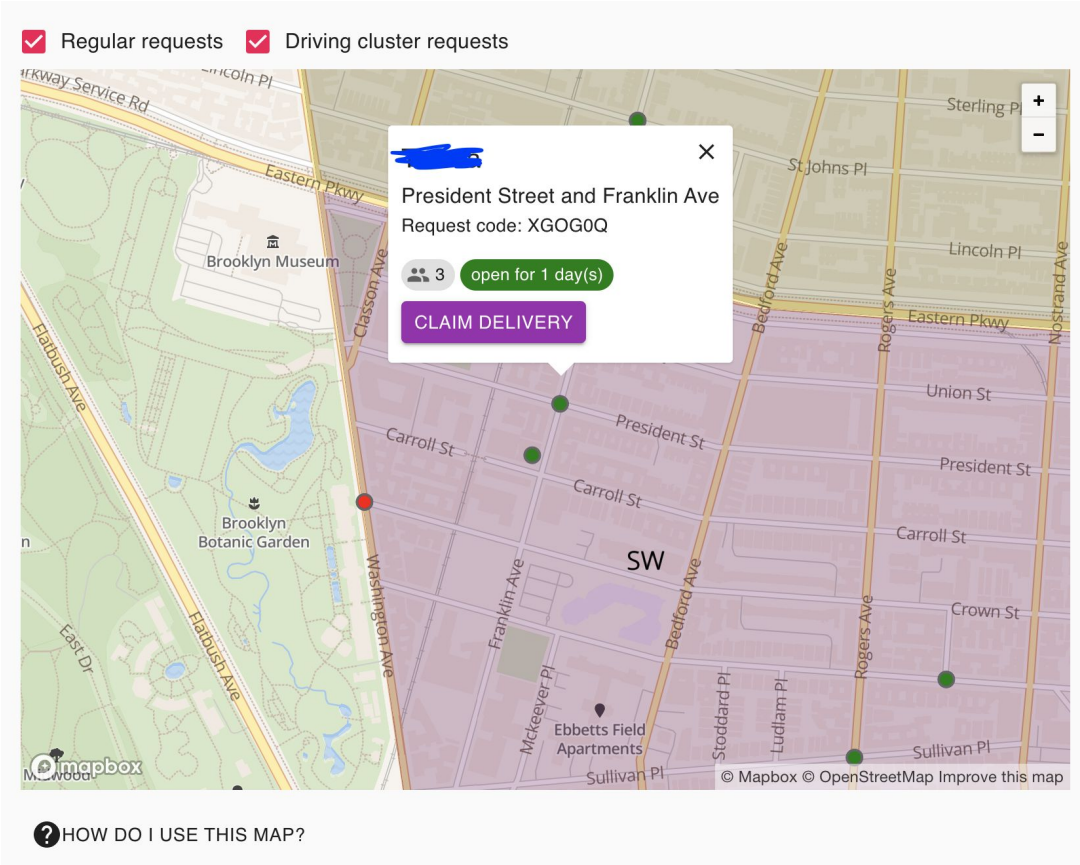
Hey Crown Heights, we have a new request from our neighbor Aisha at Troy & Schenectady in **NW Crown Heights**:
Timeline: within 3 or 4 days
Neighborhood: NW Crown Heights
Household Size: 6
Need: Groceries / Shopping
Cross Streets: Troy & Schenectady
Description: There are 6 people in her household, so this is a big order: 1. three ground turkey packages, 2. three bags of chicken wingettes, 3. ten cans of bumble bee tuna, 4. ten packs of kraft mac & cheese, 5. five turkey kielbasa, 6. five packs of turkey bacon, 7. two gallons of vegetable oil, 8. 3 boxes of honey nut cheerios, 9. 20 lb bag of rice, 10. thomas english muffins, 11. 2 bags of onions, 12. three bags of garlic, 13. 4 almond breeze almond milk, 14. toilet paper, 15. paper towels, 16. tide detergent, 17. fabric softener, 18. lavender fabuloso, 19. two gallons of clorox
Code: 93YGV6
Want to volunteer to help our neighbor Aisha? Head to our online SMS pickup map to find the code and click "Claim Delivery"!
Reminder: Please don't volunteer for delivery if you have any COVID-19/cold/flu-like symptoms, or have come into contact with someone that's tested positive. If you have been in large crowds or demonstrations, please self-isolate for 14 days or wait 5 days to get a test, and resume deliveries after testing negative.

Version 2.0 delivery system: web map

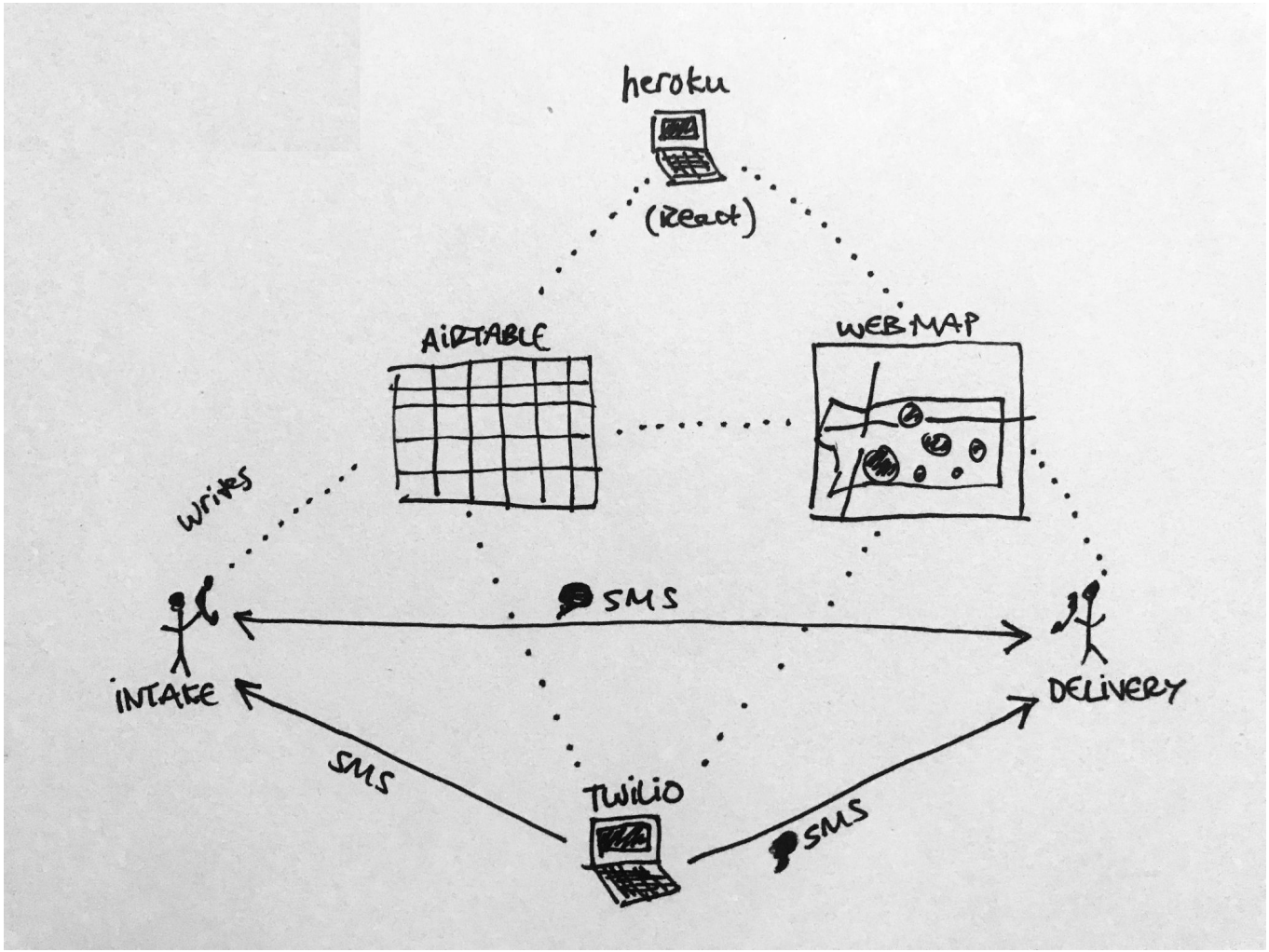


- When intake volunteer changed status column in Airtable to "Needs Delivery" call sent to endpoint on Node.js server
- Used Google Maps API to geolocate cross streets, place them on web map (front-end: Mapbox)

Version 2.0 delivery system: web map



- When delivery vol clicks “Claim Delivery” button, another request fires off: 📲 **Twilio**
- **SMS** with all relevant info sent to delivery volunteer, including unique code; **ALSO** to intake volunteer saying it’s picked up, with delivery vol’s number (**connection**)
- Airtable status changed automatically to “Delivery Assigned”
- (SERVERLESS FUNCTIONS)


heroku
(React)
AIRTABLE
WEB MAP
writes
SMS
INTAKE
DELIVERY
SMS
TWILIO
SMS

Step 4: Delivery

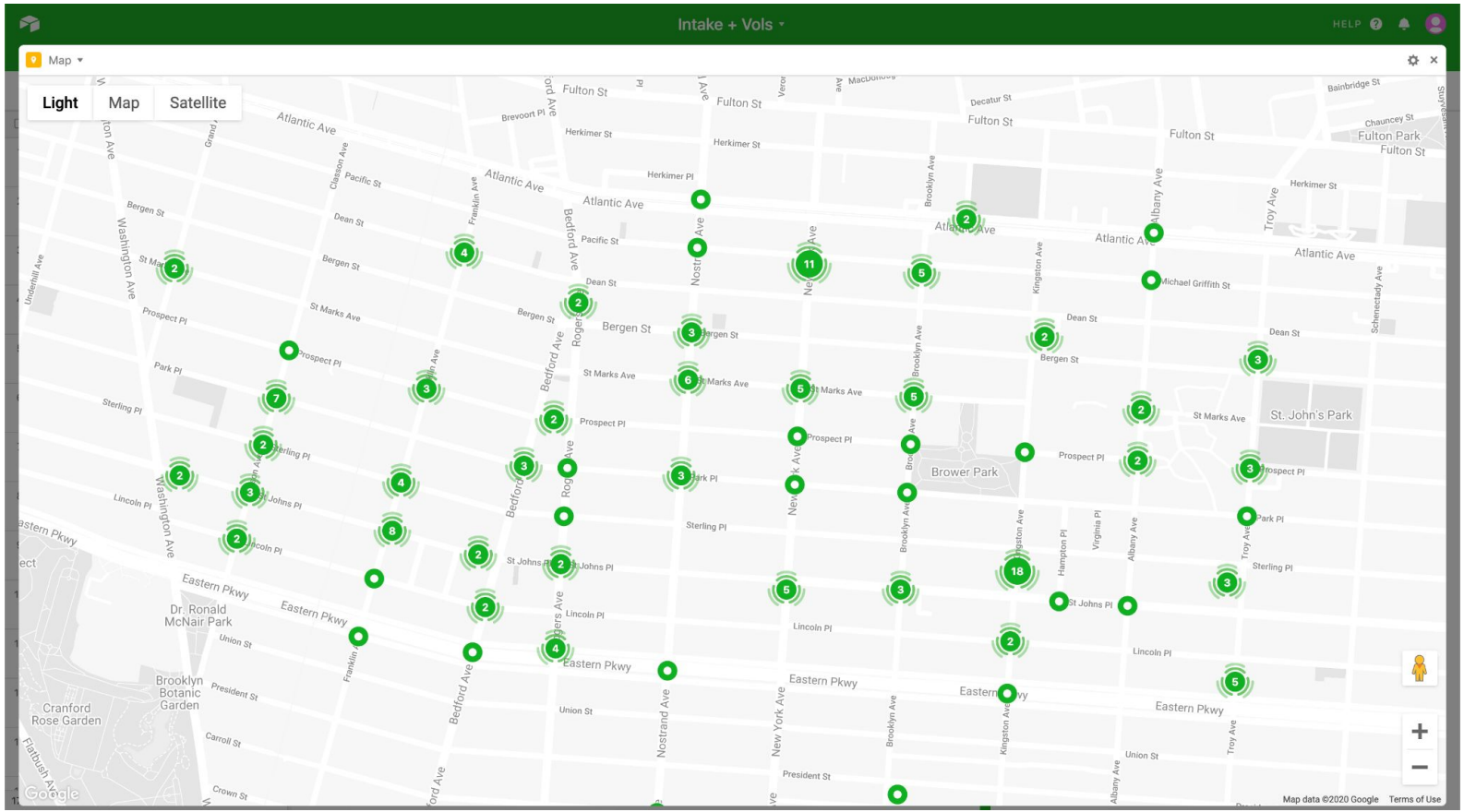
approx. 7-10k deliveries, ‘20-’21

📞 Phone call with delivery person, **to get final address**

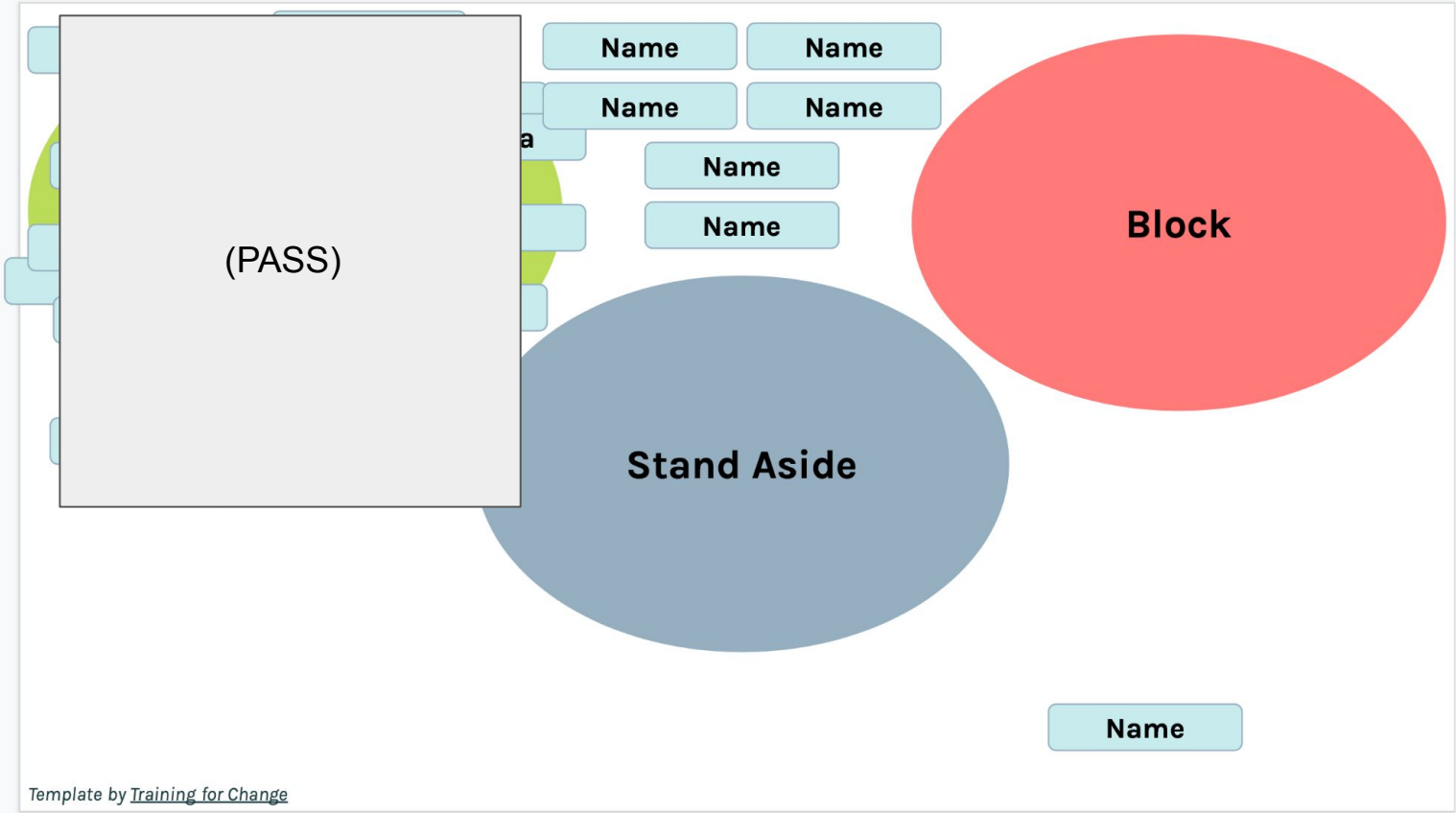
Step 5: 💸 Reimbursement

- Peer to peer; initially lo-fi, no-code Slack (to Venmo, CashApp, PayPal, etc.)
- Eventually: upload receipt to Airtable, automatically post to Slack channel, when someone replied that they sent $XX amount the total needed would automatically deduct
- Extension: peer-to-peer cash requests instead of groceries, ***massive direct assistance***
- Fundraising also occurred in this group, larger pot

Extensions & Projects:

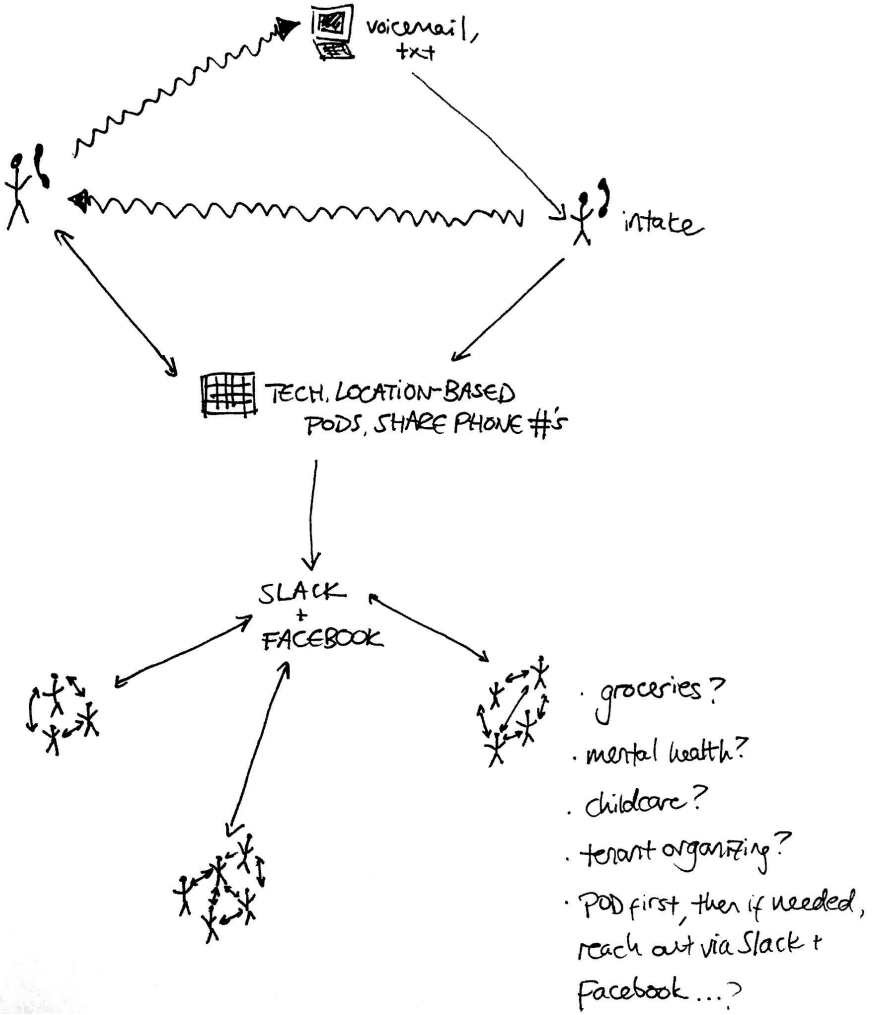


Collective Decision-Making (**DATA**)



Extensions & Projects:

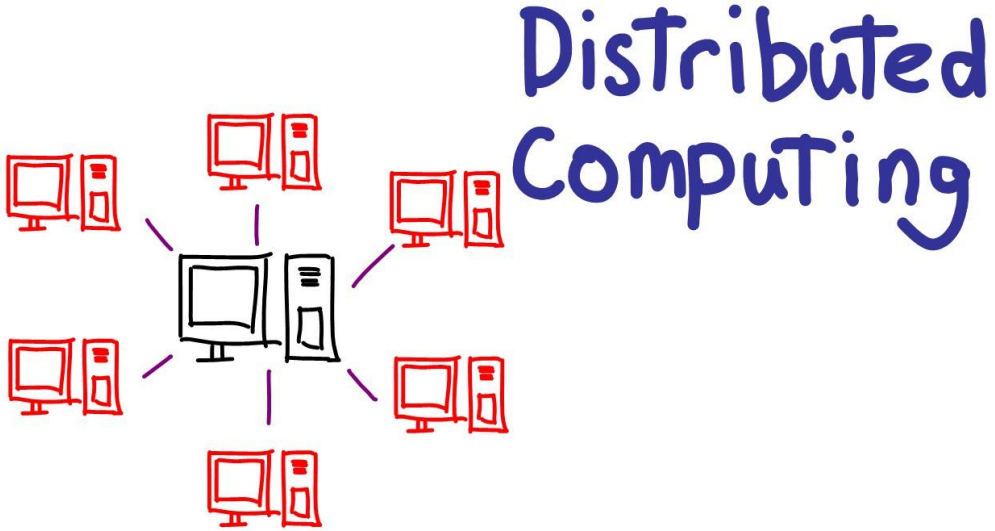
- Goals beyond deliveries: more connected and organized communities; spontaneous, autonomous connections; someone to call in a crisis; relationships to neighbors across age, race, class etc.
- "Anarchist Uber Eats" ? vs. PODS



Tools Used:

- Slack (bot)
- Twilio (voice, sms)
- Airtable (database)
- Google Maps API (geolocation)
- Mapbox (front-end map)

- Node.js server, microservice
- Serverless functions (SCALE)
- Github, collaboration
- Python, eventually: clean data

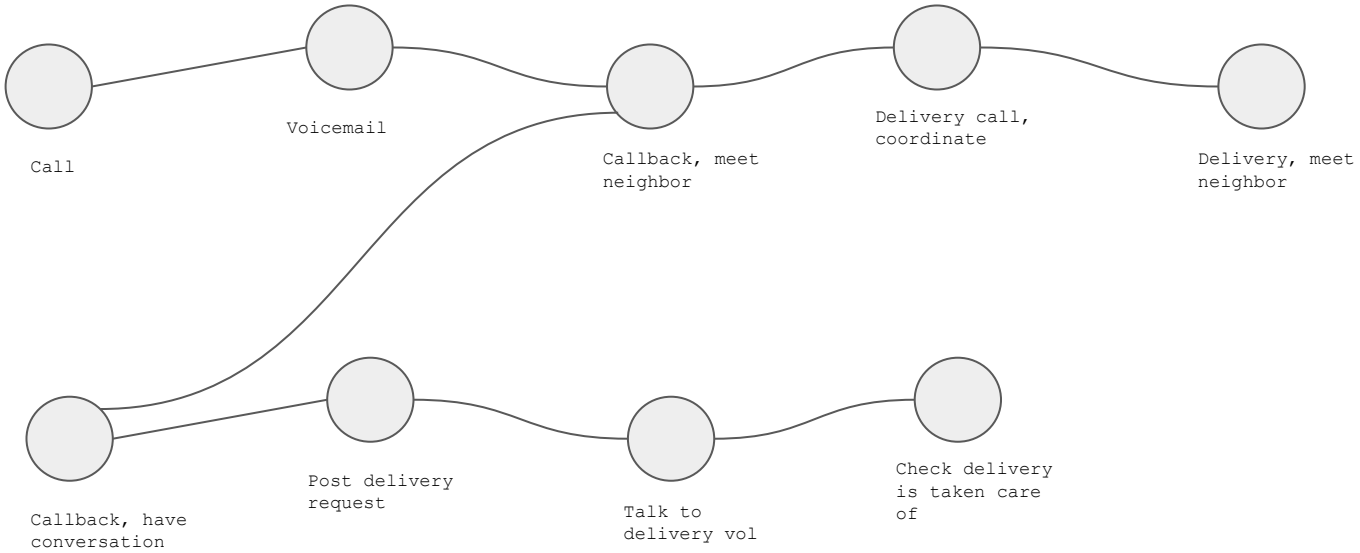


. . **VERY DISTRIBUTED SYSTEM!**
(not unlike mutual aid goal…FLEXIBLE)

BUT, tension with big

Systems/JOURNEYS: user/data

[Neighbor in Need]



[Intake Volunteer]


WE THE PEOPLE
MUST HELP
EACH OTHER!

🤖👟 software design sprint!

- Google, but used all over
- Typically 5 days, with functioning prototype @ the end
- “Don’t let perfect be the enemy of the good,” make a decision and move forward with it, for exercise
- Prototype mentality: airBnb example
- Less about research, more about GO

https://github.com/mab253/software-interventions-spring22/blob/main/lectures/week6/sprint.md