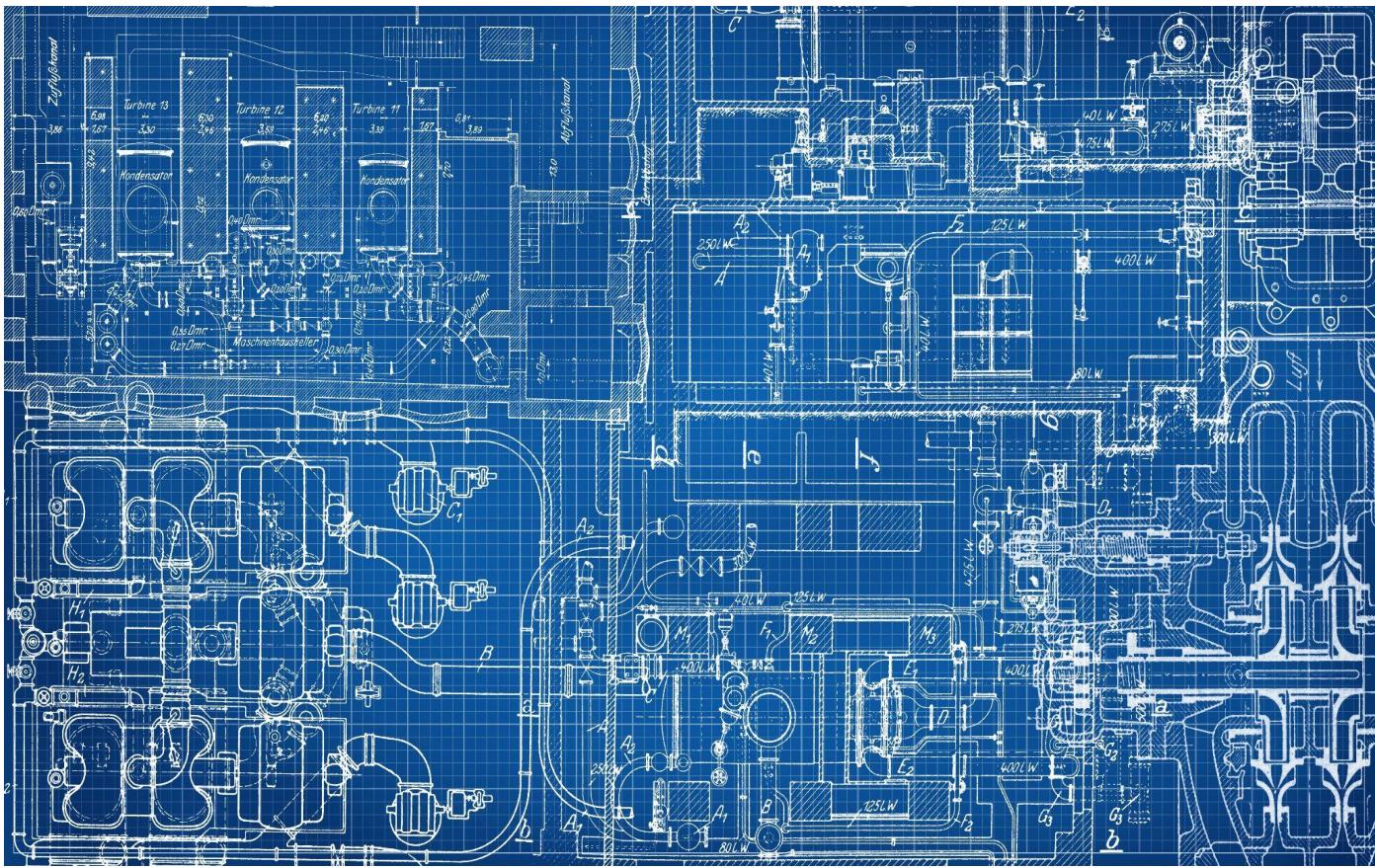
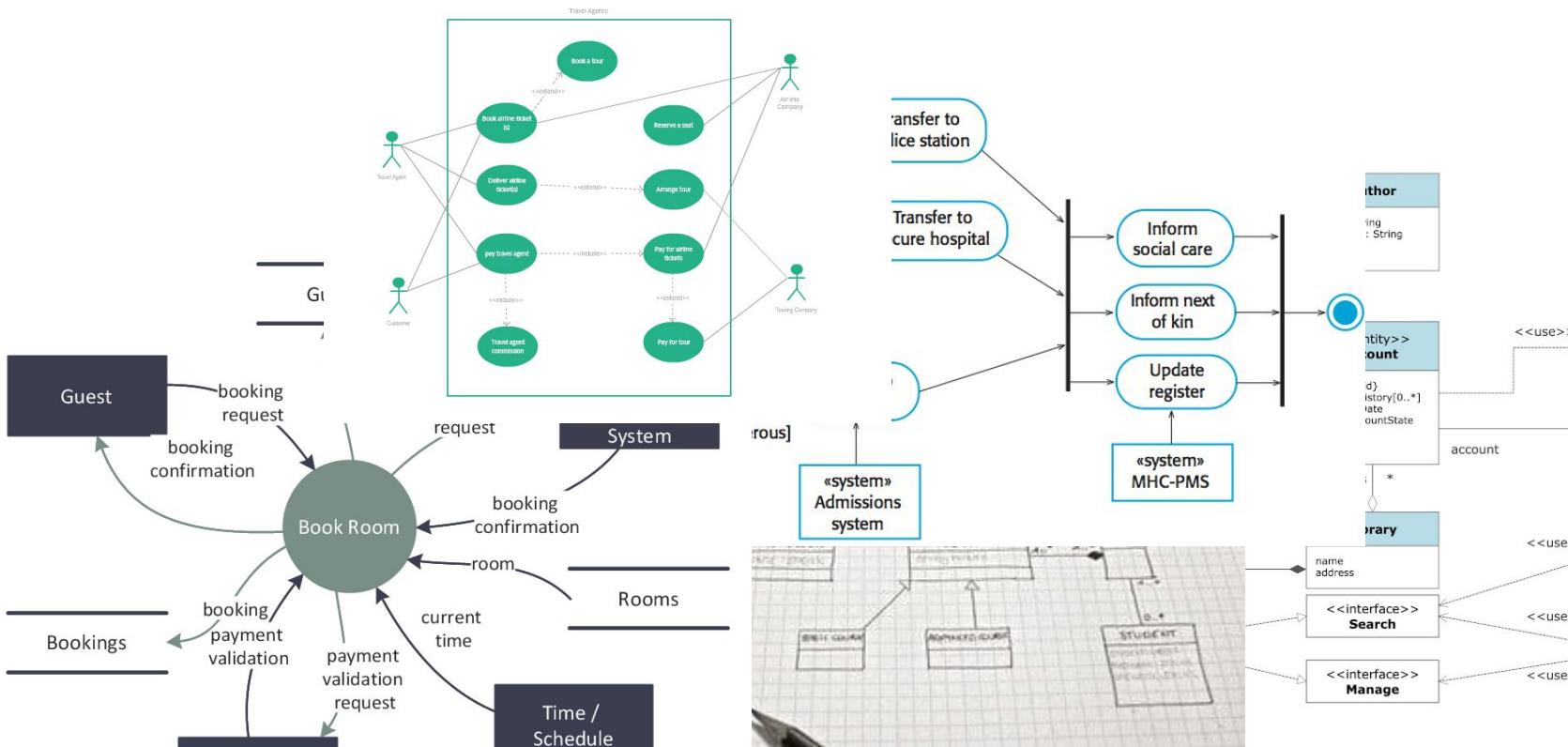


Blueprints, Systems, and Architectures

[or, DIAGRAMS!]

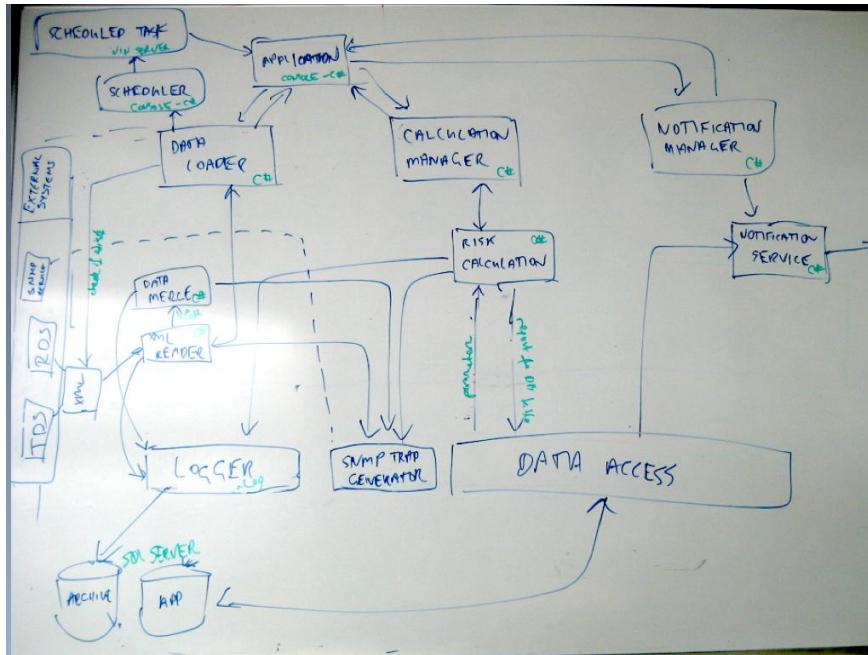


... there are **NO. OFFICIAL. STANDARDS!**
for making software design & diagrams



... there are **NO. OFFICIAL. STANDARDS!**
for making software design/architecture diagrams

- different than other forms of engineering, architecture ... we can borrow from other fields and invent



UML: “Unified Modeling Language”

- codified in 1997, again in 2005, attempt at standards
- BUT: “In software engineering, **most practitioners do not use UML, but instead produce informal hand drawn diagrams**; these diagrams, however, often include elements from UML” (wikipedia)
- “Sketches and diagrams in practice,” 2014 study (Baltes, Diehl) of 394 programmers: **‘More than half of the sketches and diagrams were created on analog media like paper or whiteboards and have been revised after creation.** Most of them were used for more than a week and were archived.”



2 diagrams for your projects:

- User map, user journey [customer journey, service blueprint]
- System diagram, architecture diagram

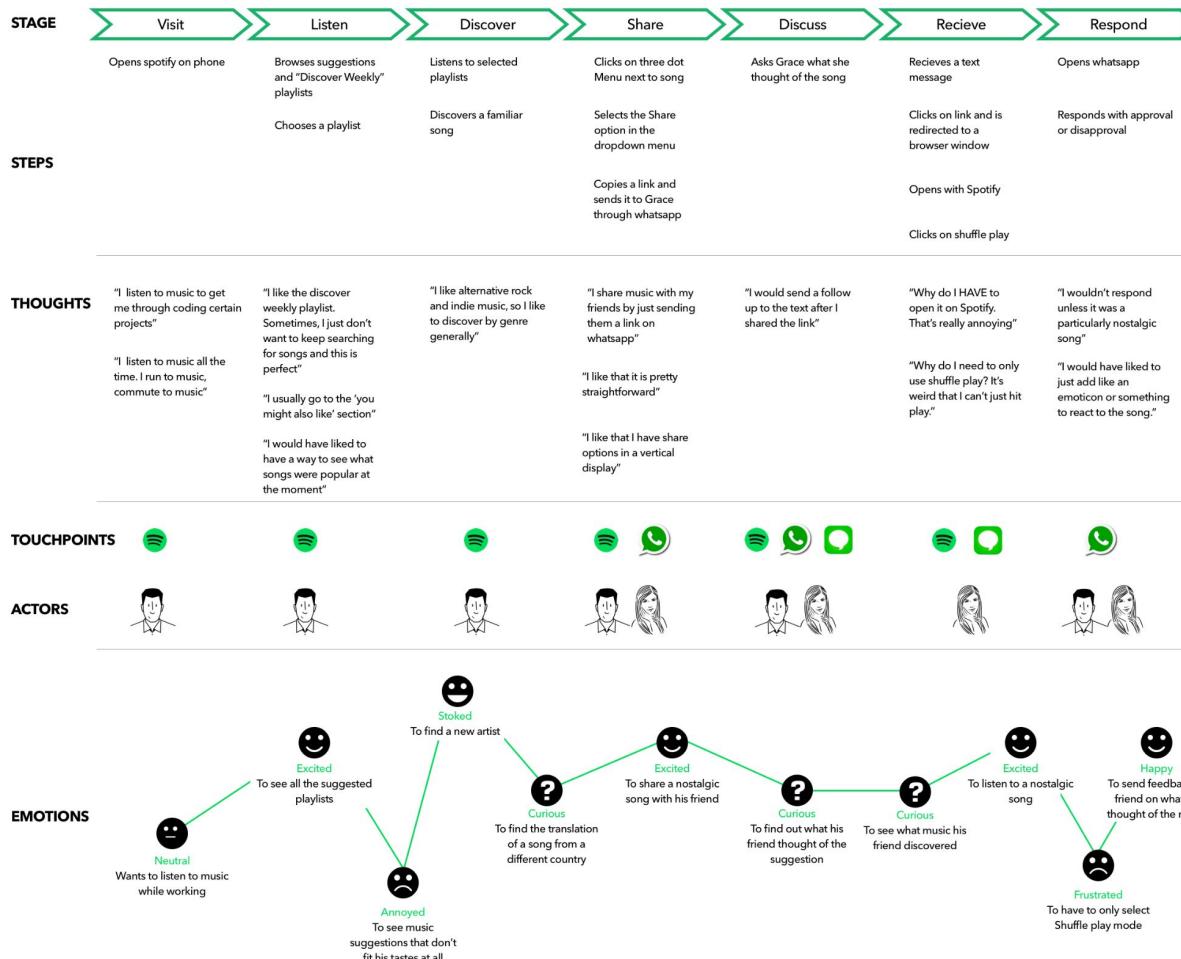
Analogous UML types:

- Activity diagrams, use case diagrams
- Component diagram, interaction diagram

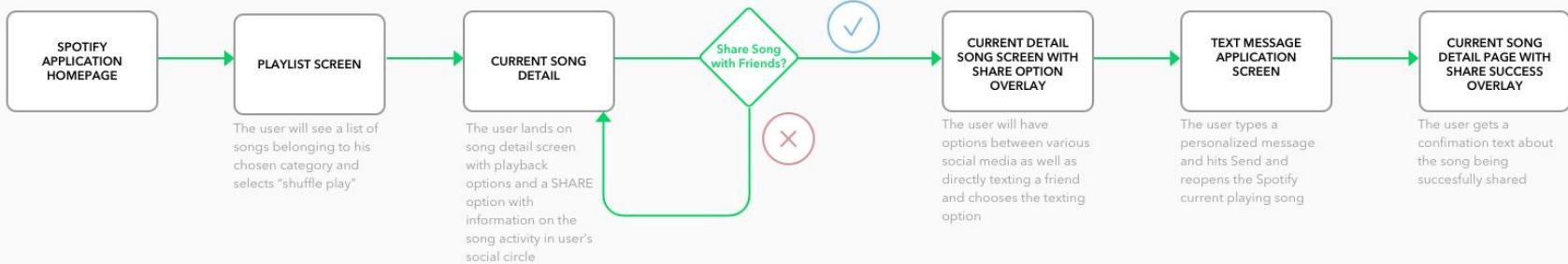
UML = NOT REQUIRED STANDARD !

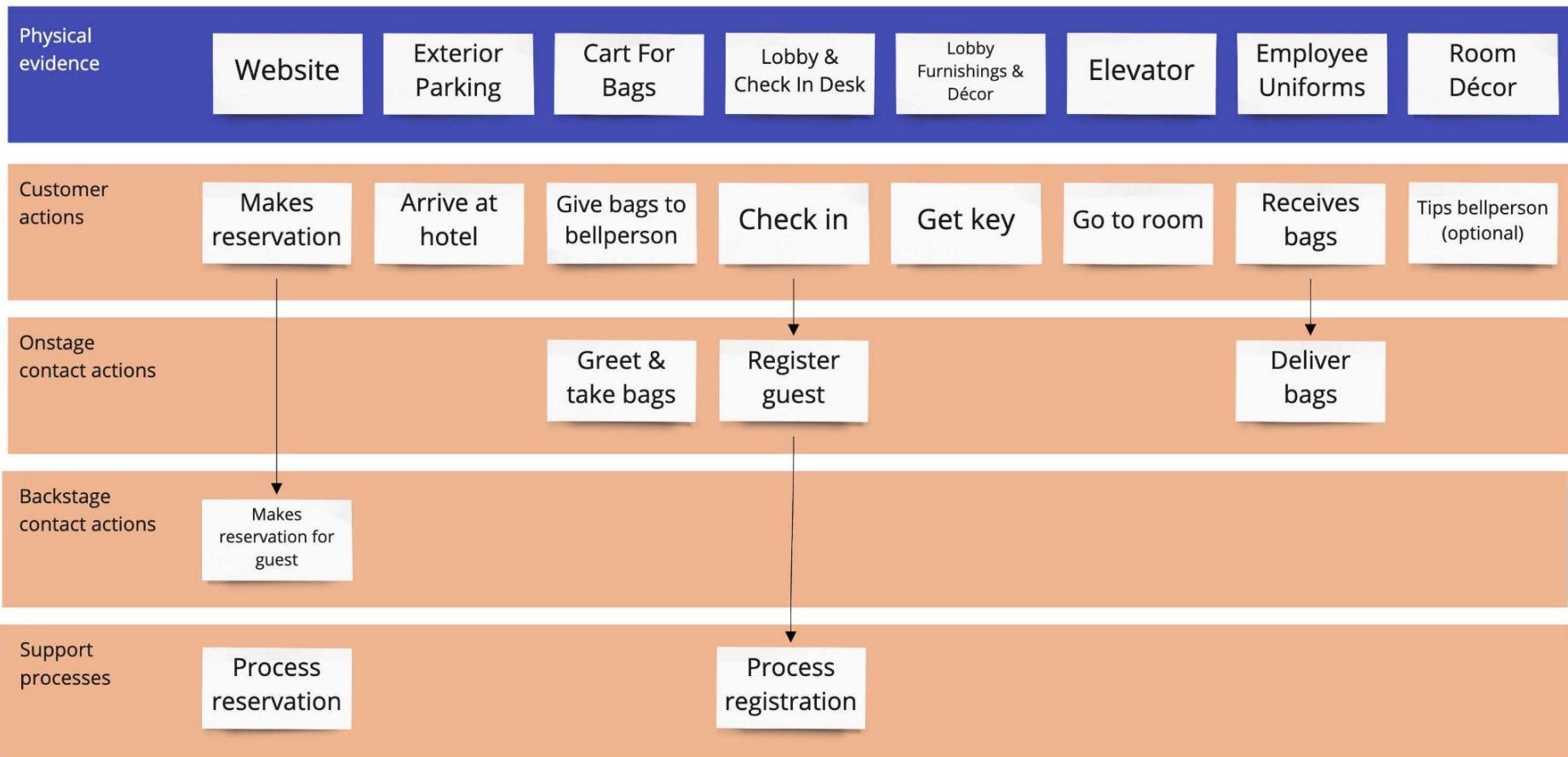
- no 1 right way, but ways to do this well

Customer Journey Map - Music Sharing Experience



USER HAPPY PATH - SHARING A SONG









STEP THREE

9 Months on the Street

NYC mandates people live outside for nine months before they can be placed into transitional or permanent housing

OVERVIEW

Street homeless New Yorkers must have lived on the streets for nine months out of the last two years to be determined eligible for most transitional or permanent housing. When we ask people the hardest part about getting into housing, almost everyone tells us, "the waiting."

- ▶ People must live on the streets for nine months to be eligible for most housing
- ▶ The nine-month requirement forces people to adapt to living on the streets
- ▶ The most accessible alternative option requires sleeping upright in a plastic chair

RECOMMENDATIONS

Our recommendations promote programs which reduce barriers to moving into transitional housing. Specifically, we suggest a number of avenues that would allow street homeless New Yorkers to move inside without having to wait nine months.

- ▶ Outreach teams should be able to directly place people into program shelters
- ▶ We propose a Safe Haven model for people who aren't yet chronically homeless
- ▶ Outreach teams should have direct access to respite bed placements

VIDEO



STEP FOUR

Safe Haven Assignment

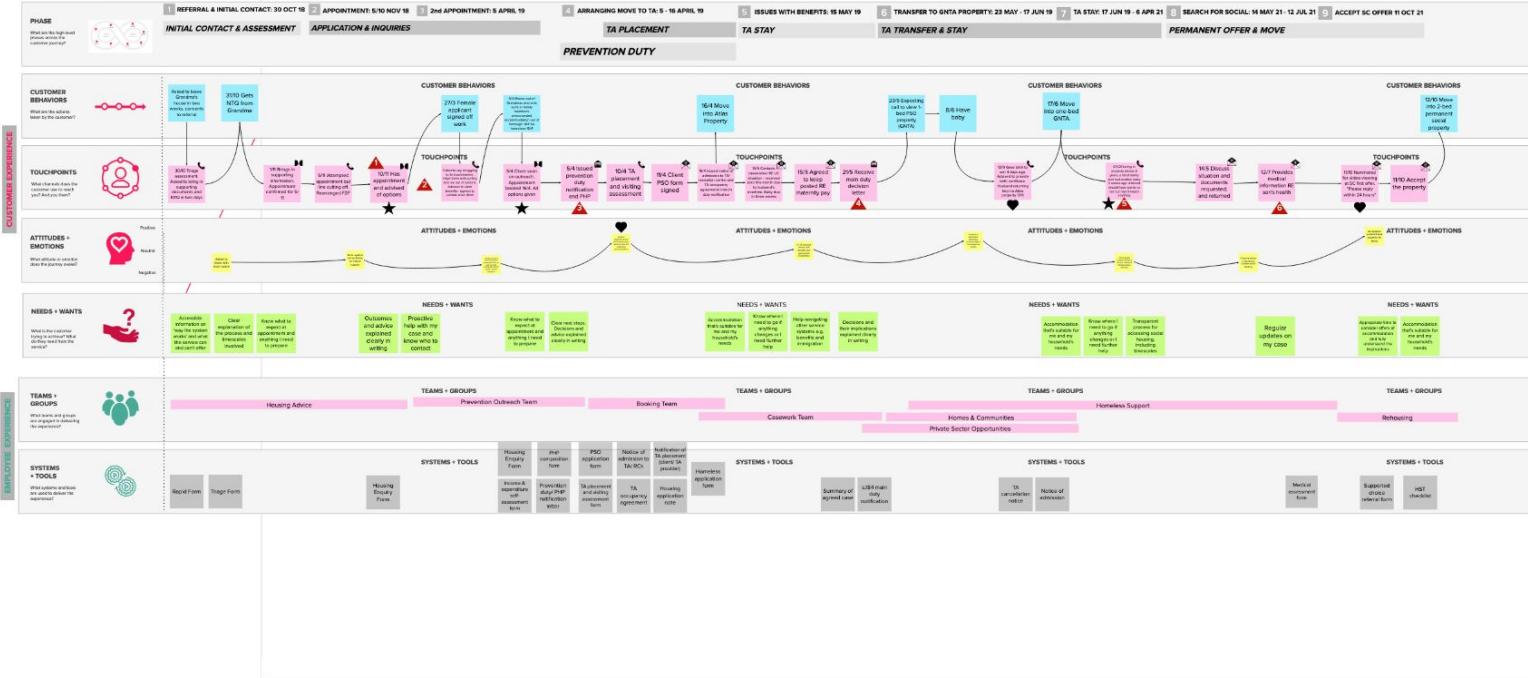
Many street homeless New Yorkers eventually move into a safe haven, generally considered a better option than traditional shelters



Example LA

Homelessness Service Customer & Employee Journey Map

Journey Type: Prevention Approach | Prevention Fail | Relief (Interim Accommodation) | Relief Fail | Main Duty | Main Duty Discharged



●Customer Journey Map



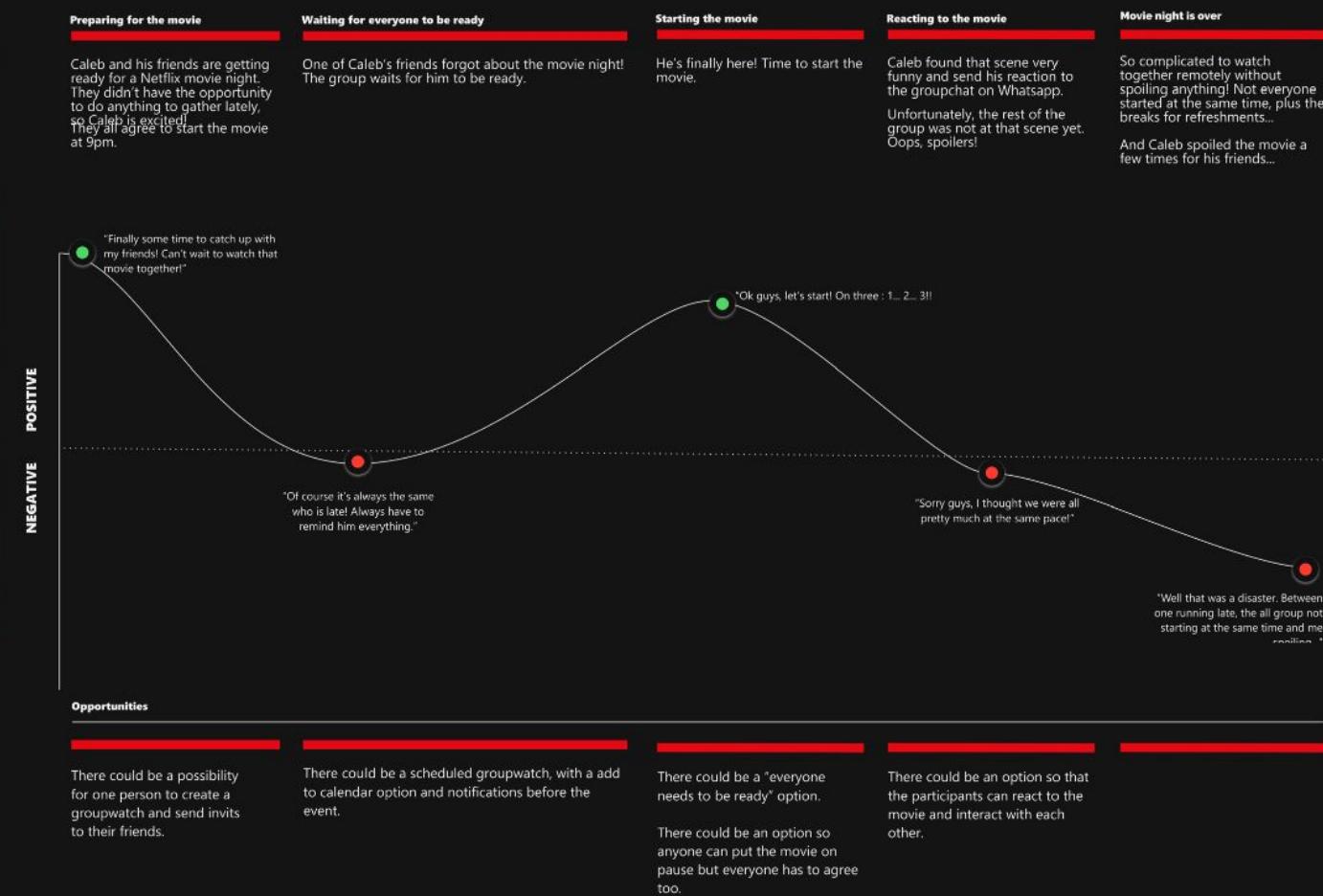
Caleb's USER JOURNEY

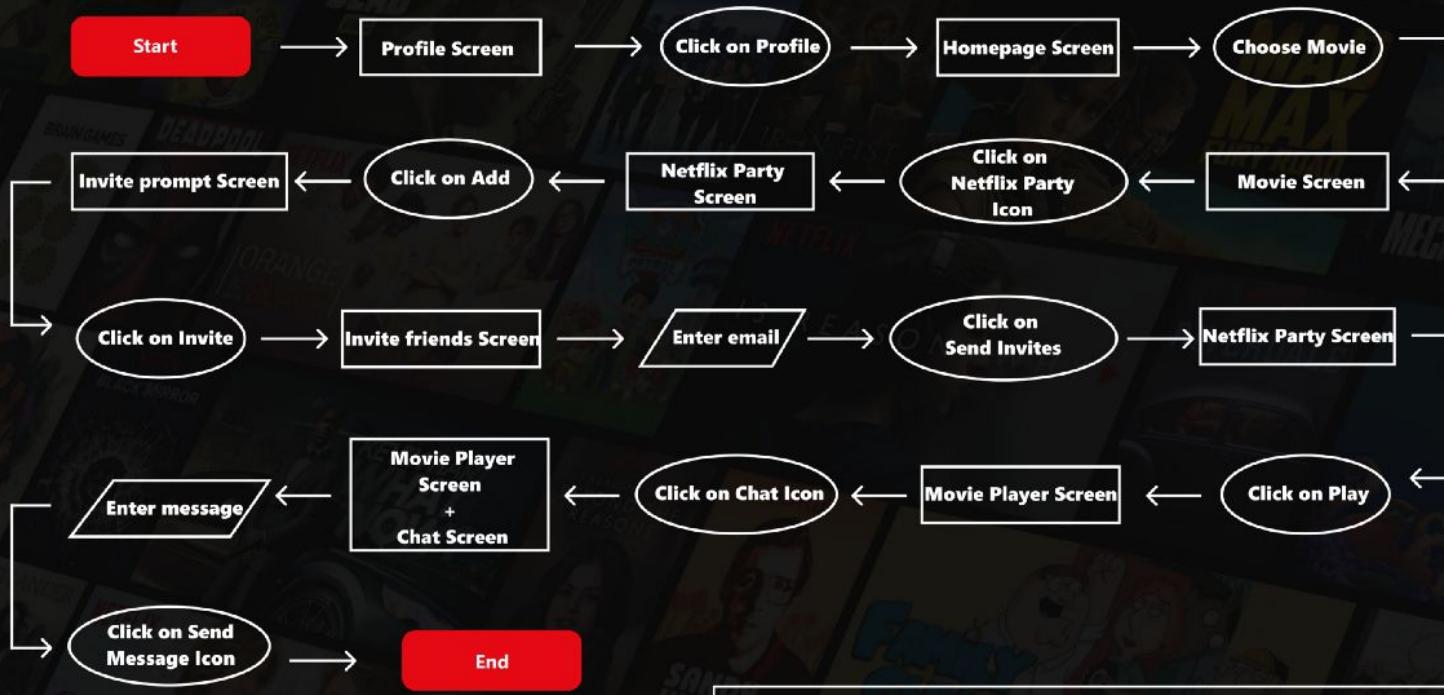


Scenario

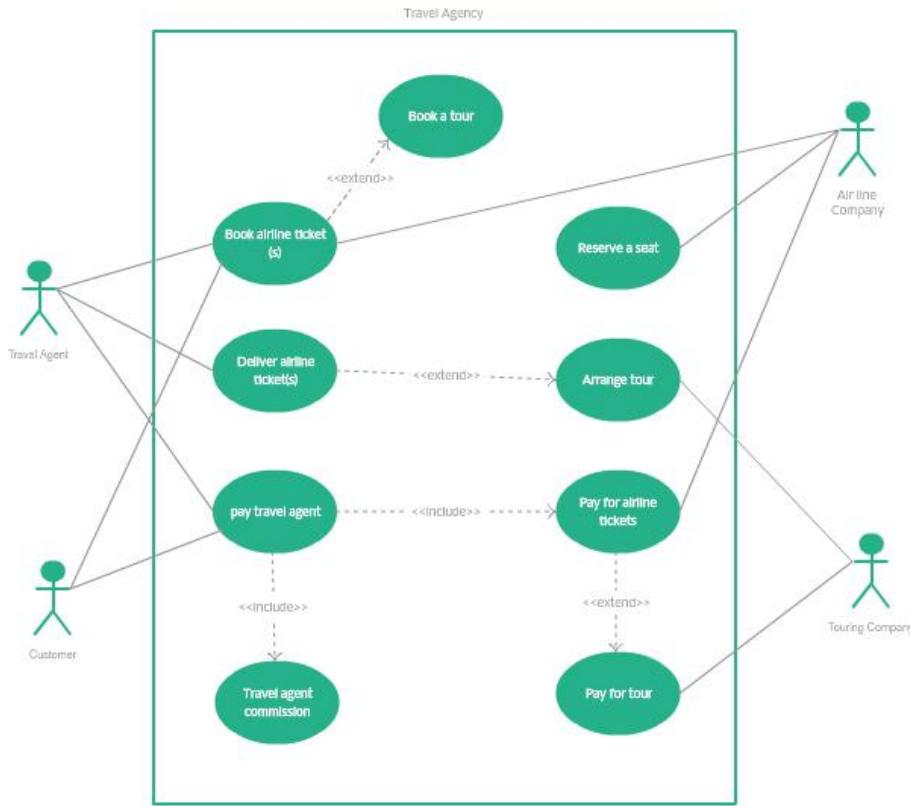
Caleb is new in Paris. All of his friends still live in Manchester. Due to work, they don't have much time to call each other. So tonight, they decided to watch the new Netflix movie together.

NETFLIX

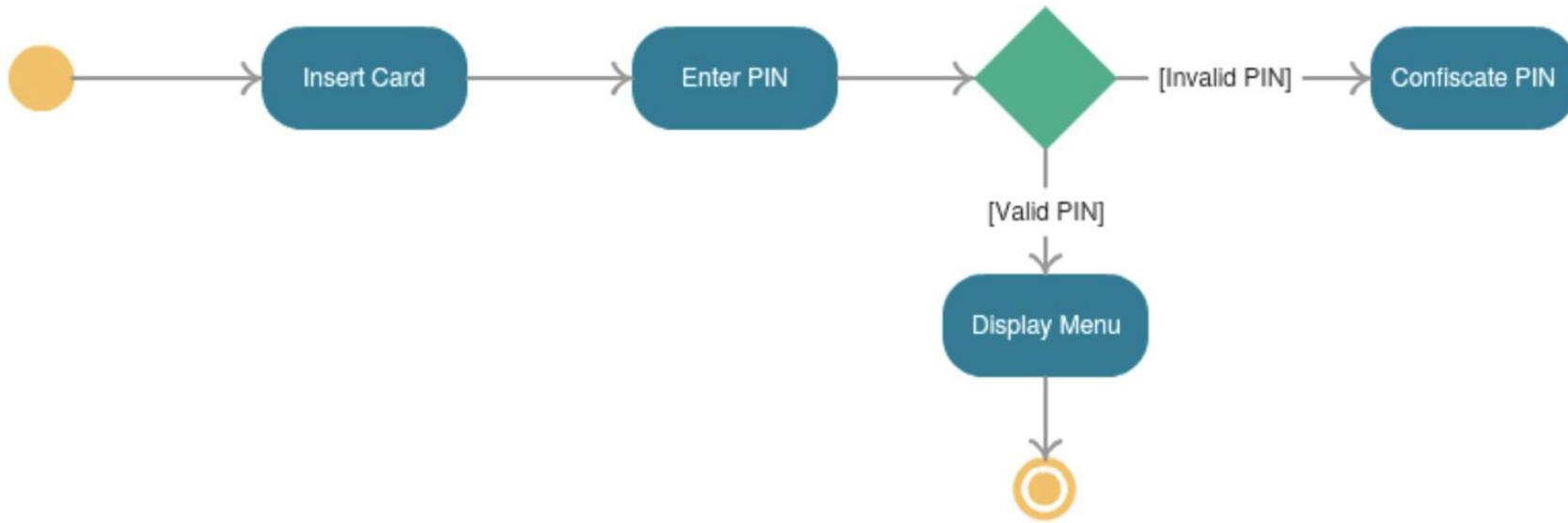




UML: "use case diagram"



UML: "activity diagram"



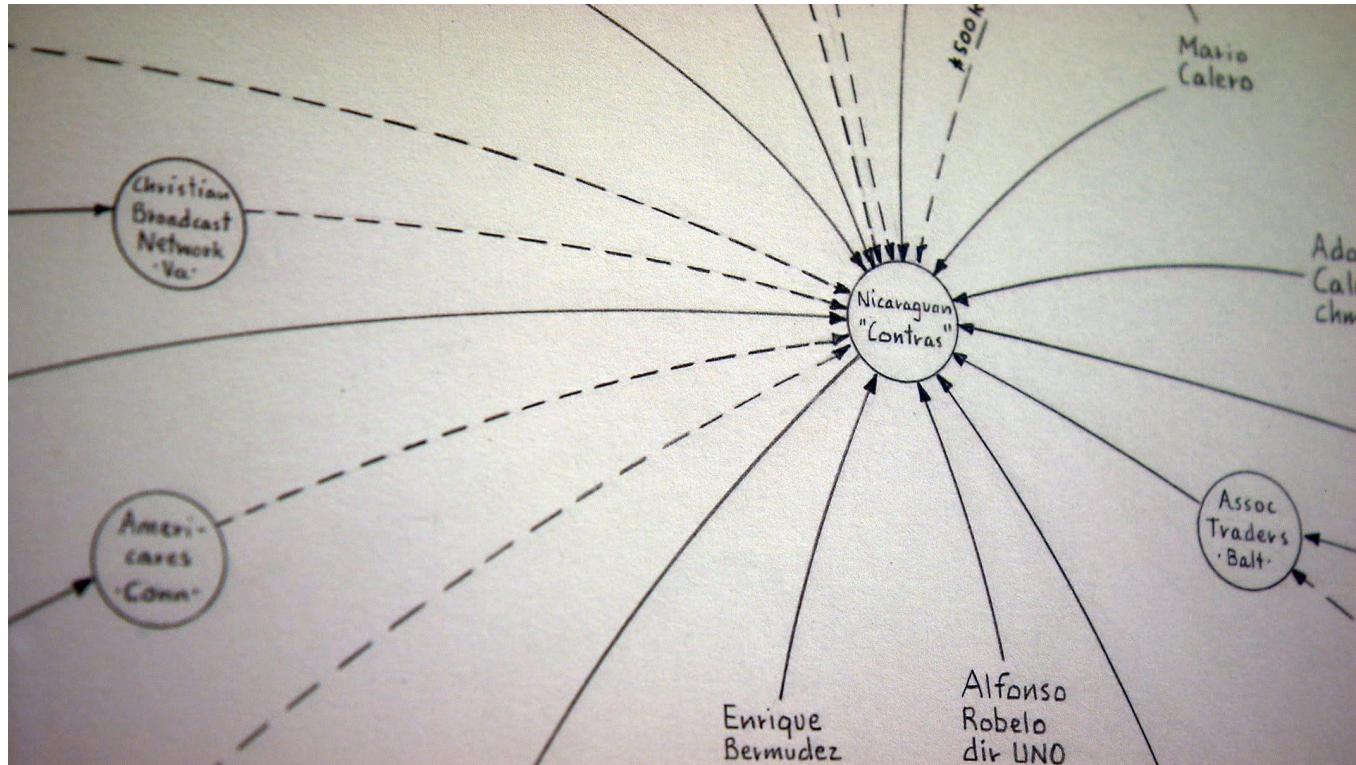
User journey map:

- Can look like ... anything (but should be clear!)
- Shows steps of a person's process through a system, flowchart
- Can show phases (collection of steps)
- Can show emotions, quotes, experiences - from research!
- Can reveal "pain points"
- Can reveal what you need to learn more about
- Based on research, visualization of research! **DEFINE USER**

 **LAB:**

- Create a user journey map for registering for a CUNY course
- Use MURAL and work collaboratively, 30 min.
- Group 1:
<https://app.mural.co/t/test17018/m/test17018/1649704392457/d9902ceba5a757c3bb1f79114db4580118d285de>
- Group 2:
<https://app.mural.co/t/test17018/m/test17018/1649704440427/e138fd8e1460f7385d3078389d372bc44062e092>

- Diagrams = an art as much as science ... (Tufte reading)
- Artist Mark Lombardi [MoMA, Whitney], follow \$\$ and mapping power

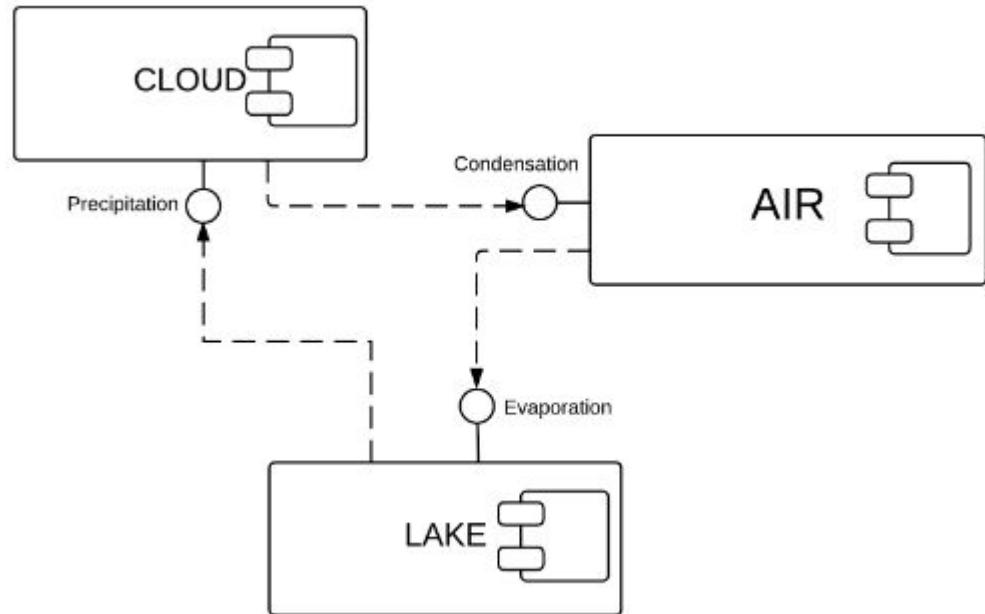




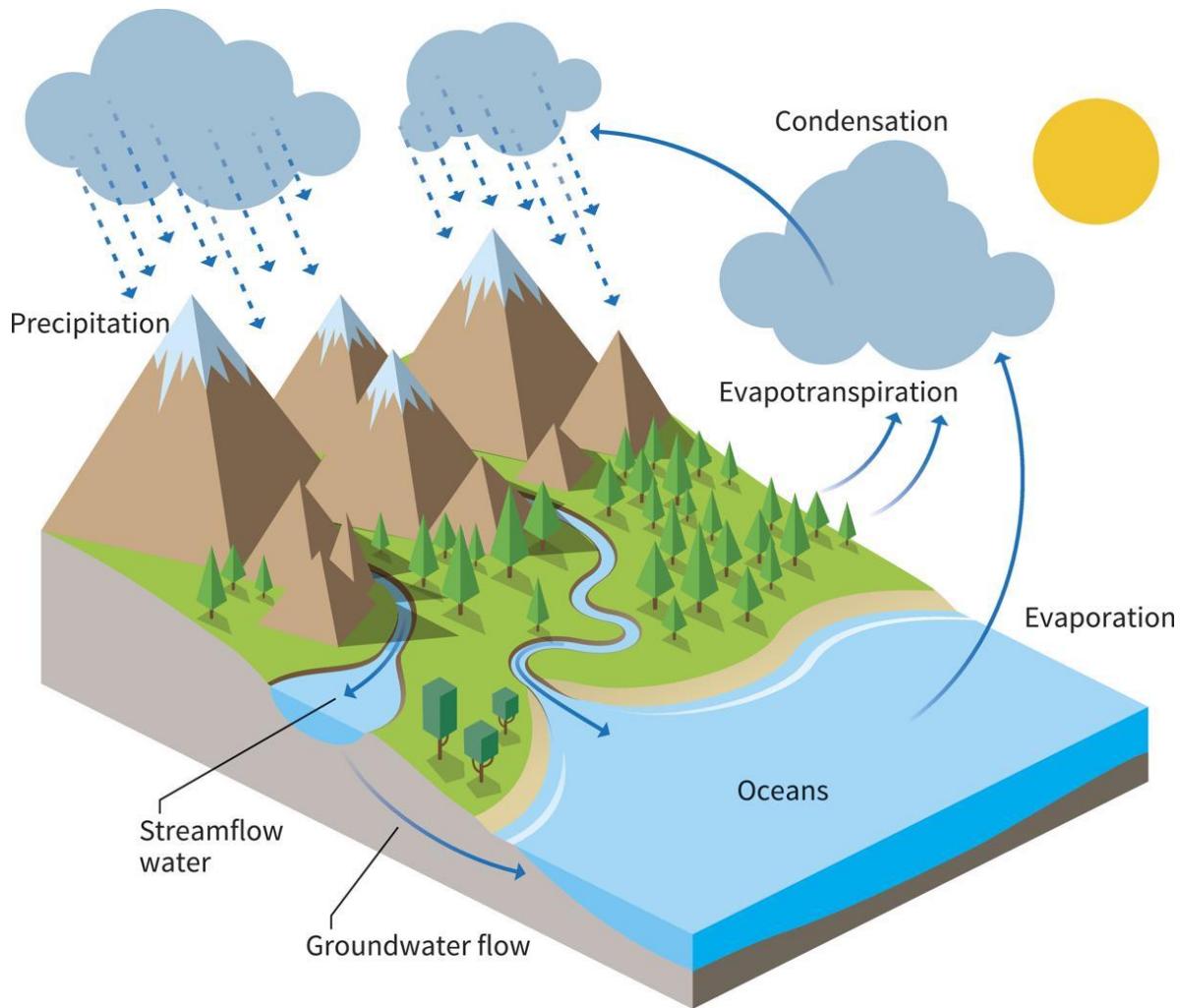
system diagram:
components, flows, data

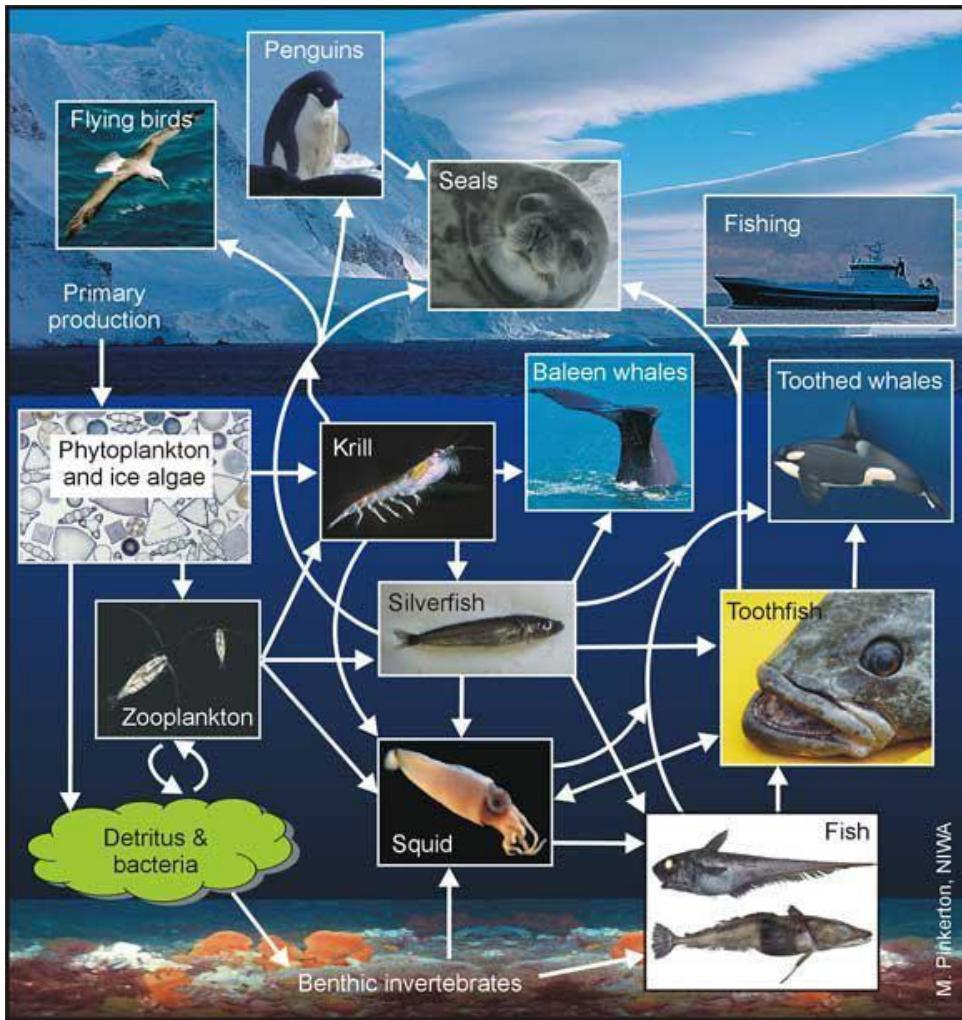
software **ARCHITECTURE**

- Like IBM case study, choosing components based on requirements and constraints

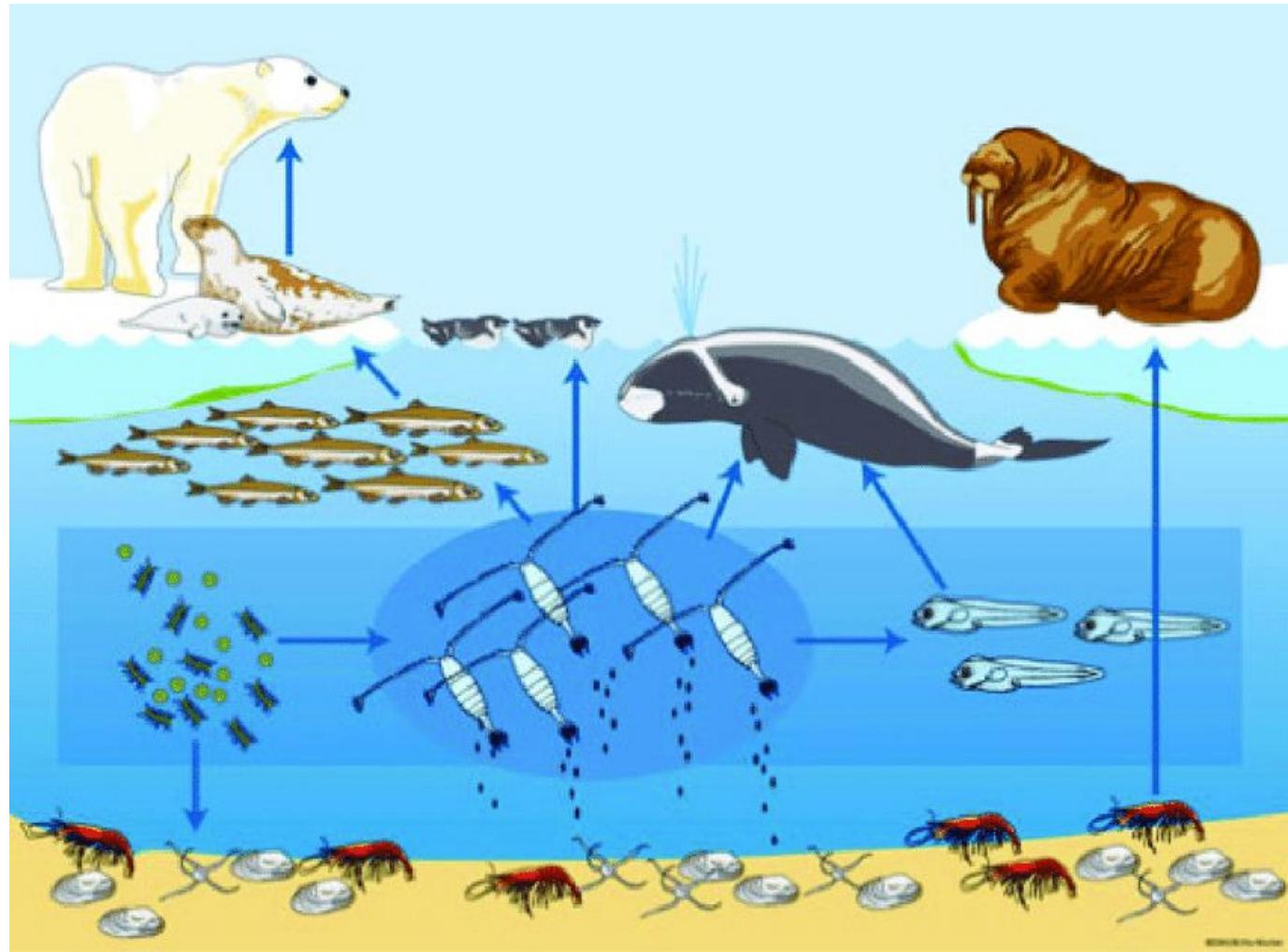


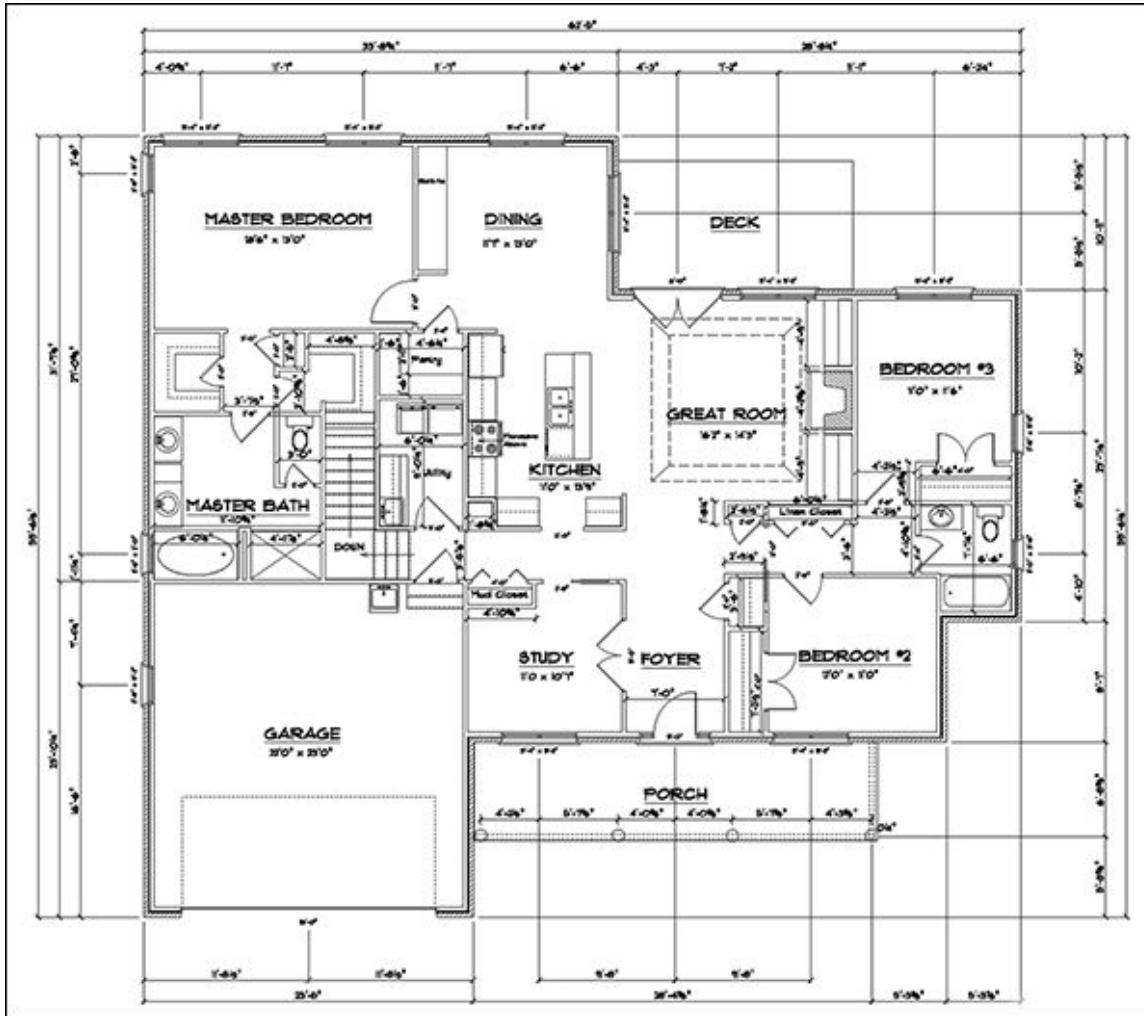
UML, “component diagram”



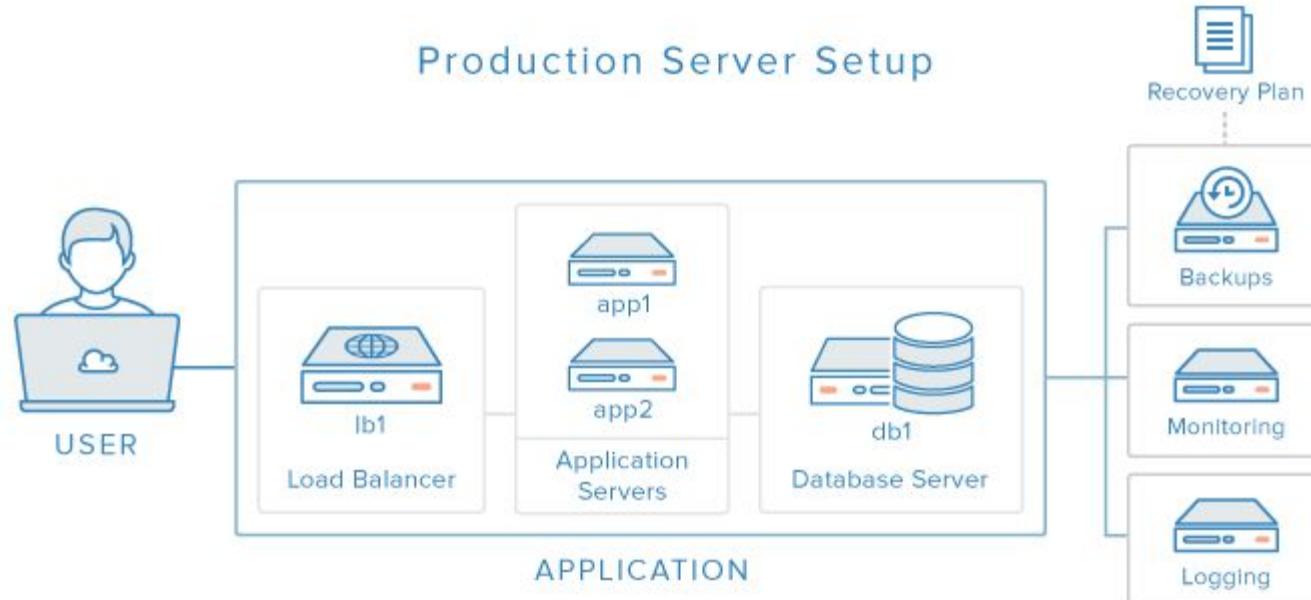


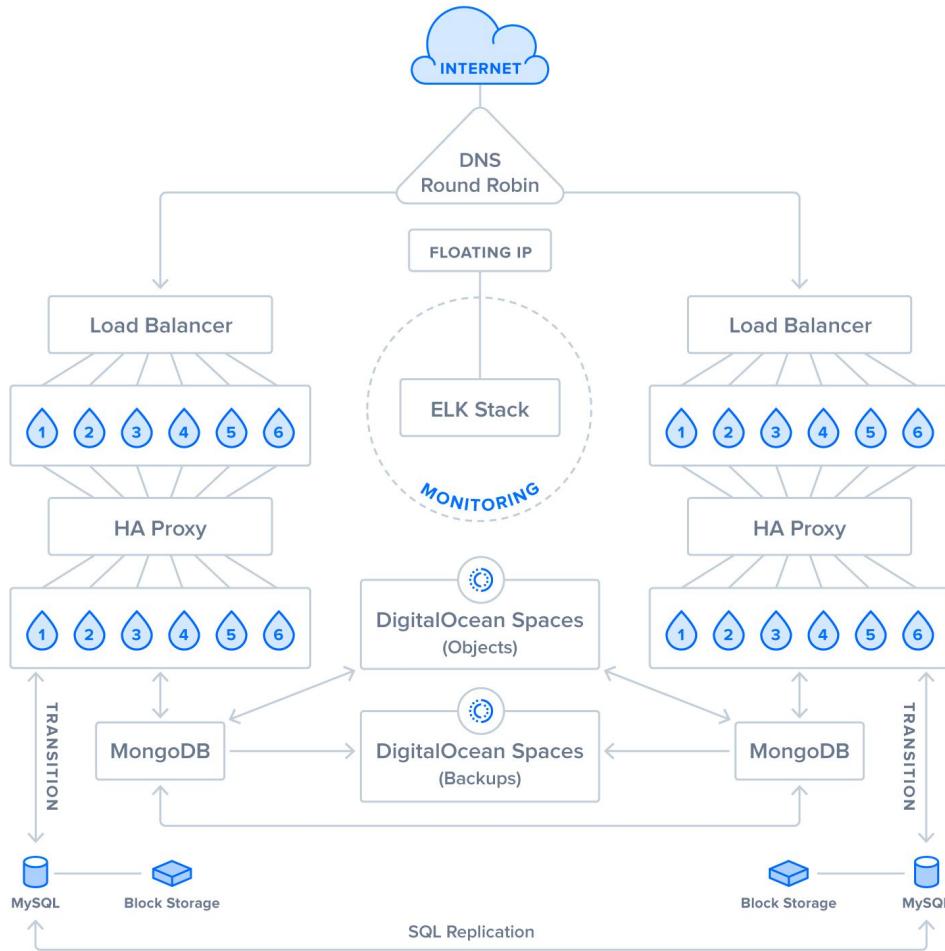
M. Pinkerton, NIWA

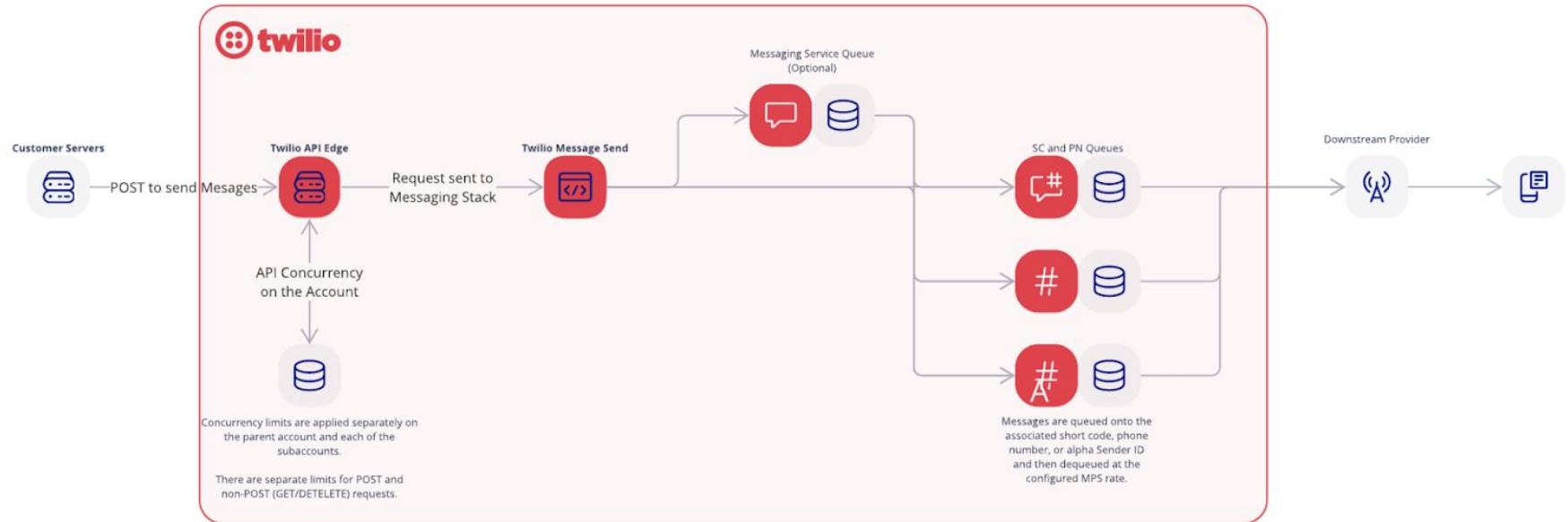


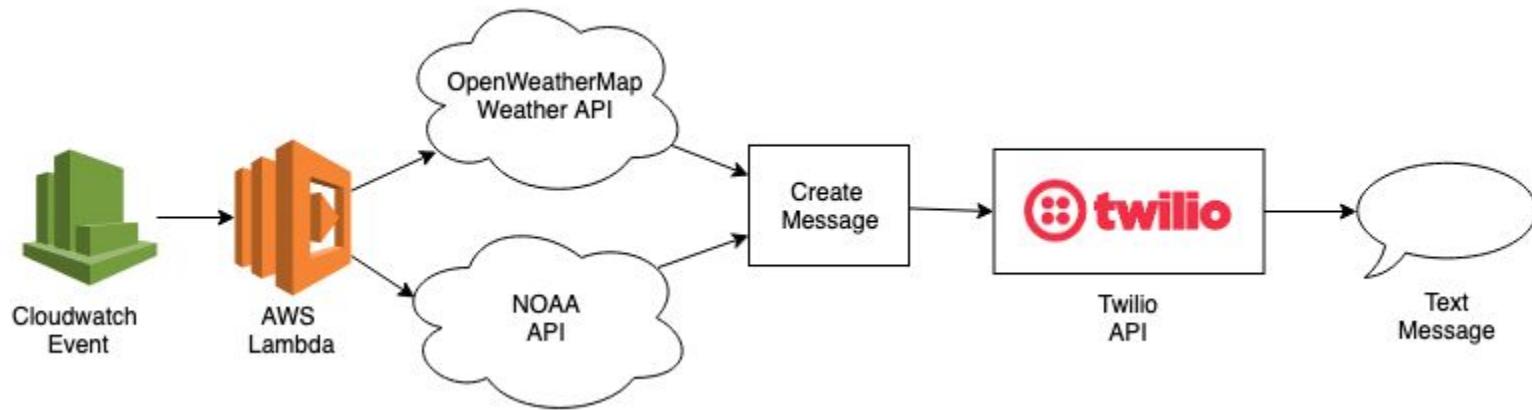


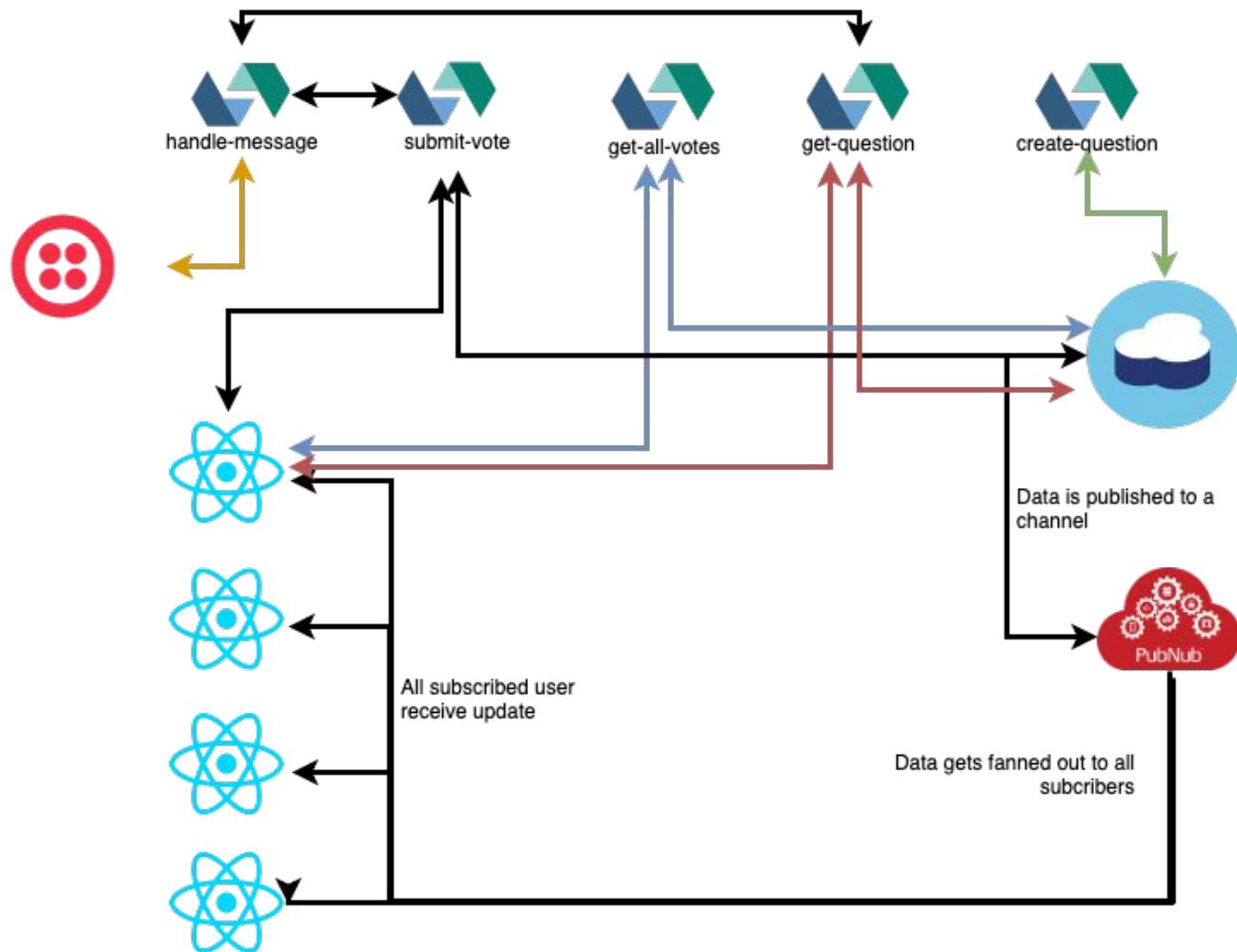
Production Server Setup

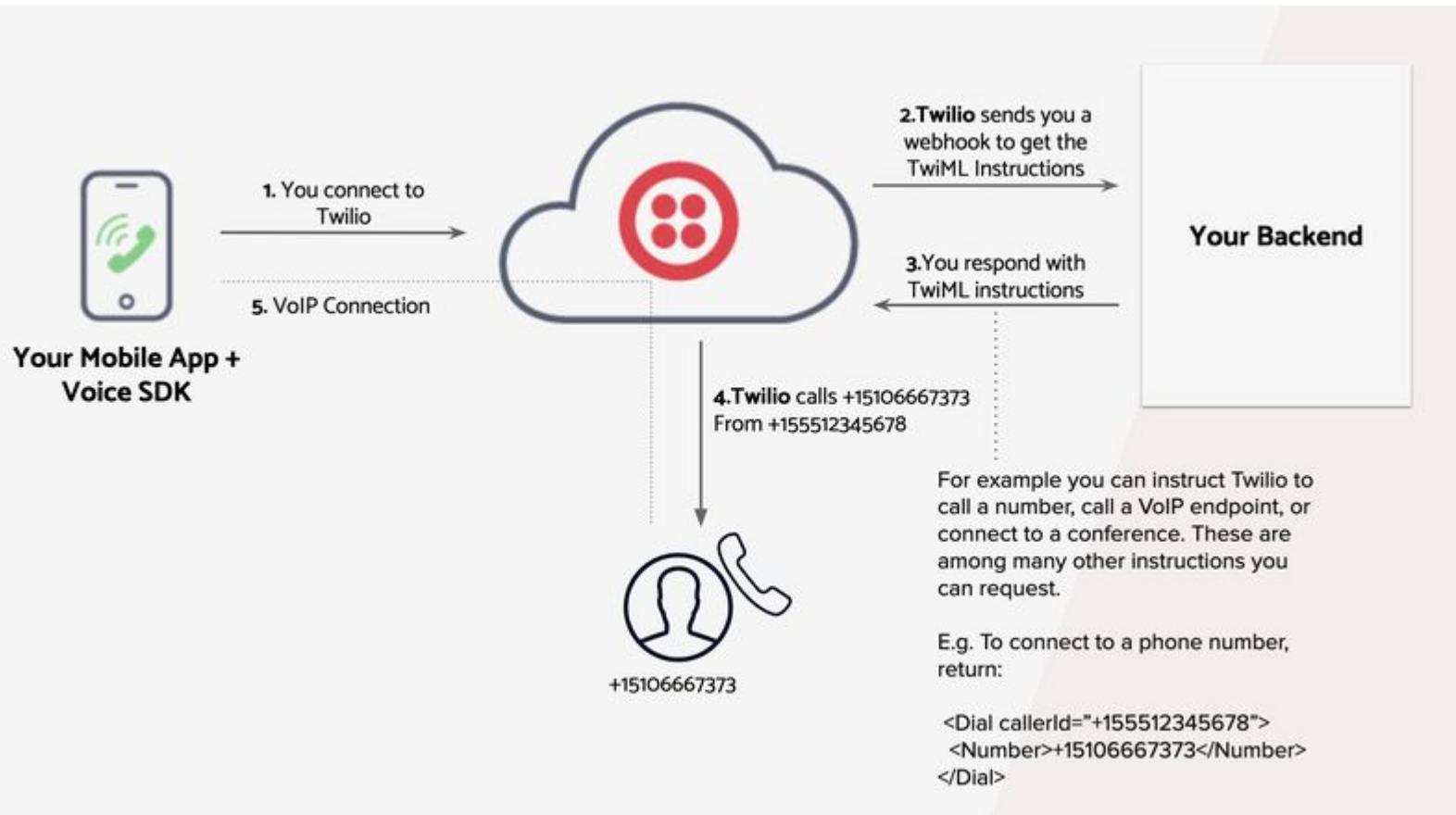






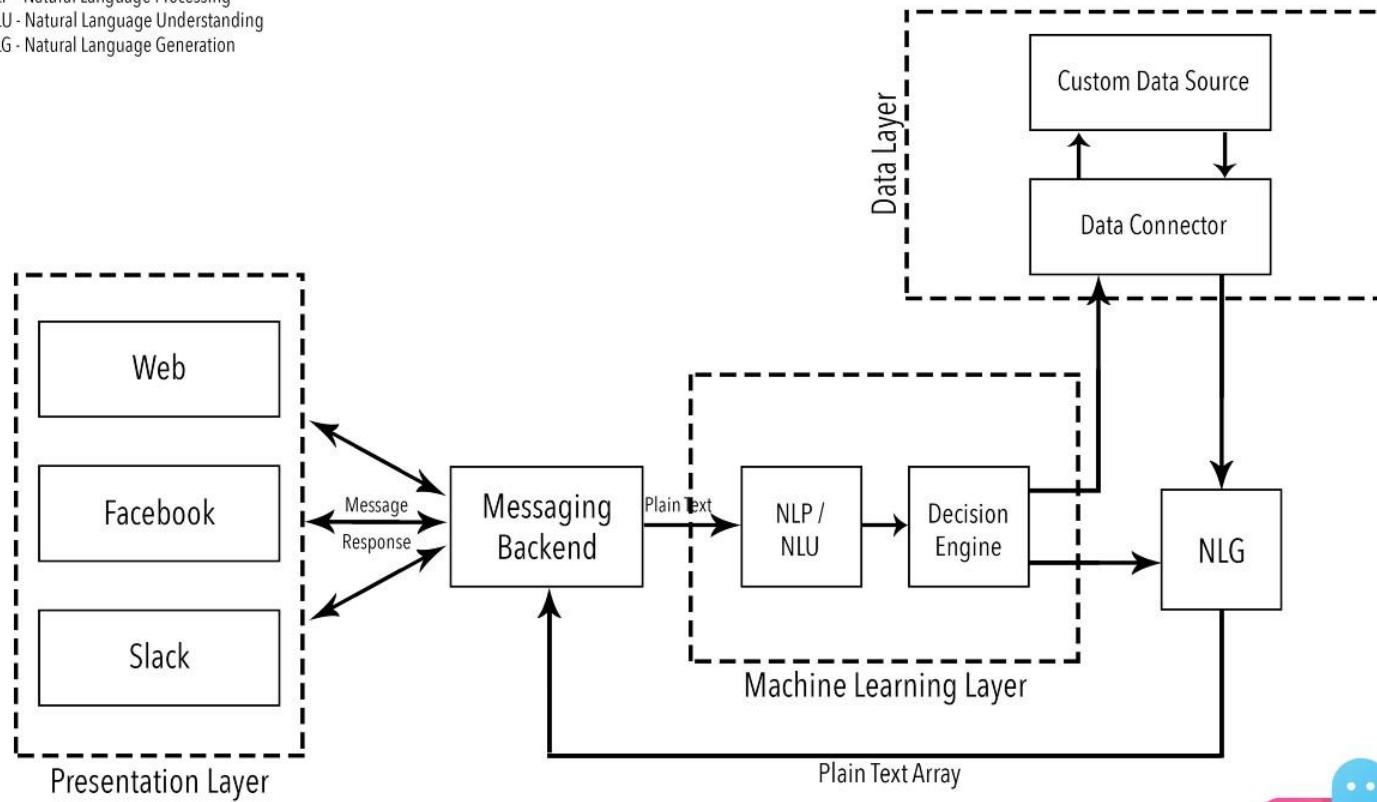


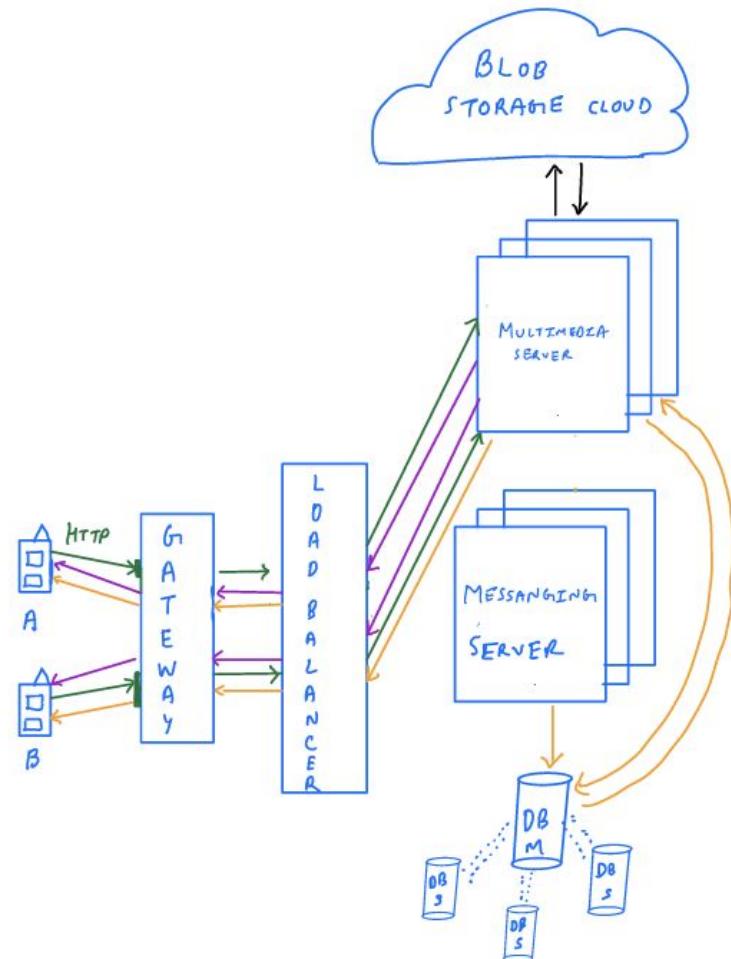




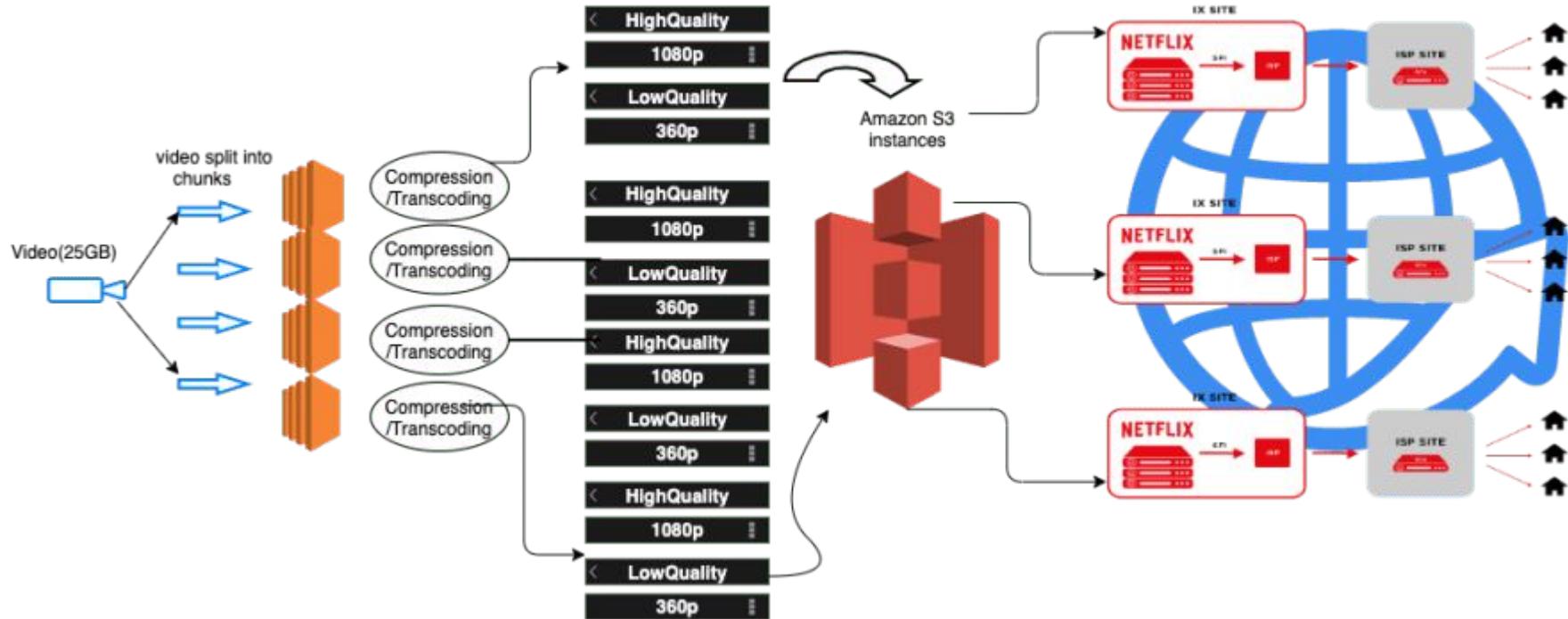
Key:

NLP - Natural Language Processing
NLU - Natural Language Understanding
NLG - Natural Language Generation





Open Connect Boxes Around the World



Software architecture diagram:

- Shows components and how they interact
- Shows where data flows - you will know your backend best!
 - Crucial for development, collaboration, communication, security, etc.
- Can look like ... anything! Creative, but clear, "extensive compromise" (Tufte)
- Choose your own abstraction - **always choices**
 - Choose & label tools for proposal (i.e., what kind of database?)
- Not just one diagram, even for one project! Also, continual edits
- Database looks like a cylinder:

