

# **Exploding Chickens**

**A full-stack card game**

Radison Akerman, April 2023

Hi there, my name is

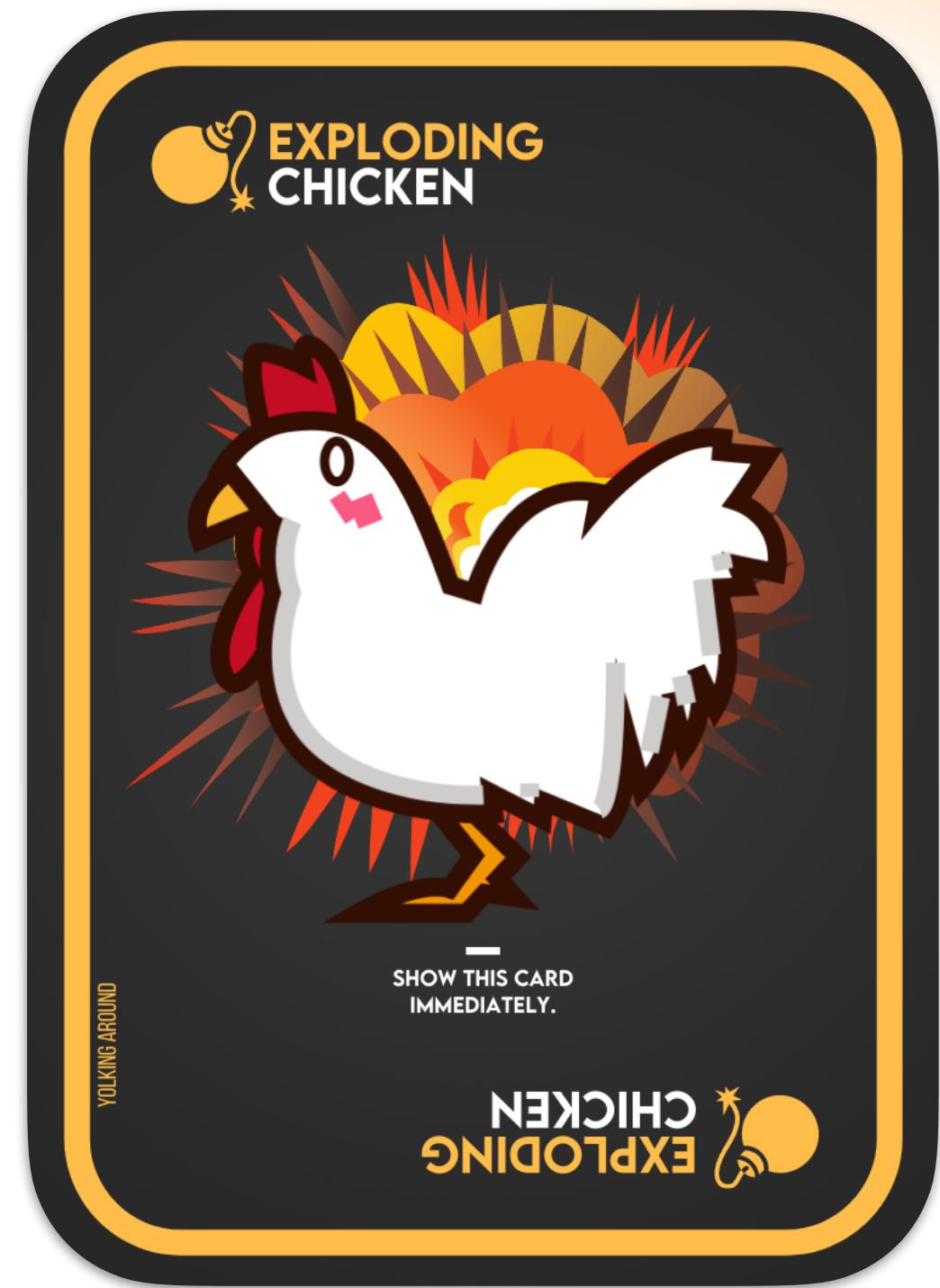
# Radison Akerman.

Incoming SWE Intern @ SpaceX  
Project Manager & SWE @ UIC CoE  
Computer Science + Business @ UIC





Draw Deck x52



Discard Deck x0



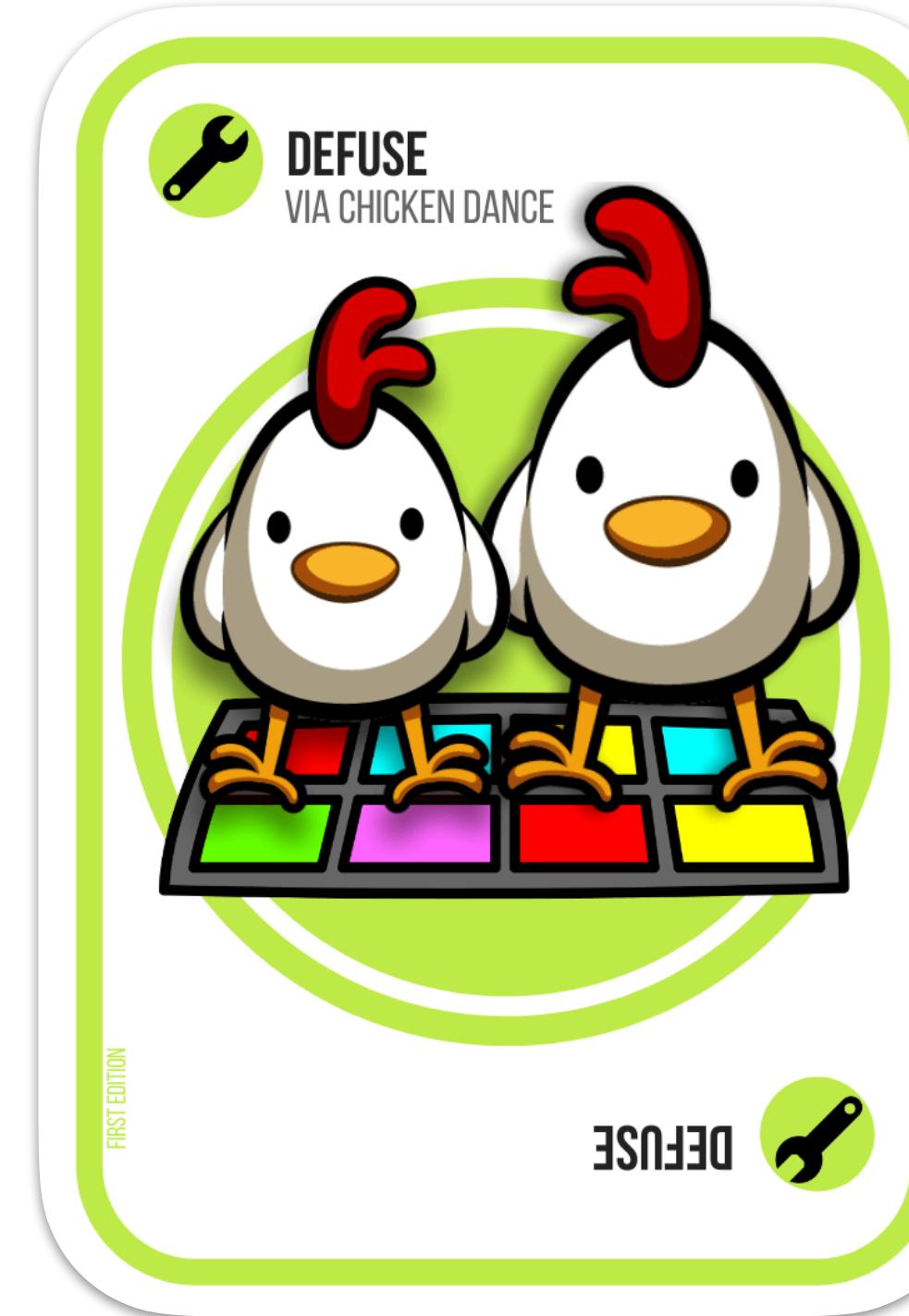
## Exploding Chicken

Avoid this little guy at all costs. Once this card is drawn, you must use a defuse card to stop the ticking time bomb. If you don't have a defuse card, it looks like your time is up.



## Exploding Chicken

```
if (card is drawn)
    if (player has defuse)
        plays defuse, places
        chicken back in draw deck
    else
        player explodes, removed
        from game permanently
```



## Defuse Card

if (card is drawn)  
place card in players hand

if (card is played &&  
player is exploding)  
discard card  
&& prompt player to place  
chicken back in draw deck  
&& advance turn



## Shuffle Card

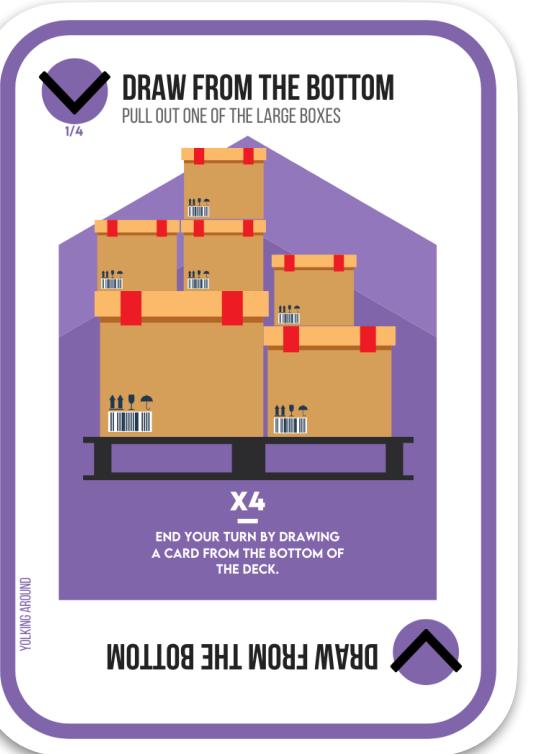
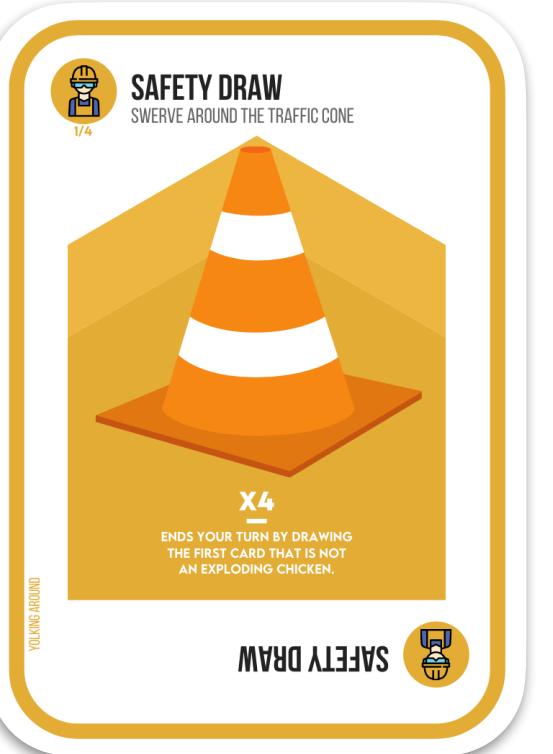
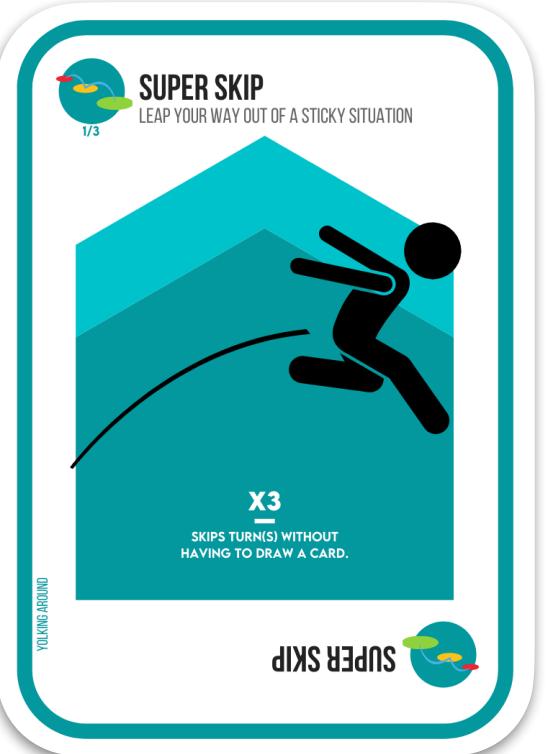
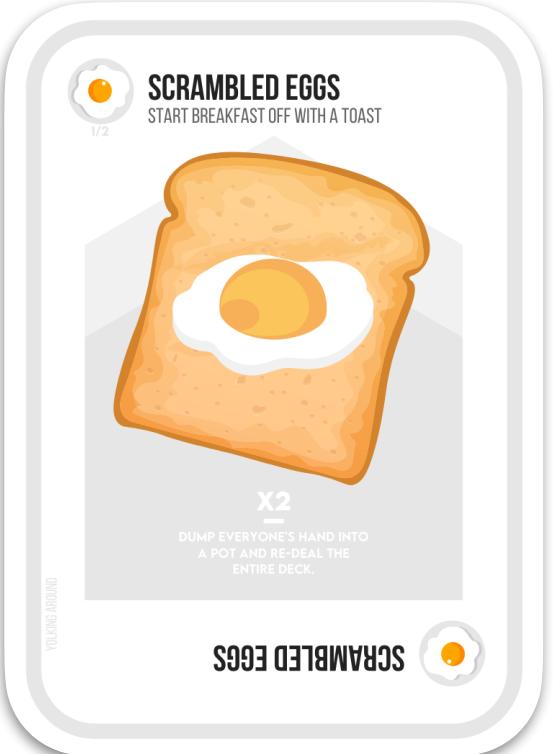
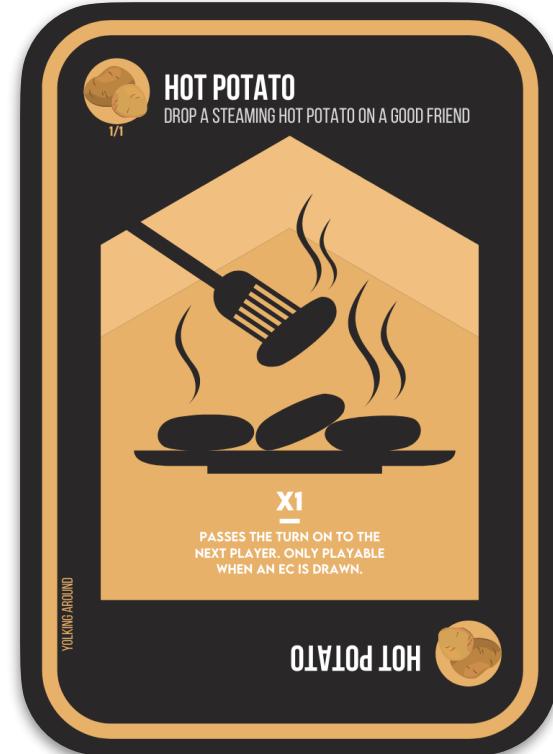
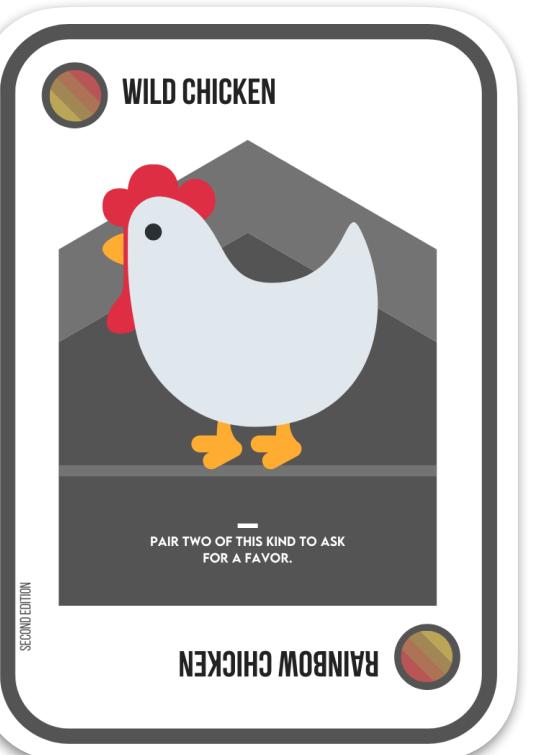
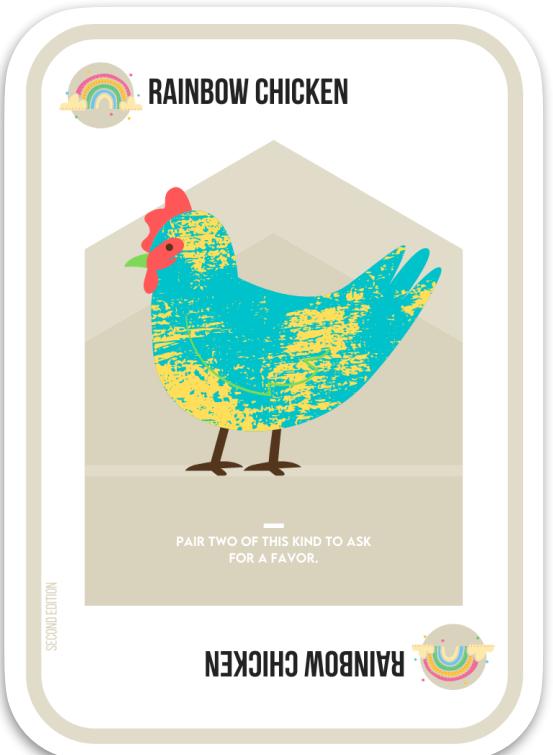
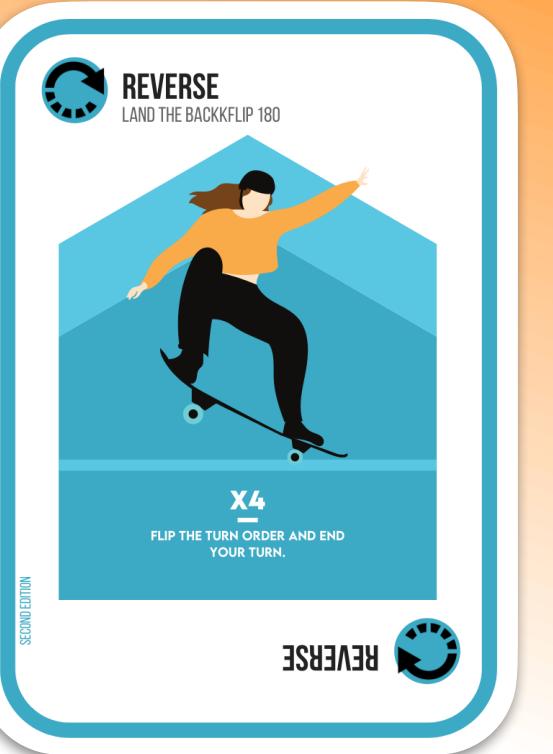
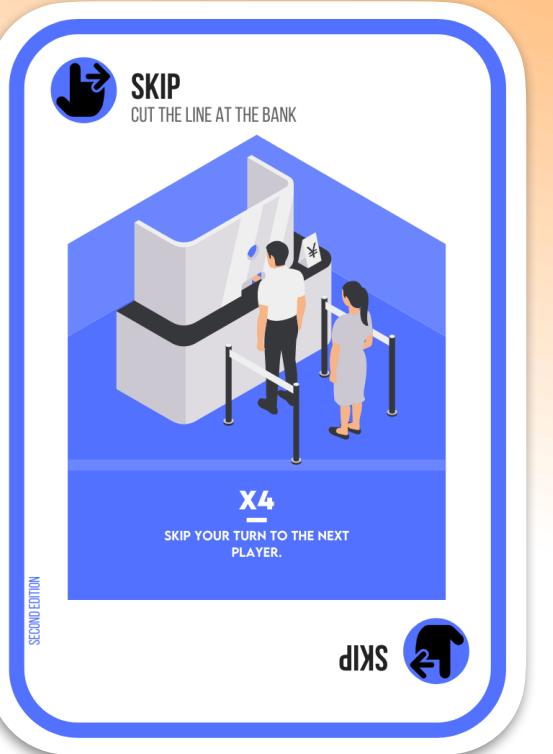
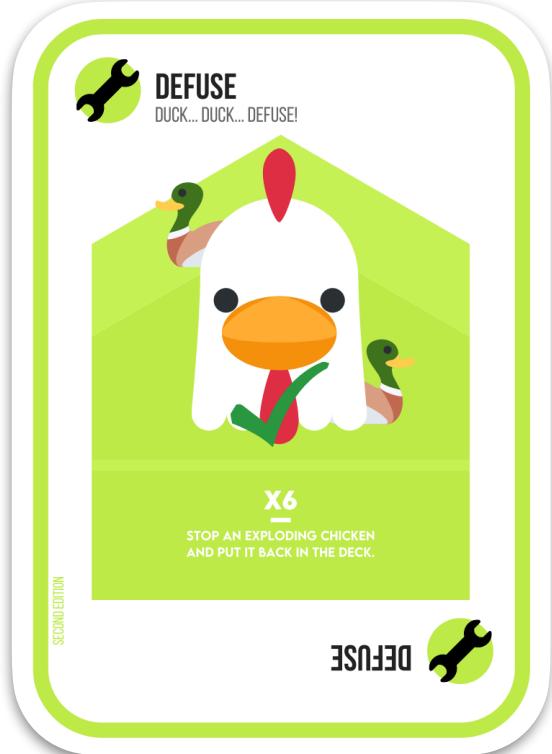
if (card is drawn)  
place card in players hand

if (card is played)  
shuffle draw deck  
&& discard card

# Shuffle Card



- Player wants to play card
- Sends “play-card” request
- Cascading validation phase
  - Is the player valid?
  - Is it their turn?
  - Do they have this card?
  - Can they play it now?
- Completes card action (randomize draw deck)
- Discard card
- Tell everyone what happened



# Demo

Type in your web browser...  
**[rakerman.com/link/demo](http://rakerman.com/link/demo)**

**Scalable and fast**

**Room for expansion**

**Easy to understand**

# **Where do you start?**

**Maximize compatibility**

**Quick to develop**

**Real-time communication**

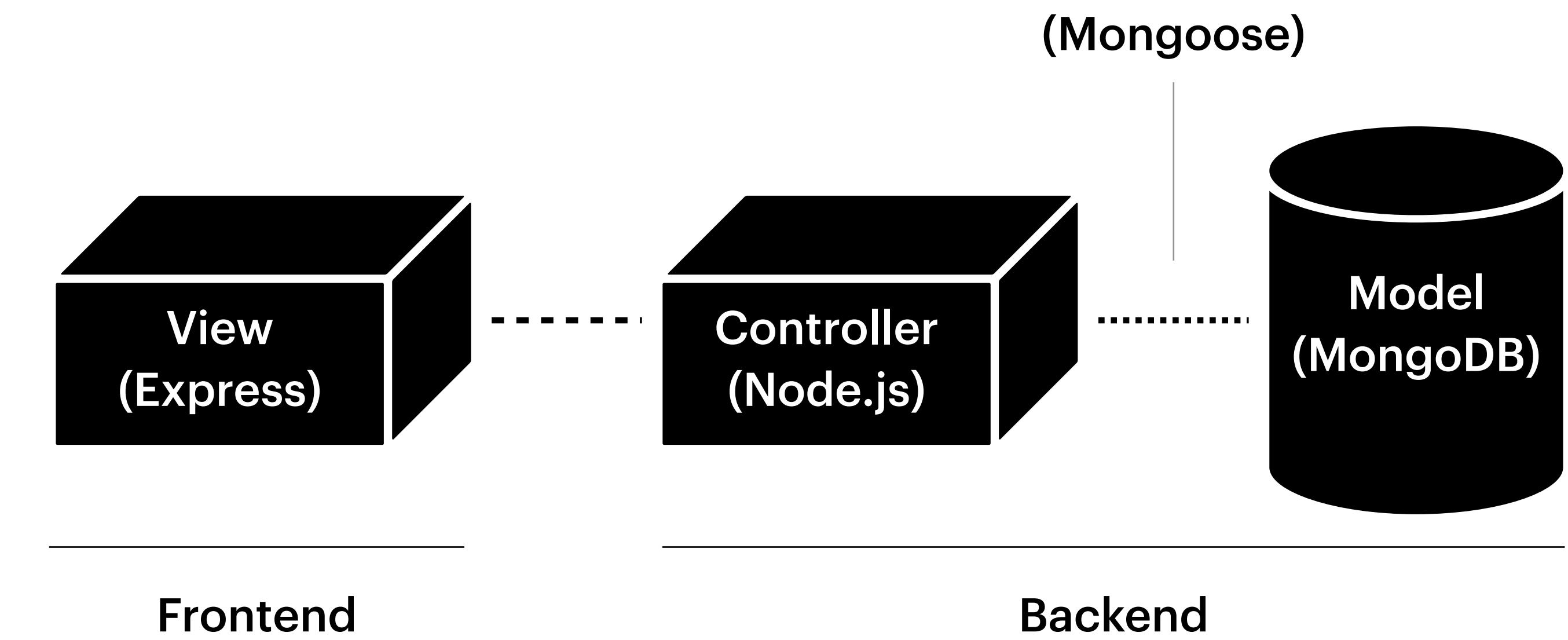
> **Web Browsers**  
**Functional Programming v1 & v2**  
**Object Oriented Programming v3**

**Web Browsers**  
➤ **Functional Programming v1 & v2**  
**Object Oriented Programming v3**

# v1.0.0

## An unorganized first attempt (that works)

- Full-stack web application
  - Node.js – an asynchronous event-driven JavaScript runtime geared towards scalable network apps
  - MongoDB – a NoSQL document-oriented database
    - Mongoose as an ODM (Object Data Modeling)
  - Handlebars – HTML templating language
  - Socket.io – real-time, bidirectional communication



# Game

## Cards

\_id  
action  
assignment  
position  
pack

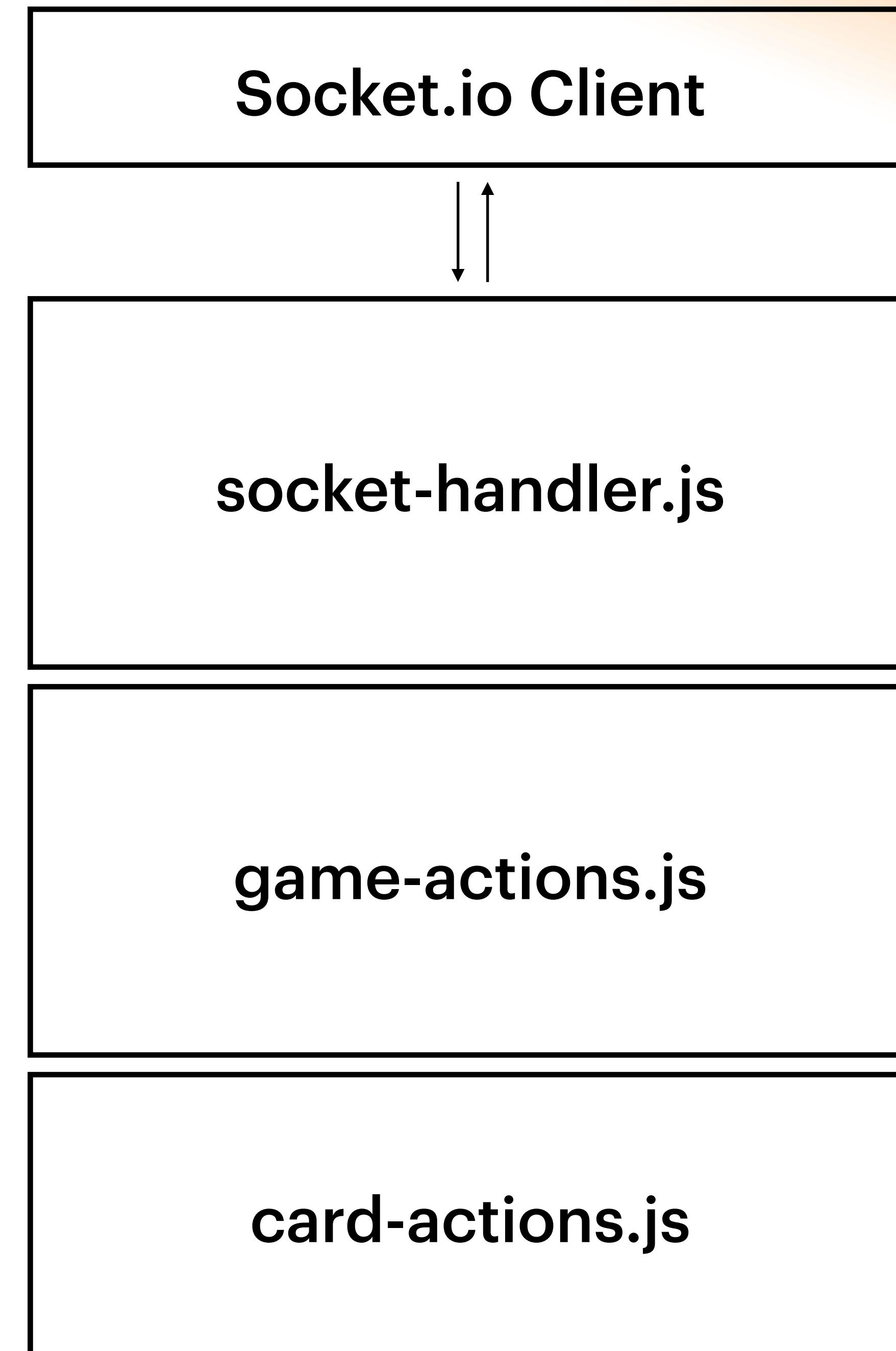
## Players

\_id  
nickname  
avatar  
seat\_position  
wins  
sockets\_open  
is\_host  
is\_dead

## Events

\_id  
tag  
req\_player  
target\_plyr  
related\_key  
related\_value

Misc data...



## Shuffle Card

- Player wants to play card
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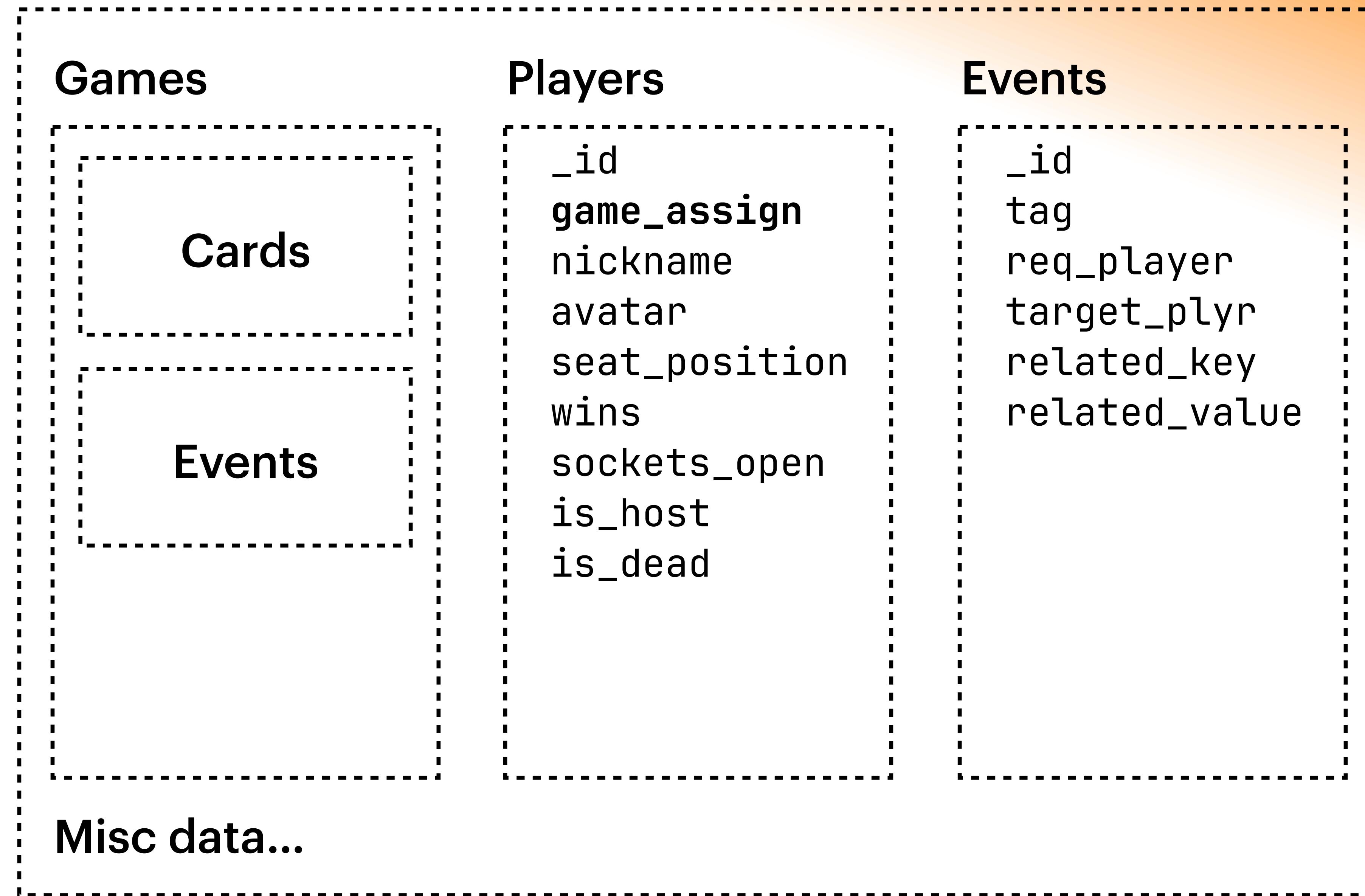
# **v1.1.7 Code Review**

# v2.0.0

A segmented second attempt (much, much cleaner)

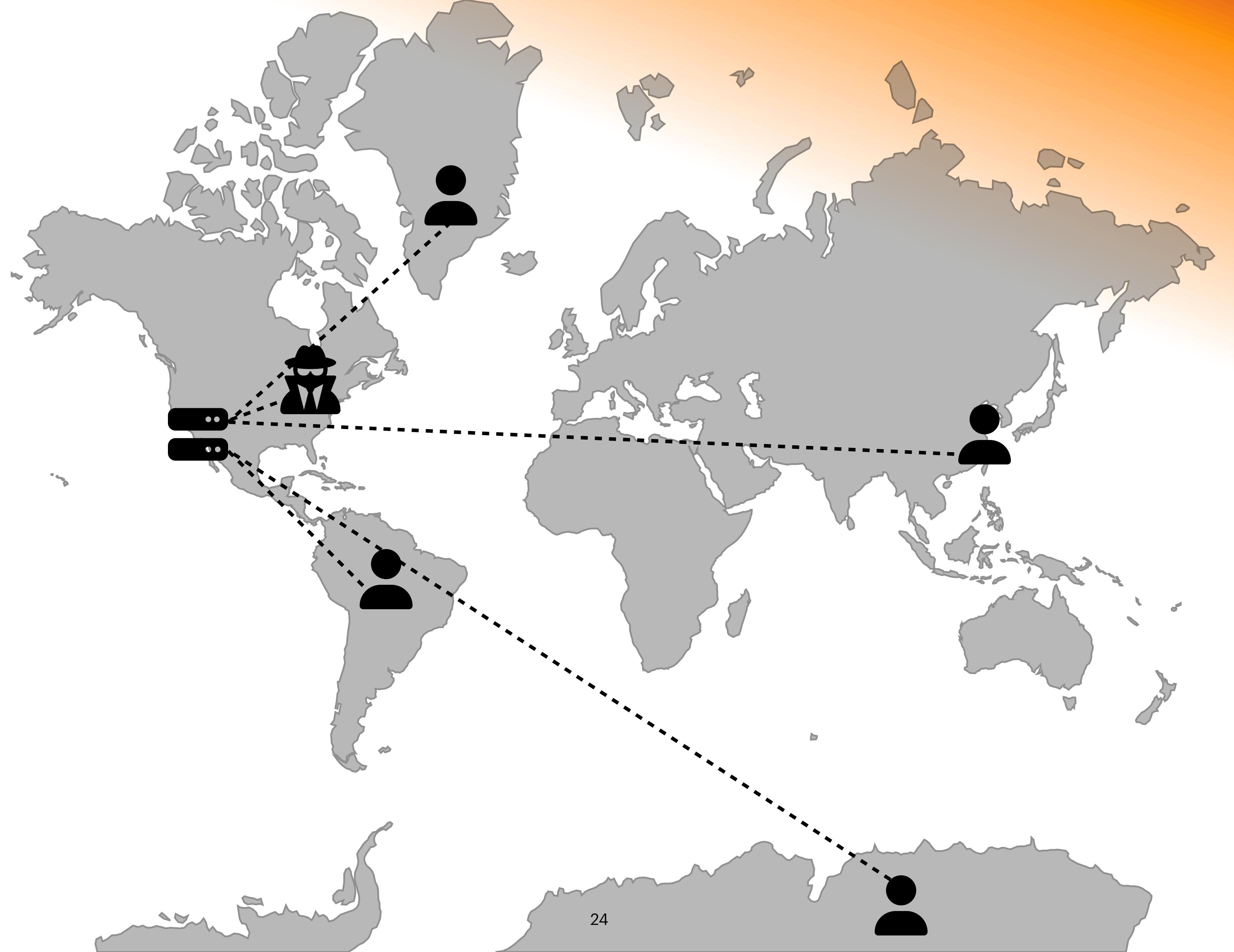
- Same web stack (Node.js, MongoDB, Handlebars, Socket.io) + Vue.js + Auth0
- Mocha + Istanbul — Backend tests, code coverage
- Shared repository model
- Issues and features request tracking in Github
- New Lobby abstraction

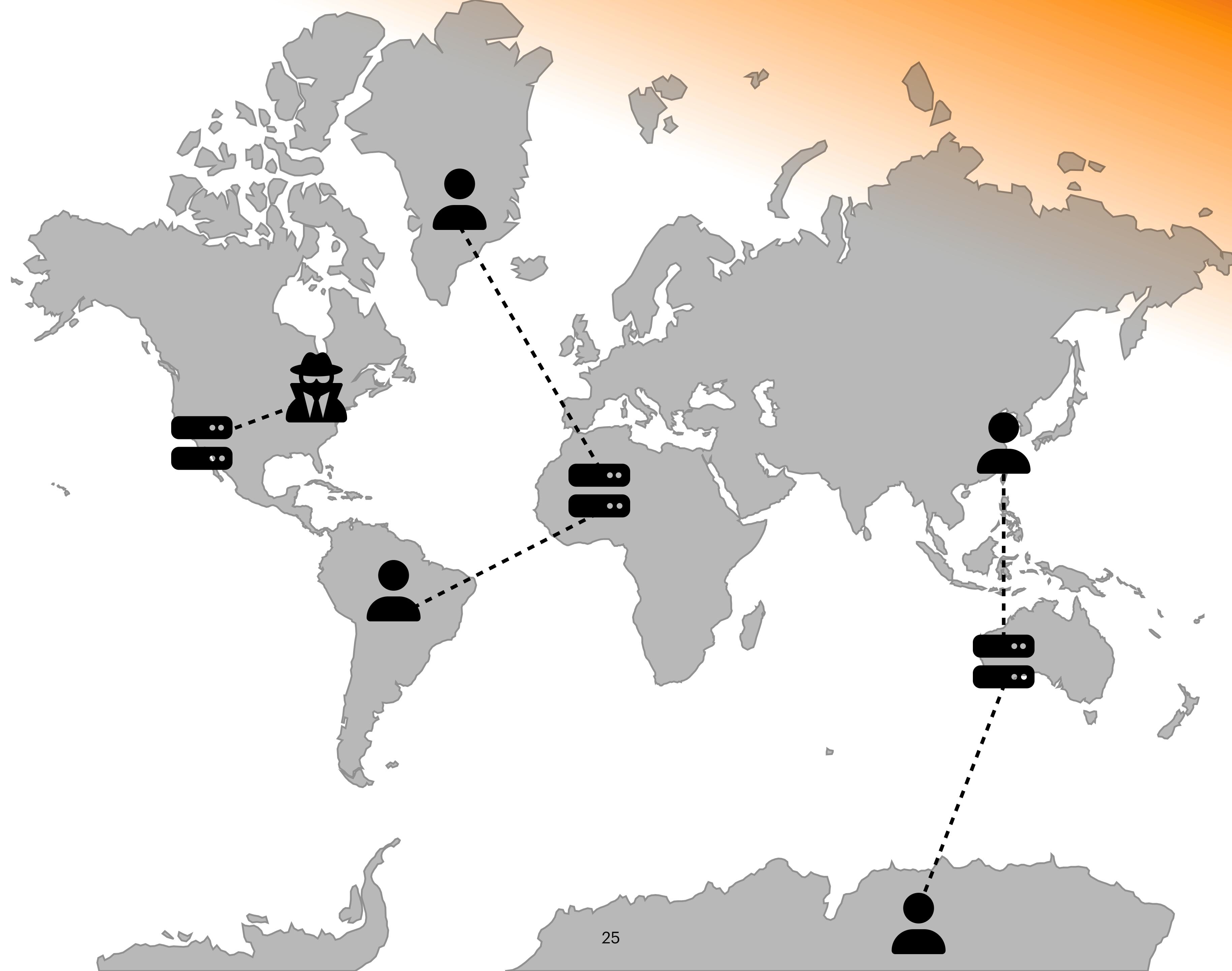
# Lobby

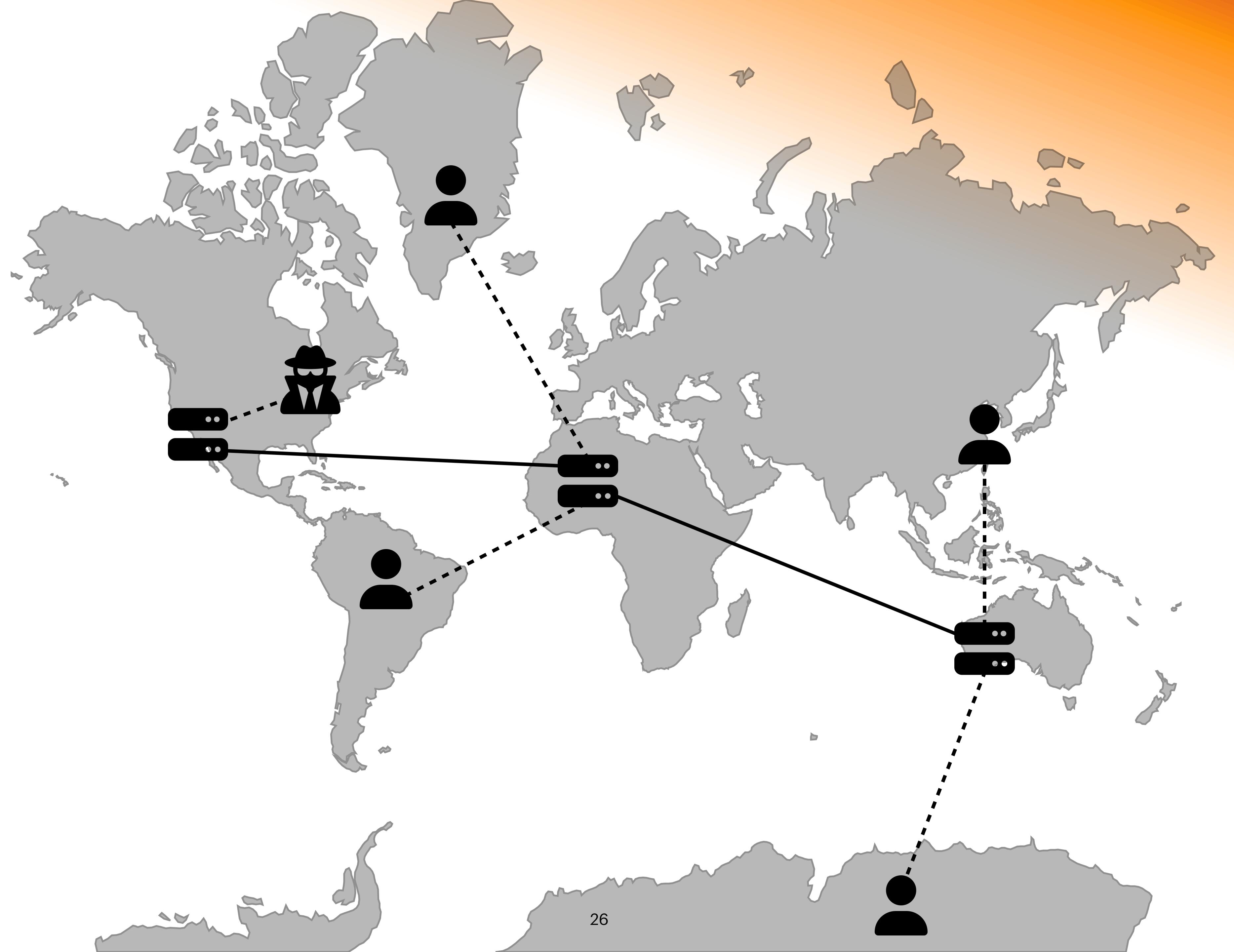


# v2.0.6 Code Review

Web Browsers  
Functional Programming v1 & v2  
**> Object Oriented Programming v3**



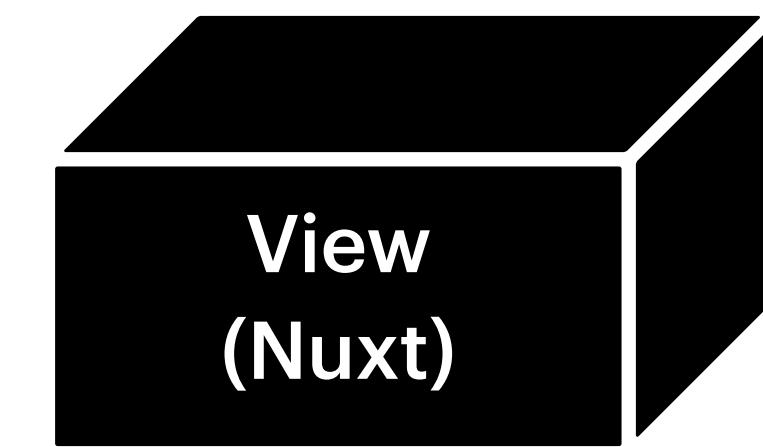




# v3.0.0

## A globally-distributed 3rd rework (here we go again)

- Same test coverage, lobby abstraction, and user interface
- Completely new web stack: Typescript (OOP) + Cloudflare Workers + Websockets + Nuxt + Auth0
  - State-of-the-art, lightweight & serverless = cheap
  - Ability to run ‘on the edge’, decentralized (worldwide)



# **v3.0.0-beta Code Review**

# Key Takeaways

- Do your research when picking a language
- Build a solid data structure
- Clearly define boundaries between parts of your project
- Give yourself room to build something better
- Visualize everything upfront

# Questions

**chickens.rakerman.com**