

# GOAT-AB



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March 16, 2021

# Brought To You By...

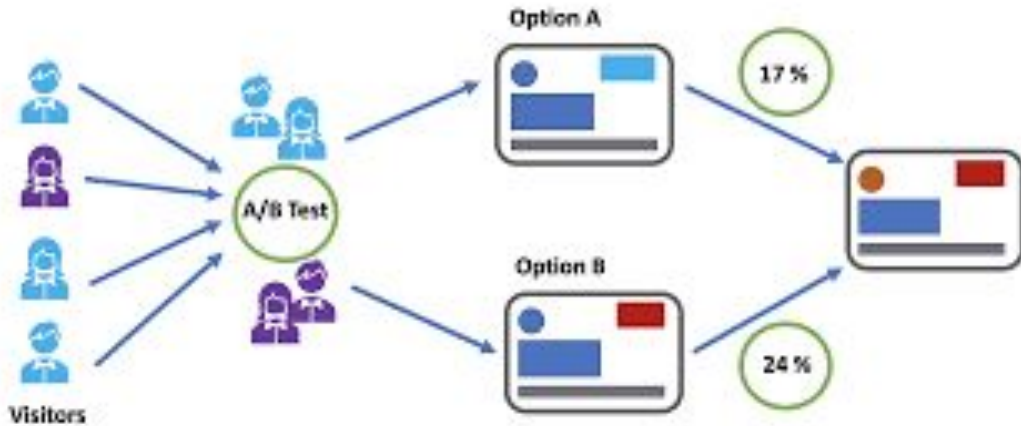
**fastly**<sup>®</sup>



**WPI**



◀ What is A/B testing?



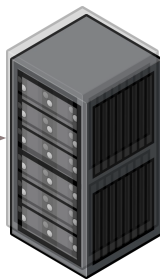
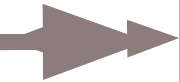
# AB Testing




- ▶ Server-side Frameworks
- ▶ Client-side Frameworks
- ▶ Varying UI/Configuration
- ▶ Varying Privacy/Security



# Current Approaches

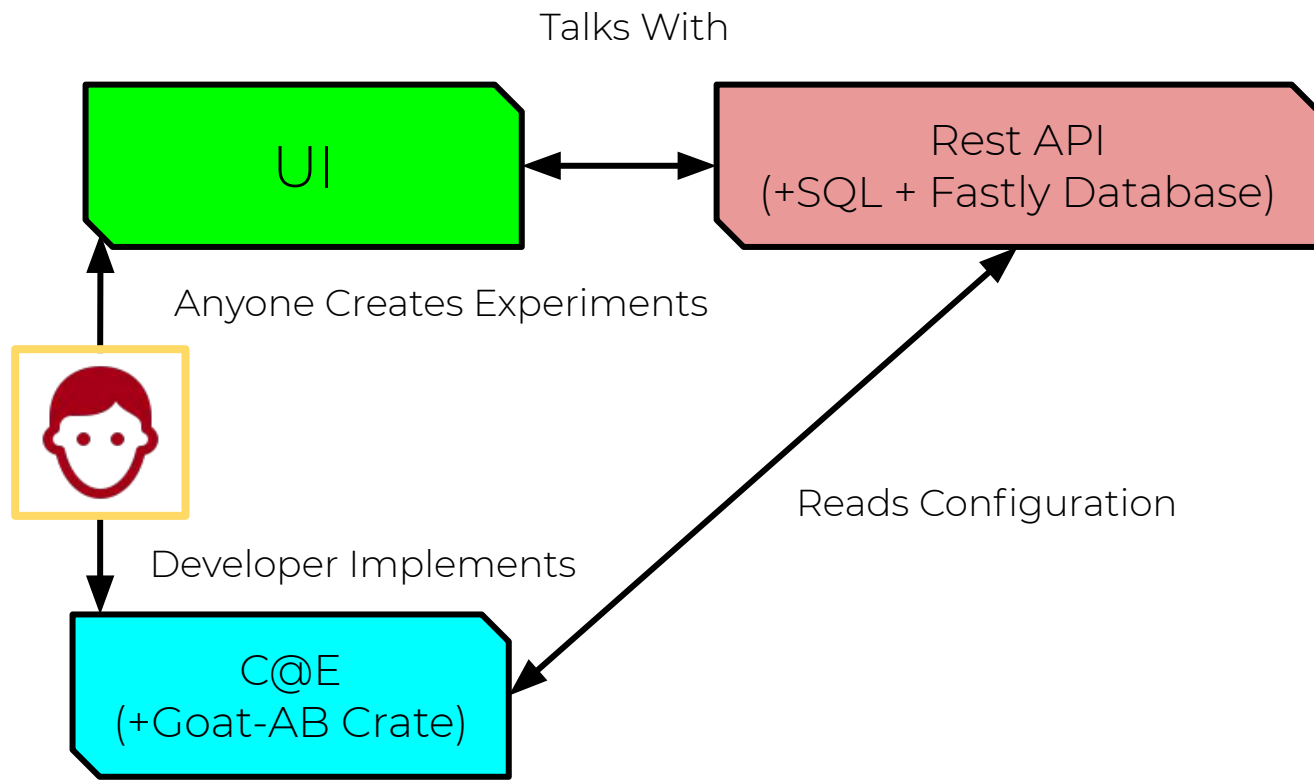


**Client Side  
Problems**

- 
- ◀ Easy Edge Experimentation
  - ◀ Utilize Edge + Serverless
  - ◀ Give Fastly a Competitive Edge
  - ◀ Contribute to Open Source!

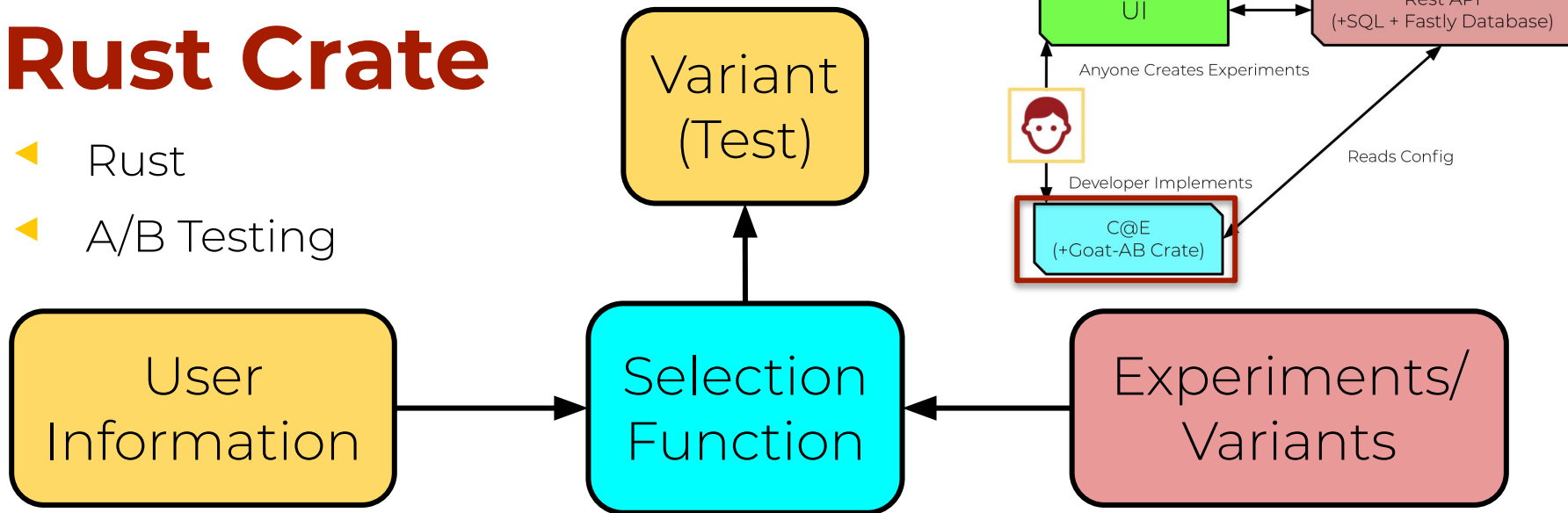


# Platform Goals



# Rust Crate

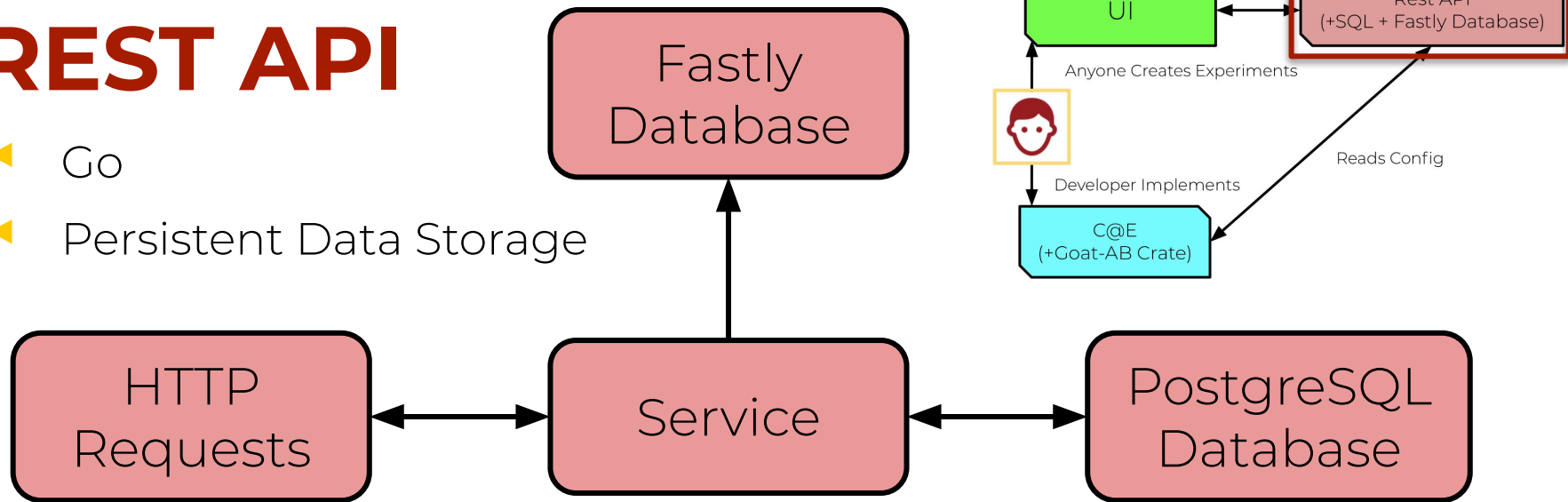
- ◀ Rust
- ◀ A/B Testing





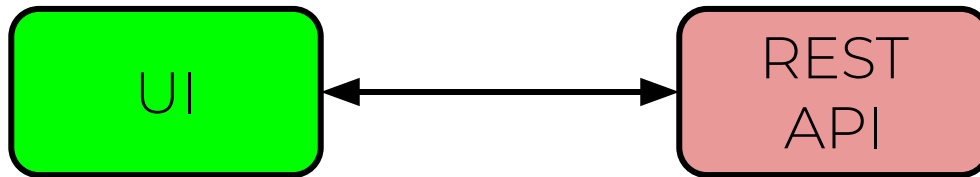
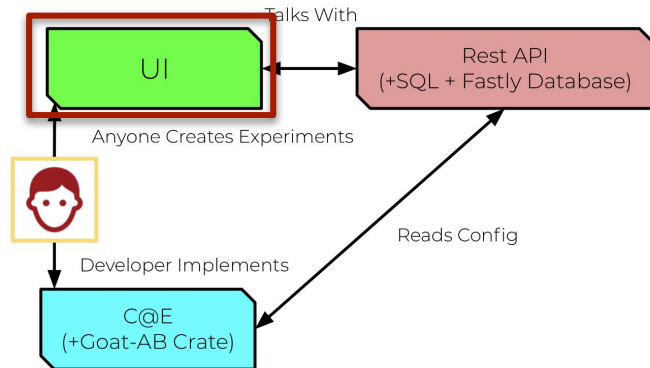
# REST API

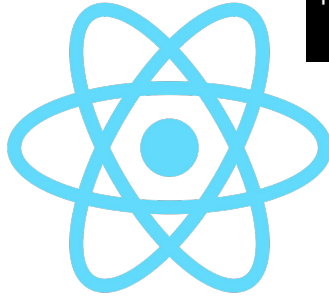
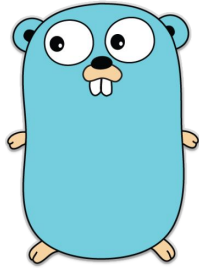
- ▶ Go
- ▶ Persistent Data Storage



# UI

◀ React with Next.js





# Project Challenges





# Demonstrations



# UI Demo





# Edit Experiments

[Create New Experiment](#)[Publish To All Integrations](#)

**Cat Button Color**  
Random Selection - Last Updated about 4 hours ago

[Edit](#) [Delete](#)

Red

50%

Blue

50%

**Cat Text**  
Random Selection - Last Updated 5 days ago

[Edit](#) [Delete](#)

Buy Today

50%

Buy Tomorrow

50%

**Cat Demo**  
Random Selection - Last Updated 6 days ago

[Edit](#) [Delete](#)

Cat1

20%

Cat2

20%

Cat3

20%

Cat4

20%

Cat5

20%

Experiment is active

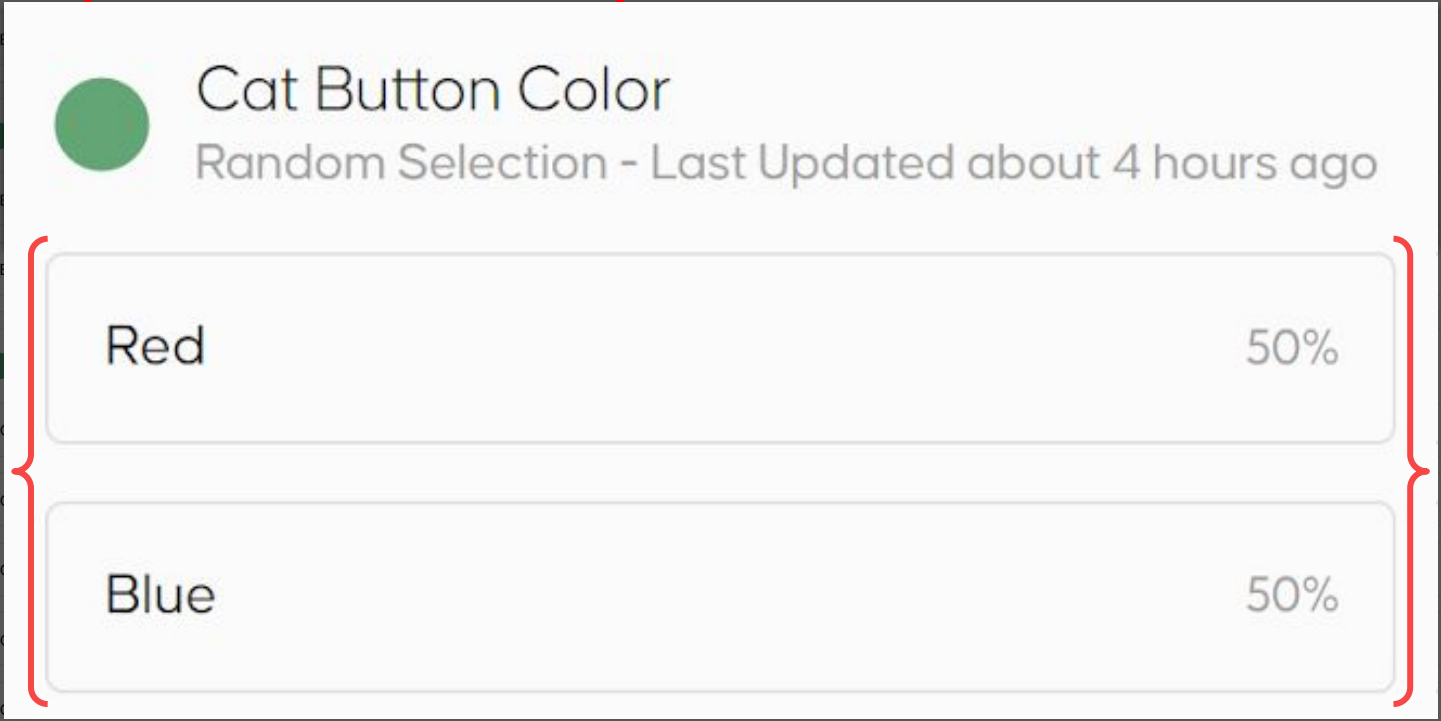
Name

Cat Button Color  
Random Selection - Last Updated 5 days ago

Edit Delete

Red

50%



Cat Button Color  
Random Selection - Last Updated about 4 hours ago

Red	50%
Blue	50%

Edit Delete

50%

50%

Edit Delete

Sample Rates

20%

20%

20%



GOAT-AB



Dashboard



Experiments



Analytics



Integrations



Organization



Account

# Create Experiment

Cancel Create Experiment

Create and Exit

## Experiment Name

Give your experiment a memorable name that appears on this dashboard

Homepage Call To Action Title

## Selection Function

This decides the built-in function your experiment will use to select a variant for a user. You may override this in your codebase.

Random Selection



### Is Active

This determines if a variant should be selected for this experiment. If disabled, this experiment will not be published to integrations.

## Variants

These are the different variations of your experiment.

Add Variant



## Create your First Variant

Use the "Add Variant" to add the first option this experiment can choose!





GOAT-AB



Dashboard



Experiments



Analytics



Integrations



Organization



Account

## Create Experiment

### Experiment Name

Give your experiment a memorable name that appears on this dashboard

### Selection Function

This decides the built-in function your experiment will use to select a variant for a user. You may override this in your codebase.

Random Selection



#### Is Active

This determines if a variant should be selected for this experiment. If disabled, this experiment will not be published to integrations.

### Variants

These are the different variations of your experiment.

Add Variant



## Create your First Variant

Use the "Add Variant" to add the first option this experiment can choose!

### Add Variant

Create an option your experiment can choose from when performing an experiment.

#### Variant Name

Give your experiment a memorable name that appears on this dashboard.

#### Variant Value

An option's value is a JSON object that defines what your variant looks like to your code.

```
{"button_color": "red"}
```

#### Variant Sample Rate

With a random selection function, this is the relative rate at which this variant will be chosen.



0%

Cancel

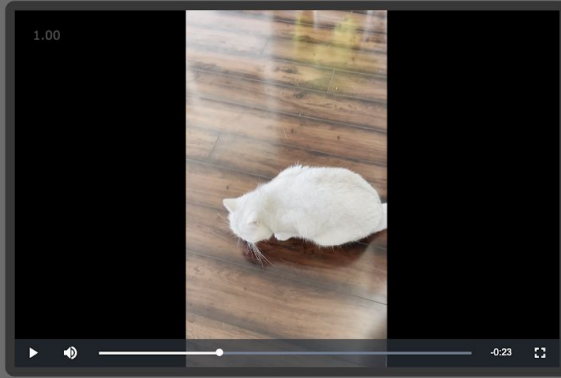
Save Variant



# Example Demo

Special thanks to Jim Rainville for his video splicing demo!



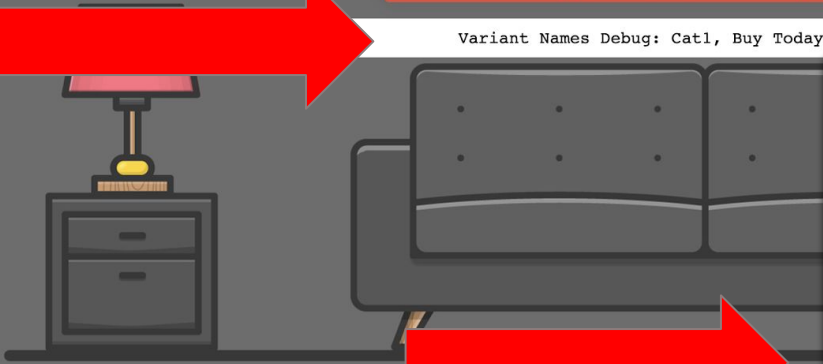


Buy Some Cat Chow Today!

Variant Names Debug: Cat1, Buy Today, Red,



```
fastly logs tail
→ edgedictionaries git:(demo) x fastly logs tail
INFO: Managed logging enabled on service 796HouCPZmZTuzW669
```



{{BUTTON\_TITLE}}

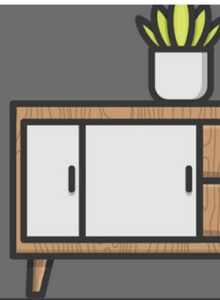
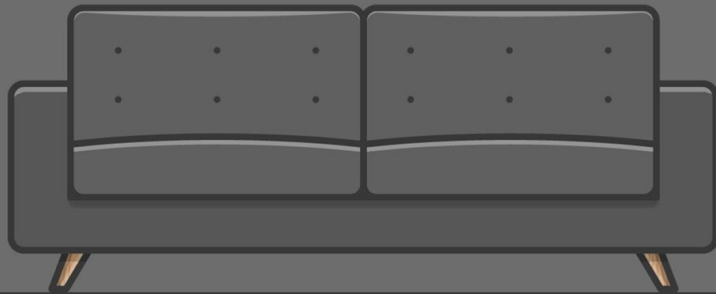
Variant Names Debug: {{VARIANT\_NAMES}}





Buy Some Cat Chow Tomorrow!

Variant Names Debug: Cat3, Buy Tomorrow, Blue,



Thanks for buying some cat food! Variants logged: Cat3, Buy Tomorrow, Blue,

```
fastly logs tail
→ edgedictionaries git:(demo) x fastly logs tail
INFO: Managed logging enabled on service 796HouCPZmZTuzW669LA
stdout | f15126bf | Variants Received! The user clicked the b
on with the following variants enabled:
stdout | f15126bf | Cat3, Buy Tomorrow, Blue,
[]
```




# How do I use it? Where is it?

- ▶ Private GitHub Repo
- ▶ Components Usable with Any Company\*

\*Currently Edge Dictionary is the only Rest API integration, but that can change with open-source contributions!



- 
- ▶ Selection Functions
  - ▶ Authentication/Teams
  - ▶ Full Analytics Suite + Dashboards
  - ▶ Other Integrations



# Future Work



# Acknowledgments

Salman's cats - @kittyandthebrain

Salman and Patrick (Awesome Mentors!!)

Prof. Mark Claypool (WPI Advisor)

Peter Bourgon (Code Reviews!)

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Katie Martin, Tyler McMullen,

Adam Denenberg, James White



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**Thank You For Coming!**  
**Questions?**

# Demo Links

- ▶ Example URL: <https://solely-endless-glider.edgecompute.app/>
- ▶ Origin for comparison: <http://155.138.165.216/>

# Extra Slides





# Lessons

# Best Practices

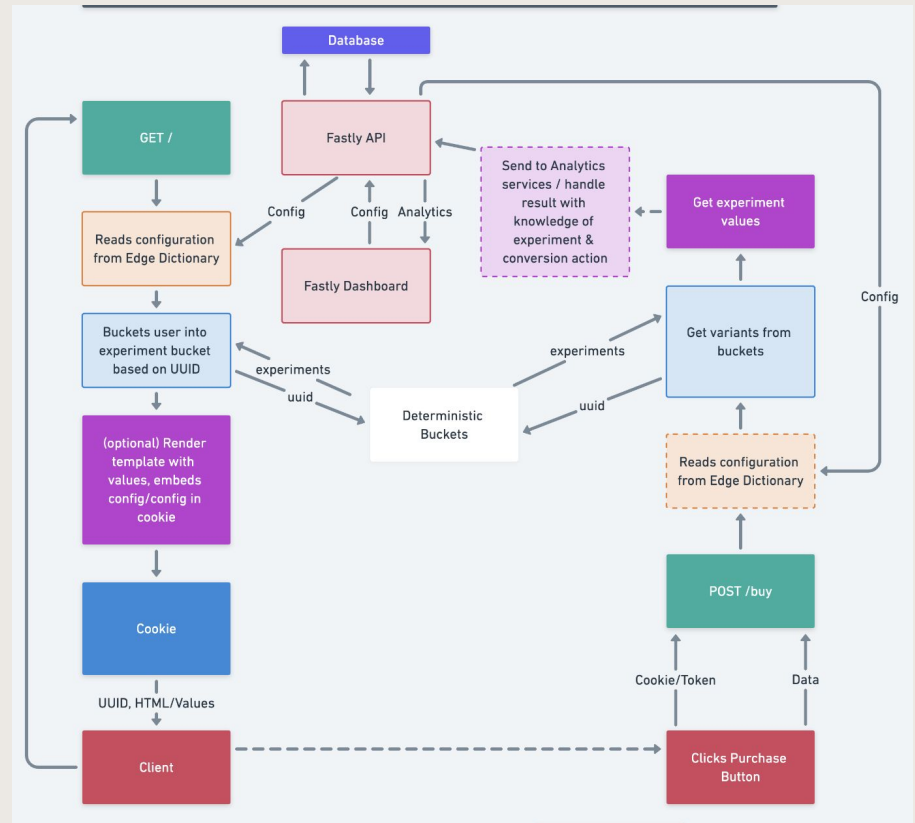
- Go Dependency Injection
- React Component Breakdown
- Rust Generic Traits

# Gotchas

- Borrow  
Checkers &  
Ownership
- Closures with  
Generics



# How to Work with Serverless Platforms

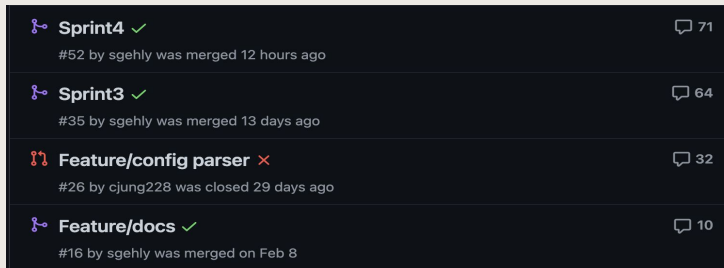






# Working Around Time and Capability Constraints





# How to Quickly Become Productive in a New Language and Iterate Quickly (Detailed PRs!)



 <b>Sprint4</b> ✓	71
#52 by sgehly was merged 12 hours ago	
 <b>Sprint3</b> ✓	64
#35 by sgehly was merged 13 days ago	
 <b>Feature/config parser</b> ✗	32
#26 by cjung228 was closed 29 days ago	
 <b>Feature/docs</b> ✓	10
#16 by sgehly was merged on Feb 8	



“

*Everybody dies, everybody's  
code gets deleted, every  
system breaks*

*-Tyler McMullen (CTO)*

## **How to deal with attachment issues**



# CORS

Cross Origin Resource Sharing

blocked by CORS policy: Response to preflight request doesn't pass access control check: No 'Access-Control-Allow-Origin' header is present on the requested resource.



# Fastly & AB Testing

