

Micro-frontends, a migration story

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Hi I'm Max



Principal Engineer @ DAZN



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Agenda

Context

Problem

Solution

Analysis

Context

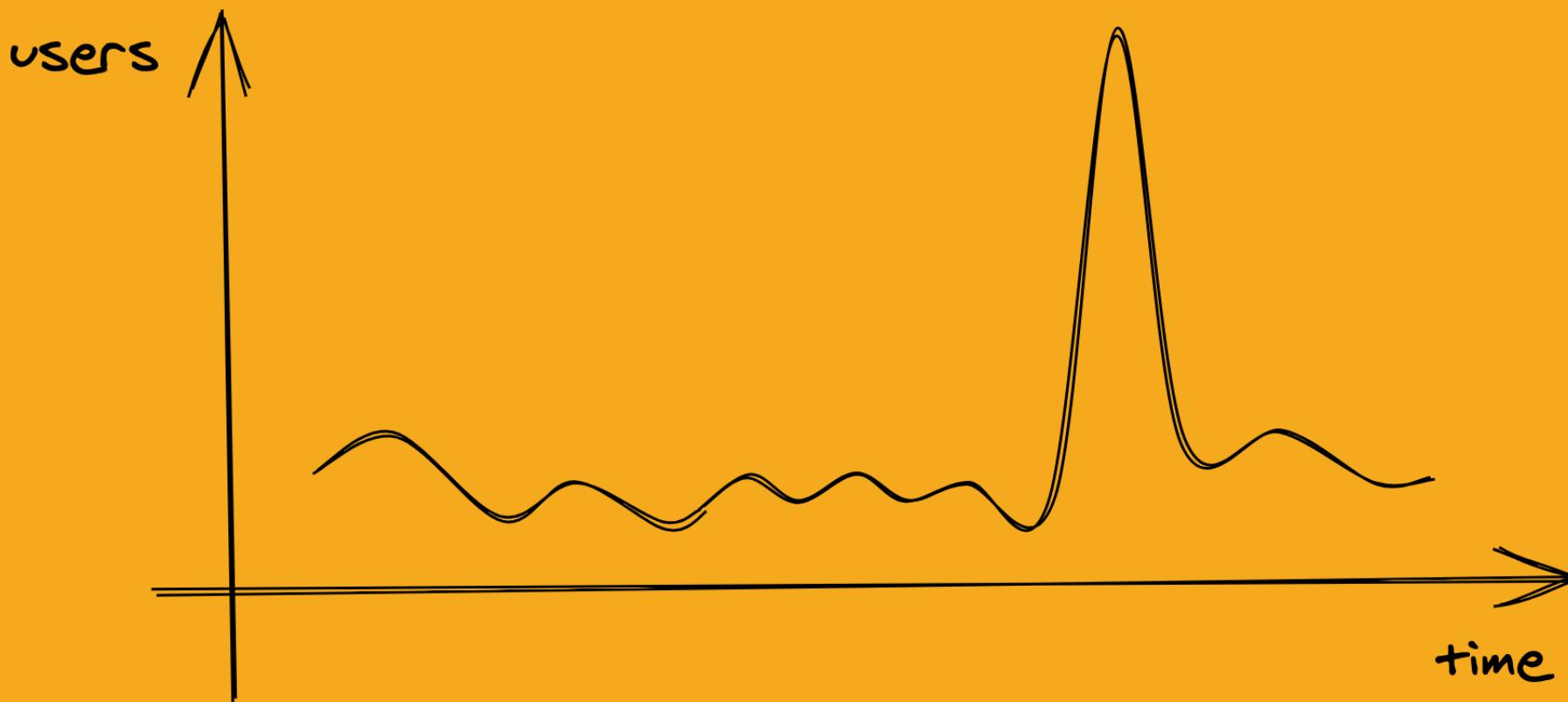
Problem

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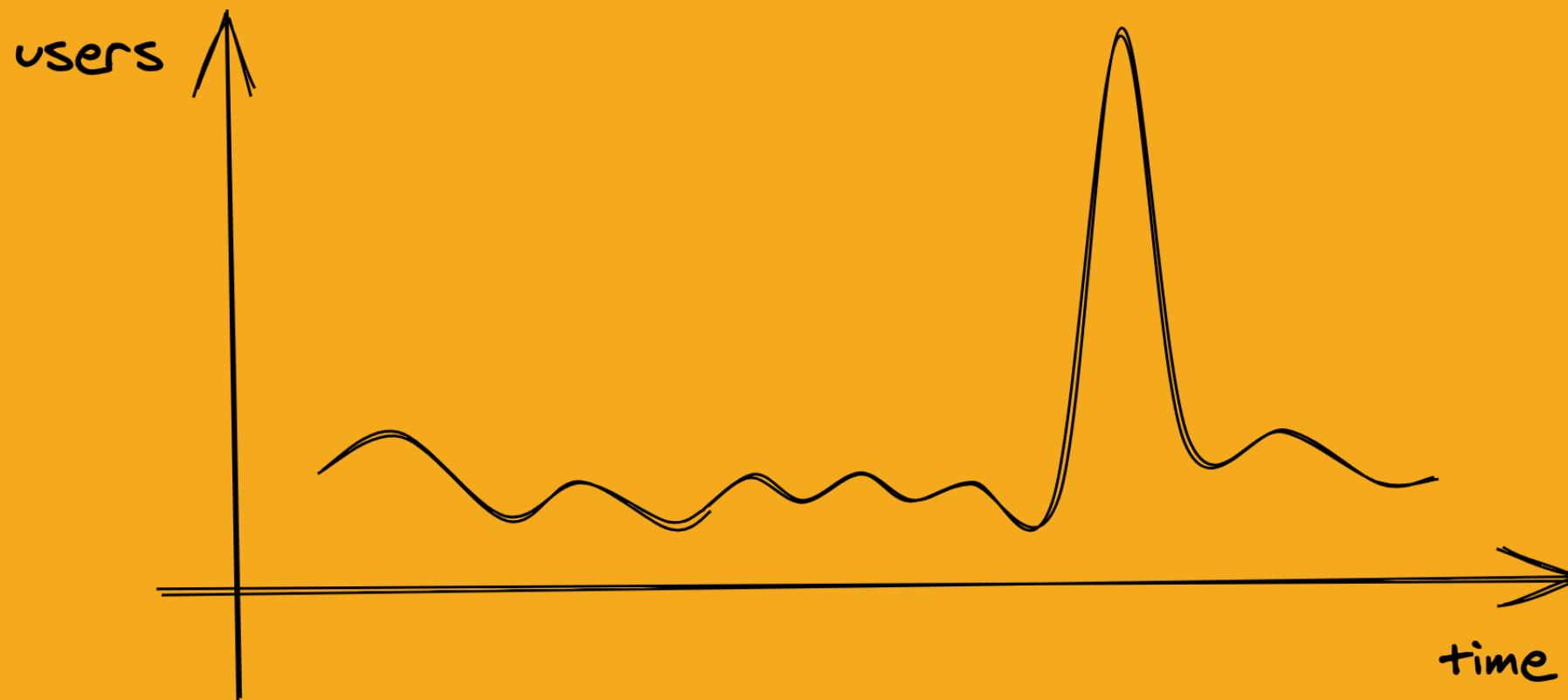
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Users spikes

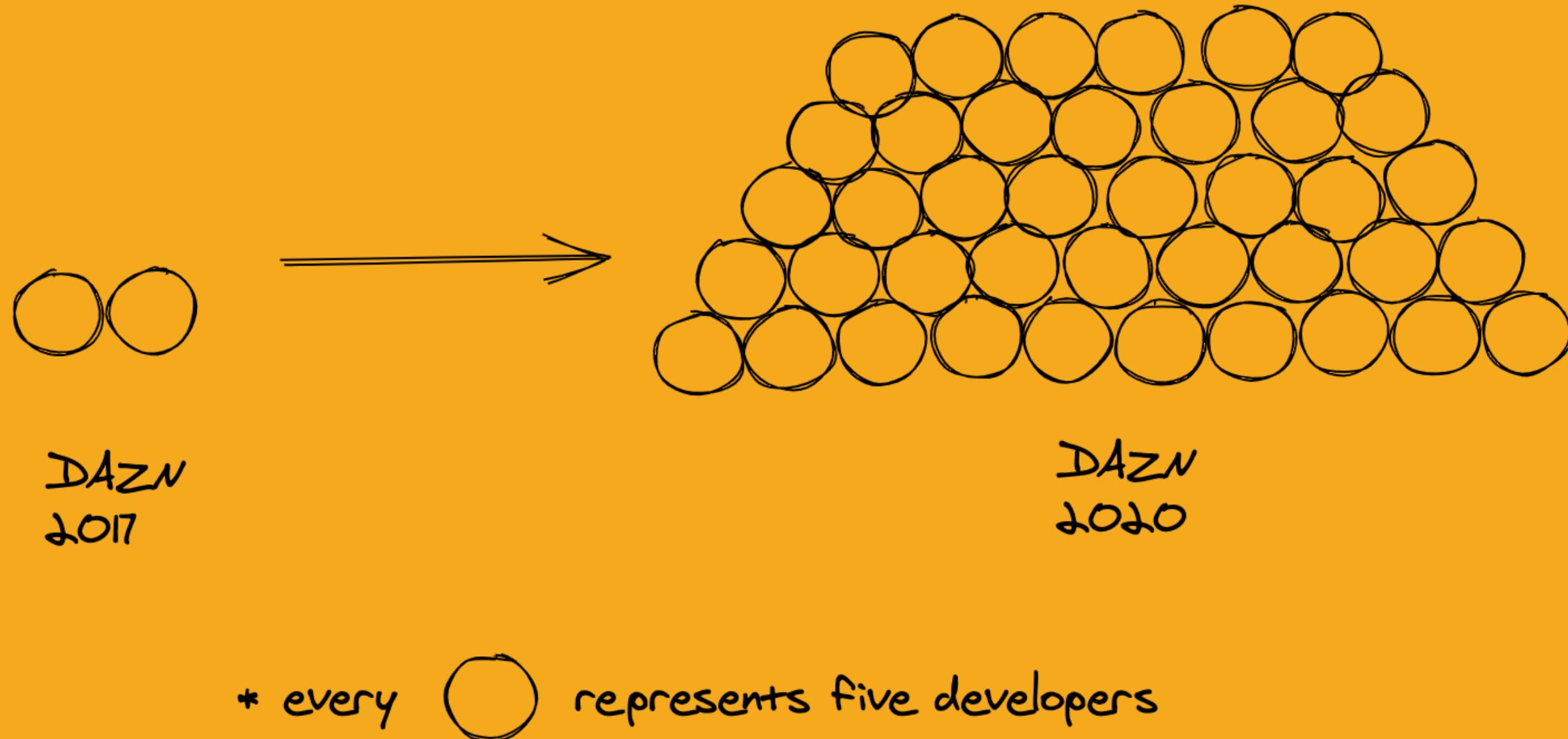


Users spikes

→ Scalability

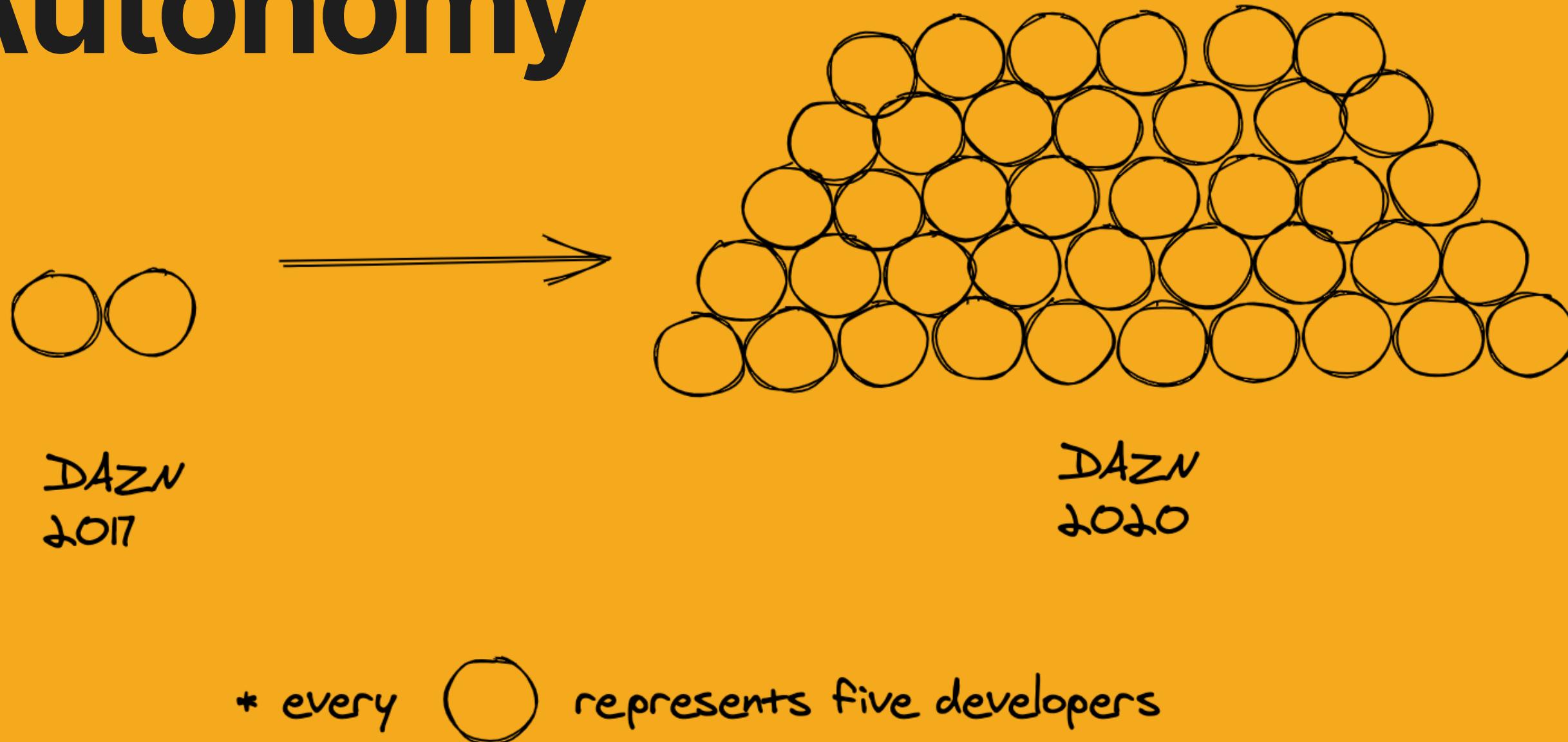


Company Growth



Company Growth

→ Autonomy



Live Events

GooooooooooooooAL !!!

Live Events

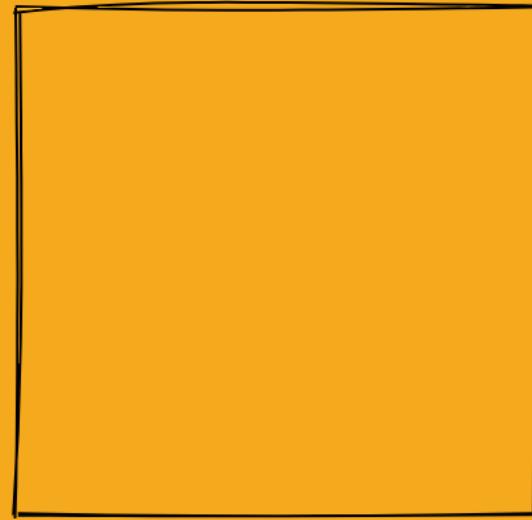
→ Speed

GooooooooooooooAL !!!

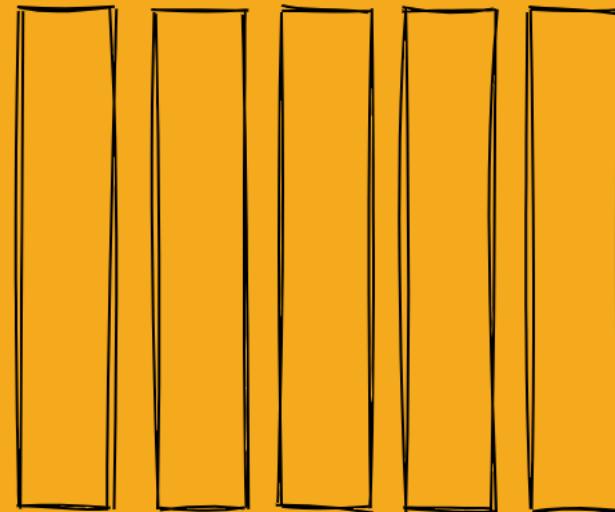
Two Frontend Applications

→ Two Companies

DAZN 1.0



DAZN 2.0



Users spikes

Company Growth

Live Events

**Two Frontend
Applications**

Context

Context

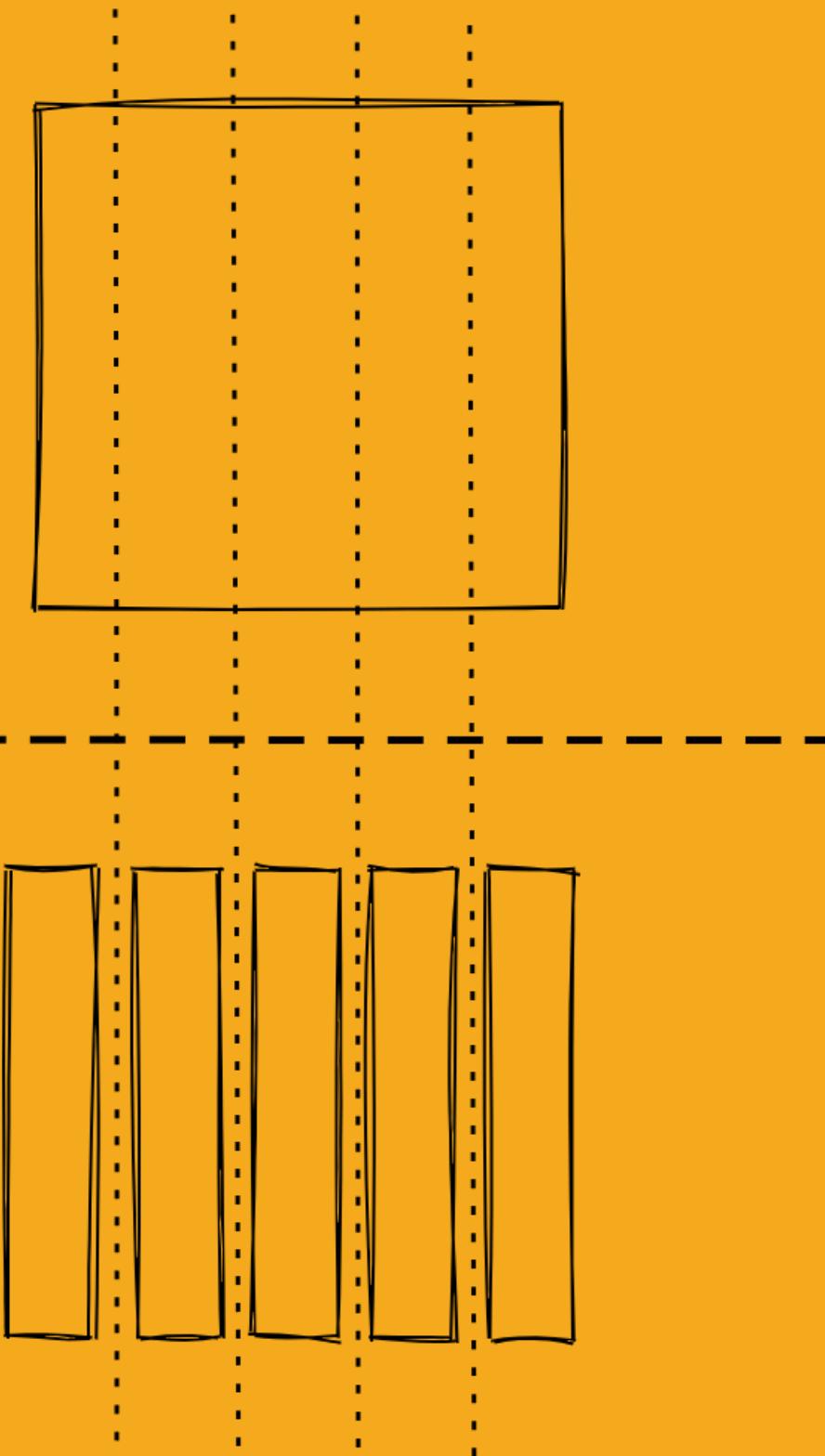
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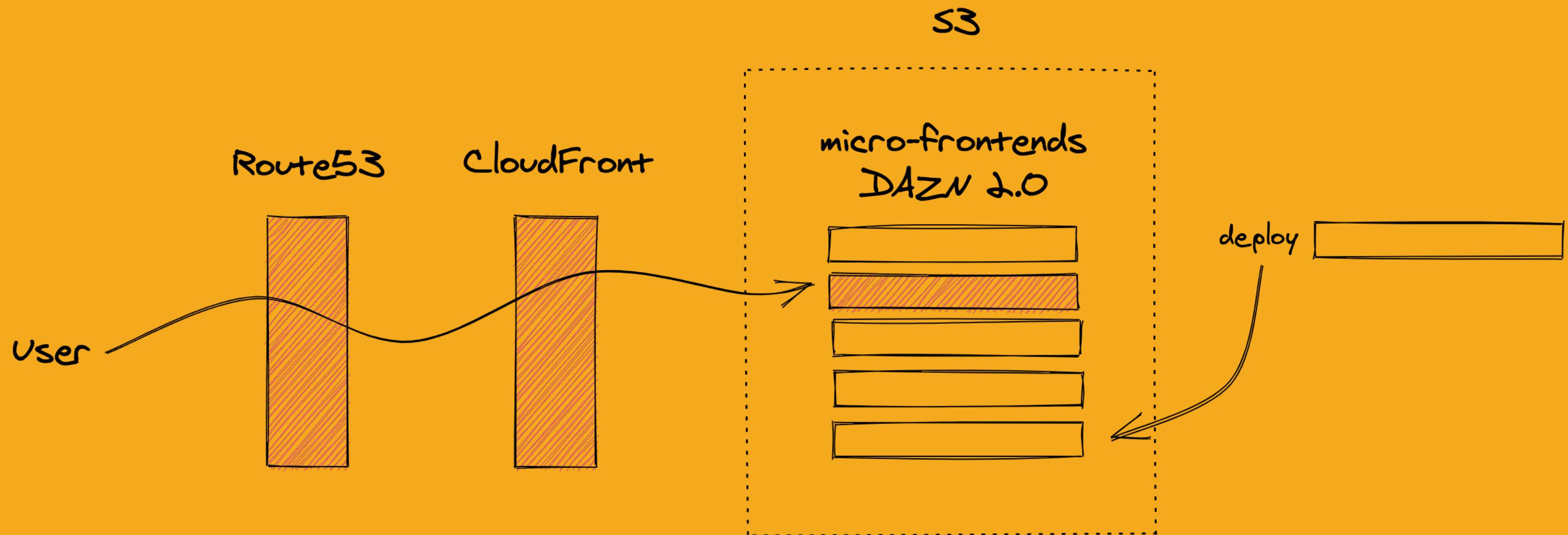
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Monolith
DAZN 1.0



Micro-frontends
DAZN 2.0

Micro-frontends



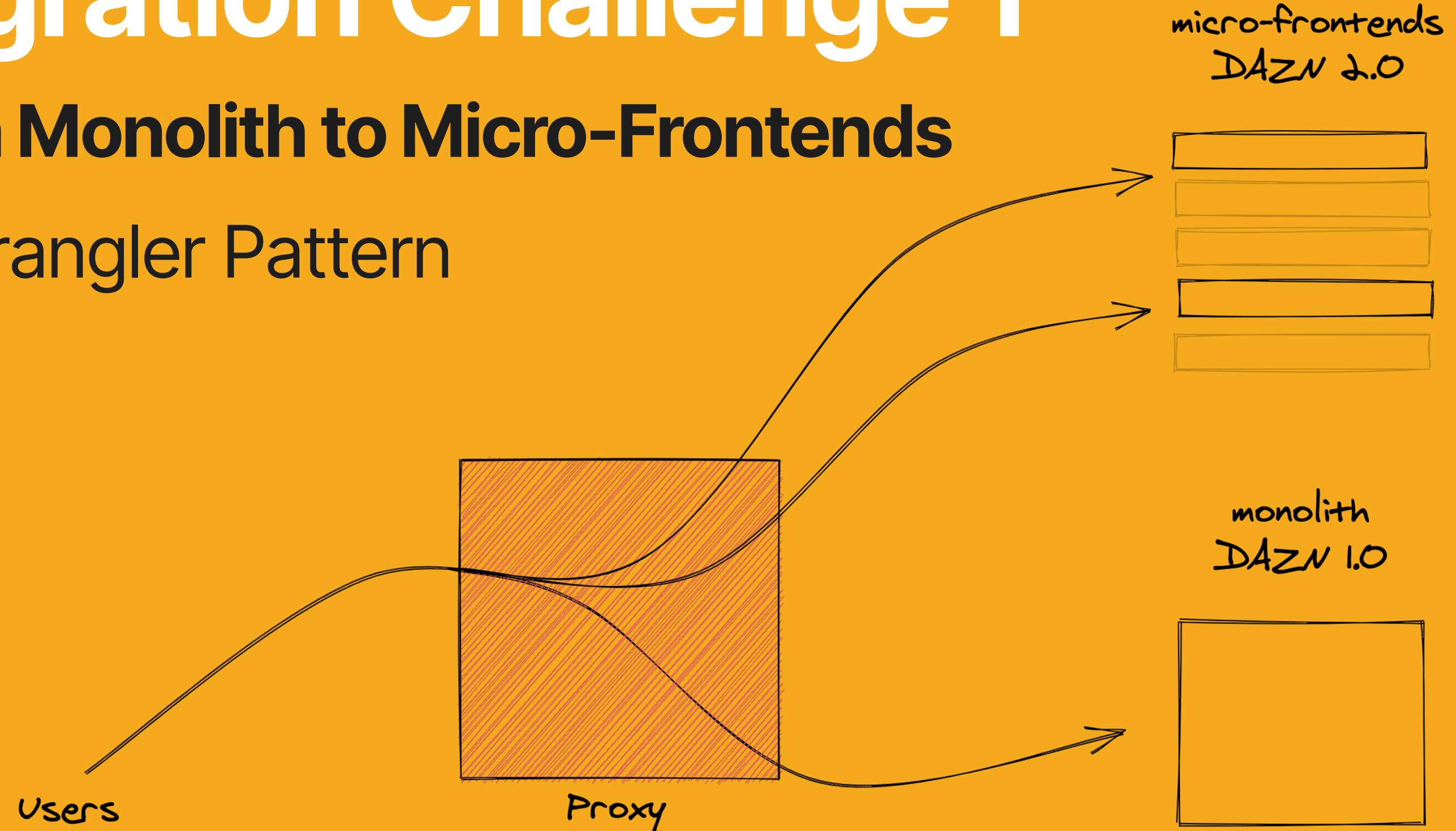
Migration Challenge 1

From Monolith to Micro-Frontends

Migration Challenge 1

From Monolith to Micro-Frontends

→ Strangler Pattern



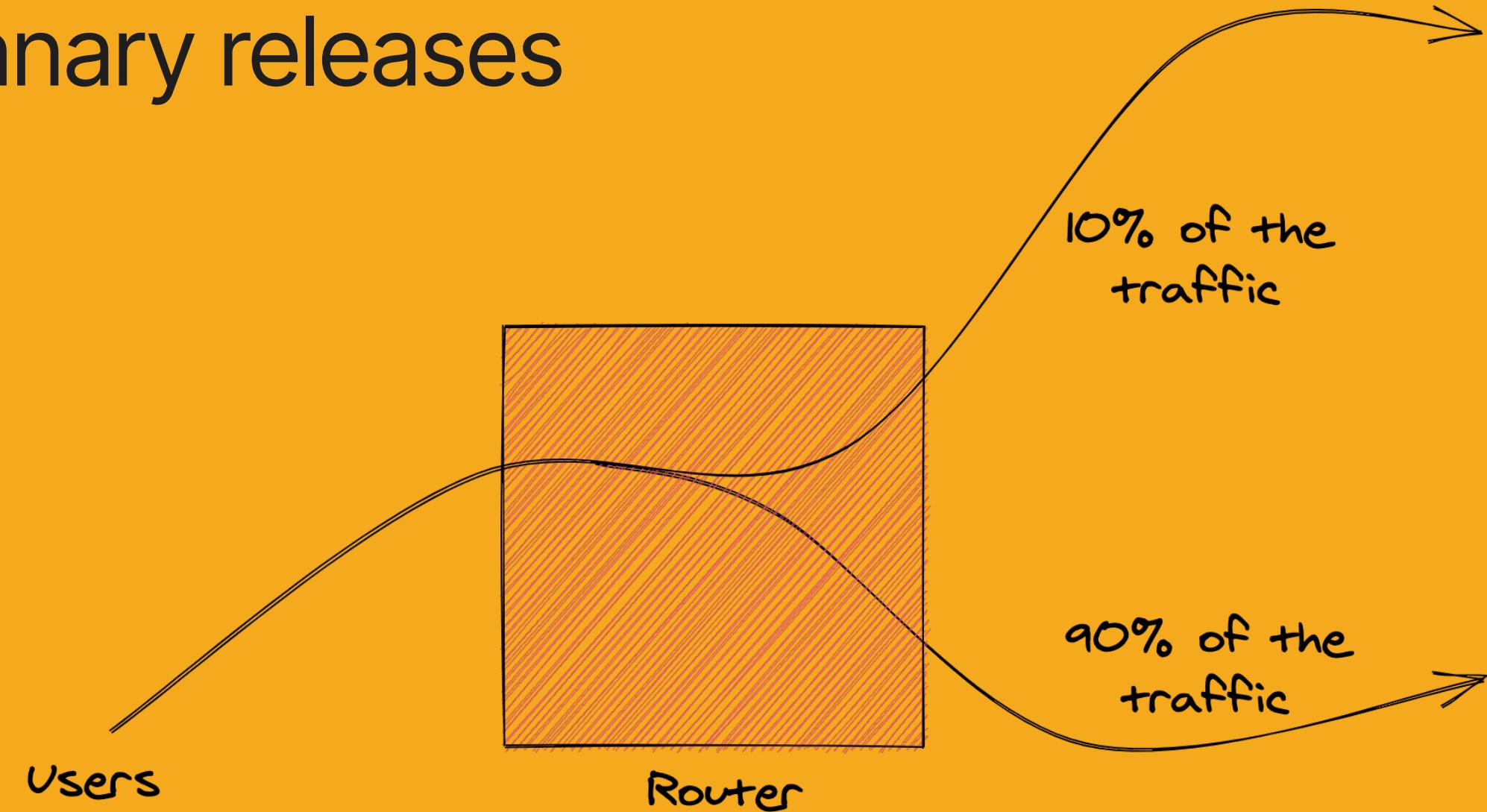
Migration Challenge 2

Avoid big bang releases

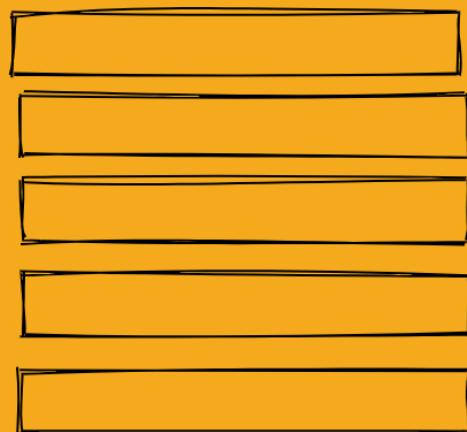
Migration Challenge 2

Avoid big bang releases

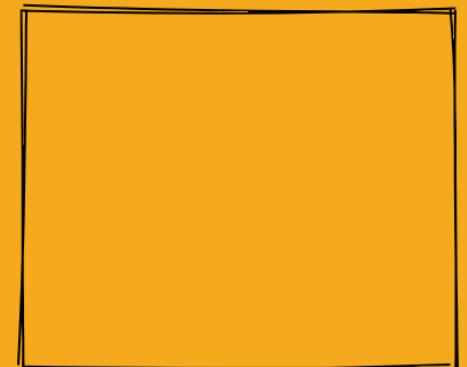
→ Canary releases



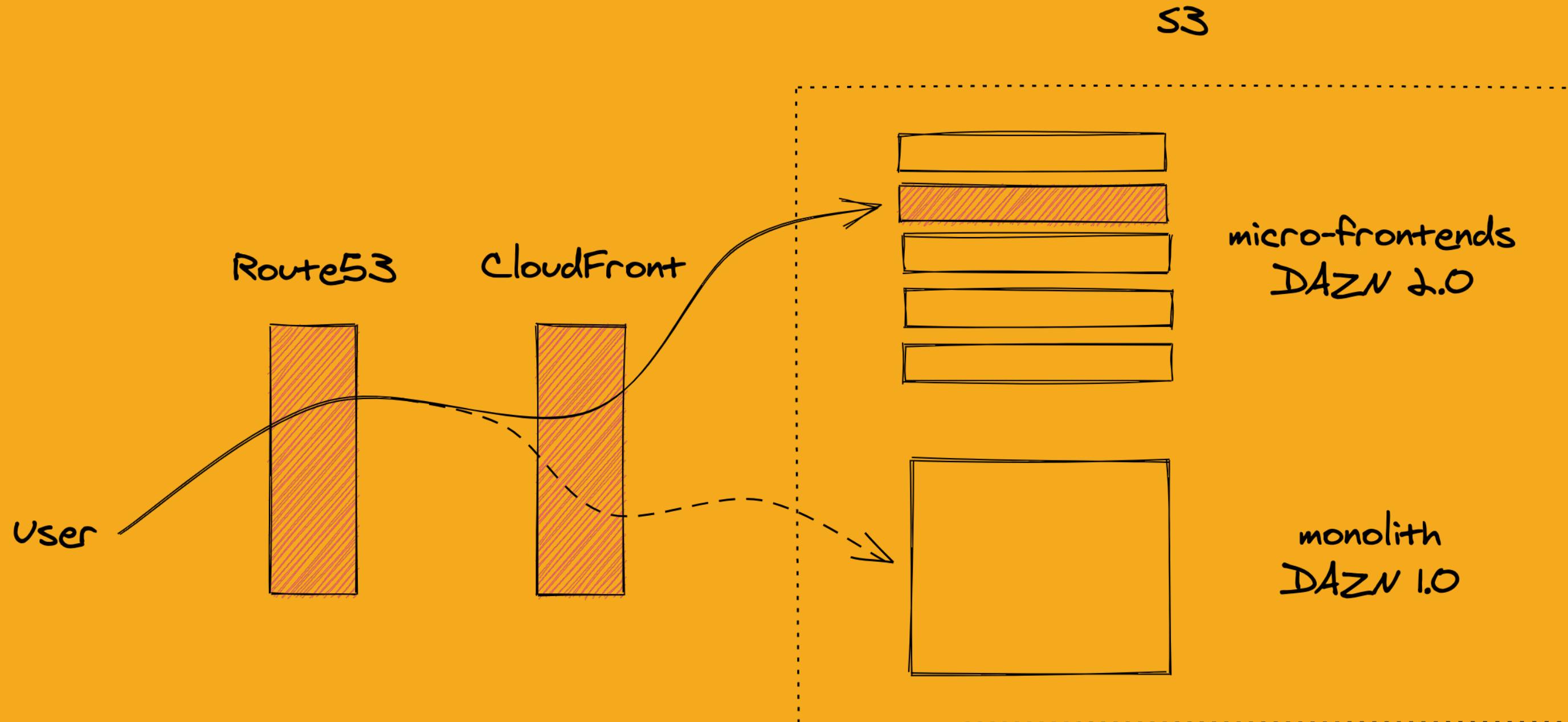
micro-frontends
DAZN 2.0



monolith
DAZN 1.0

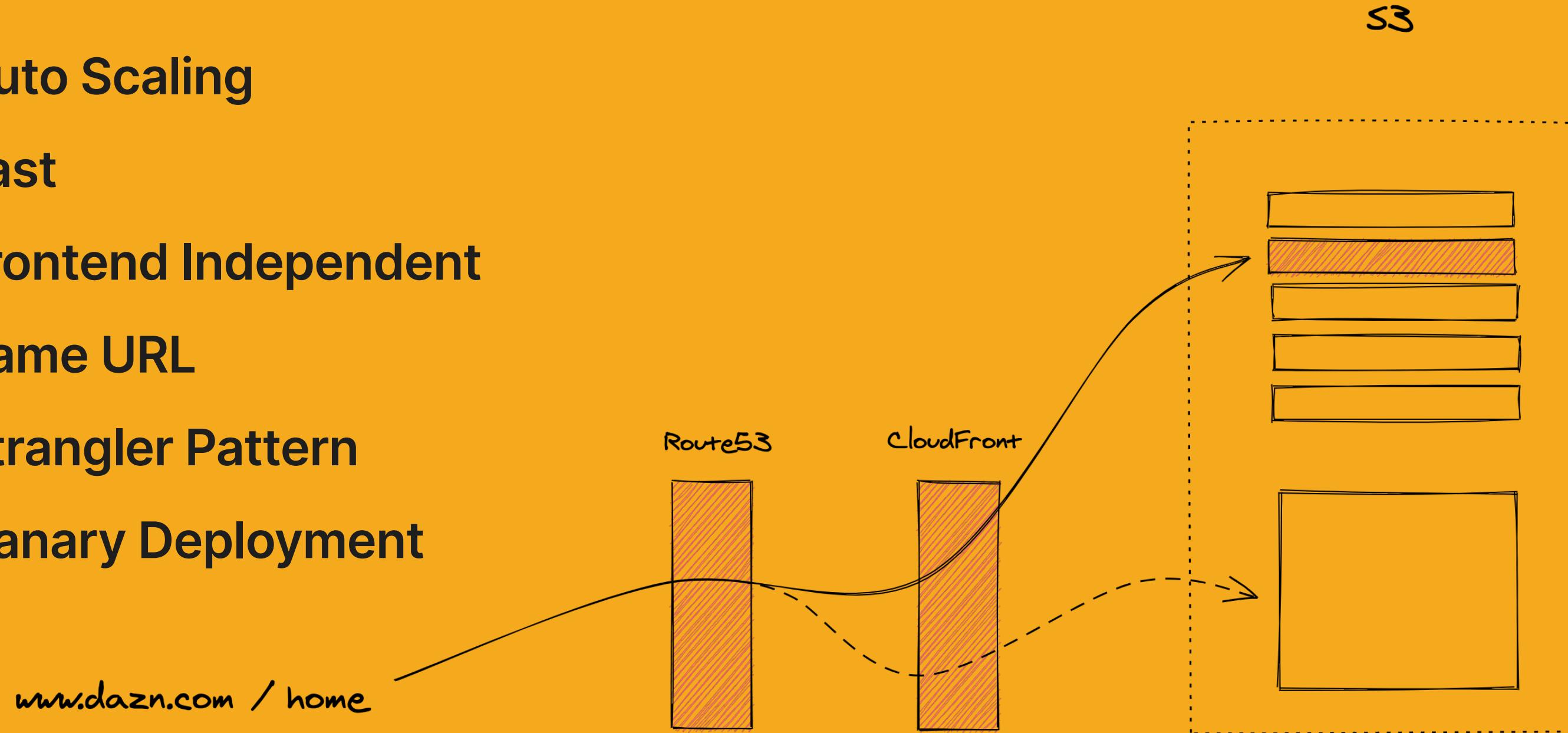


Which Frontend ?



The Solution

- Auto Scaling
- Fast
- Frontend Independent
- Same URL
- Strangler Pattern
- Canary Deployment



Context

Problem

Solution

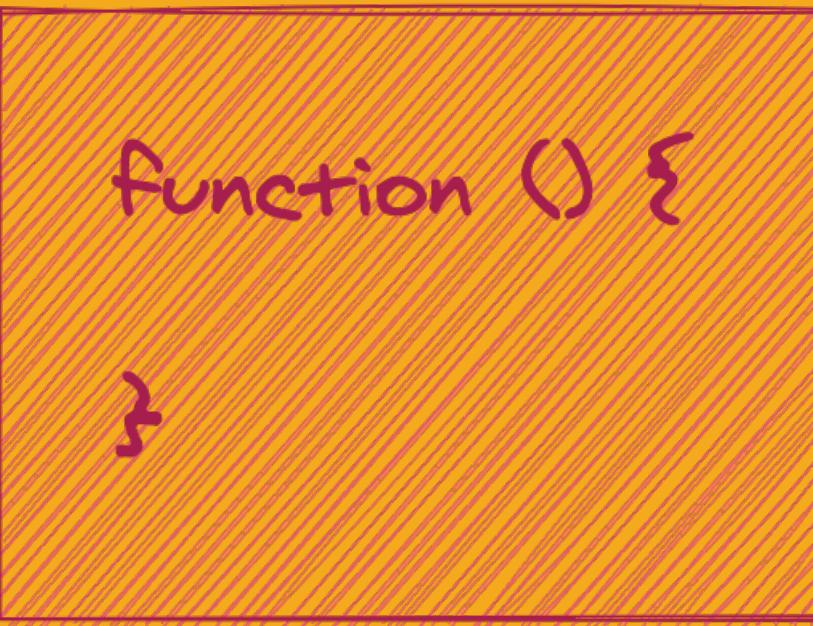
Analysis

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Lambda @ Edge

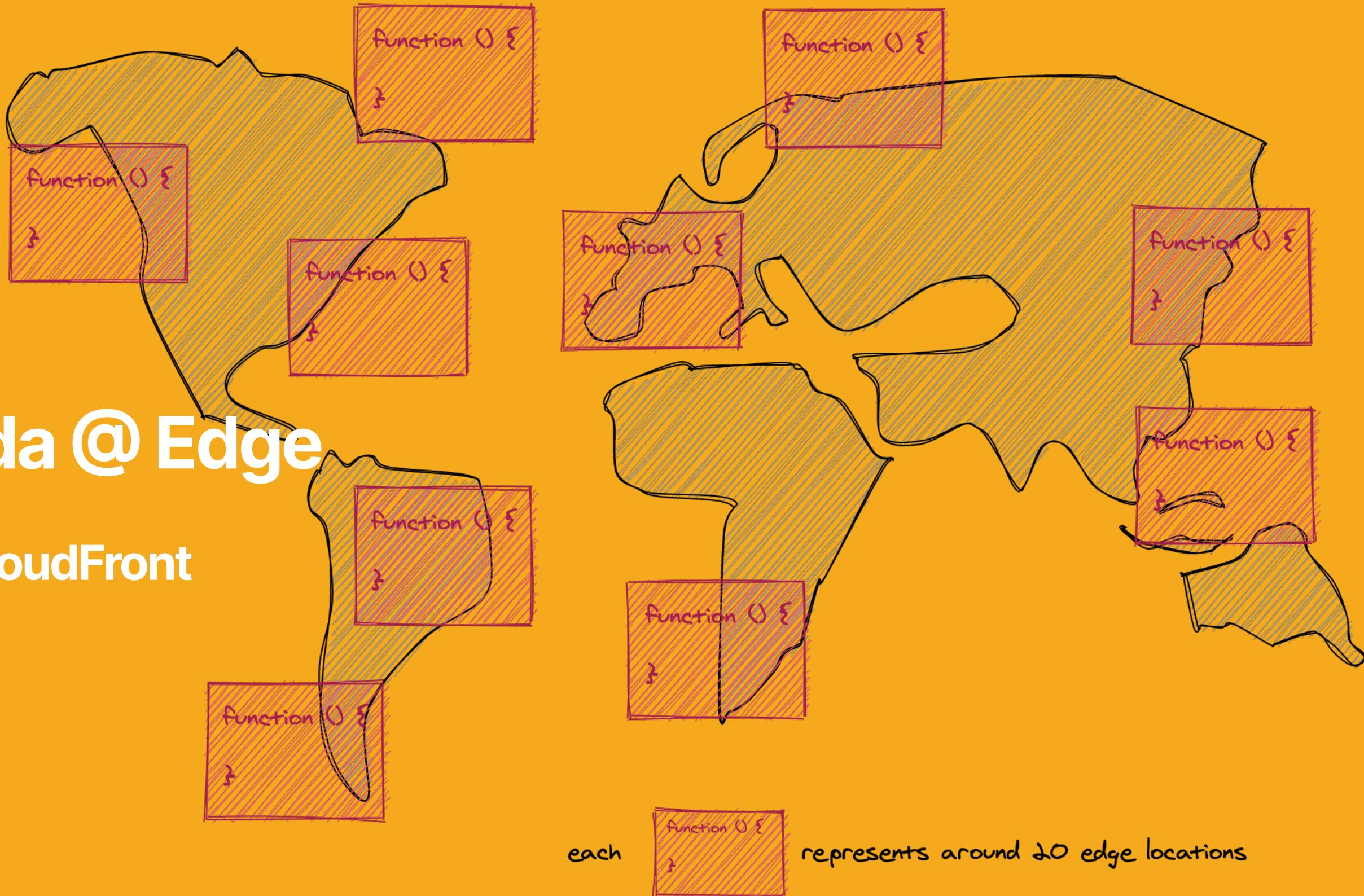
An extension to AWS Lambda that lets you execute functions that customize the content that CloudFront delivers.

- No Infrastructure to manage
- Auto Scaling
- Pay-Per-Use

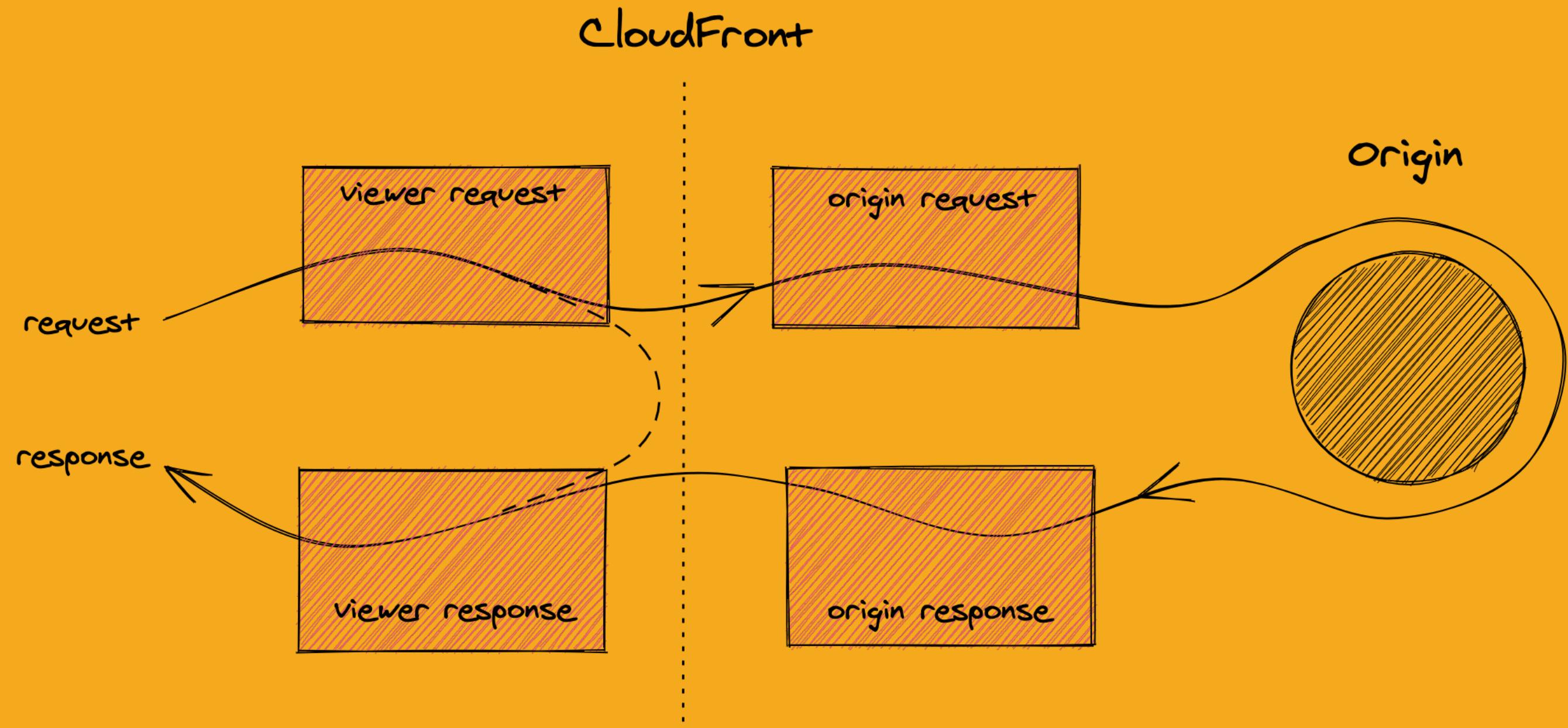


Lambda @ Edge

Run on CloudFront

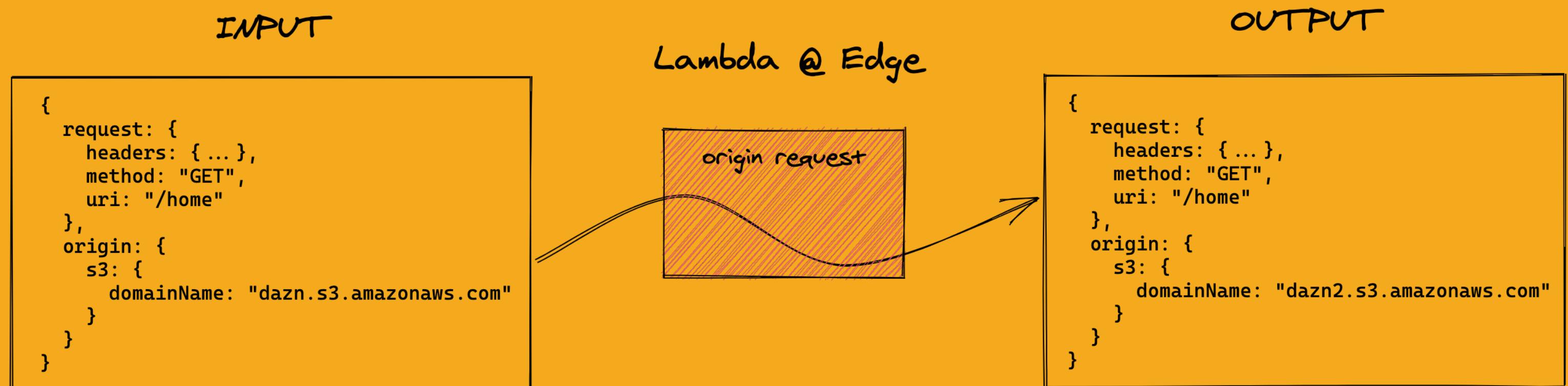


Lambda @ Edge



Lambda @ Edge

CloudFront Events



Lambda @ Edge Challenges

Concurrent Limit

→ 1000 concurrent execution ^a

Metrics & Alarms

→ Spread across 11 AWS regions

Deployment Time

→ up to 10 minutes to deploy

Lambda Logs

→ Spread across 11 AWS regions ^b

^aIt's possible to increment the limit up to 5000 per account, per region. <https://docs.aws.amazon.com/AmazonCloudFront/latest/DeveloperGuide/cloudfront-limits.html#limits-lambda-at-edge>

^bLogs Aggregation <https://aws.amazon.com/blogs/networking-and-content-delivery/aggregating-lambdaedge-logs/>

Context

Problem

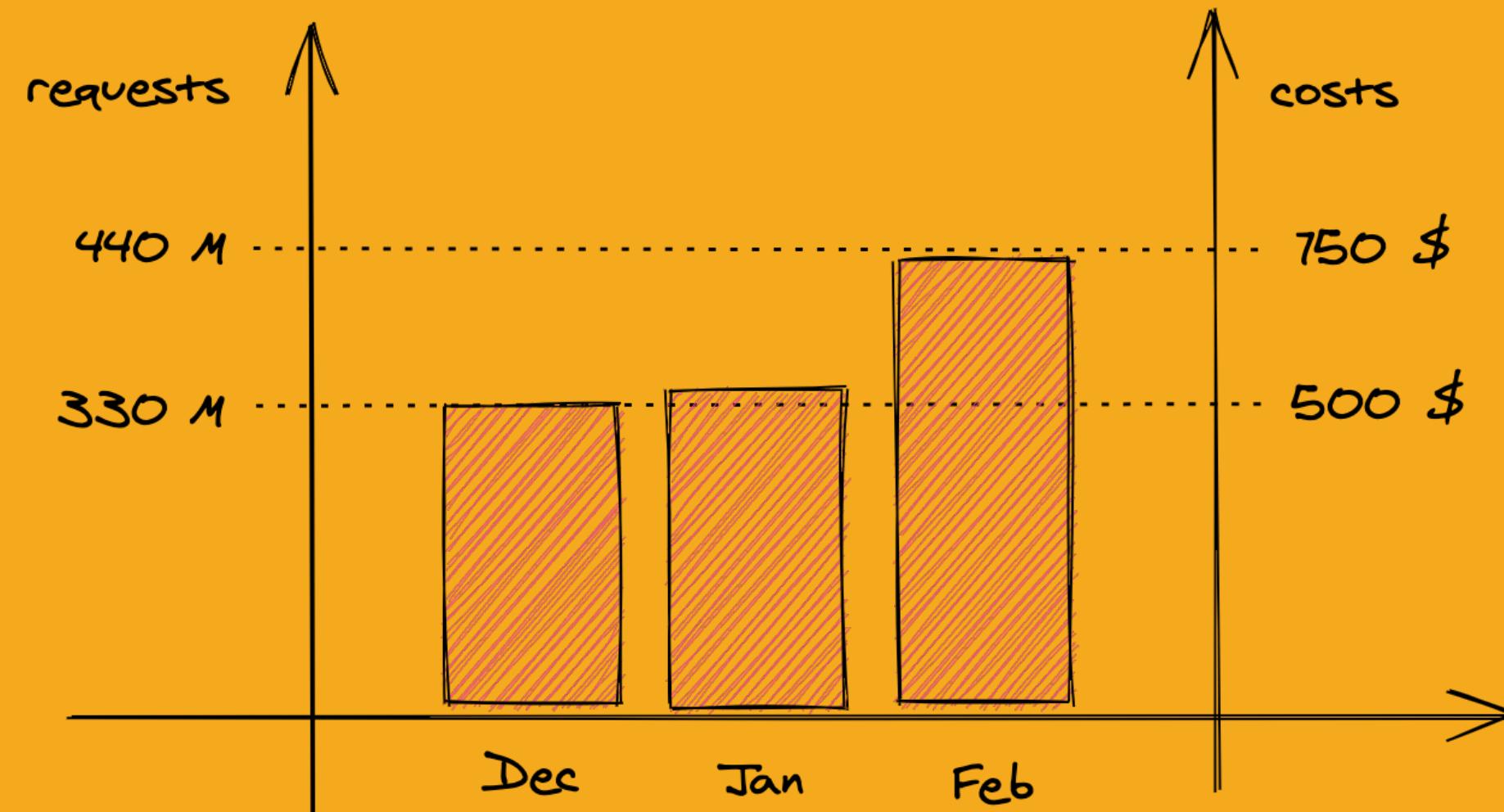
Solution

Analysis

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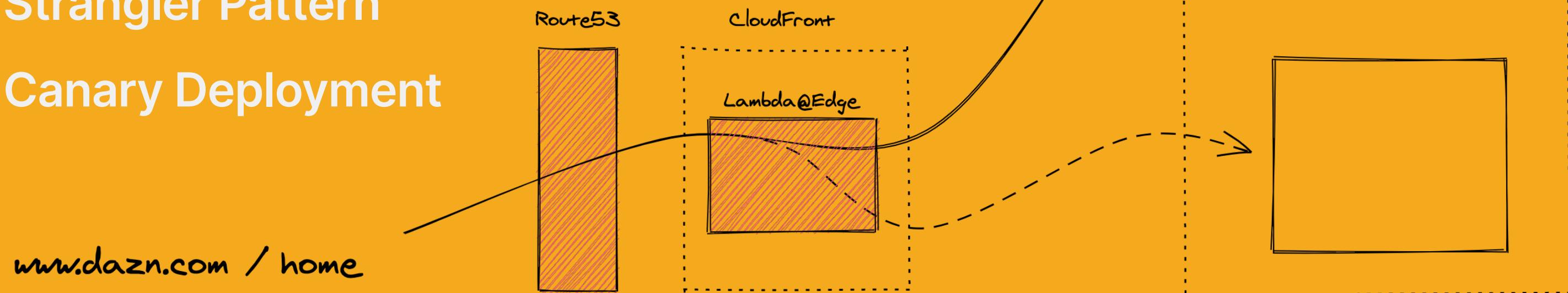
Costs

Around 2ms of execution time



Lambda @ Edge in DAZN

- Auto Scaling
- Fast
- Frontend Independent
- Same URL
- Strangler Pattern
- Canary Deployment



Canary Deployments & Strangler Pattern

Canary Deployments

```
{  
    italy: 100%  
    germany: 50%  
    canada: 40%  
}
```

Lambda@Edge

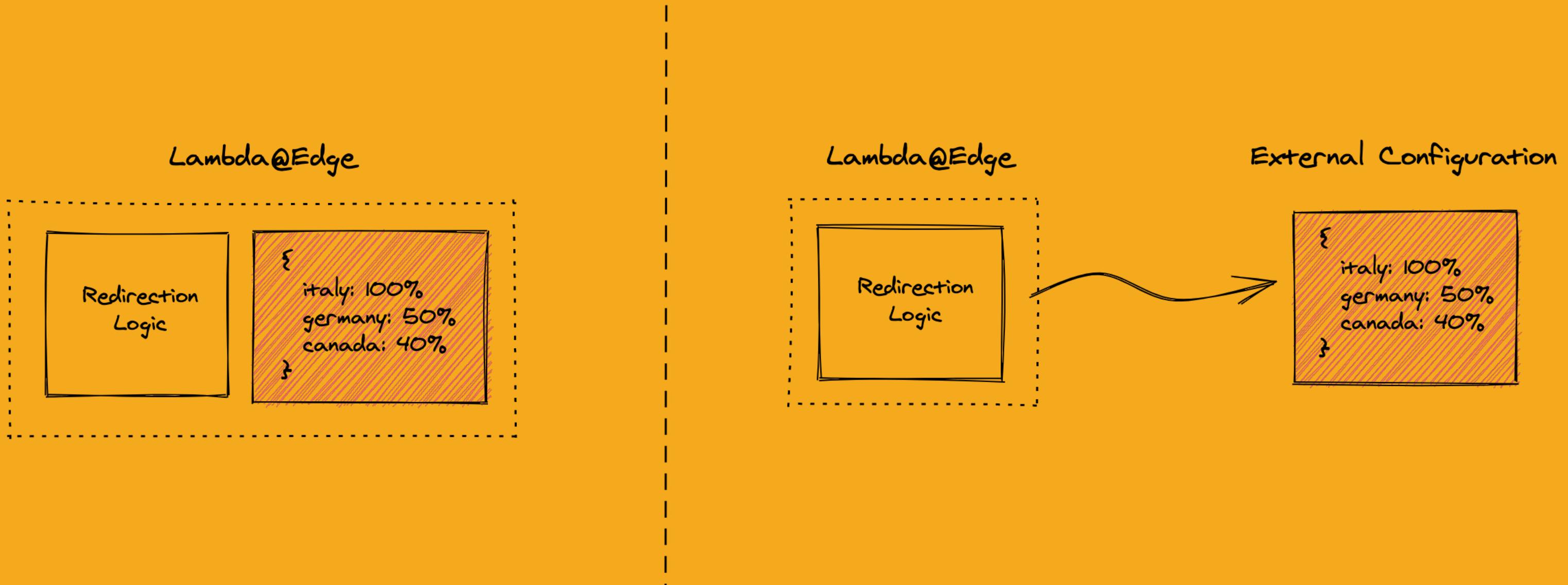
```
Redirection  
Logic
```

Strangler Pattern

```
{  
    auth: enabled  
    help: enabled  
    catalog: disabled  
}
```

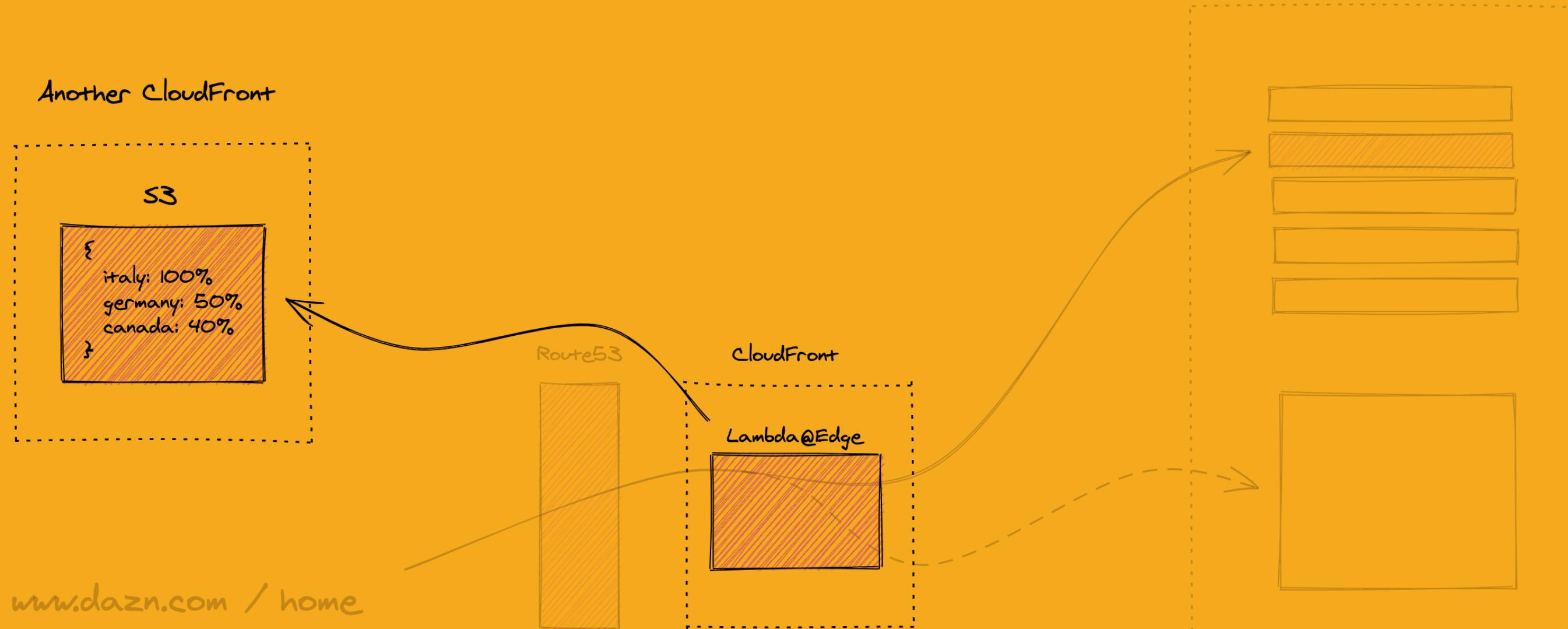
Canary Deployment

Two places to store the configuration



Canary Deployment

External Configuration

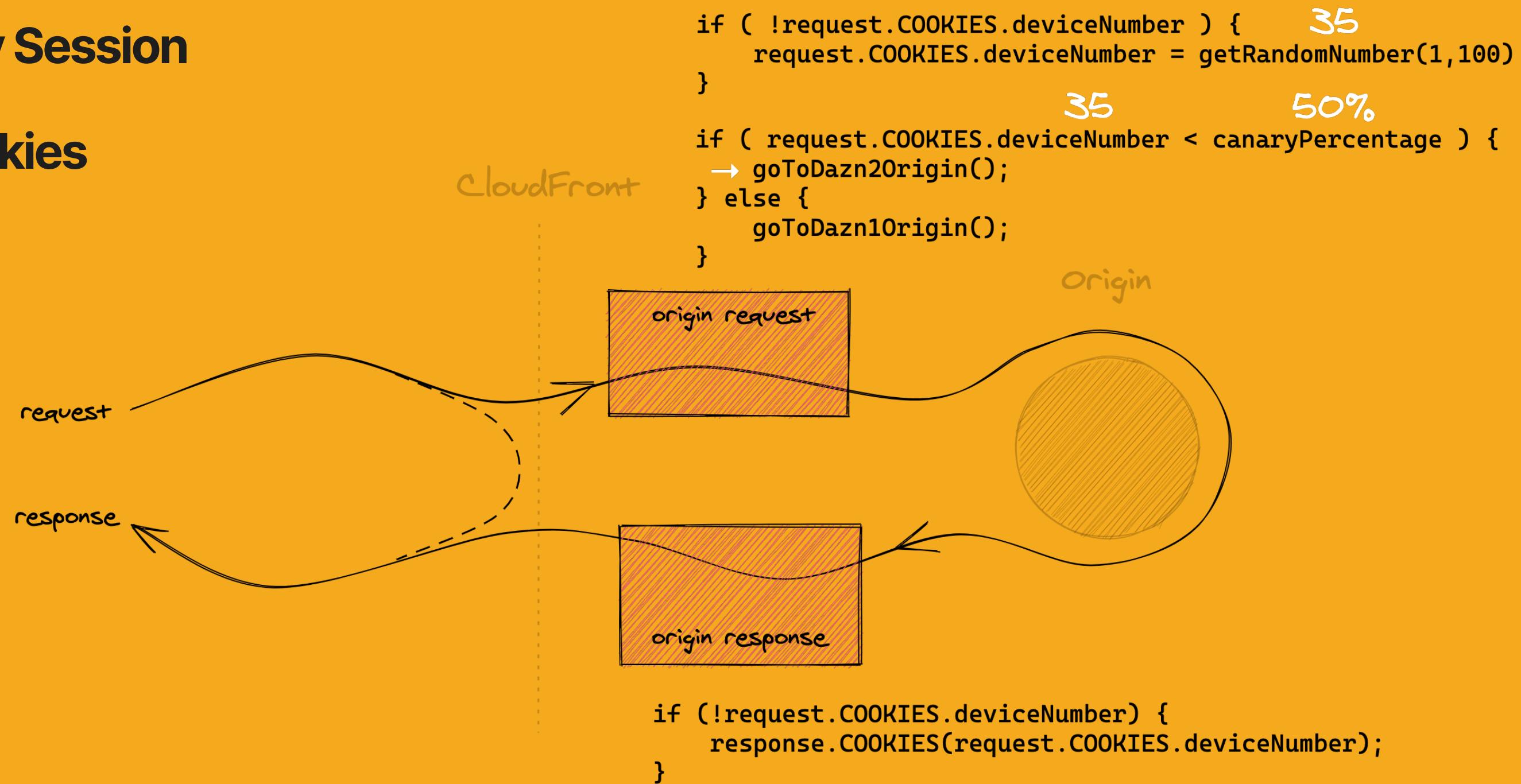


External data in Lambda@Edge: <https://aws.amazon.com/blogs/networking-and-content-delivery/leveraging-external-data-in-lambdaedge/>

Canary Deployment

Sticky Session

+ Cookies



TakeAways

- Context Context Context !
- Working on the CDN is possible
- Not only AWS (Cloudflare Workers)
- Routing & Canary Release are just the beginning (SSR¹, SEO ², Authentication, Authorization, Real-Time Image Transformation, Security & Privacy...)

¹Server Side Rendering

²Search Engine Optimisation

thank you

github.com/maxgallo/talk-micro-frontends-migration

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