

AWS
re:Invent

NET 312

How the BBC uses Lambda@Edge to customize device pages

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What is Lambda@Edge?

- Part of Amazon CloudFront
 - Allows you to run code closer to users
 - Reduces latency
 - Increases performance
 - Offload requests from origin
- Only pay for what you use
- Upload your code to AWS Lambda and deploy globally

Simple HTTP Manipulations

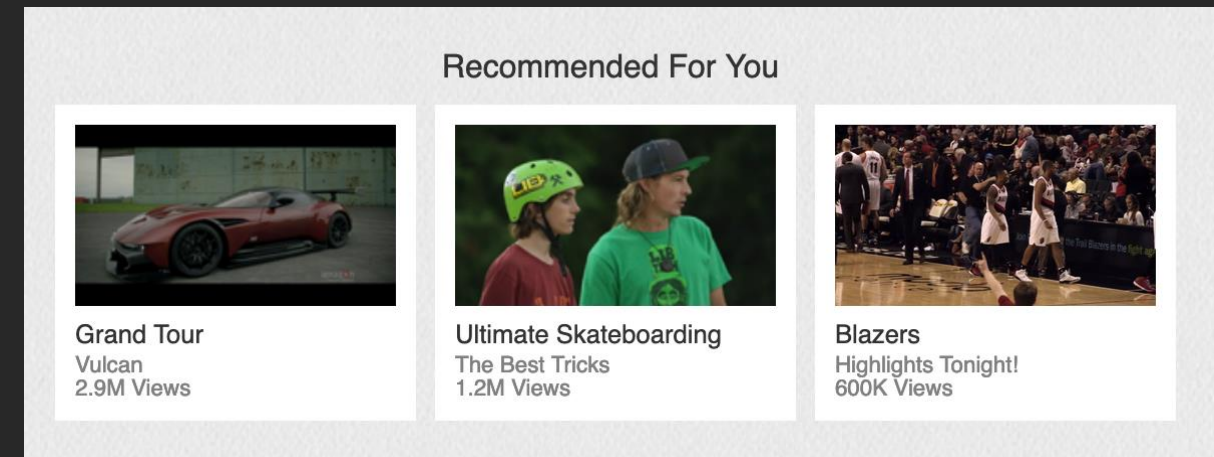
Manipulate Headers

```
▼ Response headers (0.839 KB)
Accept-Ranges: "bytes"
Content-Length: "210"
Content-Type: "text/html"
Date: "Wed, 27 Sep 2017 17:58:48 GMT"
Etag: ""2934dbb48a5131714737b8c55e525f95""
Last-Modified: "Wed, 27 Sep 2017 13:16:26 GMT"
Server: "AmazonS3"
Strict-Transport-Security: "max-age= 63072000; includeSubdomains; preload"
Via: "1.1 fb052932e5bf47ec8b8134cdf6f47729.cloudfront.net (CloudFront)"
X-Amz-Cf-Id: "qOXBLUpch7-AOS3b_TQoALo_zYvZSr0ety_e1jN29T1G-MaXpfofUQ=="
X-Cache: "Miss from cloudfront"
X-Content-Type-Options: "nosniff"
X-Firefox-Spdy: "h2"
X-Frame-Options: "DENY"
X-XSS-Protection: "1; mode=block"
content-security-policy: "default-src 'none'; img-src 'self'; script-src 'self'; style-src 'self'; object-src 'none'"
referrer-policy: "same-origin"
x-amz-id-2: "tCeC4TbO8Y/QcWgrnx7yQ0EsAFwHiFULs67LyY4RMdyD4cC2iqO2CNluTE9YSDEgwxUE47URR0s="
x-amz-request-id: "8A3F4F49DDDA3FFE"
```

Add Secure Headers
Enforce Cache-Control Headers
Normalise User-Agent

A/B Testing

Recommended For You

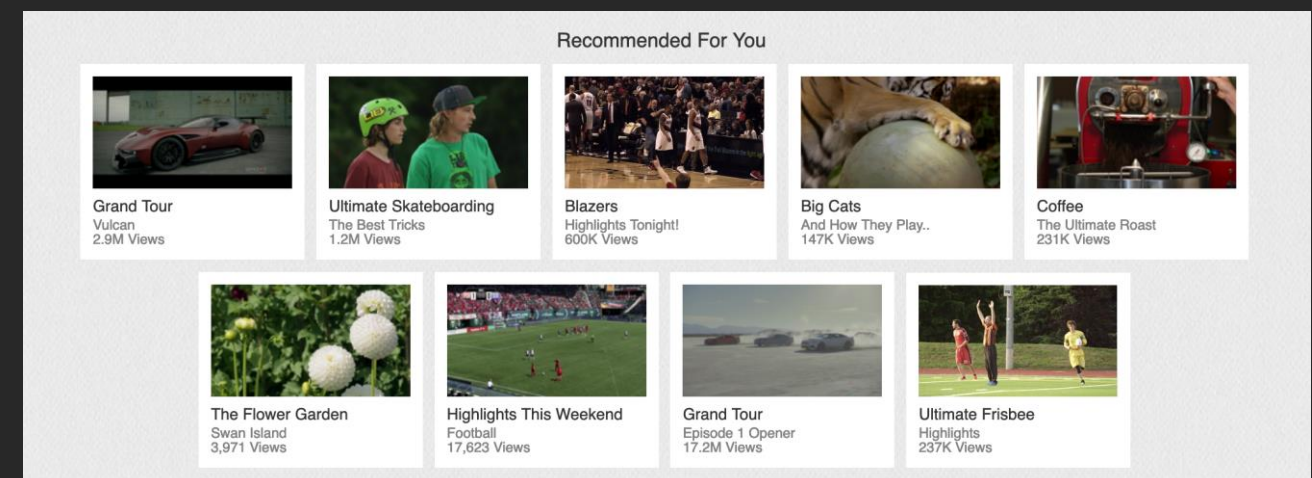


Grand Tour
Vulcan
2.9M Views

Ultimate Skateboarding
The Best Tricks
1.2M Views

Blazers
Highlights Tonight!
600K Views

Recommended For You



Grand Tour
Vulcan
2.9M Views

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The Best Tricks
1.2M Views

Blazers
Highlights Tonight!
600K Views

Big Cats
And How They Play..
147K Views

Coffee
The Ultimate Roast
231K Views

The Flower Garden
Swan Island
3,971 Views

Highlights This Weekend
Football
17,823 Views

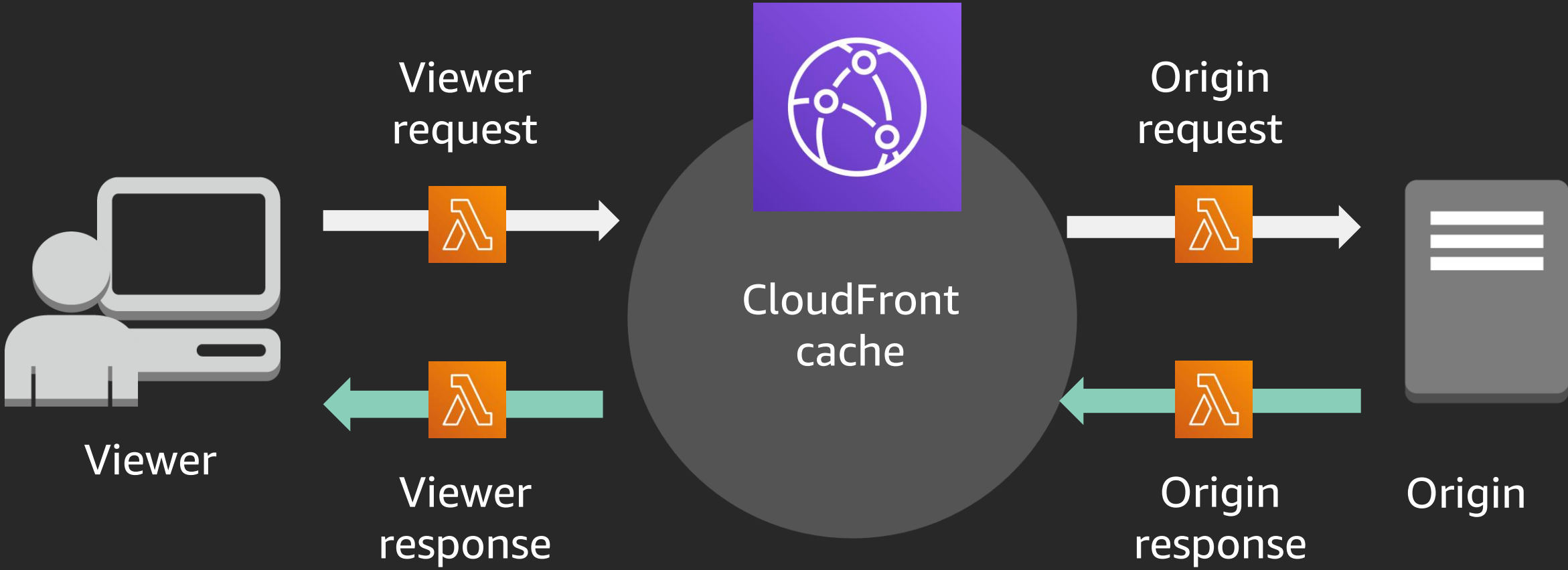
Grand Tour
Episode 1 Opener
17.2M Views

Ultimate Frisbee
Highlights
237K Views

Lambda@Edge use cases

Dynamic content generation	Origin independence
Image manipulation	Pretty URLs
Render pages	API wrapper
Redirections	Authorization
SEO optimization	Bot mitigation

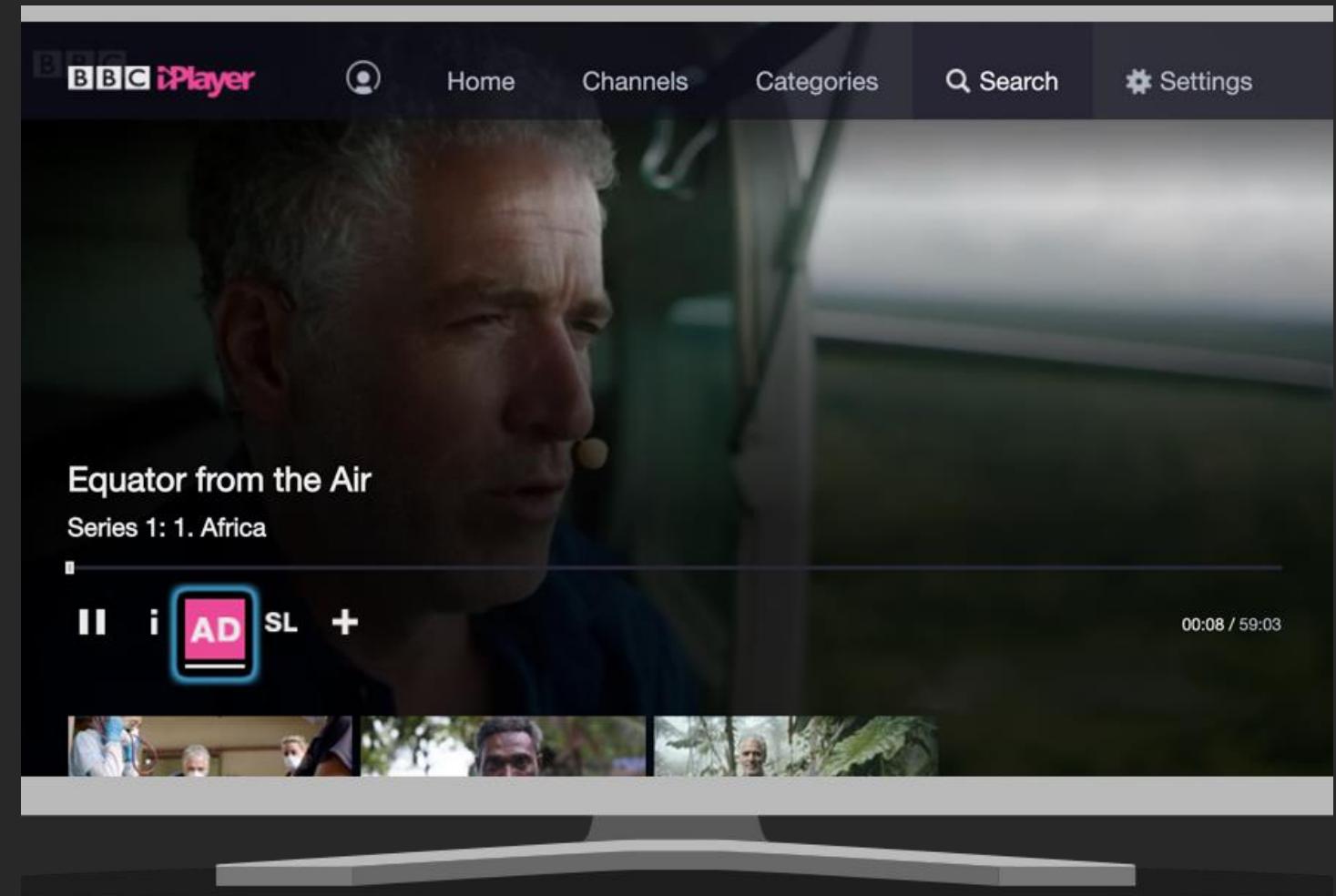
CloudFront and Lambda@Edge



BBC iPlayer overview

Video streaming service available in the UK

Available on a wide range of set-top boxes, streaming sticks, and Smart TVs, BBC iPlayer provides access to the BBC's on-demand and live content



Project overview

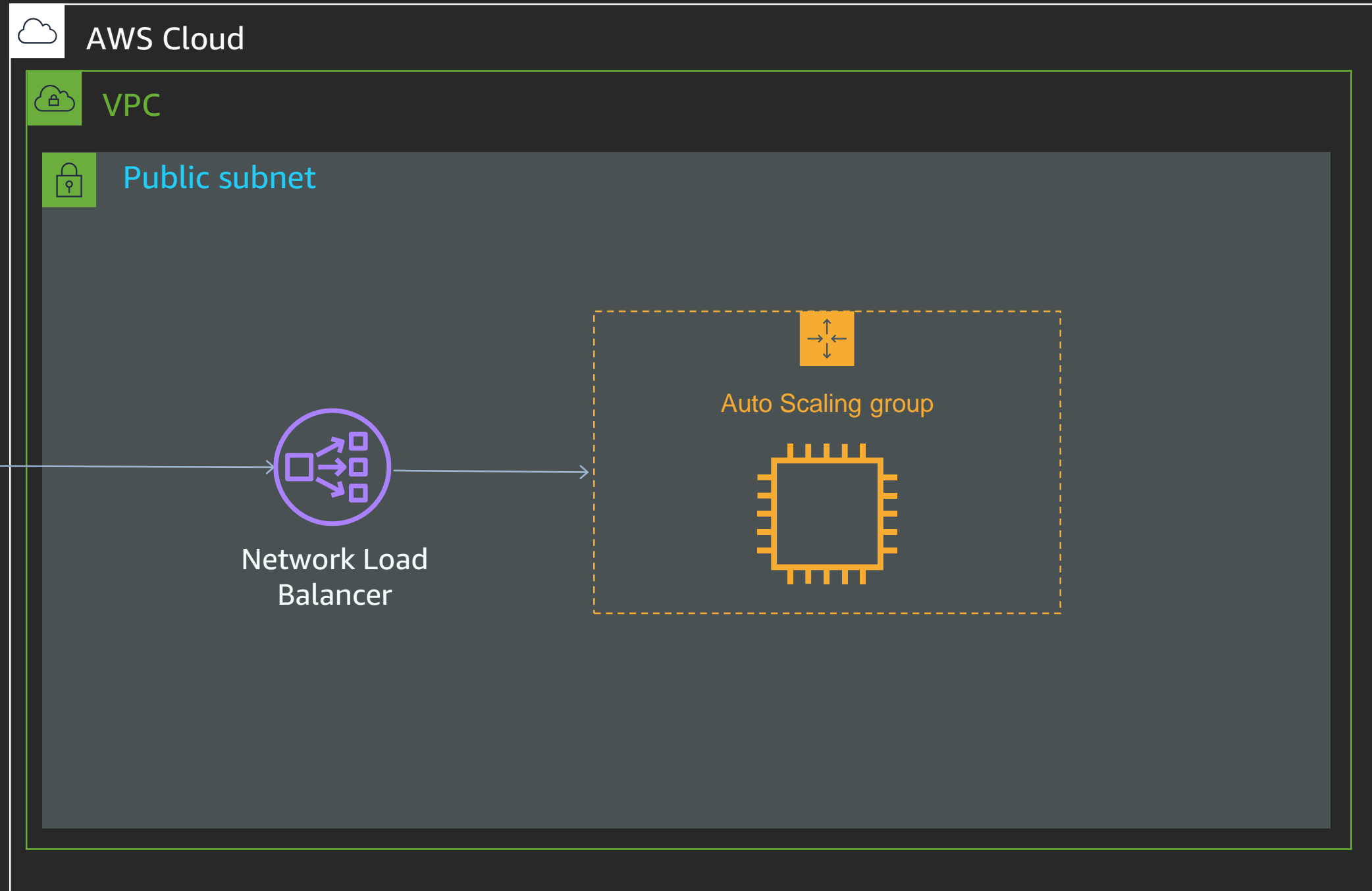
- Many different TVs that we need to support
- Each TV has different requirements
 - Different HTML
 - Different root element
 - Different content-type header

```
<script type='text/javascript'>
  function accessfunction(json) {
    try {
      require('antie/application').getCurrentApplication().getDevice().nativeCallback(json);
    } catch (ex) {
      if (typeof window.postMessage === 'function') {
        var data = JSON.parse(json);
        window.postMessage(data, '*');
      }
    }
  }
</script>
```

```
<script type="text/javascript">
  Windows.UI.WebUI.WebUIApplication.addEventListener("activated", function (args) {
    if (typeof window.postMessage === 'function') {
      var data = {
        kind: args && args.kind,
        rawUri: args.detail.length && args.detail[0] && args.detail[0].uri && args.detail[0].uri.rawUri
      };

      window.postMessage(data, '*');
    }
  });
</script>
```


Original deployment overview



Challenges with original approach

- Fleet of EC2 instances always running
- Had to scale quickly for spiky traffic
- Unable to cache response

Enter Lambda@Edge

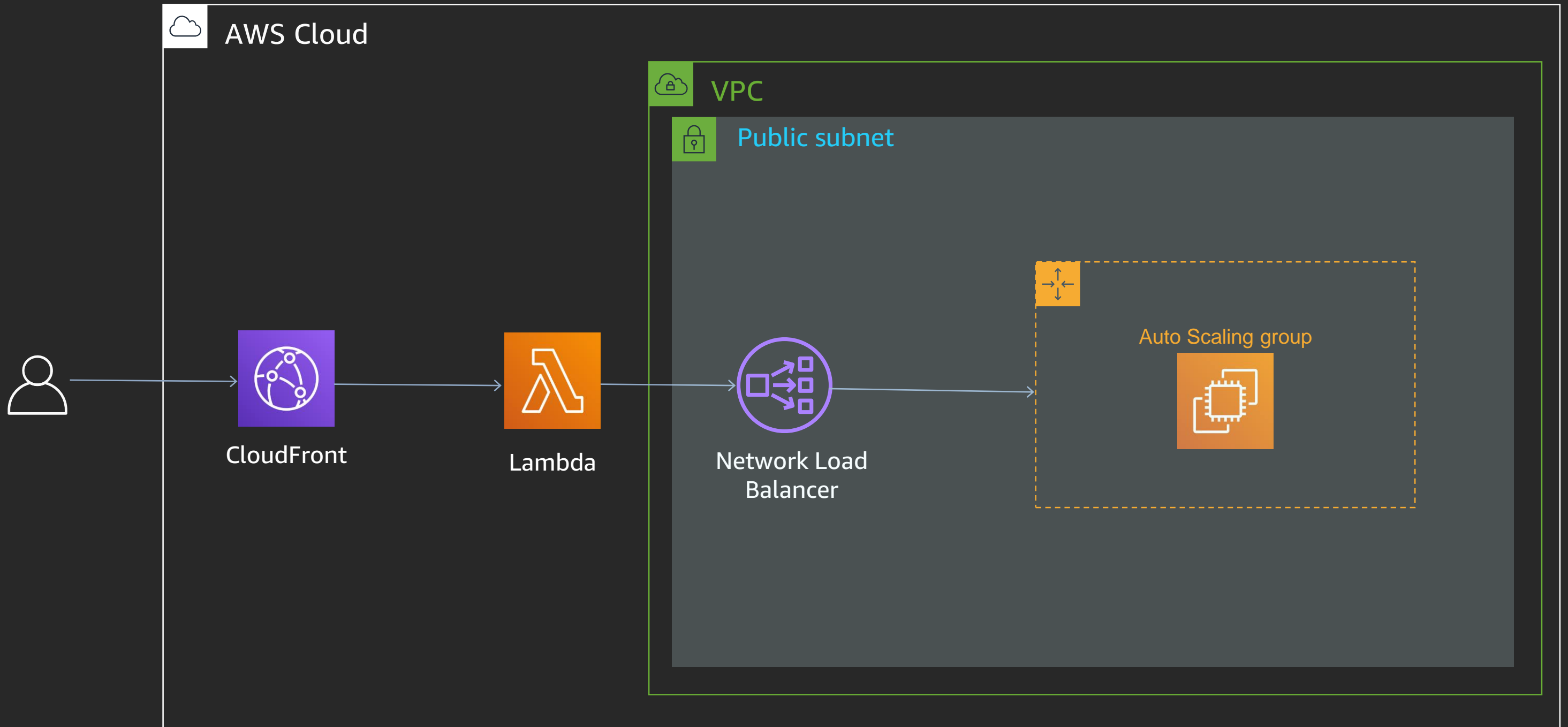
- No need to manage infrastructure
- Multi-region with minimal effort
- Familiar languages and environment



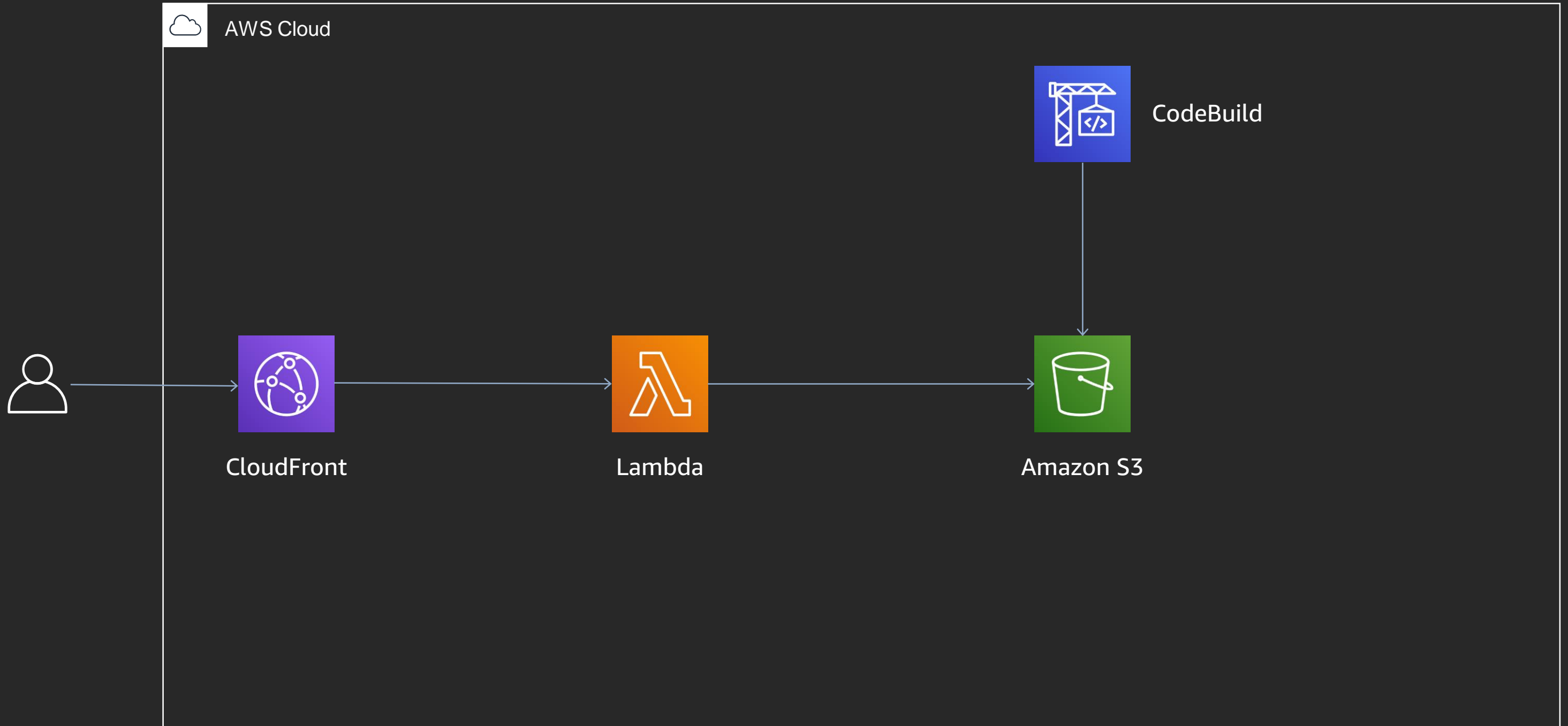
Lambda@Edge

Lambda@Edge runs your
code globally close to
your users

First phase

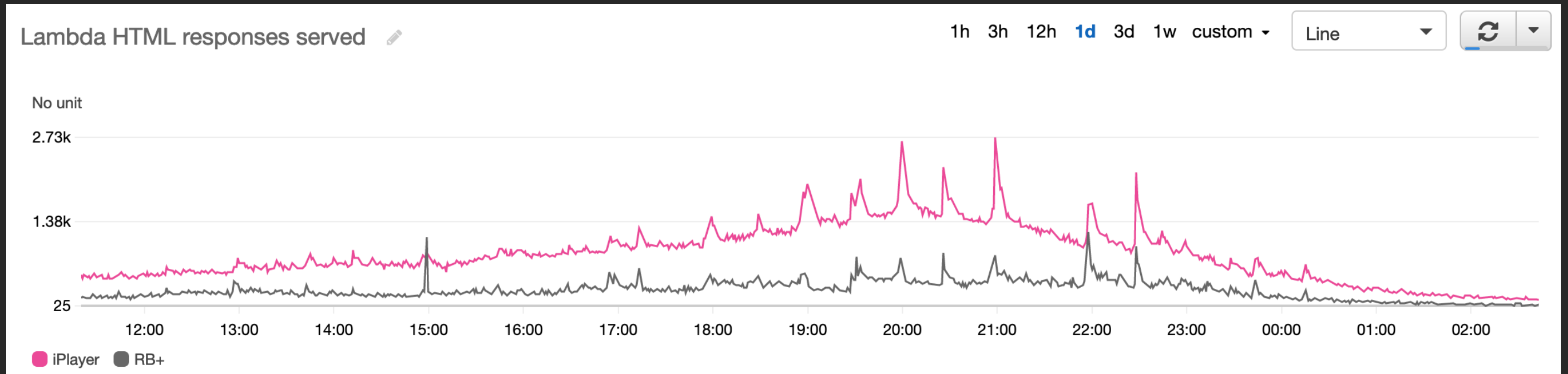


Second phase



How did this help?

- Native integration with CloudWatch
- Infrastructure managed for us
- Scaling and capacity managed for us



Challenges faced

- Regions
- US East 1

What's next?

- Applying our learnings elsewhere
- Broadcast capabilities provider

Questions?

Any questions on how the BBC are using Lambda@Edge?

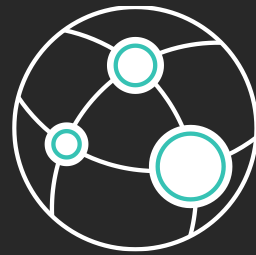
Do you have a case for which you are considering Lambda@Edge?

Additional resources

- <https://aws.amazon.com/lambda/edge/>
- <https://aws.amazon.com/blogs/networking-and-content-delivery/lambdaedge-design-best-practices/>
- <https://docs.aws.amazon.com/AmazonCloudFront/latest/DeveloperGuide/lambda-edge-testing-debugging.html>
- AWS blog: Cookie synching for AdTech, visitor prioritization for e-commerce, paywall for publishers

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