AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

BOA311

Boost application performance and security at the edge

Artiom Lichtenstein
Sr. Solutions Architect
AWS

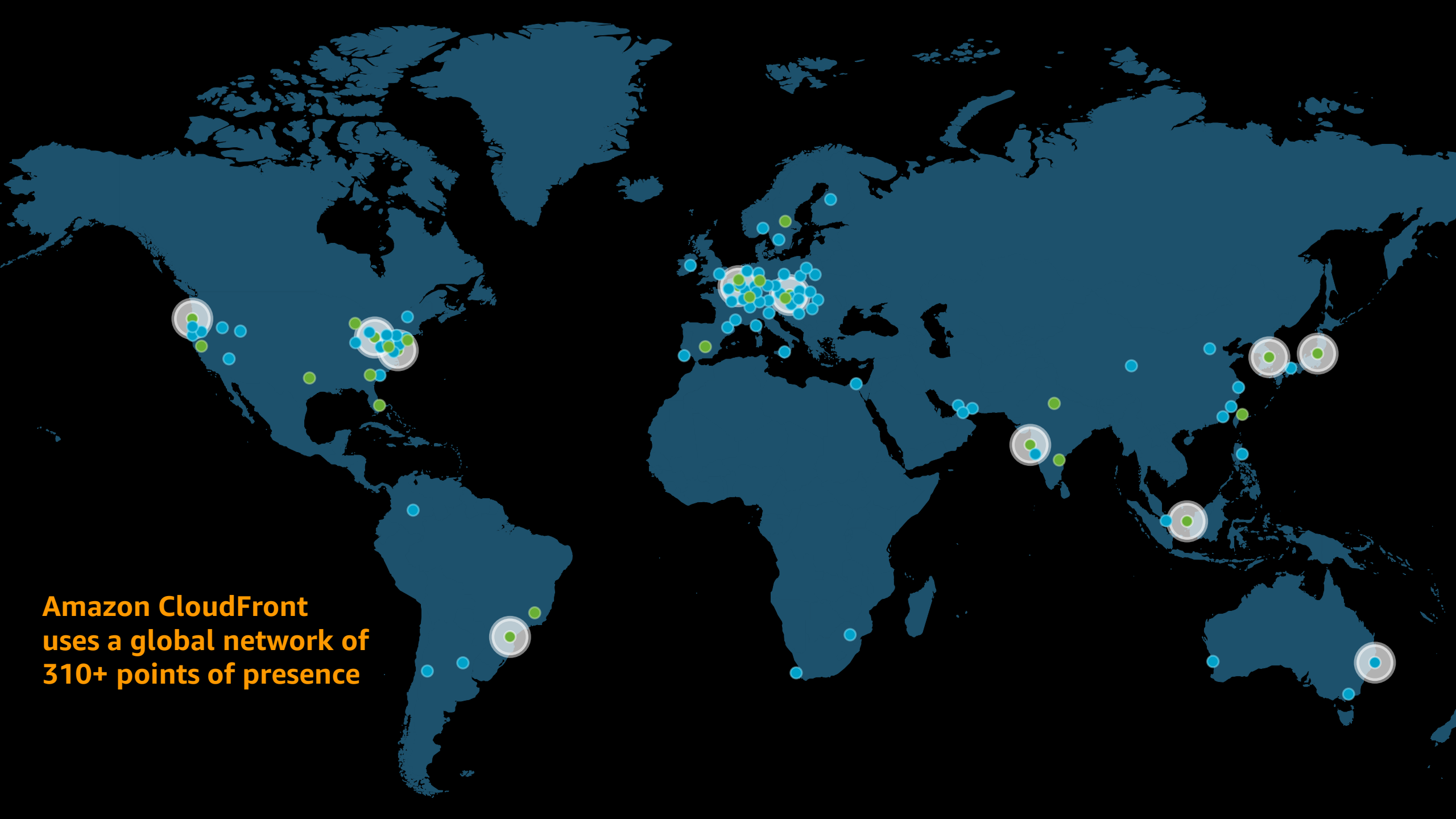
Boaz Ziniman
Principal Developer Advocate
AWS

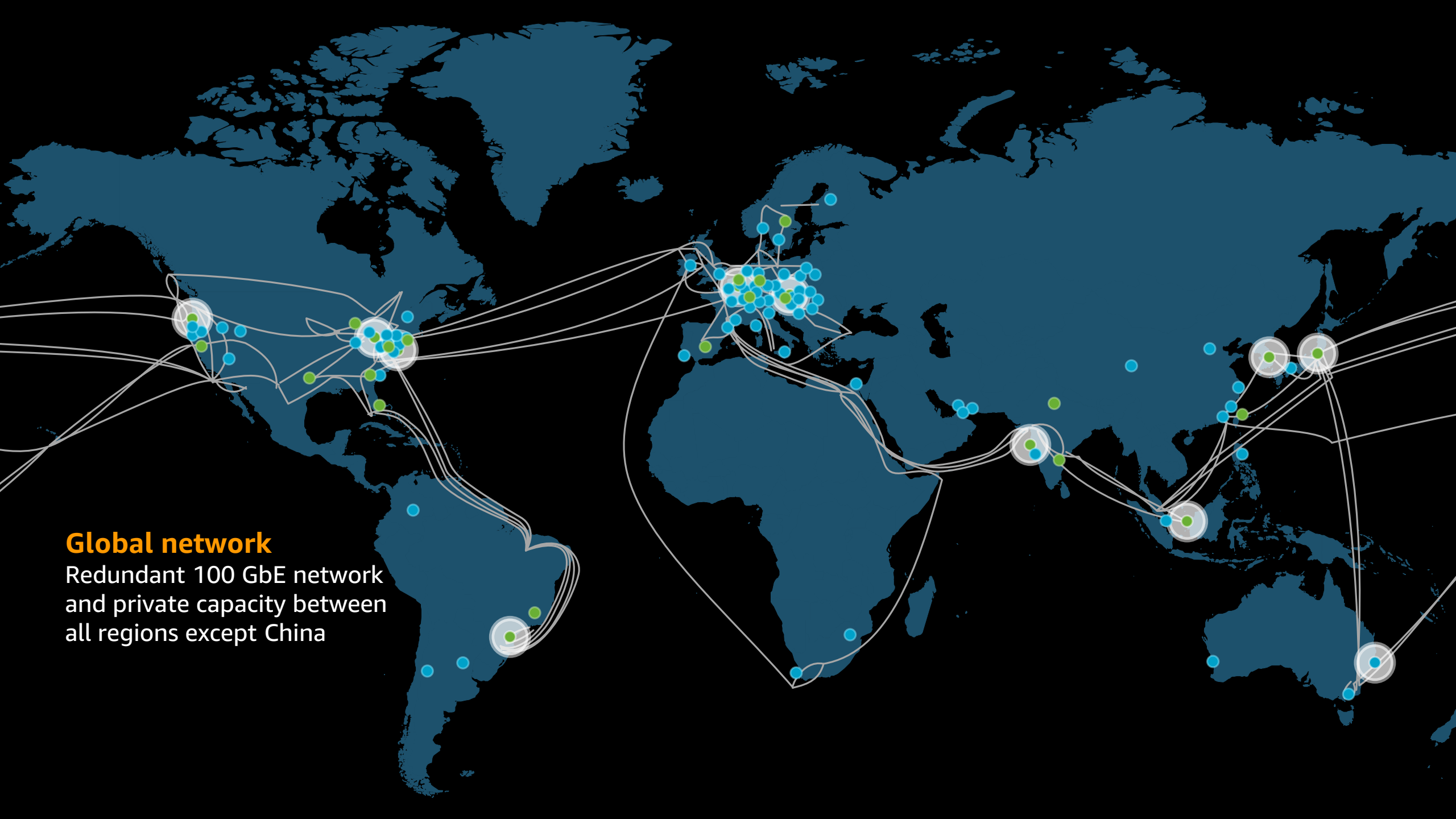
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Agenda

- Introduction to edge services
- Edge code execution with
    - Lambda@Edge
    - CloudFront Functions
- The right tool for the job
- Let’s work(shop)!

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Amazon CloudFront
uses a global network of
310+ points of presence


Global network
Redundant 100 GbE network
and private capacity between
all regions except China

AWS edge services



Amazon CloudFront



AWS Global Accelerator



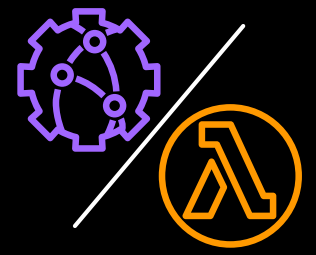
AWS WAF



AWS Shield



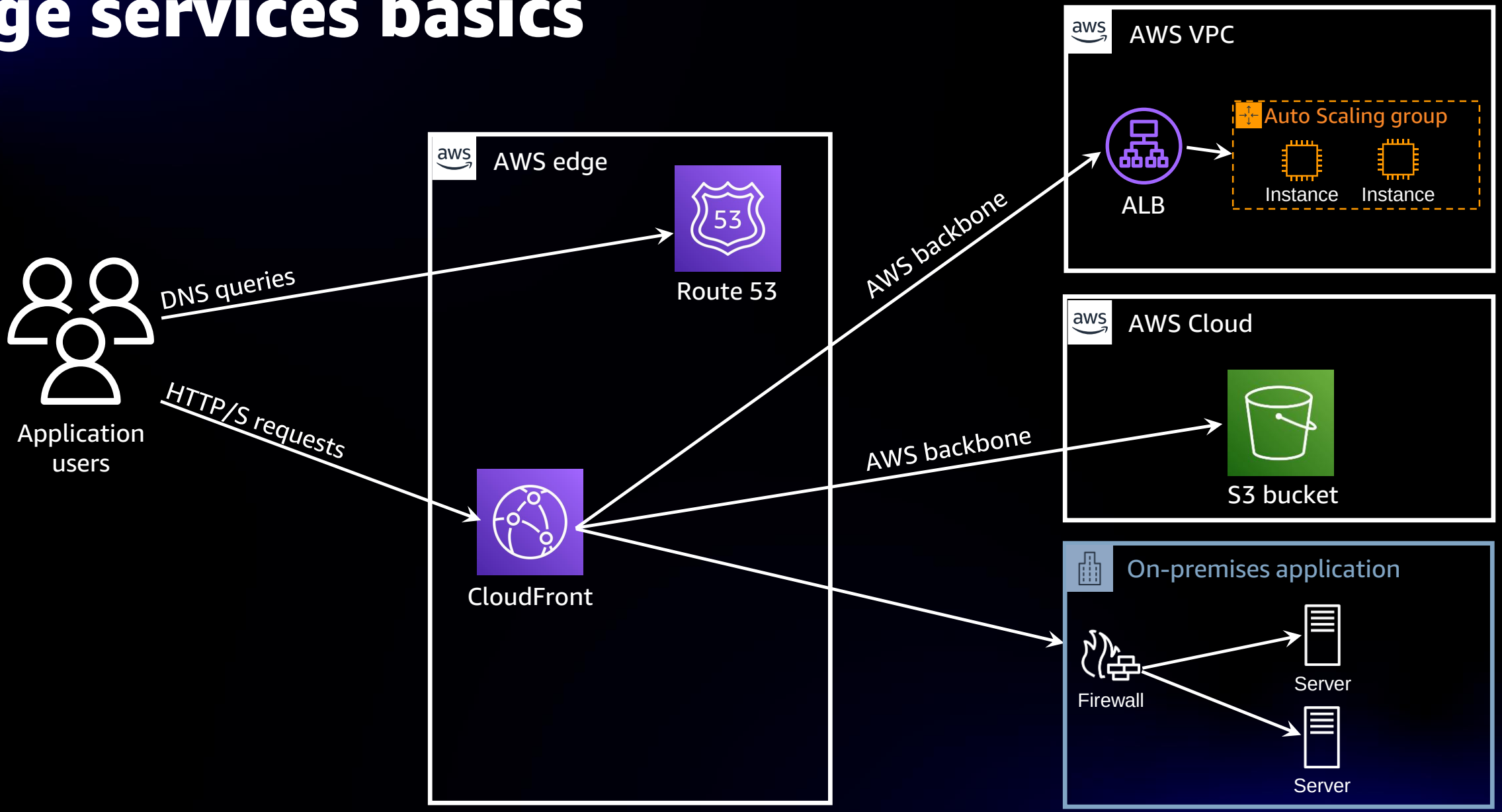
Amazon Route 53



CloudFront Functions/ Lambda@Edge

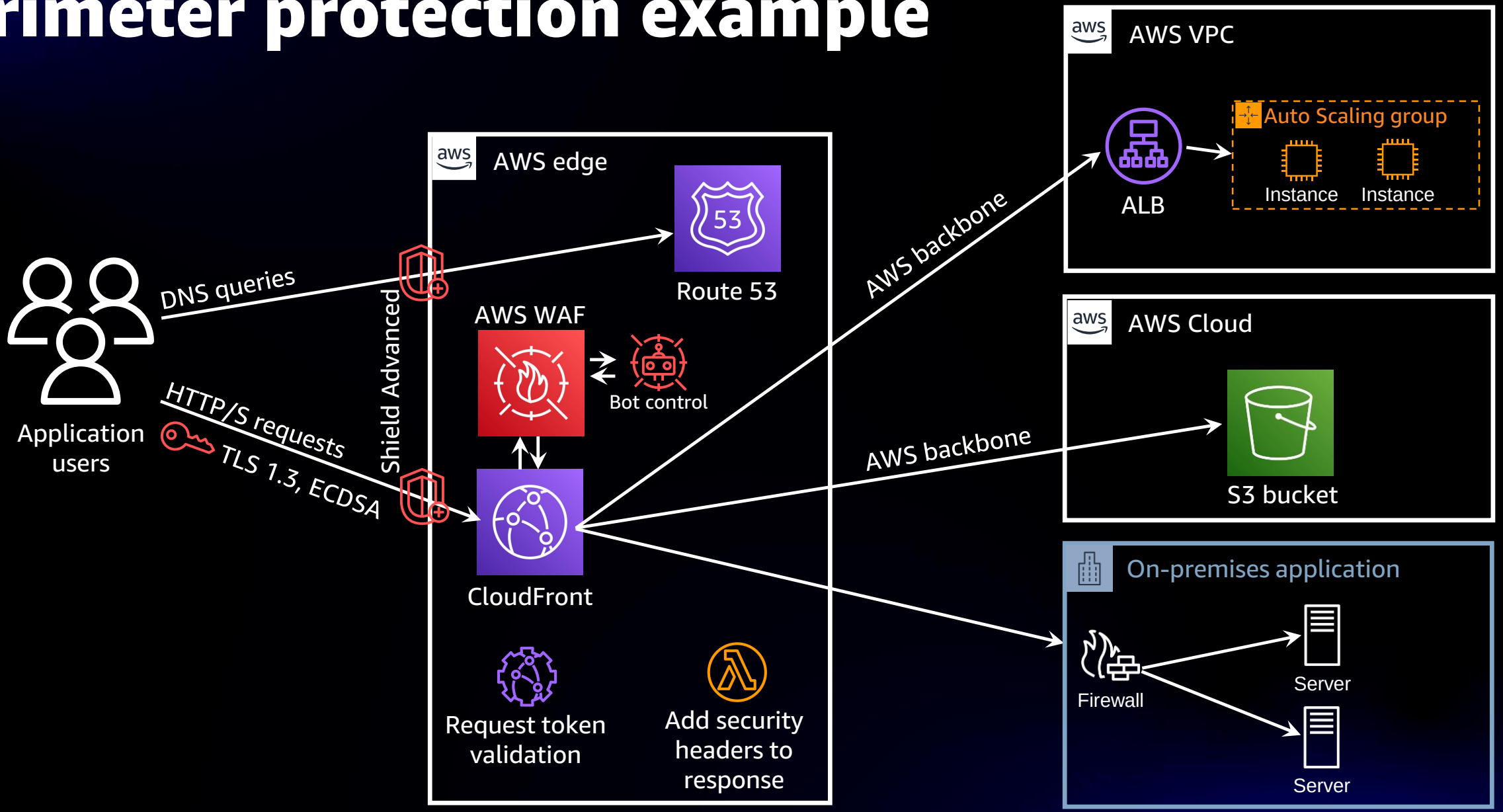
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Edge services basics



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Perimeter protection example



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AWS edge services



Amazon CloudFront



AWS Global Accelerator



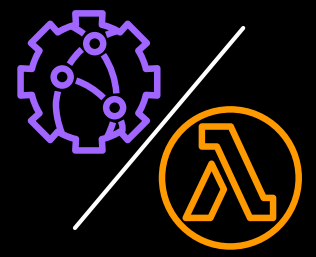
AWS WAF



AWS Shield



Amazon Route 53



CloudFront Functions/ Lambda@Edge

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When to use edge computing

- Stateless logic
- Logic needs to run on HTTP request
- Performance is paramount
- Origin scaling is a challenge

Simple HTTP manipulations	Dynamic content generation	Origin independence
User-Agent header normalization	Image manipulation	Pretty URLs
Adding security headers	Render pages	API wrapper
Enforcing Cache-Control headers	Redirections	User authorization
A/B testing	SEO optimization	Bot mitigation

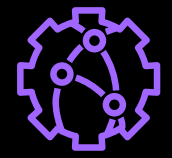
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Bring compute closer to end users



Lambda@Edge

- Node.js or Python
- All requests (viewer side) or only uncached requests served from origin (origin side)
- Use cases include
  - A/B testing
  - Inserting additional HTTP headers
  - URL rewriting and redirection
  - Dynamic ad insertion or other manipulation of responses from the origin



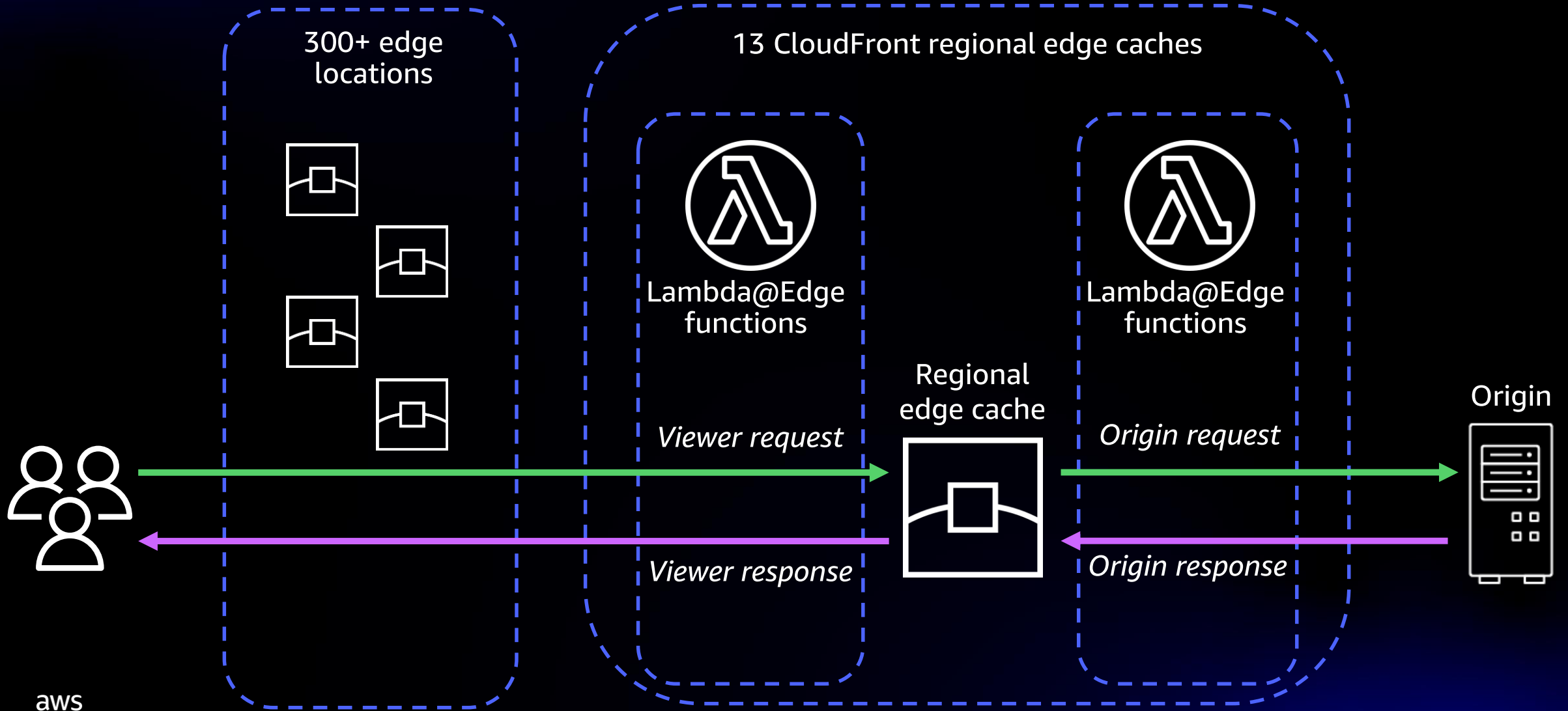
CloudFront Functions

- JavaScript
- Supports **Viewer** request and **Viewer** response triggers
- Lightweight code
- Highly scalable and cost-effective
- Use cases include
  - Simple HTTP(S) request/response manipulations
  - Access authorization

aws

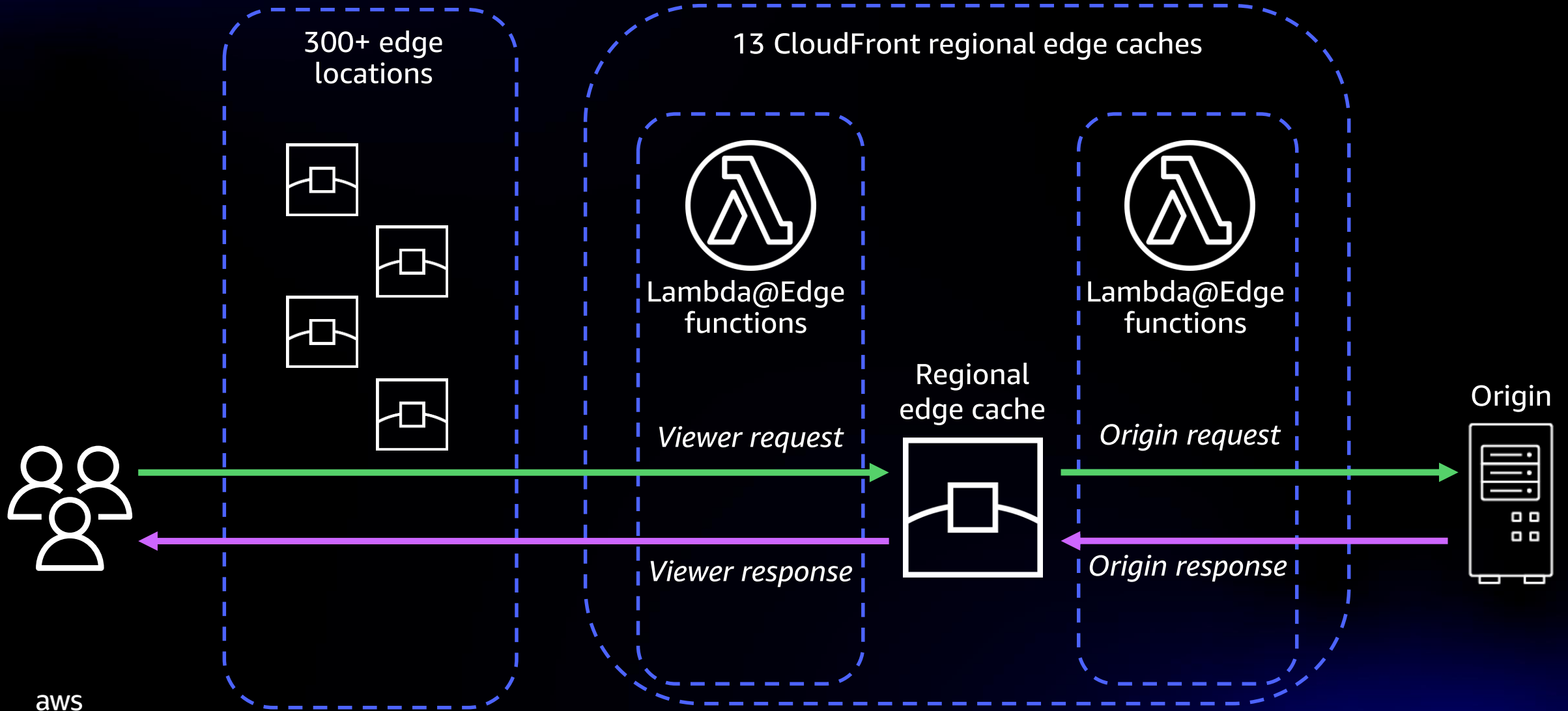
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Lambda@Edge execution



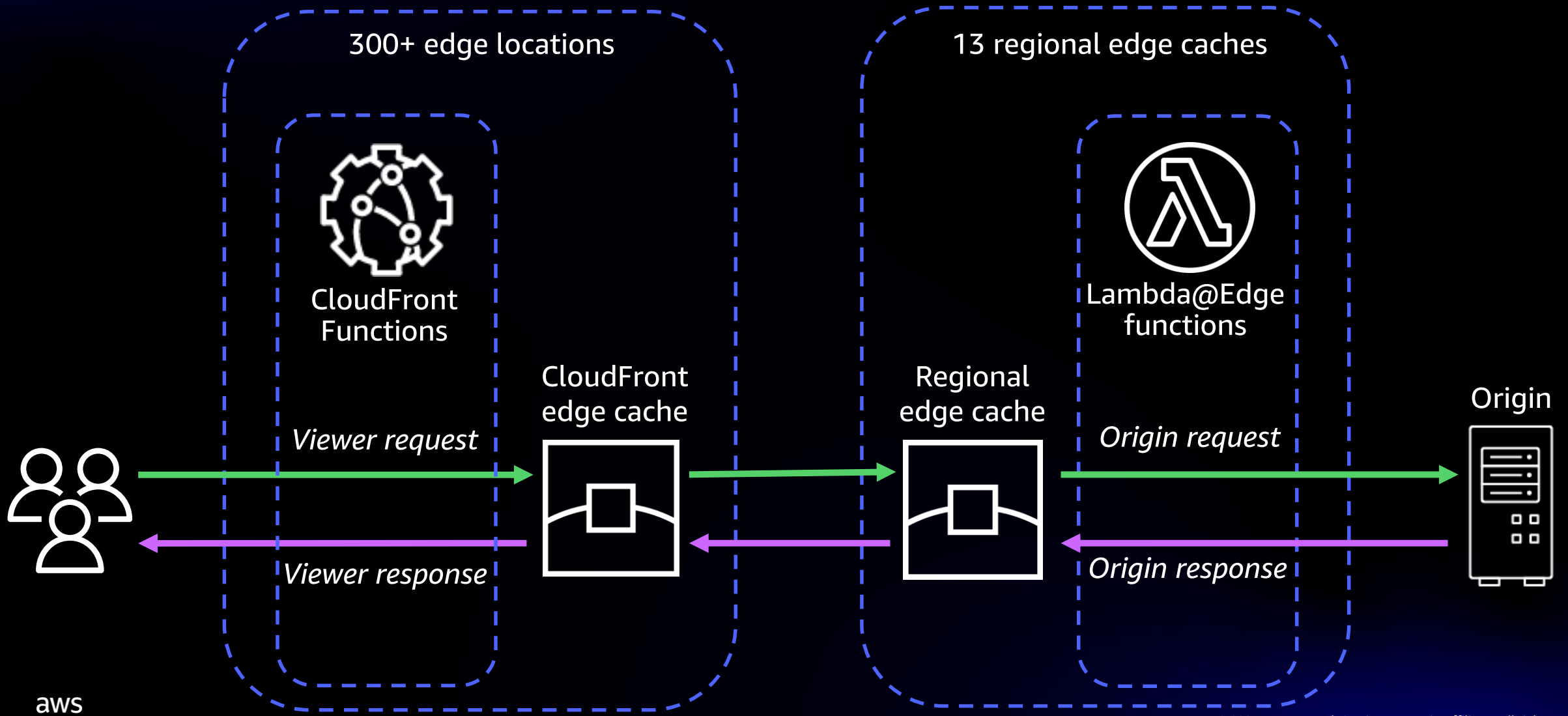
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Lambda@Edge execution



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CloudFront Functions execution



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Choosing between CloudFront Functions and Lambda@Edge

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CloudFront Functions vs. Lambda@Edge

	CloudFront Functions	Lambda@Edge
Runtime support	JavaScript (ECMAScript 5.1 compliant)	Node.js, Python
Execution location	300+ CloudFront edge locations	13 CloudFront regional edge caches
CloudFront triggers supported	Viewer request Viewer response	Viewer request Viewer response Origin request Origin response
Maximum execution time	Less than 1 millisecond	5 seconds (viewer triggers) 30 seconds (origin triggers)
Pricing	Free tier available; charged per request	No free tier; charged per request and function duration

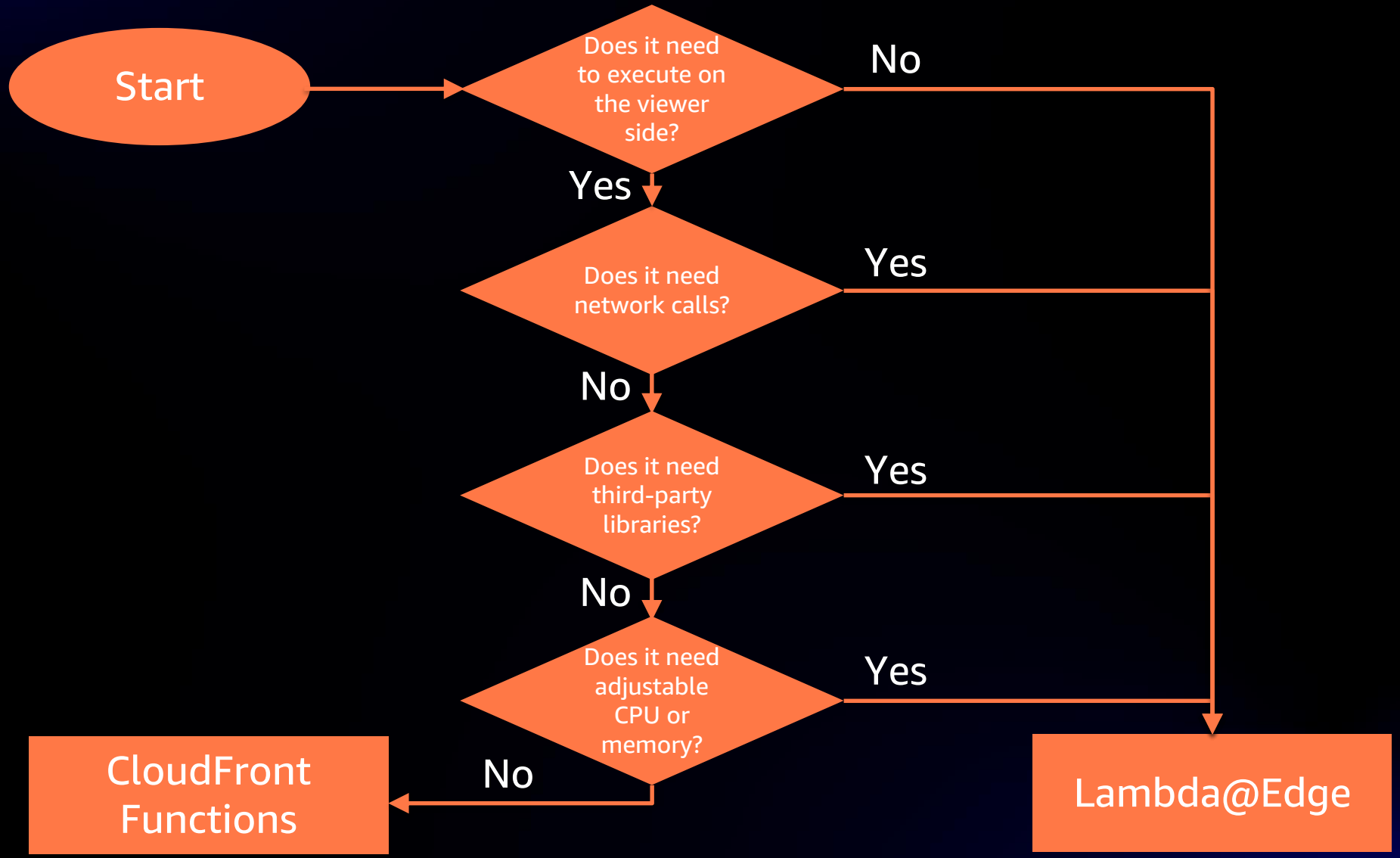
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CloudFront Functions vs. Lambda@Edge

	CloudFront Functions	Lambda@Edge
Maximum memory	2 MB	128 MB (viewer triggers) 10 GB (origin triggers)
Total package size	10 KB	1 MB (viewer triggers) 50 MB (origin triggers)
Network access	No	Yes
File system access	No	Yes
Access to the request body	No	Yes

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CloudFront Functions or Lambda@Edge?



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The workshop

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Outline

Self-paced, step-by-step workshop in four sections

1. Introduction and setup
2. Performance – cache optimization
3. Security – QueryString pattern/variable validation
4. Security – Content Security Policy (CSP)

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Workshop guidelines

- AWS account – we will provide you access to Event Engine
- Workshop specific Wi-Fi
- Local tools needed
    - Browser
- No need to clean up
- The account will remain active for 60 min after the workshop
- You can run the workshop on your own
- **We are here to help!**

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Let the fun begin!

WiFi SSID: @reInventWorkshops
Password: Exper1ment21

http://bit.ly/edge-workshop

Event Hash: **fa87-16cc7766c4-ef**

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Thank you!

Artiom Lichtenstein
https://artioml.net

Boaz Ziniman
Twitter: @ziniman

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