
AWS
re:Invent

Amazon CloudFront fundamentals: Features, benefits, and what's new

Tzoori Tamam

Sr. Specialist Solutions Architect, Edge Services

AWS

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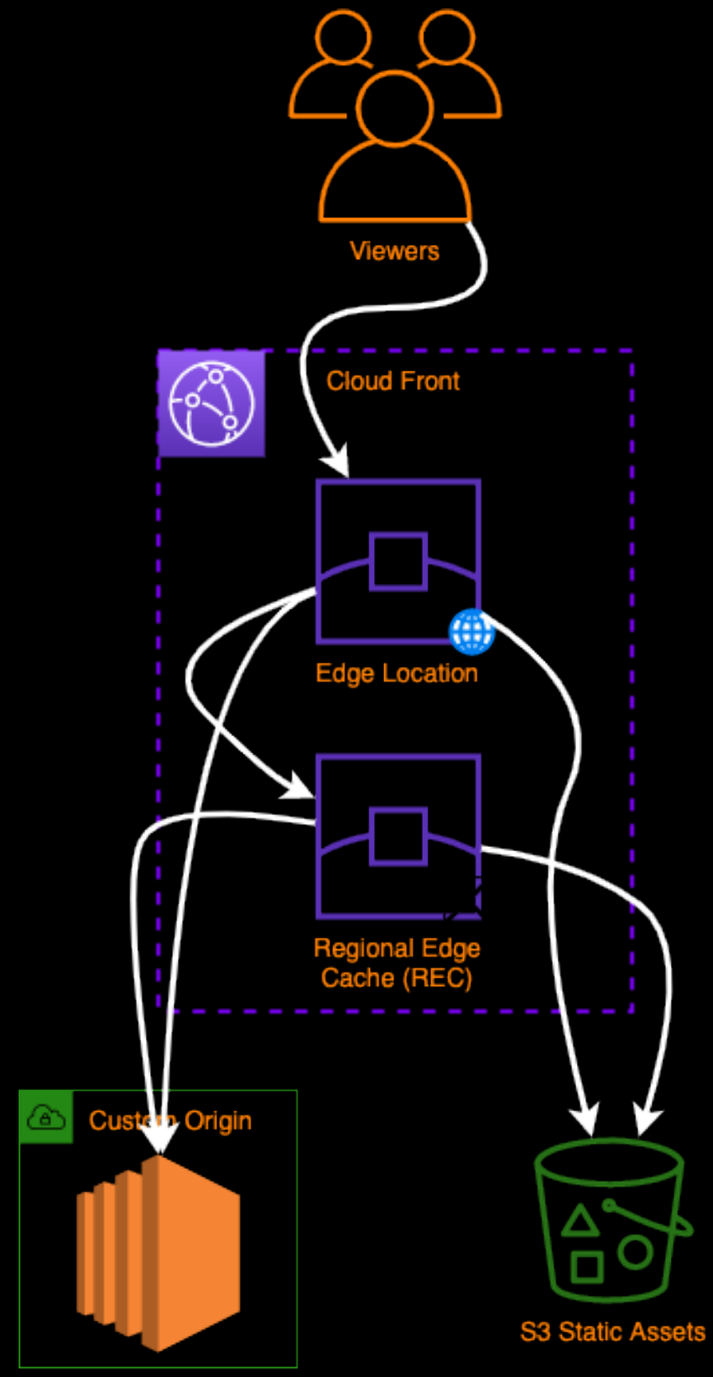
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Amazon CloudFront: A refresher

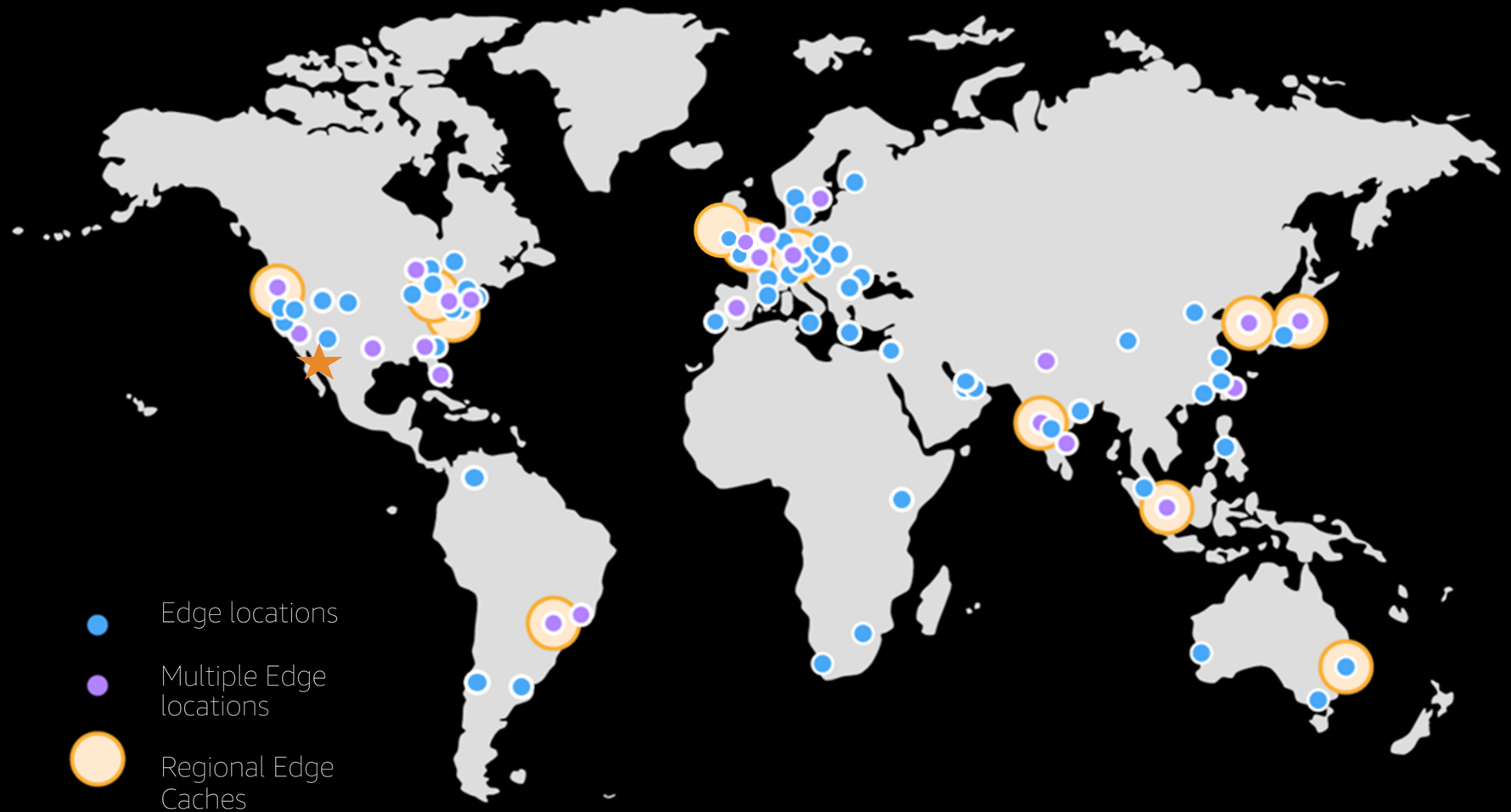
AWS content delivery network

Used to securely deliver data, video, applications, and APIs with low latency and high transfer speeds

Integrated with AWS services and directly connected to the AWS global network



Amazon CloudFront: 220+ POPs in 87 cities across 44 countries



- YTD launched in 7 new countries (Bulgaria, Greece Hungary, Kenya, Mexico, New Zealand, Romania) and 3 new cities (Dusseldorf, Hamburg, Kolkata)

- New Regional Edge Cache in the AWS Ireland Region

Amazon CloudFront users

Media and entertainment	Gaming	Financial services	eCommerce, social media, digital advertising, EdTech



Amazon CloudFront tenets



Security



Availability



Performance

Security

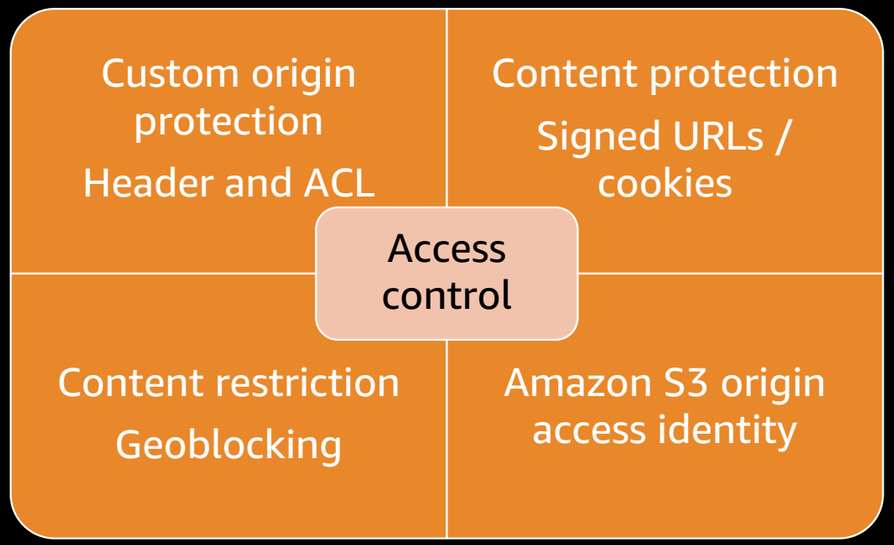


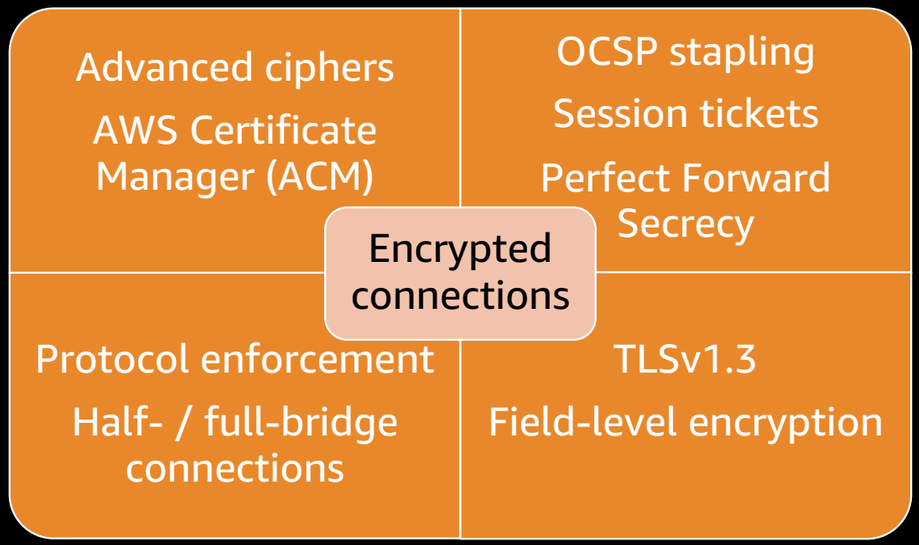
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Security at the edge

Robust content protection controls and encryption





Integrations with AWS security services

- AWS WAF
- AWS Shield
- AWS Certificate Manager (ACM)
- AWS Identity and Access Management (IAM)
- AWS Config and AWS CloudTrail

Security out-of-the-box

- AWS Shield Standard and DDoS visibility
- HTTP desync protection
- OCSP stapling
- Domain fronting protection



TLS 1.3 support for viewer requests

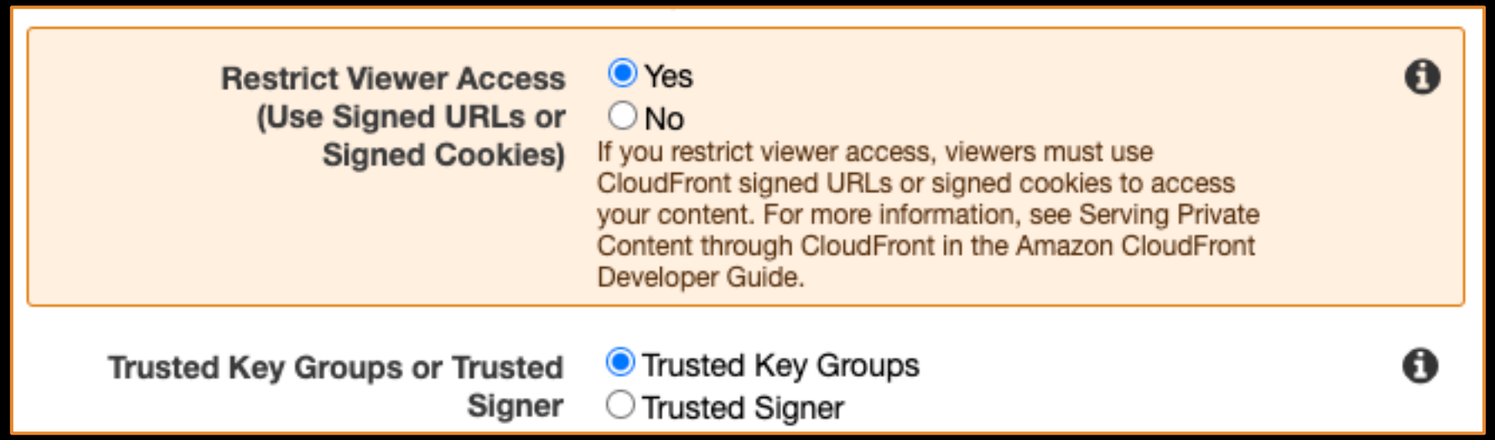
- 50% faster TLS handshake (compared to TLS1.2)
- Disable deprecated and vulnerable ciphers
- Perfect Forward Secrecy (PFS) for increased session security
- Enabled by default

CloudFront utilizes the AWS S2N TLS stack; learn more at https://amzn.to/2GD4SKu



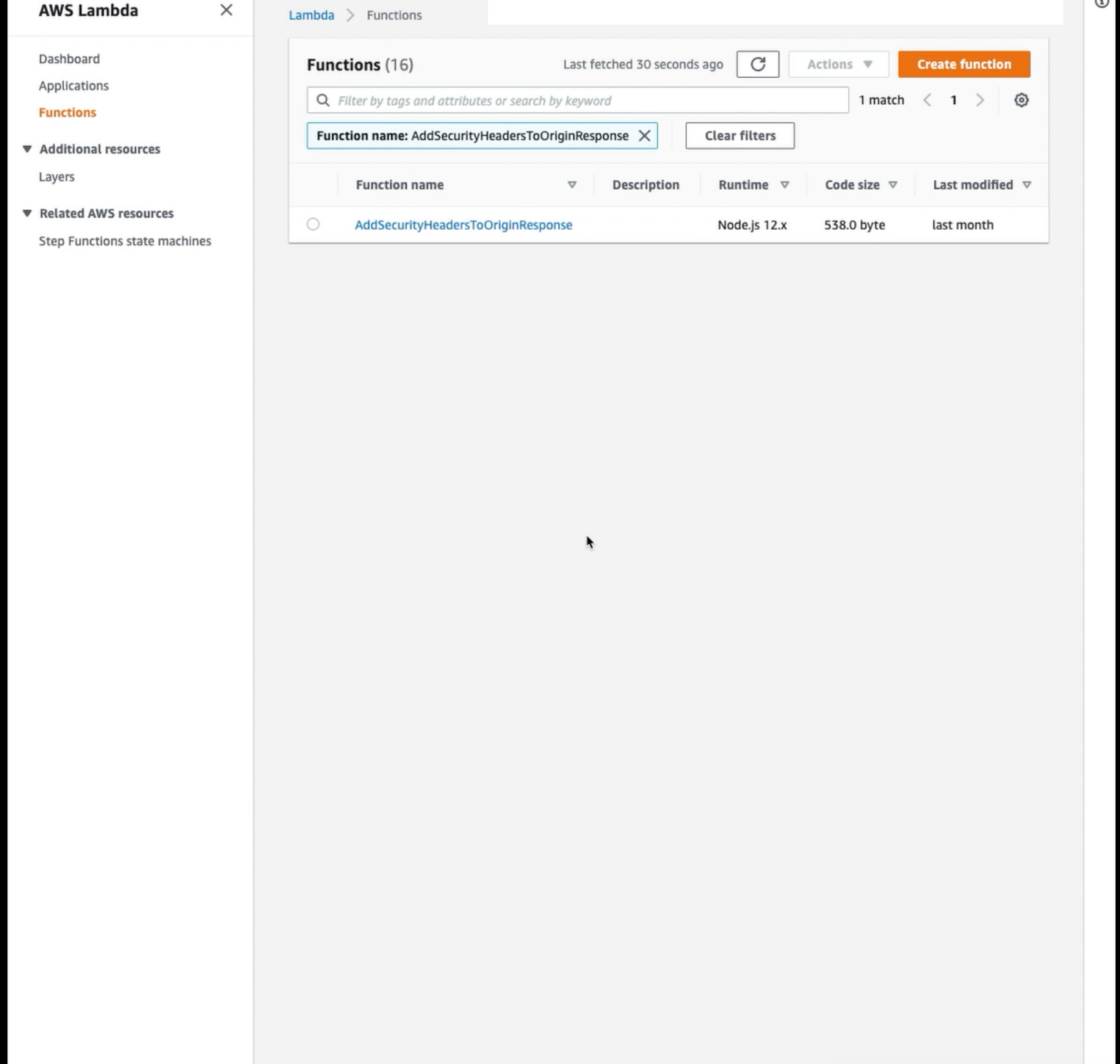
Content protection

- Signed URLs and signed cookies
  - Now with rootless trusted signers!
- Field-level encryption

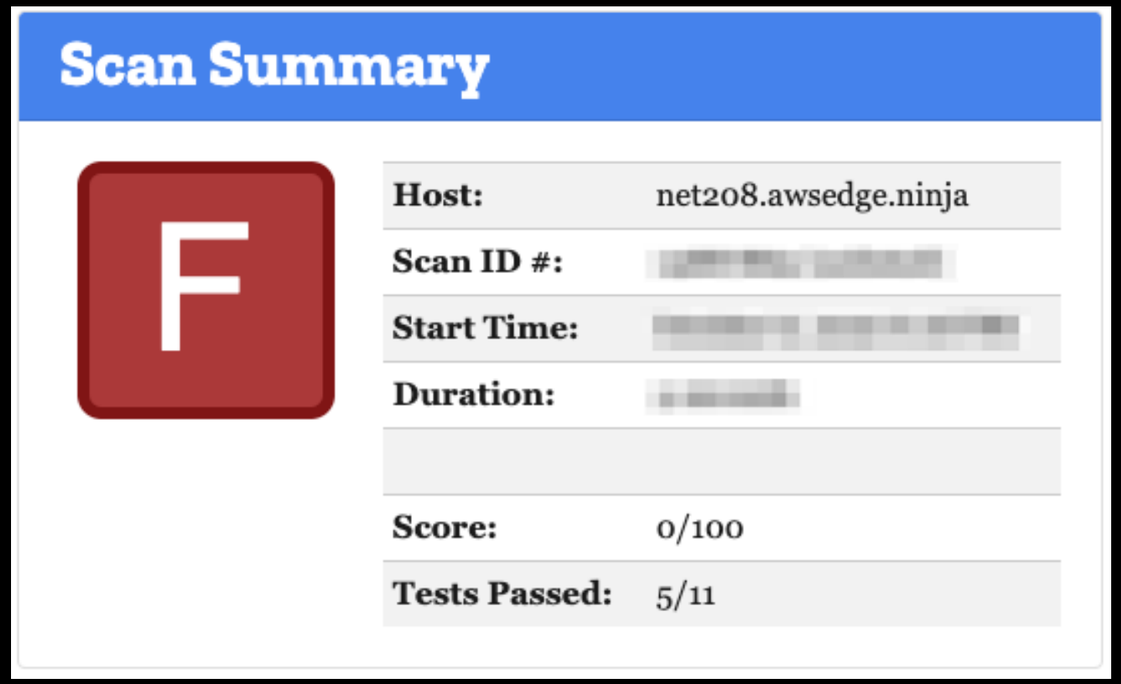


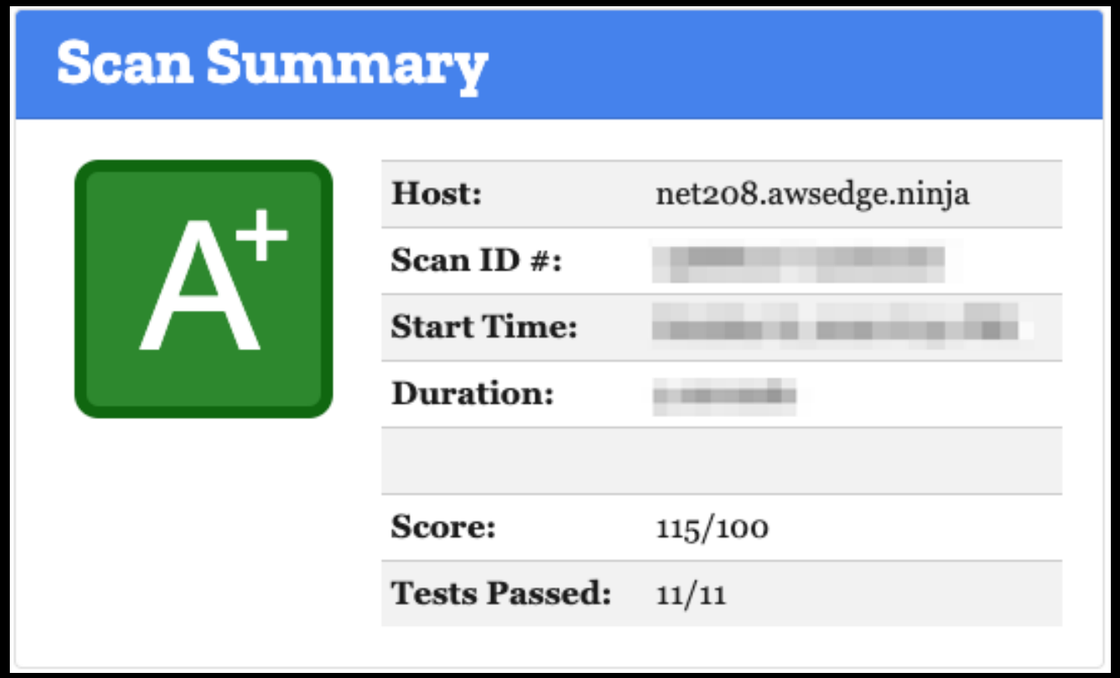
Enhanced security with Lambda@Edge

- Security headers
- Token authentication
- Request signing
- Learn more at https://amzn.to/3ljLXDG


AWS Lambda
Dashboard
Applications
Functions
Additional resources
Layers
Related AWS resources
Step Functions state machines
Lambda
Functions
Functions (16)
Last fetched 30 seconds ago
Actions
Create function
Filter by tags and attributes or search by keyword
1 match
1
Function name: AddSecurityHeadersToOriginResponse
Clear filters
Function name
Description
Runtime
Code size
Last modified
AddSecurityHeadersToOriginResponse
Node.js 12.x
538.0 byte
last month

Improving website security: Example





Results by https://observatory.mozilla.org/

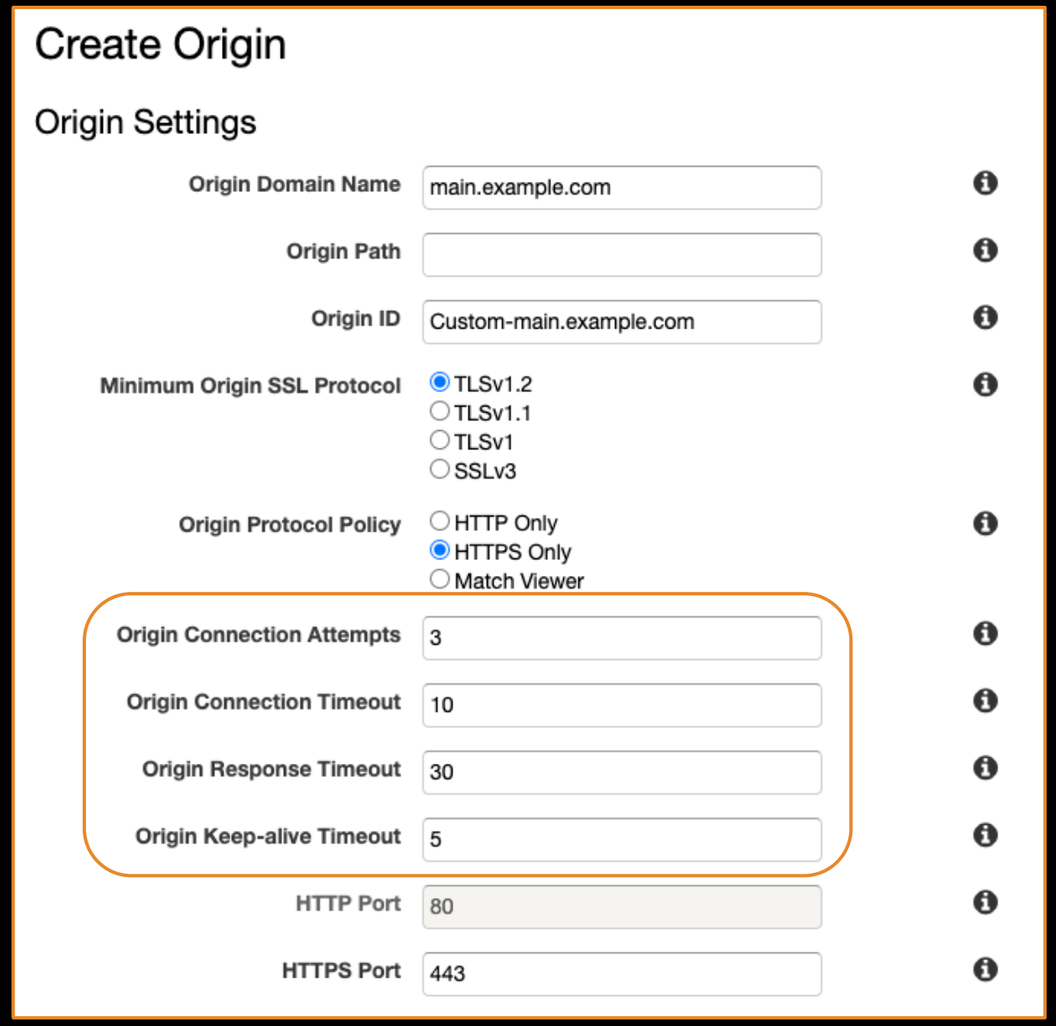
Availability



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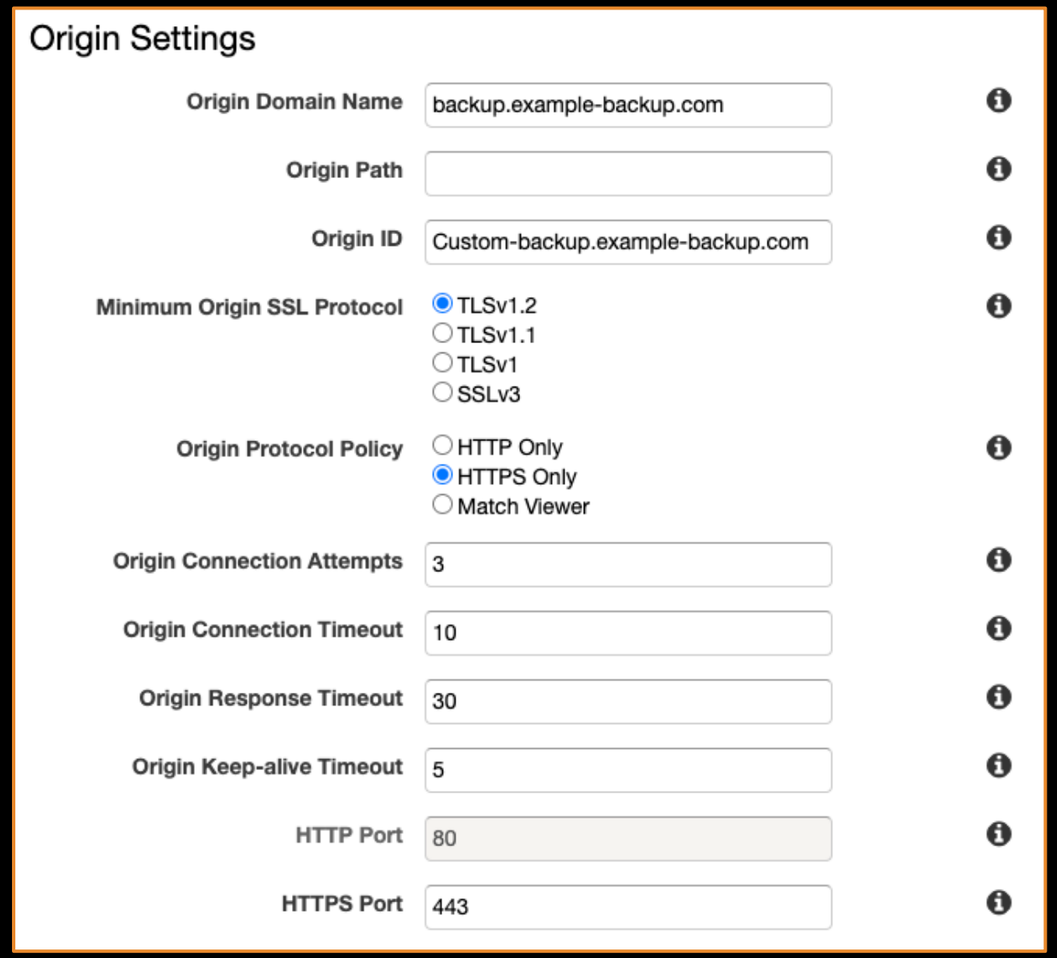
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Keeping your application up with CloudFront



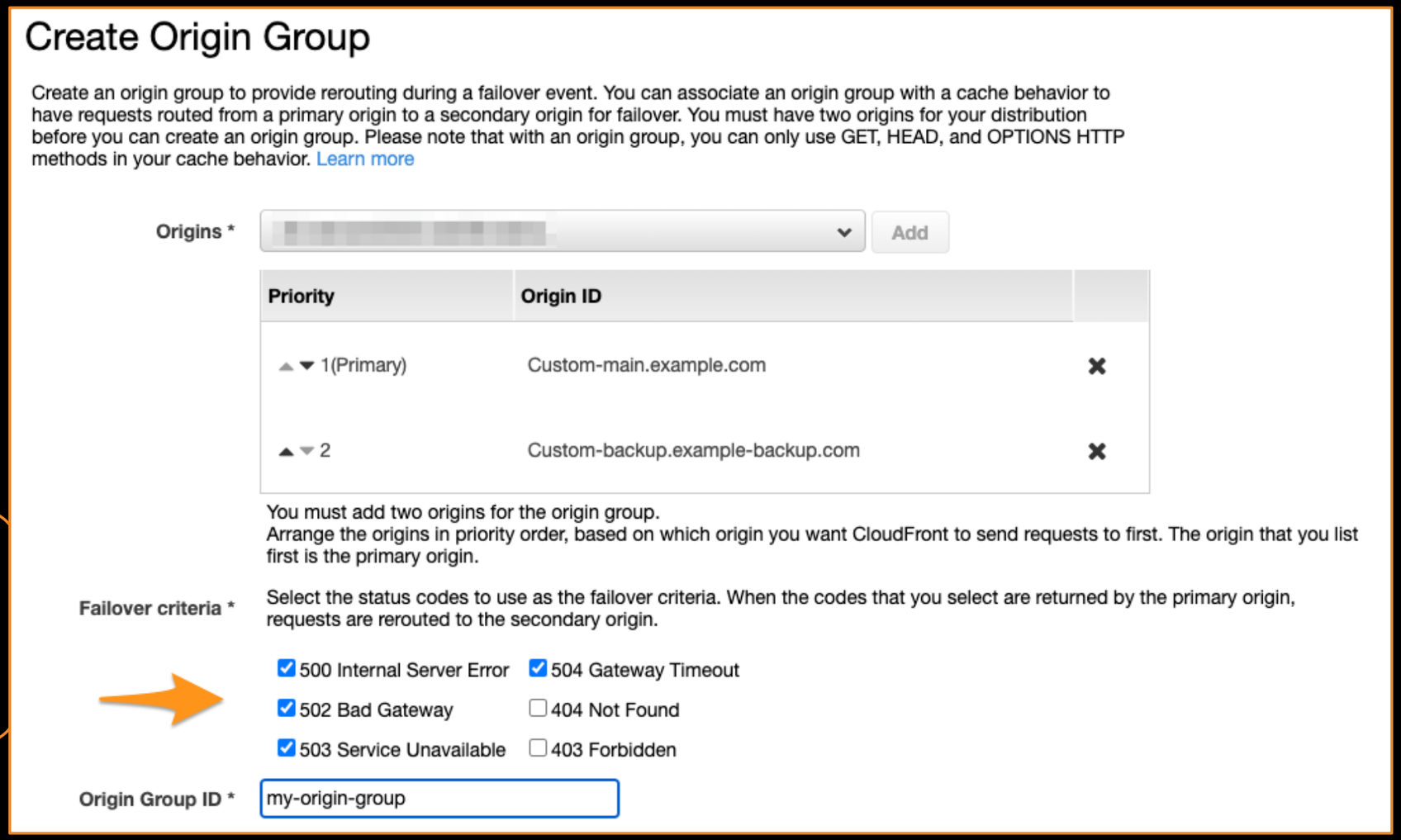
https://amzn.to/3nkFk54

Keeping your application up with CloudFront



https://amzn.to/3nkFk54

Keeping your application up with CloudFront

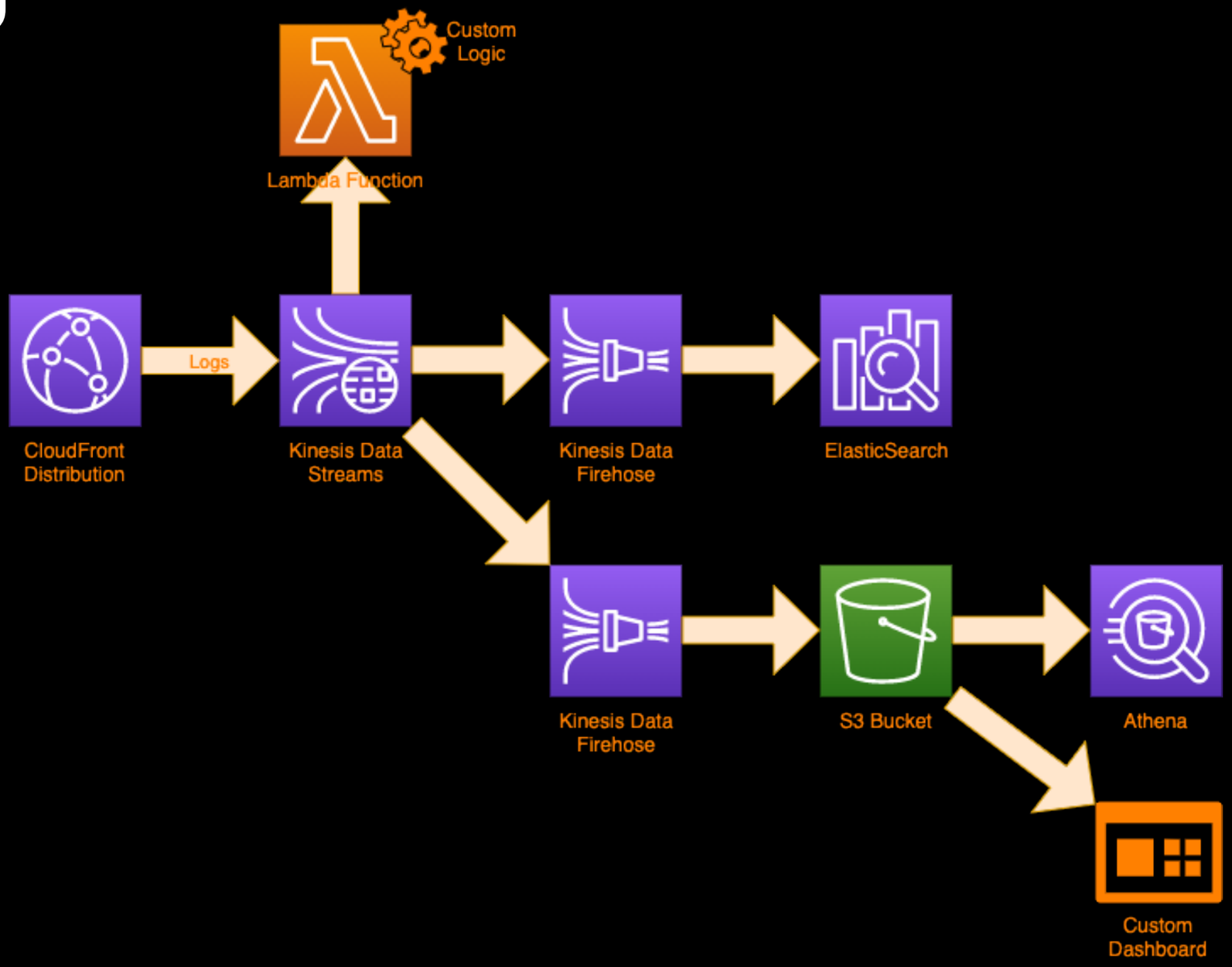


https://amzn.to/3nkFk54

Real-time logging

You can

- Determine sample rate (1%–100%)
- Customize fields to be collected
- Enable per distribution behavior
- Extra metrics, such as error rates, are also available in Amazon CloudWatch



Logs Info

Distribution logs | Real-time log configurations NEW

Real-time log configurations Info

Delete | Create configuration

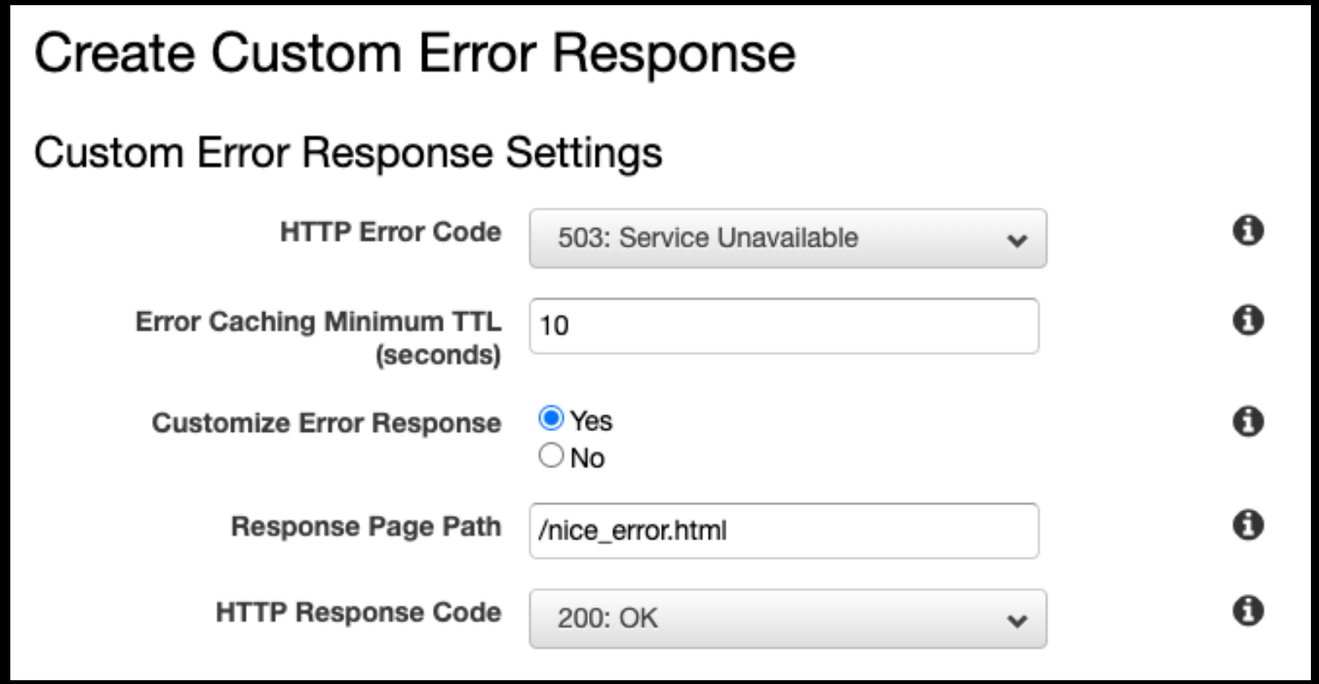
Enter a keyword to filter configurations.

1

Name	Sampling rate	Kinesis data stream
My-Real-Time-Logging-Profile	100%	arn:aws:kinesis:us-east-1:622895631894:stream/CF-RTL-Stream
RTLogs-100-AllFields	100%	arn:aws:kinesis:us-east-1:622895631894:stream/CF-RTL-Stream

Handling application errors: Tips and tricks

- Monitor error rates through CloudWatch
- Use custom error pages on CloudFront
- Use origin failover



Performance



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Improving performance

What YOU can do

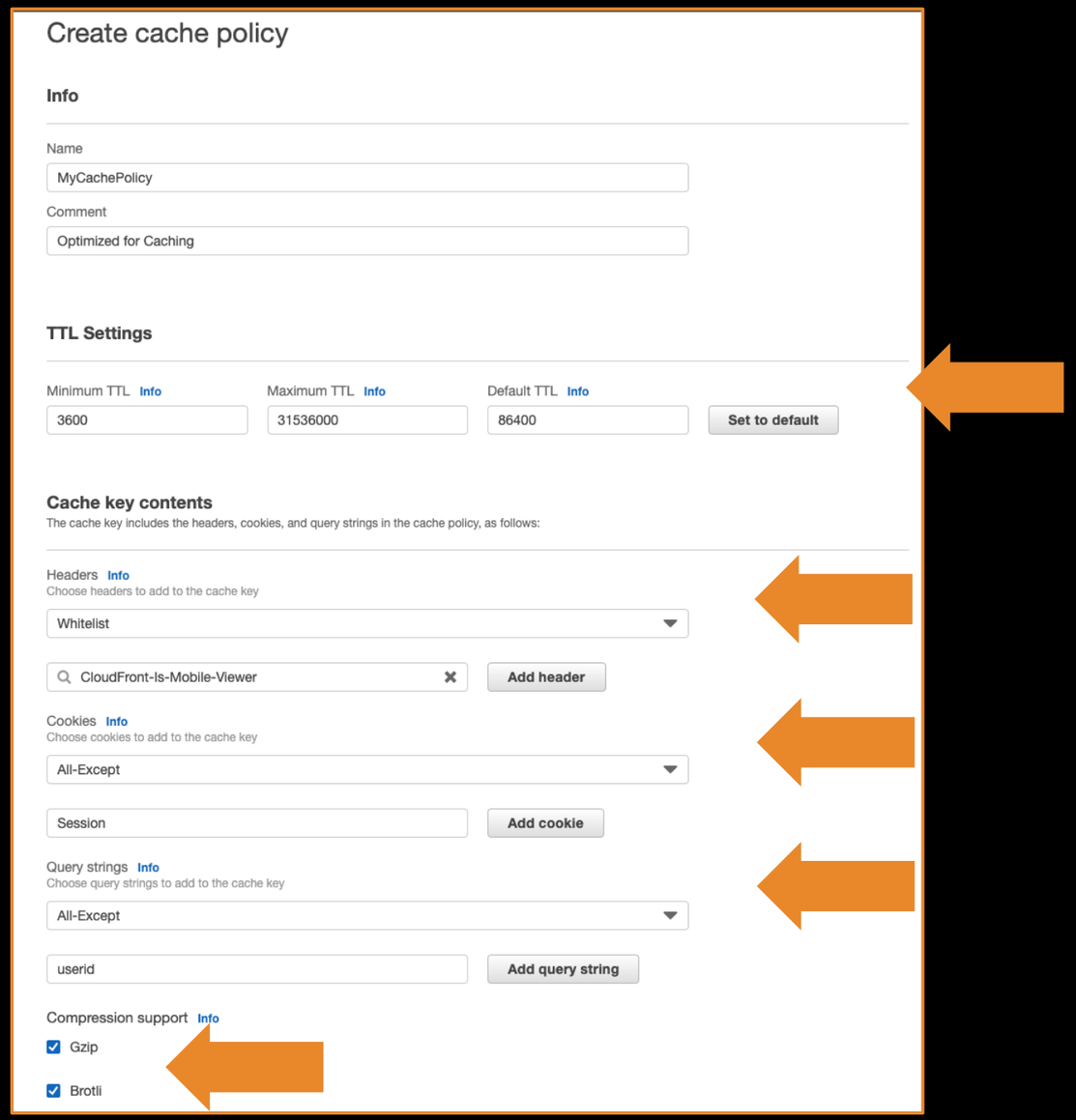
1. Define your caching strategy
2. Improve your cache hit ratio
3. Utilize CloudFront's capabilities at the edge
   a) HTTP to HTTPs
   b) Compression
   c) Origin Shield

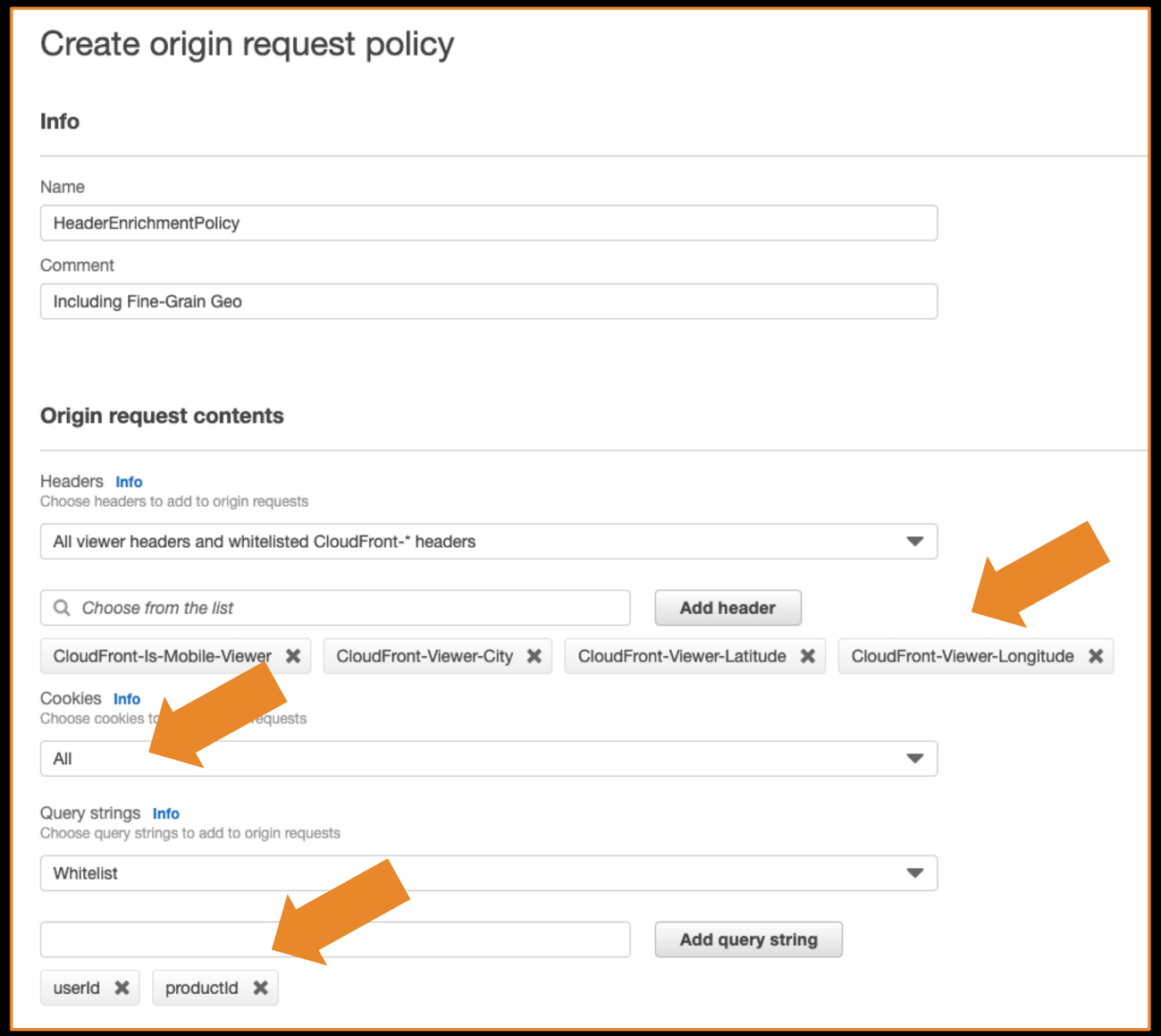
What AWS does for you

1. TCP optimization
   a) TCP fast open
   b) BBR
2. TLS 1.3
3. Dynamic content placement

Improve your website performance with Amazon CloudFront – https://amzn.to/36AT0DU

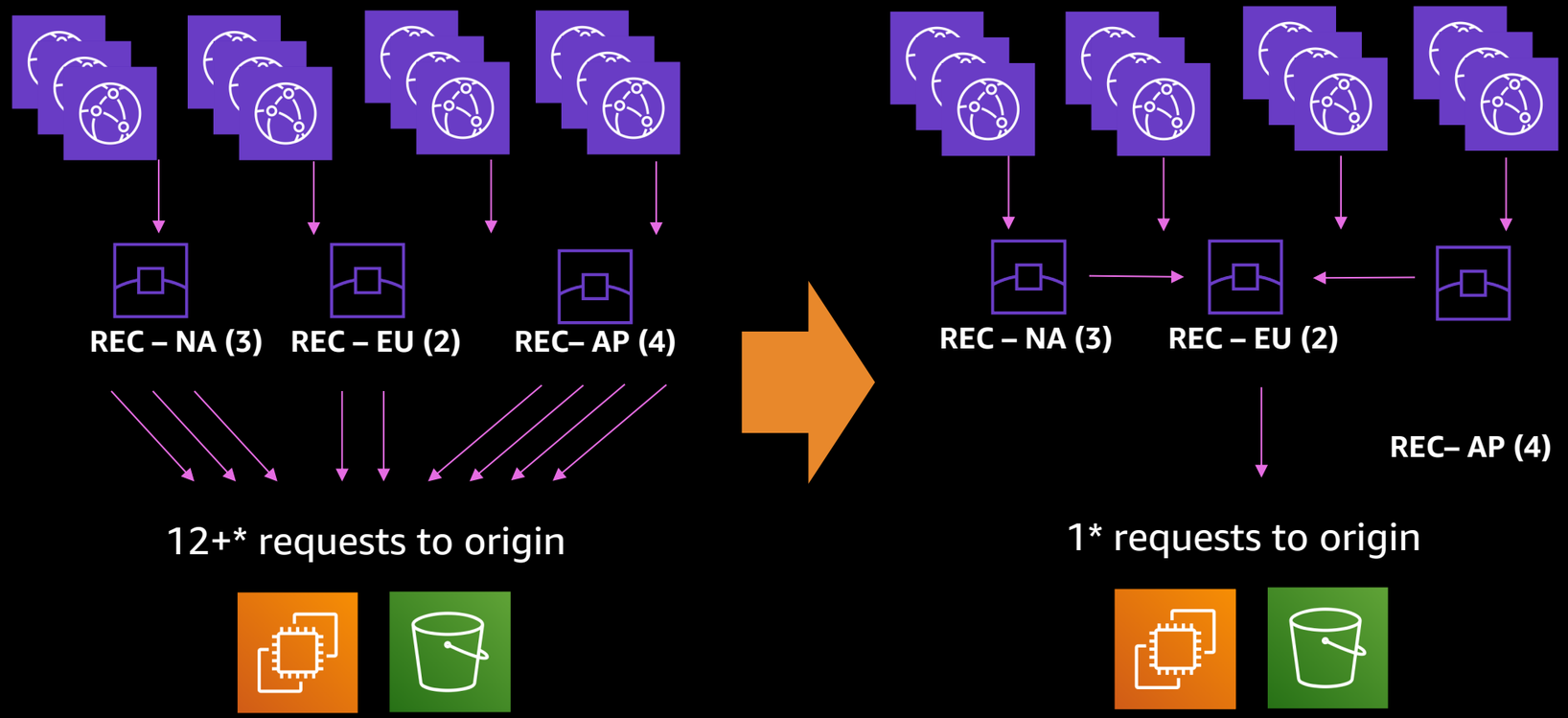
Cache and origin request policies





Origin Shield

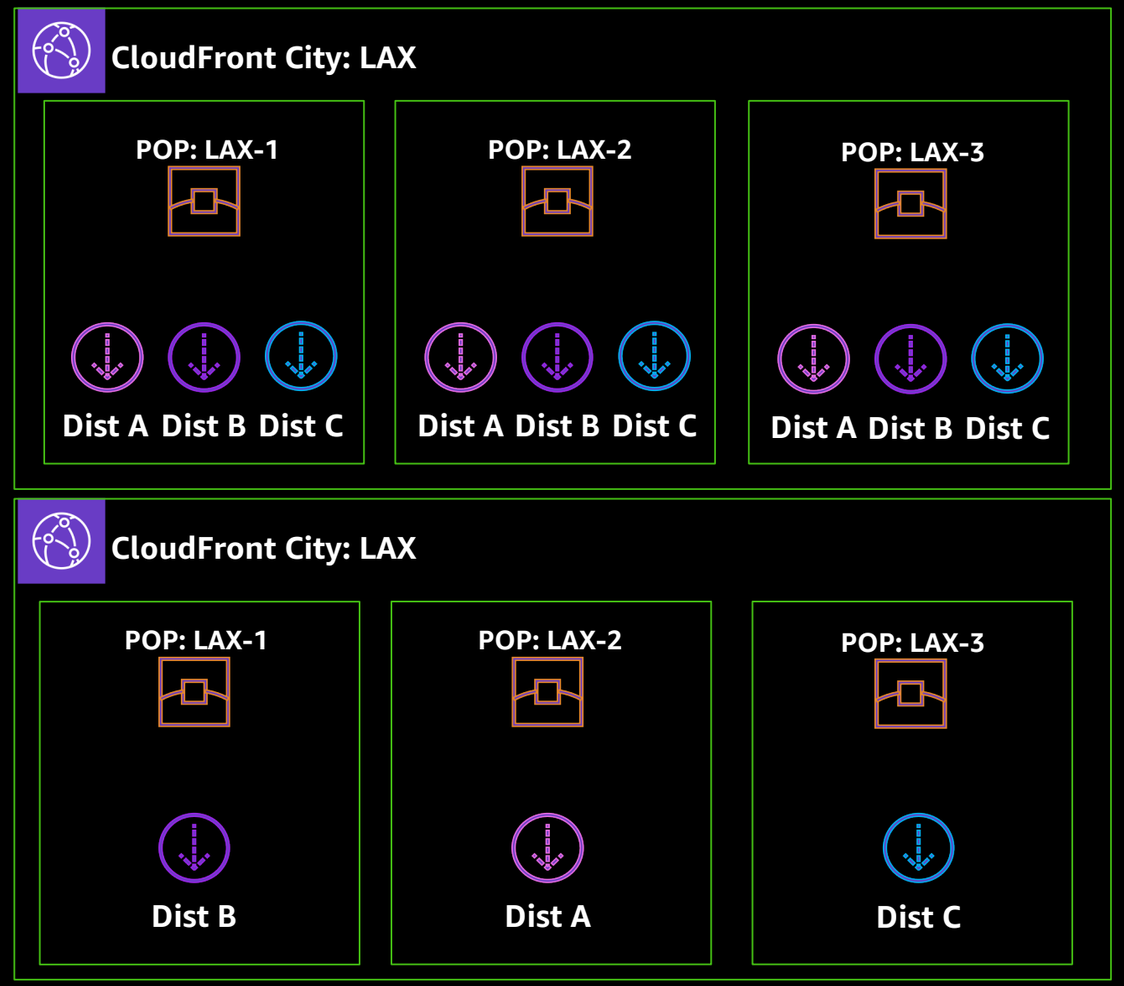
- Maximum origin load reduction (10x+ improvement)
- Cost optimization
- Better performance for Viewers
- Higher effective cache efficiency/retention



* # of requests varies with traffic volumes/regionality/request rates and other factors

Dynamic Content Placement

- Introduces concept of “City” – a localized area with 3 or more POPs
- Classification of Distributions according to working set size, RPS & BPS
- Binning algorithm to allocate distributions to POPs within a City
- Expands effective cache width by reducing redundantly cached content in a regionally proximate (similar latency) footprint



Additional Content



Make sure you catch the next session:

NET404: Improving website performance using Amazon Cloudfront

Thank you!



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