

The background features a vibrant, multi-colored gradient. The top left is a deep blue, transitioning through purple and magenta to a bright orange and yellow in the center, and finally fading into a light blue and white on the right. A diagonal line separates the darker blue on the left from the lighter blue on the right.

AWS
re:Invent

MDS306-R

Building resilient live streaming video workflows

Kiran Patel & Dan Gehred

Solutions Marketing Managers
Amazon Web Services

Nicolas Weil

Senior Product Manager
Amazon Web Services

Ramya Krishnamoorthy

Senior Software Dev. Engineer
Amazon Web Services

The pillar of a resilient live stream architecture

Mezzanine
encoding

Transport

ABR
transcoding

Packaging

Origination

Distribution

The pillar of a resilient live stream architecture

Mezzanine
encoding

Transport

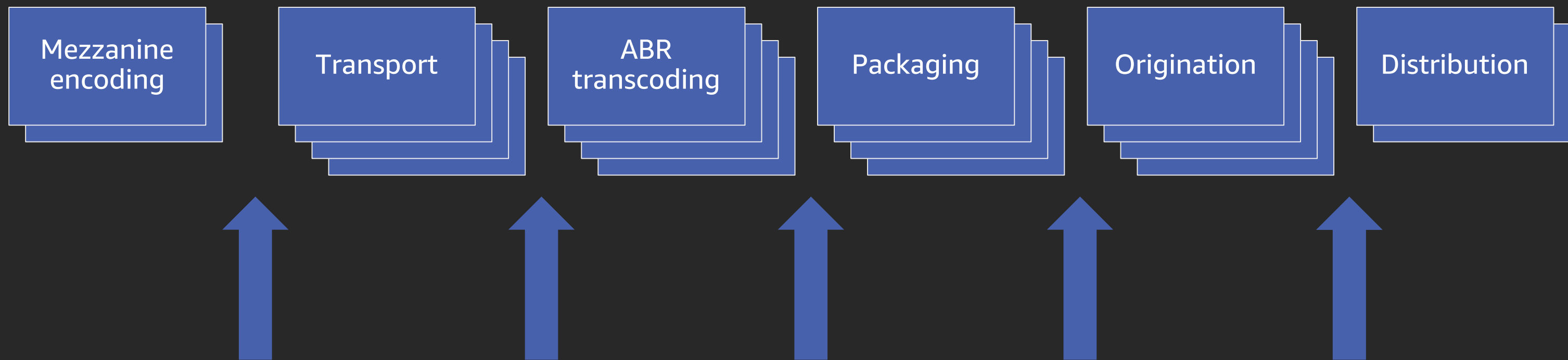
ABR
transcoding

Packaging

Origination

Distribution

The pillar of a resilient live stream architecture



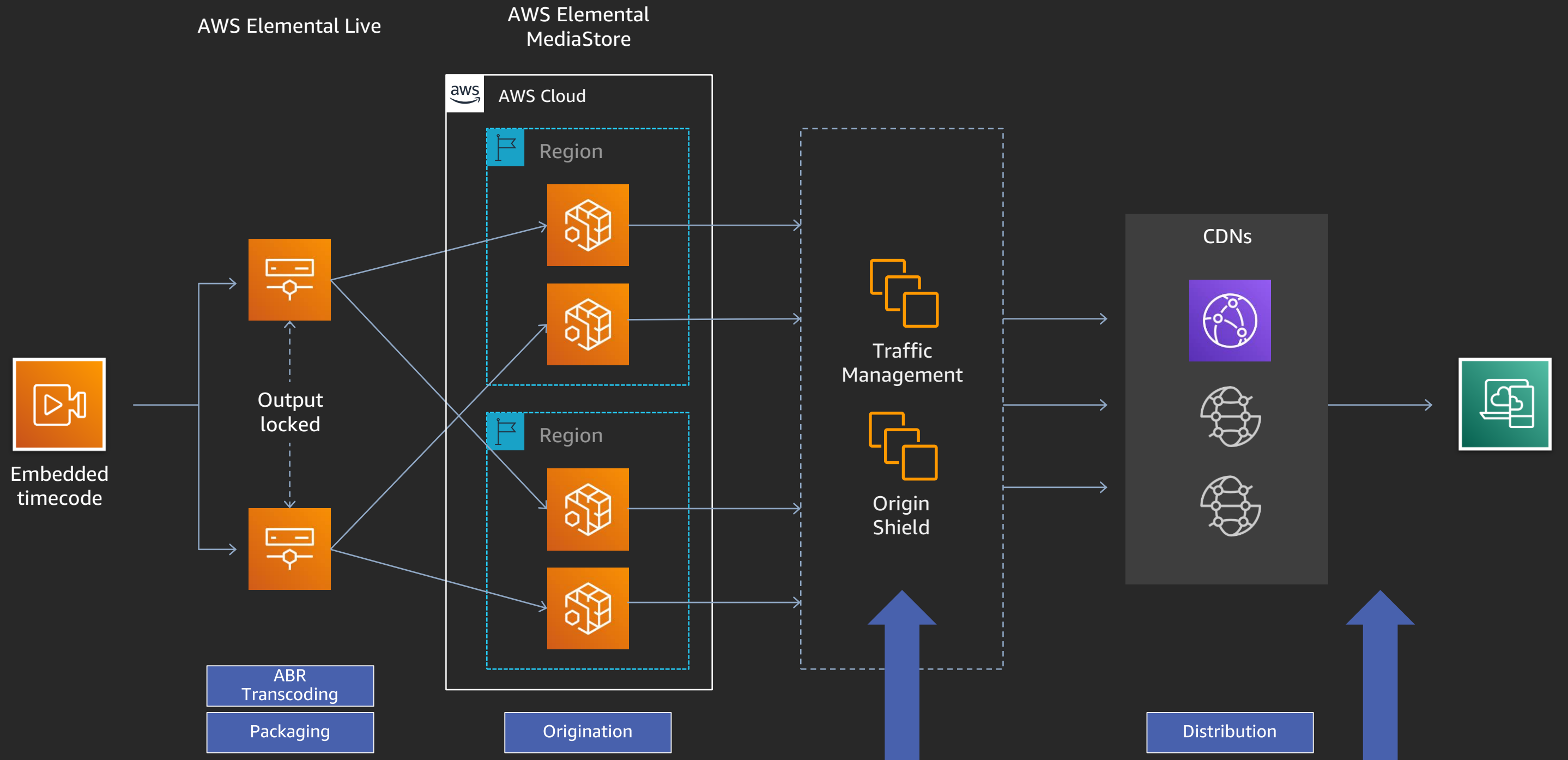
Survive the chaos

Simple resilience =

Redundancy by duplicating components
+ Manual failover

Better resilience =

Cloud-native redundancy with autoscaling and healing
+ Automatic failover

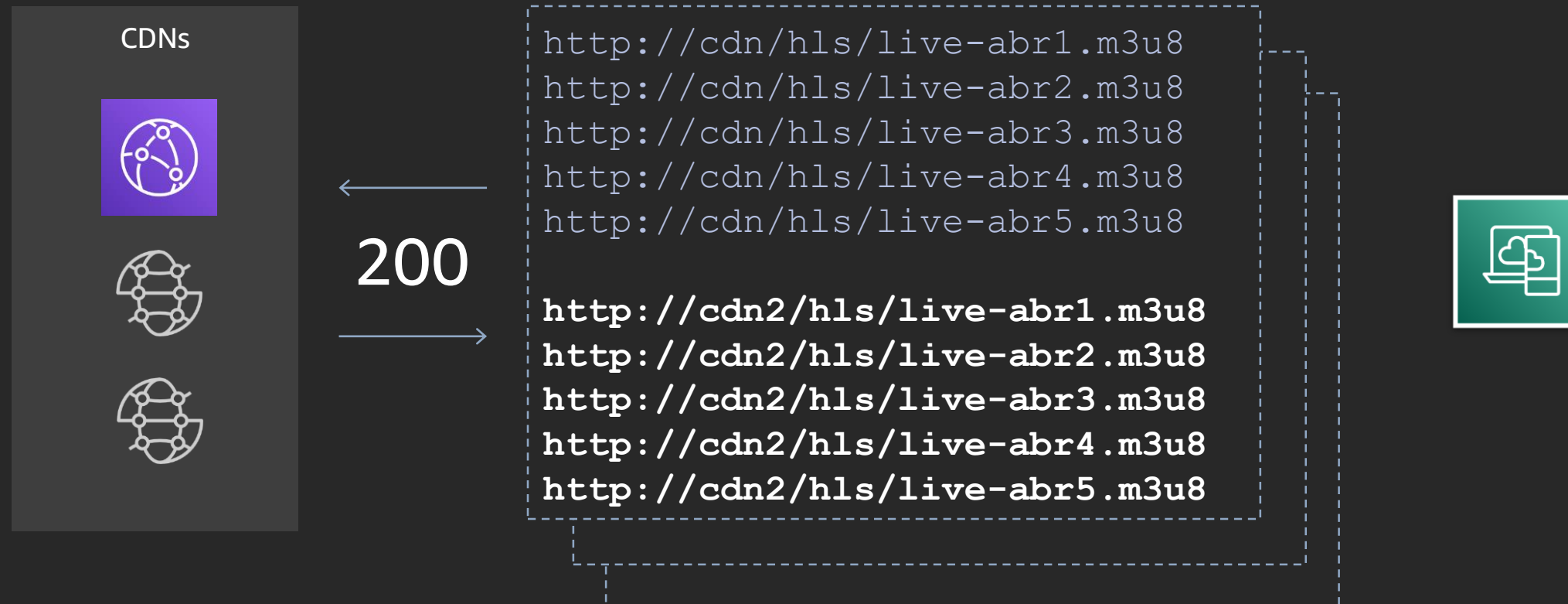


HLS backup media manifests



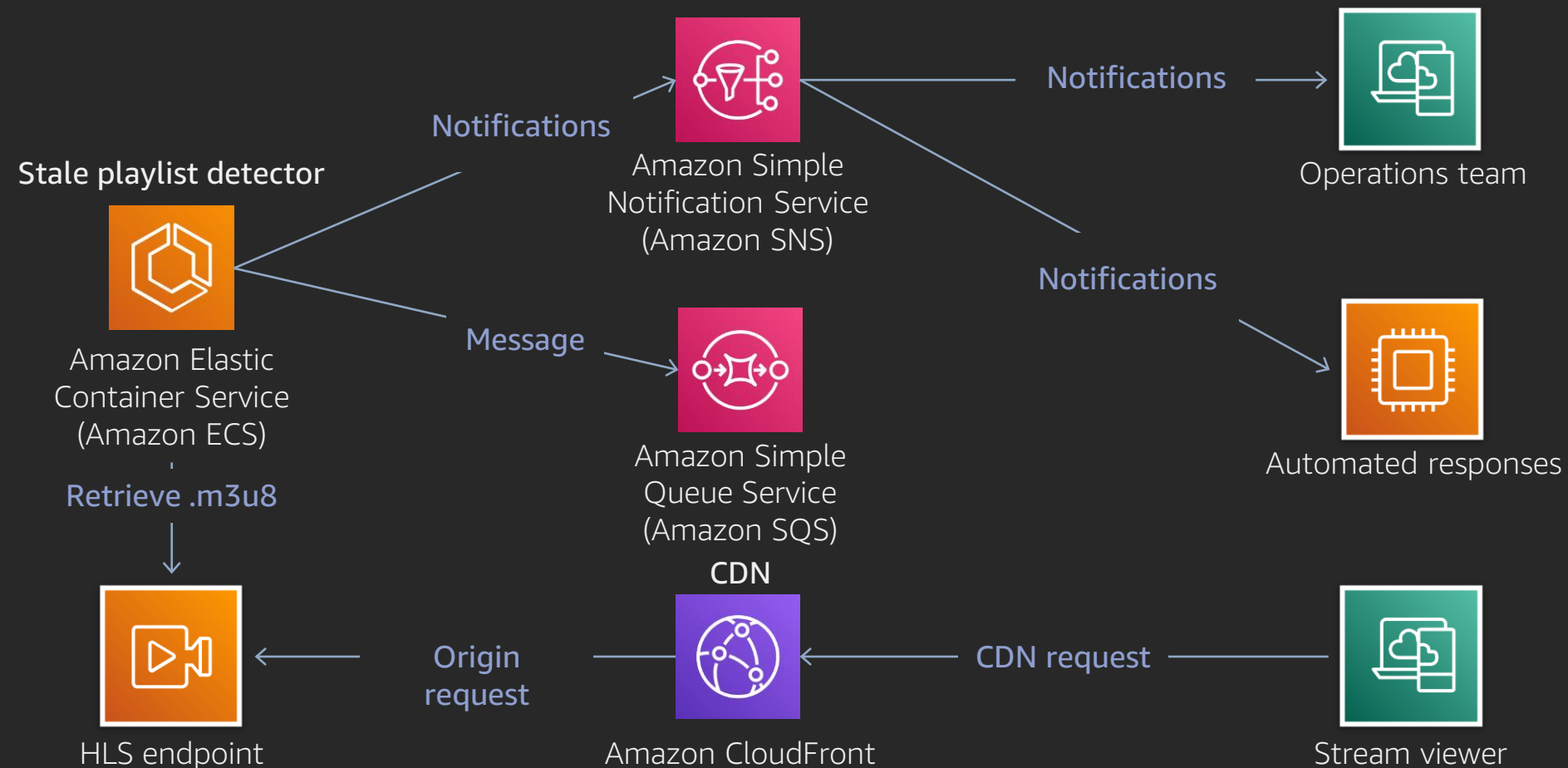
Manually crafted HLS master manifests with backup entries for each media manifest path

HLS backup media manifests



Clients will switch to alternative paths when they get a 404 for the first choice

Stale playlist detection



Actions after stale playlist is detected can be:

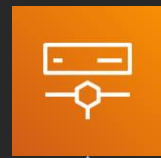
- Change CDN responses for an endpoint to 404s, which will force failover
- Signal CMS to update player to trigger a failover

Discovery

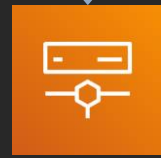


Embedded timecode

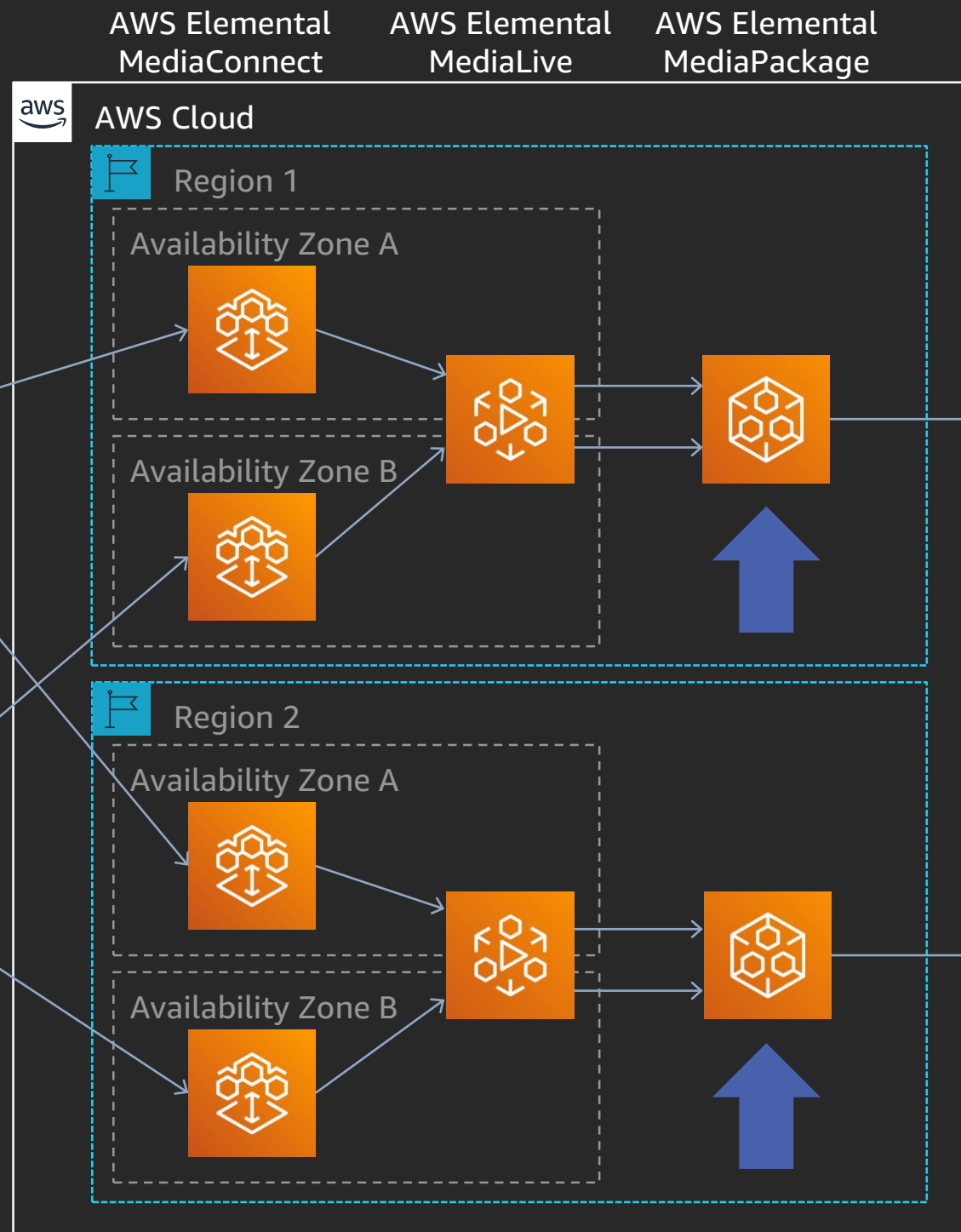
AWS Elemental Live



Output locked



Mezzanine Encoding



AWS Elemental MediaConnect

AWS Elemental MediaLive

AWS Elemental MediaPackage



AWS Cloud

Region 1

Availability Zone A

Availability Zone B

Region 2

Availability Zone A

Availability Zone B

Transport

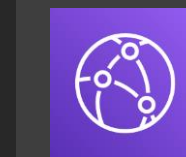
ABR Transcoding

Packaging

Origination



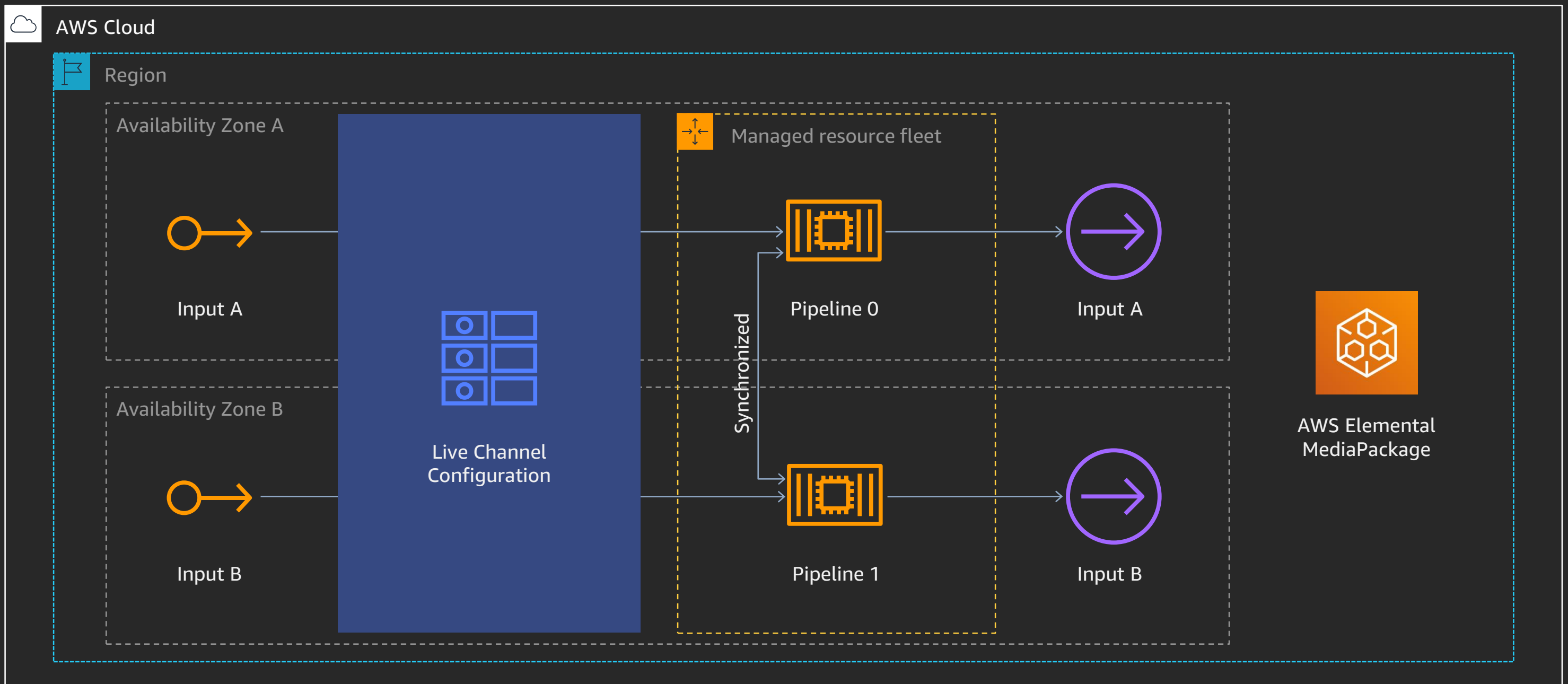
CDNs



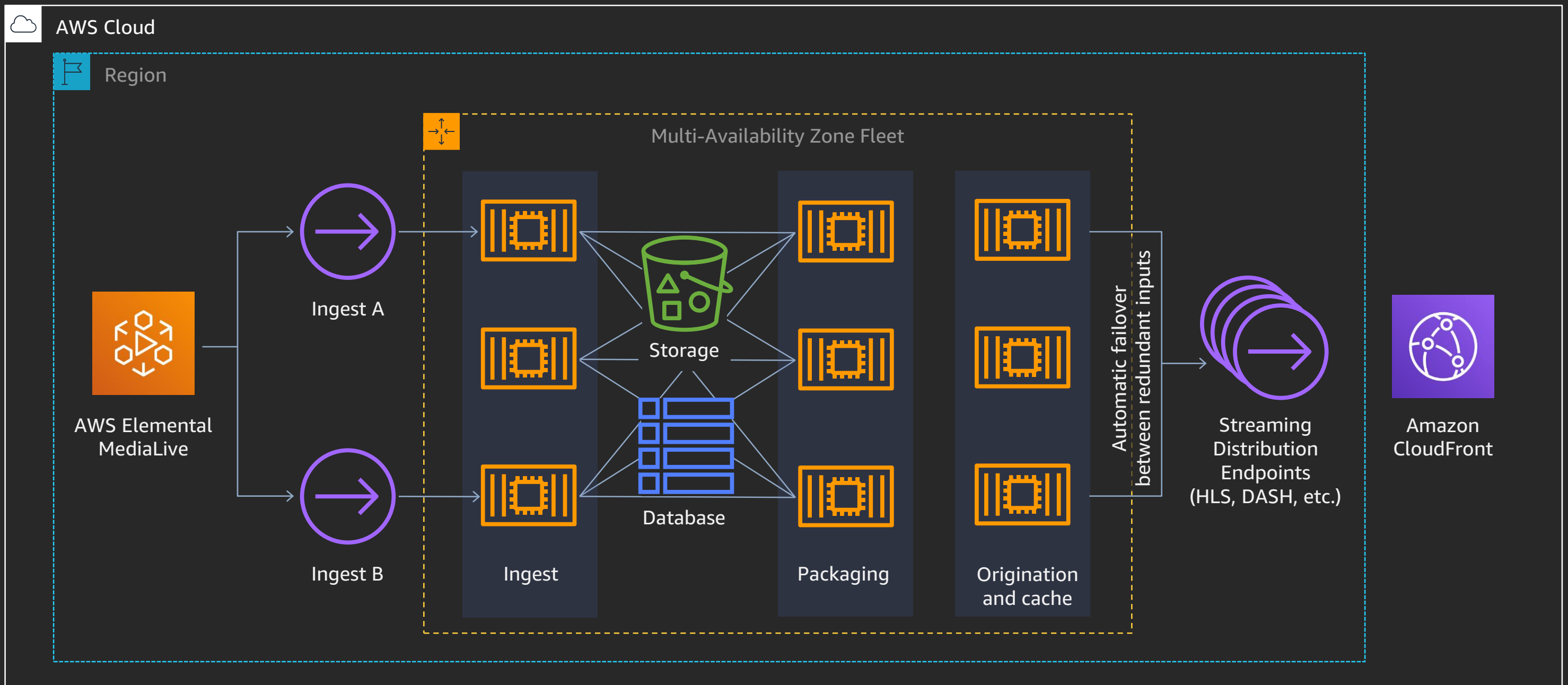
Distribution



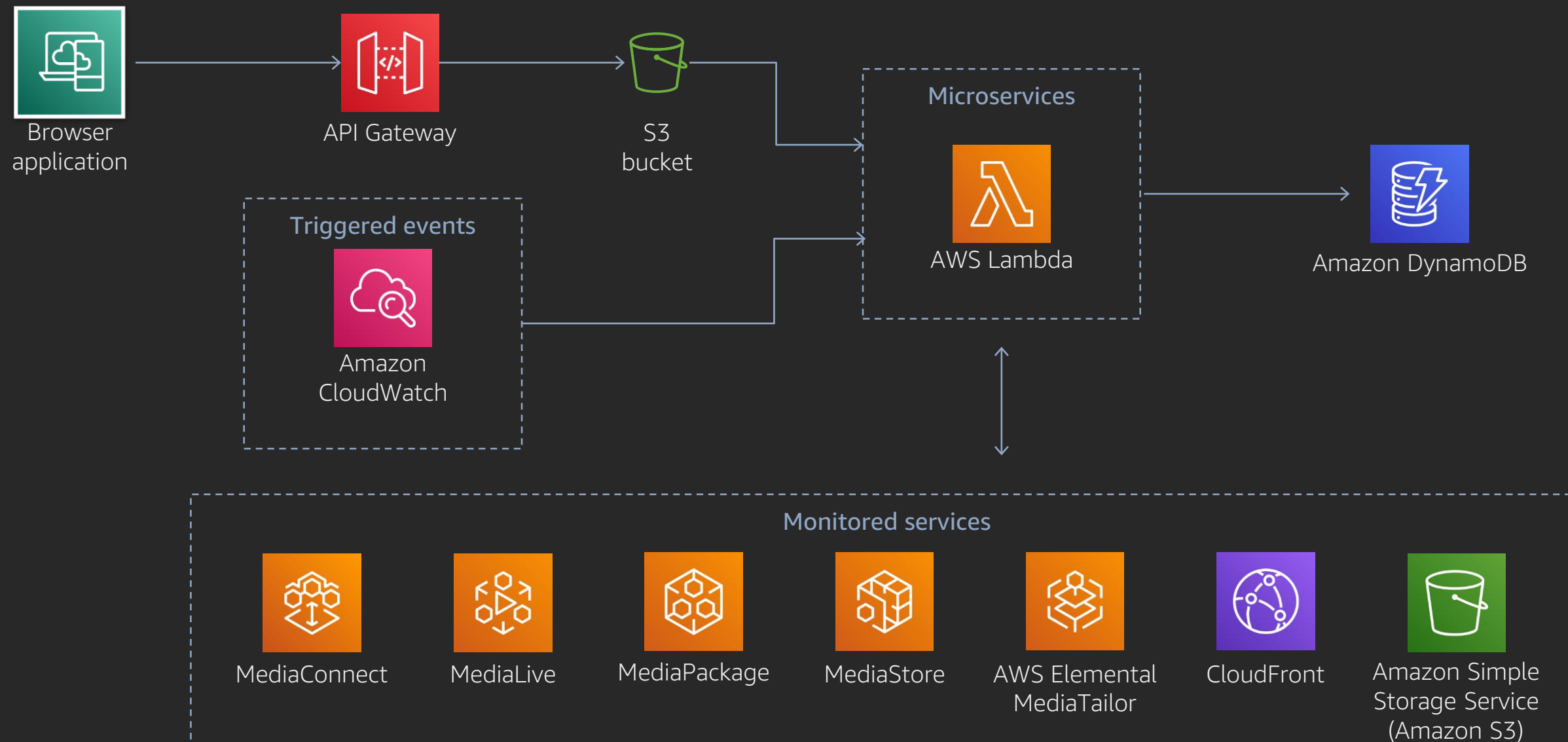
AWS Elemental MediaLive: not just a single live encoding instance



AWS Elemental MediaPackage: more than just a packaging and origin instance



Media services application mapper



Monitor entire live streaming workflow

How much resilience to do you “need”?

- What does this mean for levels of redundancy?
- What does this mean for ways to failover?
- What is your target recover time/point objective? (RTO/RPO)
 - How long can you accept running at reduced resilience?
 - Can you accept “glitches,” buffering, any dead airtime?
- What trade-off are you willing to make?
 - Higher cost
 - Increases end-to-end latency
 - More complex workflow to monitor and maintain

Demo

Acceptable downtime with percentage uptime target

	1 day	30-day month	365-day year
95%	1.2 hours	36 hours	438 hours
	72 minutes	2,160 minutes	26,280 minutes
	4,320 seconds	129,600 seconds	1,576,800 seconds
99%	0.24 hours	7.2 hours	87.6 hours
	14.4 minutes	432 minutes	5,256 minutes
	864 seconds	25,920 seconds	315,360 seconds
99.9%	0.02 hours	0.72 hours	8.76 hours
	1.44 minutes	43.2 minutes	525.6 minutes
	86.4 seconds	2,592 seconds	31,536 seconds
99.95%	0.01 hours	0.36 hours	4.38 hours
	0.72 minutes	21.6 minutes	262.8 minutes
	43.2 seconds	1,296 seconds	15,768 seconds
99.99%	0 hours	0.07 hours	0.88 hours
	0.14 minutes	4.32 minutes	52.56 minutes
	8.64 seconds	259.2 seconds	3,153.6 seconds
99.999%	0 hours	0.01 hours	0.09 hours
	0.01 minutes	0.43 minutes	5.26 minutes
	0.86 seconds	25.92 seconds	315.36 seconds

Related breakouts

MDS202-R1: Optimizing live video feeds to the cloud and the customer

Wednesday 11:30 am-12:30 pm | Session

MDS313-R & R1: Hotstar: Live streaming at record scale

Wednesday 11:30 am-12:30 pm & Thursday 2:30-3:30 pm | Session

MDS401-R: Achieve ultra-low latency for live video streaming

Wednesday 7:00-8:00 pm & Thursday 3:15-4:15 pm | Chalk Talk

MDS201: Latest Media & Entertainment industry news from AWS

Thursday 4:00-5:00 pm | Session

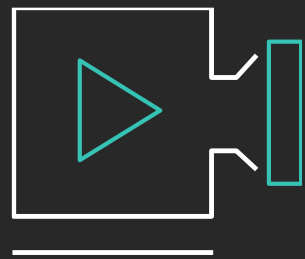
MSAM: <https://aws.amazon.com/solutions/media-services-application-mapper/>

Stale Playlist Detector: <https://github.com/awslabs/aws-stale-playlist-detector>

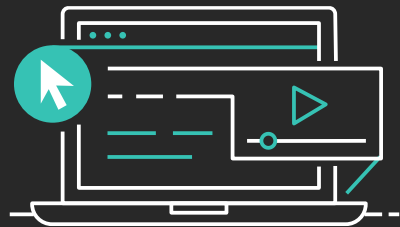
AWS Media blog: <https://aws.amazon.com/blogs/media/>

Learn media services with AWS Training and Certification

Resources created by AWS experts to help you create professional-quality media experiences



Learn from AWS media experts to advance your skills in streaming and monetizing live and on-demand video



20+ free digital media services courses and hands-on labs built by AWS experts, including Introduction to AWS Media Services and Setting Up and Configuring MediaConvert

Visit aws.amazon.com/training/path-mediaservices/

Thank you!



Please complete the session survey in the mobile app.