Scaling Architecture with AWS services

Sovathana Phat

Senior full stack software engineer

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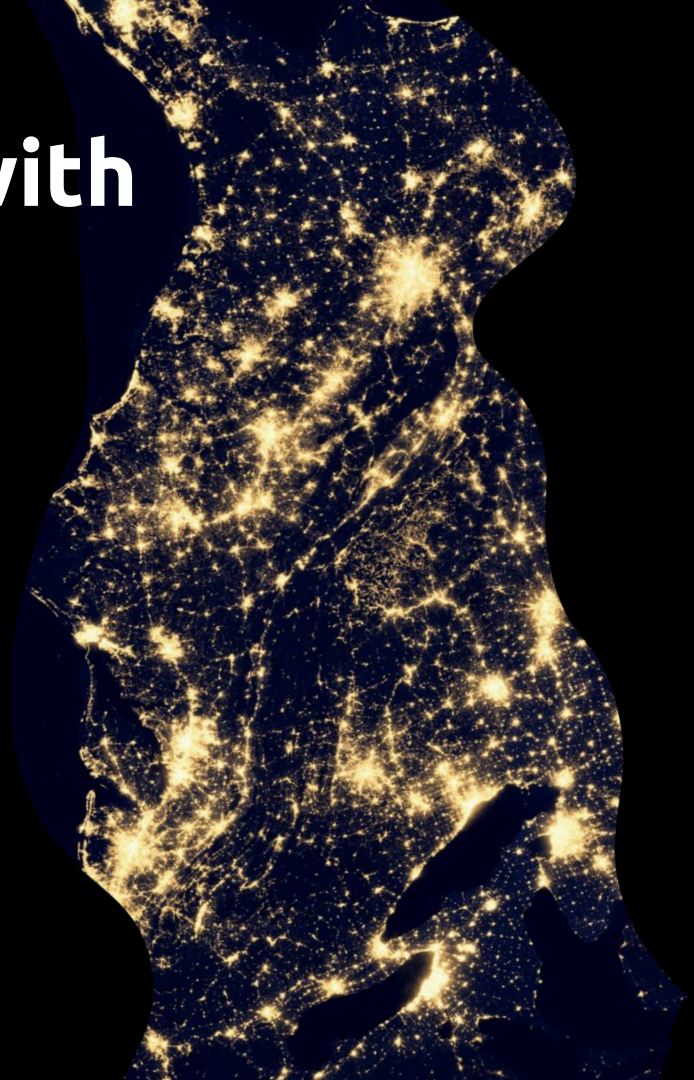

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aws CADT /slash

Case study: Moosic social network platform

We want to create a social network platform by following the requirements:

- User can share short video to thousands of users.
- User activities like, comment and share.
- User can chat
- User can use and login only from Cambodia

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On-Premises Approach:

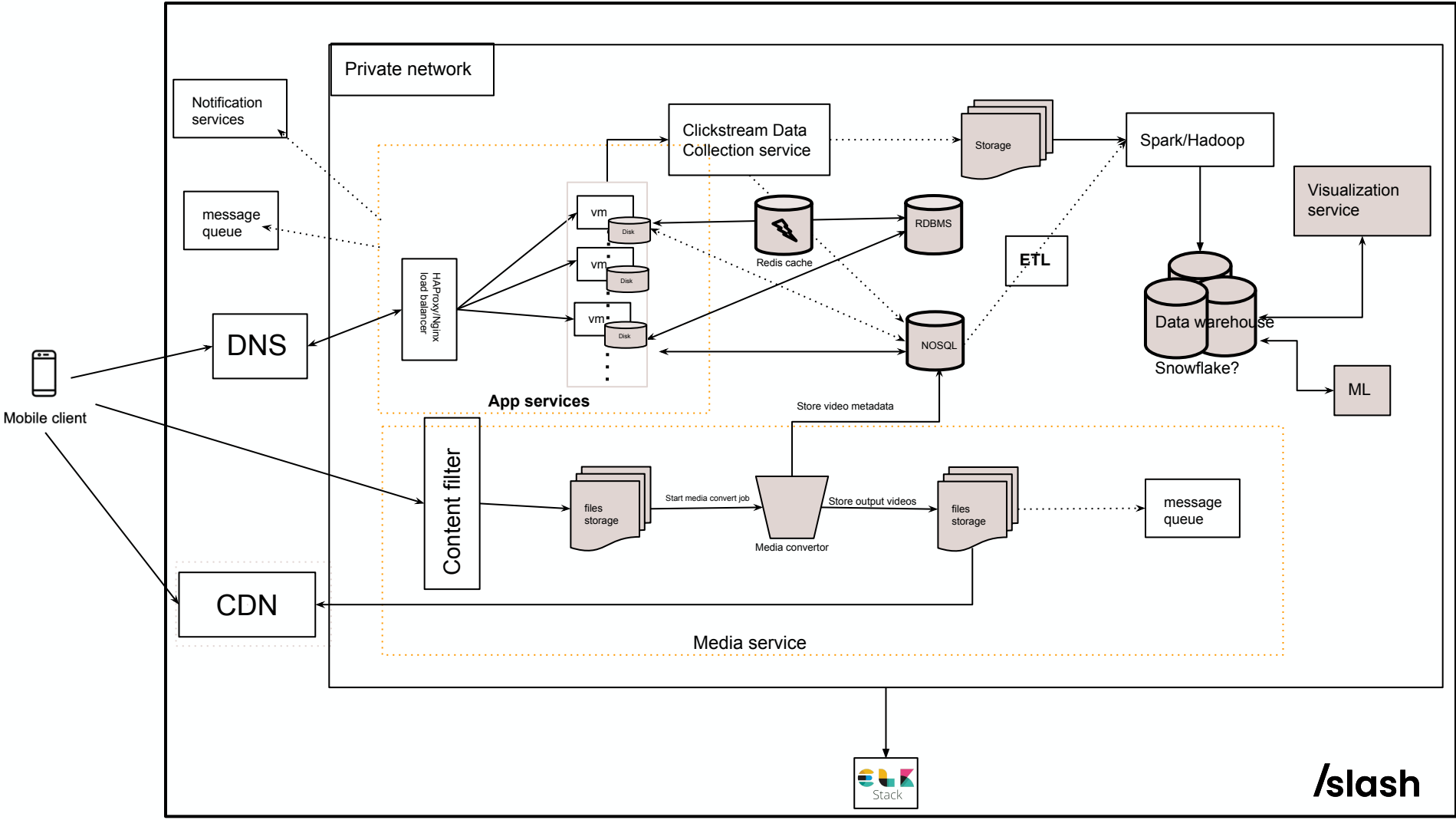
We need:

- On premises servers
- Datacenter Space
- Local ISP
- Electricity and Backup power Generator
- IT specialist

Time launch:

- At least 6 months to one year

Upfront cost is very high, while monthly cost is not small


Private network
Notification services
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DNS
Mobile client
CDN
Clickstream Data Collection service
Storage
Spark/Hadoop
Visualization service
HAProxy/Nginx load balancer
vm
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Redis cache
RDBMS
NOSQL
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Data warehouse
Snowflake?
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App services
Store video metadata
Content filter
files storage
Start media convert job
Media convertor
Store output videos
files storage
message queue
Media service
Stack
/slash

Assume go with on-premise:

After 6 months, we launched successfully.

And after 3 more months,

- Hit with 500% users increase
- Our Cambodian people and other people from oversea wanted to use also

What are the challenges?

After a lot of demands,

- We need more servers on-premise (CPU, hard disk, RAM)
- Latency issue from India, USA, China, Australia

As a result, we lose users

Cloud Approach use AWS services:

- Scalability
  - Microservice Architecture with Serverless or EC2
  - Provision new instances fast (auto scaling)
- Security
  - Secure user’s videos by giving access to their own s3 folder
- Cost efficiency
  - Adaptive streaming with caching
- High Performance
  - The database should scale and high read throughput

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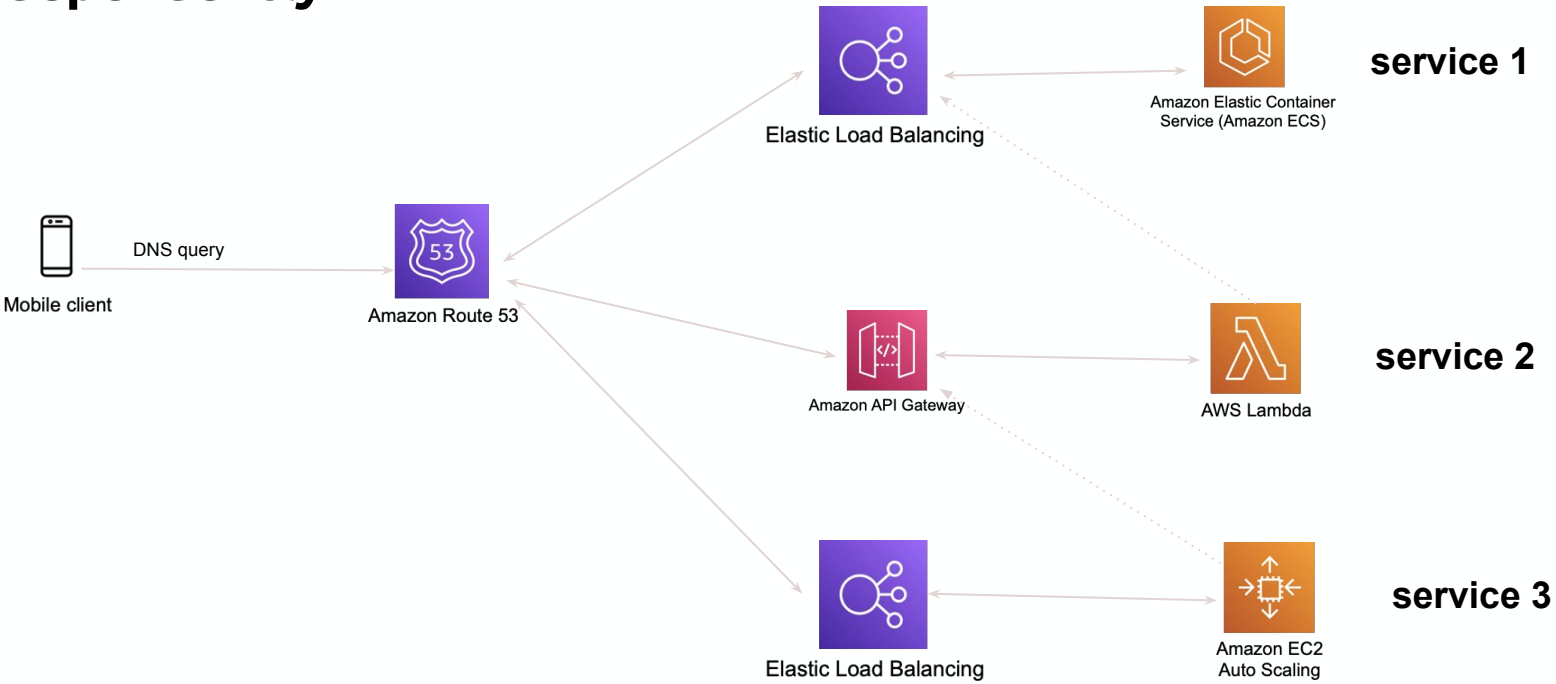
Microservice Architecture with Serverless or EC2 and scale independently



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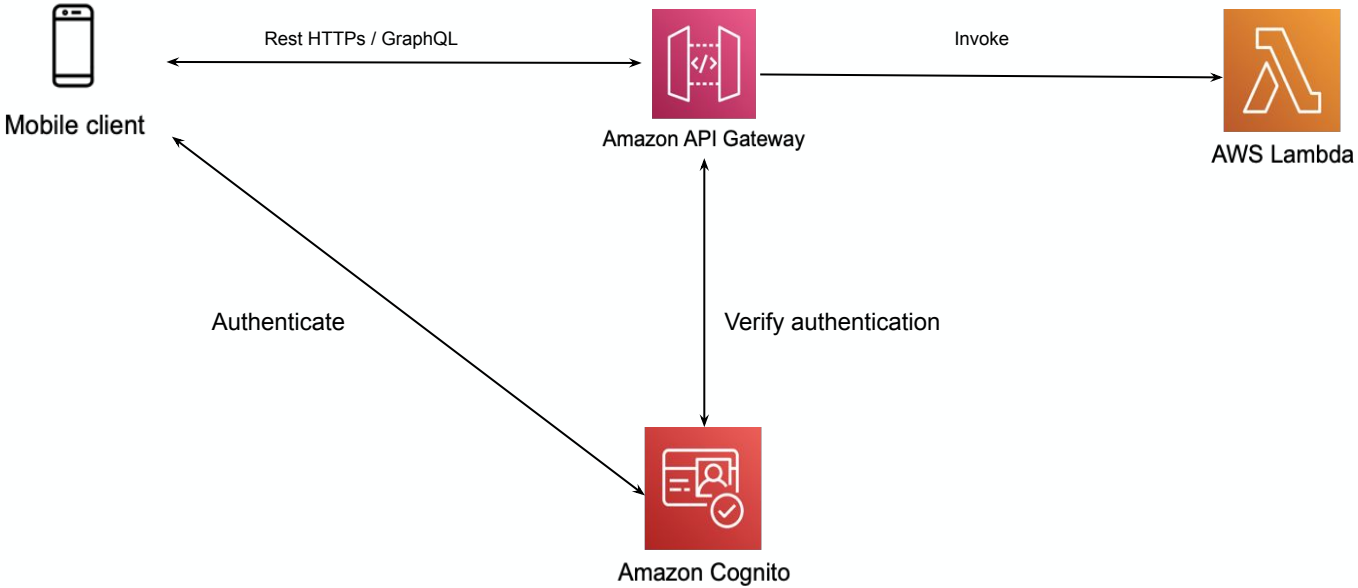
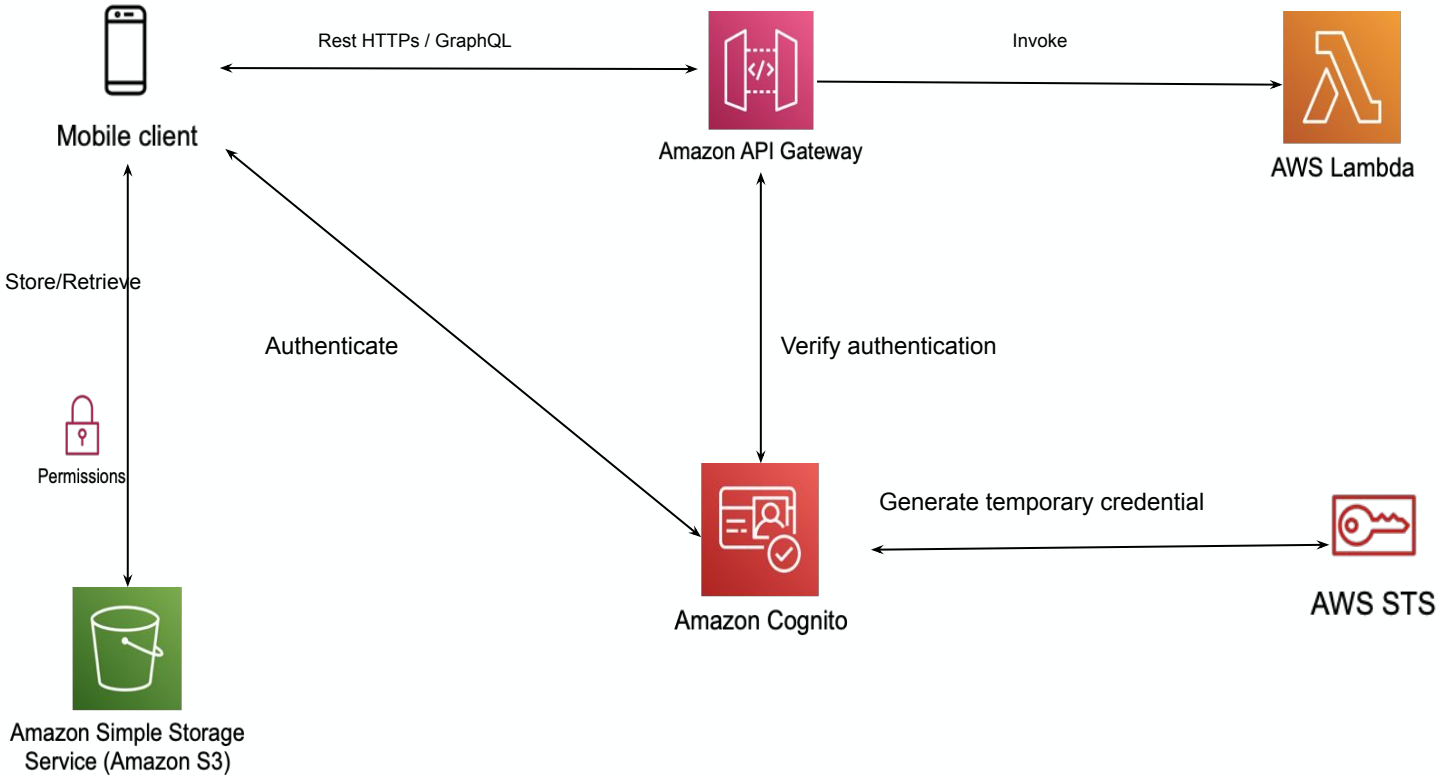
Mobile App Rest API with HTTPs



Giving user access to s3



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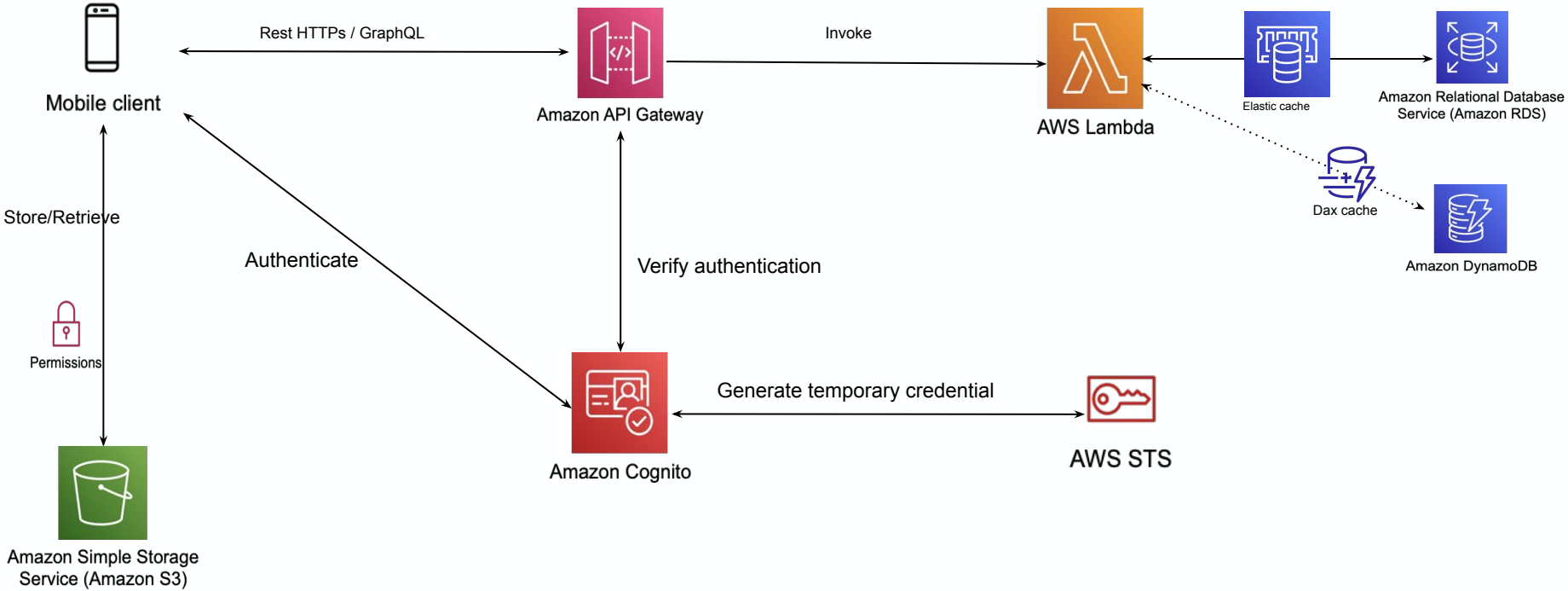
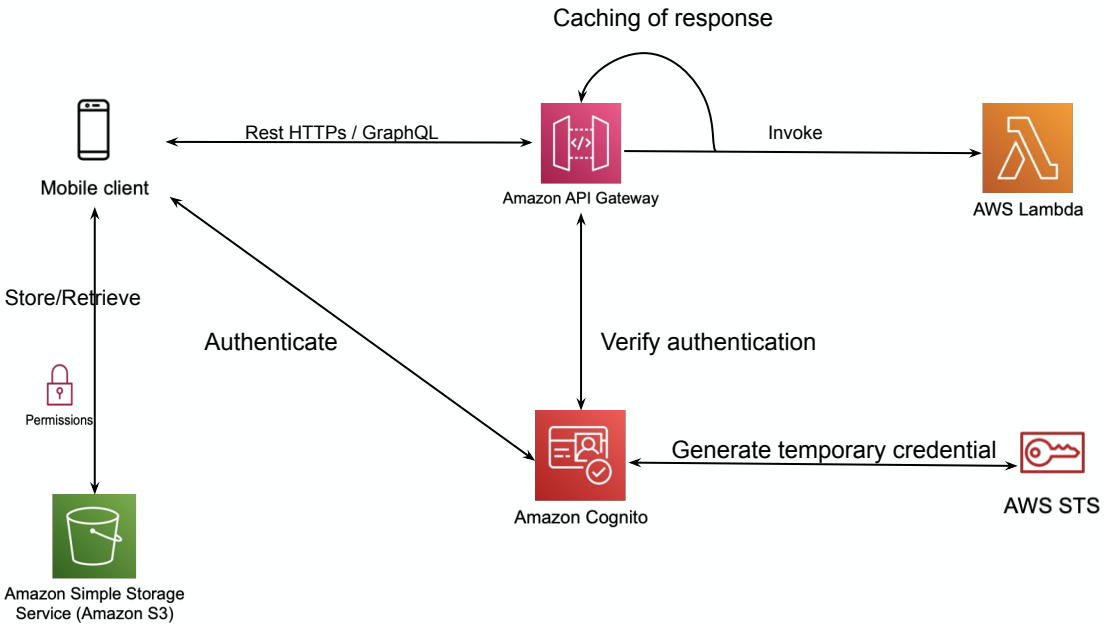
Reduce load off of databases for read intensive workloads



Caching at API gateway



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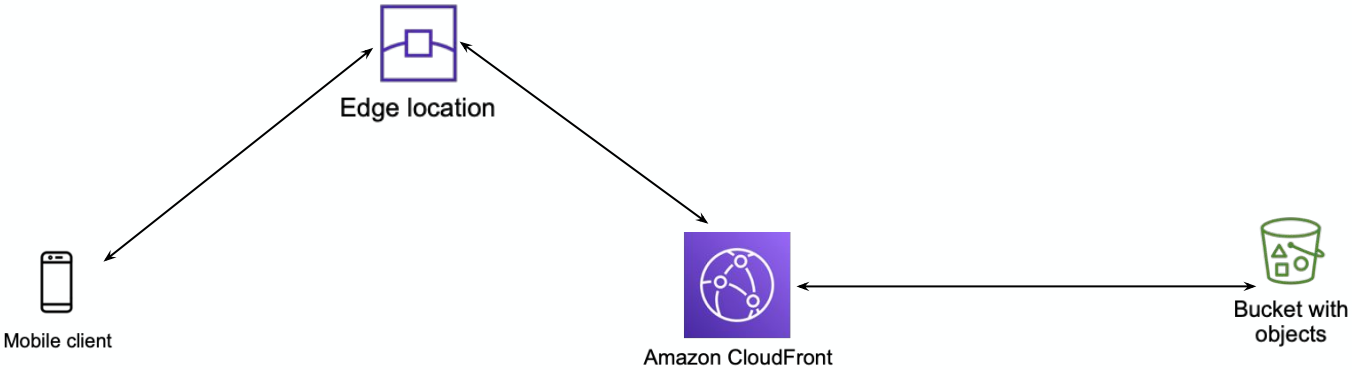
Serving videos content globally



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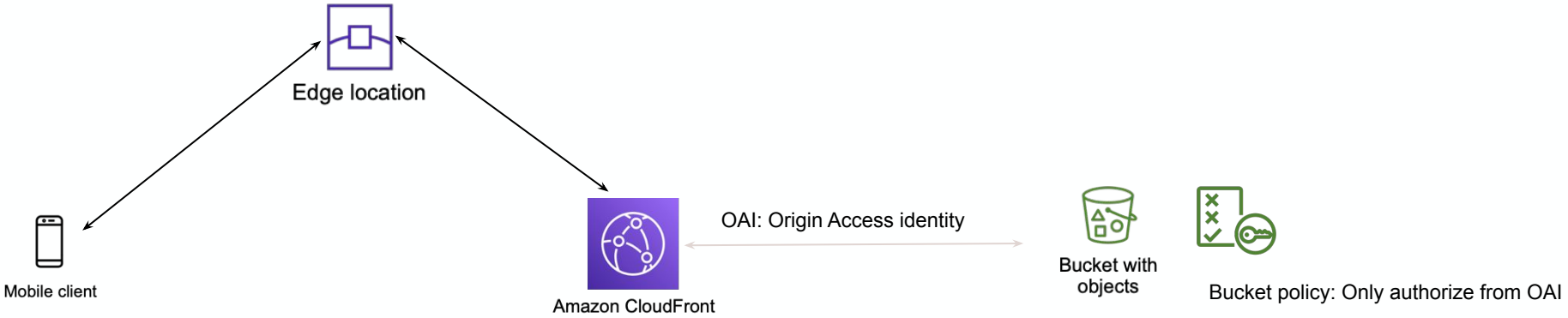
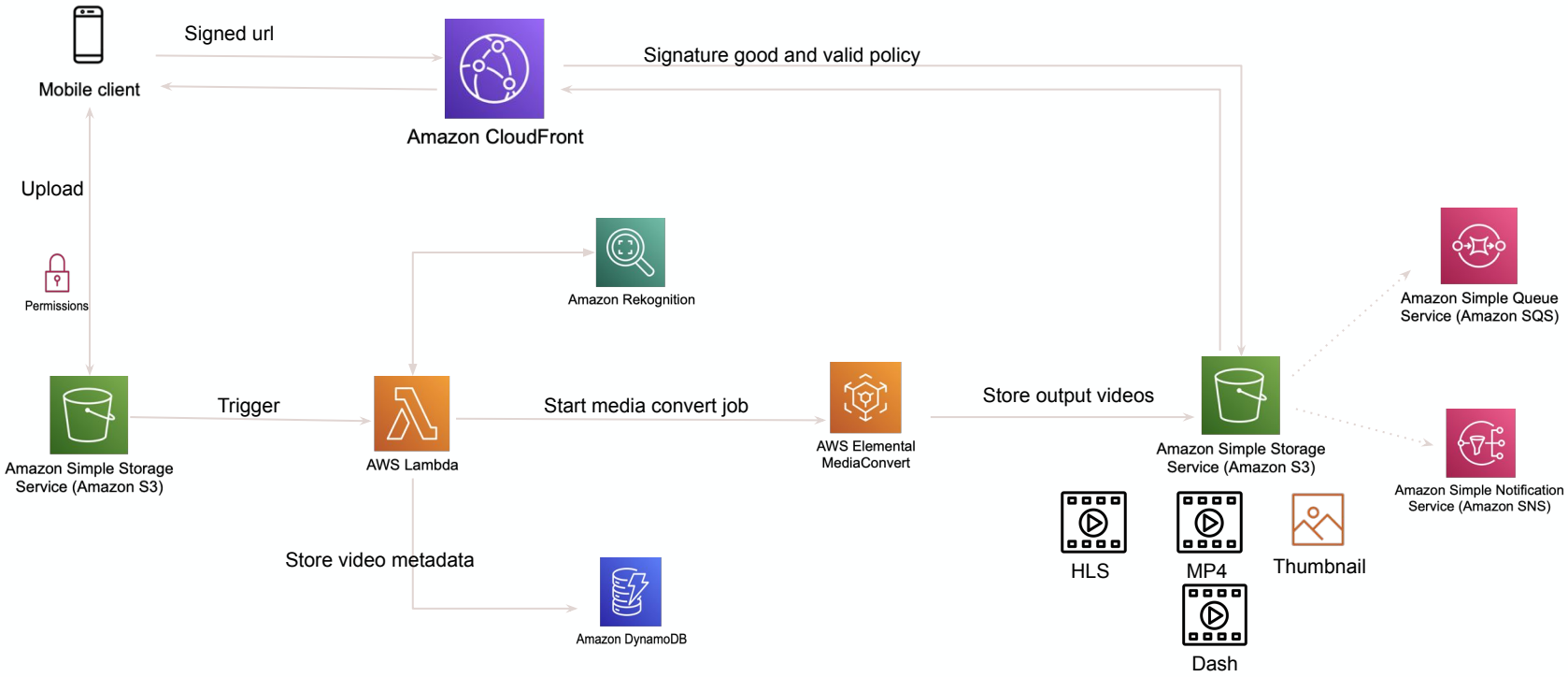
Serving static videos content globally: More secure



Compression, thumbnail and apply watermark on video content



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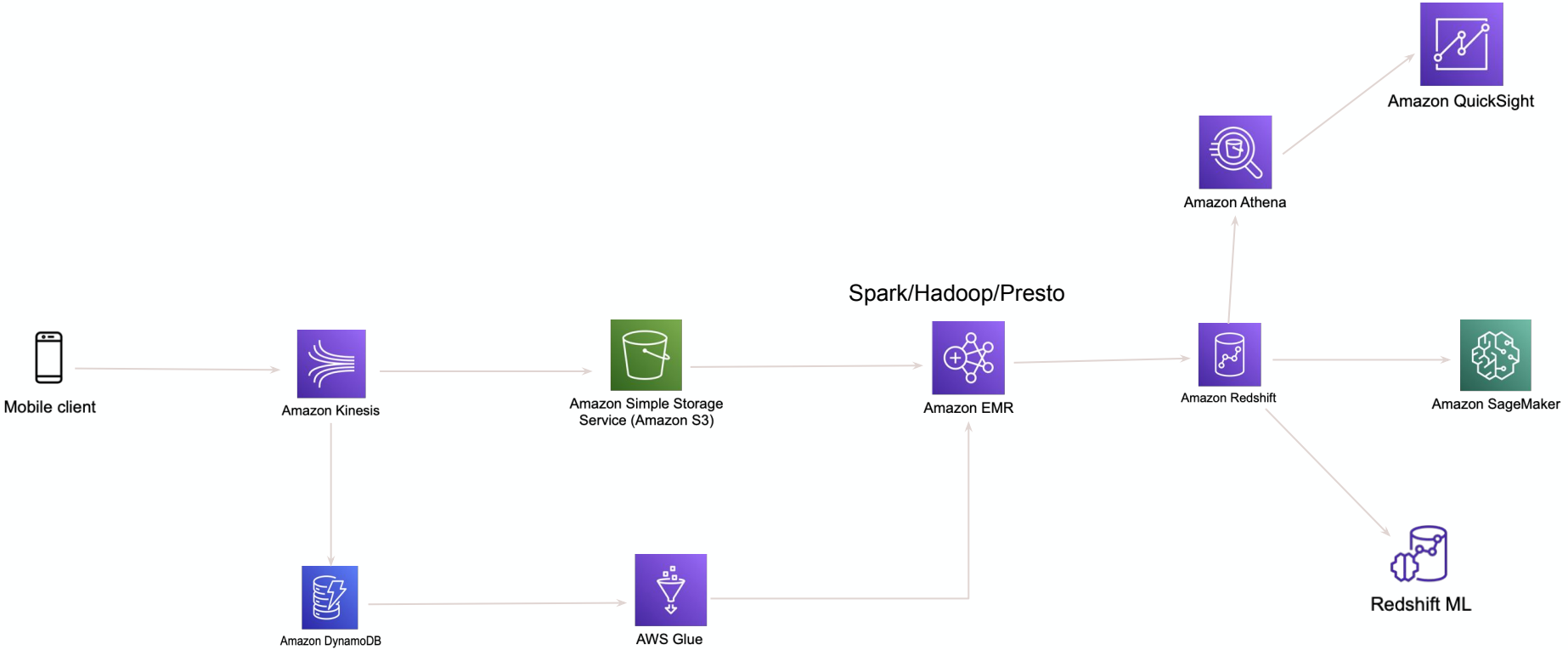
Clickstream data collection service



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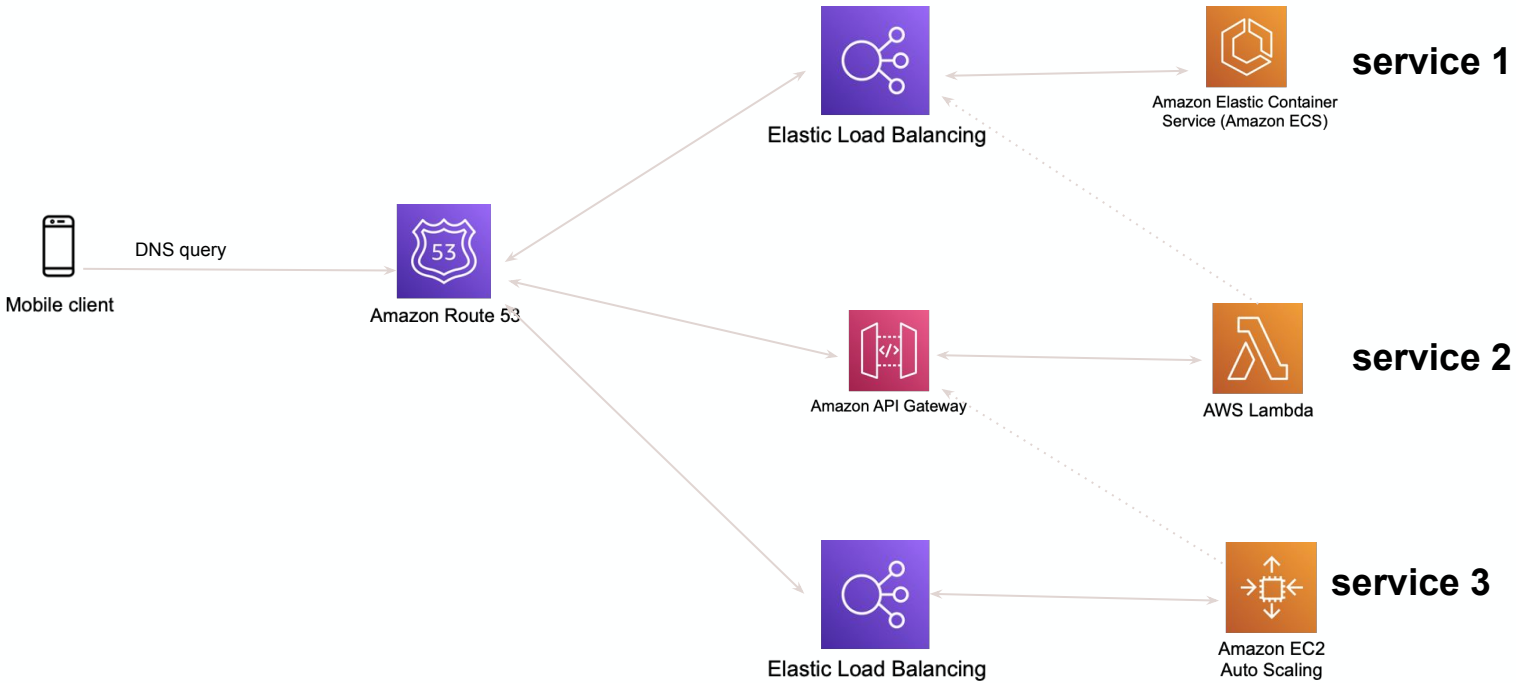
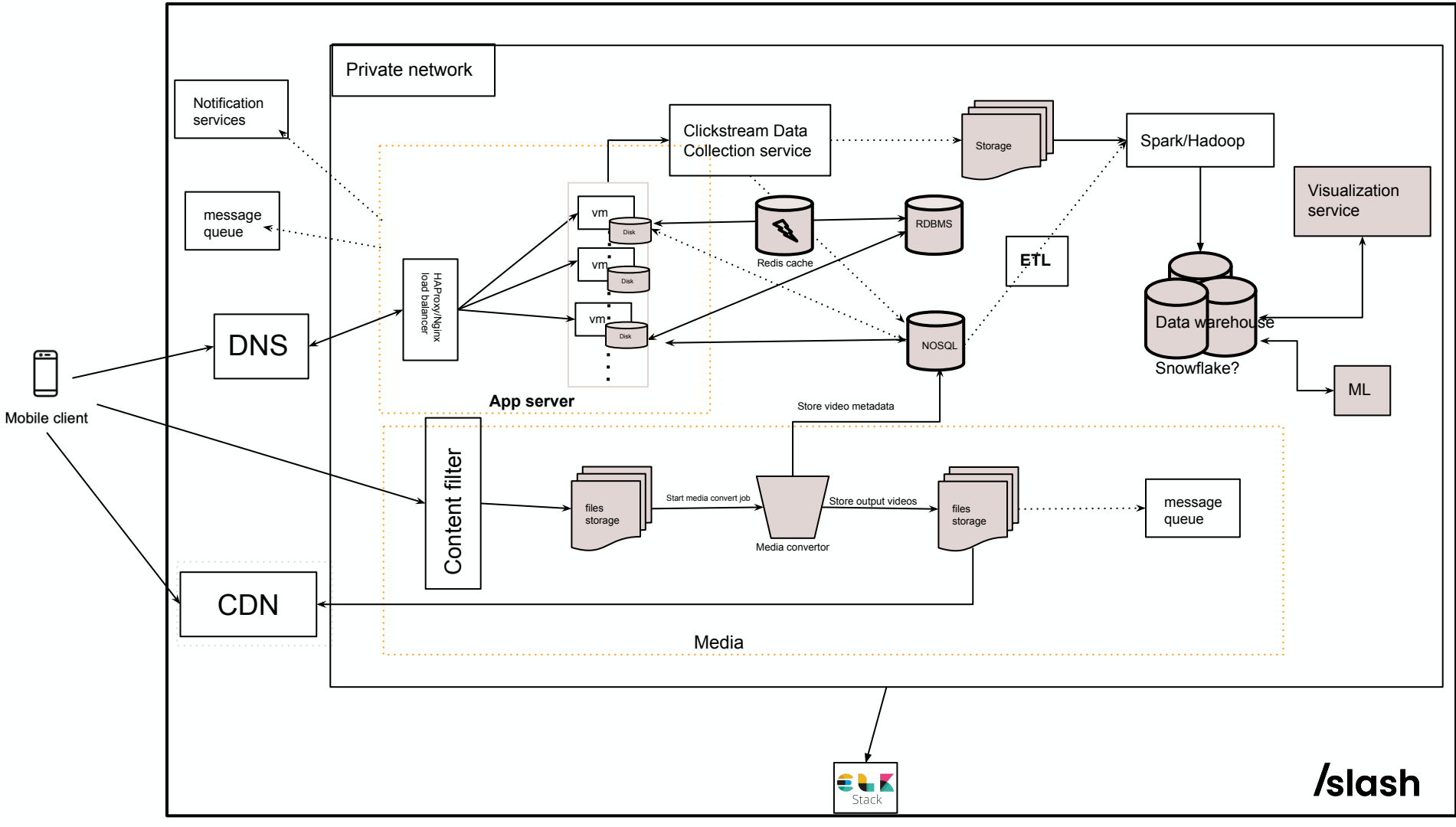
Microservices with scale independently

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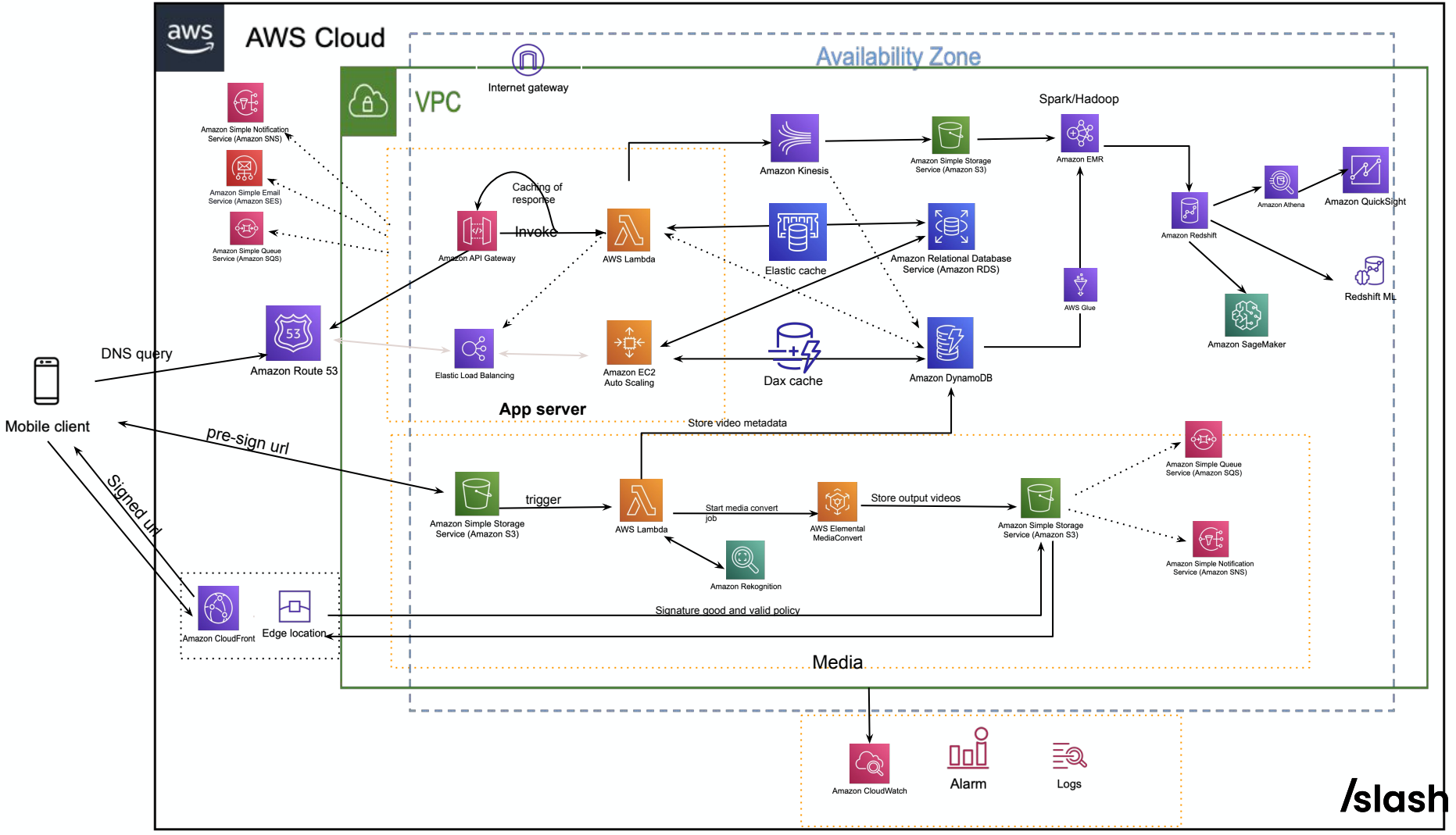
AWS Cloud
Availability Zone
VPC
Internet gateway
Amazon Simple Notification Service (Amazon SNS)
Amazon Simple Email Service (Amazon SES)
Amazon Simple Queue Service (Amazon SQS)
Caching of response
Invoke
Amazon API Gateway
AWS Lambda
Amazon Kinesis
Amazon Simple Storage Service (Amazon S3)
Spark/Hadoop
Amazon EMR
Amazon Athena
Amazon QuickSight
Amazon Redshift
Redshift ML
Amazon SageMaker
AWS Glue
Elastic cache
Amazon Relational Database Service (Amazon RDS)
DNS query
Amazon Route 53
Elastic Load Balancing
Amazon EC2 Auto Scaling
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Amazon Simple Notification Service (Amazon SNS)
Amazon Rekognition
Signature good and valid policy
Amazon CloudFront
Edge location
Media
Amazon CloudWatch
Alarm
Logs
/slash

With AWS cloud

Fast, flexible, secure, and budget-friendly solution

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Thank you!

Plug and play together!

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