Agenda

1. Backup of AMI
2. Snapshots / Volumes
3. Golden AMI
4. Image Pipelines using EC2 Image builder
5. Types of IB

Quick Recap of EC2

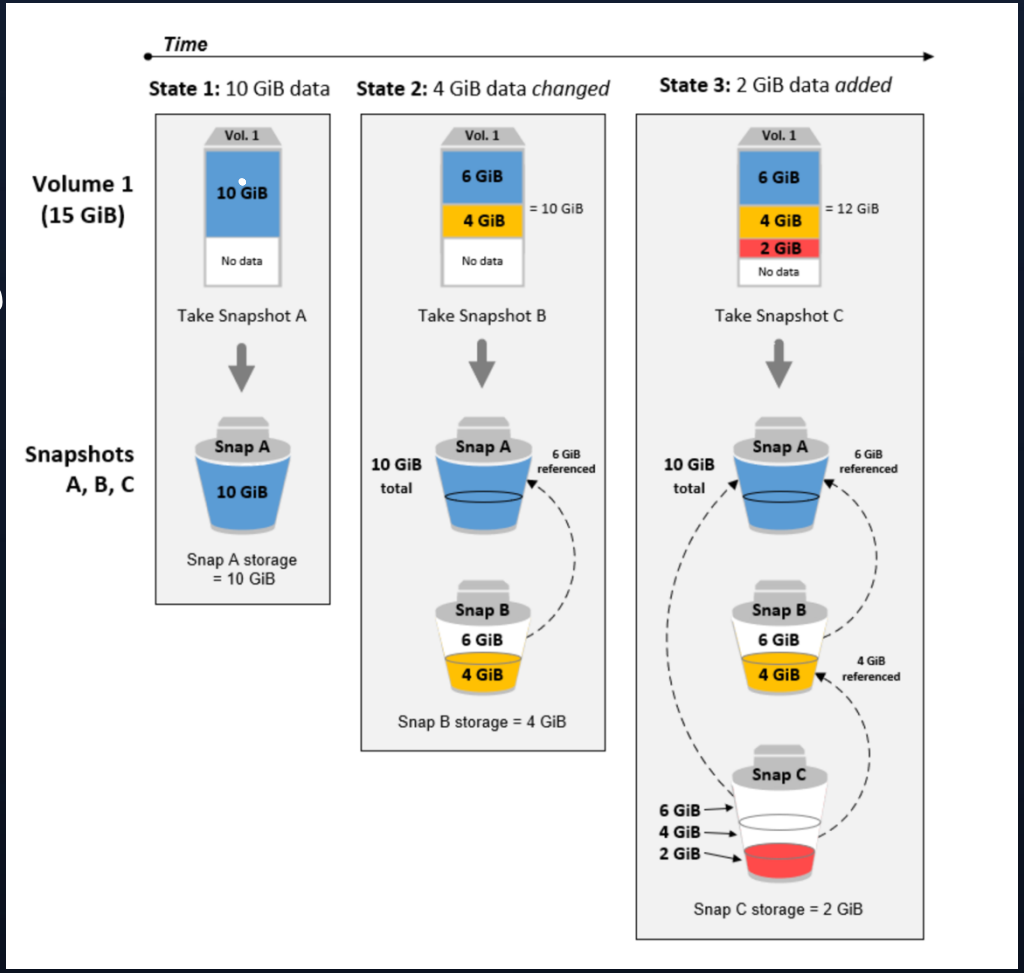
Understanding EBS Snapshot

AMI Snapshots

The first snapshot that you create from a volume is always a *full snapshot*. It includes all of the data blocks written to the volume at the time of creating the snapshot. Subsequent snapshots of the same volume are *incremental snapshots*. They include only changed and new data blocks written to the volume since the last snapshot was created

The size of a full snapshot is determined by the size of the data being backed up, not the size of the source volume. Similarly, the storage costs associated with a full snapshot is determined by the size of the snapshot, not the size of the source volume. For example, you create the first snapshot of a 200 GiB Amazon EBS volume that contains only 50 GiB of data. This results in a full snapshot that is 50 GiB in size, and you are billed for 50 GiB snapshot storage.

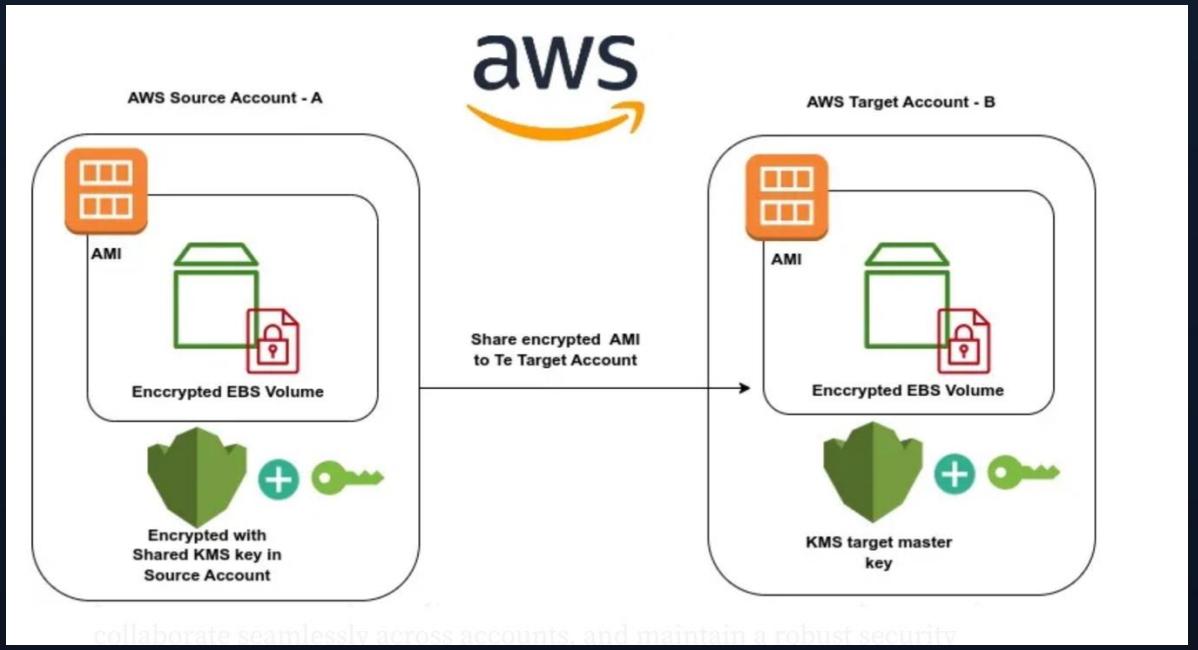
Similarly, the size and storage costs of an incremental snapshot are determined by the size of any data that was written to the volume since the previous snapshot was created. Continuing the previous example, if you create a second snapshot of the same 200 GiB volume after changing 20 GiB of data and adding 10 GiB of data, the incremental snapshot is 30 GiB in size. You are then billed for that additional 30 GiB snapshot storage.



Encryption of an EBS Volume and AMI

Encryption of an EBS Snapshot or AMI provides data-at-rest protection and requires an AWS KMS key for the process.

To encrypt an unencrypted resource, you must create an encrypted copy, as direct in-place modification of encryption status is not supported.



Challenges with Org with Standard AMI

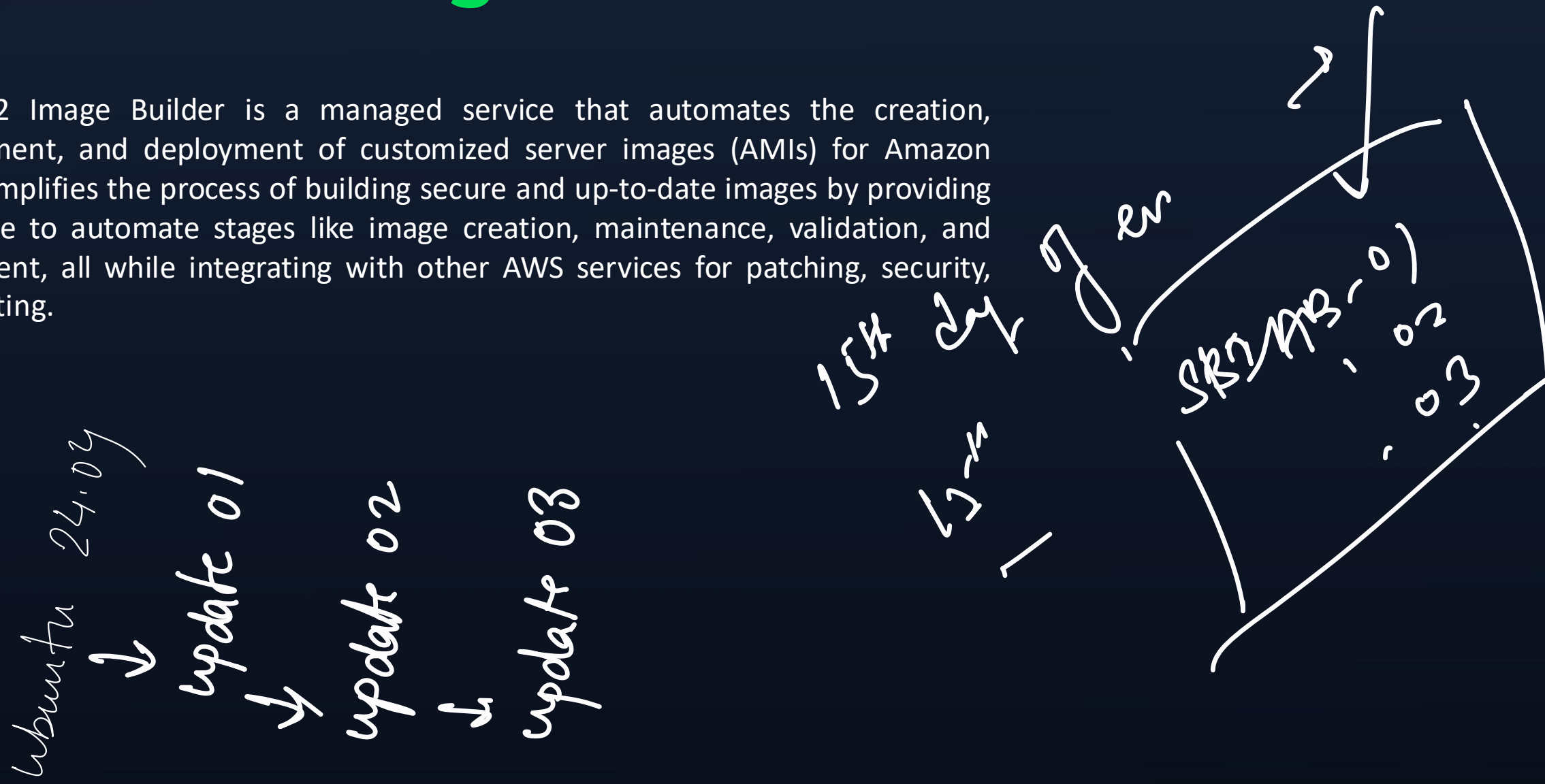
- 1. Organizations struggle with the **manual effort** of patching and updating custom AMIs (Golden Images), leading to **inconsistency** and high operational overhead.
- **2.** Manually built AMIs often lack **standardized security and compliance checks**, increasing the risk of running vulnerable instances.
- **3.** Scaling AMI maintenance involves complex custom scripts (like Packer) and difficult **distribution/sharing** across multiple AWS accounts and Regions.

EC2 Image Builder Solves This: It is a **fully managed service** that automates the entire image build, test, and distribute process, eliminating manual scripting.

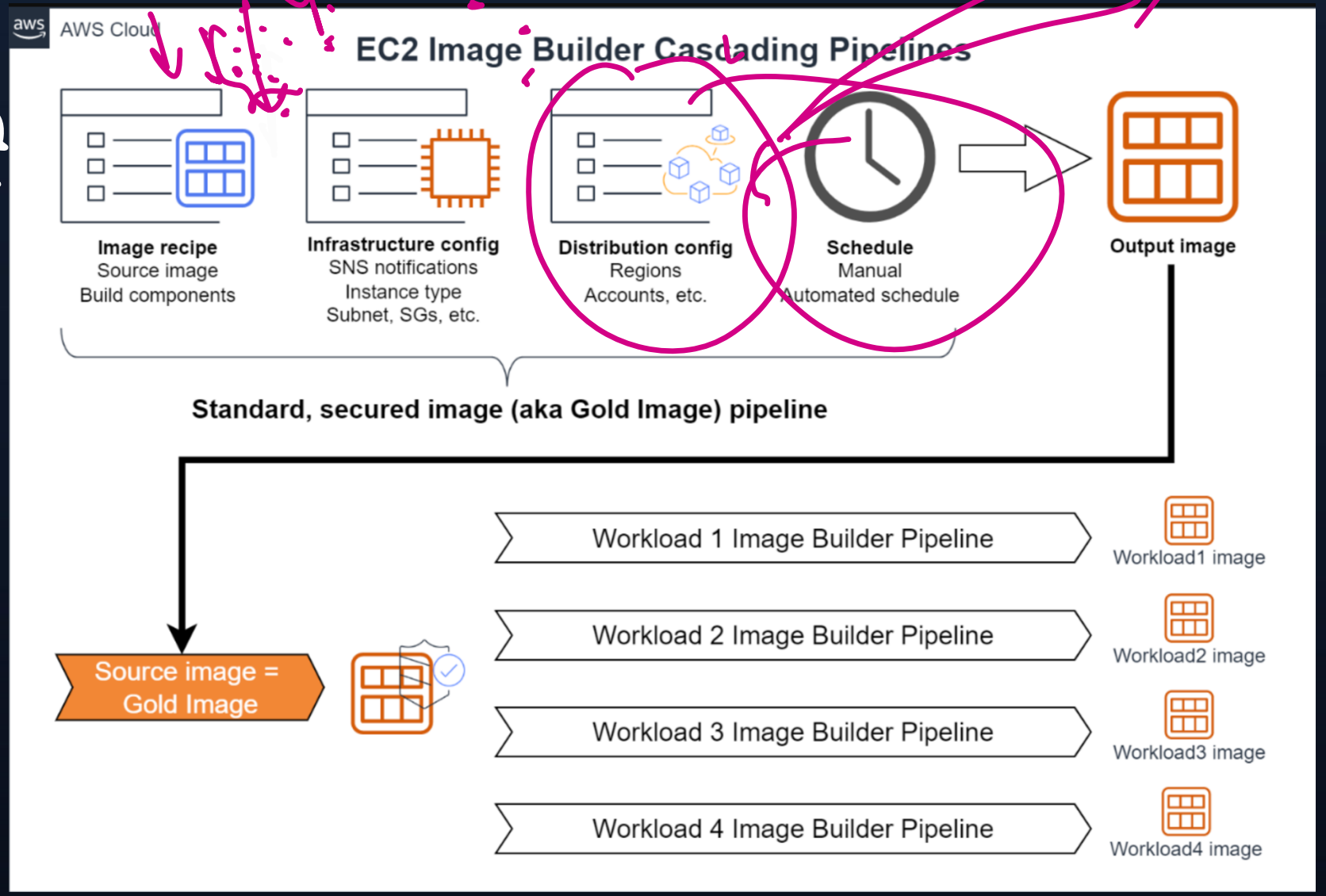
Benefit: It enforces **security and standardization** via configurable pipelines, ensuring all launched EC2 instances are secure and compliant.

What is an Image Builder Service

AWS EC2 Image Builder is a managed service that automates the creation, management, and deployment of customized server images (AMIs) for Amazon EC2. It simplifies the process of building secure and up-to-date images by providing a pipeline to automate stages like image creation, maintenance, validation, and deployment, all while integrating with other AWS services for patching, security, and auditing.



How an Image Pipeline Works



Intro to ALB

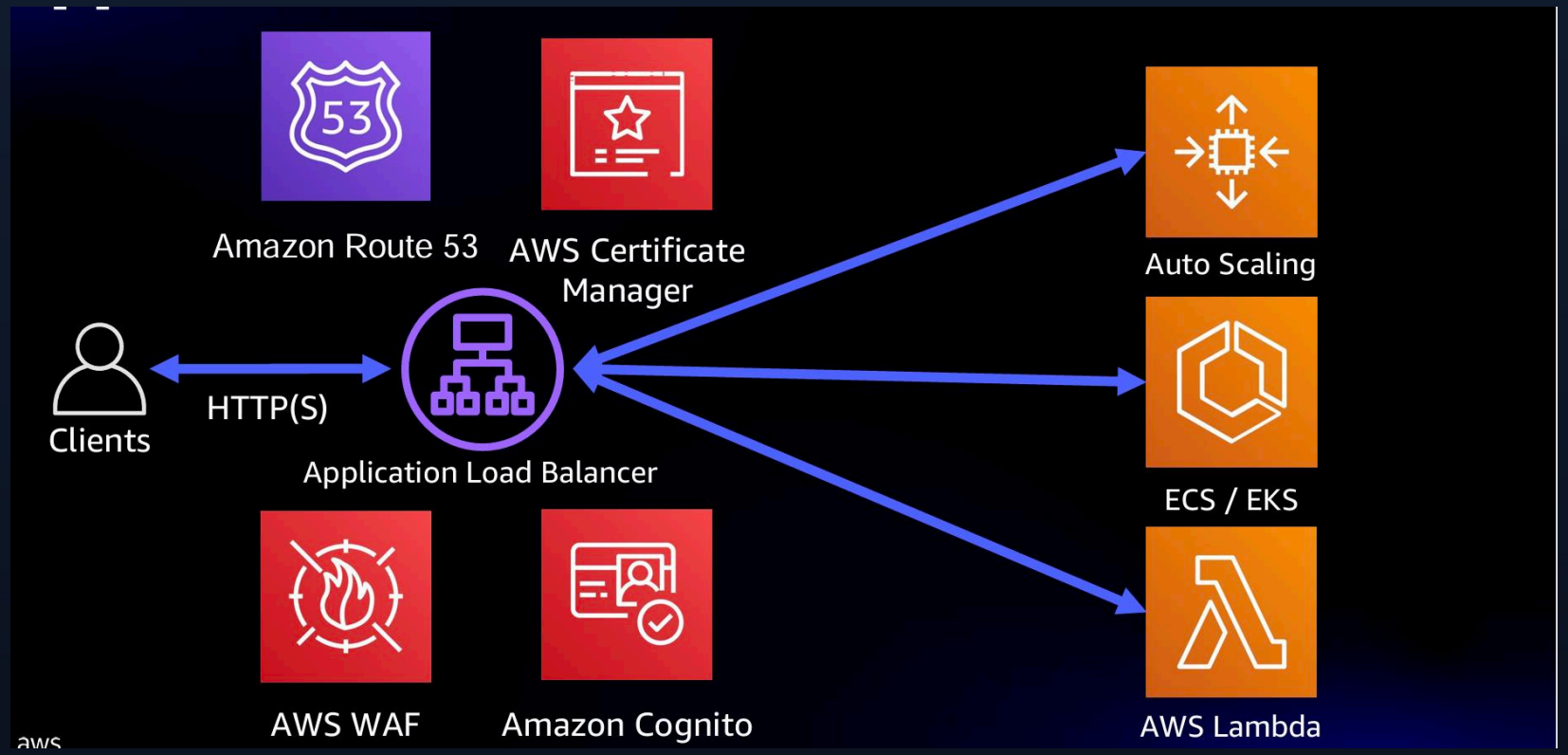
Benefits of using Elastic Load Balancers

Scalability

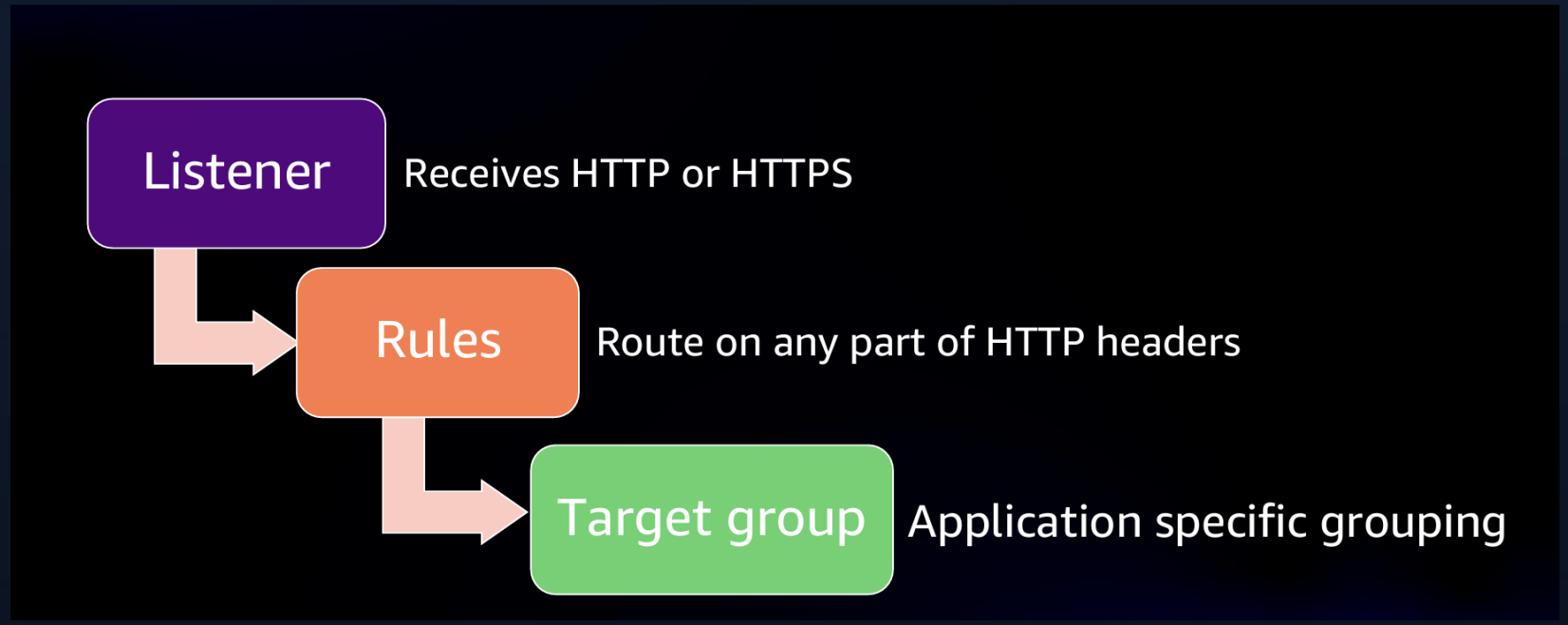
Security

Availability

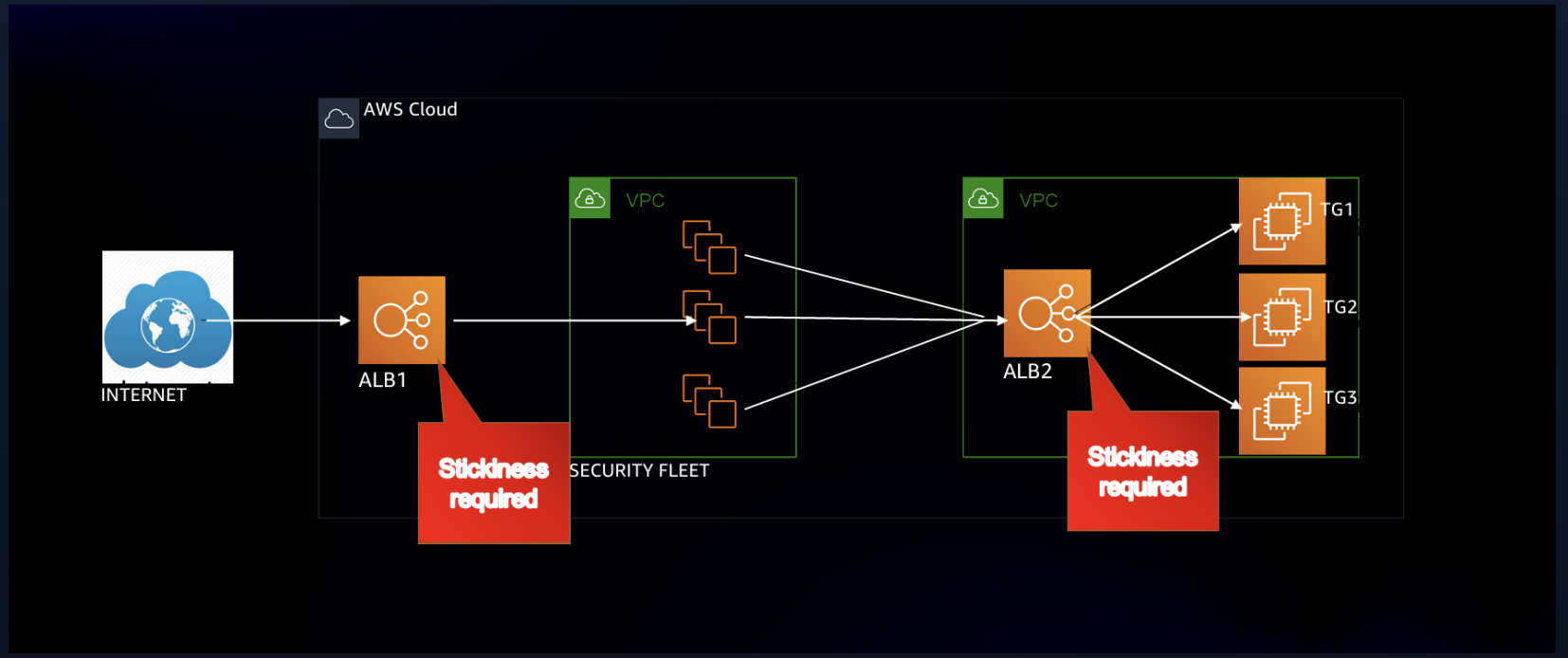
Intro to ALB


53
Amazon Route 53
AWS Certificate Manager
Auto Scaling
Clients
HTTP(S)
Application Load Balancer
ECS / EKS
AWS WAF
Amazon Cognito
AWS Lambda
aws

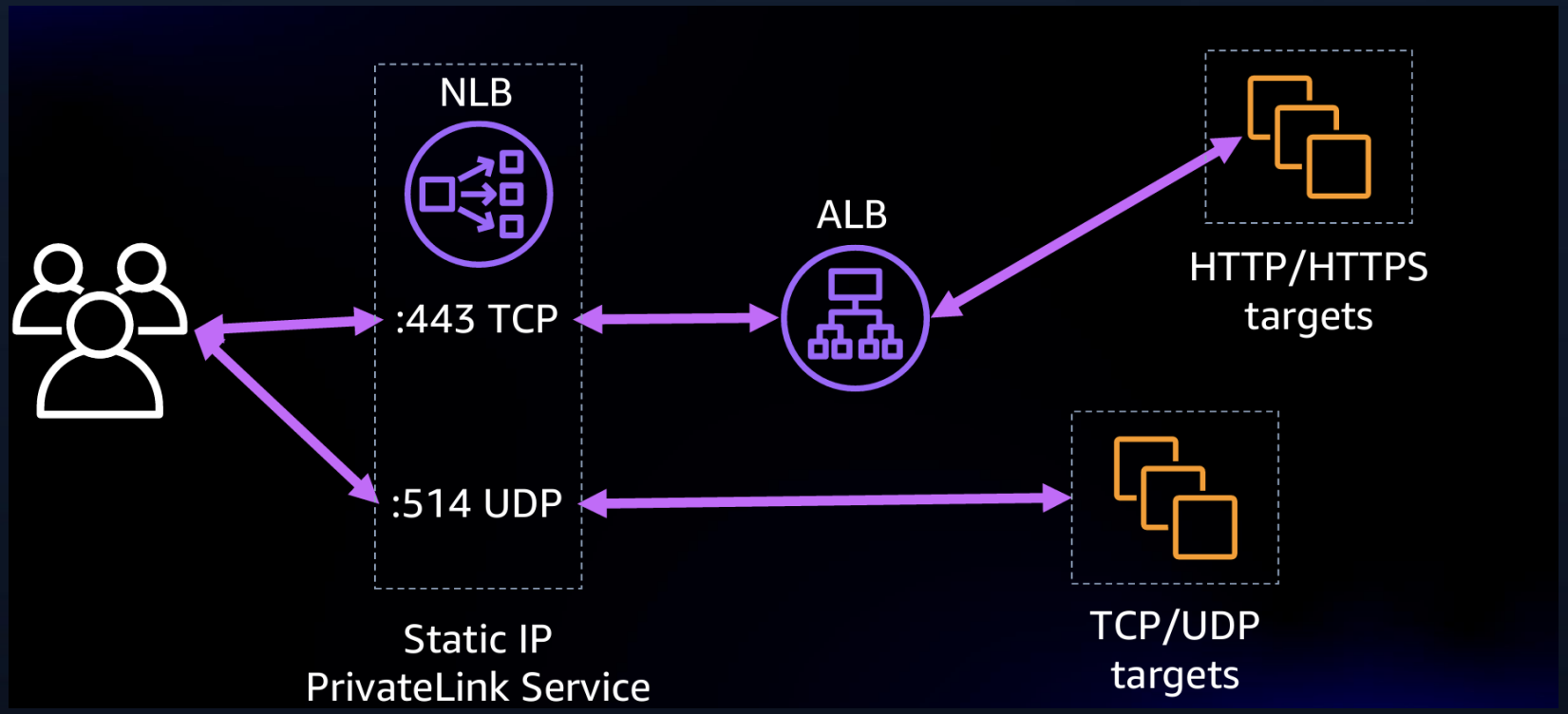
Logical Overview of ALB



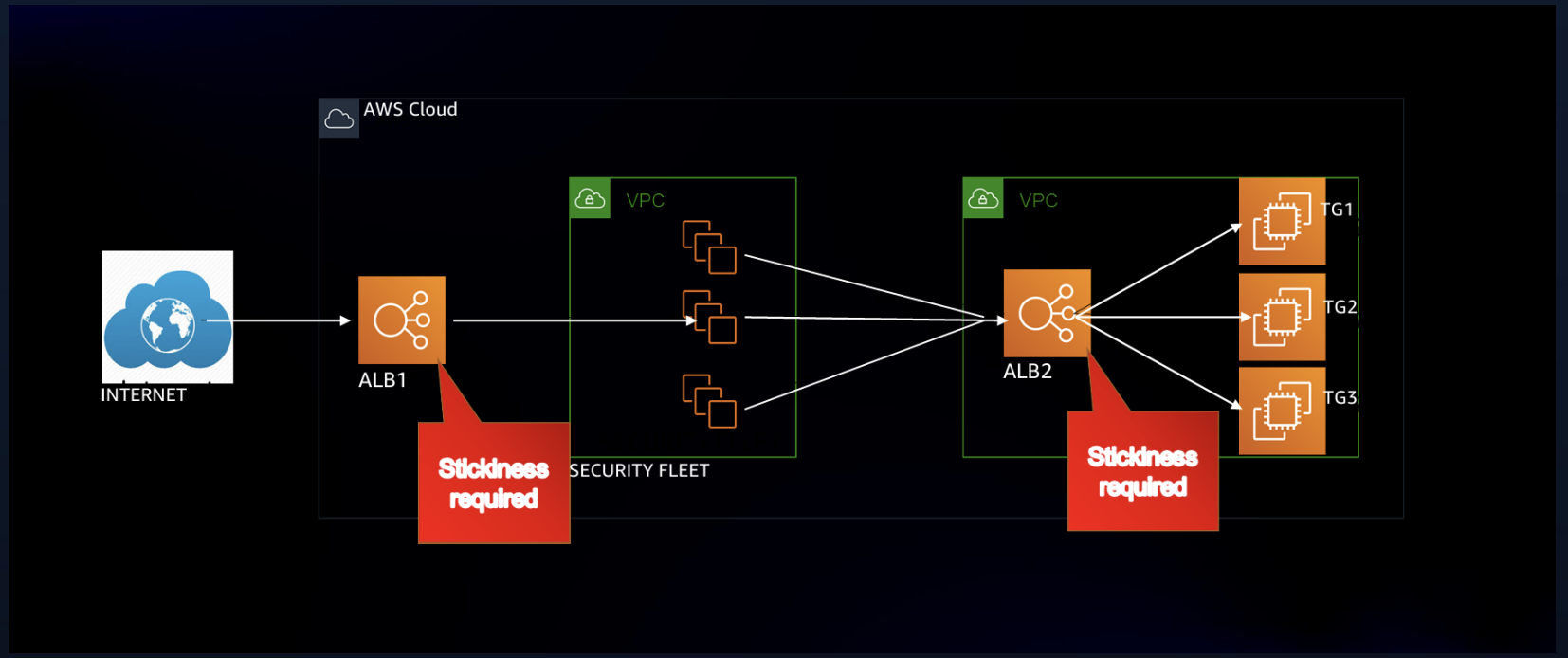
ALB Application Cookie Stickiness



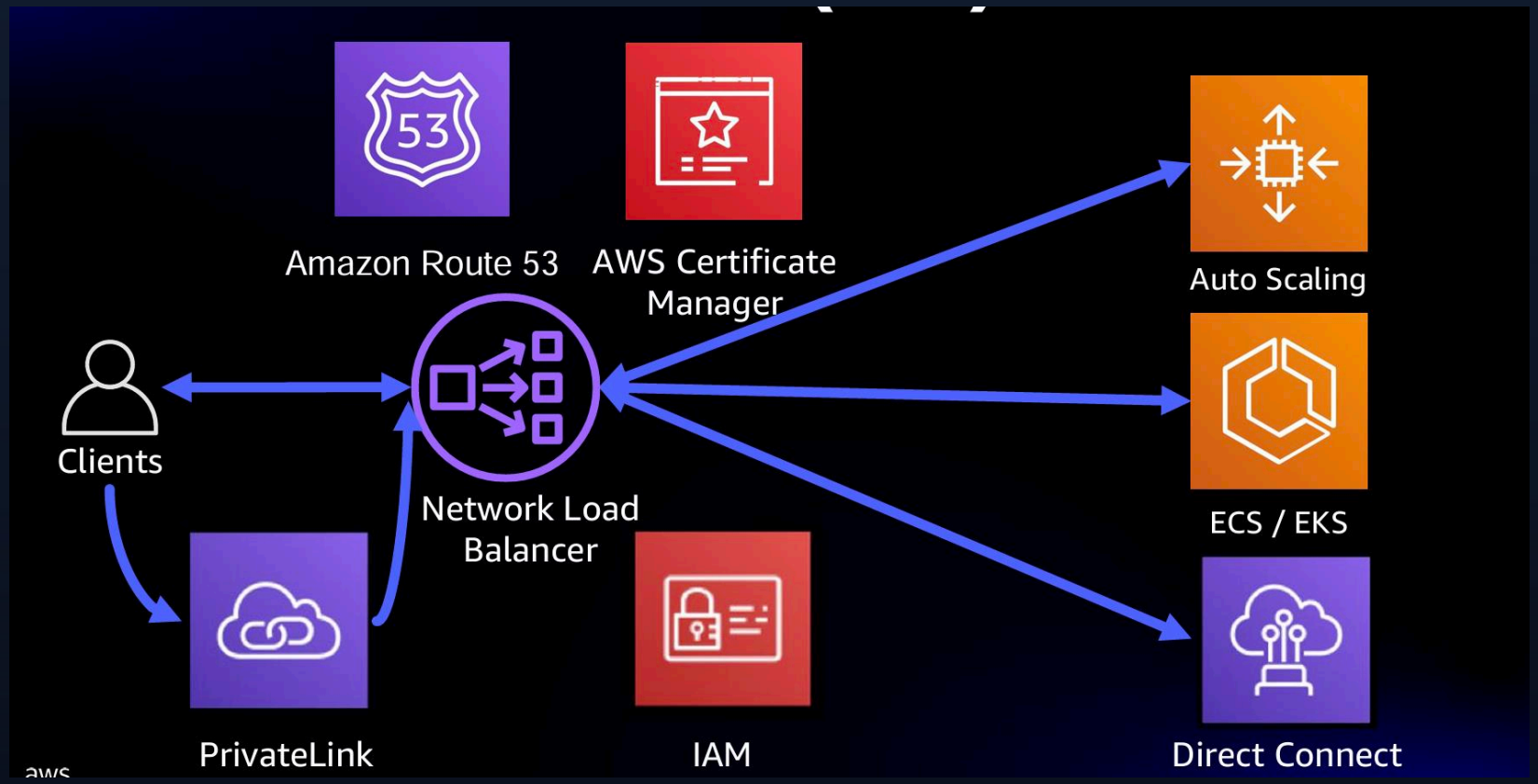
ALB as a Target of NLB



ALB Application Cookie Stickiness



NLB


Amazon Route 53
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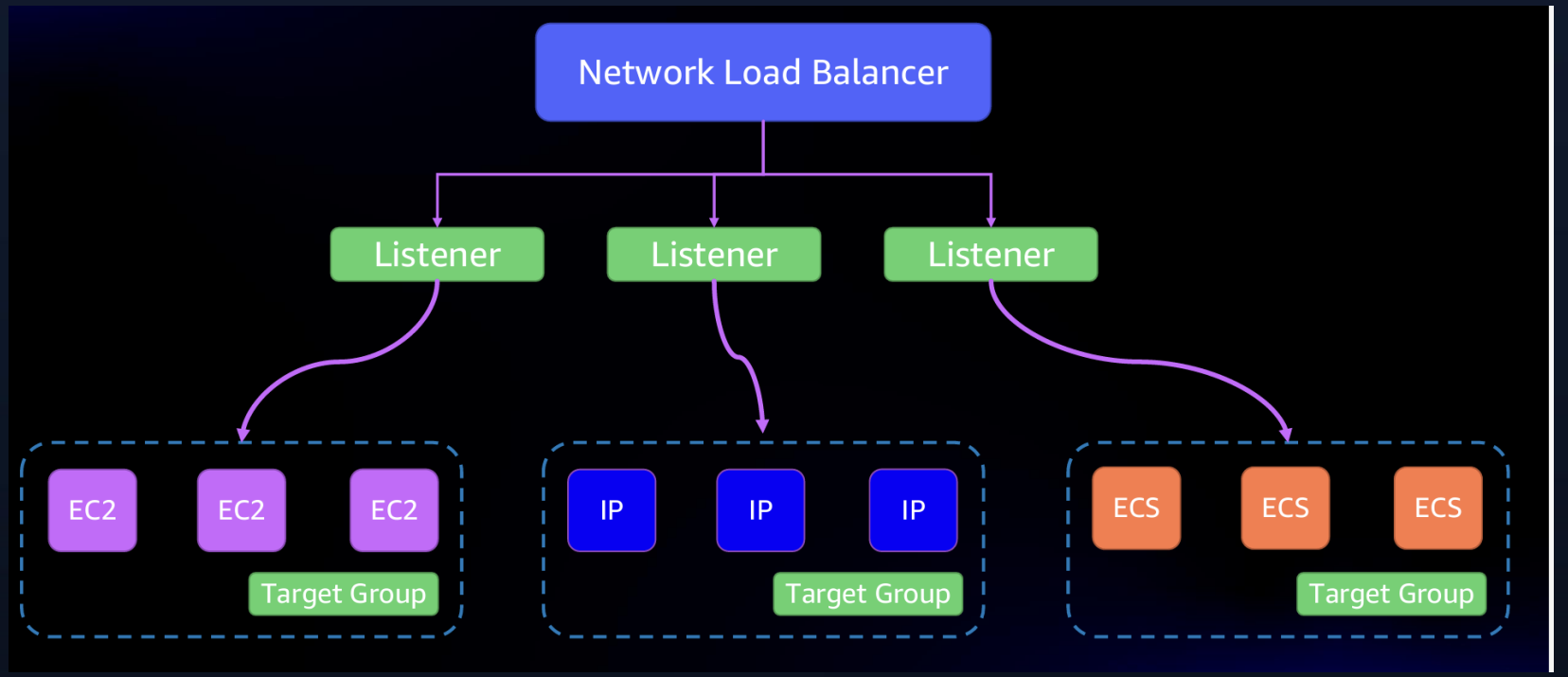
ECS / EKS
PrivateLink
IAM
Direct Connect

Logical Overview of NLB



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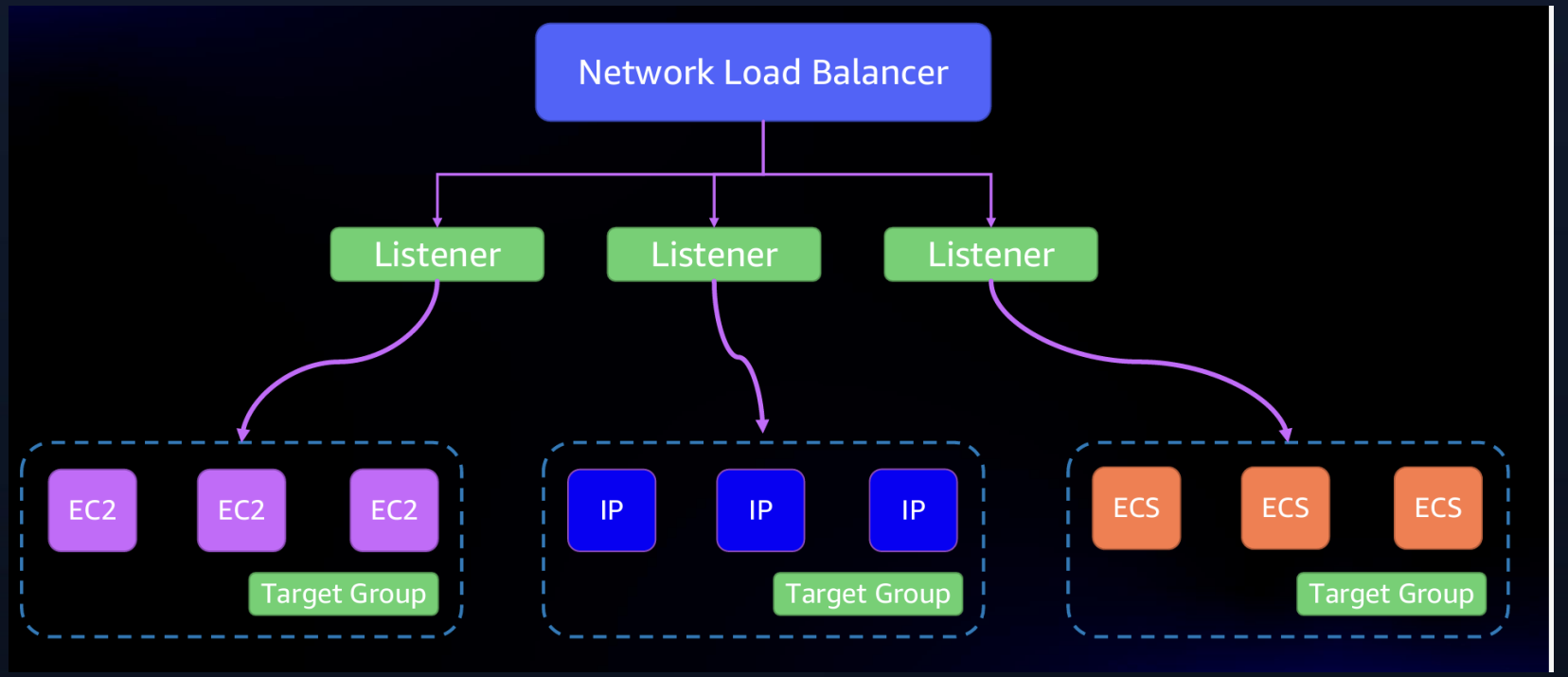

Serverless ALB