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NET202

Get hands-on with IPv6

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Agenda

- IPv6 for Amazon VPC
- Load balancing and traffic management
- Event logistics
- Workshop scenario

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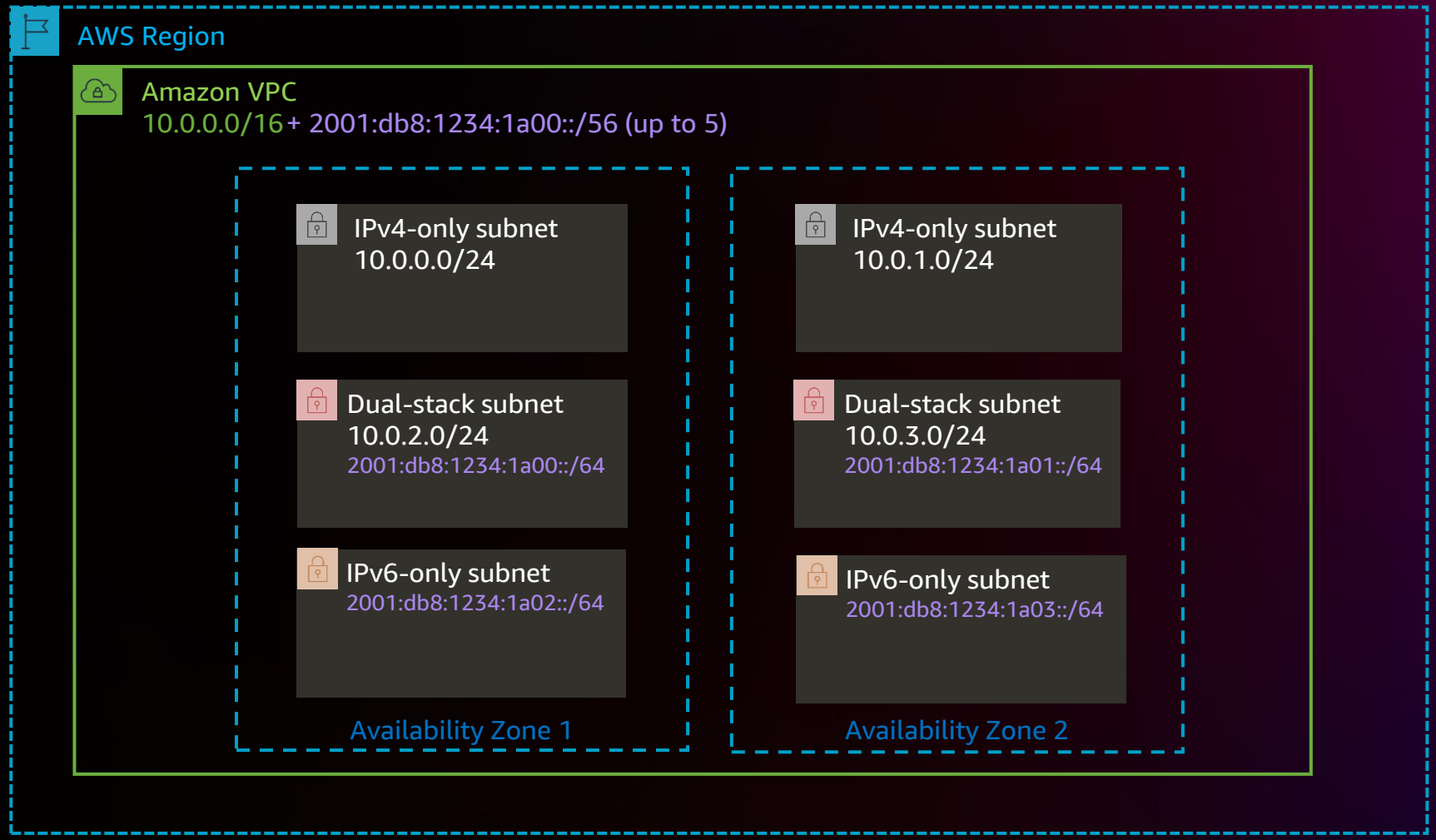
Amazon VPC: IP addressing

IPV4-ONLY, DUAL STACK, AND IPV6-ONLY SUBNETS



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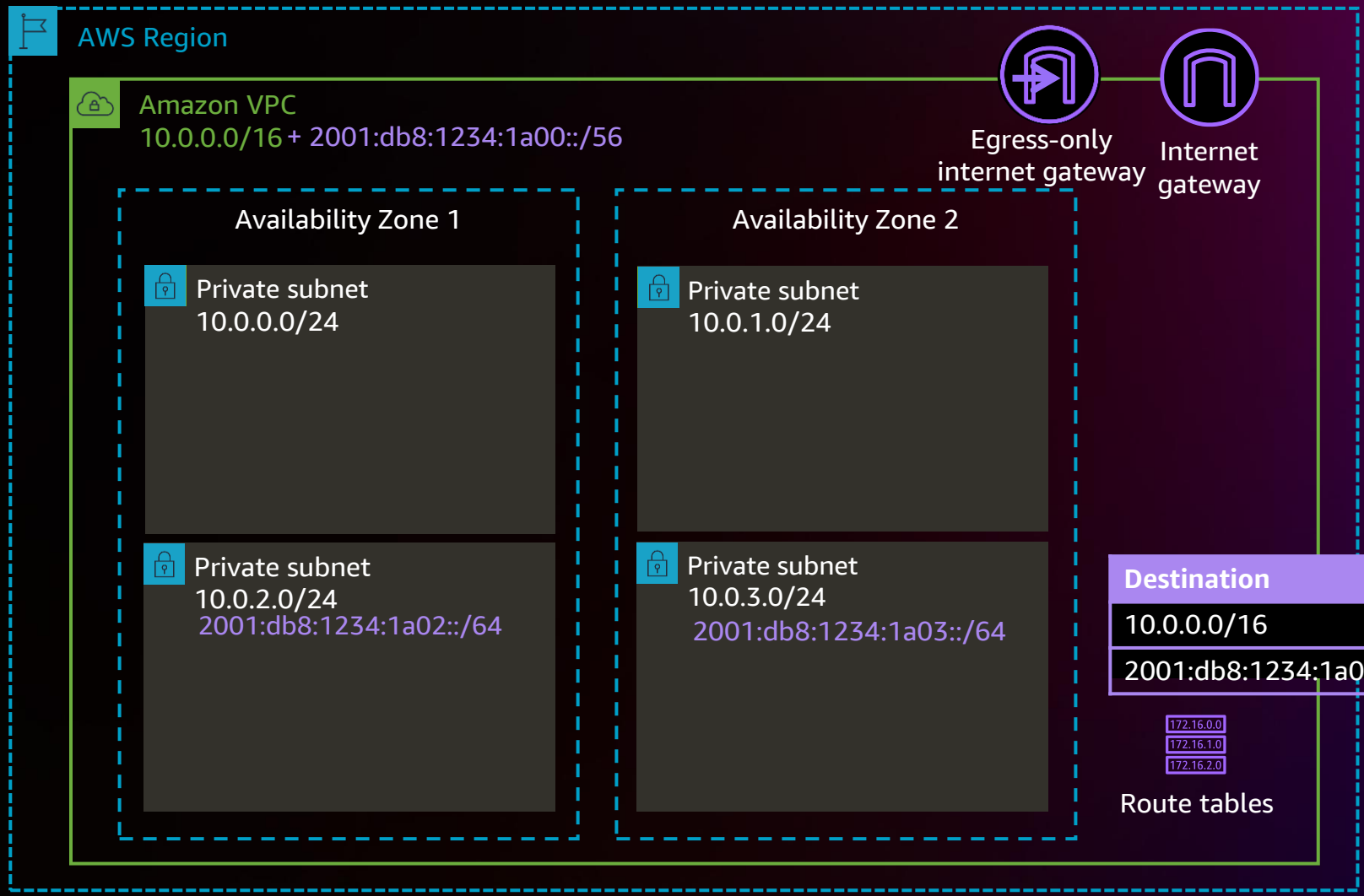
Amazon VPC: Routing



Destination	Target
10.0.0.0/16	Local
2001:db8:1234:1a00::/56	Local
0.0.0.0/0	IGW
::/0	EIGW

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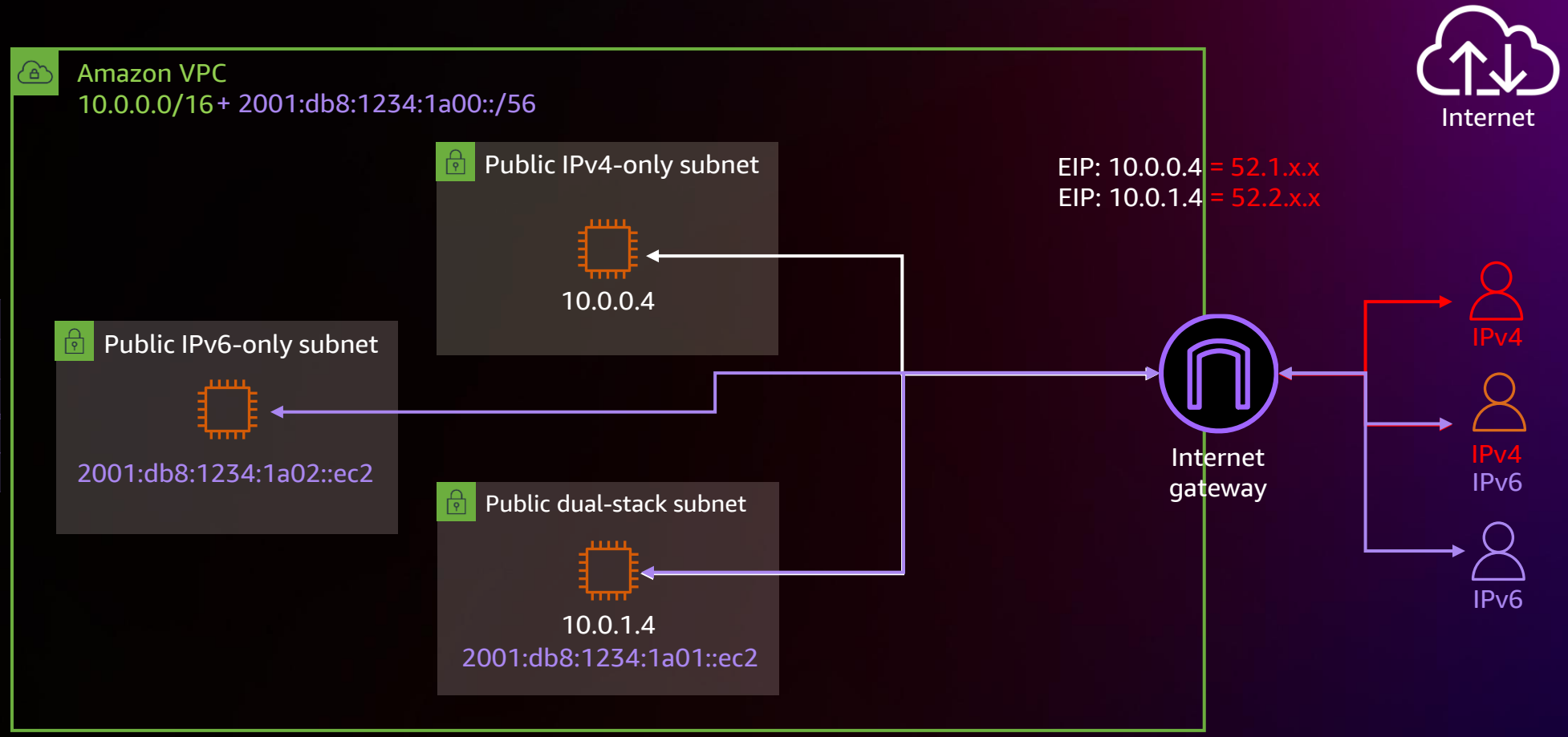
Public subnets: Internet connectivity

Destination	Target
10.0.0.0/16	Local
2001:db8:1234:1a00::/56	Local
0.0.0.0/0	IGW
::/0	IGW



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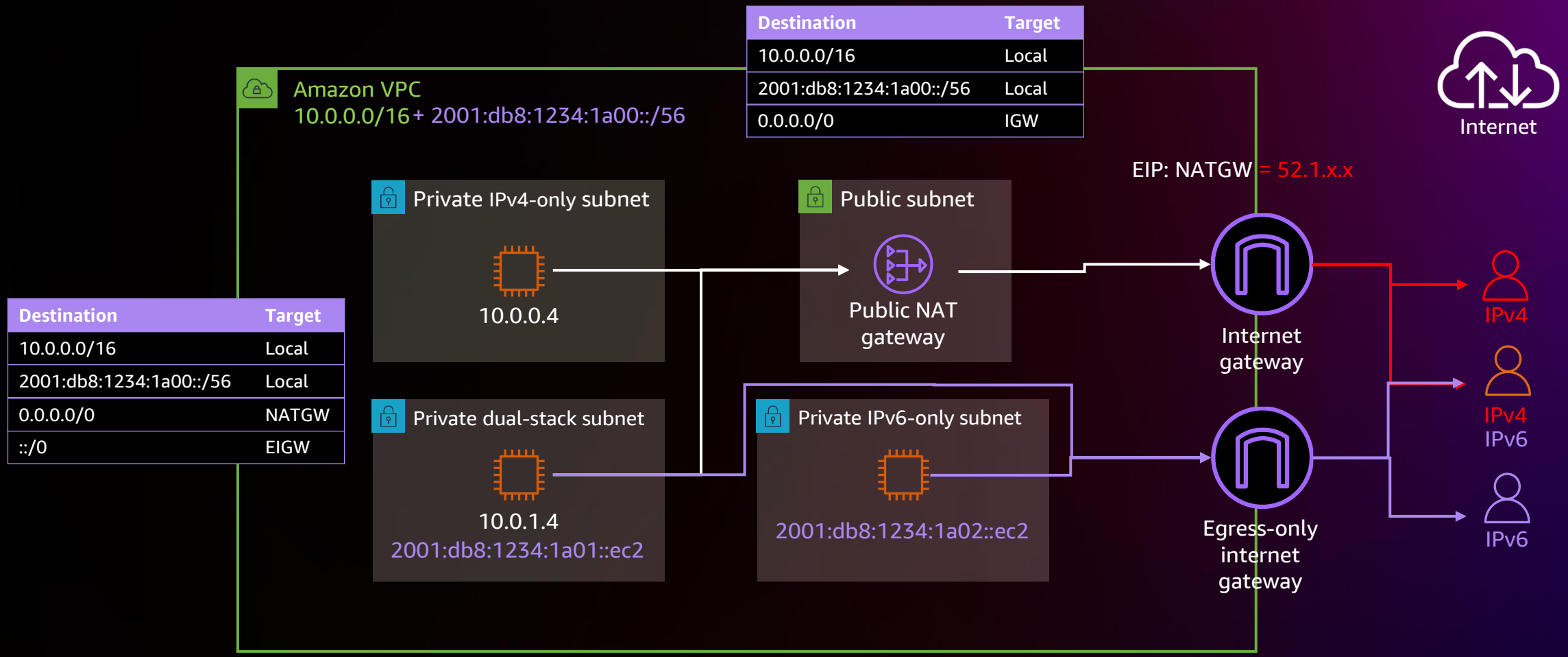
Private subnets: Internet connectivity



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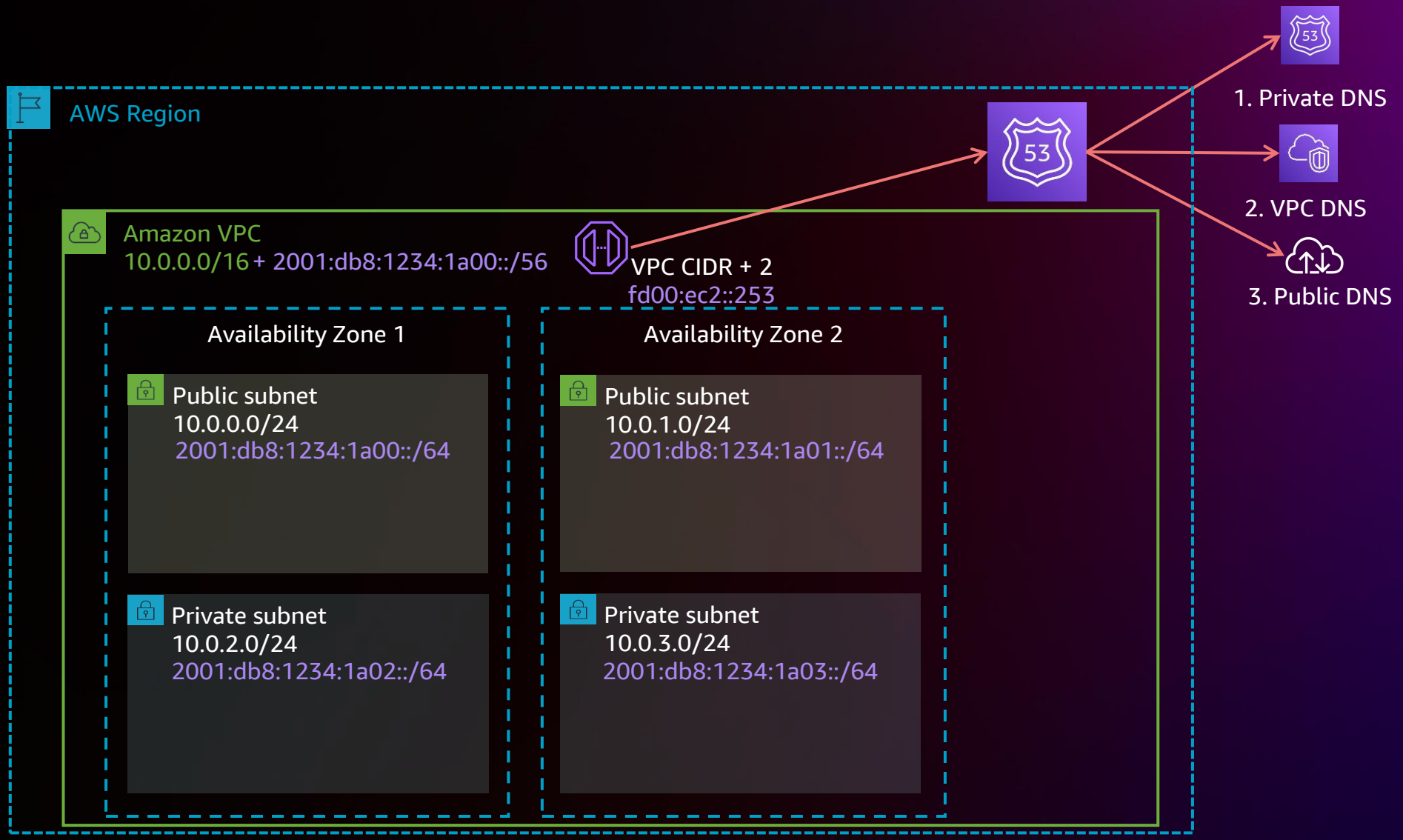
Amazon VPC: DNS



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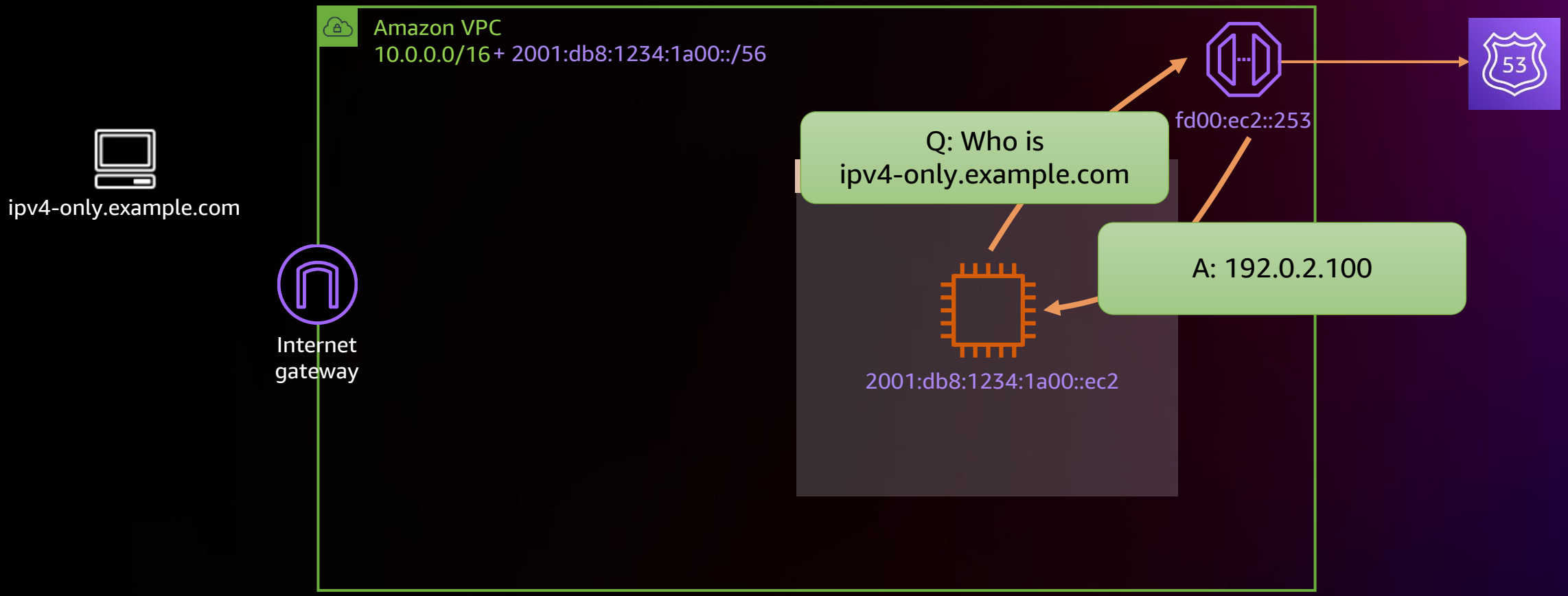
Address translation: 6-to-4



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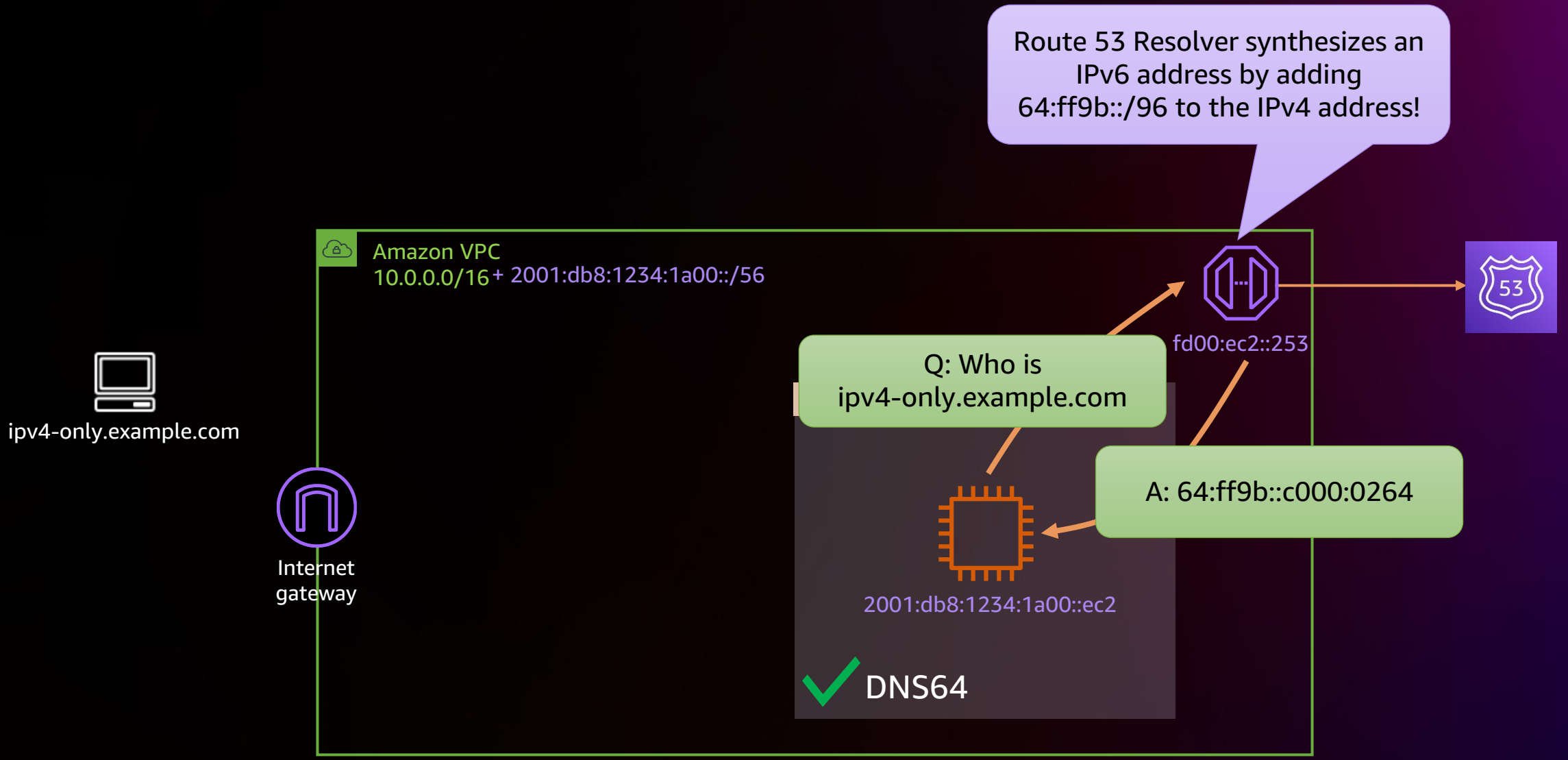
Address translation: DNS64



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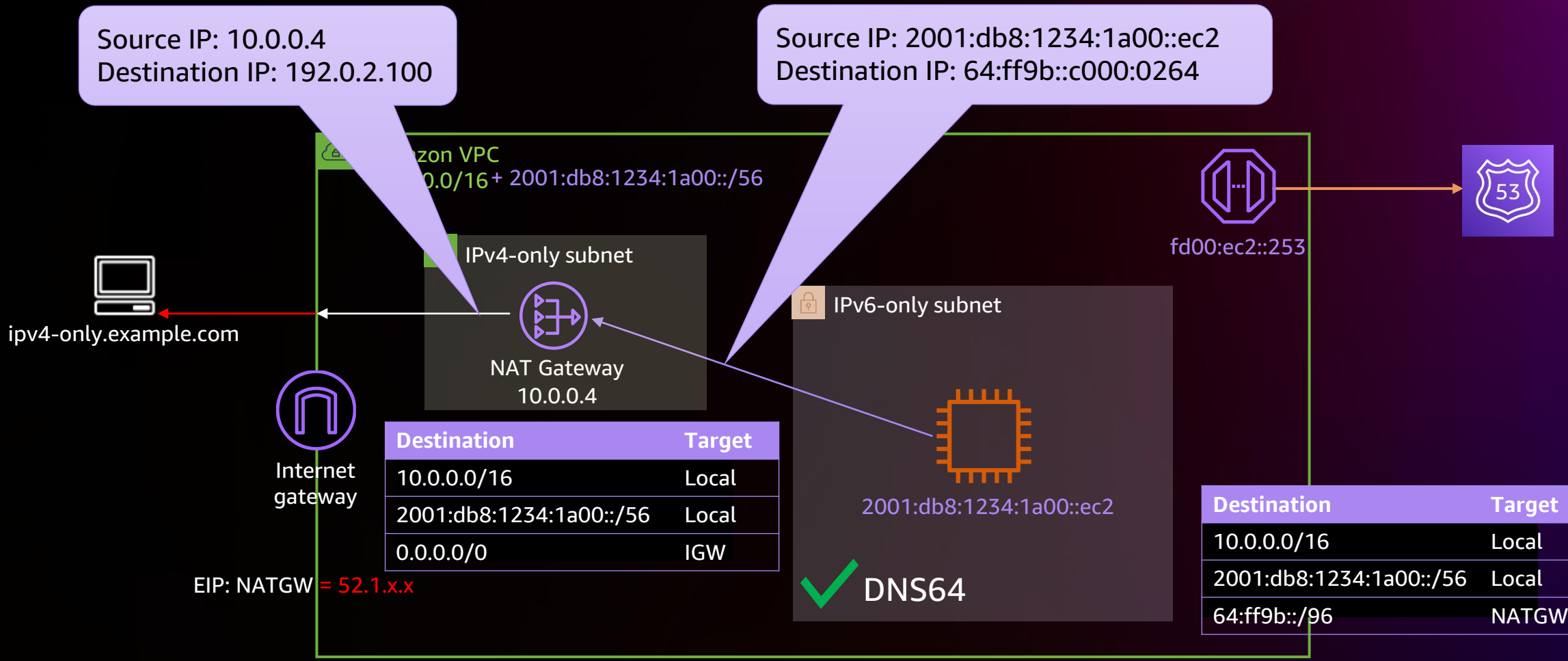
Address translation: NAT64



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Load balancing and traffic management

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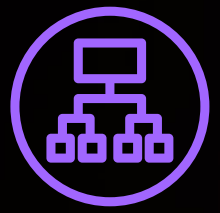
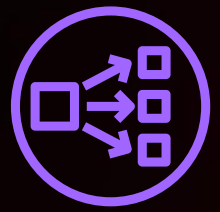
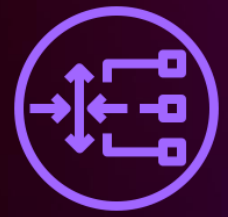
Elastic Load Balancing



Application Load Balancer



Network Load Balancer



Gateway Load Balancer

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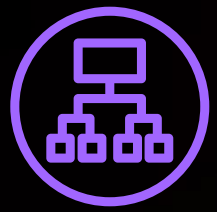
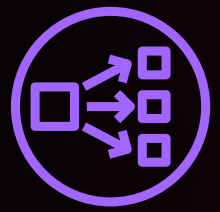
Elastic Load Balancing



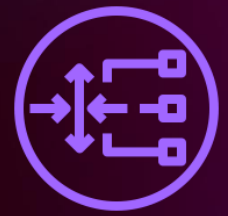
Application Load Balancer

- Layer 7
- Targets: IP, instance, AWS Lambda
- Terminates flows
- Listener: HTTP, HTTPS, gRPC
- Front end: virtual IP



Network Load Balancer

- Layer 4
- Targets: IP, instance, Application Load Balancer
- Terminates flows
- Listener: TCP, UDP, TLS
- Front end: virtual IP



Gateway Load Balancer

- Layer 3 gateway and Layer 4 load balancing
- Targets: IP, instance
- Transparent pass through of flows
- Listener: IP
- Route table entry

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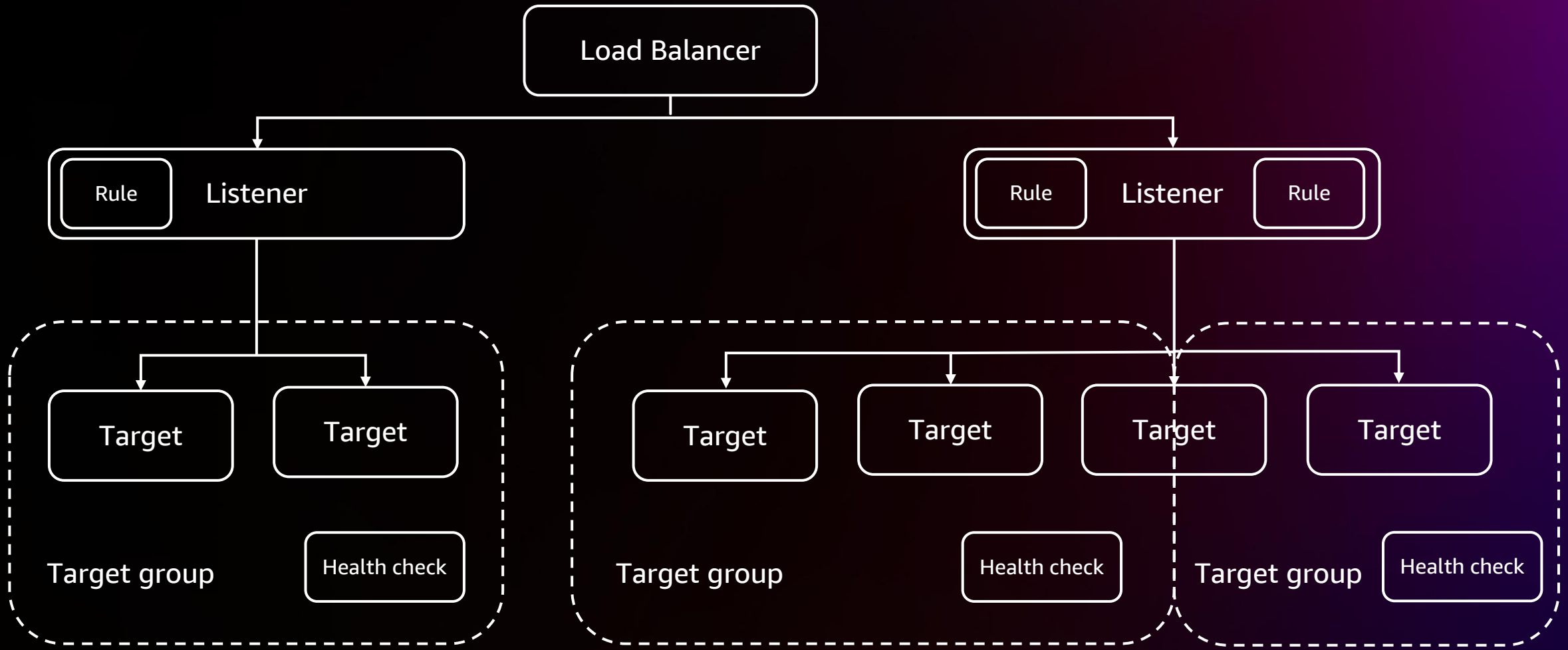
Elastic Load Balancing



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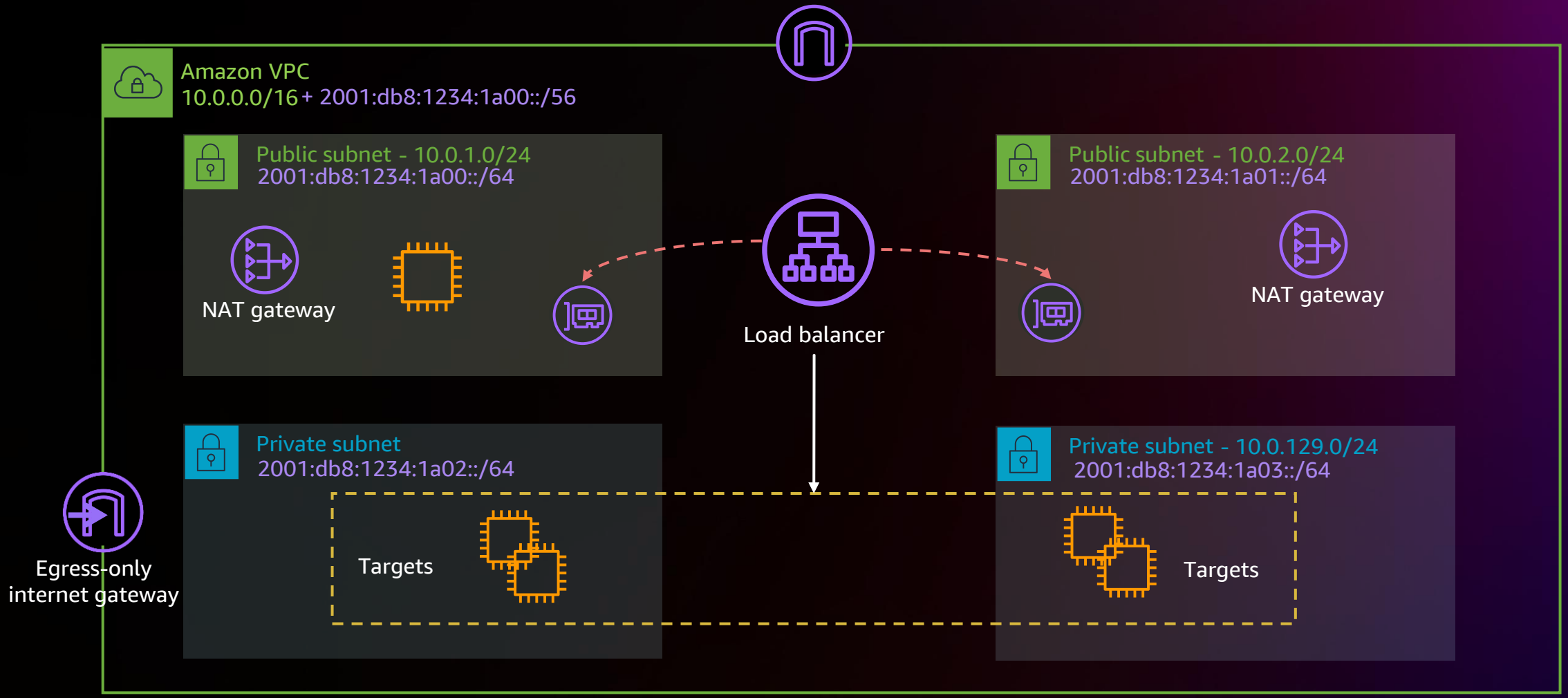
Elastic Load Balancing



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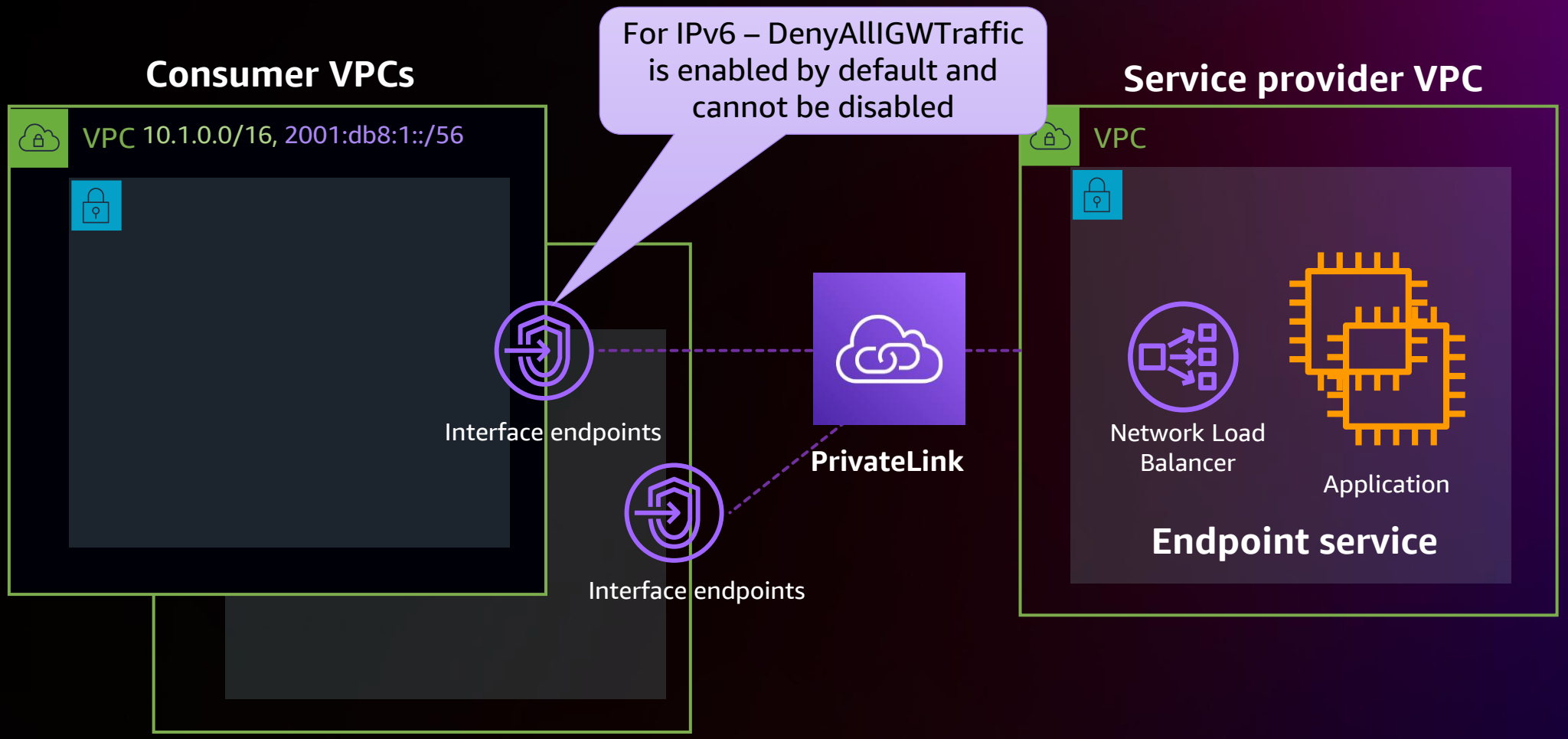
AWS PrivateLink



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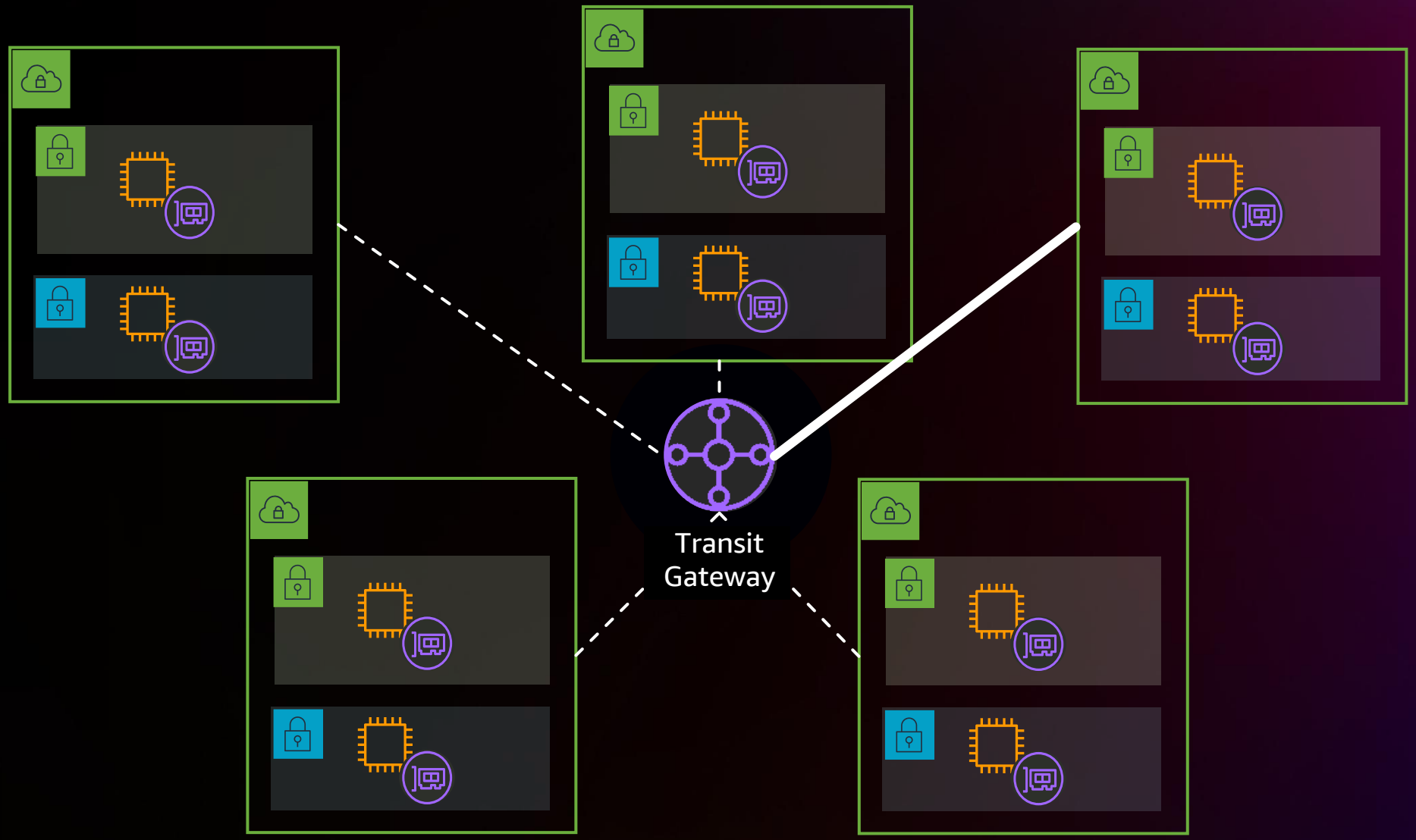
Transit Gateway



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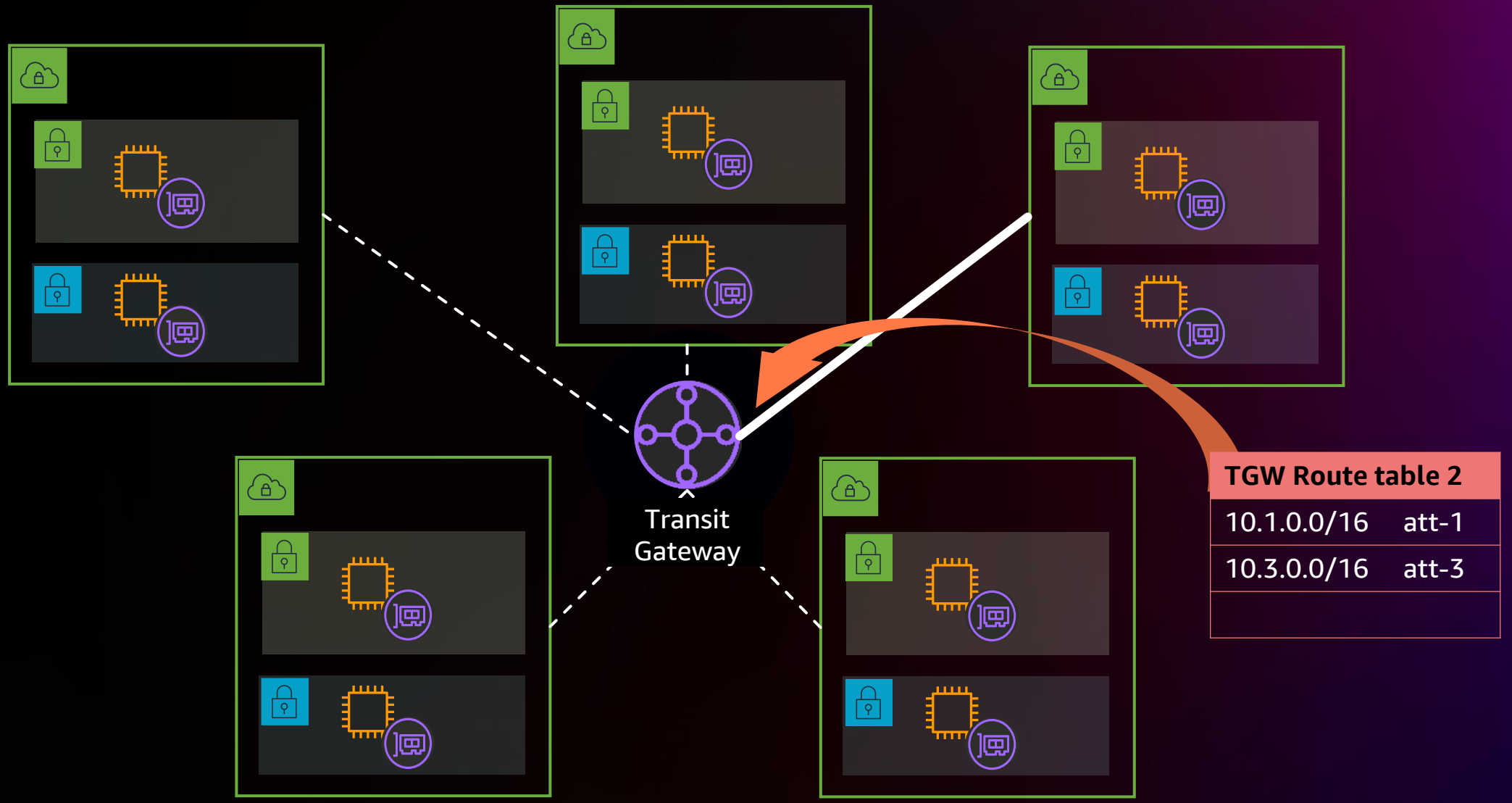
Transit Gateway



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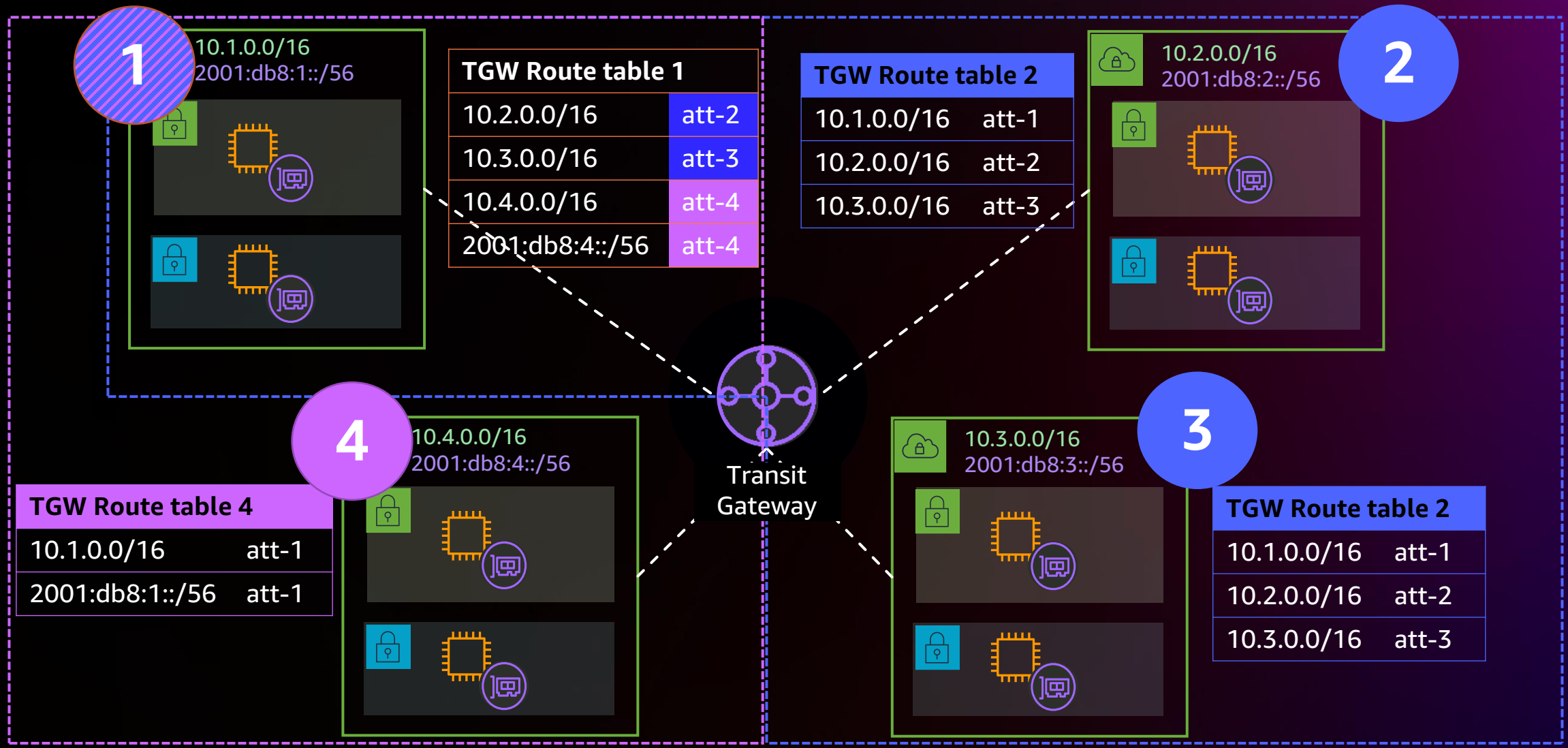
Transit Gateway route tables and domains



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Event logistics

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Getting started with this workshop

- As a participant, you will have access to an AWS account with any optional preprovisioned infrastructure and IAM policies needed to complete this workshop
- The AWS account will only be available for the duration of this workshop; you will lose access to the account thereafter
- The optional preprovisioned infrastructure will be deployed to a specific region; check your workshop content to determine whether other regions will be used
- Be sure to review the terms and conditions of the event; do not upload any personal or confidential information in the account

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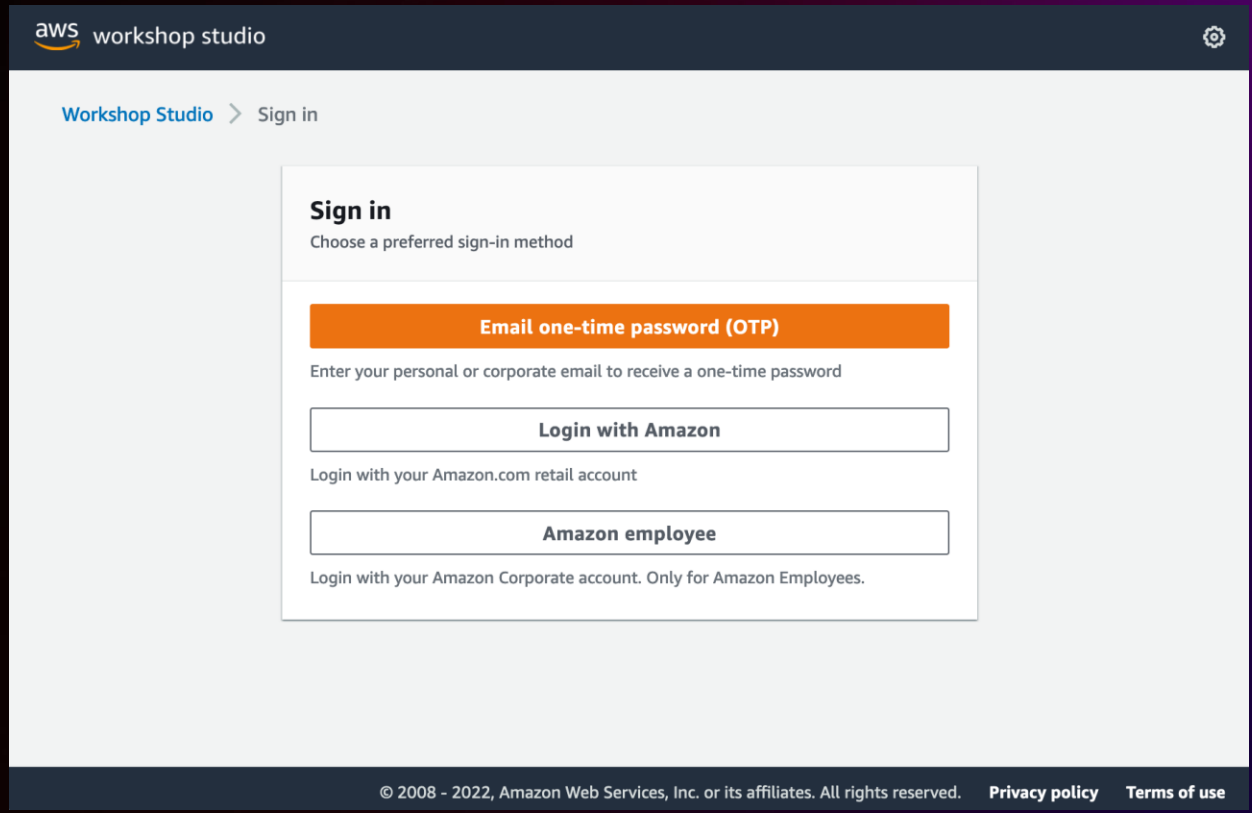
Step 1: Sign in via your preferred method

https://catalog.workshops.aws/join



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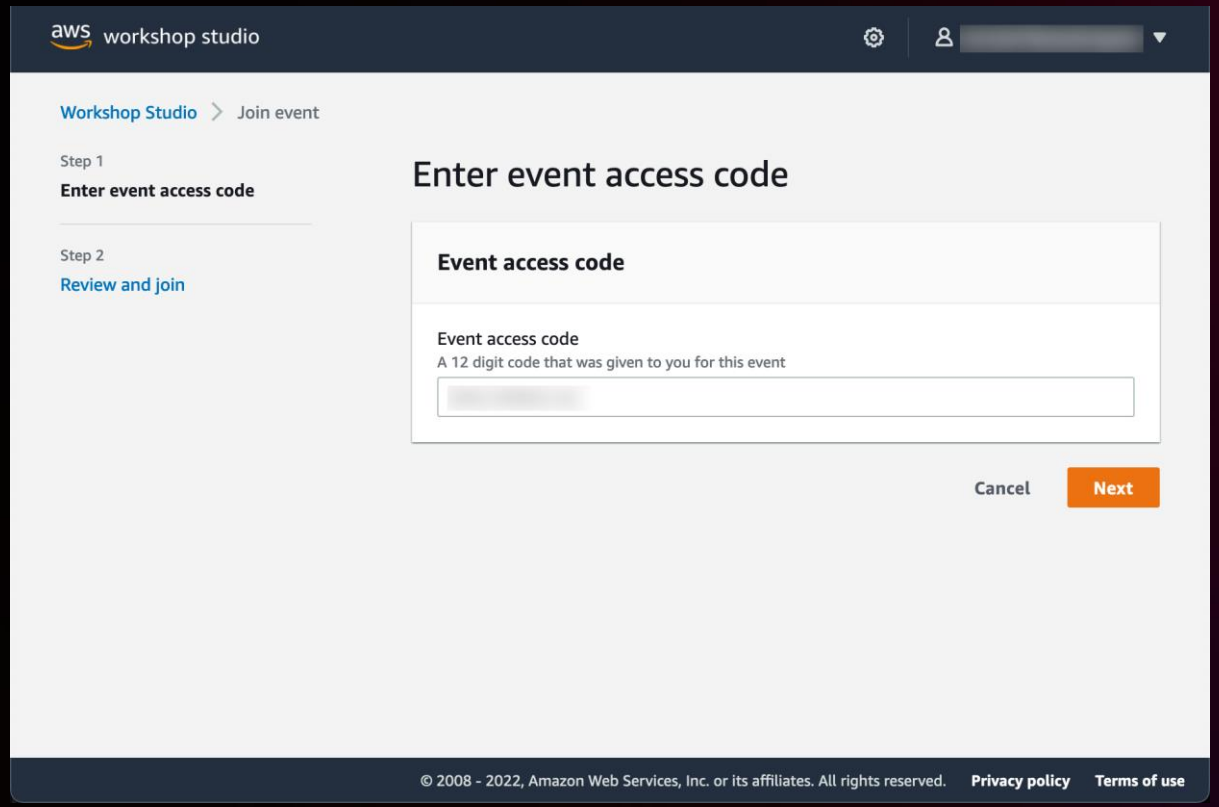
Step 2: Enter event access code

Enter 12-digit event access code
If you were given a 1-click join link, you can skip this step



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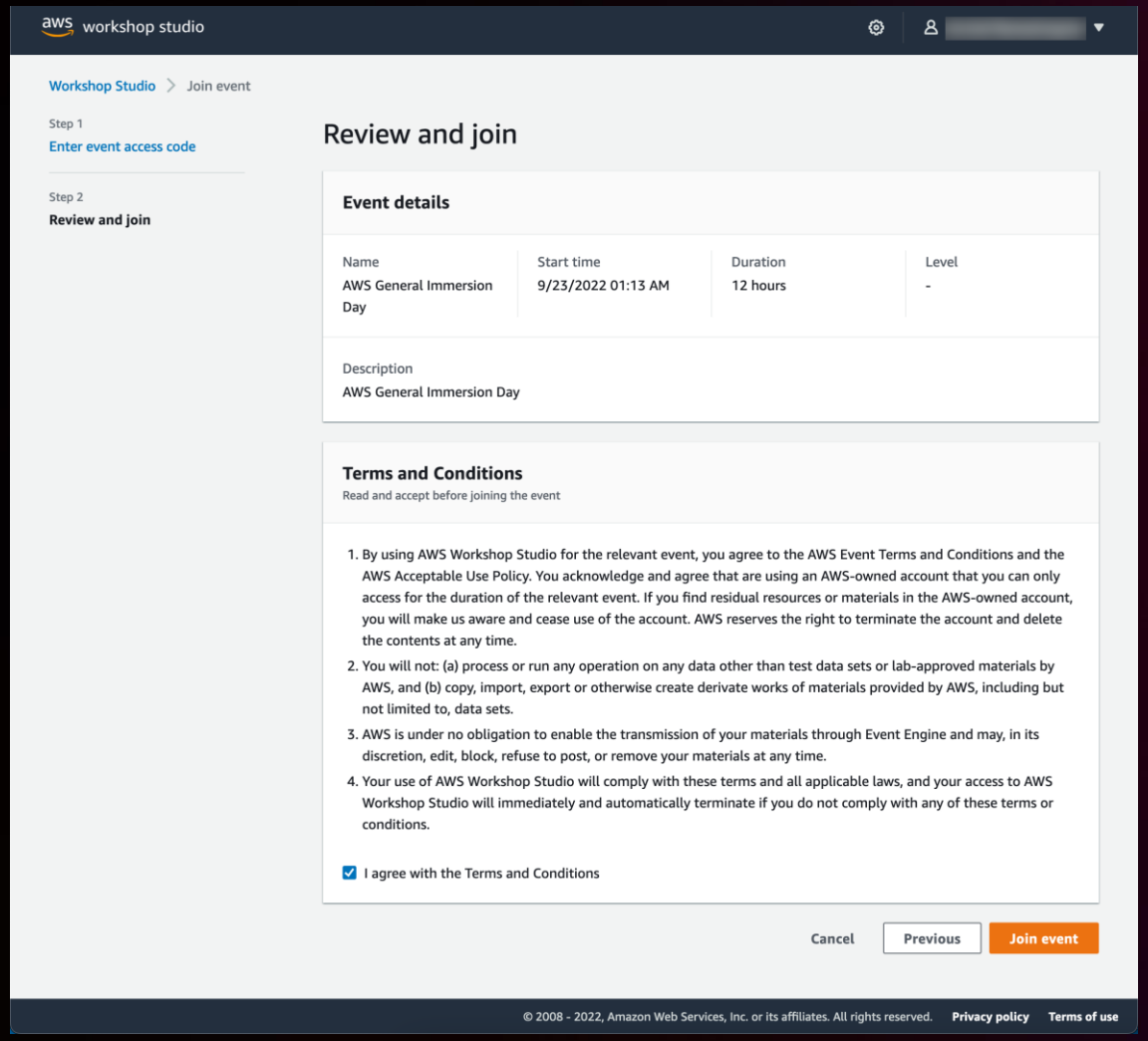
Step 3: Review terms and join event



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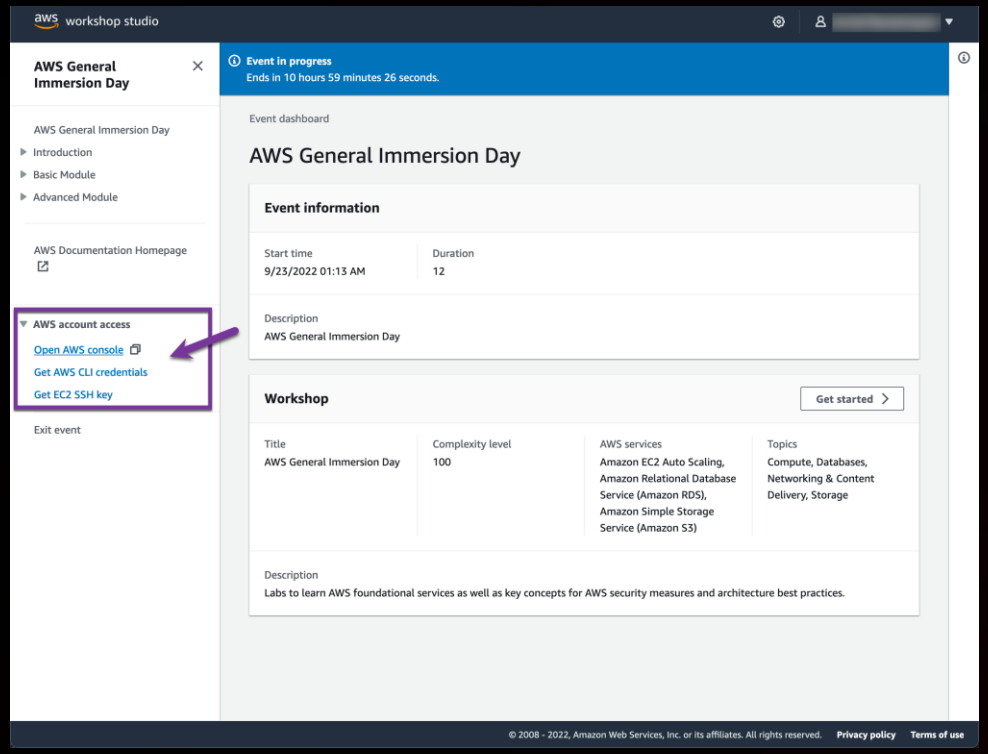
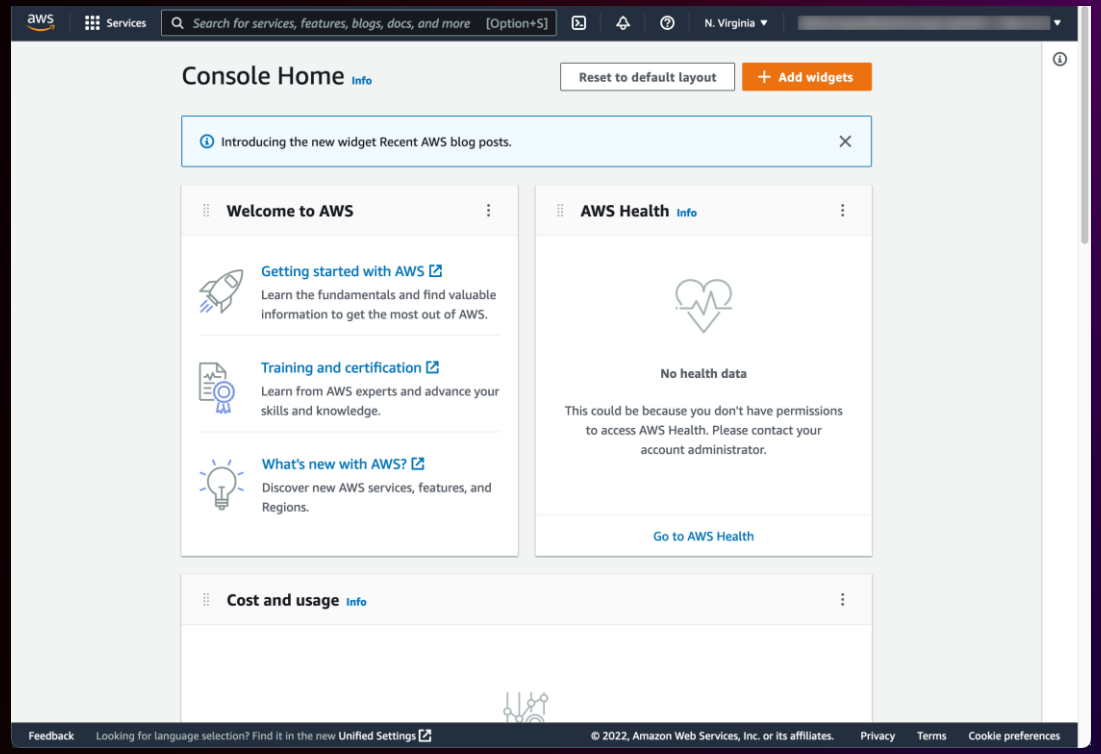
Step 4: Access AWS account

Access the AWS Console or generate AWS CLI credentials as needed





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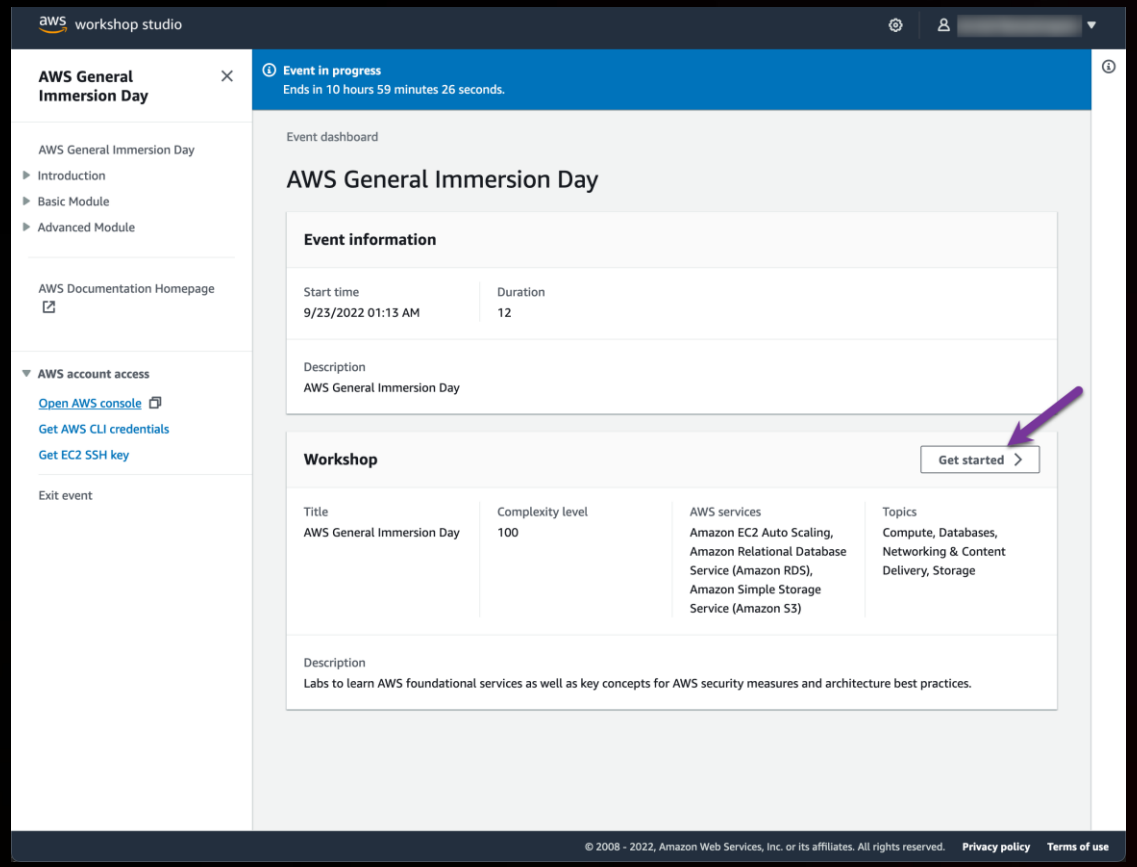
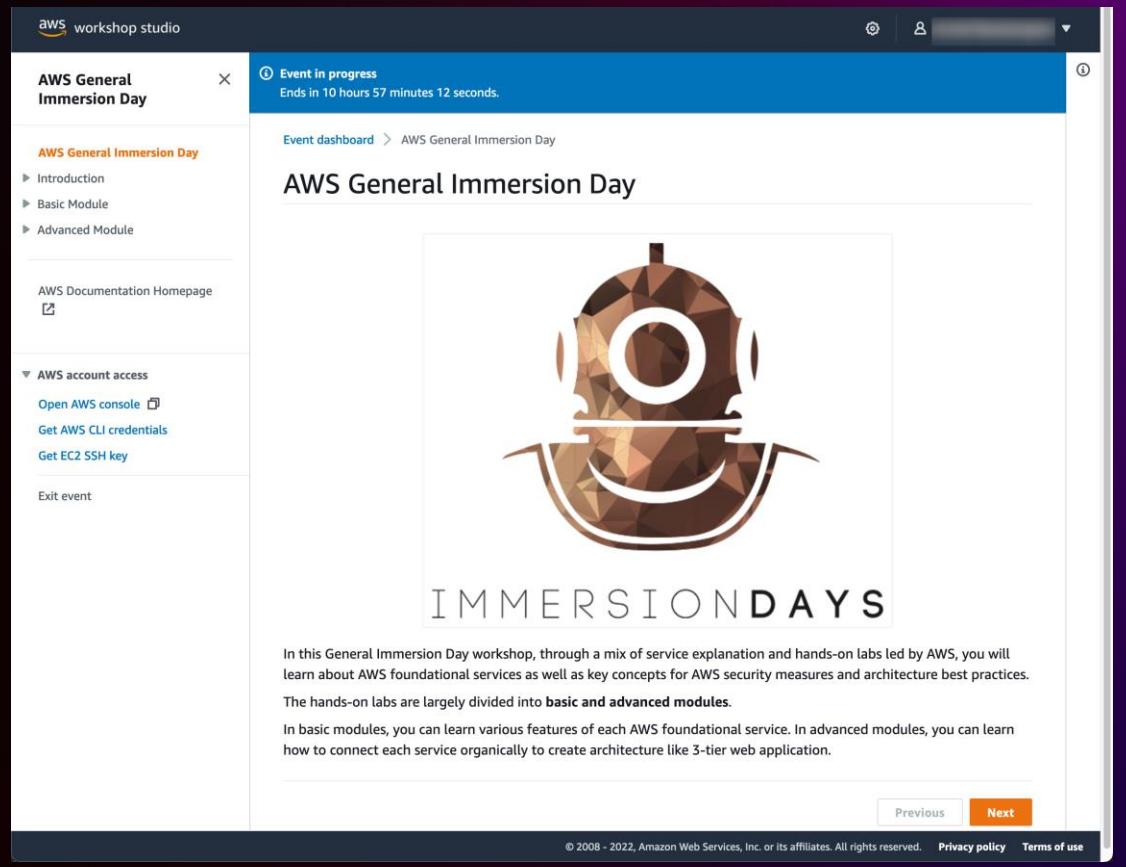
Step 5: Get started with the workshop





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Workshop scenario

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The story

AnyCompany offers a successful API service on AWS used by thousands of businesses; its customers are asking for IPv6 support, and AnyCompany has committed to delivering it

Customers will transition to IPv6 at different times, so AnyCompany must provide dual-stack (IPv4 & IPv6) compatibility for the foreseeable future

Example Corp uses the AnyCompany API service as part of its own corporate applications; Example Corp is exhausting its private IPv4 address space, and there is a corporate initiative to migrate to IPv6-only services across the enterprise

Example Corp deploys their corporate applications in AWS. Each corporate application has its own VPC. Example Corp connects to the AnyCompany API service from their shared services VPC using AWS PrivateLink. Example Corp VPCs connect internally using AWS Transit Gateway.

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The job: AnyCompany

As AnyCompany, you will

- Convert an existing IPv4-only VPC to dual-stack and launch IPv6-only instances (Module 1)
- Make your API service dual-stack using a load balancer listening on TCP port 80 for users on the Internet (Module 2)
- Make your dual-stack API service available over AWS PrivateLink endpoint (Module 3)

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The job: Example Corp

As Example Corp, you will

- Consume the AnyCompany API service in your shared services VPC privately over IPv4 and IPv6
(Module 3)
- Establish private IPv6 connectivity between the application VPC and the shared services VPC
(Module 4)
- Deploy an internal-facing application via load balancer in your application VPC; the application must be accessible on HTTP port 80 (Module 5)
- Consume the AnyCompany API service over IPv6 from your application using existing connectivity
(Module 5)

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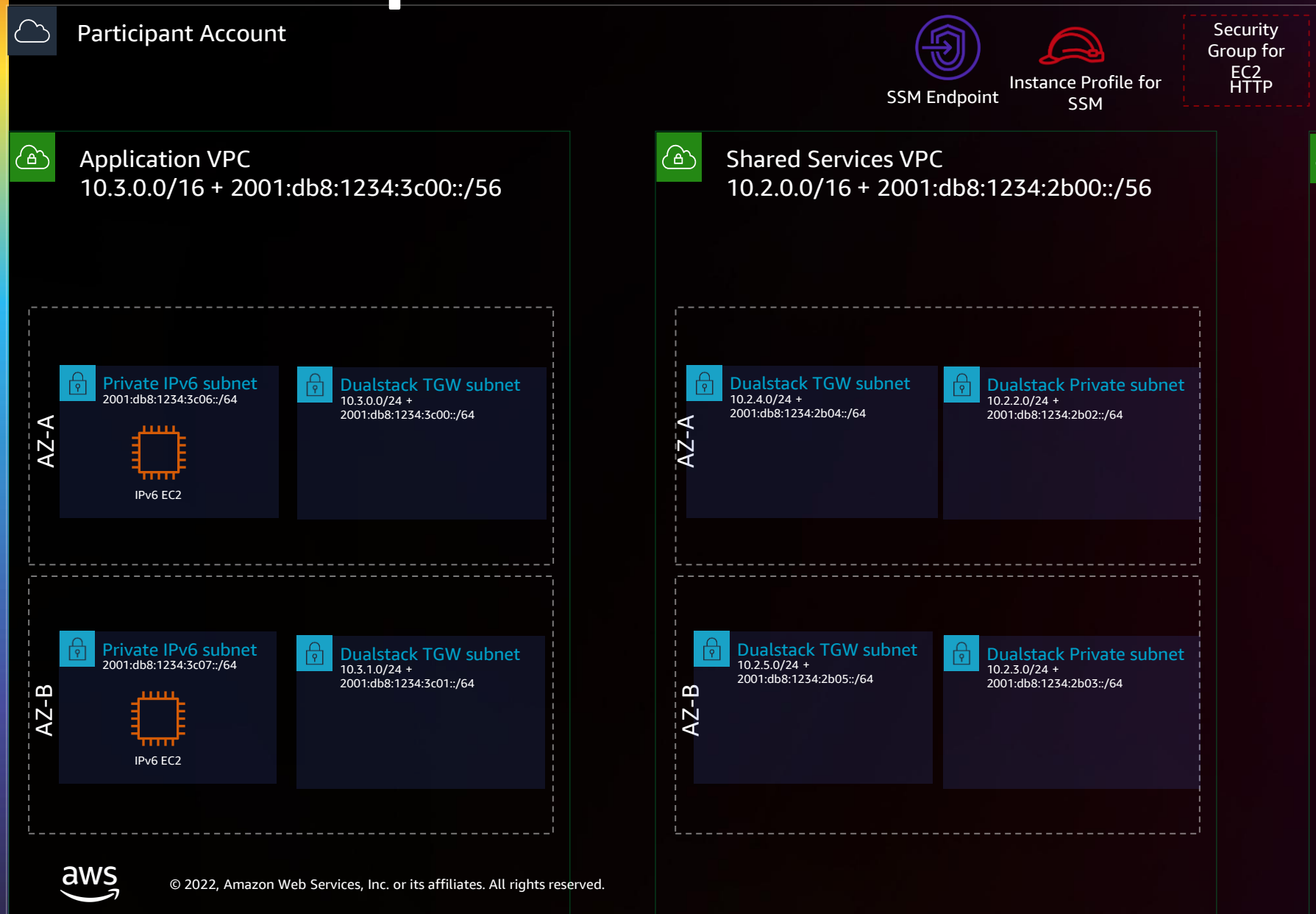
Workshop overview



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Getting started

- Option 1: Event URL: https://catalog.workshops.aws/join
  - Event Access Code: 9426-04d0d9-0b
- Option 2: Shortened URL: https://s12d.com/net202
- Workshop URL: https://catalog.workshops.aws/ipv6-on-aws/
- Use your laptop or share with a partner

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Resources

IPv6 Landing page

List of AWS services that support IPv6

IPv6 on AWS whitepaper

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Thank you!

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Rohit Aswani
linkedin.com/in/aswanirohit/

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