Subnets, VPC Routers, and Route Tables Part 2

Brock Tubre
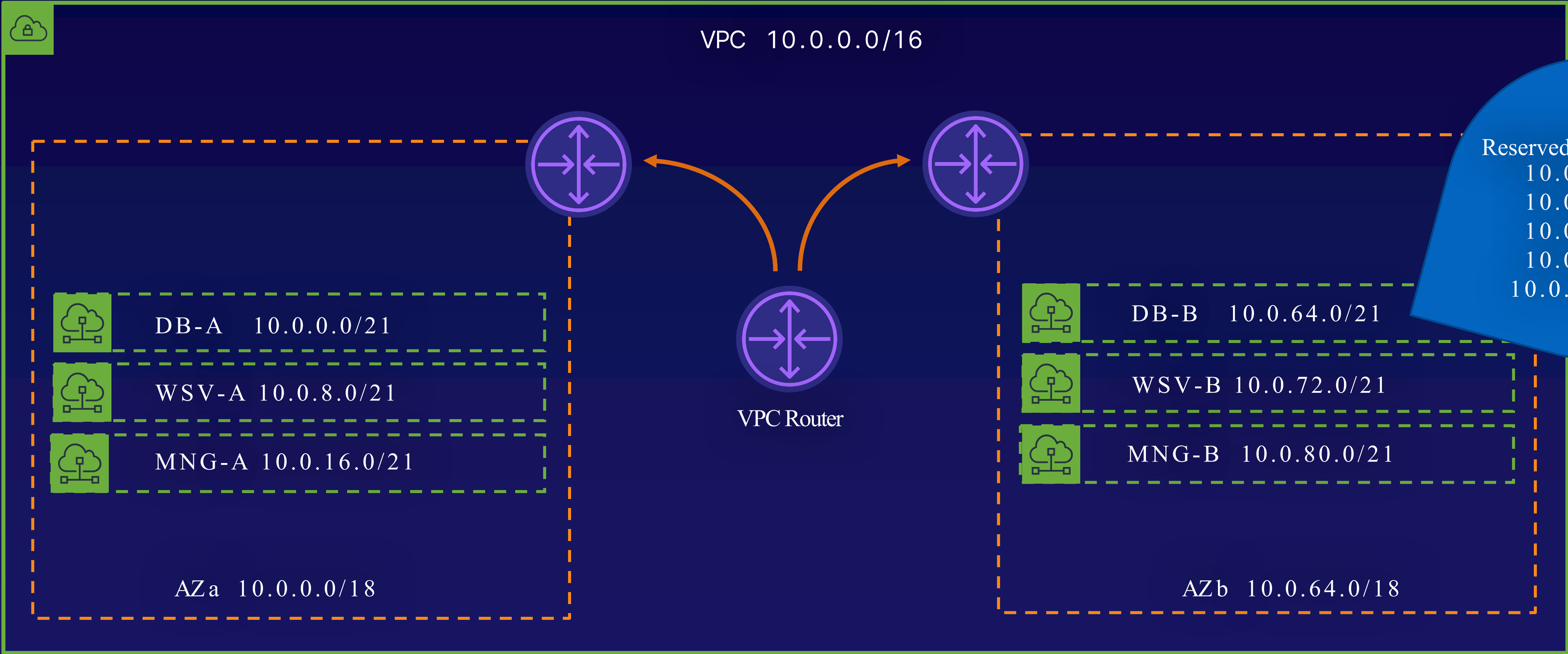
TECHNICAL INSTRUCTOR

A CLOUD GURU

VPC Router

Also known as the implicit router.

A logical construct where all routing decisions begin. Routing decisions are governed by route tables associated with VPCs and subnets. This is the first place packets hit when leaving resources that are in a VPC/subnet.

VPC Router

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VPC 10.0.0.0/16

Reserved Addresses
10.0.64.0
10.0.64.1
10.0.64.2
10.0.64.3
10.0.71.255

VPC Router

DB-A 10.0.0.0/21

WSV-A 10.0.8.0/21

MNG-A 10.0.16.0/21

DB-B 10.0.64.0/21

WSV-B 10.0.72.0/21

MNG-B 10.0.80.0/21

AZa 10.0.0.0/18

AZb 10.0.64.0/18

VPC Router

A CLOUD GURU

VPC 10.0.0.0/16

Addresses
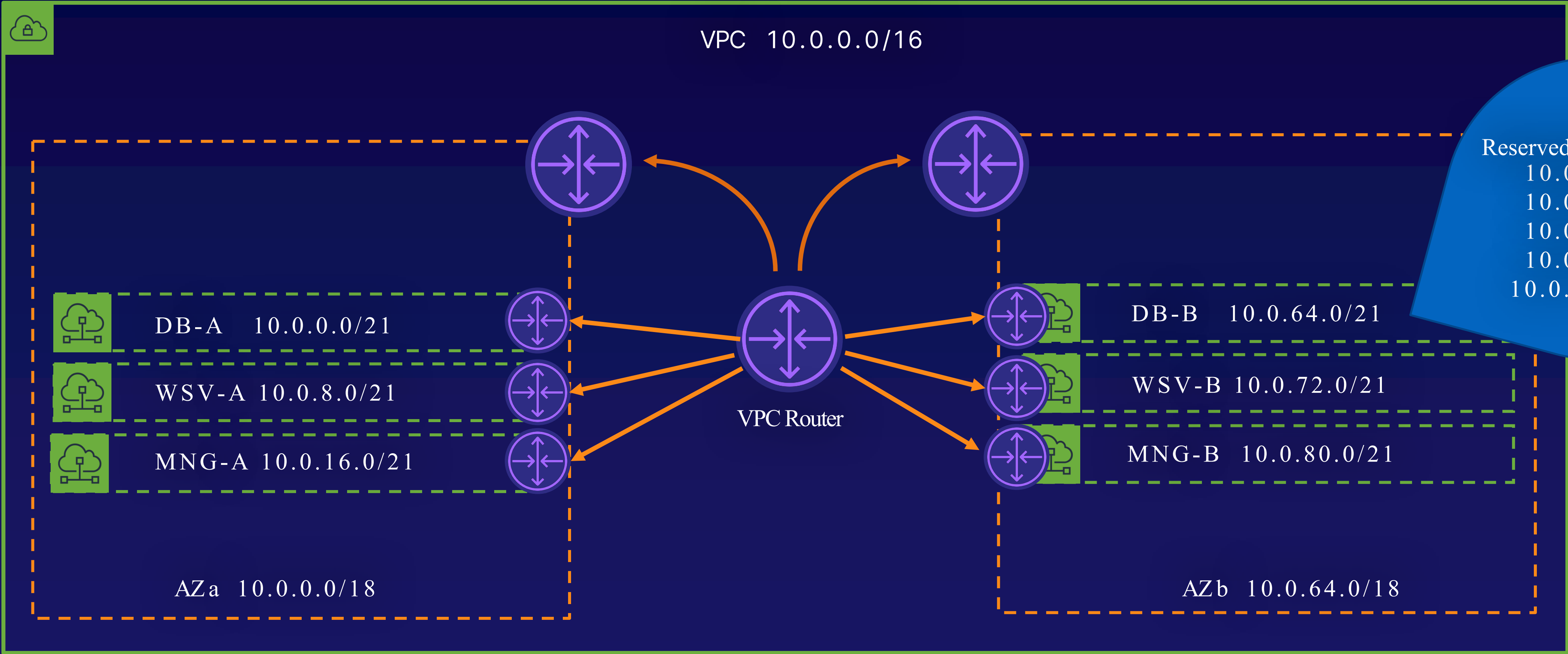.64.0
.64.1
.64.2
.64.3
71.255

AWS Reserved IP Addresses

In our example, subnet DB-B with a CIDR range of 10.0.64.0/21, the following five IP addresses are reserved:
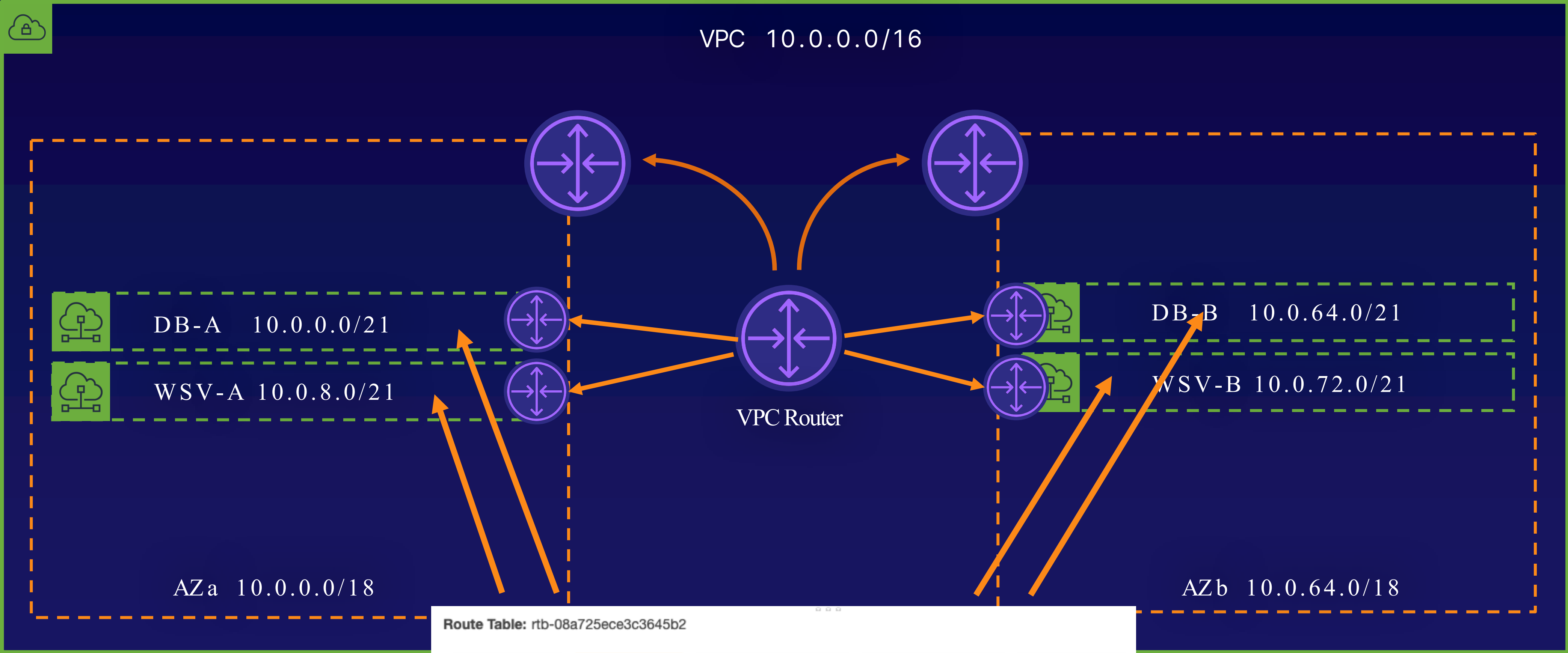
- 10.0.64.0: Network Address.

- 10.0.64.1: Reserved by AWS for the VPC router.

- 10.0.64.2: The IP address of the DNS server.

- 10.0.64.3: Reserved by AWS for future use.

- 10.0.71.255: Network broadcast address.

SUBNETS, VPC ROUTERS, AND ROUTE TABLES
VPC Router

A CLOUD GURU

VPC 10.0.0.0/16

Reserved Addresses
10.0.64.0
10.0.64.1
10.0.64.2
10.0.64.3
10.0.71.255

DB-A   10.0.0.0/21

WSV-A 10.0.8.0/21

MNG-A 10.0.16.0/21

VPC Router

DB-B   10.0.64.0/21

WSV-B 10.0.72.0/21

MNG-B 10.0.80.0/21

AZa 10.0.0.0/18

AZb 10.0.64.0/18

VPC Router

A CLOUD GURU

VPC 10.0.0.0/16

DB-A 10.0.0.0/21

WSV-A 10.0.8.0/21

DB-B 10.0.64.0/21

WSV-B 10.0.72.0/21

VPC Router

AZa 10.0.0.0/18

AZb 10.0.64.0/18

Main Route Table

Route Table: rtb-08a725ece3c3645b2

| Summary | **Routes** | Subnet Associations | Route Propagation | Tags |

Edit routes

View | All routes ▾ |

Destination	Target	Status	Propagated
10.0.0.0/16	local	active	No

VPC Router

A CLOUD GURU

VPC 10.0.0.0/16

DB-A 10.0.0.0/21

WSV-A 10.0.8.0/21

VPC Router

DB-B 10.0.64.0/21

WSV-B 10.0.72.0/21

AZa 10.0.0.0/18

AZb 10.0.64.0/18

Custom Route Tables
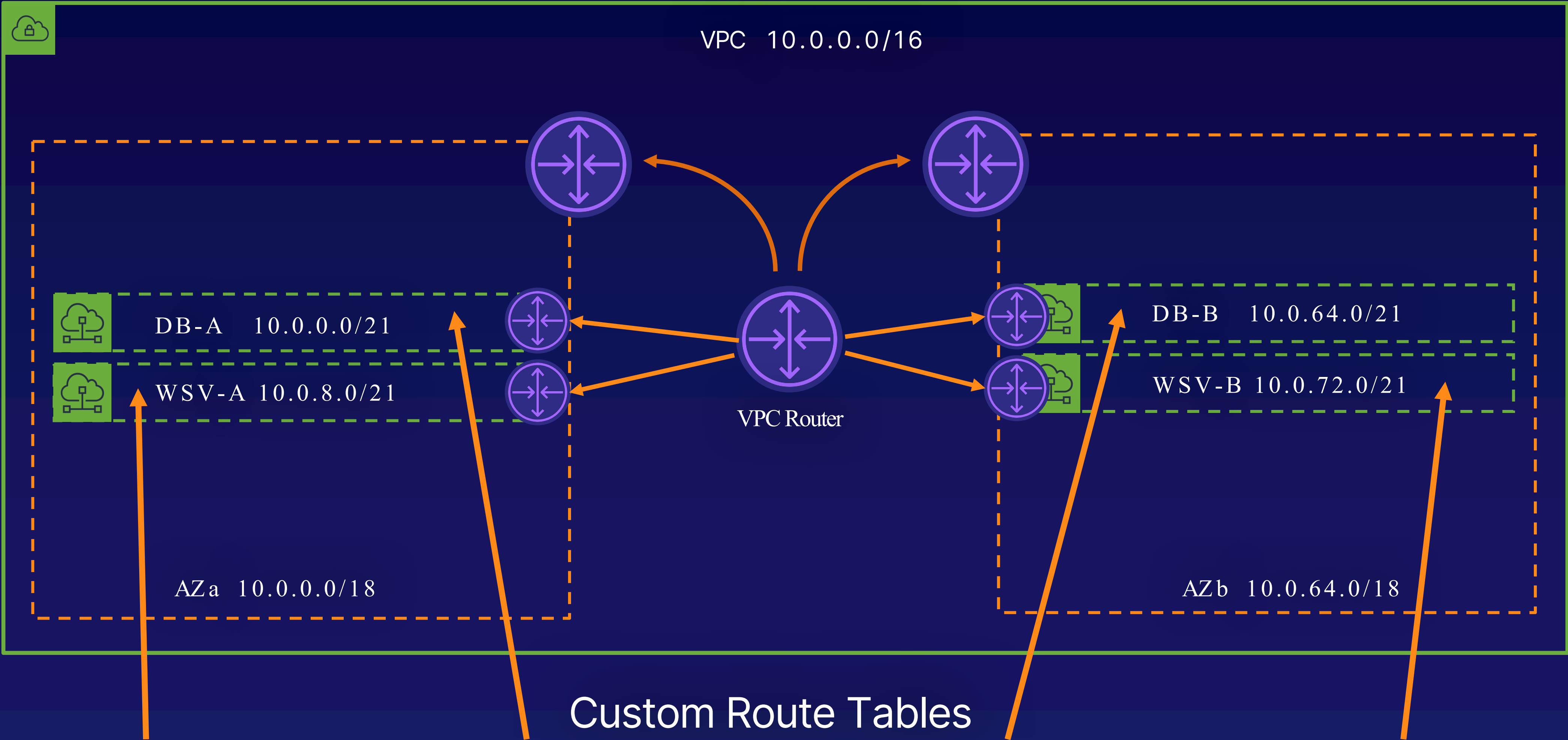
Route Table: rtb-001c481810608649d

| Summary | Routes | Subnet Associations | Route Propagation | Tags |

Edit routes

View | All routes ▾ |

Destination	Target	Status	Propagated
10.0.0.0/16	local	active	No

Route Table: rtb-086ed0c8e0d707a3a

| Summary | Routes | Subnet Associations | Route Propagation | Tags |

Edit routes

View | All routes ▾ |

Destination	Target	Status	Propagated
10.0.0.0/16	local	active	No

Route Table: rtb-0dad0be596dd039fe

| Summary | Routes | Subnet Associations | Route Propagation | Tags |

Edit routes

View | All routes ▾ |

Destination	Target	Status	Propagated
10.0.0.0/16	local	active	No

Route Table: rtb-02b000f012ff12116

| Summary | Routes | Subnet Associations | Route Propagation | Tags |

Edit routes

View | All routes ▾ |

Destination	Target	Status	Propagated
10.0.0.0/16	local	active	No

VPC Router

Route Table: rtb-08a725ece3c3645b2

| Summary | Routes | Subnet Associations | Route Propagation | Tags |

Edit routes

View [All routes ▼]

Destination	Target	Status	Propagated	
10.0.0.0/16	local	active	No	
0.0.0.0/0	igw-0a77fd122bd577060	active	No	

VPC Router

Internet Gateway
IGW

S3

Virtual Private Gateway
VGW
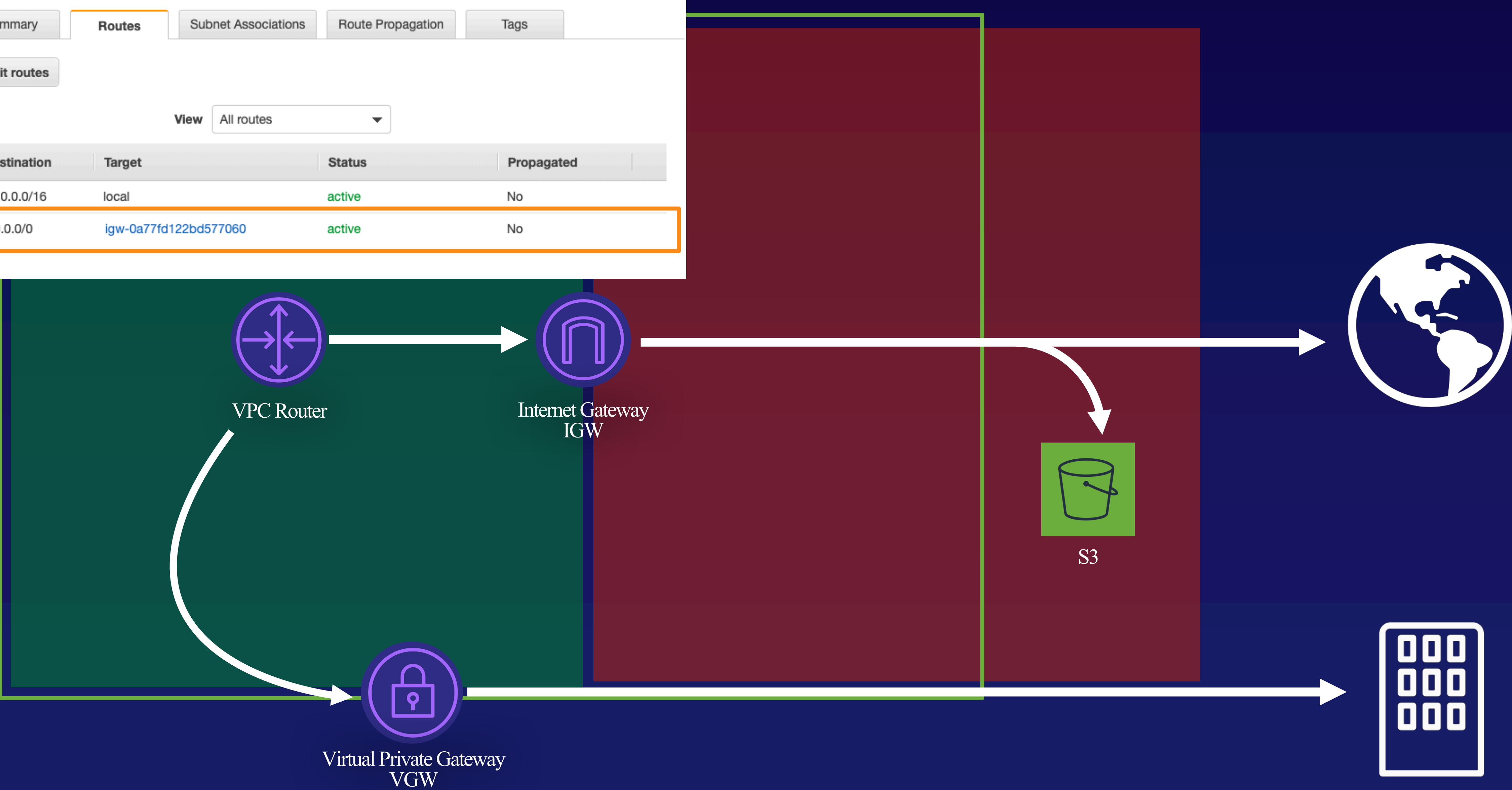
VPC Router Overview

A CLOUD GURU

1

Highly Available Device

VPC Routers are highly available devices and it occupies the .1 addressing space on every subnet associated with our VPC.

2

Communicate Between VPC Subnets

By default, it allows communications between subnets in the same VPC. This is what the static "local" route table entry defines.

3

Influencing VPC Routing

You can influence the routing for your VPC by editing the main route table or creating custom route tables for each of your subnets.

Fast Takeaways

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AWS reserves 5 IP addresses for internal networking purposes.