

Route 53 Hosted Zones and Zone Records – Part 2

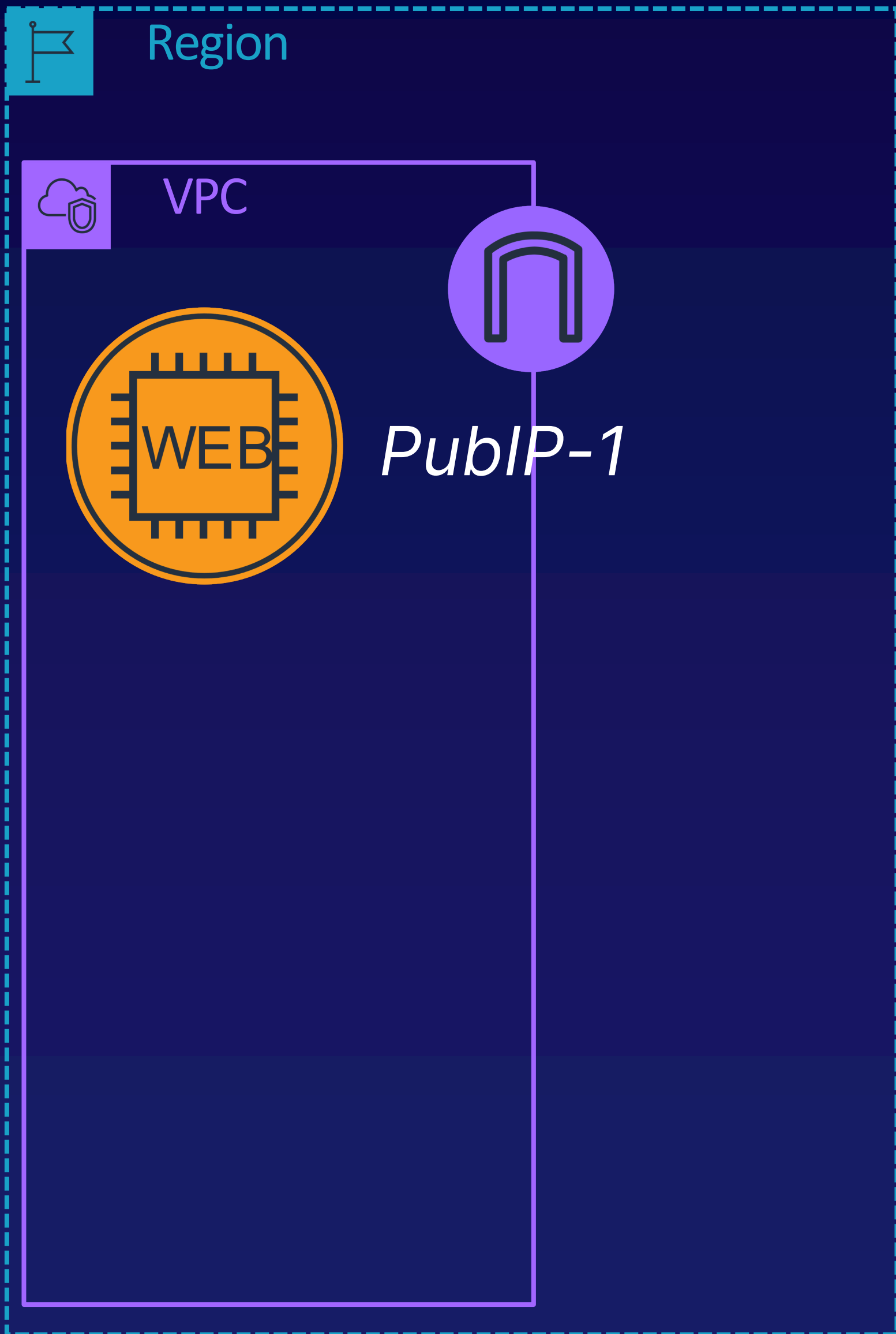


Steven Moran
TRAINING ARCHITECT

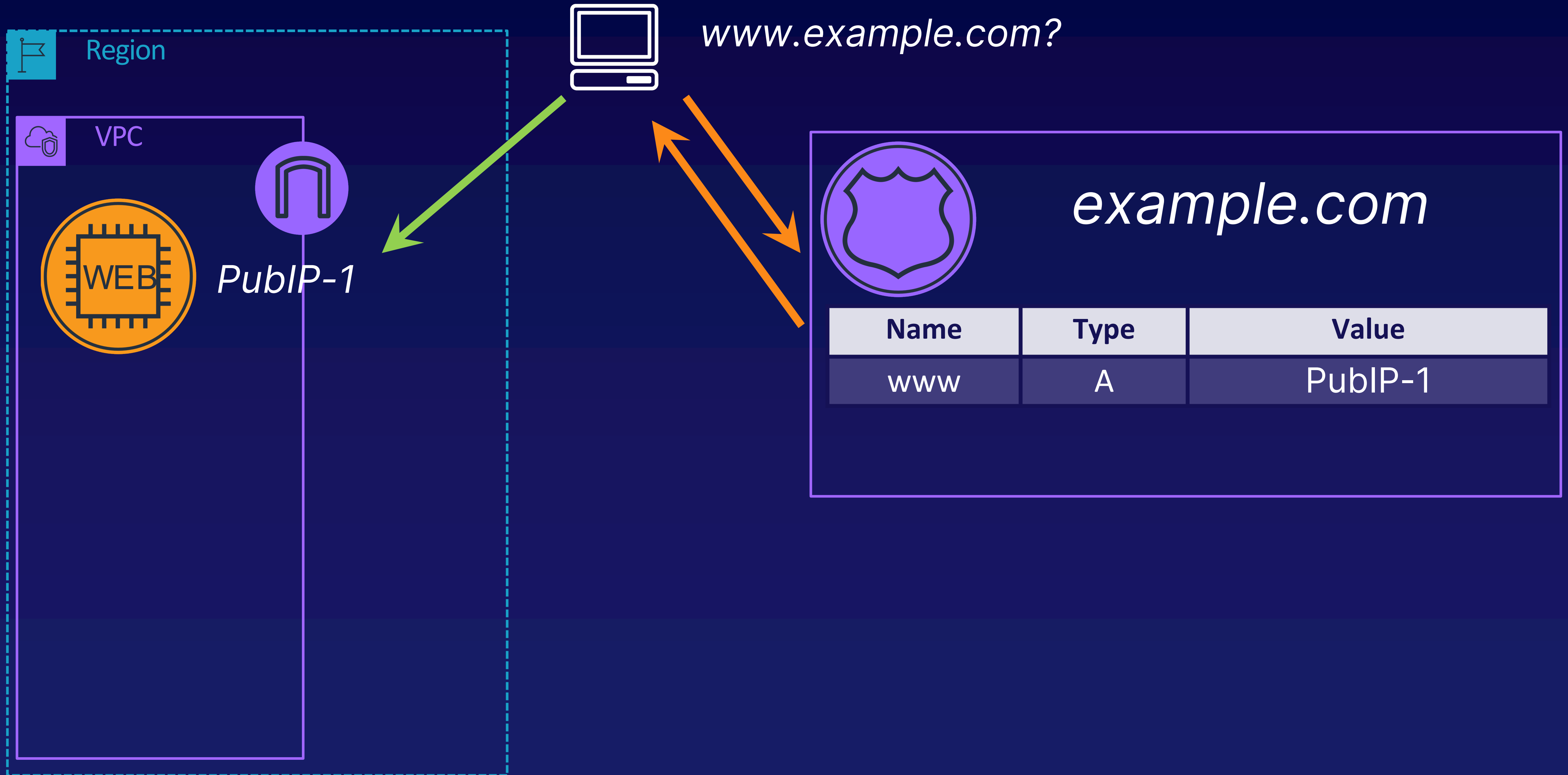
A Records and CNAMEs and Aliases – Oh My!



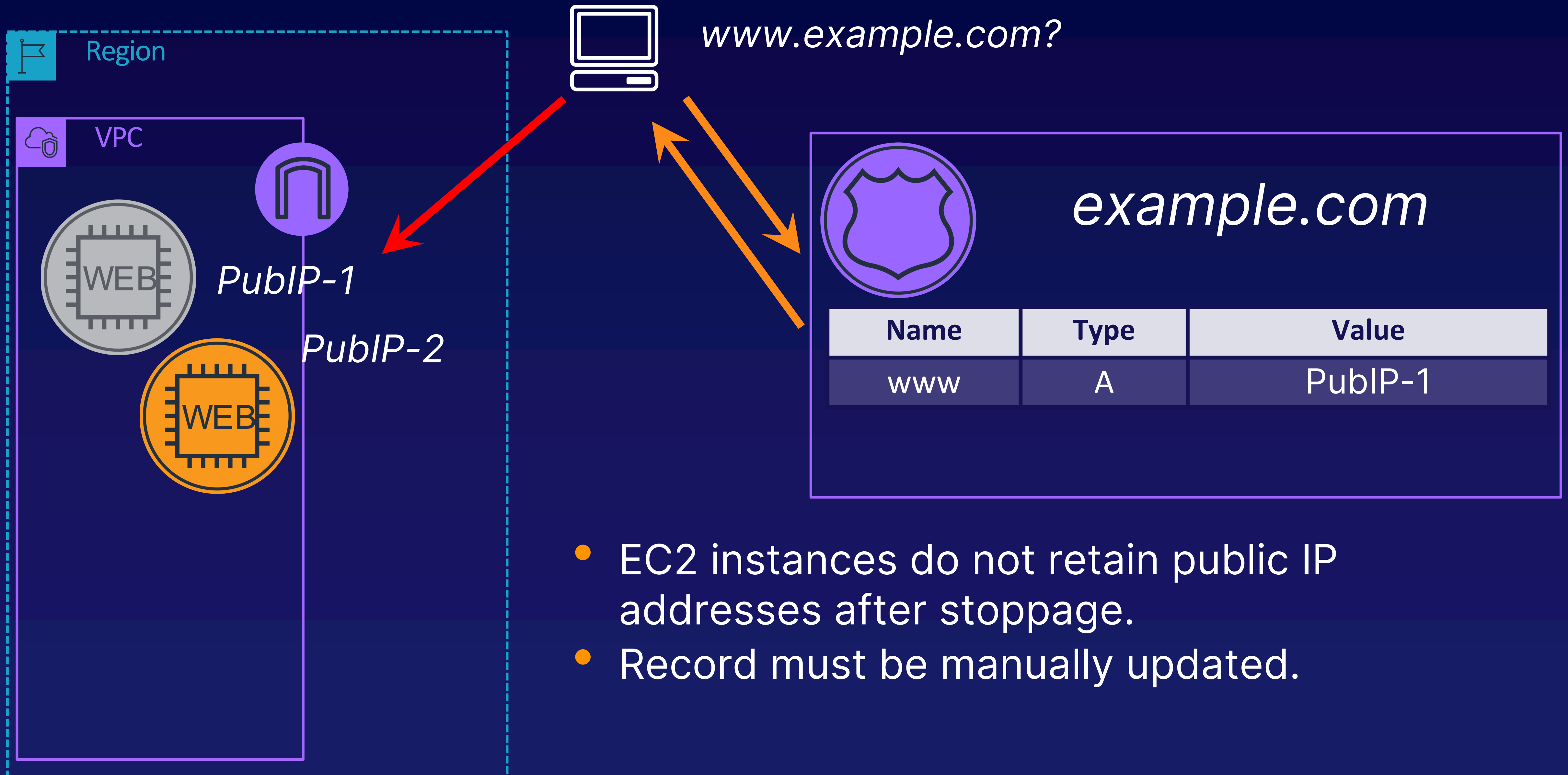
www.example.com?



A Records and CNAMEs and Aliases – Oh My!

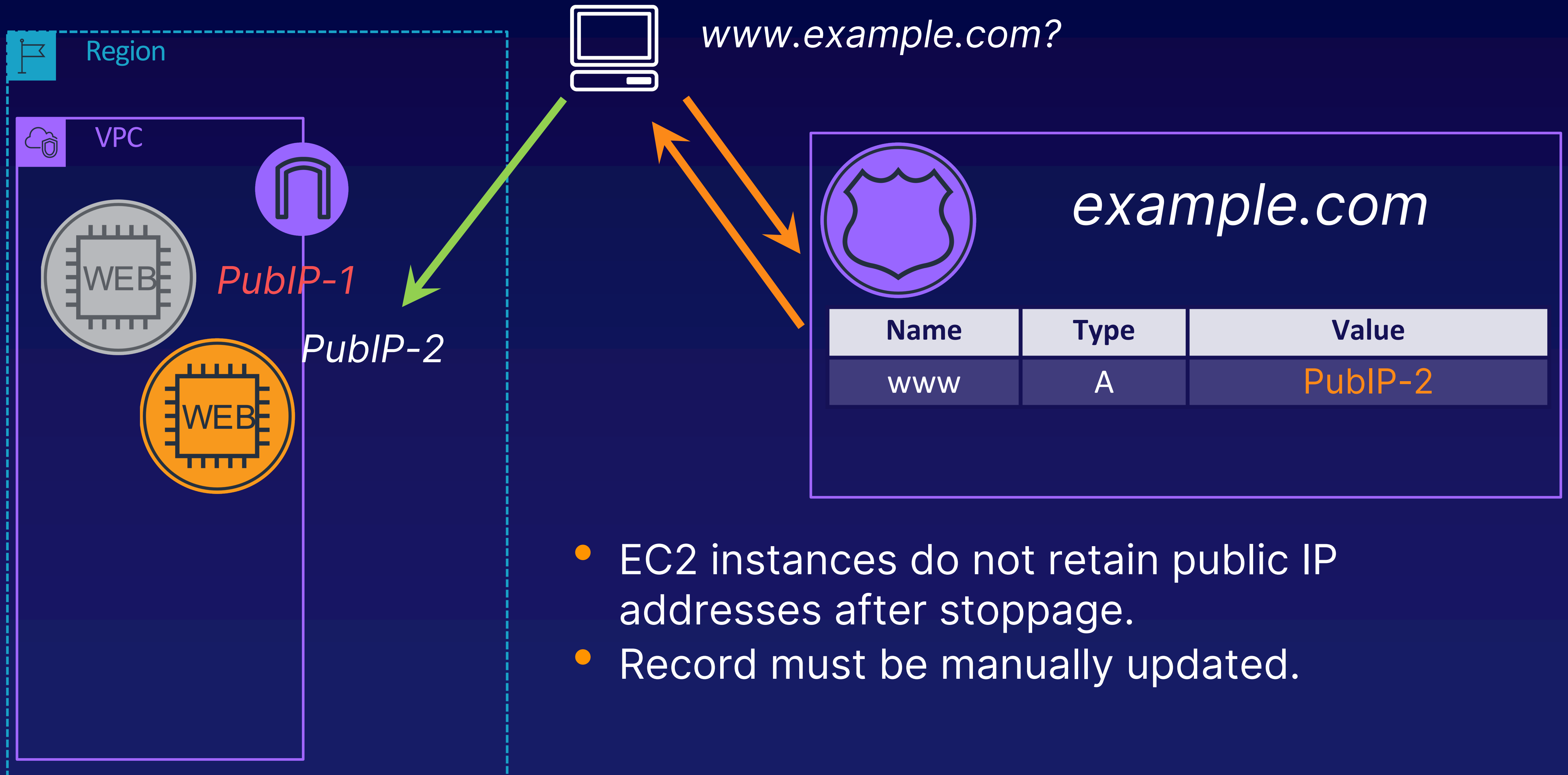


A Records and CNAMEs and Aliases – Oh My!



- EC2 instances do not retain public IP addresses after stoppage.
- Record must be manually updated.

A Records and CNAMEs and Aliases – Oh My!

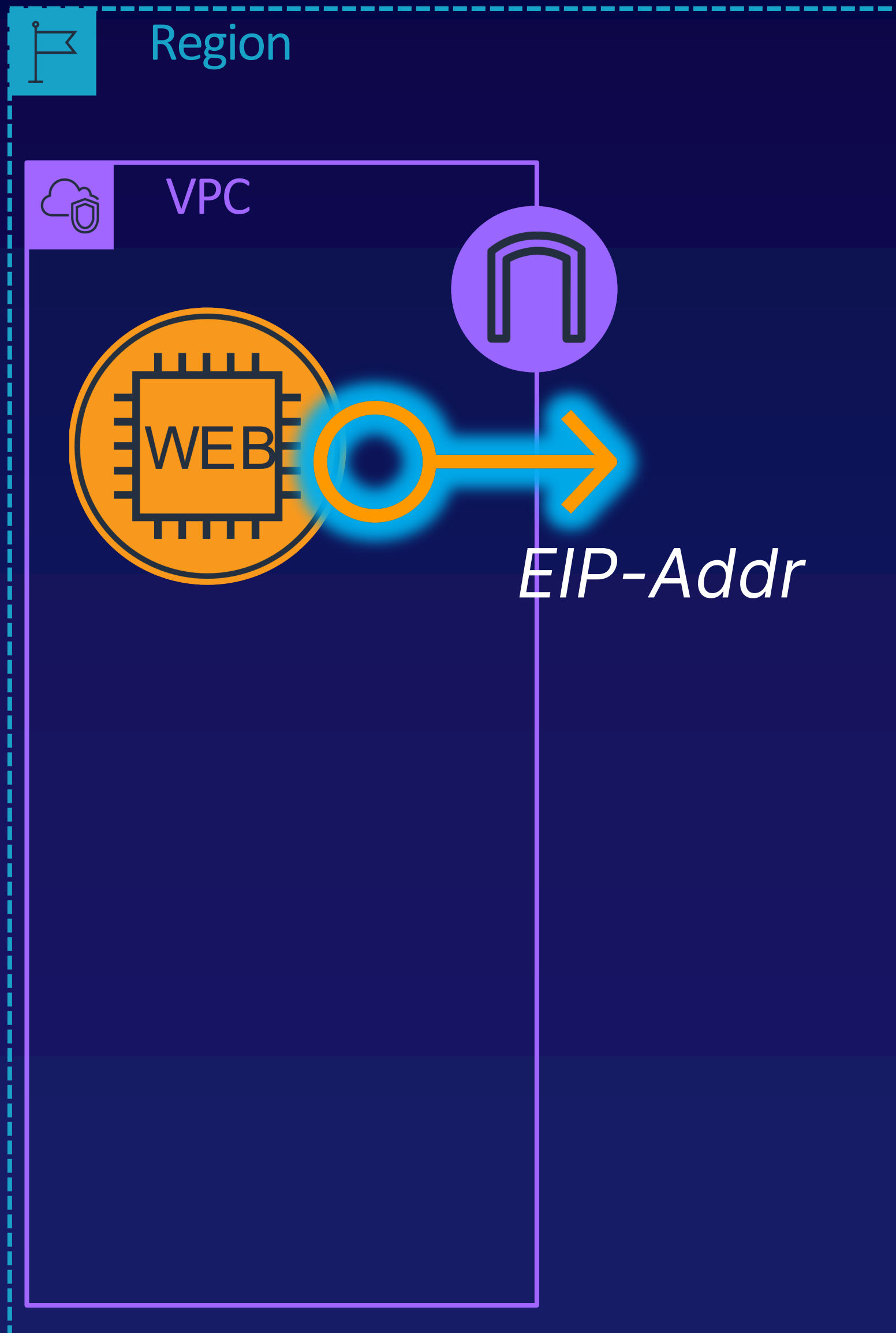
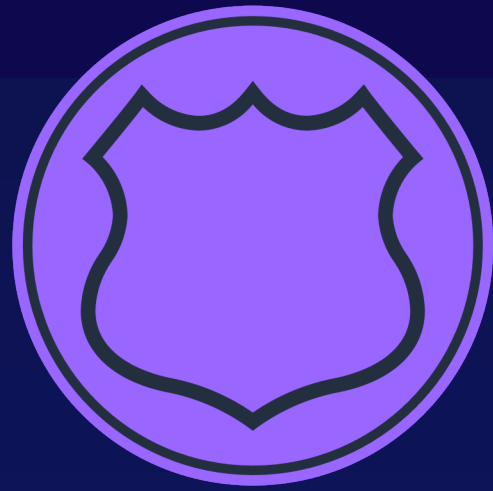


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A Records and CNAMEs and Aliases – Oh My!



www.example.com?

example.com

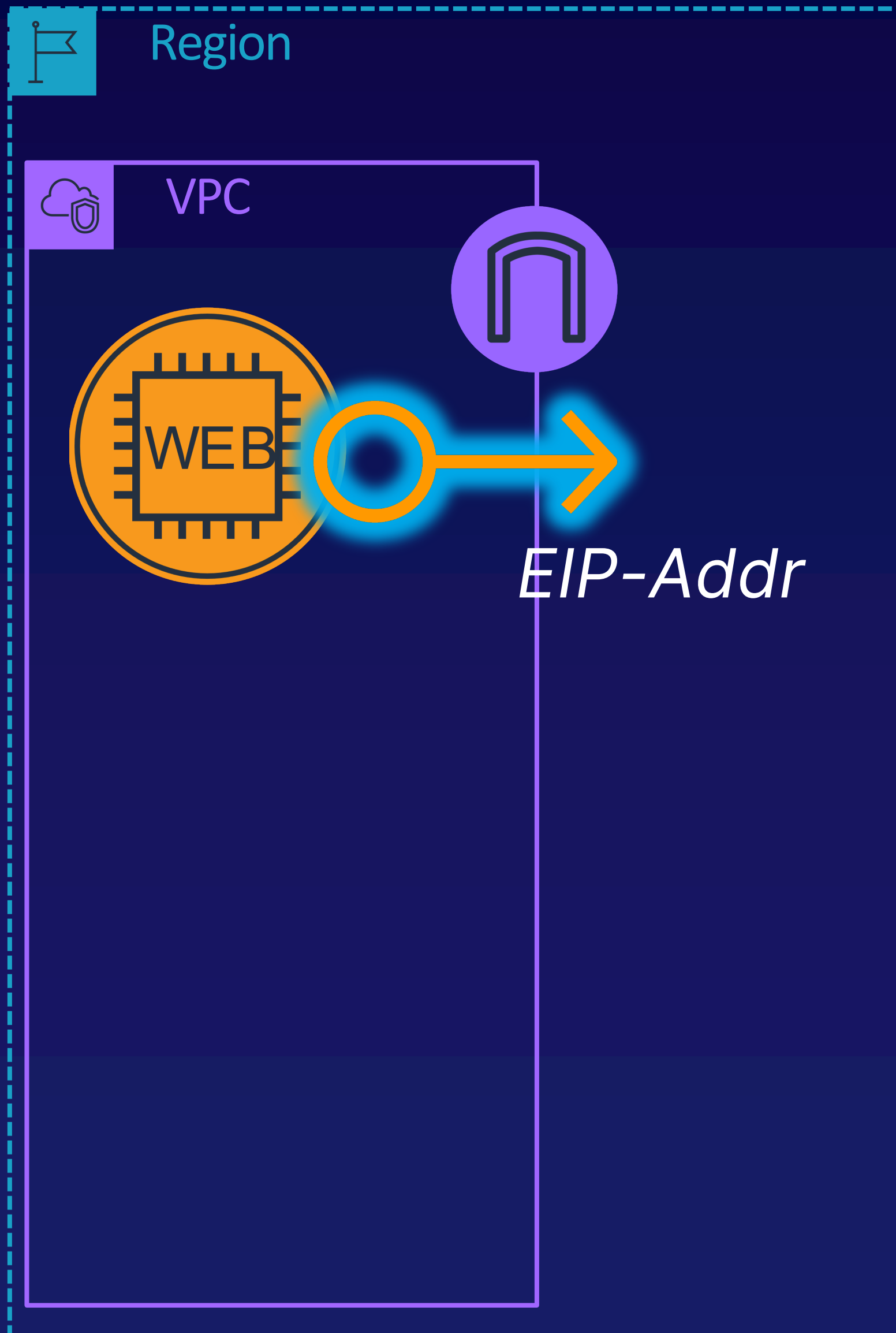
| Name | Type | Value |
|------|------|-------|
| WWW | A | |

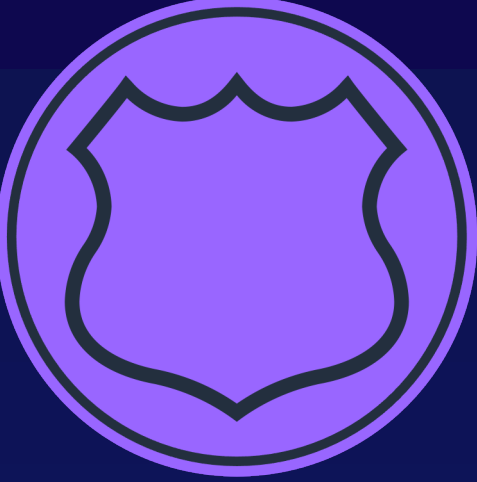
- Elastic IP is assigned public IP address.

A Records and CNAMEs and Aliases – Oh My!



www.example.com?

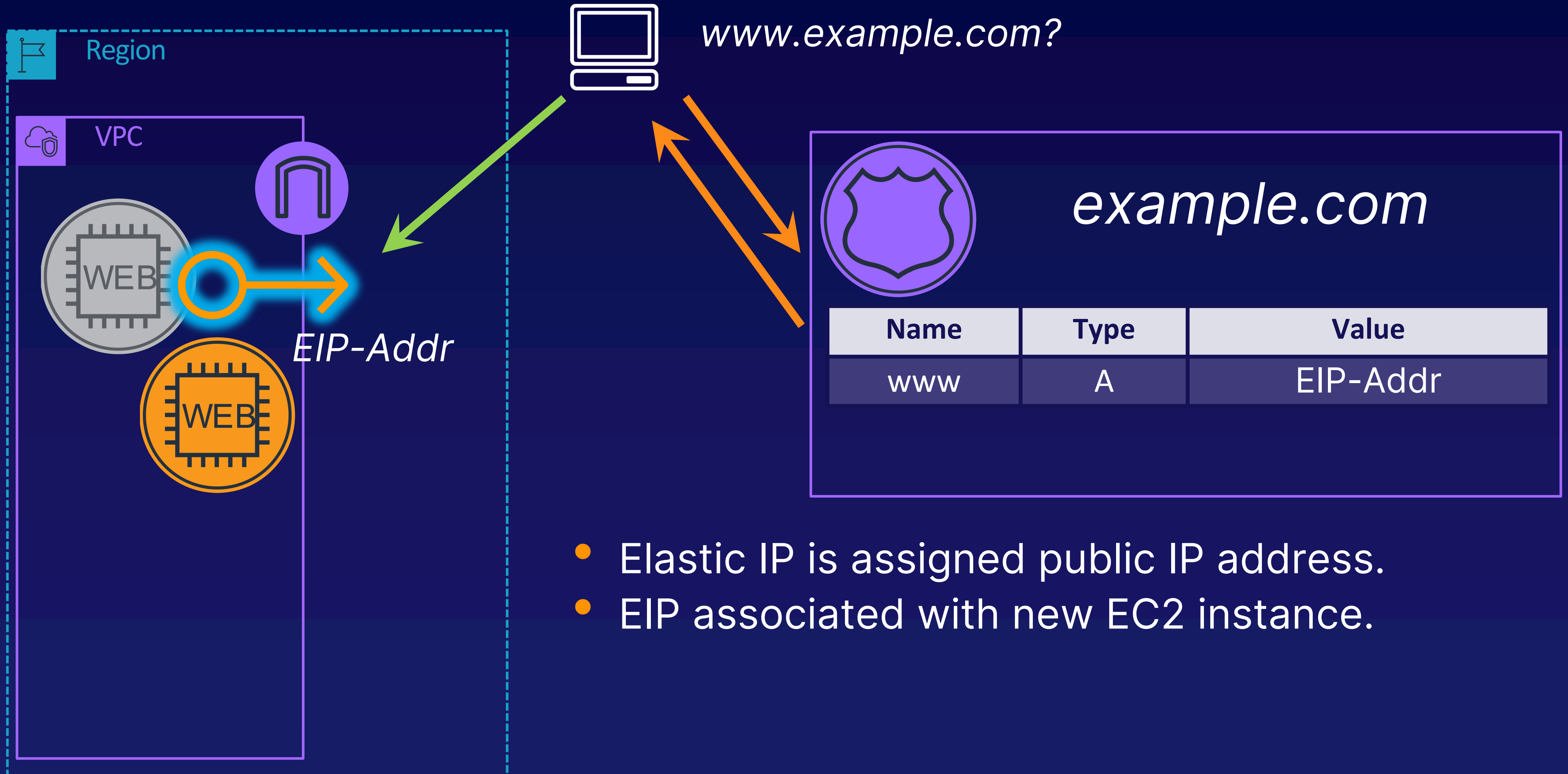


 *example.com*

| Name | Type | Value |
|------|------|----------|
| www | A | EIP-Addr |

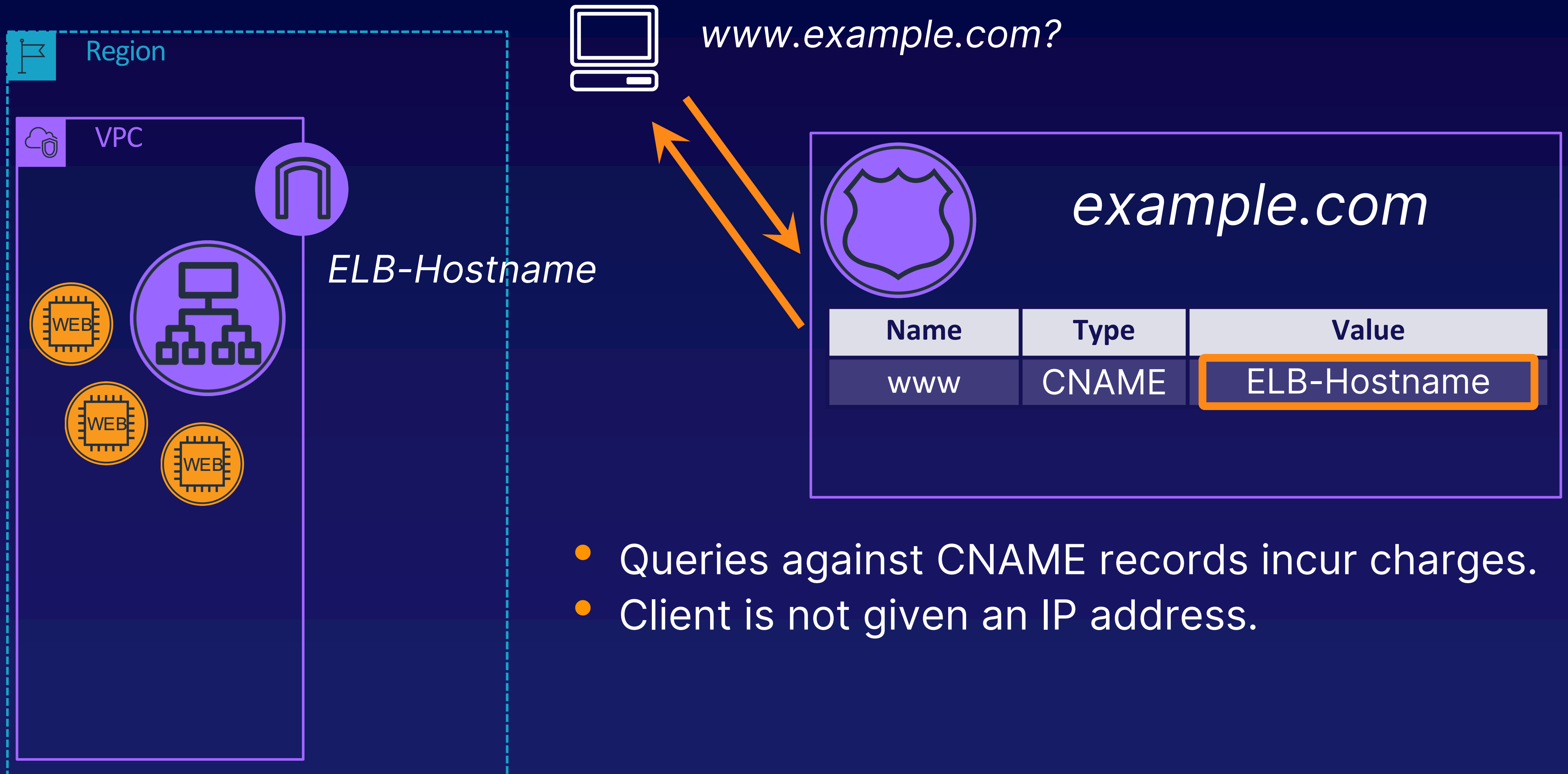
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A Records and CNAMEs and Aliases – Oh My!



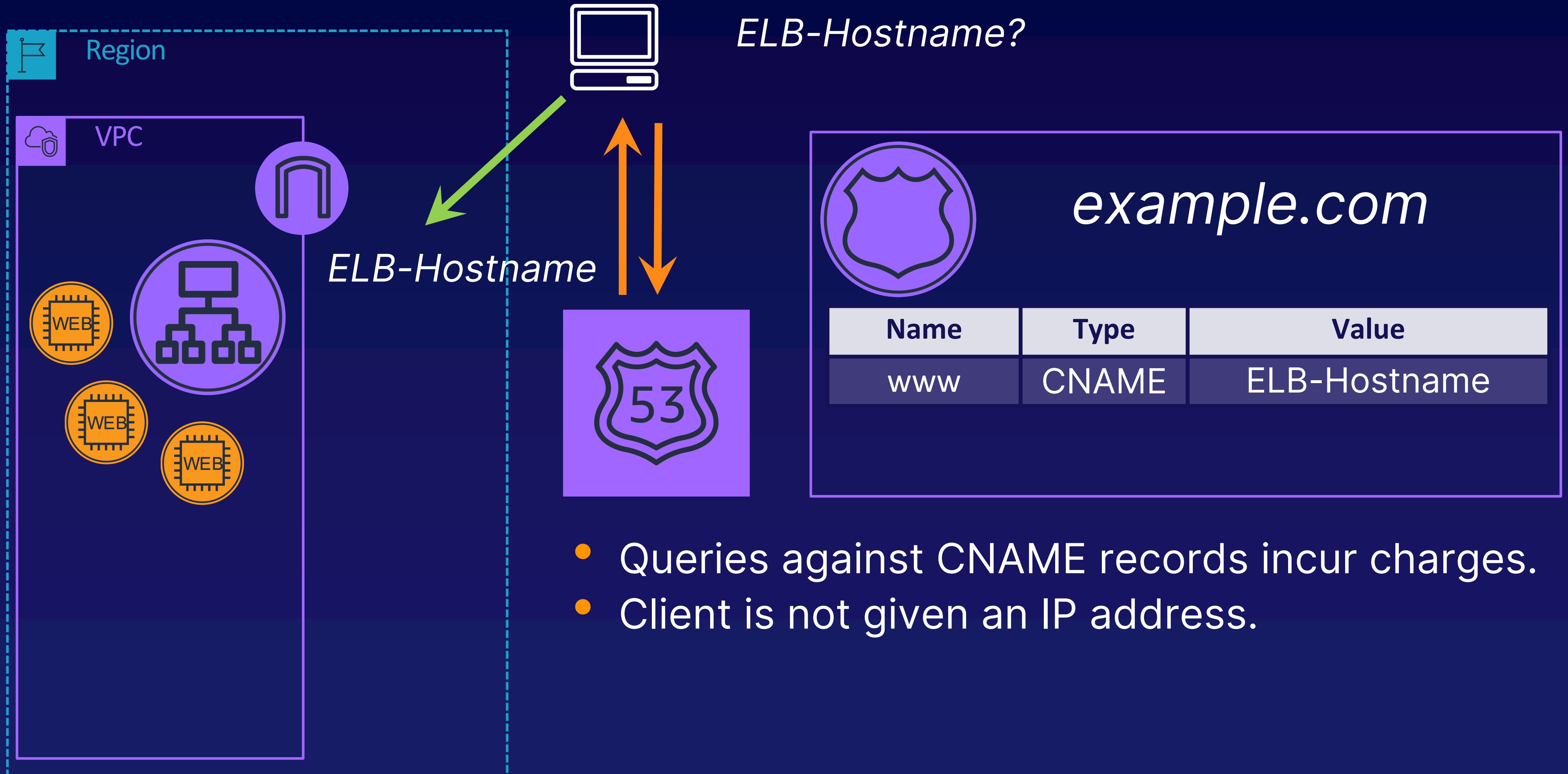
- Elastic IP is assigned public IP address.
- EIP associated with new EC2 instance.

A Records and CNAMEs and Aliases – Oh My!



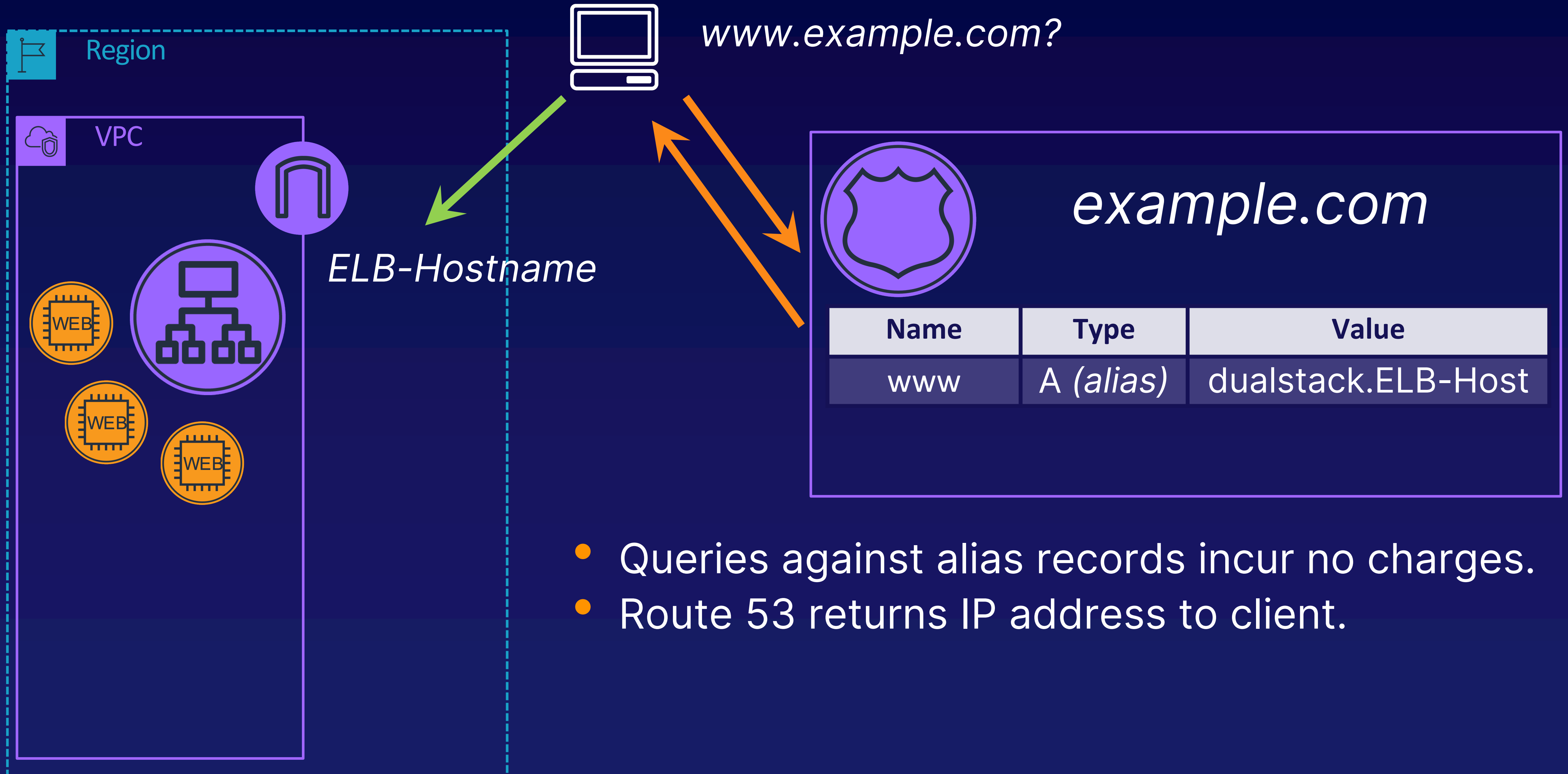
- Queries against CNAME records incur charges.
- Client is not given an IP address.

A Records and CNAMEs and Aliases – Oh My!



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- Client is not given an IP address.

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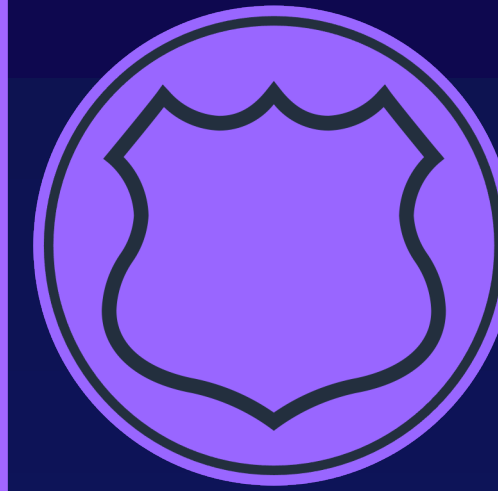
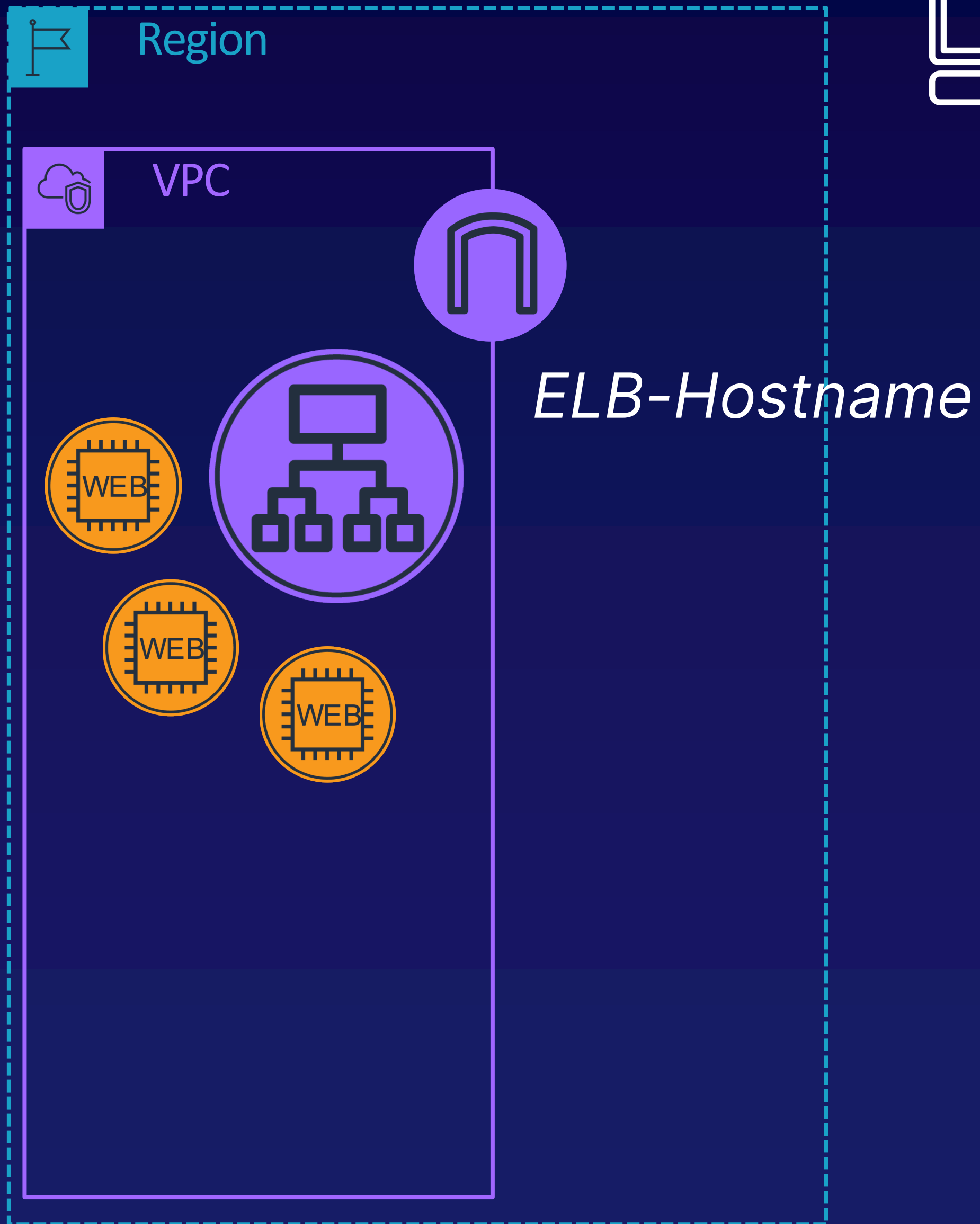


- Queries against alias records incur no charges.
- Route 53 returns IP address to client.

A Records and CNAMEs and Aliases – Oh My!



example.com?



example.com

| Name | Type | Value |
|------|--------------------|--------------------|
| www | A (<i>alias</i>) | dualstack.ELB-Host |

CNAME vs. Alias: Round 2 – Zone Apex Support

Both resolve DNS queries using other records.

- CNAME
 - DNS record type
 - Referred to as an “alias”
 - Redirects to other DNS record names
 - Returns FQDN to client
 - Charge per-query
 - Name cannot be re-used in zone
 - Not used to represent zone apex
- Alias
 - Not a DNS record type
 - AWS Route 53 extension
 - Redirects to AWS service objects
 - Returns IP address to client
 - No query charges
 - Can re-use name
 - Can be used to represent zone apex

CNAME vs. Alias: Round 2 – Zone Apex Support

```

@           IN  MX    50 mail3           : equivalent to above line, but using a relative host name
example.com. IN  A     192.0.2.1          ; IPv4 address for example.com
            IN  AAAA  2001:db8:10::1       ; IPv6 address for example.com
ns          IN  A     192.0.2.2          ; IPv4 address for ns.example.com
            IN  AAAA  2001:db8:10::2       ; IPv6 address for ns.example.com
www         IN  CNAME example.com.    ; www.example.com is an alias for example.com
wwwtest     IN  CNAME www             ; wwwtest.example.com is another alias for www.example.com



```

| Name | Type | Value |
|--------------|--------------|--------------|
| example.com. | <i>CNAME</i> | ELB-Hostname |

CNAME vs. Alias: Round 2 – Zone Apex Support

```

@           IN  MX    50 mail3           : equivalent to above line, but using a relative host name
example.com. IN  A     192.0.2.1          ; IPv4 address for example.com
            IN  AAAA  2001:db8:10::1      ; IPv6 address for example.com
ns          IN  A     192.0.2.2          ; IPv4 address for ns.example.com
            IN  AAAA  2001:db8:10::2      ; IPv6 address for ns.example.com
www         IN  CNAME example.com.       ; www.example.com is an alias for example.com
wwwtest     IN  CNAME www                ; wwwtest.example.com is another alias for www.example.com
    
```

| Name | Type | Value |
|--------------|-------|--------------------------------------------------------------------------------------------------------|
| example.com. | CNAME | ELB-Hostname  |
| example.com. | MX | mail.example.com  |

Two “canonical” versions of the same name?

CNAME vs. Alias: Round 2 – Zone Apex Support

```

@           IN  MX    50 mail3           : equivalent to above line, but using a relative host name
example.com. IN  A     192.0.2.1           ; IPv4 address for example.com
            IN  AAAA  2001:db8:10::1       ; IPv6 address for example.com
ns          IN  A     192.0.2.2           ; IPv4 address for ns.example.com
            IN  AAAA  2001:db8:10::2       ; IPv6 address for ns.example.com
www         IN  CNAME example.com.       ; www.example.com is an alias for example.com
wwwtest     IN  CNAME www                ; wwwtest.example.com is another alias for www.example.com
    
```

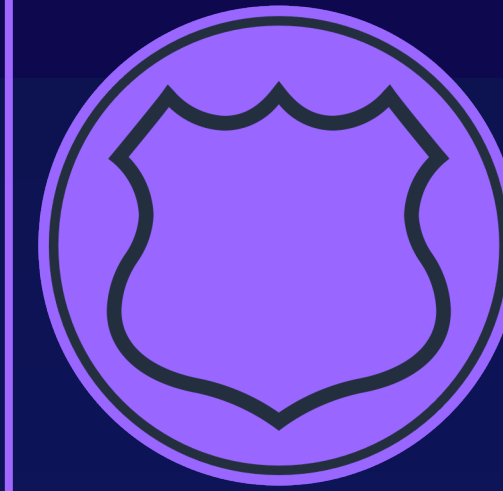
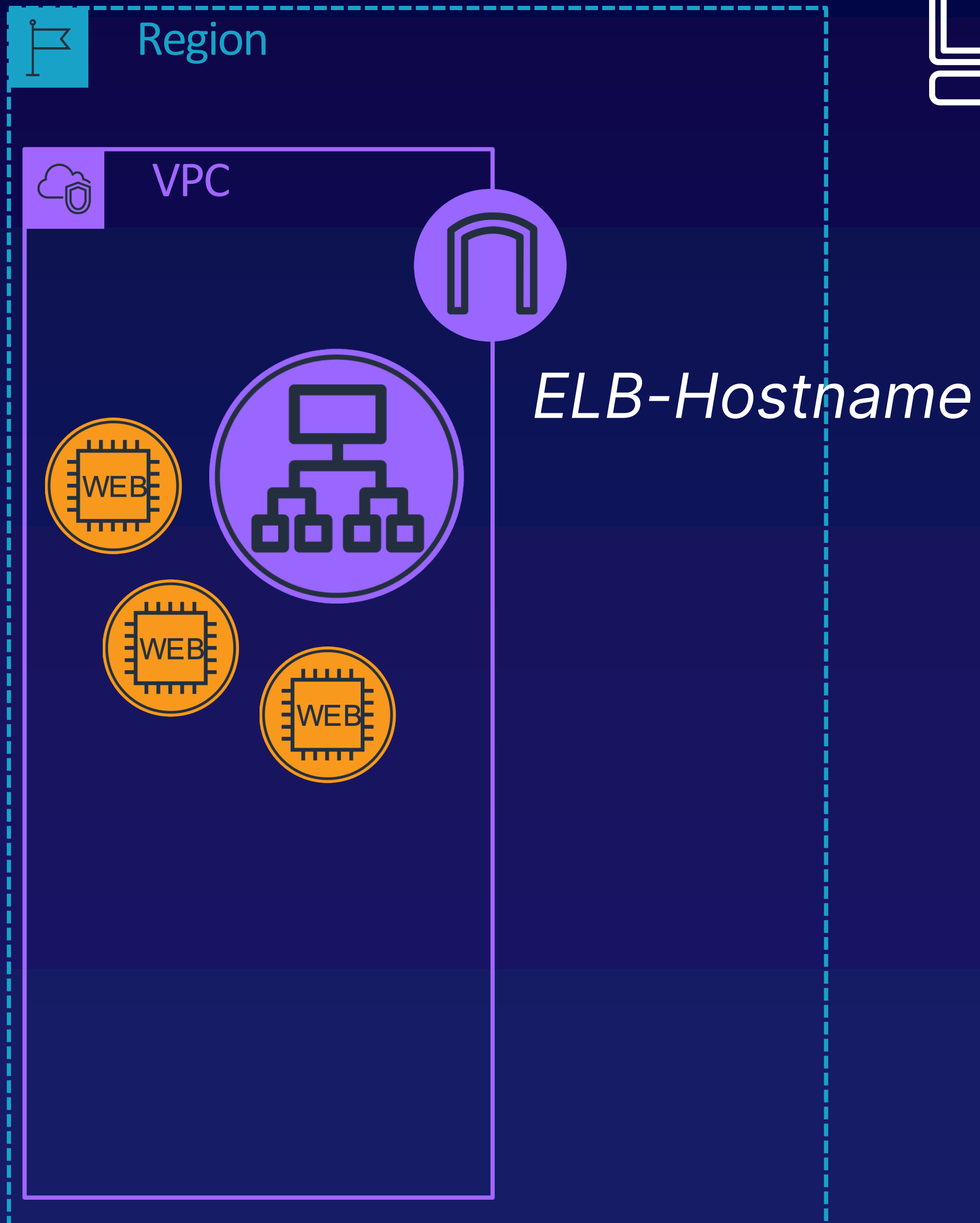
| Name | Type | Value |
|--------------|-----------|------------------|
| example.com. | A (alias) | ELB-Hostname |
| example.com. | MX | mail.example.com |

https://en.wikipedia.org/wiki/Zone_file

A Records and CNAMEs and Aliases – Oh My!



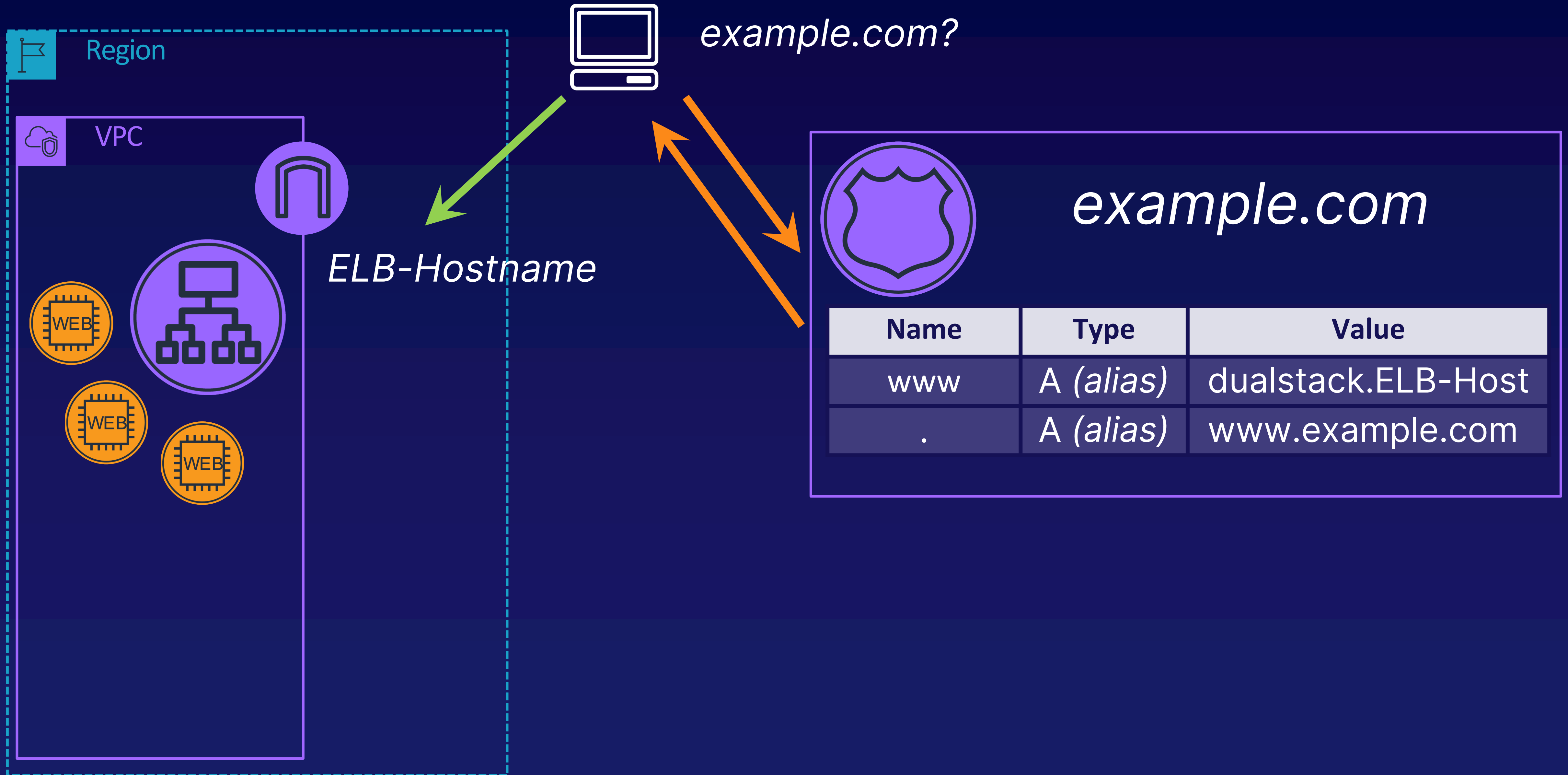
example.com?



example.com

| Name | Type | Value |
|------|--------------------|--------------------|
| www | A (<i>alias</i>) | dualstack.ELB-Host |

CNAME vs. Alias: Round 2 – Zone Apex Support



Fast Takeaways

Route 53 hosted zones store both standard and AWS specific DNS records.

Public zones resolve DNS queries from the internet.

Private zones resolve DNS queries from one or more VPCs.

Aliases are special Route 53 records that resolve to selected AWS service objects.

CNAME records may not be used to support the zone apex name.