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# Egress

# Problem Statement

## Private workloads need internet access

- SaaS integration



- Patching

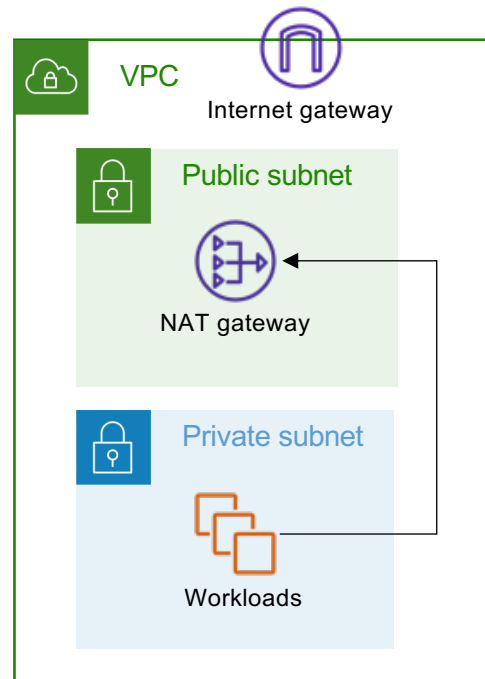


- Updates



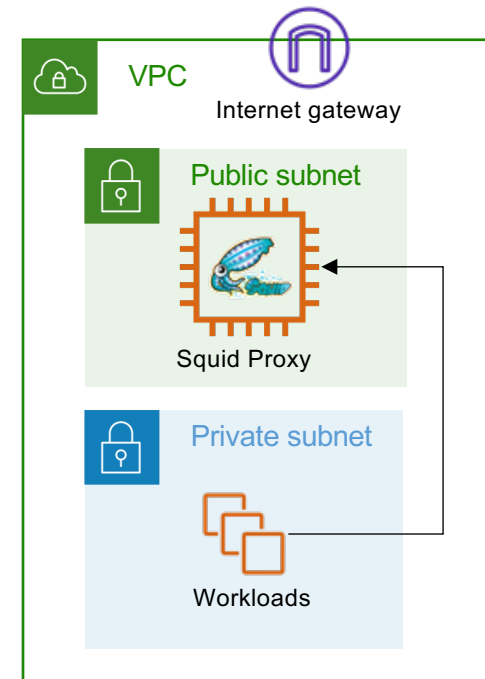
### NAT Gateway

- Layer-4 only
- NACLs management



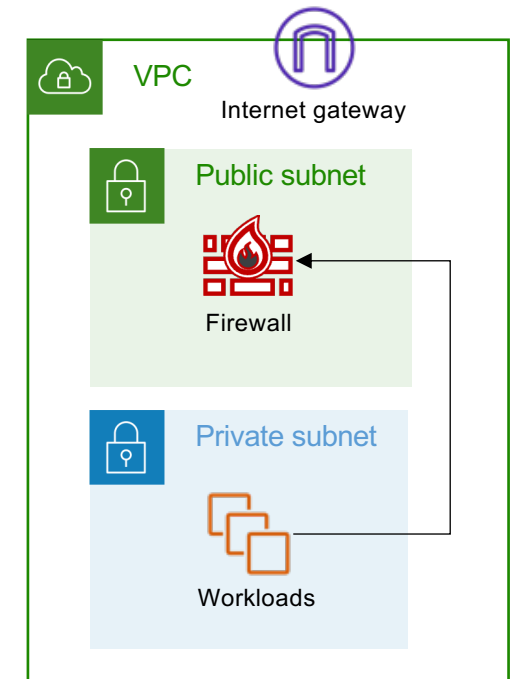
### Squid Proxy

- Hard to manage
- Scale and HA issues

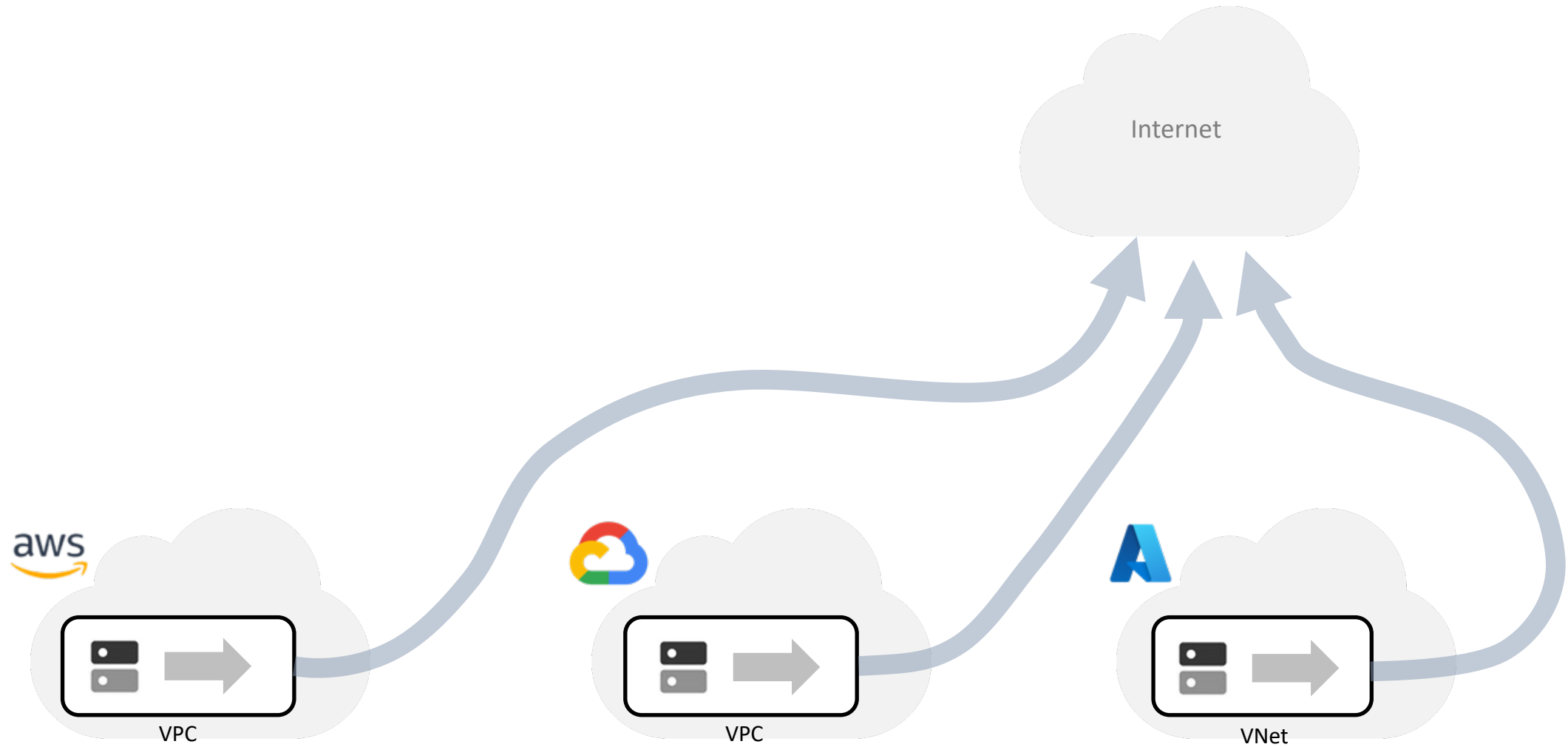


### Layer-7 Firewall

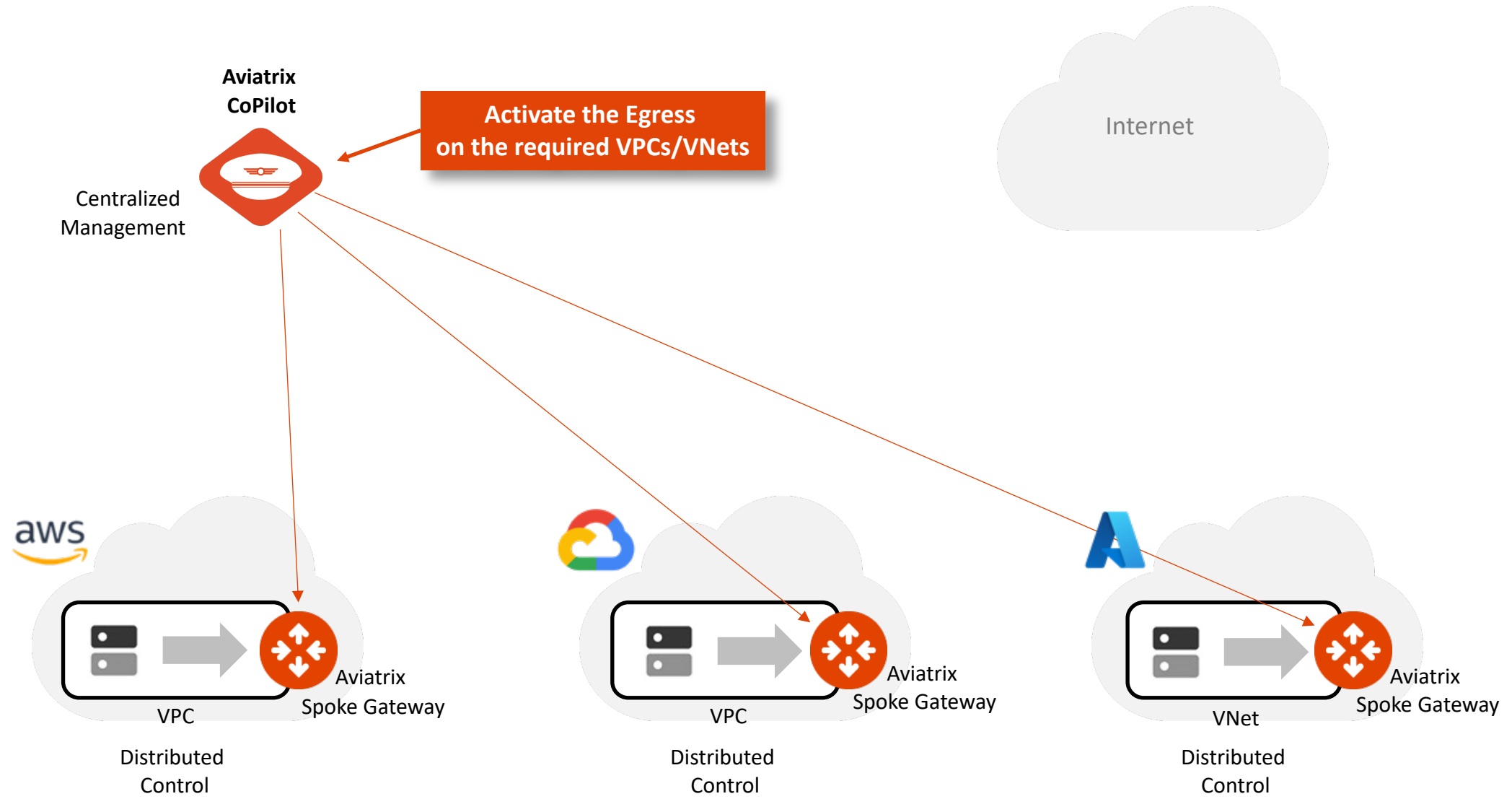
- Overkill
- Expensive



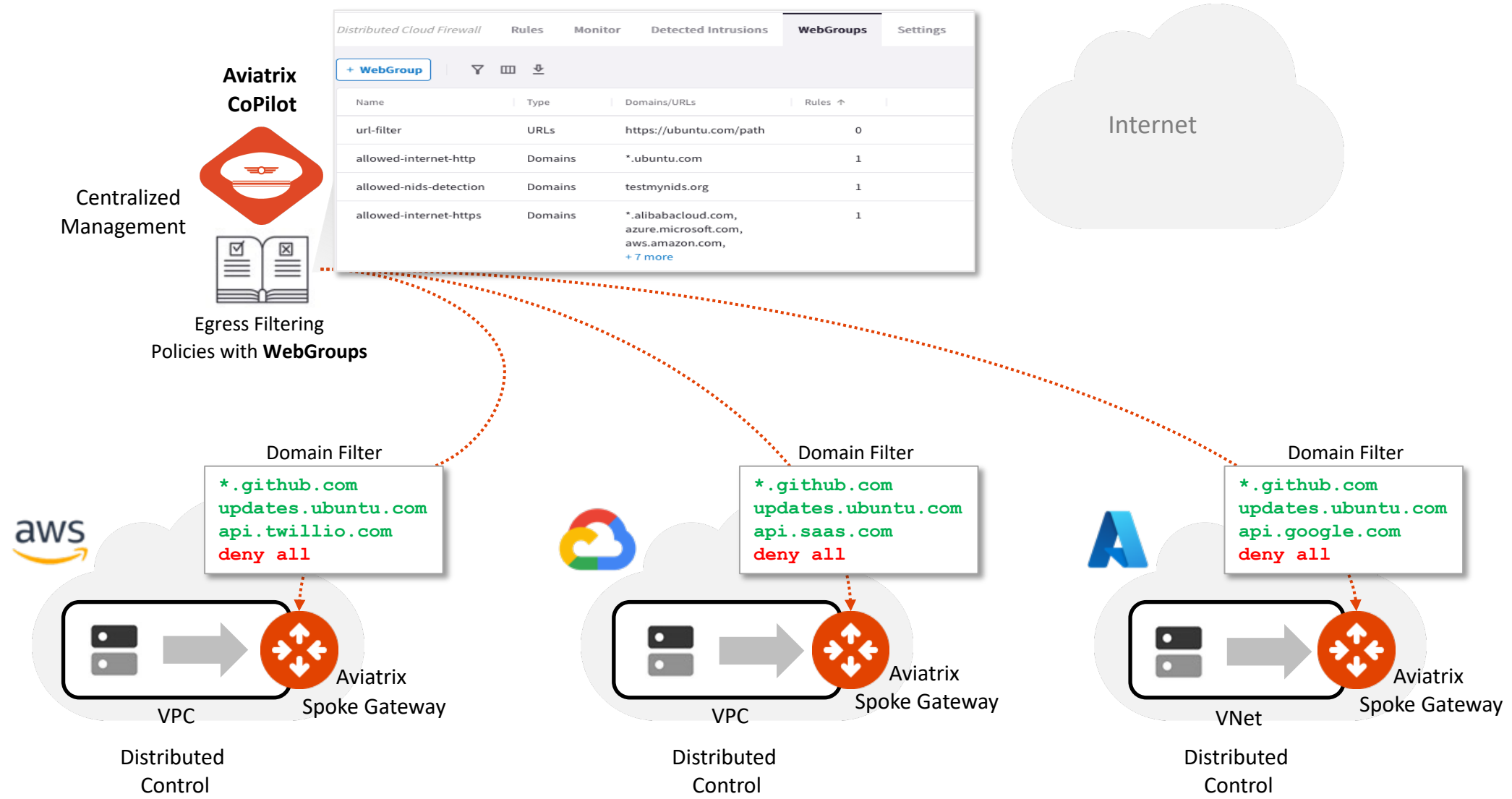
# Aviaatrix Secure Egress Filtering Feature



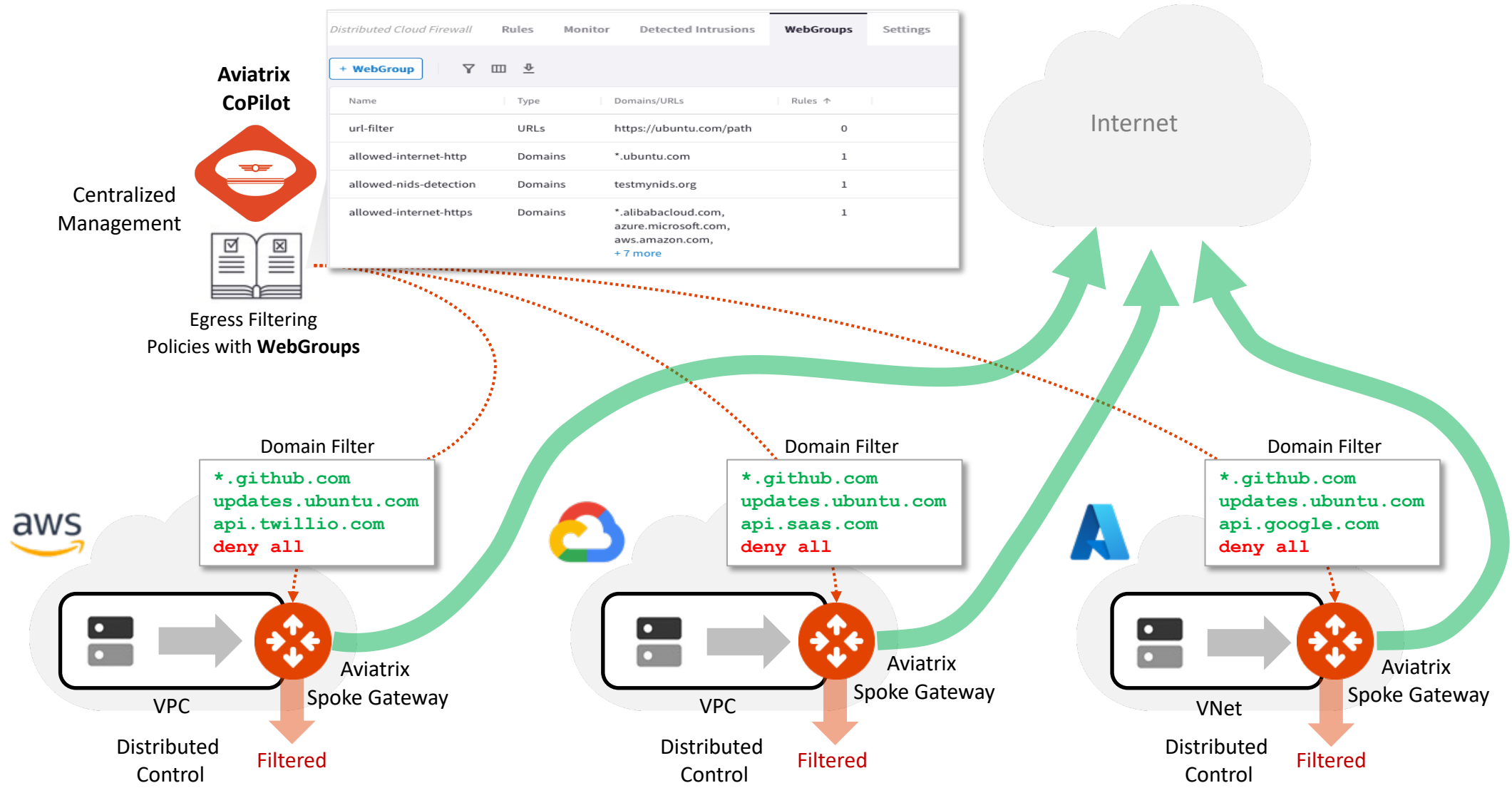
# Aviatrix Secure Egress Filtering



# Aviatrix Secure Egress Filtering

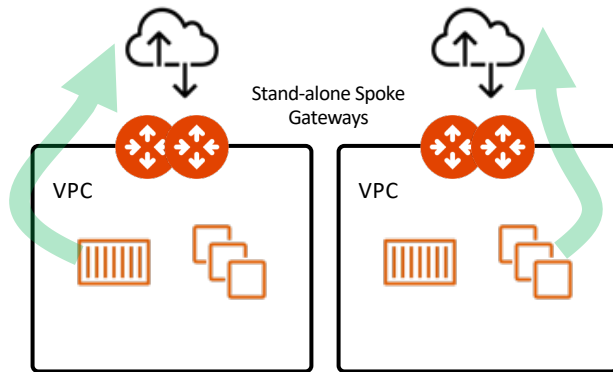


# Aviatrix Secure Egress Filtering

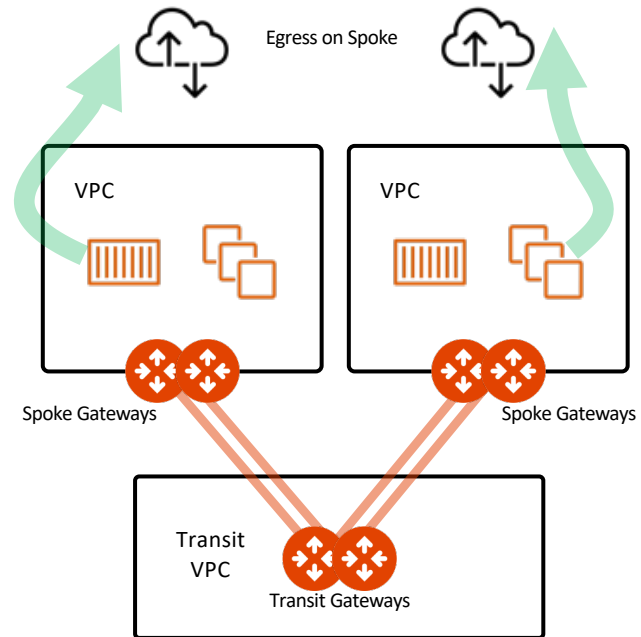


# Aviaatrix Secure Egress Filtering Design Patterns

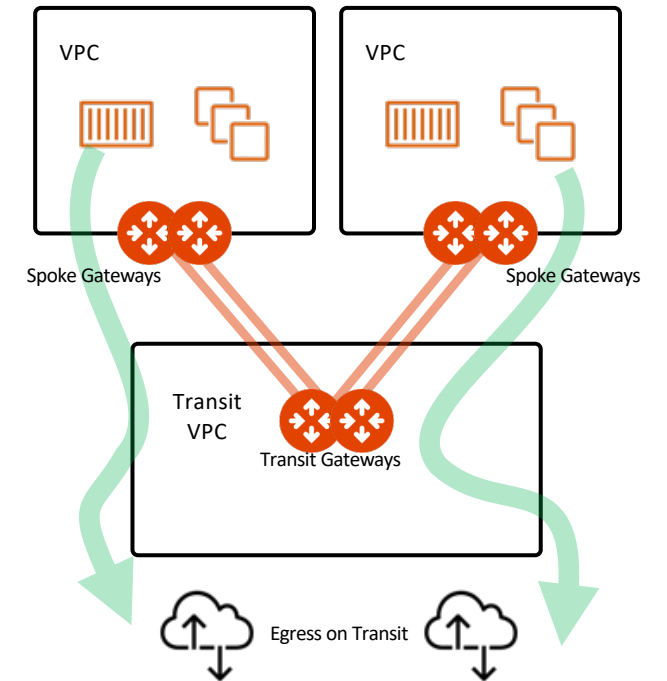
## Stand-alone Spoke GW (Distributed)



## Local Egress (Distributed) with Aviaatrix Spoke GW



## Centralized Egress with Aviaatrix Transit GW



# Zero Trust Network Access

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There are two possible models:

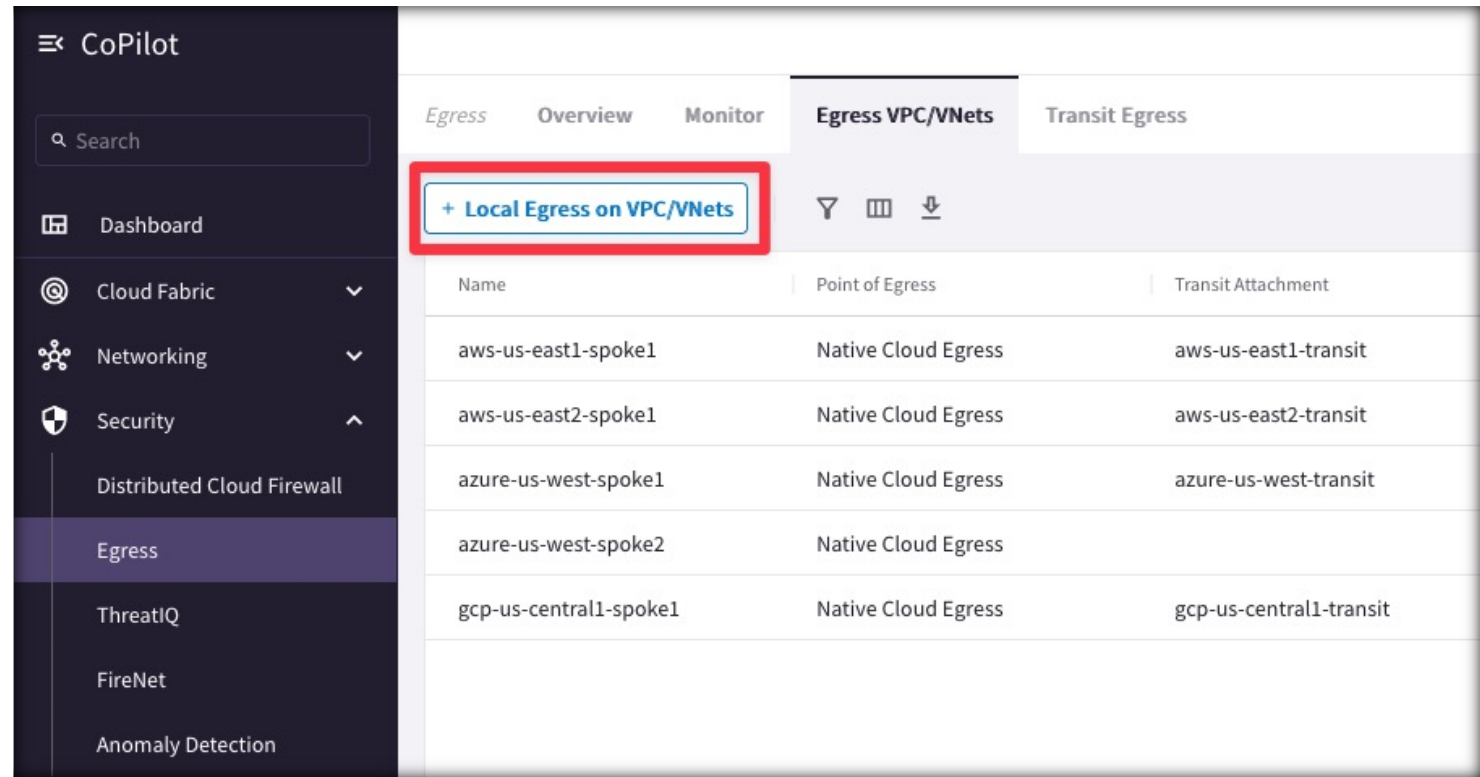
- **DENY LIST MODEL** (THREAT-CENTRIC MODEL):
  - ❑ allow all data to flow, except for exactly what you say should be stopped.
- **ALLOW LIST MODEL** (TRUST-CENTRIC MODEL):
  - ❑ deny everything and only permit what you explicitly allow.



# Tools for troubleshooting Egress

# Enabling Egress

- Adding Egress Control on VPC/VNet changes the default route on VPC/VNet to point to the Spoke Gateway and enables **SNAT**.
- Egress Control also requires additional resources on the Spoke Gateway (i.e. scale up the VM size).
- In addition to the **Local route**, the **three RFC1918 routes**, also a **default route** will be injected.

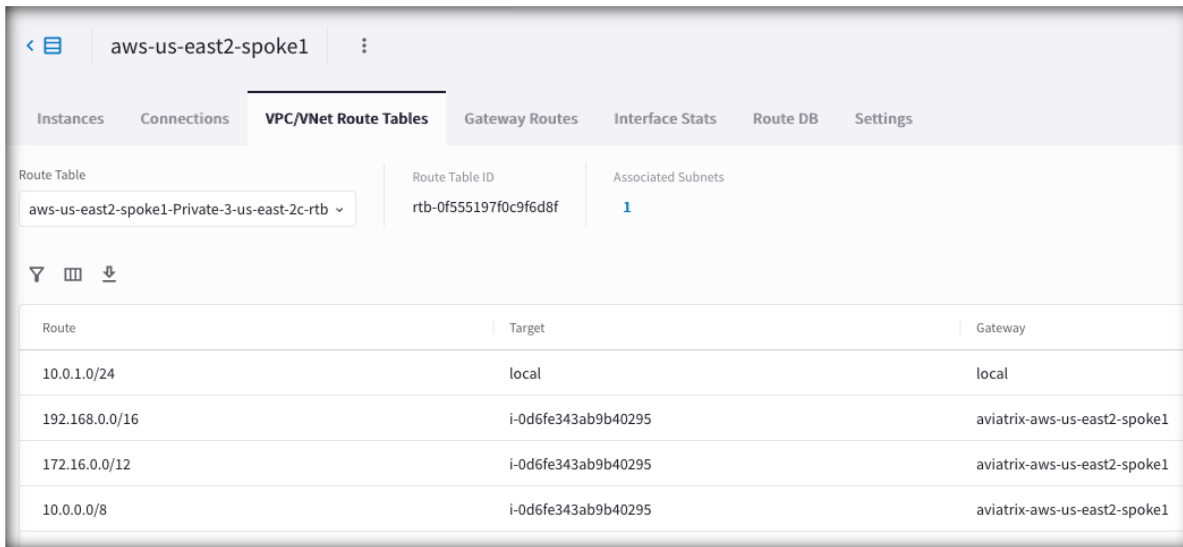


CoPilot

Egress Overview Monitor **Egress VPC/VNets** Transit Egress

+ Local Egress on VPC/VNets

Name	Point of Egress	Transit Attachment
aws-us-east1-spoke1	Native Cloud Egress	aws-us-east1-transit
aws-us-east2-spoke1	Native Cloud Egress	aws-us-east2-transit
azure-us-west-spoke1	Native Cloud Egress	azure-us-west-transit
azure-us-west-spoke2	Native Cloud Egress	
gcp-us-central1-spoke1	Native Cloud Egress	gcp-us-central1-transit



aws-us-east2-spoke1

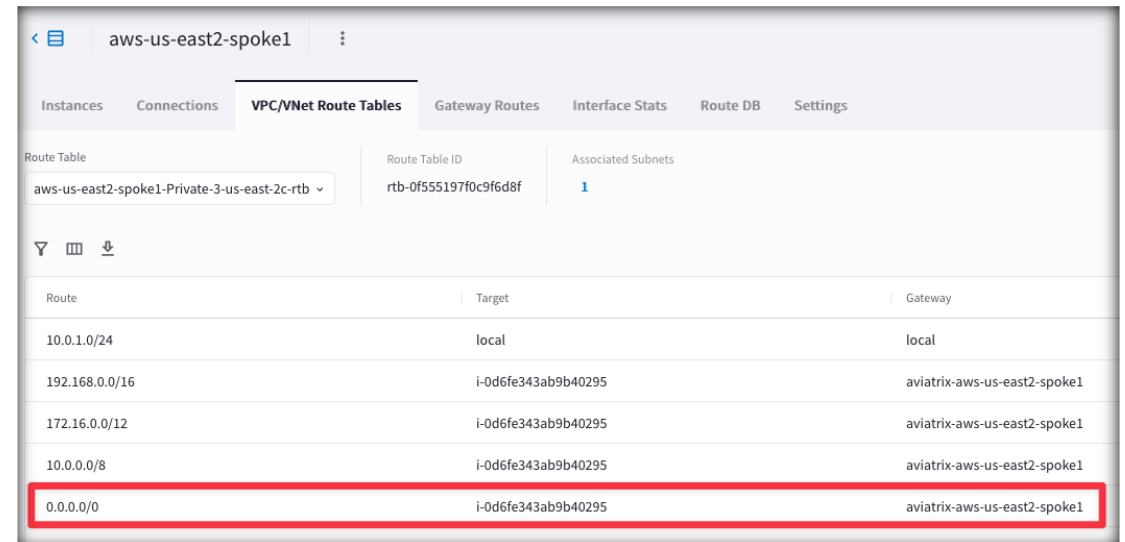
Instances Connections **VPC/VNet Route Tables** Gateway Routes Interface Stats Route DB Settings

Route Table: aws-us-east2-spoke1-Private-3-us-east-2c-rtb

Route Table ID: rtb-0f555197f0c9f6d8f

Associated Subnets: 1

Route	Target	Gateway
10.0.1.0/24	local	local
192.168.0.0/16	i-0d6fe343ab9b40295	aviatrix-aws-us-east2-spoke1
172.16.0.0/12	i-0d6fe343ab9b40295	aviatrix-aws-us-east2-spoke1
10.0.0.0/8	i-0d6fe343ab9b40295	aviatrix-aws-us-east2-spoke1



aws-us-east2-spoke1

Instances Connections **VPC/VNet Route Tables** Gateway Routes Interface Stats Route DB Settings

Route Table: aws-us-east2-spoke1-Private-3-us-east-2c-rtb

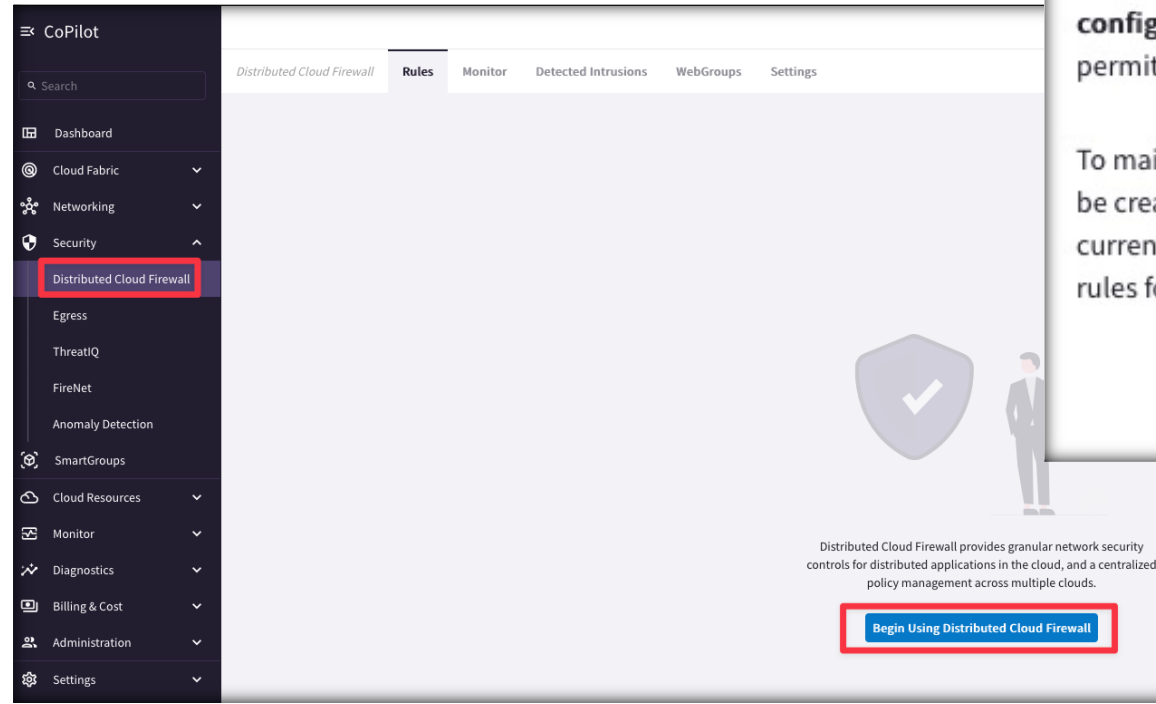
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0.0.0.0/0	i-0d6fe343ab9b40295	aviatrix-aws-us-east2-spoke1

# Adding Filtering/Monitoring feature to the Egress

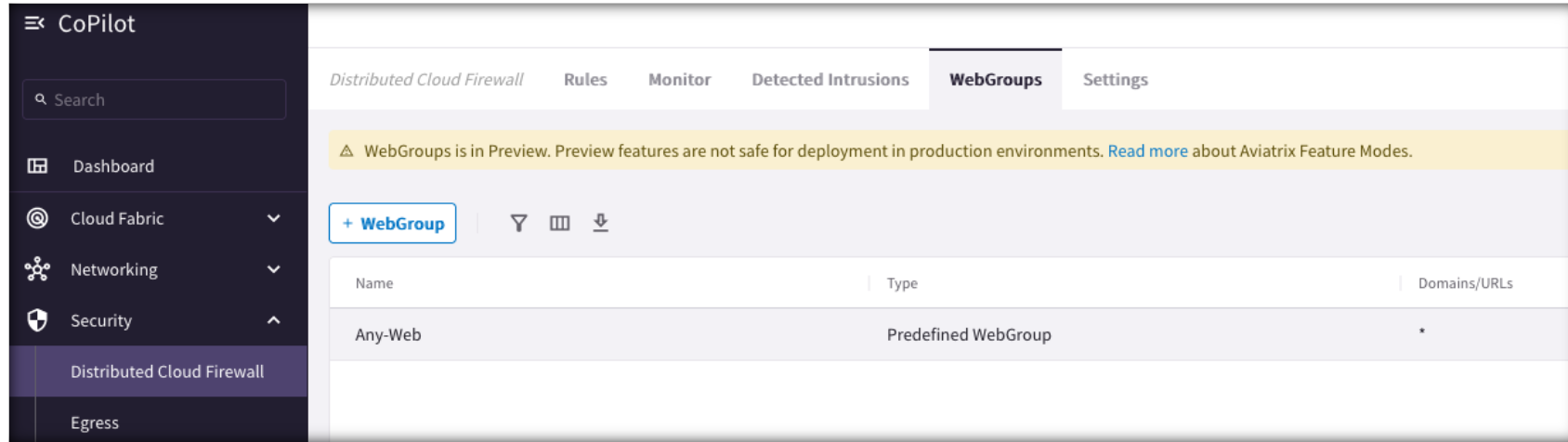
- The Egress control is part of the Distributed Cloud Firewall service.
- The Egress control requires the activation of the Distributed Cloud Firewall.
- The **Greenfield-Rule** is automatically added to allow all kind of traffic.



Distributed Cloud Firewall								
Rules Monitor Detected Intrusions WebGroups Settings								
<div>+ Rule Actions</div>								
<input type="checkbox"/>	Priority	Name	Source	Destination	WebGroup	Protocol	Ports	Action
<input type="checkbox"/>	21474...	Greenfield-Rule	Anywhere (0.0.0.0/0)	Anywhere (0.0.0.0/0)		Any		Permit

# WebGroup Creation

- **WebGroups** are groupings of domains and URLs, inserted into Distributed Cloud Firewall rules, that filter (and provide security to) Internet-bound traffic.
- When you navigate to **Security > Distributed Cloud Firewall > WebGroups**, a predefined WebGroup, *Any-Web*, has already been created for you,
- This is an "allow-all" WebGroup that you must select in a Distributed Cloud Firewall rule if you do not want to limit the Internet-bound traffic for that rule, but you still want to log the FQDNs that are being accessed.

A "Create WebGroup" dialog box. The "Name" field contains "FTP-to-Example.com". The "Type" section has two radio buttons: "Domains" and "URLs", with "URLs" selected and highlighted by a red box. The "Domains/URLs" field contains "ftp://ftp.example.com/directory/" with a clear button (x). At the bottom are "Cancel" and "Save" buttons.A "Create WebGroup" dialog box. The "Name" field contains "Apt-get-Commands". The "Type" section has two radio buttons: "Domains" and "URLs", with "Domains" selected and highlighted by a red box. The "Domains/URLs" field contains "\*ubuntu.com" with a clear button (x). At the bottom are "Cancel" and "Save" buttons.

# Monitor

- CoPilot > Security > Egress > Monitor

Egress

Overview

Monitor

Egress VPC/VNets

Transit Egress

^ Filters

Time Period

Last 24 Hours

Start

Nov 1, 2023 4:09 PM

End

Now

VPC/VNets

ace-azure-east-us-spoke2

Search

Timestamp	Source IP	VPC/VNet	Domain	Port	Rule Match	Action
Nov 2, 2023 3:48 PM	192.168.212.36	ace-azure-east-us-spoke2	api.snapcraft.io	443	Matched	Denied
Nov 2, 2023 2:09 PM	192.168.212.36	ace-azure-east-us-spoke2	azure.archive.ubuntu.com	80	Matched	Allowed
Nov 2, 2023 2:09 PM	192.168.212.36	ace-azure-east-us-spoke2	azure.archive.ubuntu.com	80	Matched	Allowed
Nov 2, 2023 2:09 PM	192.168.212.36	ace-azure-east-us-spoke2	azure.archive.ubuntu.com	80	Matched	Allowed
Nov 2, 2023 2:09 PM	192.168.212.36	ace-azure-east-us-spoke2	azure.archive.ubuntu.com	80	Matched	Allowed
Nov 2, 2023 2:09 PM	192.168.212.36	ace-azure-east-us-spoke2	azure.archive.ubuntu.com	80	Matched	Allowed
Nov 2, 2023 2:09 PM	192.168.212.36	ace-azure-east-us-spoke2	azure.archive.ubuntu.com	80	Matched	Allowed
Nov 2, 2023 2:09 PM	192.168.212.36	ace-azure-east-us-spoke2	esm.ubuntu.com	443	Matched	Allowed
Nov 2, 2023 2:09 PM	192.168.212.36	ace-azure-east-us-spoke2	azure.archive.ubuntu.com	80	Matched	Allowed
Nov 2, 2023 2:09 PM	192.168.212.36	ace-azure-east-us-spoke2	azure.archive.ubuntu.com	80	Matched	Allowed
Nov 2, 2023 2:09 PM	192.168.212.36	ace-azure-east-us-spoke2	azure.archive.ubuntu.com	80	Matched	Allowed
Nov 2, 2023 2:09 PM	192.168.212.36	ace-azure-east-us-spoke2	azure.archive.ubuntu.com	80	Matched	Allowed



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Next:

Lab 7 Egress