



# Aviatrix ACE

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## Associate

INTRODUCTION

ACE Solutions Architecture Team

# Shahzad Ali

Shahzad Ali is Vice President of Solutions Architecture at Aviatrix. He is an expert on private and public cloud networking and coined the Multicloud Network Architecture (MCNA).

He is also a co-founder and content lead for the Aviatrix Certified Engineer (ACE) Program, the industry's first multicloud networking certification.

Shahzad previously led the Solutions Architecture team at VMware, where his team played a crucial role in growing VMware's NSX business.

Before that, he spent over a decade in technical and leadership roles at Cisco Systems.



<https://linkedin.com/in/shahzadNET/>

<https://youtube.com/netJoints>

# ACE Program and ACE Associate Introduction



## Industry's First

Industry's first multi-cloud networking education & certification.



## Networking Focused

Develop advanced networking security, and operational competencies in the public cloud.



## Learning Tracks

Associate, Professional, Design, Specialties (Security, Backbone, Automation, etc.)



## ACE-Associate



Cloud networking introduction. Usually, it is a 4 to 5 hours.

## High Level



Covering topics at a high level

## Fast Paced



Focused with a lot of concepts – can be overwhelming!

<https://community.aviatrix.com>

# ACE Multicloud Networking Learning Paths

<https://aviatrix.com/ace/>



## Standard Learning Path



**4 Hours**

Learn CSP networking basics and review Aviatrix features



**3 Days**

Deploy proven design patterns for a multicloud network architecture



**Weeks**

Design a highly available, scalable, and secure multicloud architecture

## Optional Specialty Trainings



**4 Hours**

Use IaC tools to build, enhance, and secure infrastructure



**4 Hours**

Use the Aviatrix backbone to build hybrid connections



**16 Hours**

Troubleshoot real-world Day 2 cloud issues



**4 Hours**

How to secure the network deployed inside the cloud



# ACE-Associate Prerequisite & How to get Certified

## Prerequisite:

- Basic networking understanding (Router, IP Address, Subnet, TCP/IP, etc.)

## How to get Certified:

- Create Aviatrix ACE Academy Account: <https://ace.aviatrix.com/>

### 1. Complete the LAB assignments

- <https://docs.aviatrixlab.com/flightschool/docs/home.html>
- Total five labs. Complete **3** Labs. 2 bonus.
- An automated script will evaluate the completion of all labs.
- PODs will be torn down as soon as the training has been completed.

### 2. Complete the Survey.

# Outcome

1. Learners will be able to describe the shift from on-premises to cloud networking and understand why that shift is relevant today
2. Learners will be able to recognize the basic native networking capabilities of the primary cloud service providers and understand when to best leverage each one in their ecosystem
3. Learners will be able to recognize the native constraints in visibility, security, and control
4. Learners will be able to define how the shift to the cloud has created new possibilities and risks for security
5. Learners will be able to identify alternative solutions to enhance visibility and global monitoring capabilities, and learn how to reduce cloud costs when it comes to cloud networking

# Aviatrix Certified Engineer Associate - Agenda



## AWS Networking 101

AZ, Regions, VPC,  
Route Tables, IGW,  
VGW, AWS-TGW,  
Direct Connect



## Azure Networking 101

AZ, Regions, VPC,  
Route Table, VNG,  
vWAN, Express Route



## GCP Networking 101

AZ, Regions, Global  
VPC, Route Tables,  
Google Cloud  
Interconnect



## OCI Networking 101

Features,  
Functionalities,  
Comprehensiveness



## Multicloud Network Architecture

Layered Architecture,  
Consistent across  
clouds, repeatable,  
simplify designs



## Aviatrix Platform Overview

Features,  
Functionalities,  
Comprehensiveness



# About Aviatrix





## We are the Cloud Networking Experts

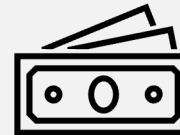
**One cloud networking platform creates  
the visibility, security and control  
your business needs to adapt  
with ease and move ahead at speed.**



**Simplify  
Operations**



**Improve  
Security**



**Reduce  
Costs**

# Enterprises Choose Cloud Networking Experts



|  |  |  |  |   |  |  |   |  |   |
|--|--|--|--|---|--|--|---|--|---|
|  <b>Abbott</b>   | abbvie   | <br>Adobe   |  Aflac                         |  AB InBev                    |  APPTIO   |  Audi   |  <b>AVIS</b><br>Budget   |  <b>BAKER HUGHES</b><br>a GE company  |  BankUnited  |
|  <b>BHP</b>   |  Biogen   |  <br>BNY MELLON  |  <b>CENTENE</b><br>Corporation |  <b>CHANGE</b><br>HEALTHCARE |  Charter<br>COMMUNICATIONS  |  chewy.com  |  CHS   |  <br>Constellation<br>Brands |  covetrus  |
|  Cummins  |  <b>DXC</b><br>TECHNOLOGY   | dentsu   |  e.on                           |  FACTSET                     |  <br>FEMA    |  Ford   |  <br>Genworth         |  GN   |   GUIDEWIRE   |
|  <br>Heineken |  <br>Home Office |  <br>Informatica |  inmarsat                      |  Johnson<br>Controls         | Jefferies  |   Lufthansa<br>Systems         |  <br>lululemon        |  <br>Mercedes-Benz           |  NASA  |
|  navitaire<br>an amadeus company   |  <br>NetApp  |  <br>ni      |  <b>NIKE</b>                 |  <b>PACCAR</b>             |  <br>pwc |   Raytheon<br>Technologies |  <br>RheinEnergie |  Roche  |  <b>SIEMENS</b>  |
|  splunk  |  <br>Takeda  |  teradata.  |  THALES                      |  UNITED<br>AIRLINES        |  <b>ULTA</b><br>BEAUTY  |  VERINT.  |                   |  WIX  |  <br>YARA |

# Why Not Use CSP Native Networking?

## Build

- Cloud provider is Go-Build mentality
- Reference architectures doesn't fit customers expectations
- Lack of common architecture in multiple clouds and minimal features when extending to on-premises

## Operate

- Disconnected Day 2 Operations
- Lack of visibility and troubleshooting
- Missing operational data

## Cost and Skillgap

- Unknown and unpredictable cost
- Heavy data processing charges, including Egress
- Expert level skillset needed



# Aviatrix Solving Challenges for Enterprises in Public Cloud



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Aviatrix helps enterprises build – Fast and Right – Greenfield or Brownfield



Provides Multicloud Networking Software (MCNS) reference Architecture (MCNA)



Simple and familiar tools and operationalizing best practices in Public Cloud



Day 2 Ops ready visibility and tooling



Zero data processing charges  
Simple design, deploy and run



# Aviatrix Cloud Networking Platform

## Software Components

# Aviatrix Secure Cloud Networking

## Own Your Cloud Network

### Aviatrix Controller



Operates on your cloud EC2/VM.  
The Brain. Download from CSP Marketplaces.  
Never in the data plane.

### Control Plan

### Aviatrix CoPilot



Operates on your cloud EC2/VM  
Advanced day2 ops and enterprise-grade visualization.  
Never in the data plane.

### Management Plane

### Aviatrix SMART Gateways



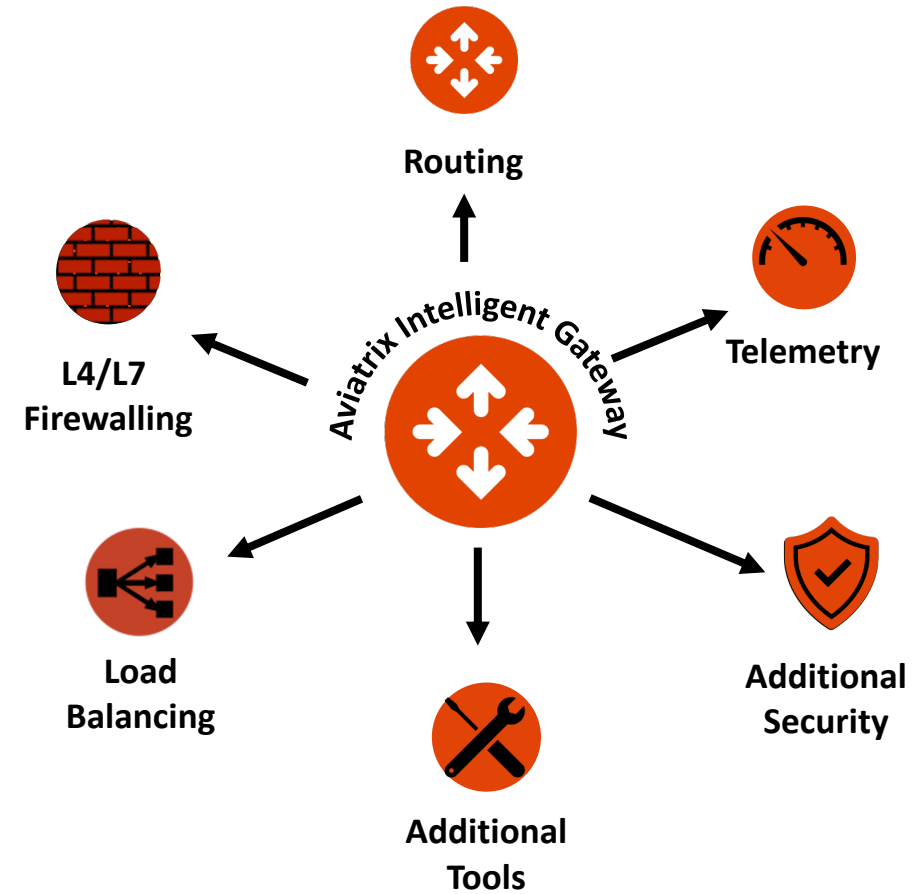
Operates on your cloud EC2/VM.  
Advanced networking, security, and policy enforcement.

### Data Plane

**SMART: Secure, Multicloud-Aware, Application-Aware,  
Resilient, and Telemetry Provider**

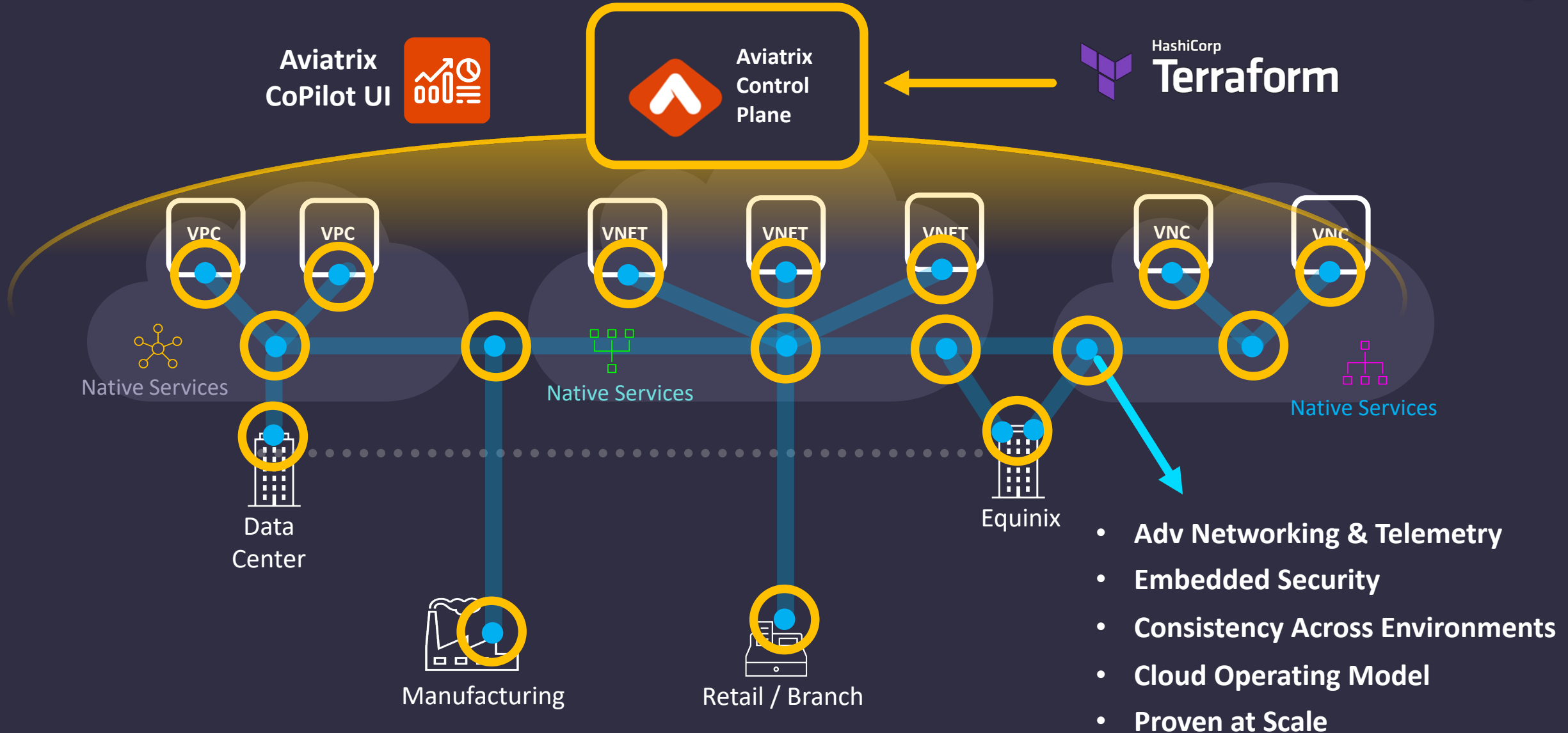
# Embedding Intelligence in the Aviatrix Data Plane (SMART GWs)

- **Intelligent Routing**
  - Dynamic Traffic Engineering
- **Distributed Cloud Firewalling**
  - L4/L7, Zero-Trust Policy Approach
- **Telemetry**
  - Network, Security, and Cost
- **Load Balancing**
  - Intelligent Load Balancing, Bi-Directional Hashing
- **Additional Security**
  - IDS/IPS, URL Filtering, Vulnerability Scanning, Threat Prevention, Anomaly Detection, Geo-Fencing, etc.
- **Additional Tools**
  - Auto-scaling, Packet Capture, Ping Trace-Route



**SMART: Secure, Multicloud-Aware, Application-Aware, Resilient, and Telemetry Provider**

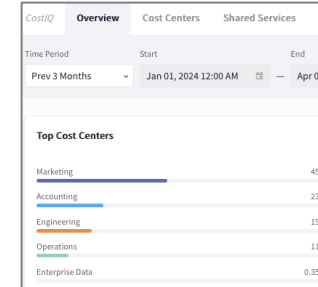
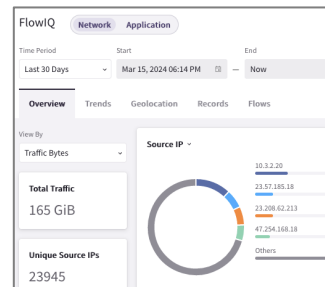
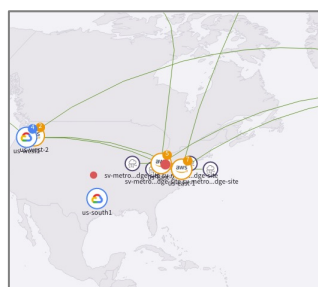
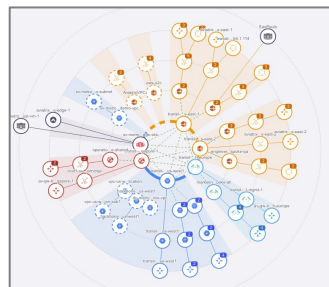
# Aviatrix Secure Cloud Networking is a Programmable Distributed System







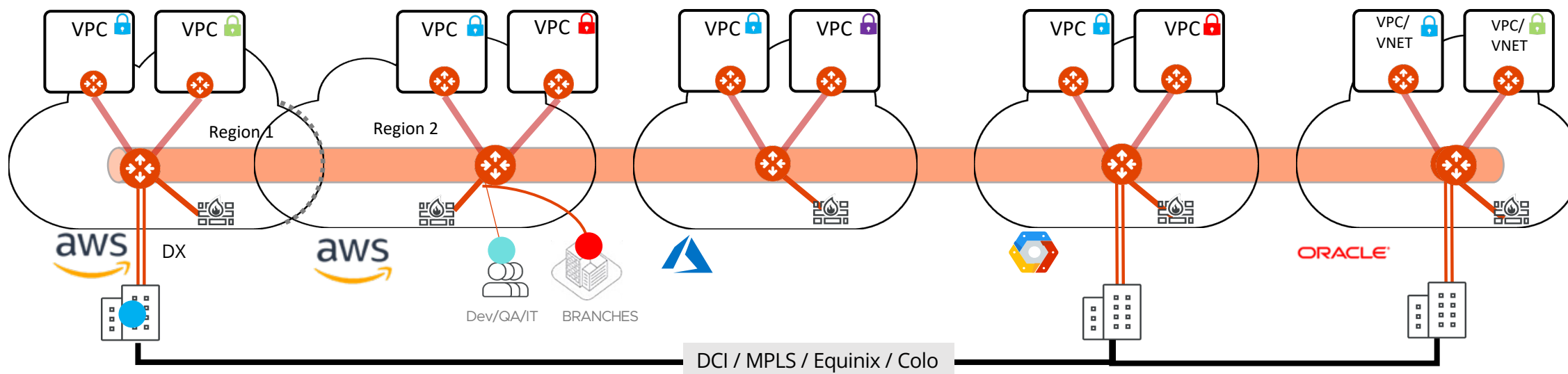
Aviatrix  
Controller



Aviatrix  
CoPilot



Global Architecture Providing Unified Security, Visibility and Control



## ENTERPRISE PAIN POINTS

### SECURE CLOUD NETWORKING

High-Performance Encryption  
Repeatable Design  
Enterprise Operational Visibility

### EMBEDDED SECURITY

Consistent and Granular Security  
NAT-GW Cost Savings  
Anomaly and Threat Prevention  
Secure Egress and Distributed Cloud Firewall (L4/L7)

### SECURE CLOUD DGE

Hybrid Connectivity to On-Prem  
Overlapping IP Support  
High-Performance IPSec Encryption to DC/COLO/Equinix





## Next: Introduction to Public Cloud Networking