MultiCloud Network Architecture
MCNA

ACE Technical Team

Multicloud Networking is a Must – Ask the Experts

- Gartner
  - *"By 2025, 35% of companies that use multiple public cloud providers will use a single network stack, an increase of over 10 times from May 2021."[1]*
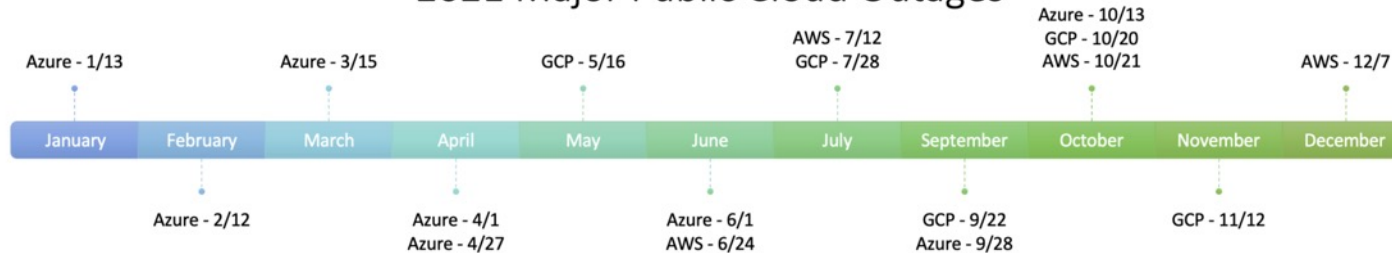
- Forrester
  - *"Multicloud Is Hard, But Single-Cloud Failures Make It Necessary For Enterprises."[2]*

- Aviatrix
  - *"You're only in a single cloud until you're multicloud."*

2021 Major Public Cloud Outages

Azure - 1/13		Azure - 3/15		GCP - 5/16		AWS - 7/12 GCP - 7/28		Azure - 10/13 GCP - 10/20 AWS - 10/21			AWS - 12/7
January	February	March	April	May	June	July	September	October	November	December
	Azure - 2/12		Azure - 4/1 Azure - 4/27		Azure - 6/1 AWS - 6/24		GCP - 9/22 Azure - 9/28		GCP - 11/12	

1. https://www.gartner.com/en/documents/4001639/market-guide-for-cloud-networking-software
2. https://www.forrester.com/blogs/multicloud-is-hard-but-single-cloud-failures-make-it-necessary-for-enterprises/

Gartner Reference Material

- **Market Guide for Multicloud Networking Software (MCNS)[1]**

  - *"As organizations add new applications and scale existing ones into the public cloud, the shortcomings of the native cloud providers' become more apparent."*

  - Key recommendations:

    - Don't "forklift" traditional networking strategies into the public cloud.

    - Improve networking inside the public cloud by deploying MCNS when advanced networking features and/or a consistent network operations model across multiple public cloud environments is required.

    - Be able to address changing needs by making short-term MCNS investments, such as choosing consumption-based pricing, or a one to three-year time horizon.

    - Select MCNS offerings with strong security features (e.g., segmentation, encryption and firewall) and/or provide turnkey integration with selected security vendors.

- **Cool Vendors in Cloud Computing[2]**

  - *Organizations looking for advanced networking functionality missing from native public cloud providers and/or those that desire a consistent networking console across multiple public cloud providers, **should shortlist Aviatrix***

1. https://www.gartner.com/doc/reprints?id=1-29S4R0C1&ct=220419&st=sb
2. https://www.gartner.com/en/documents/4007802

Gartner

Market Guide for Multicloud Networking Software

Published 12 April 2022 - ID G00753059 - 12 min read

By Andrew Lerner, Arun Chandrasekaran, Jonathan Forest

Public cloud providers' native networking capabilities are good enough for many use cases, but have notable gaps. Forklifting traditional virtual routers to fill these gaps is inefficient, so I&O leaders should adopt multicloud networking software to improve operations in public cloud environments.

Gartner **Information Technology**   Roles   Experts   Research & Tools   Insights   Events
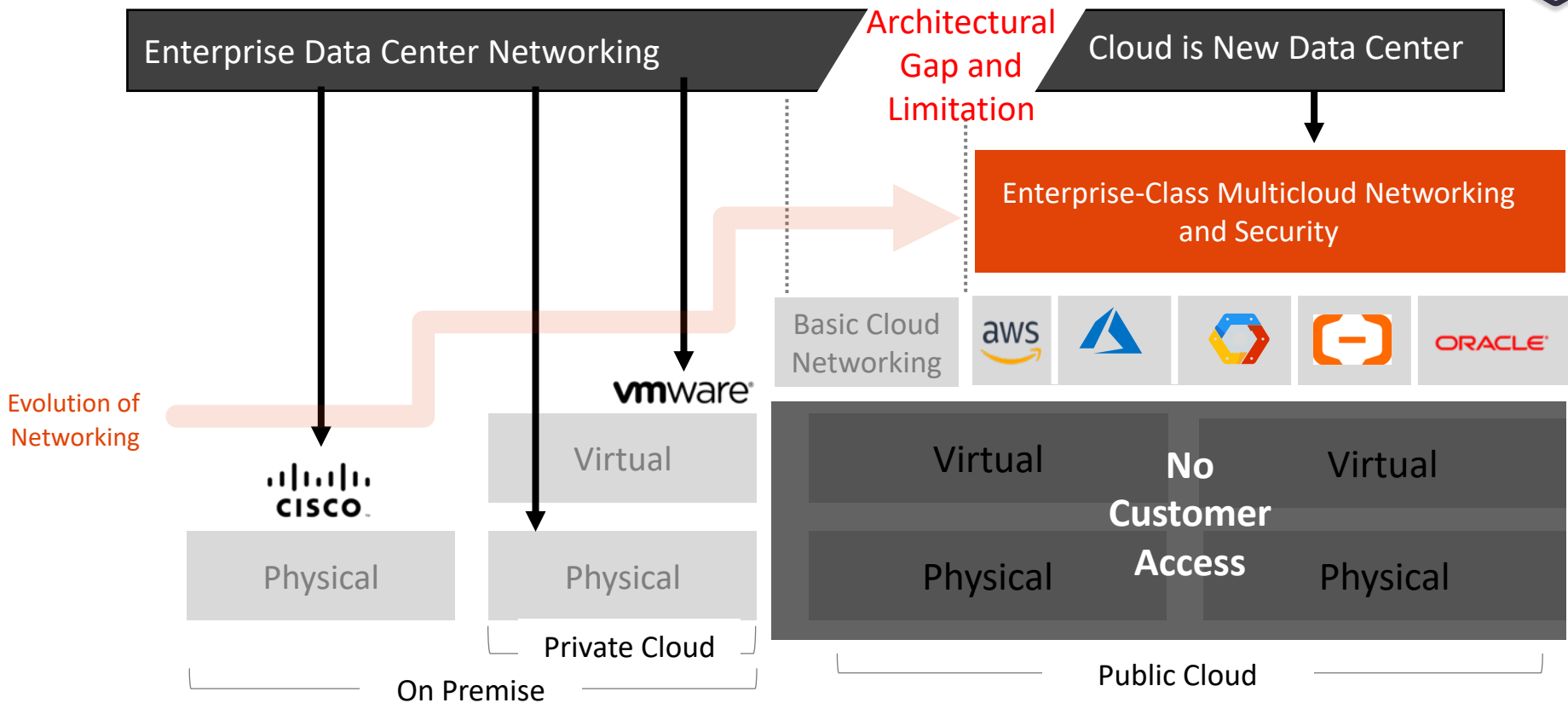
Gartner Research

Cool Vendors in Cloud Computing

Published: 01 November 2021

Summary

As organizations pursue a multicloud strategy, ensuring effective governance, integration and cost optimization are becoming critical challenges. CIOs should assess these Cool Vendors that have built innovative multicloud products as they formulate their cloud adoption strategy.

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Cloud Adoption Gap | Need for Standard Multicloud Network Architecture (MCNA)

Enterprise Data Center Networking

Architectural Gap and Limitation

Cloud is New Data Center

Enterprise-Class Multicloud Networking and Security

Basic Cloud Networking

aws | Azure | Google Cloud | OpenStack | ORACLE

Evolution of Networking

CISCO

vmware

Virtual

Physical

Physical

Virtual

No Customer Access

Virtual

Physical

Physical

Private Cloud

On Premise

Public Cloud

aviatrix

Cloud Network Reference Architecture

- **Single Cloud, Multi-Region, Multi-Account**

- **Repeatable Network Design and Infrastructure as Code Automation**

- **Service Insertion and Chaining**

- **Consistent Security Policy**

- **Common Operational Visibility and Control**
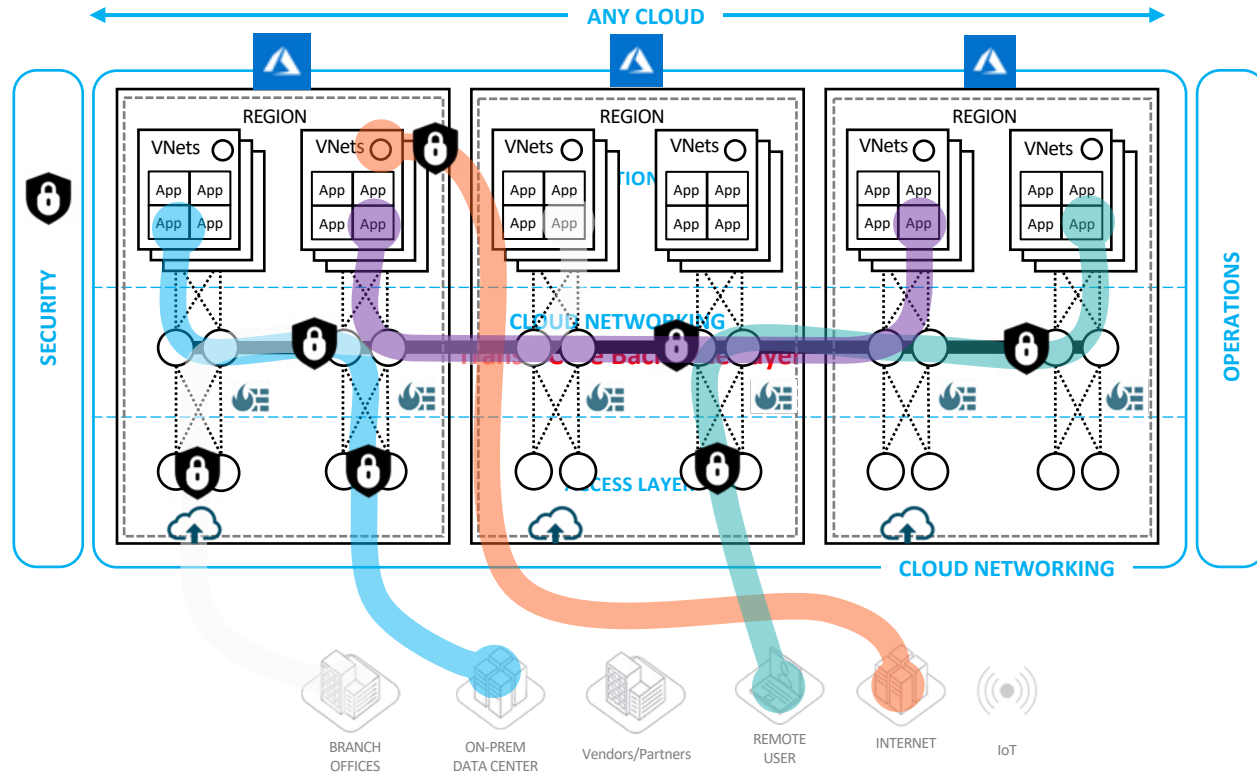
Multicloud Network Architecture (MCNA)

The Blueprint of Your <u>Multicloud</u> Network Design
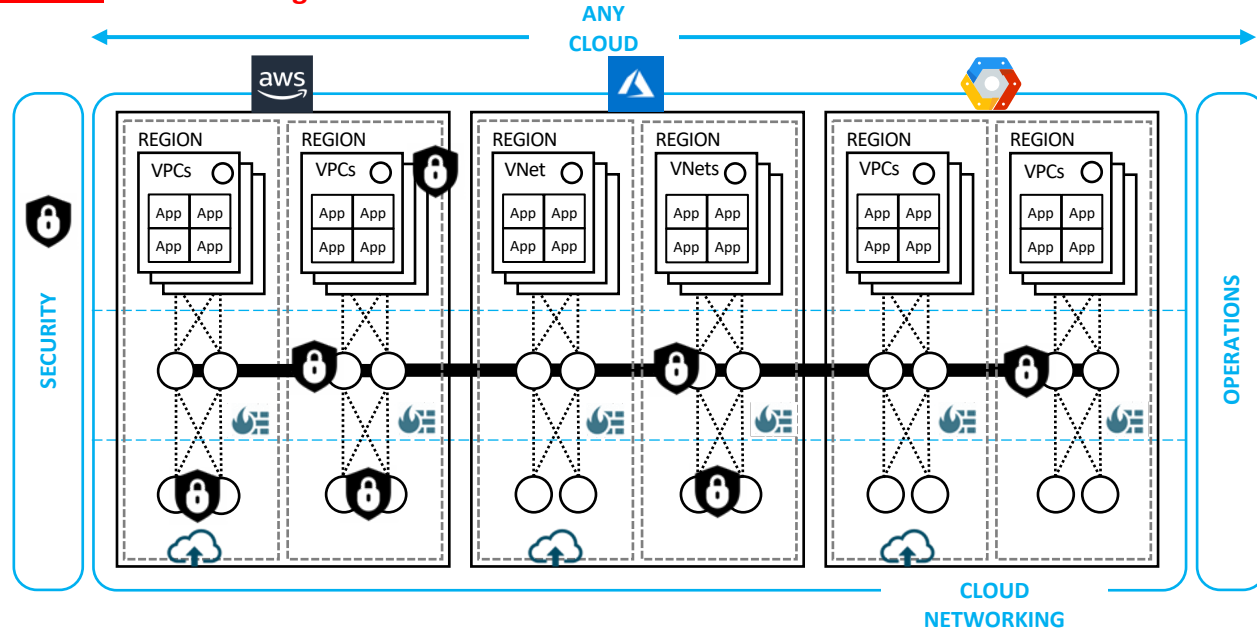
- **Multicloud, Multi-Region, Multi-Account**

- **Repeatable Network Design and Infrastructure as Code Automation**

- **Service Insertion and Chaining**

- **Consistent Security Policy**

- **Common Operational Visibility and Control**
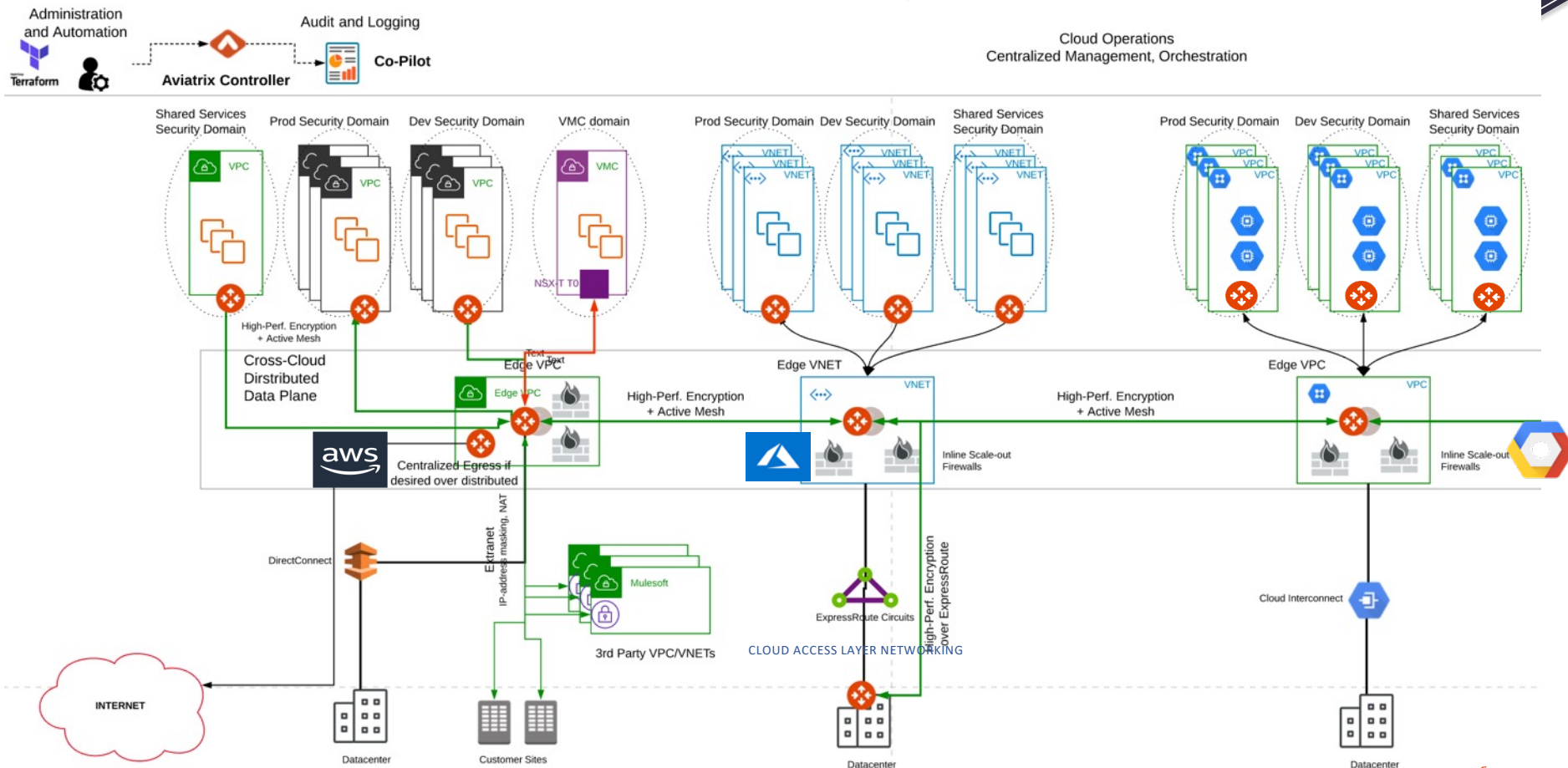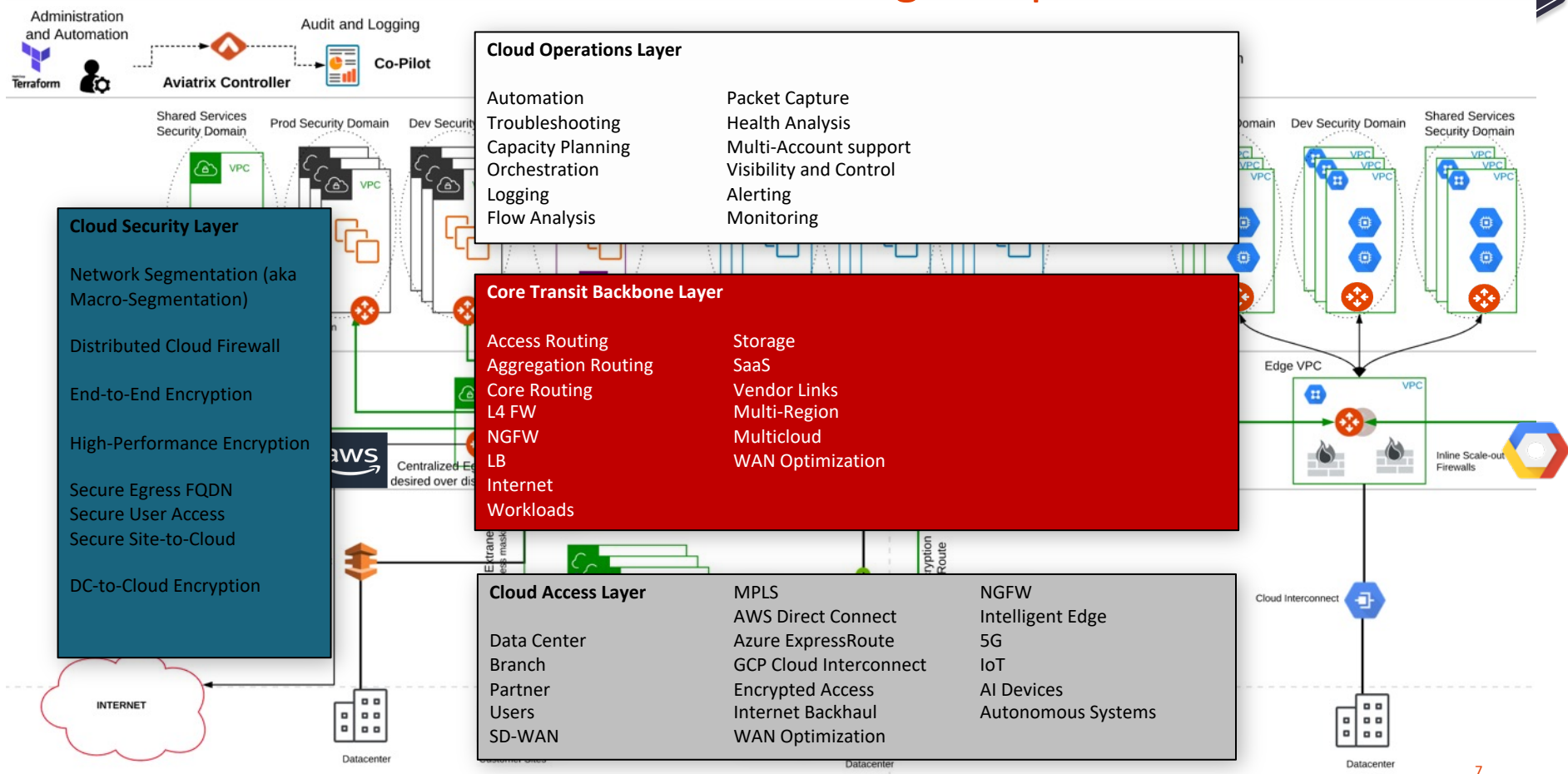
Result: Aviatrix Solution that Meets Design Requirements

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Administration and Automation

Audit and Logging

Terraform

Aviatrix Controller

Co-Pilot

Cloud Operations Layer

Automation	Packet Capture
Troubleshooting	Health Analysis
Capacity Planning	Multi-Account support
Orchestration	Visibility and Control
Logging	Alerting
Flow Analysis	Monitoring

Cloud Security Layer

Network Segmentation (aka Macro-Segmentation)

Distributed Cloud Firewall

End-to-End Encryption

High-Performance Encryption

Secure Egress FQDN
Secure User Access
Secure Site-to-Cloud

DC-to-Cloud Encryption

Core Transit Backbone Layer

Access Routing	Storage
Aggregation Routing	SaaS
Core Routing	Vendor Links
L4 FW	Multi-Region
NGFW	Multicloud
LB	WAN Optimization
Internet	
Workloads	

Cloud Access Layer

	MPLS	NGFW
	AWS Direct Connect	Intelligent Edge
Data Center	Azure ExpressRoute	5G
Branch	GCP Cloud Interconnect	IoT
Partner	Encrypted Access	AI Devices
Users	Internet Backhaul	Autonomous Systems
SD-WAN	WAN Optimization	

INTERNET

Shared Services Security Domain

Prod Security Domain

Dev Security Domain

Dev Security Domain

Shared Services Security Domain

Edge VPC

Inline Scale-out Firewalls

Cloud Interconnect

Datacenter

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