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SD-WAN—How to Design Multicloud Networking

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Prashant_tri
BRKENS-2561

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How

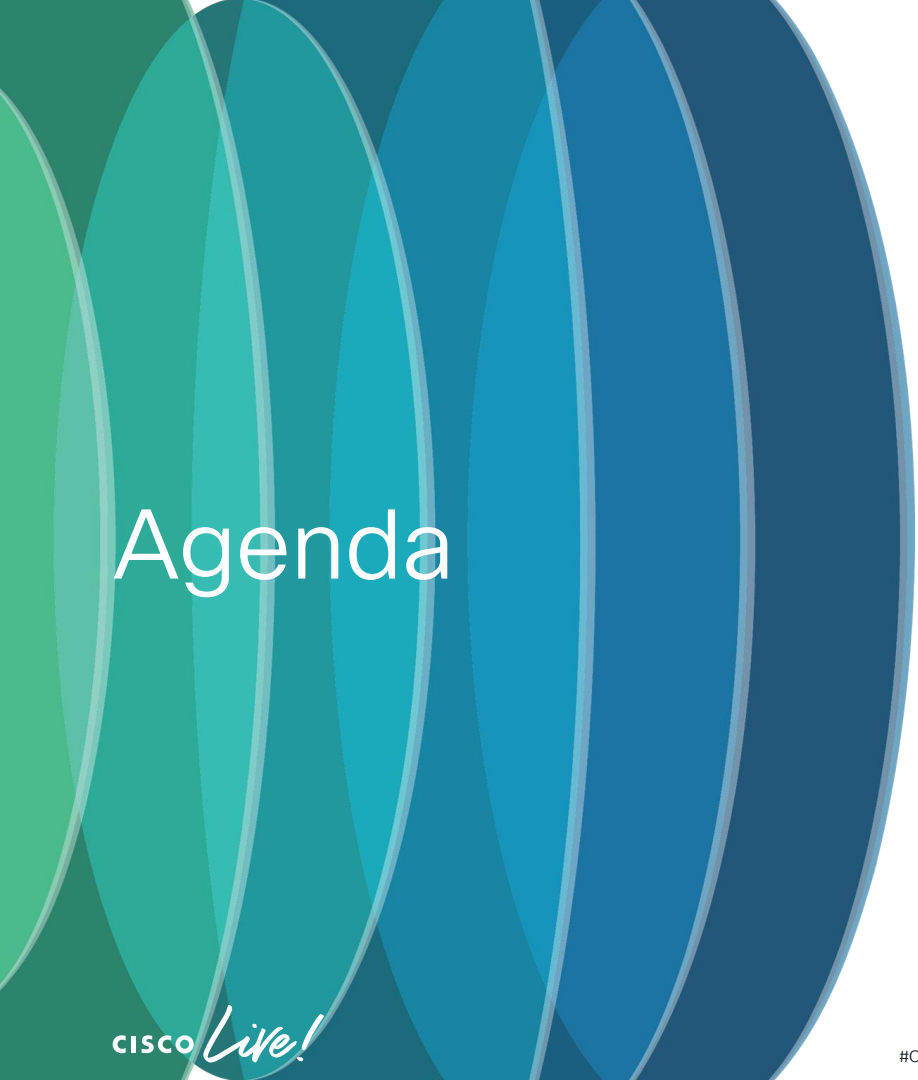
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Agenda

- Introduction to Cloud Networking
- Infrastructure Transition
- Cloud Connectivity Options
- Cisco Recommended and Automated Cloud Networking Design
- Security and Compliance in Cloud Networking

Introduction to Cloud Networking

Cloud Models

Public Cloud

Private Cloud

Hybrid Cloud

Multi-Cloud

Cloud Connectivity

Direct Connect

Virtual Private
Networks

Interconnect
Services

SD-WAN Fabric

Cloud-native Networking Services

Virtual Private Clouds

Transit Gateway

AWS Cloud WAN

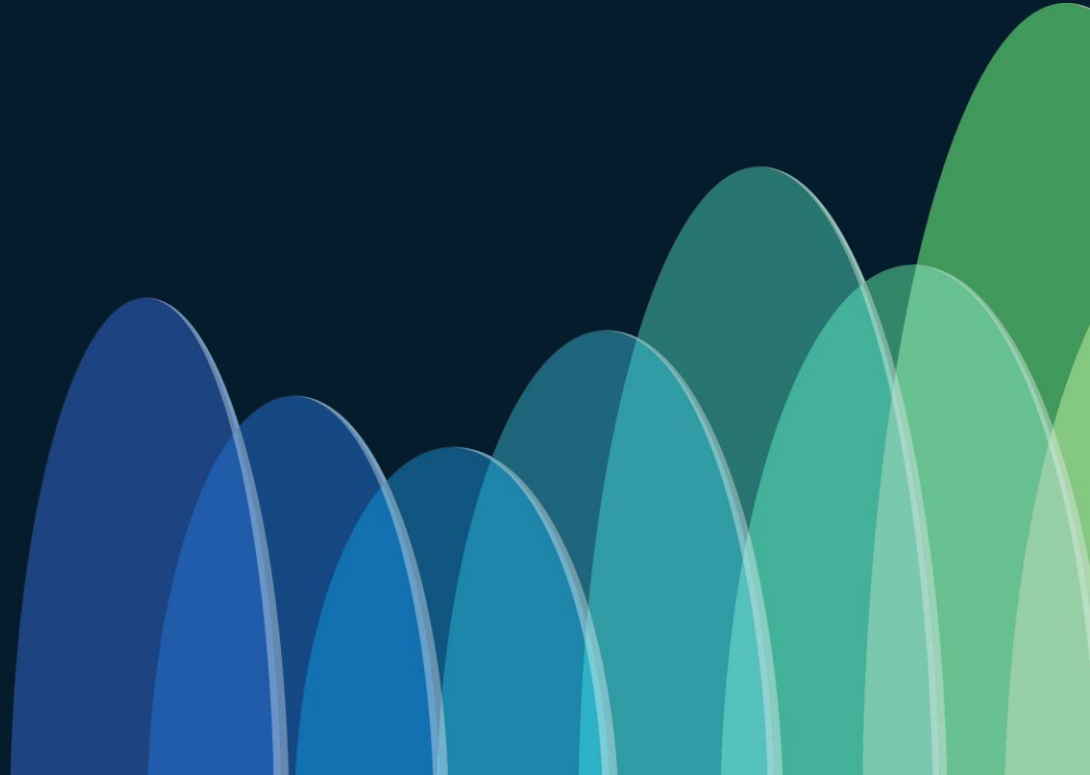
Virtual Private Network

Virtual WAN/Hub

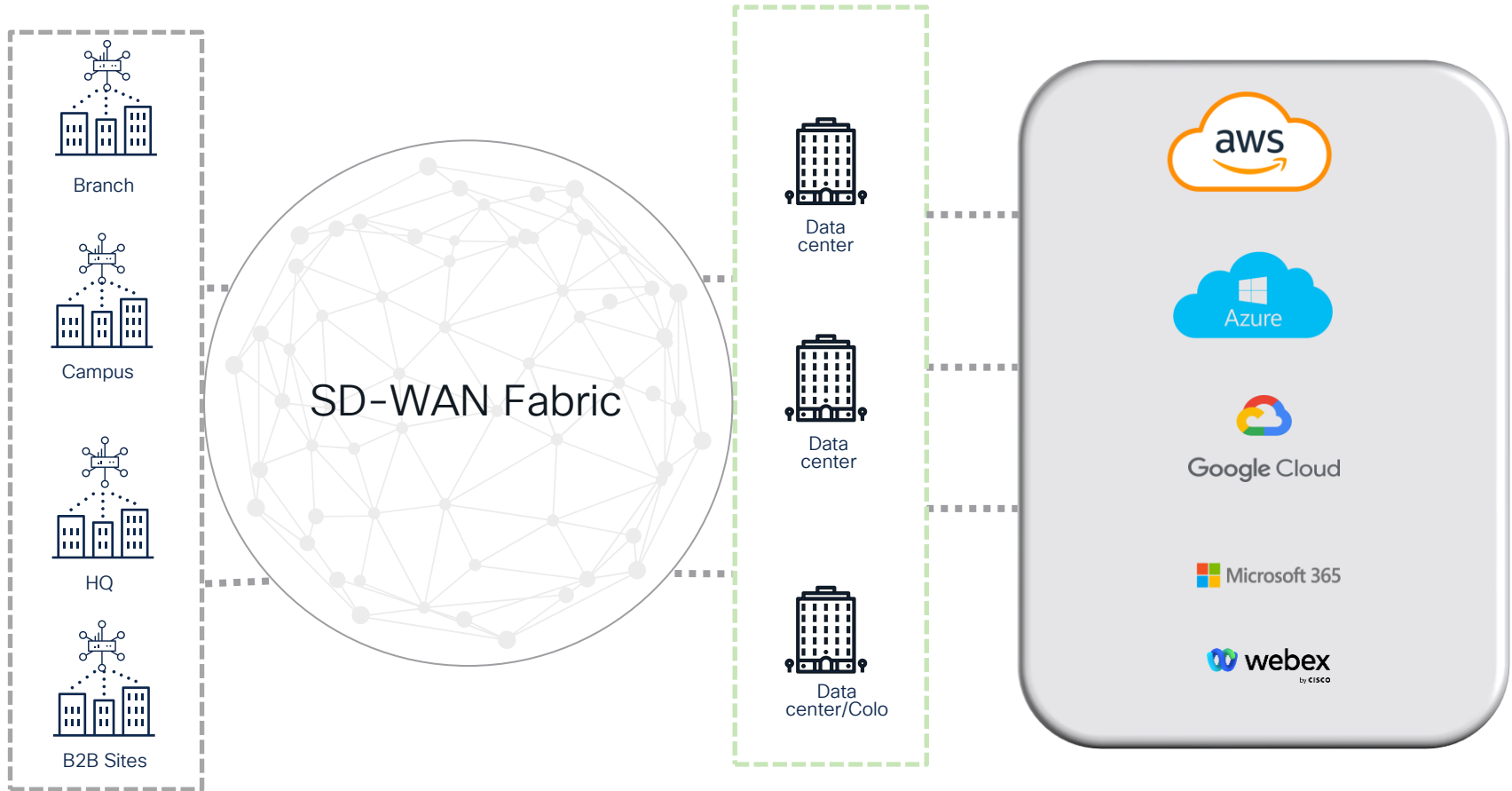
Google Cloud Router

Network connectivity Centre

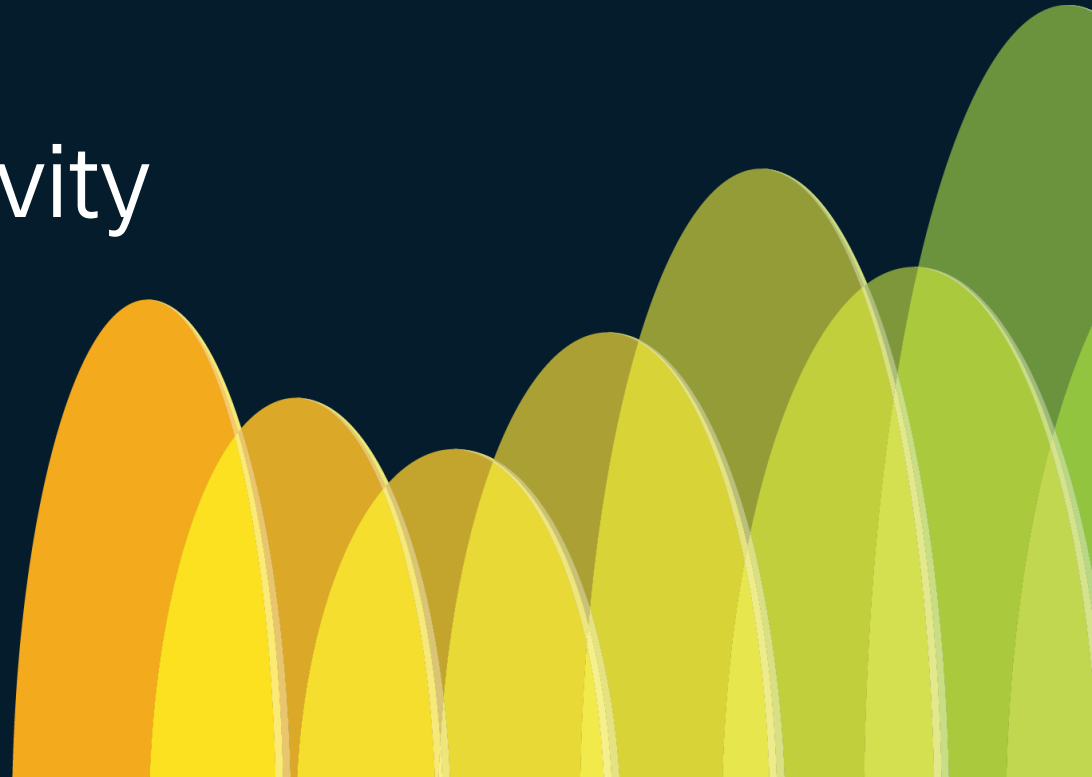
Infrastructure Transition



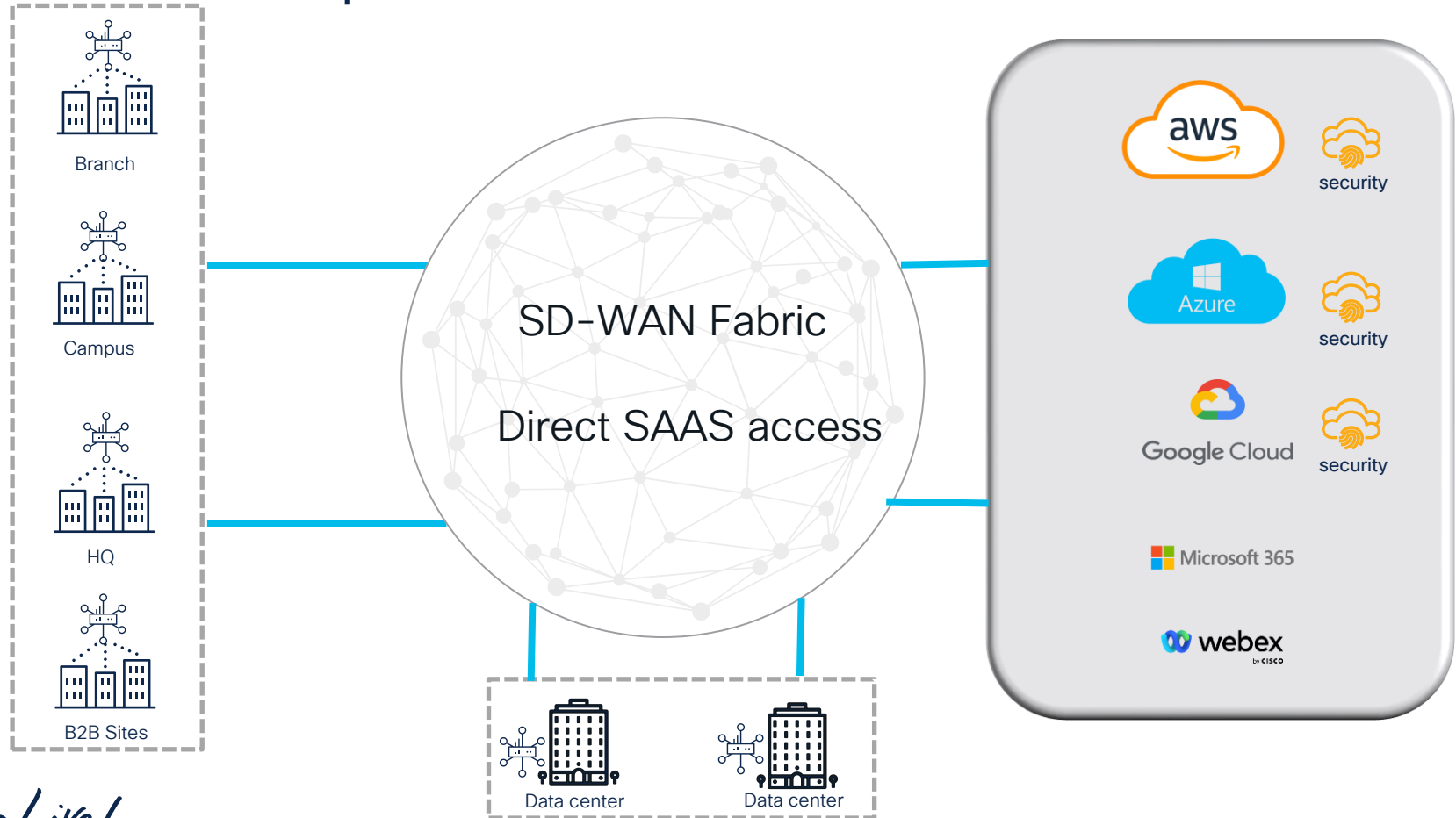
Infrastructure transition



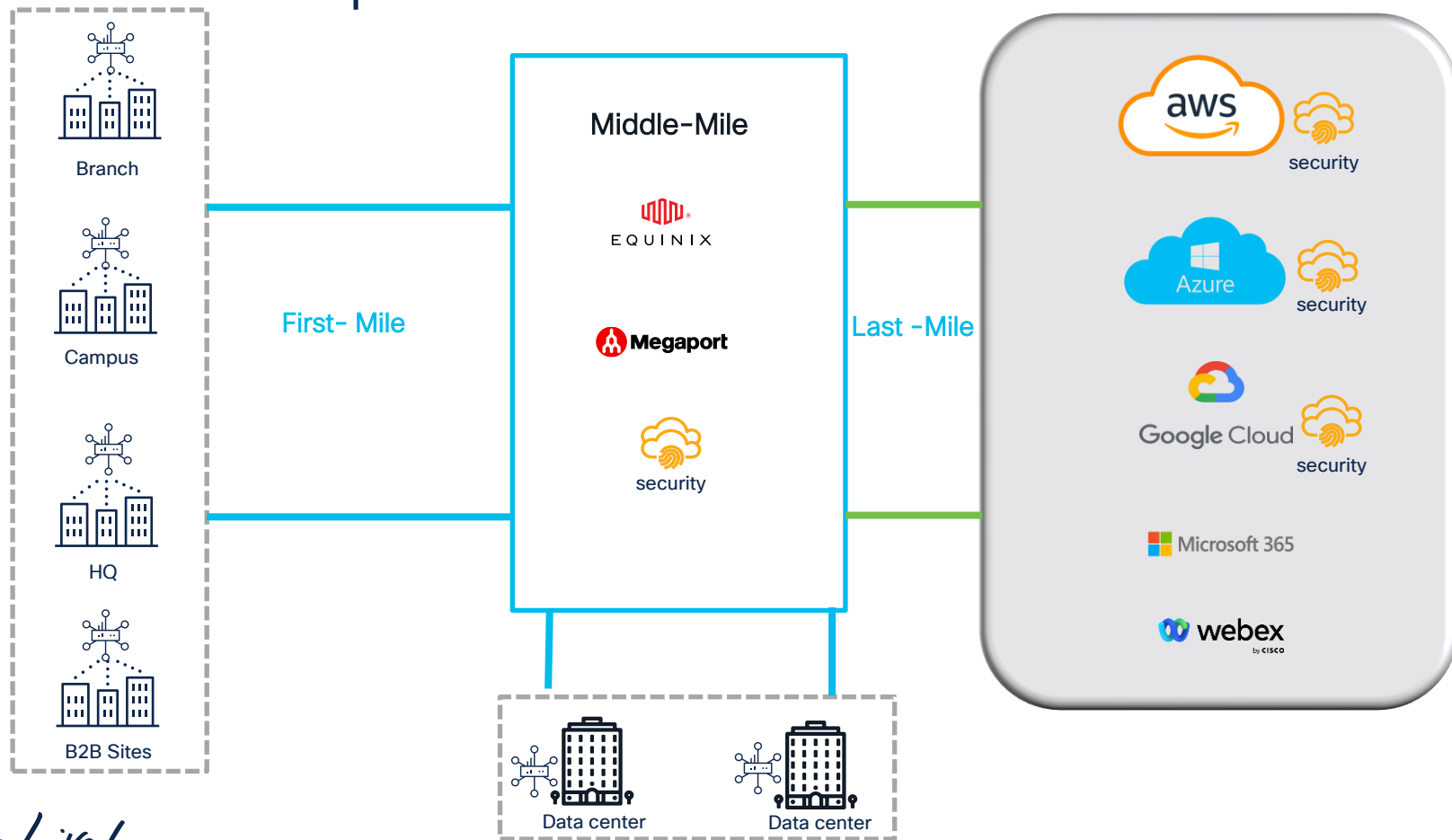
Cloud Connectivity Options



Architecture Option – 1 – Direct access to the Cloud



Architecture Option 2- via Cloud interconnect



Cisco Recommended and Automated Cloud Networking Design

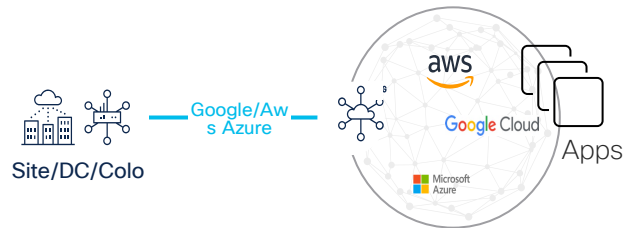


Cloud Networking & Security Use cases

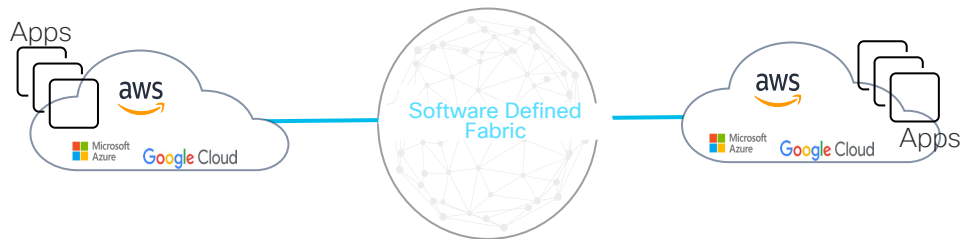
Cisco SD-WAN & Multicloud Defense

-  = Cisco SD-WAN virtual router hosted at Cloud Service Provider POP
-  = Cisco SD-WAN router on-premises
-  = Multicloud Defense

Site to Multicloud



Site to Site



Region to Region & Cloud to Cloud

Inspection In & Between the Cloud

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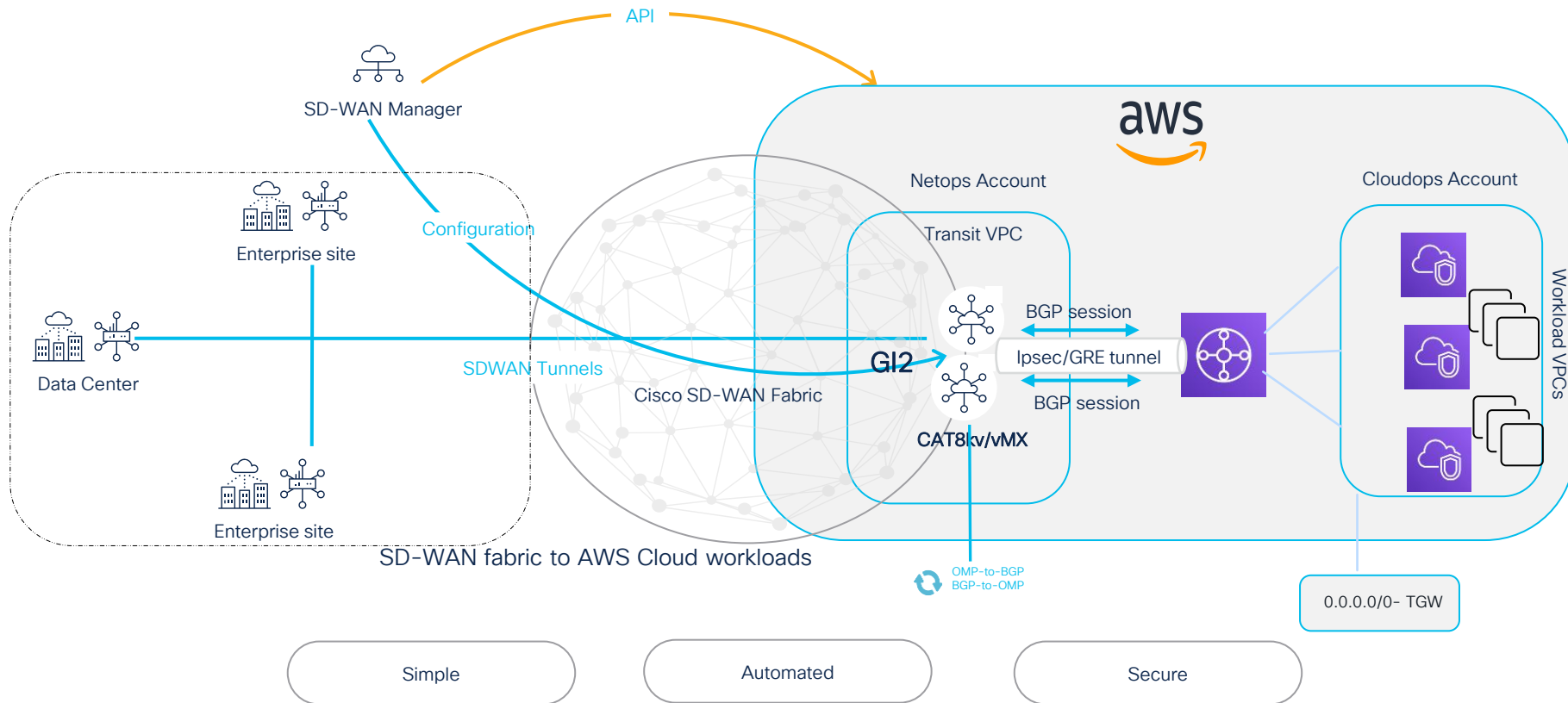


Lets get into details

SDWAN Integration + Design with AWS

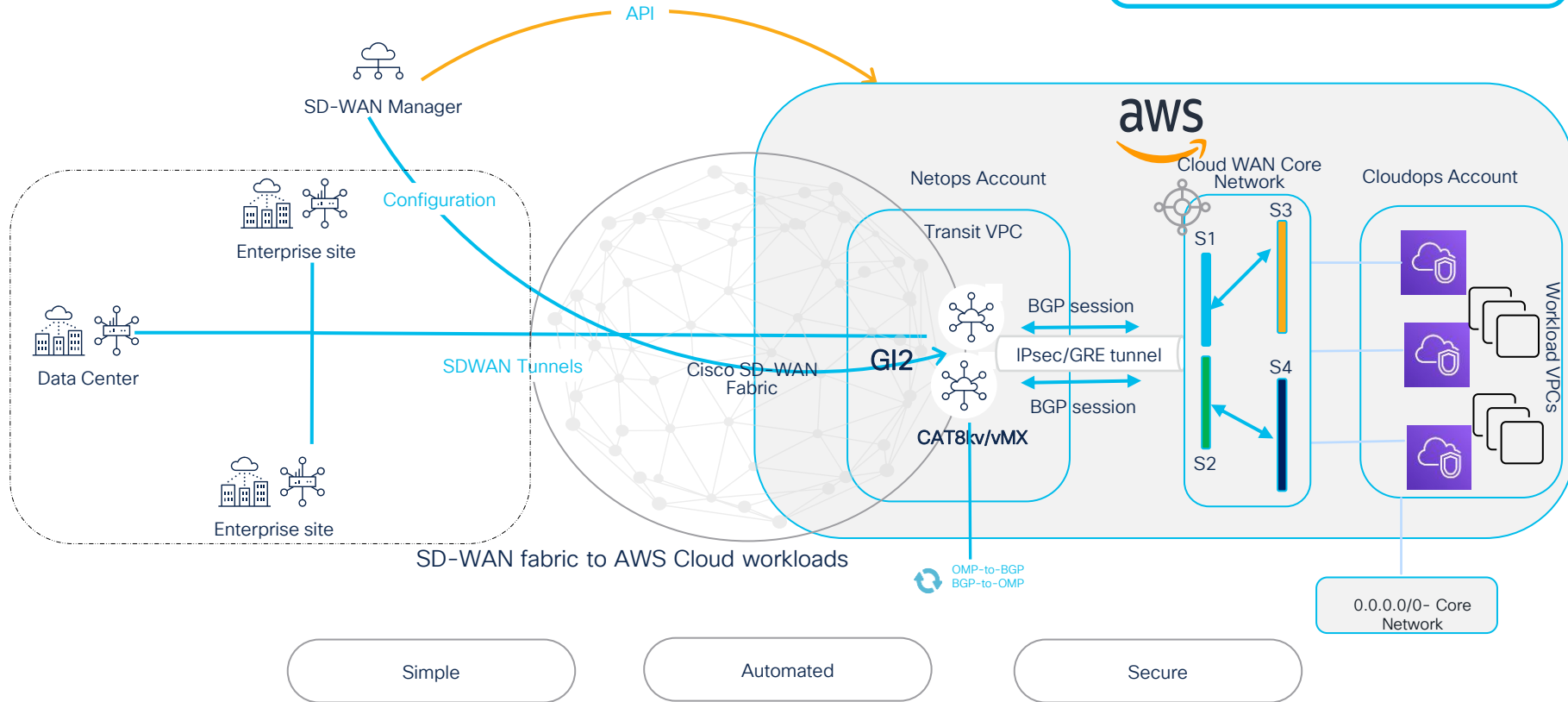
Site-to-Cloud with TGW

SD-WAN Native Integration using **IKE Ipsec/ GRE** between Transit VPC cat8kv/vMX and Transit Gateway

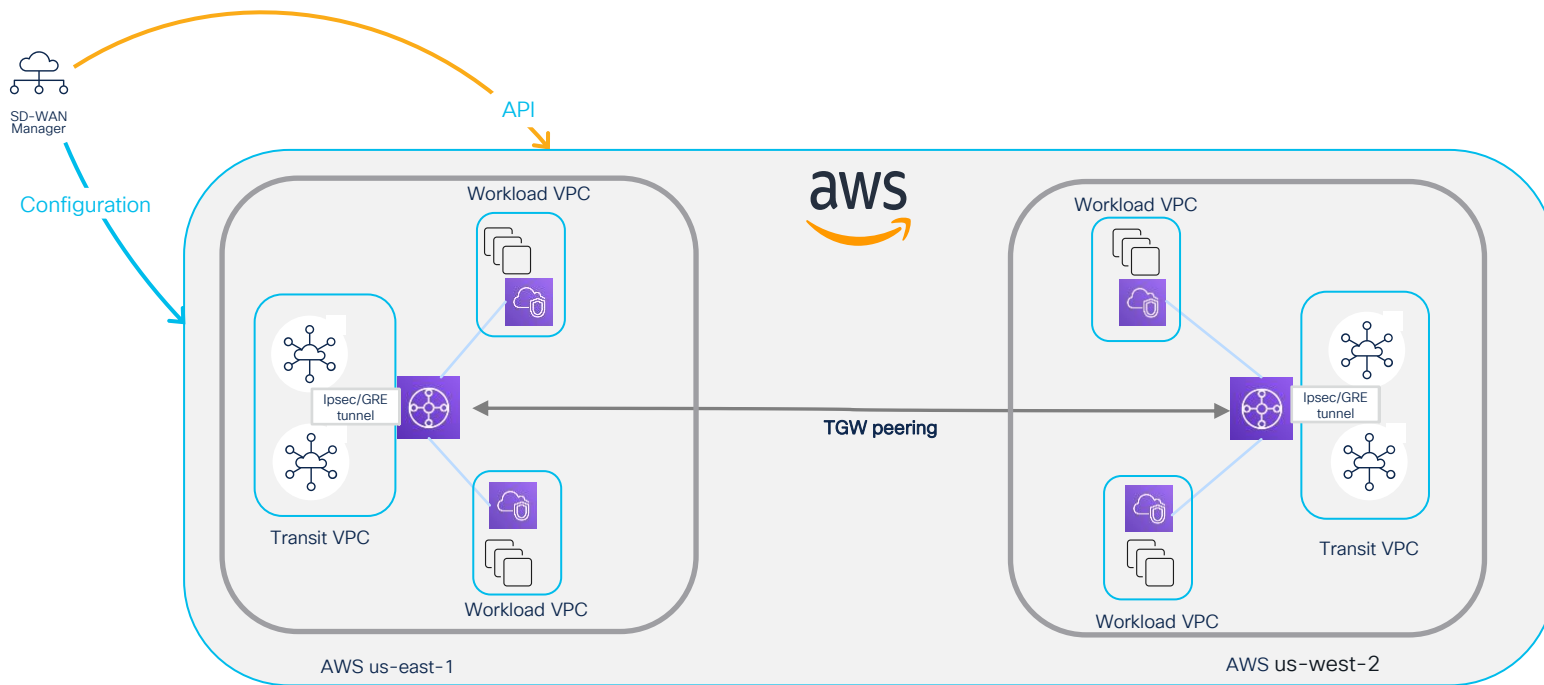


Site-to-Cloud with Cloud WAN

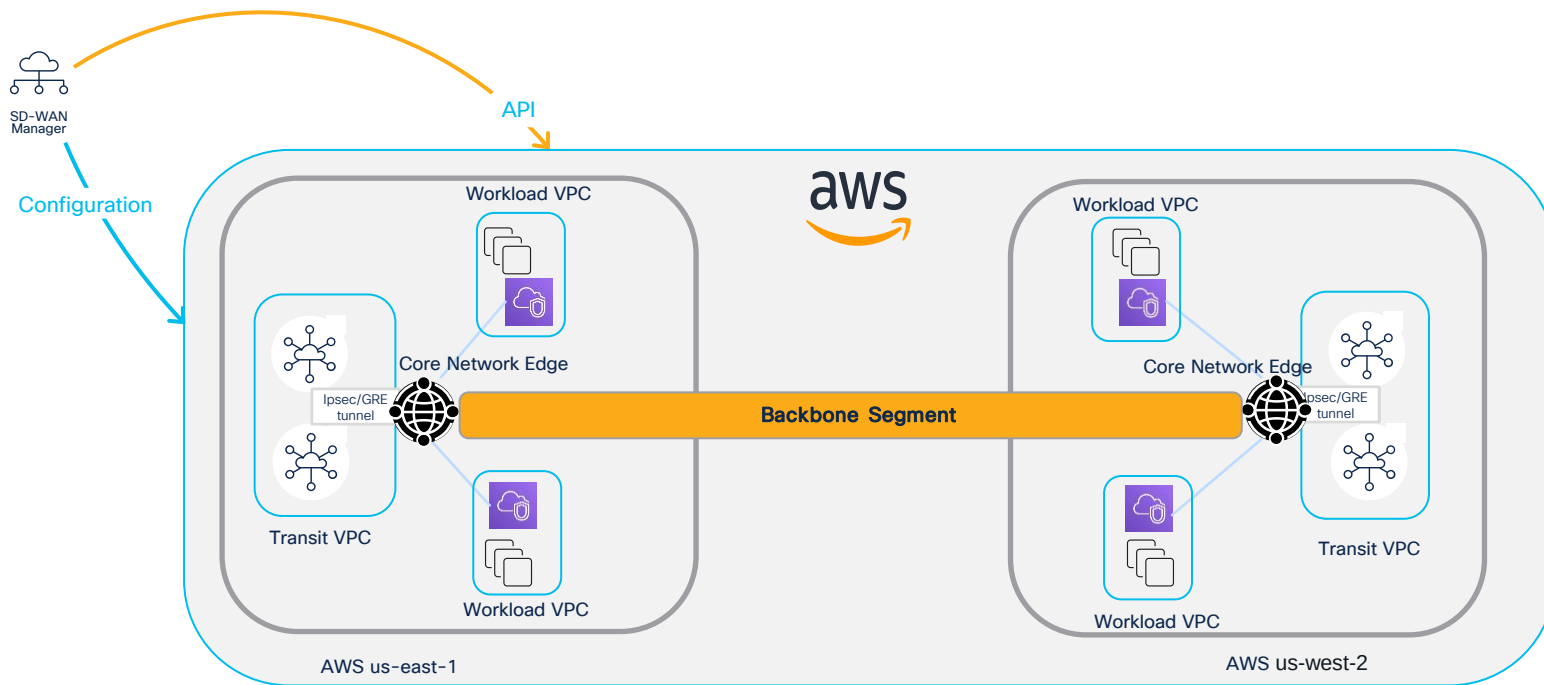
SD-WAN Native Integration using **IKE Ipsec or CONNECT (GRE)** between Transit VPC C8Kvs/vMx and Cloud WAN.



Region to Region with TGW

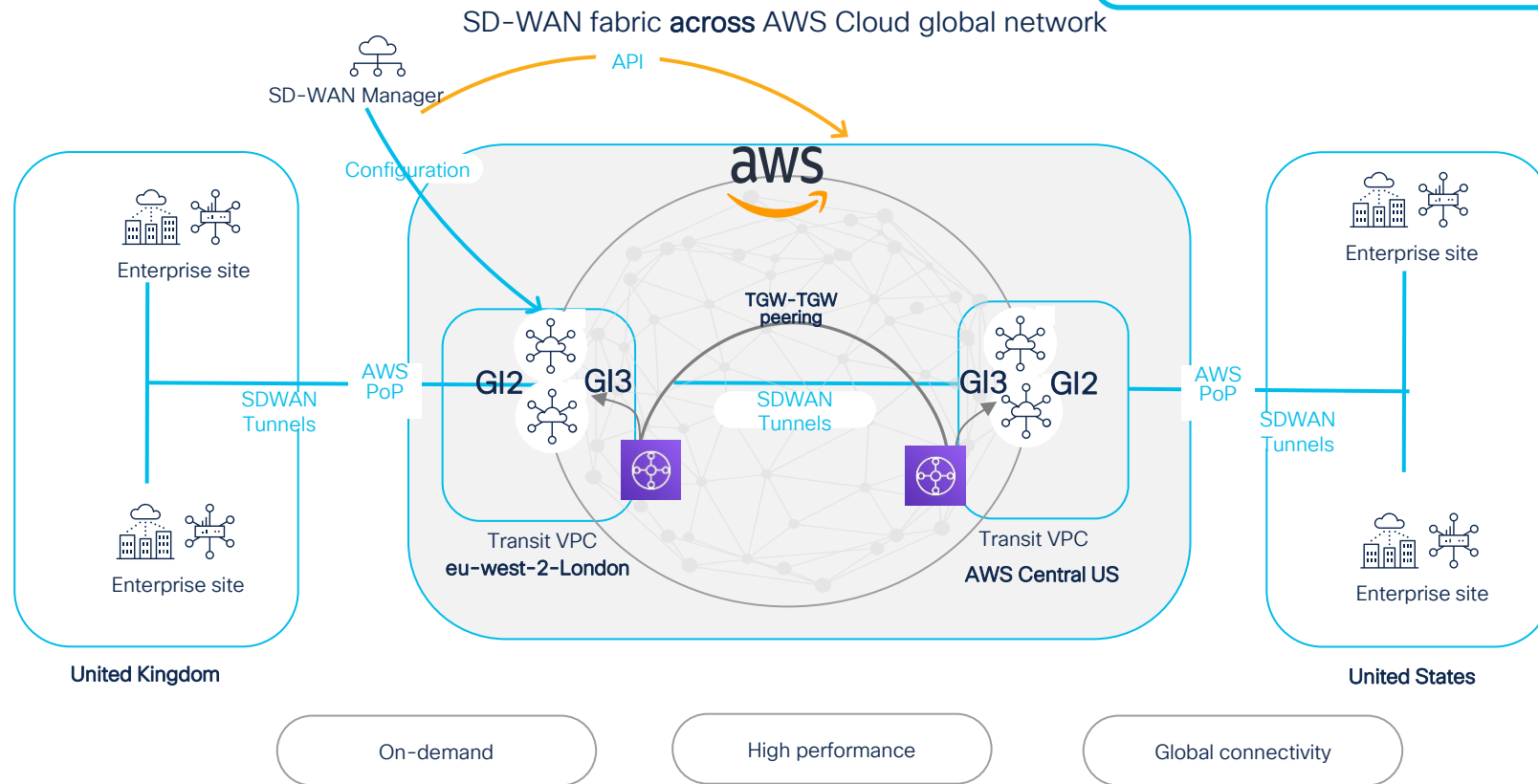


Region to Region with Cloud WAN



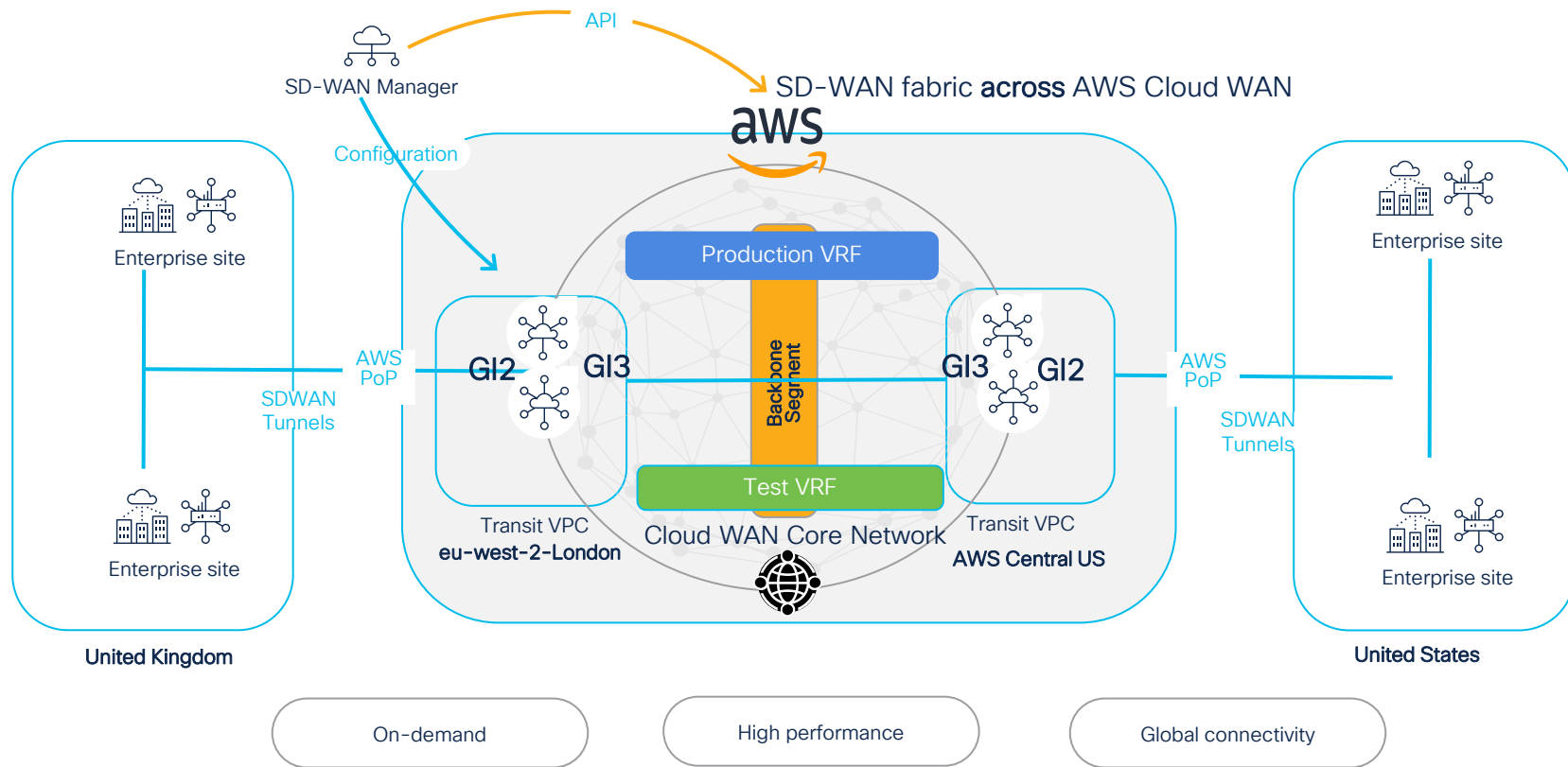
Site-to-Site with TGW

TGW-TGW peering to build Backbone. Control policy or Multi region Fabric required for traffic redirection

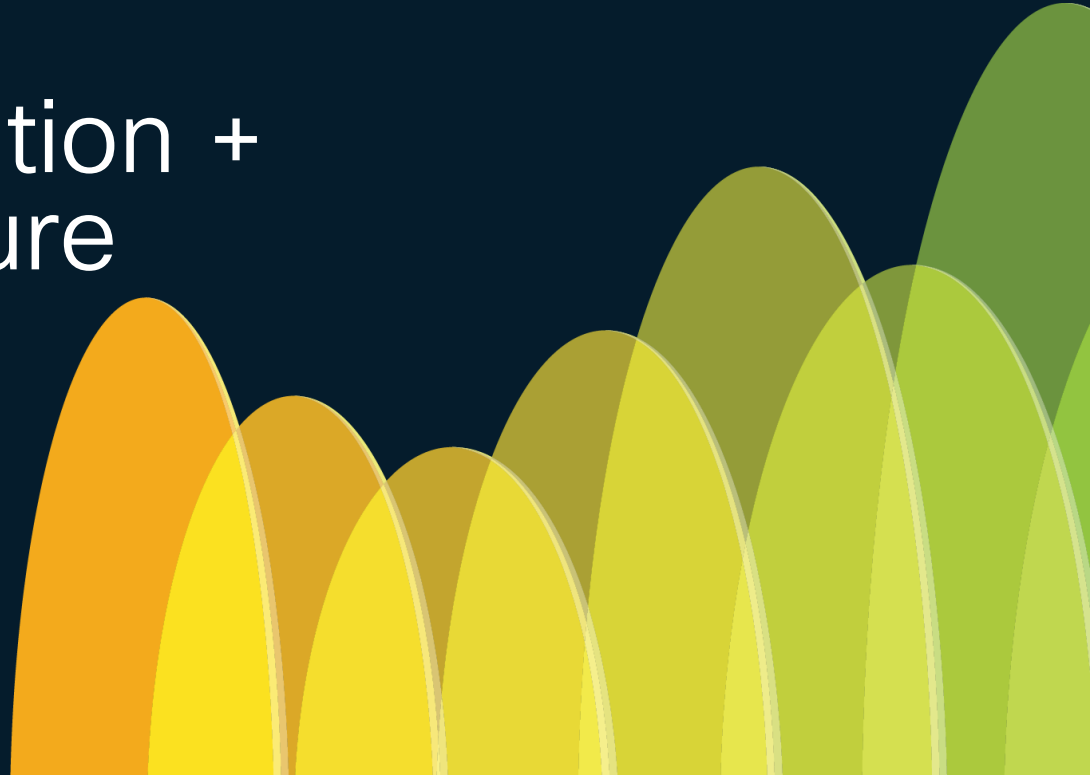


Site-to-Site with Cloud WAN

High performance dynamic architecture
that is uniquely co-innovated by Cisco
and AWS

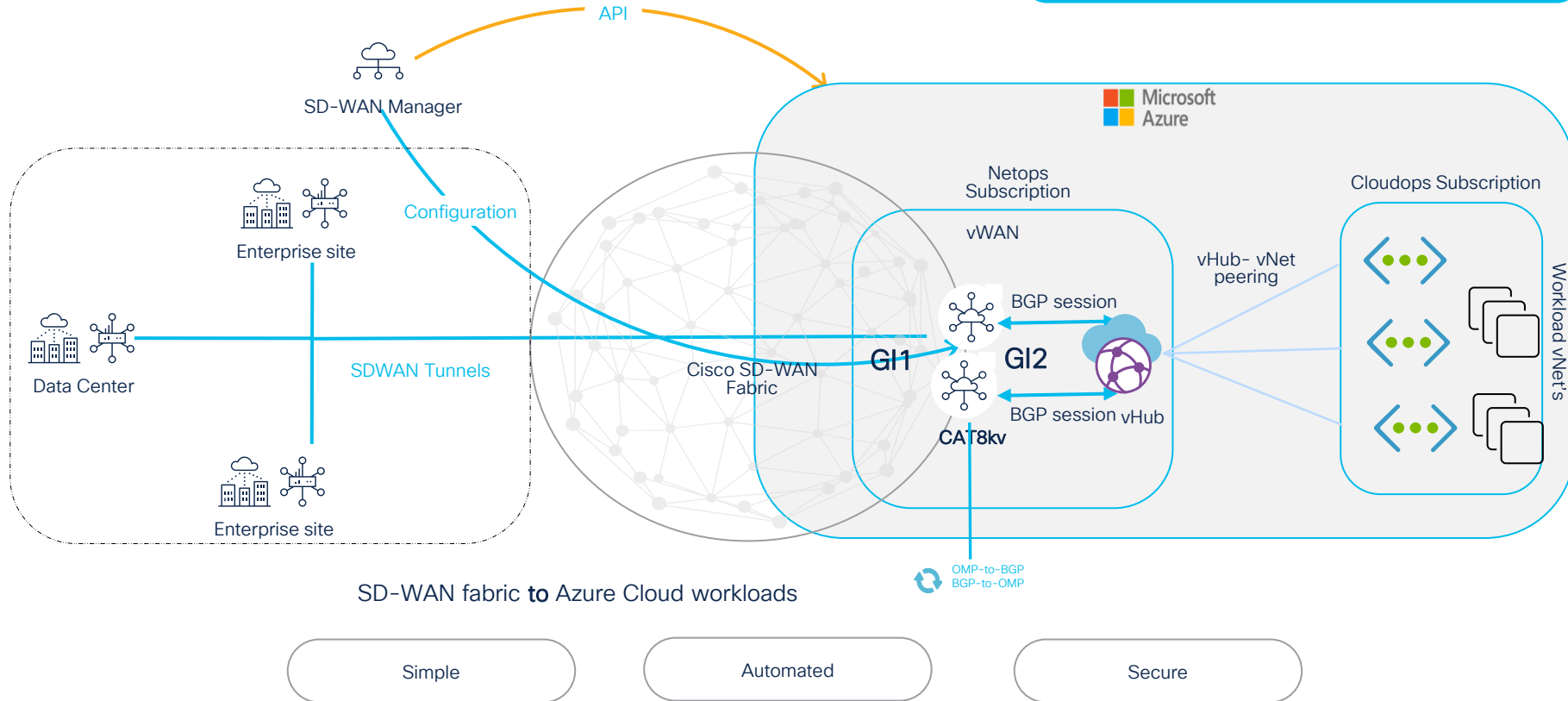


SDWAN Integration + Design with Azure



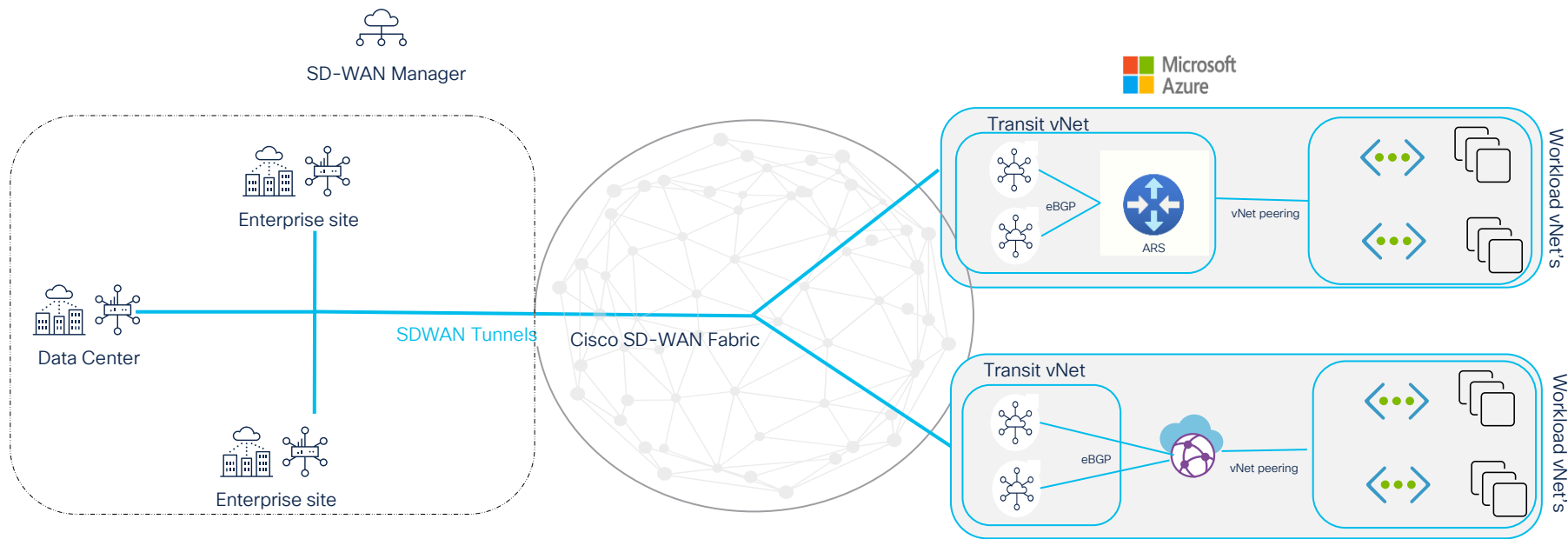
Azure - Site-to-Cloud

CAT8k Network virtual appliances are hosted in vHub, running BGP to vHub control plane to learn vNet mappings



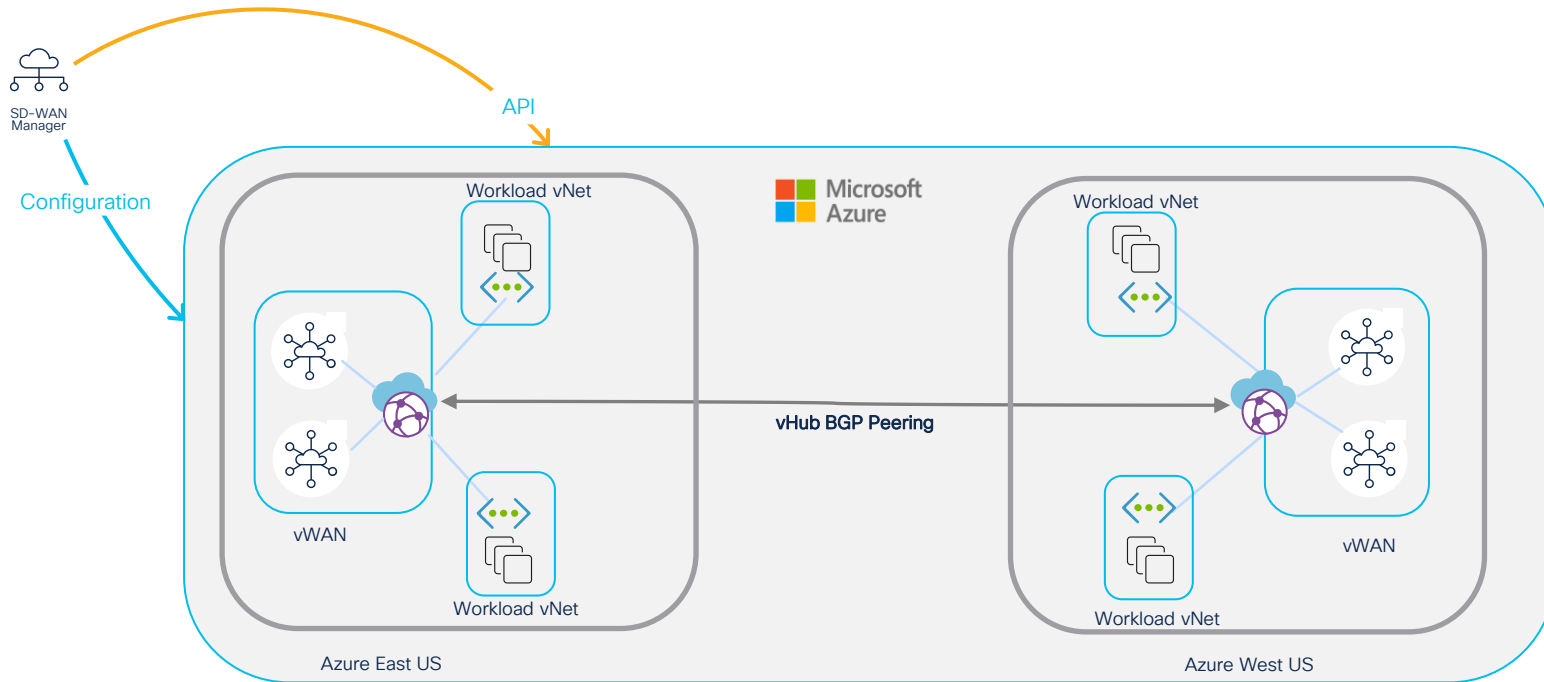
Azure - Site-to-Cloud(Meraki)

vMX Network virtual appliances are hosted in transit vNet



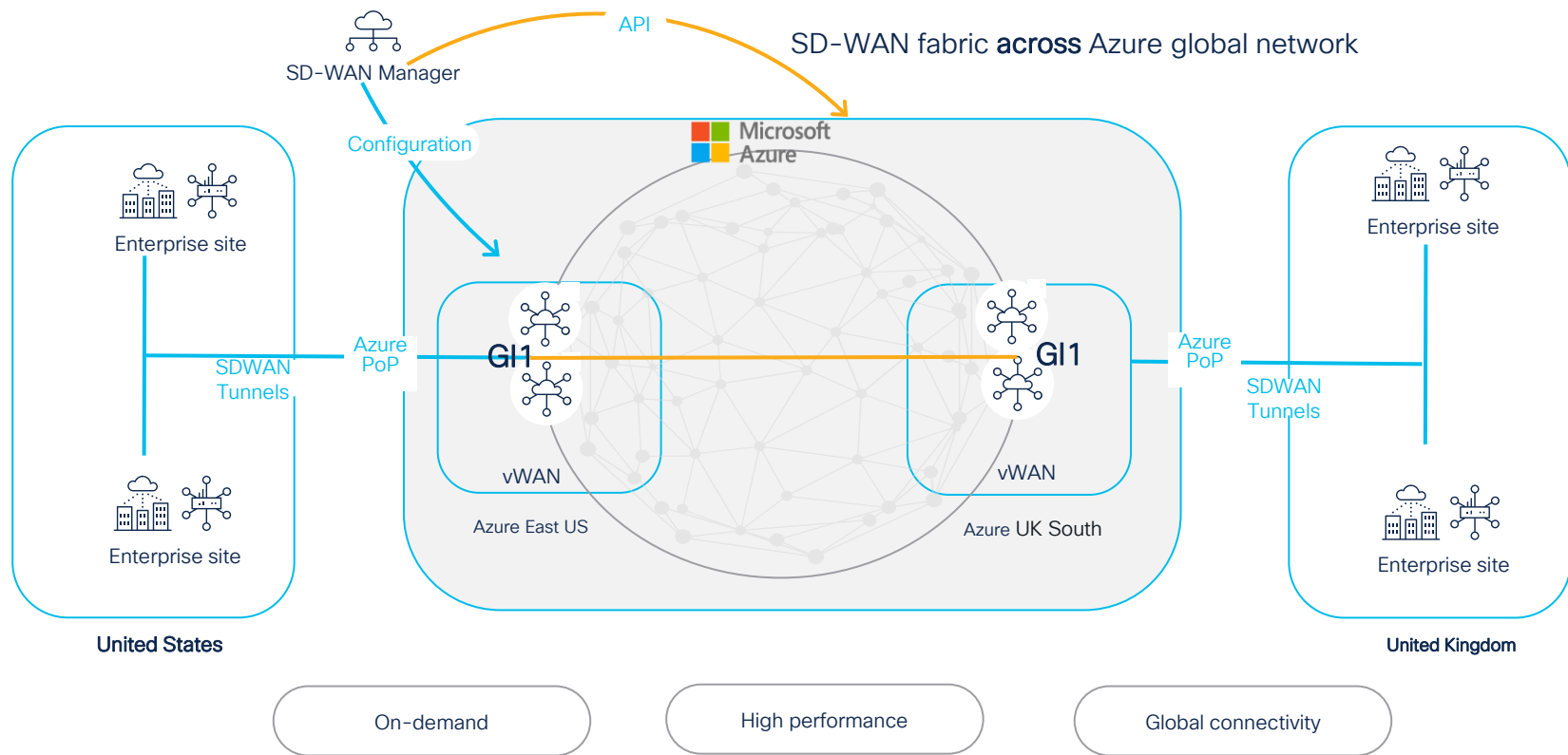
SD-WAN fabric to Azure Cloud workloads

Azure – Region to Region

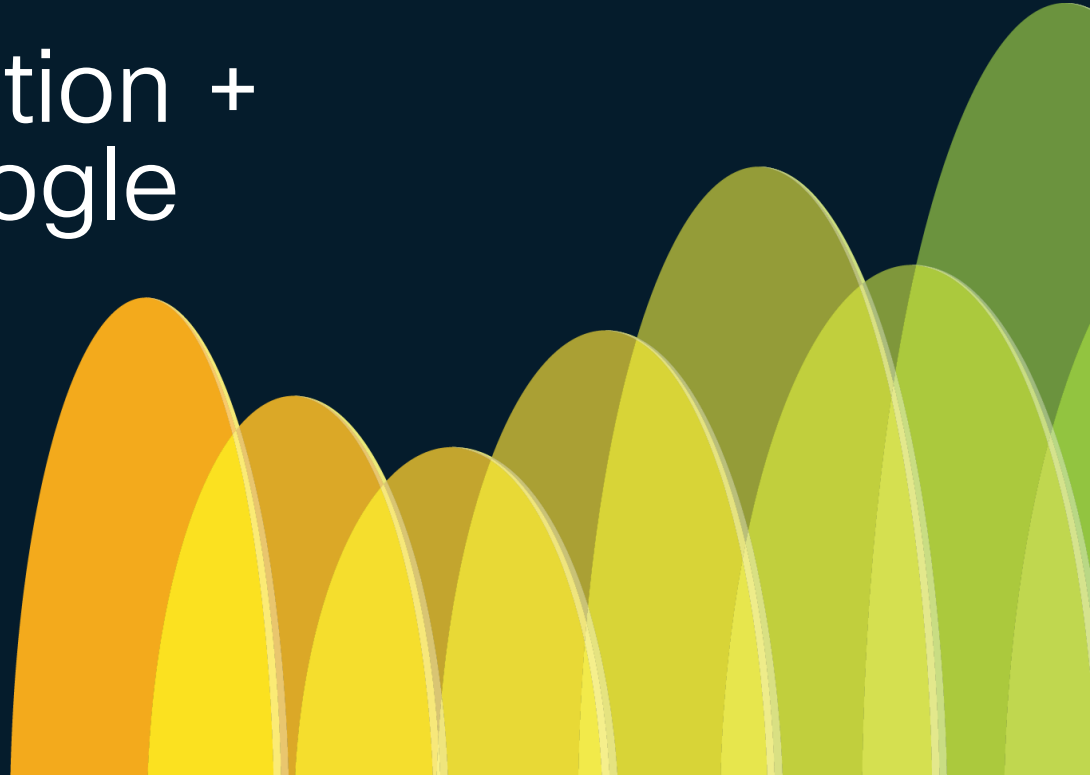


Azure - Site-to-Site

SDWAN tunnels with Azure Public IPs on NVAs go through Azure Backbone. Control policy or Multi region Fabric required for traffic redirection

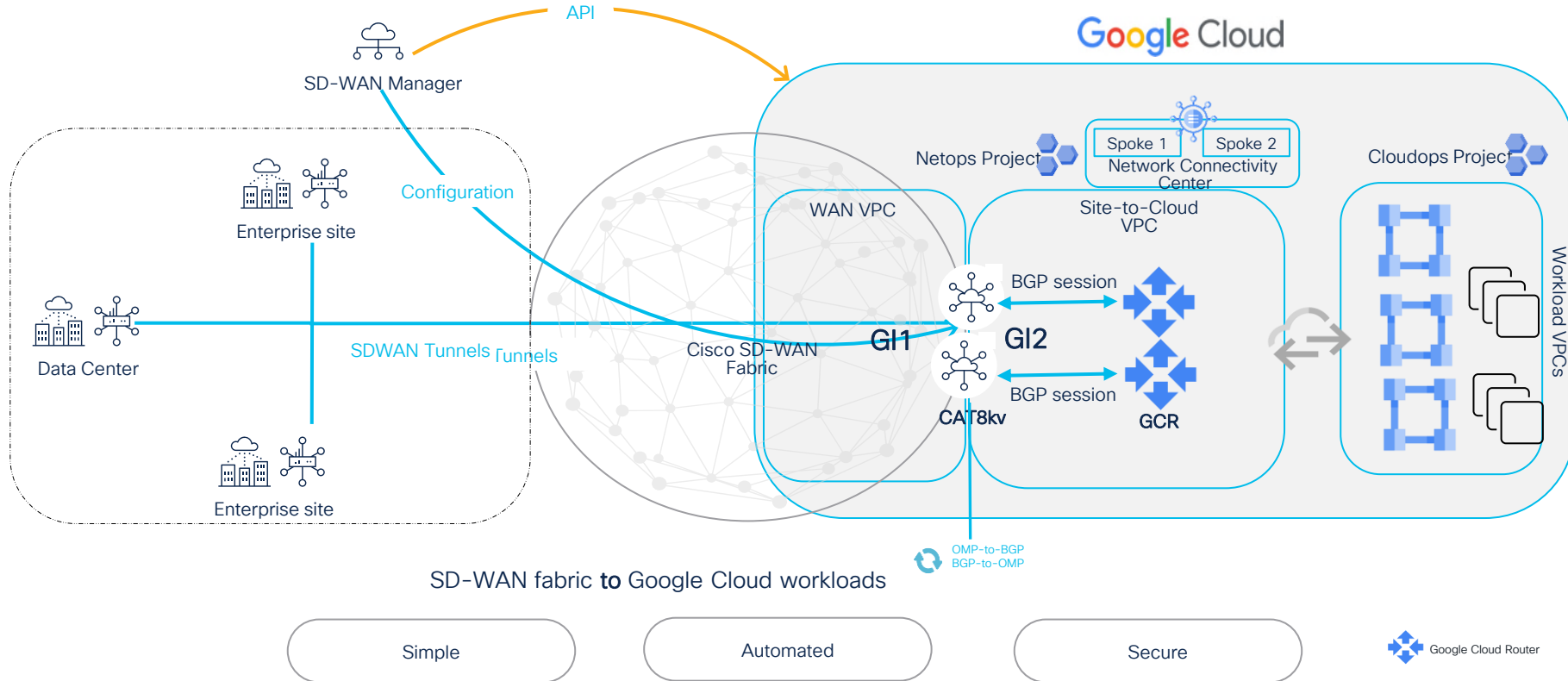


SDWAN Integration + Design with Google cloud

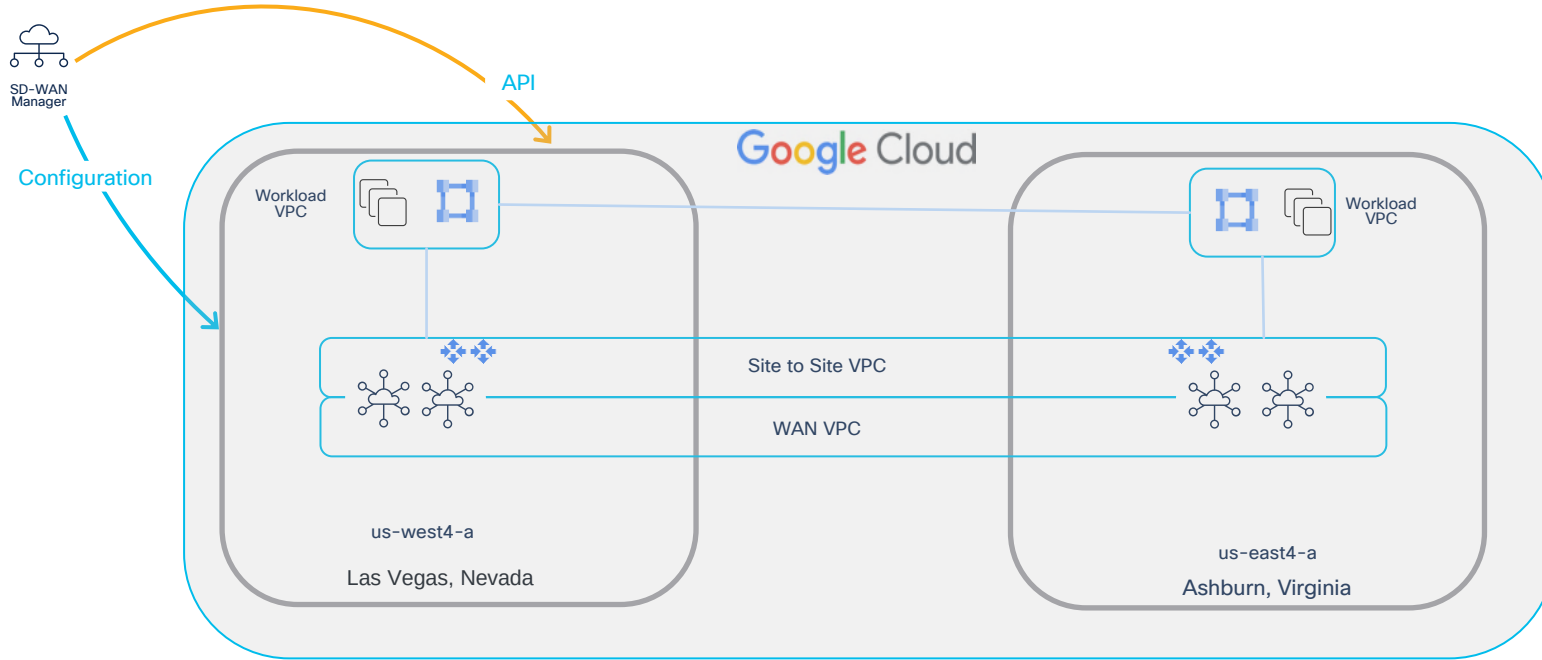


Google Cloud - Site-to-Cloud

Cisco SD-WAN Cloud Hub will be hosted on Google cloud , it runs BGP from service VPN to Google cloud routers to learn and advertise routes

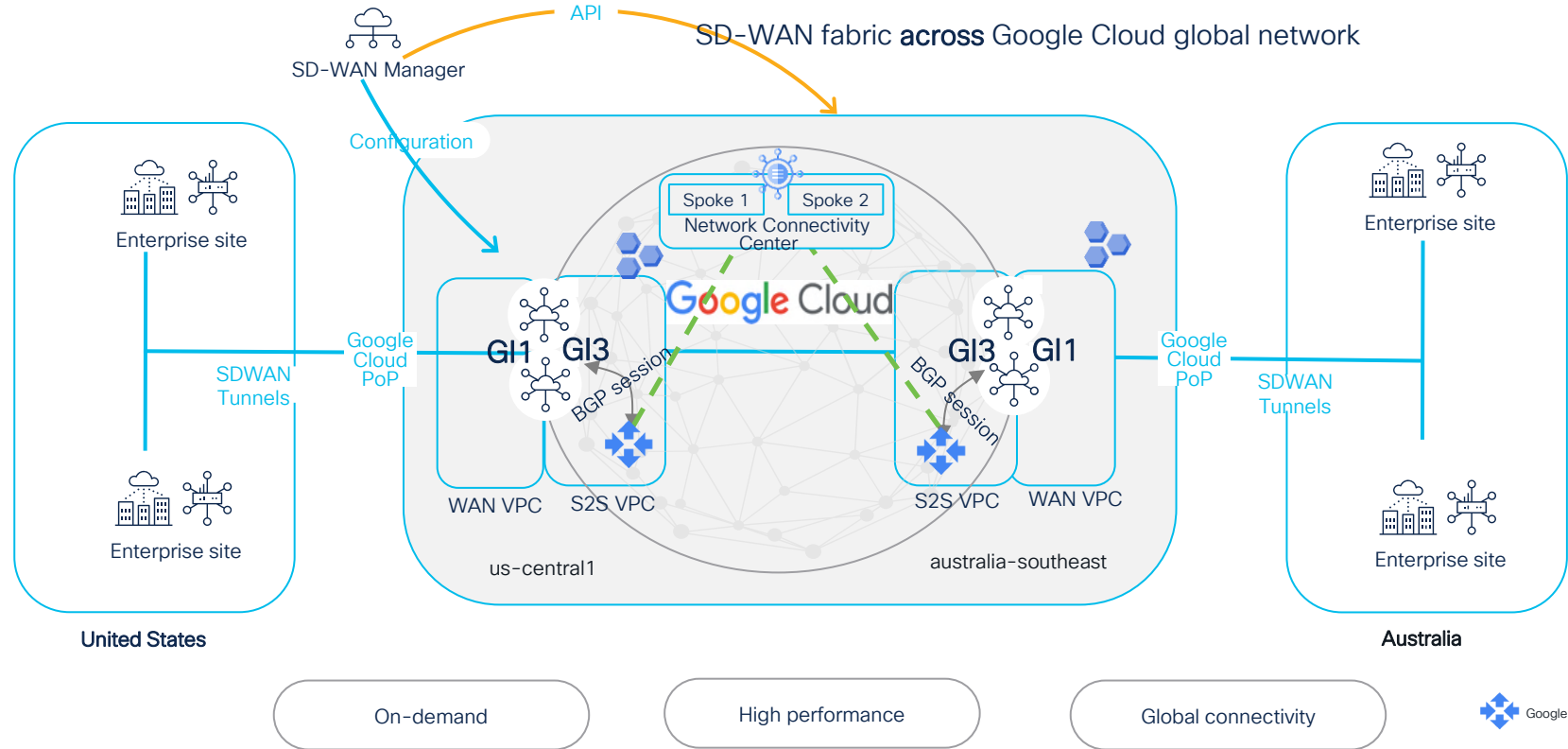


Google Cloud – Region to Region



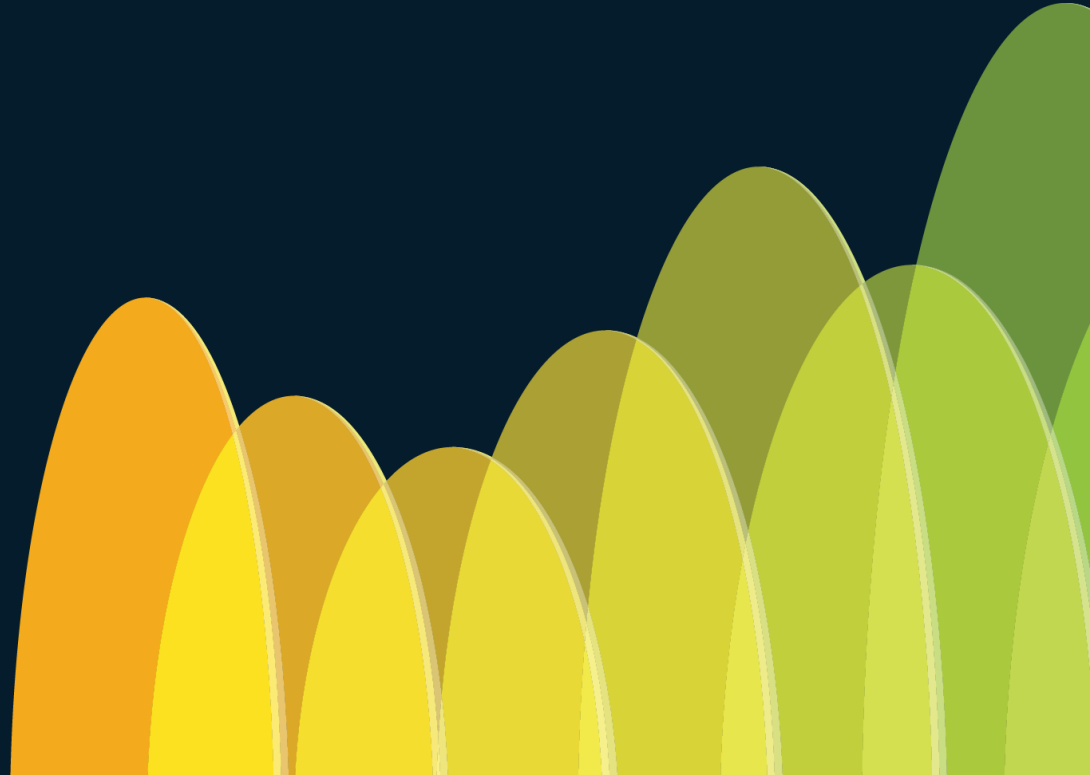
Google Cloud - Site-to-Site

SD-WAN will leverage cloud service provider's backbone (Google NCC) to extend SD-WAN fabric from any site to Site, Control policy or Multi region Fabric required for traffic redirection



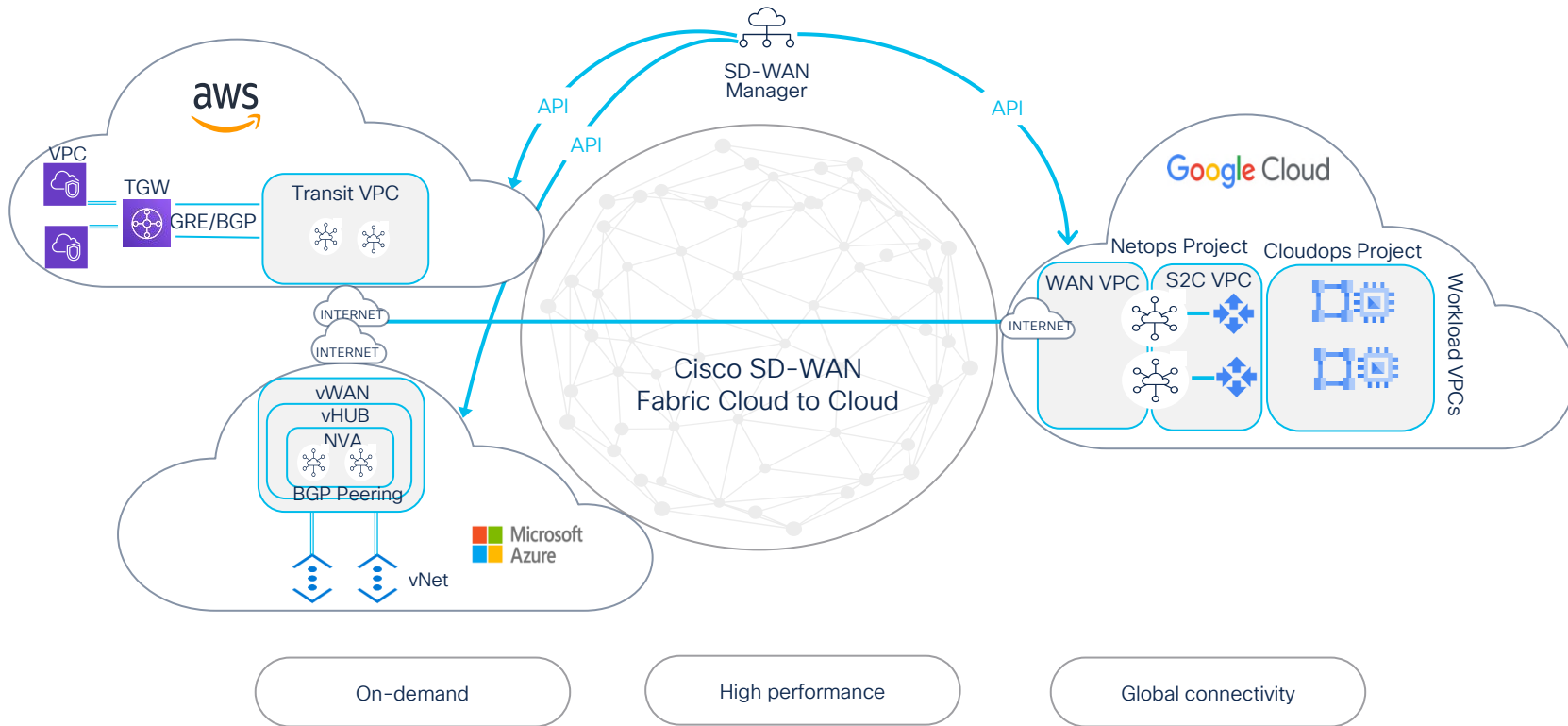
Cloud to Cloud Connectivity

For distributed applications



Cloud to Cloud – Over Internet

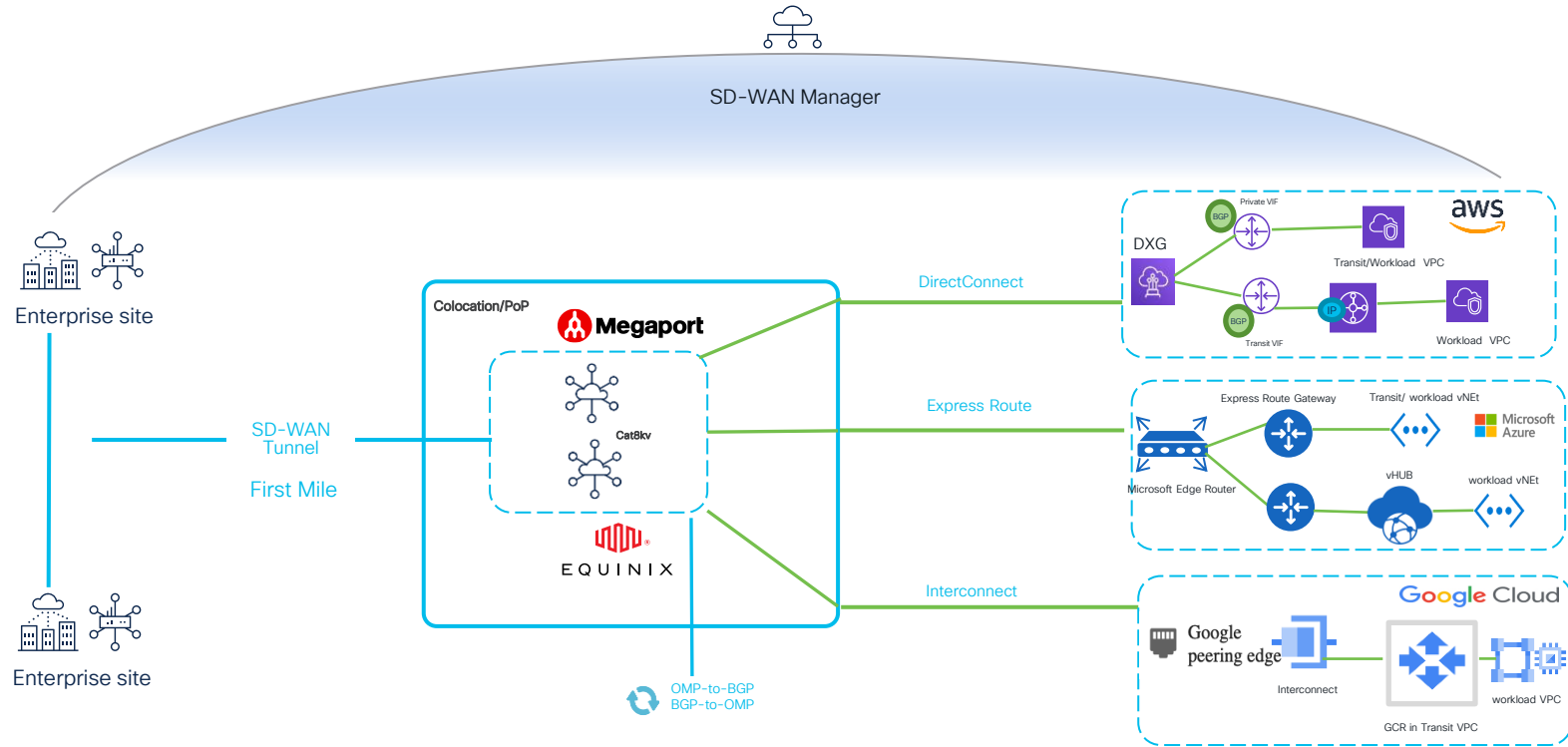
SD-WAN Fabric Between the Cloud



Multicloud connections via Interconnect/Carrier Neutral
Facilities

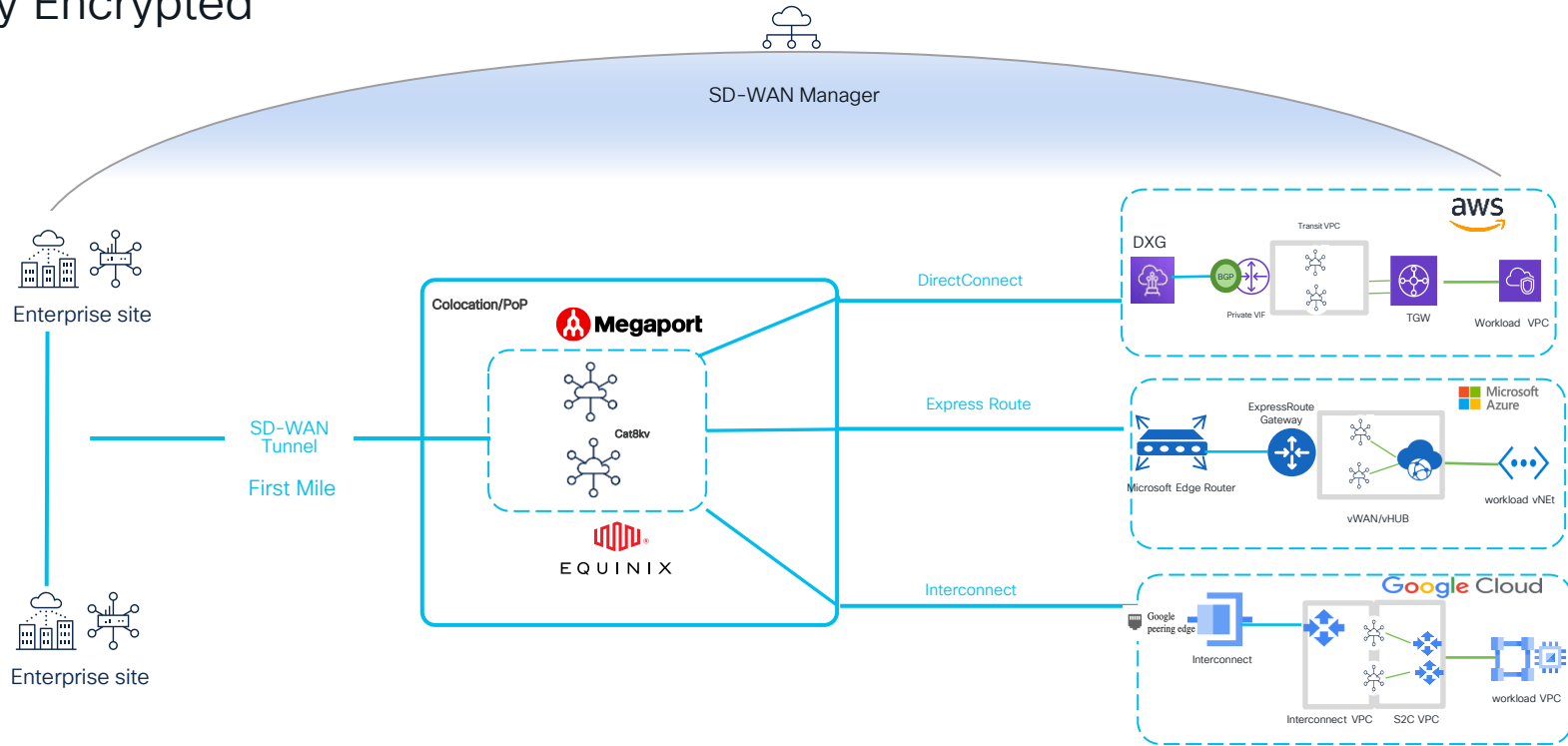
With Megaport & Equinix

Site-to-Multicloud- Megaport or Equinix

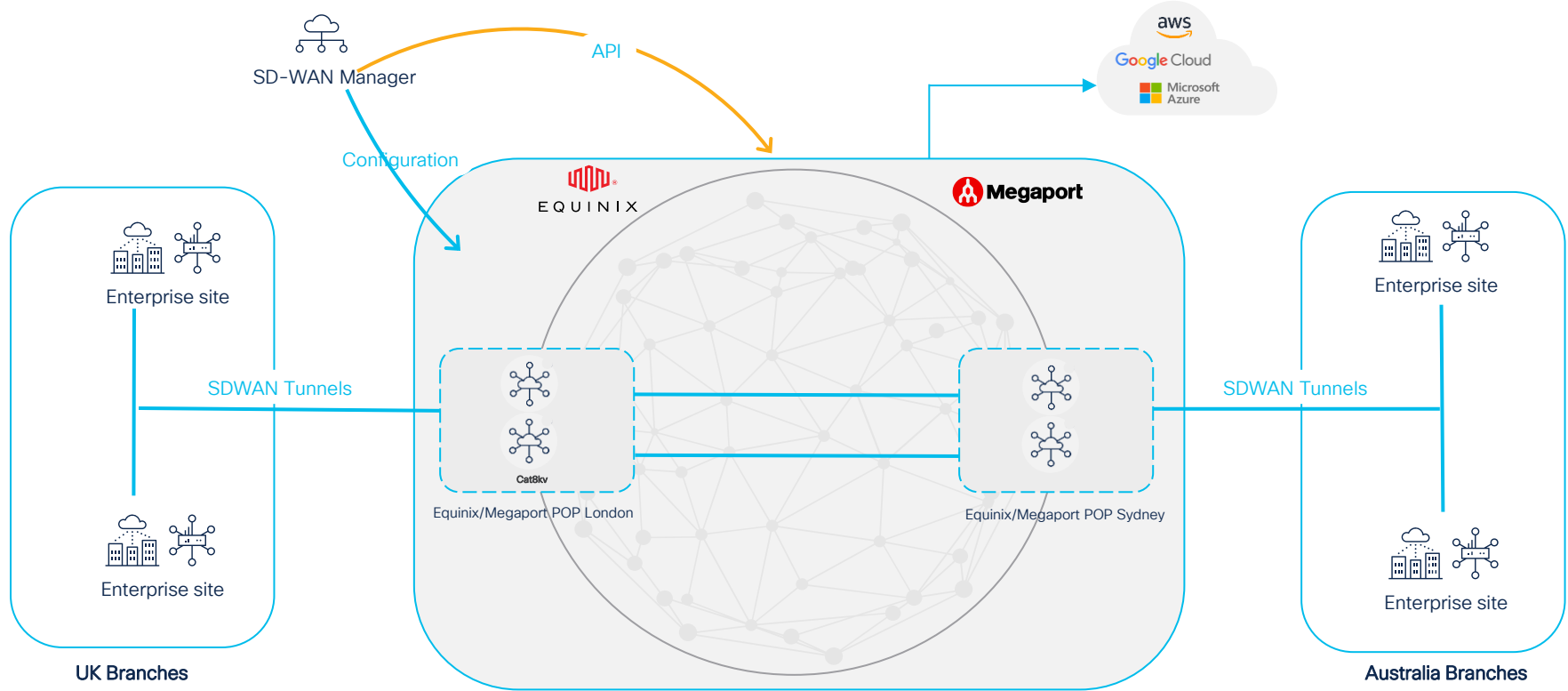


Site-to-Multicloud- Megaport or Equinix

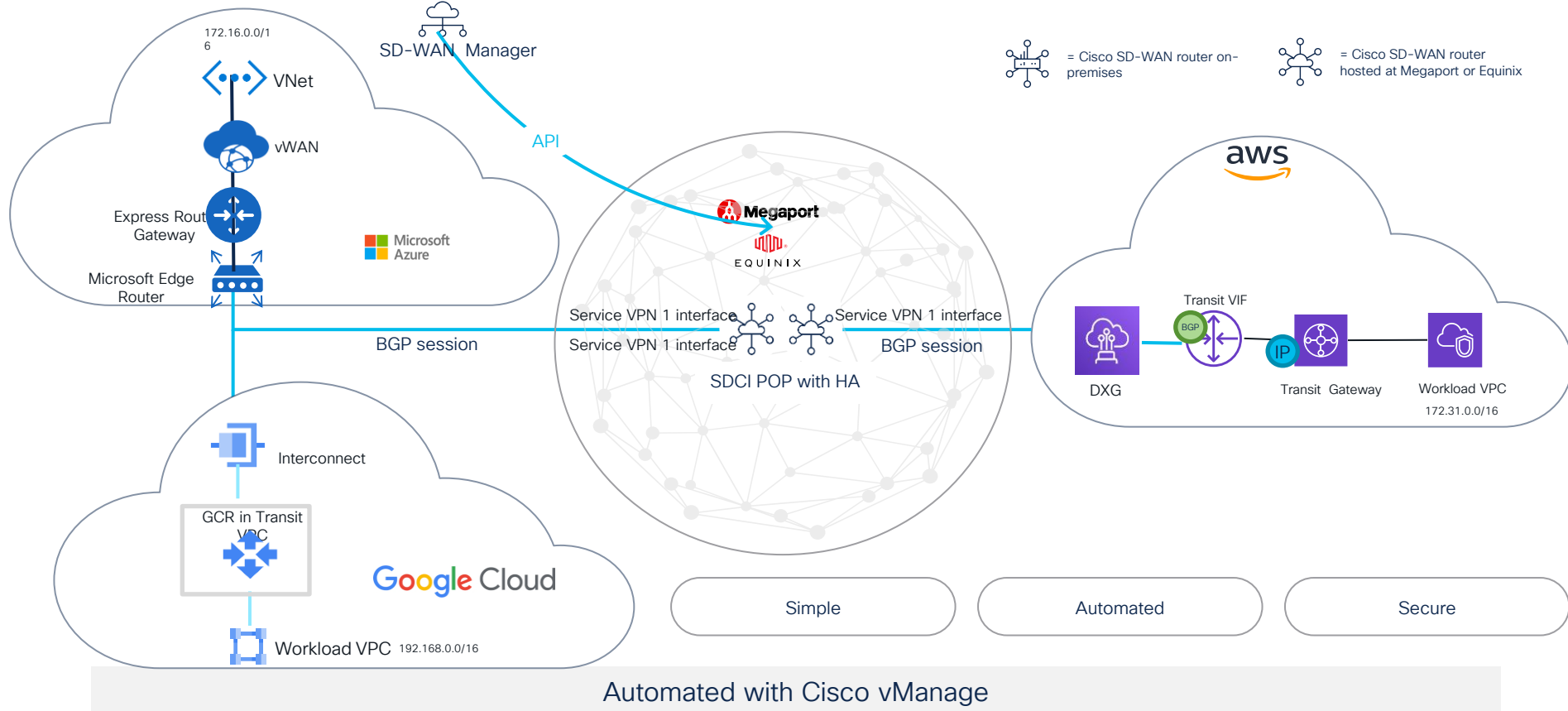
Fully Encrypted

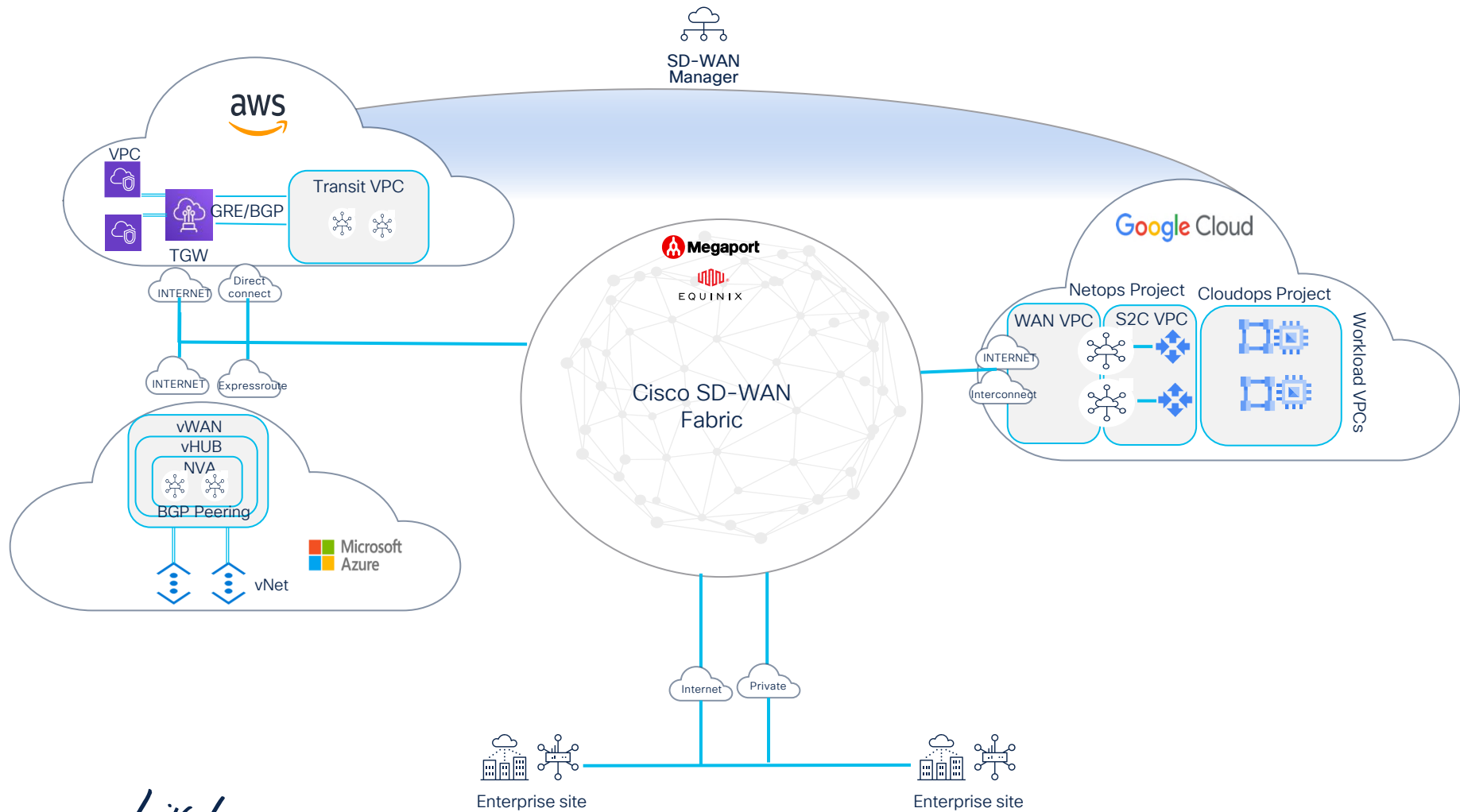


Site-to-Site – Equinix & Megaport



Cloud to Cloud – With Megaport/Equinix



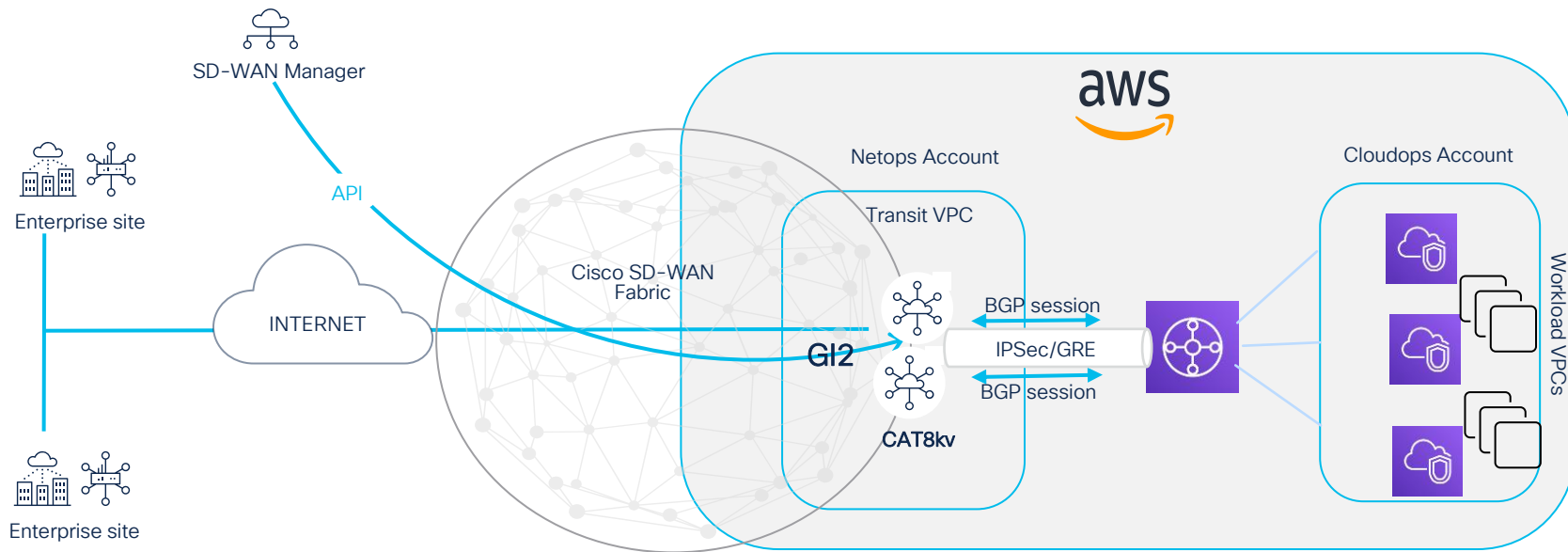


Flexible Transport Options



On-Prem to AWS connectivity - Over single Transport

Connectivity over Internet



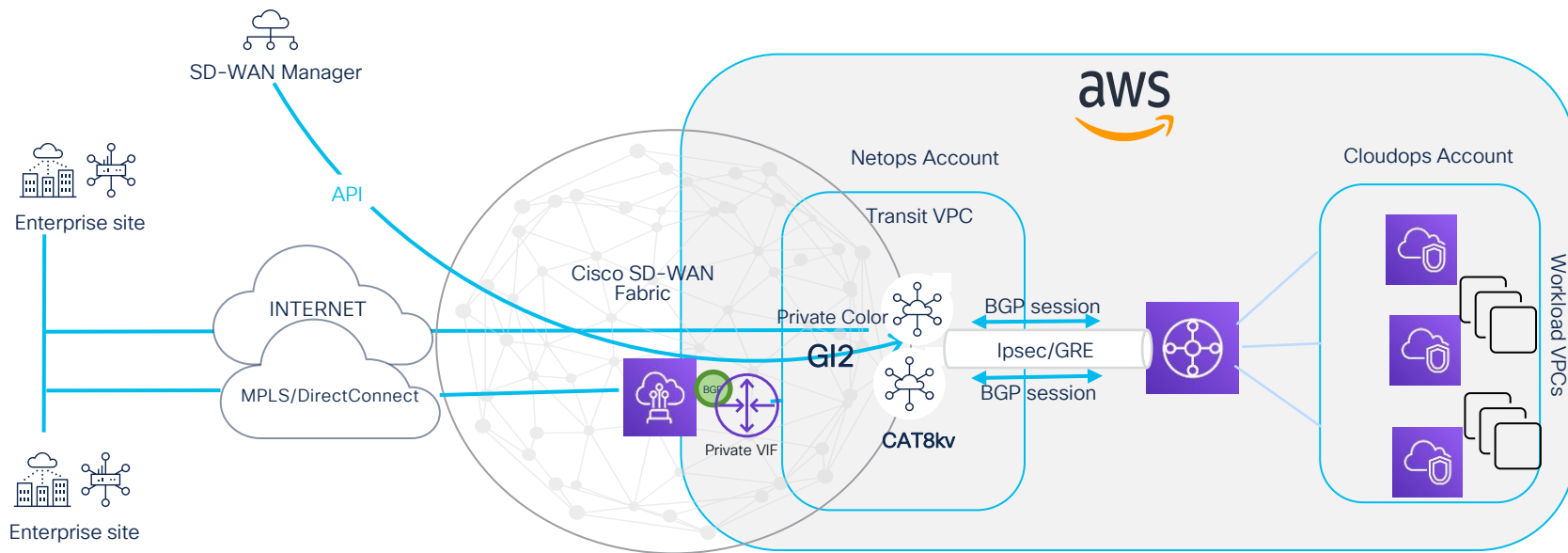
Simple

Automated

Secure

On-Prem to AWS- Resilient connectivity

Connectivity over Hybrid



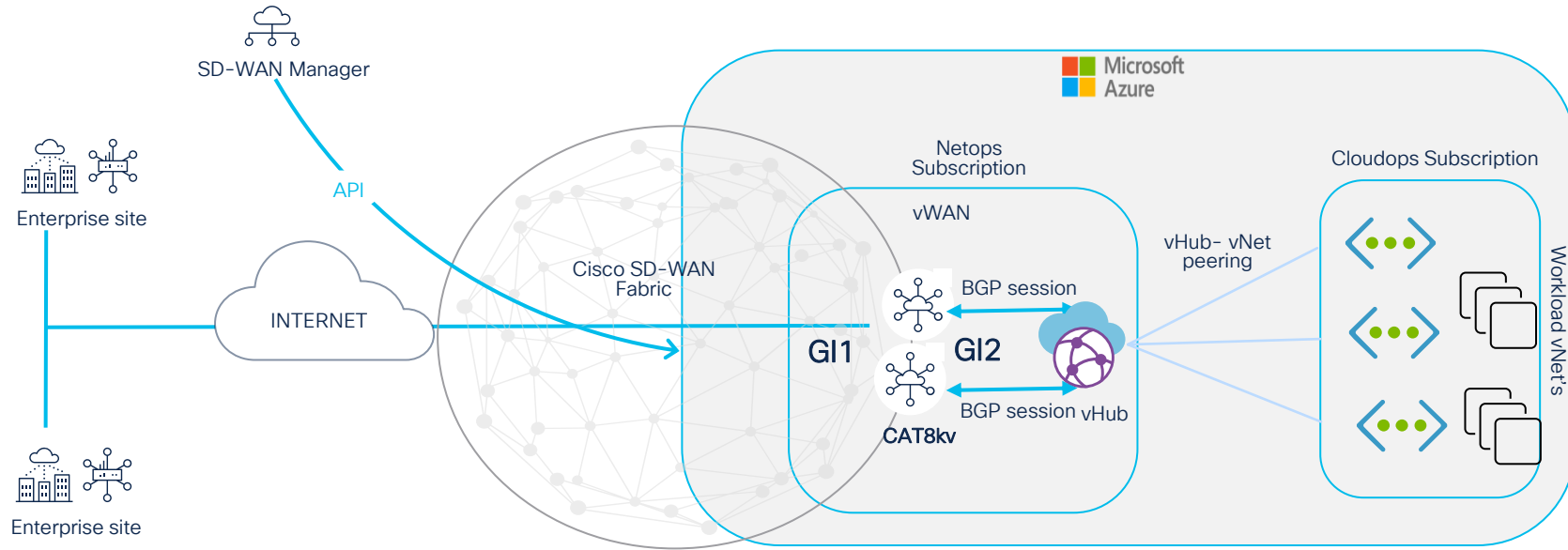
Simple

Automated

Secure

On-Prem to Azure connectivity - Over single Transport

Connectivity over Internet



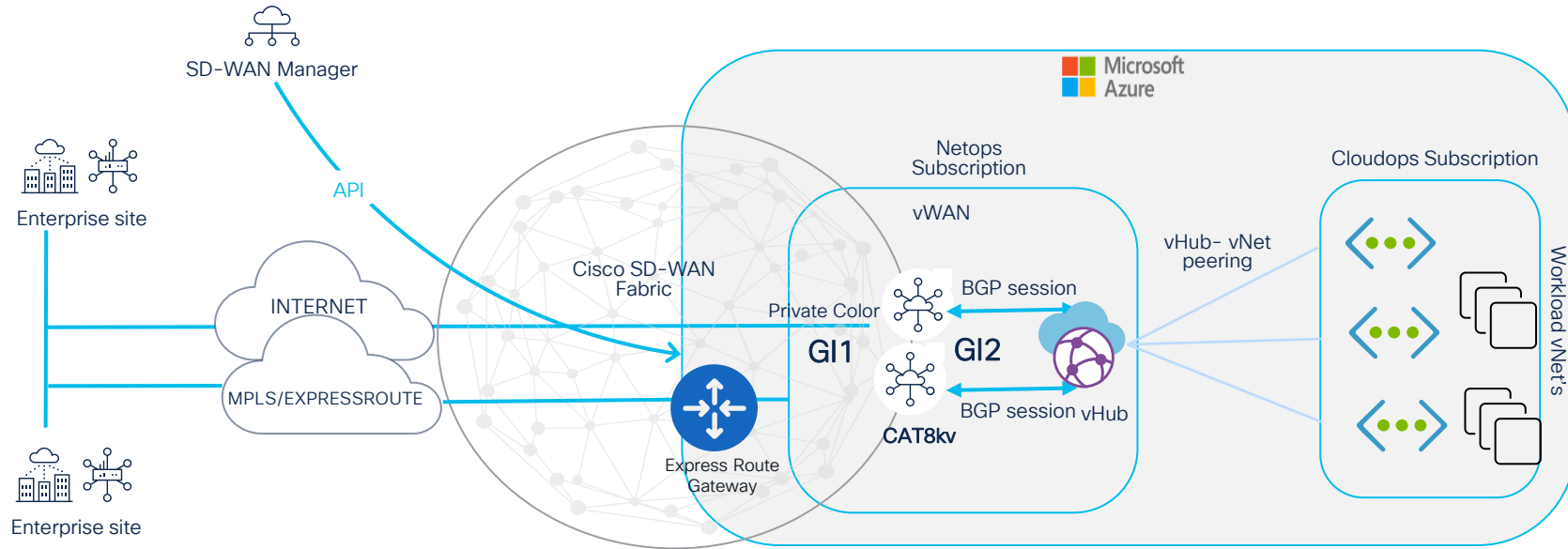
Simple

Automated

Secure

On-Prem to Azure Resilient connectivity

Connectivity over Hybrid



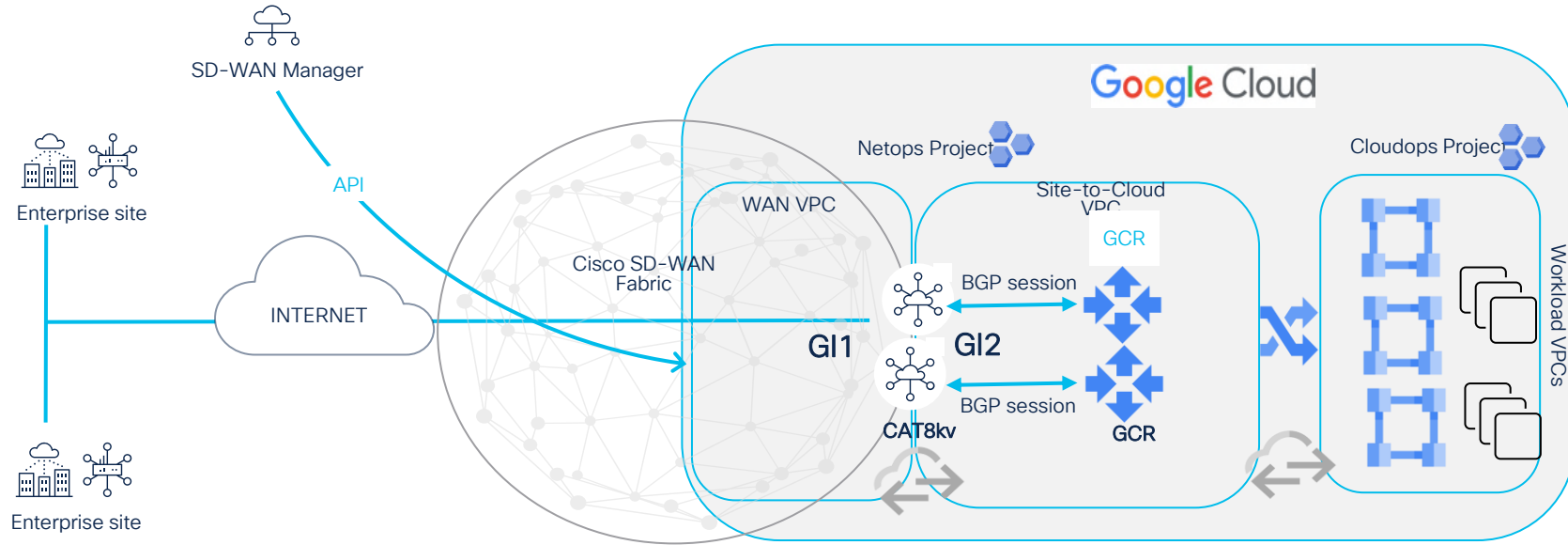
Simple

Automated

Secure

On-Prem to Google connectivity - Over single Transport

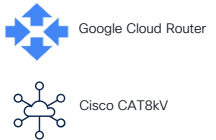
Connectivity over Internet



Simple

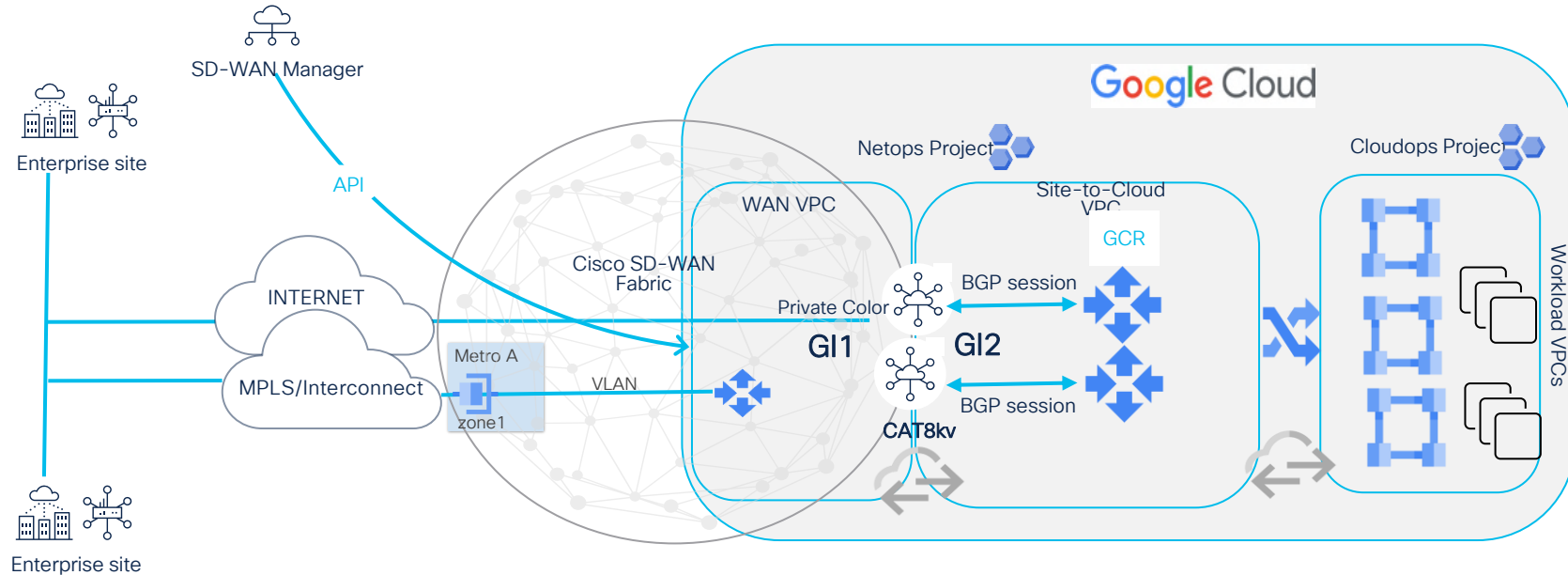
Automated

Secure



On-Prem to Google Resilient connectivity-1

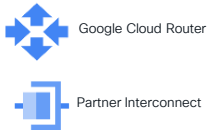
Connectivity over Hybrid



Simple

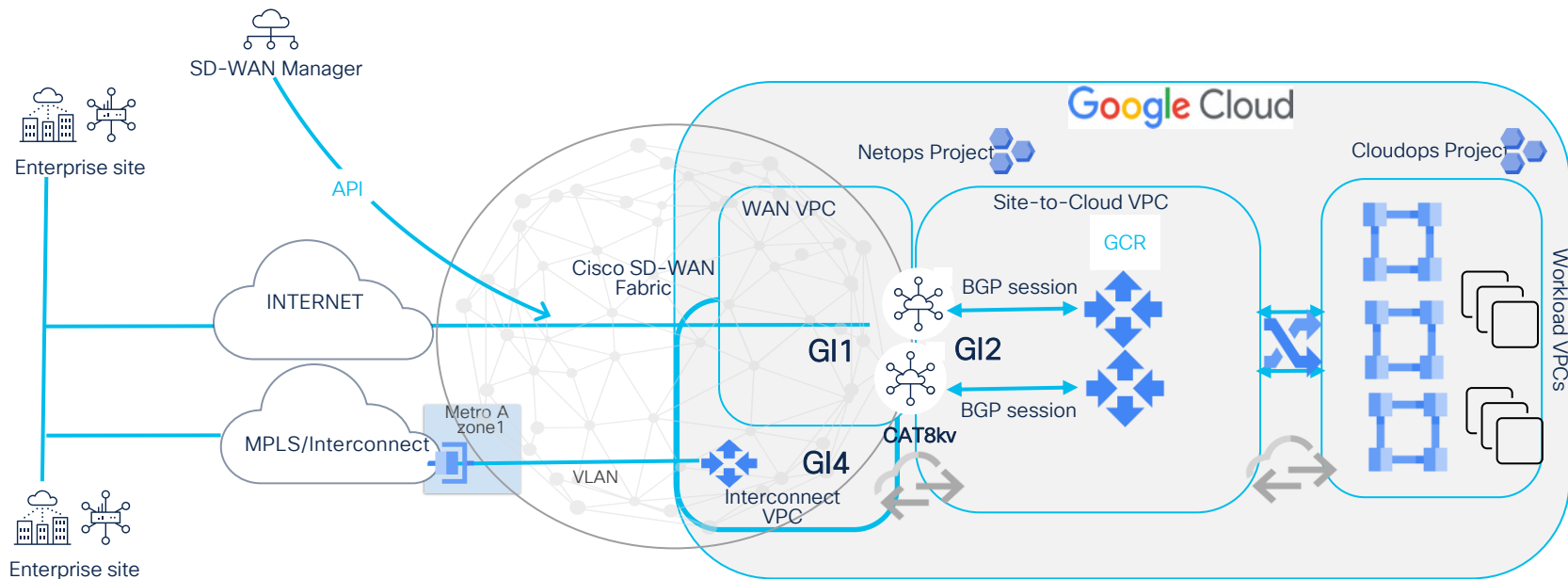
Automated

Secure



On-Prem to Google Resilient connectivity-2

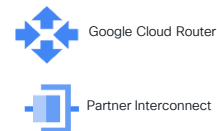
Connectivity over Hybrid



Simple

Automated

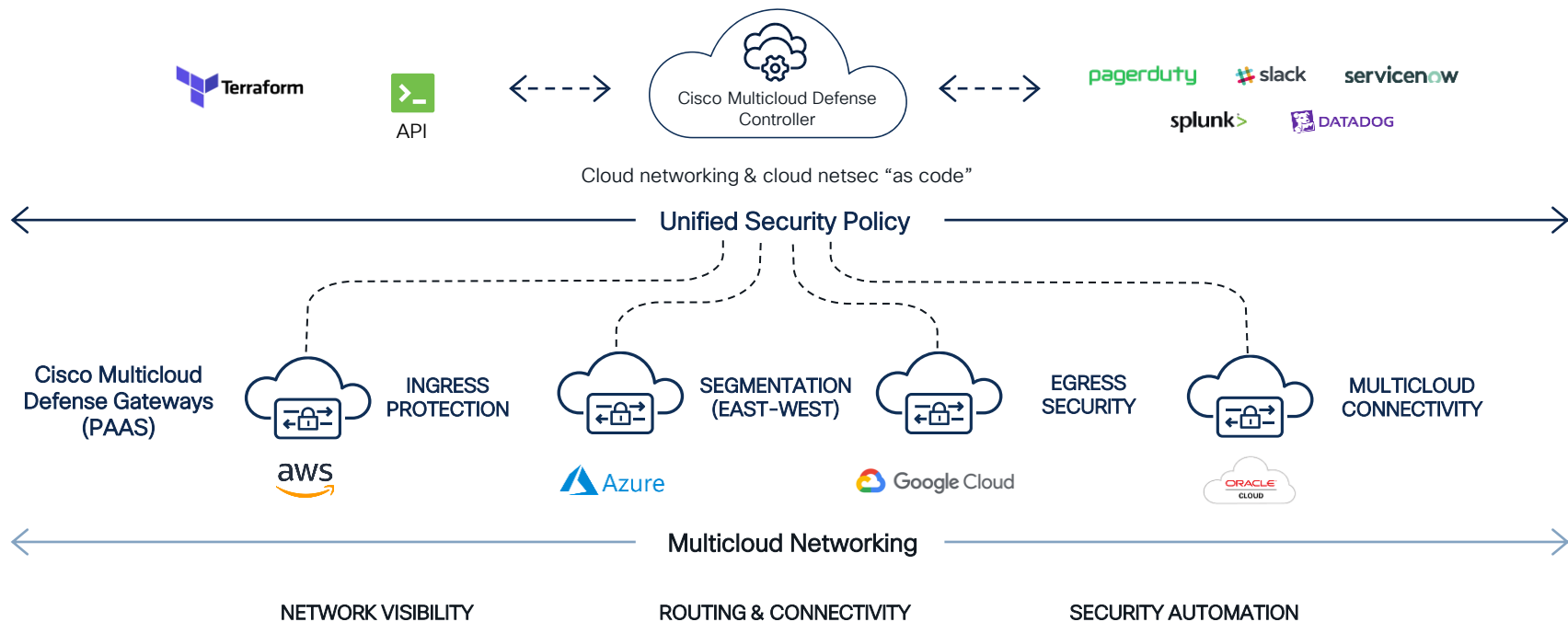
Secure



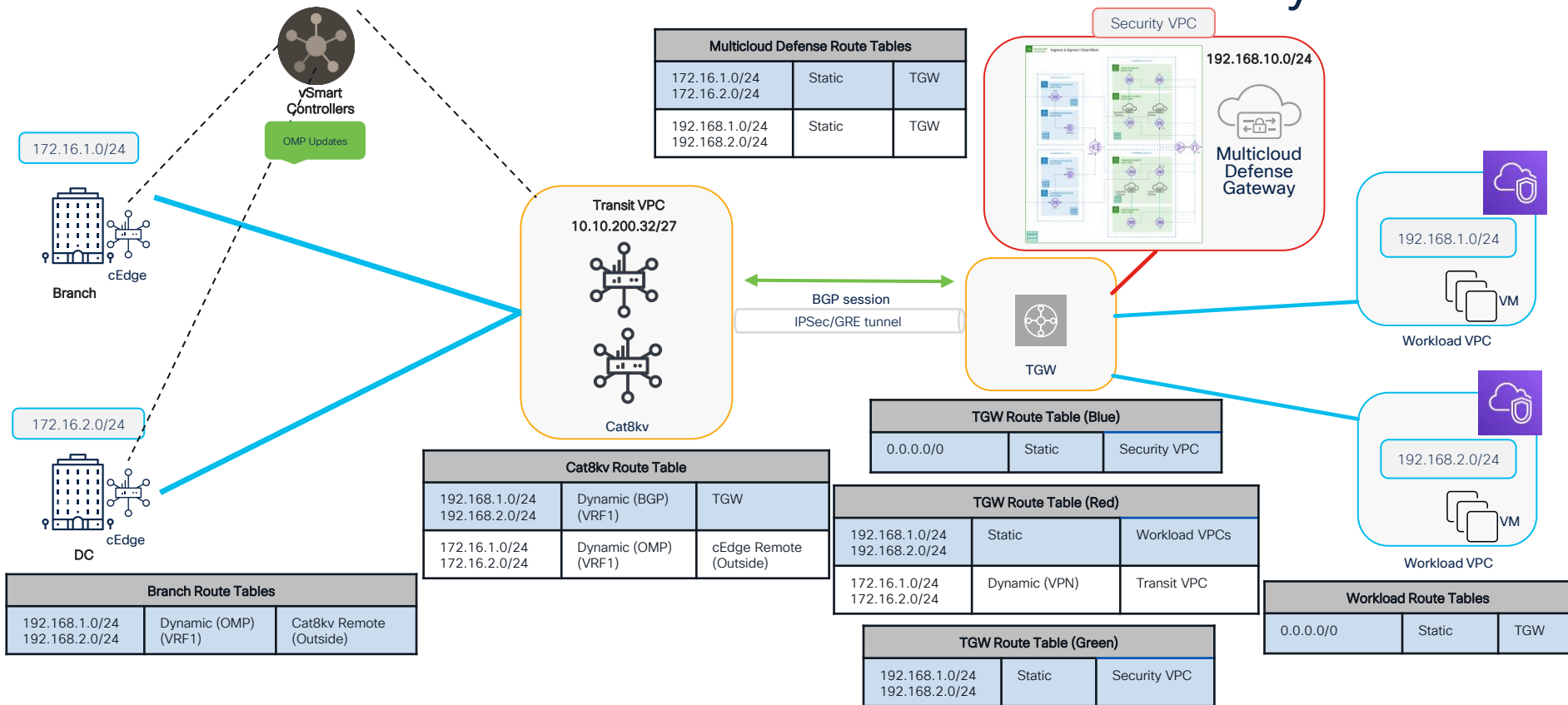
Security and Compliance with Cloud Networking



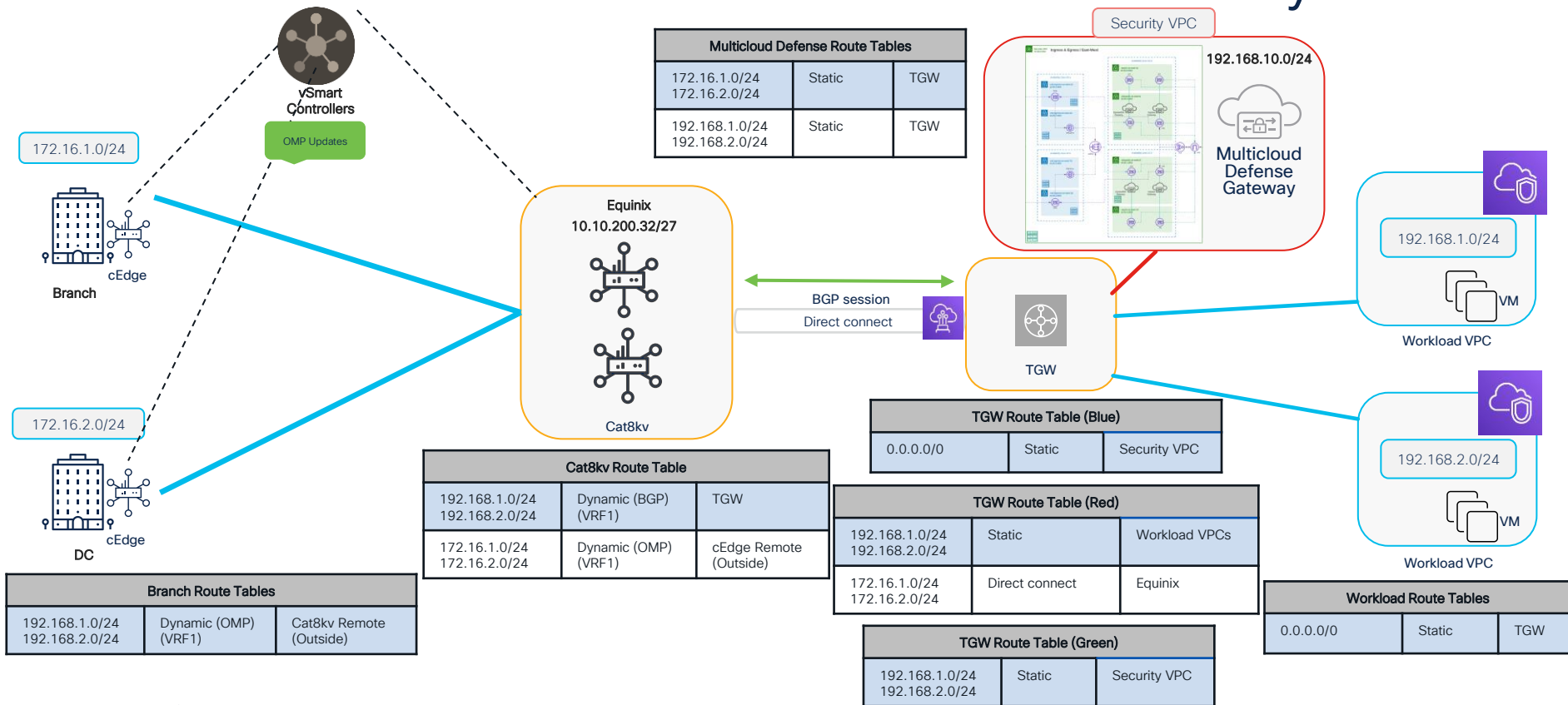
Cisco Multicloud Defense



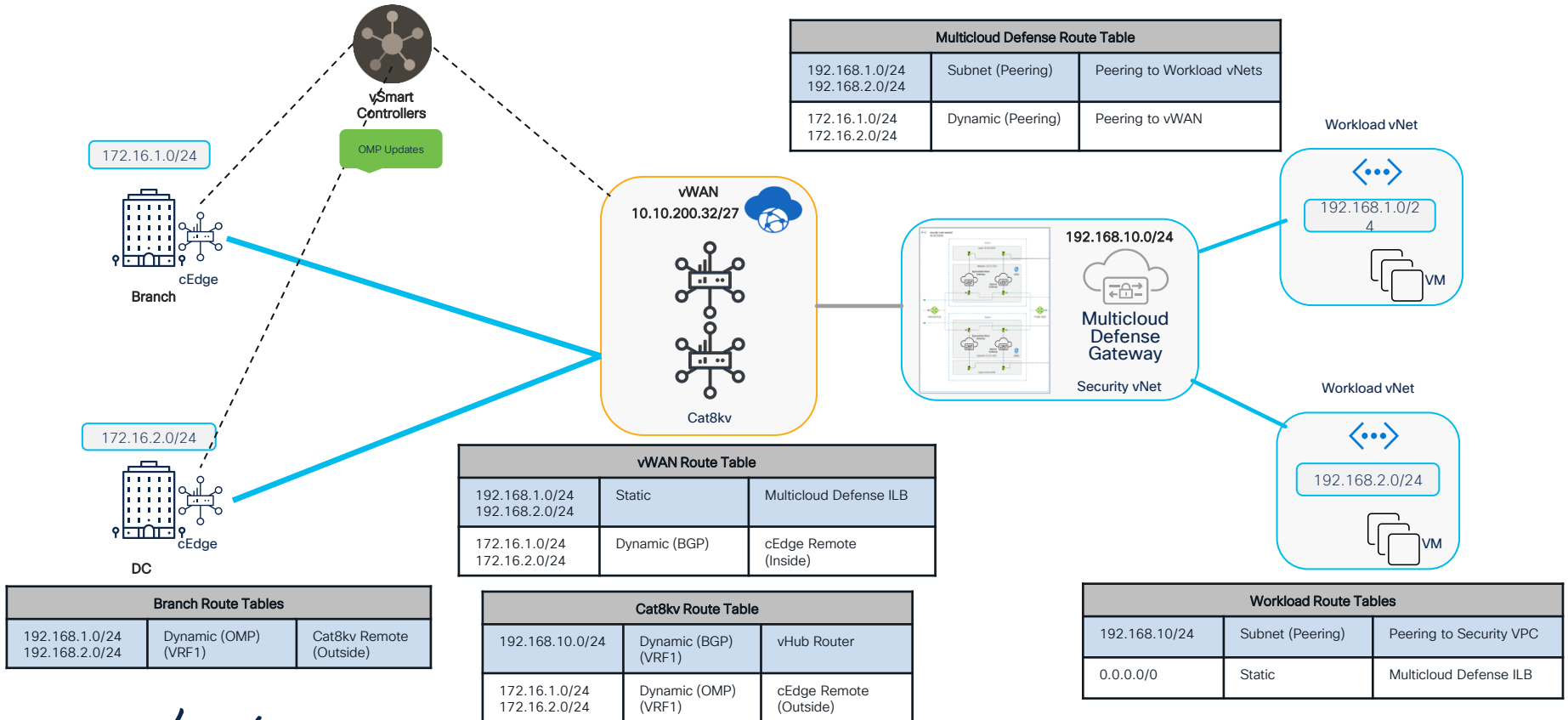
Branch to AWS Workload VPC Connectivity



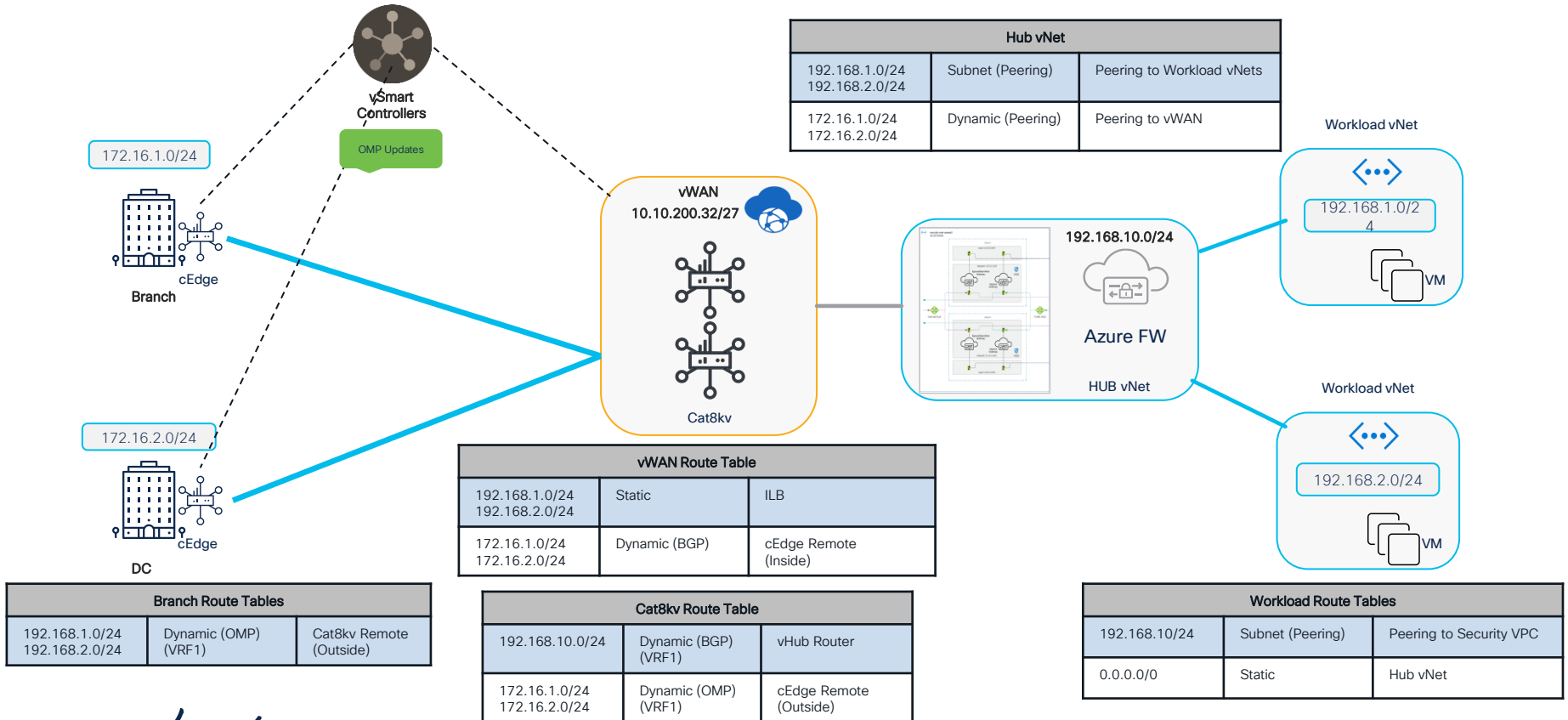
Branch to AWS Workload VPC Connectivity



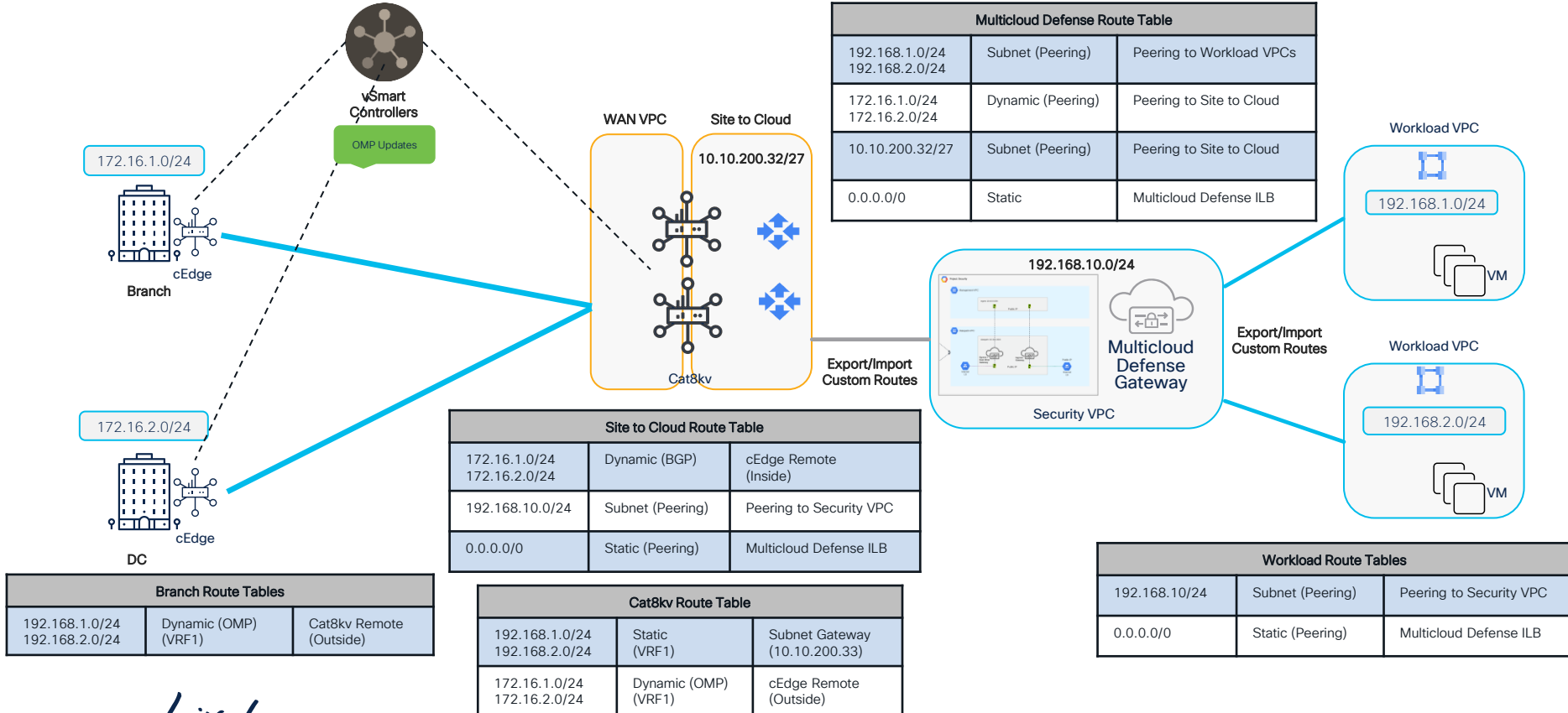
Branch to Azure Workload vNet Connectivity



Branch to Azure Workload vNet Connectivity



Branch to GCP Workload VPC Connectivity



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