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Cloud Backbone

HYBRID CONNECTIVITY

ACE Team

AGENDA

01 **AVIATRIX OVERVIEW**
Intro
Multicloud Network Architecture

02 **CLOUD BACKBONE**

03 **EDGE**
Extend Cloud to the edge
Equinix Edge

04 **ENTERPRISE ARCHITECTURES**

05 **DEMO & LAB**

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Enterprise Architectures

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Enterprise Architecture 1

Region to Region

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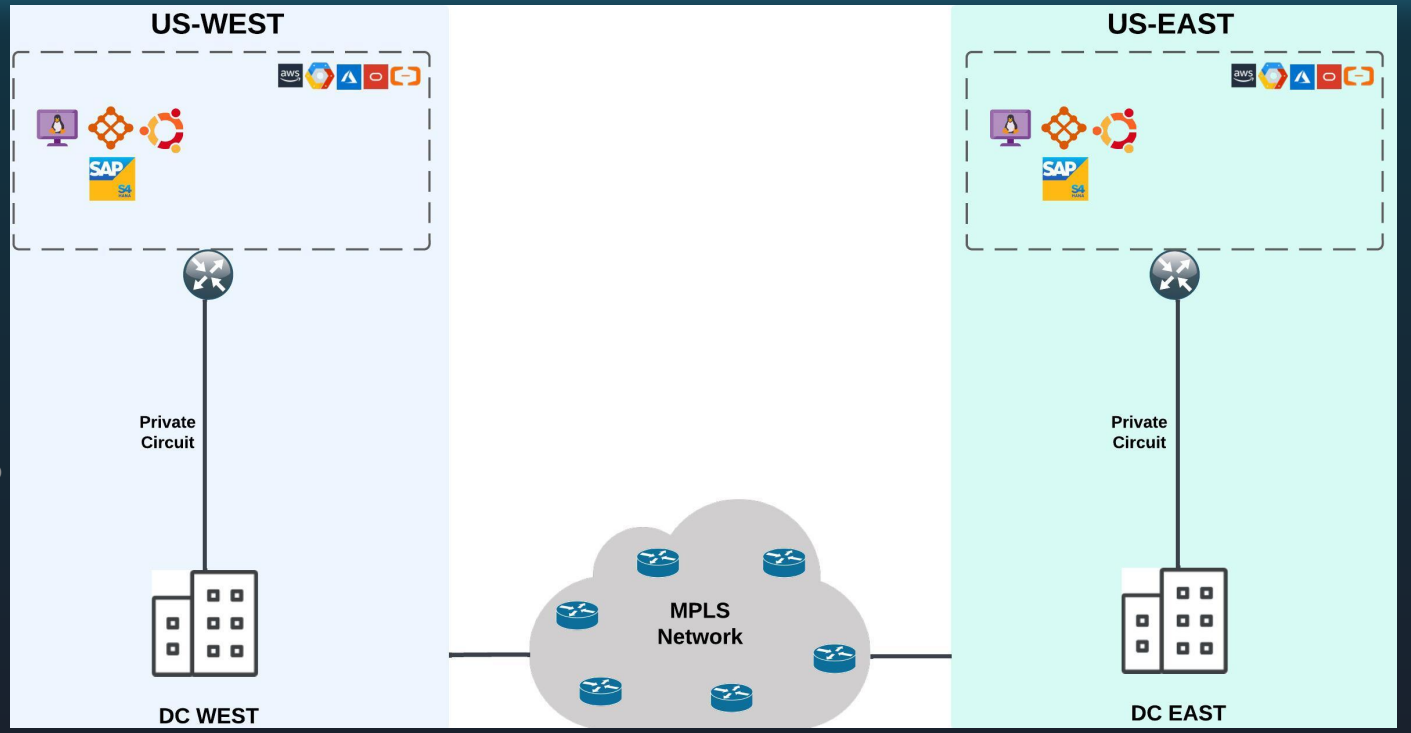
Architecture 1 – Region-to-Region Communication

Suboptimal and Complex Architecture

- Inter-region applications experience significant latency
- L7 Service Inspection
- Organizational Boundaries Dependence
  - Network team responsible for the hybrid connectivity (on-ramp)
  - Cloud team responsible for the cloud transit architecture
  - Changes made by either team are not visible to the other team
- Expensive to deploy and maintain high-capacity MPLS and CSP private circuits
- Absence of real-time and historical analytics of cloud network increases MTTR



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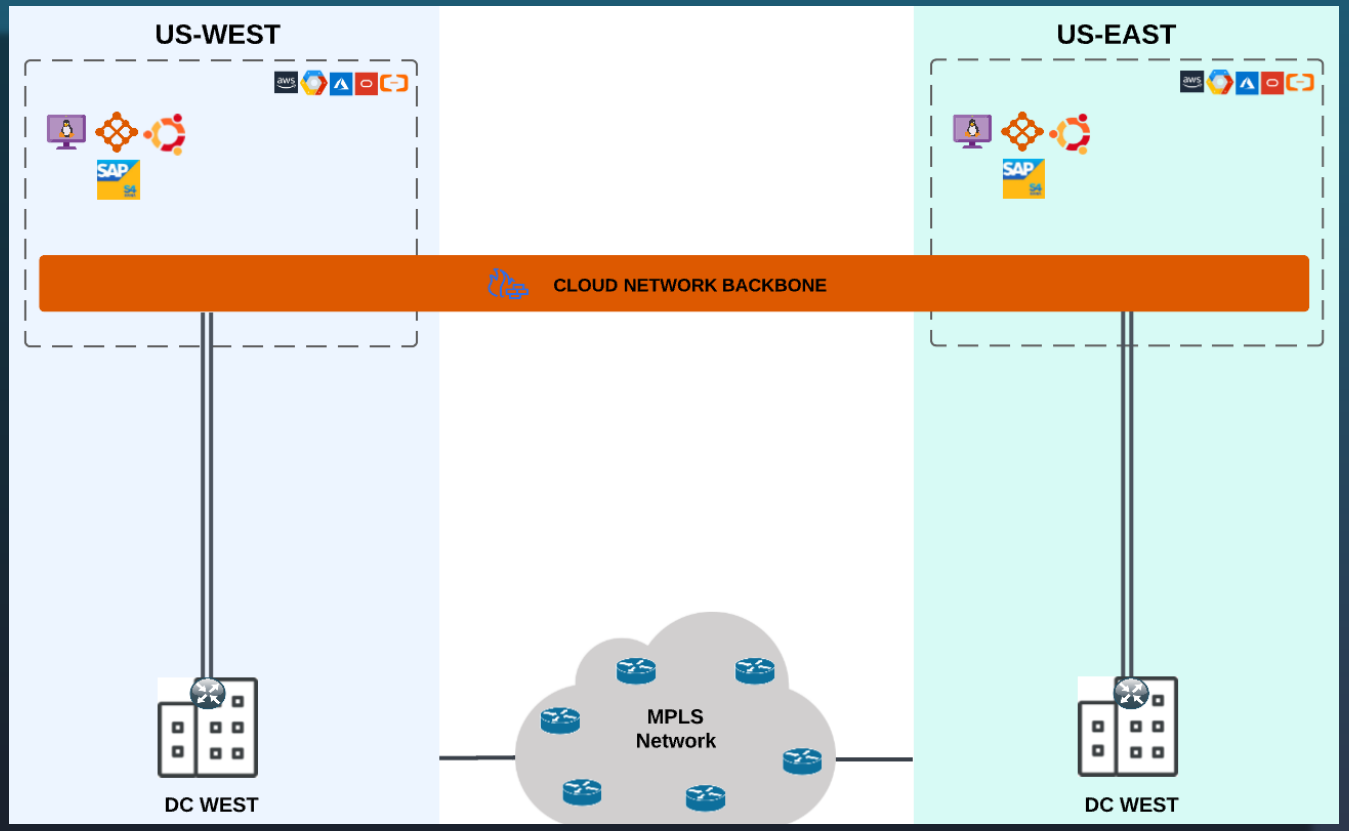
Architecture 1 – Region-to-Region Communication

Aviatrix Cloud Backbone

- High-Performance Encrypted Cloud Backbone that eliminates latency challenges
- Full control, independent and traffic engineering capable solution where application data stays within the enterprise network boundary
- Cost-effective enterprise cloud network backbone solution
  - Reduce private WAN circuits usage
  - Eliminate use of expensive native visibility services
  - No need to involve developers to stitch many visibility and troubleshooting tools



- Enterprise-class embedded telemetry, network visibility and troubleshooting tools

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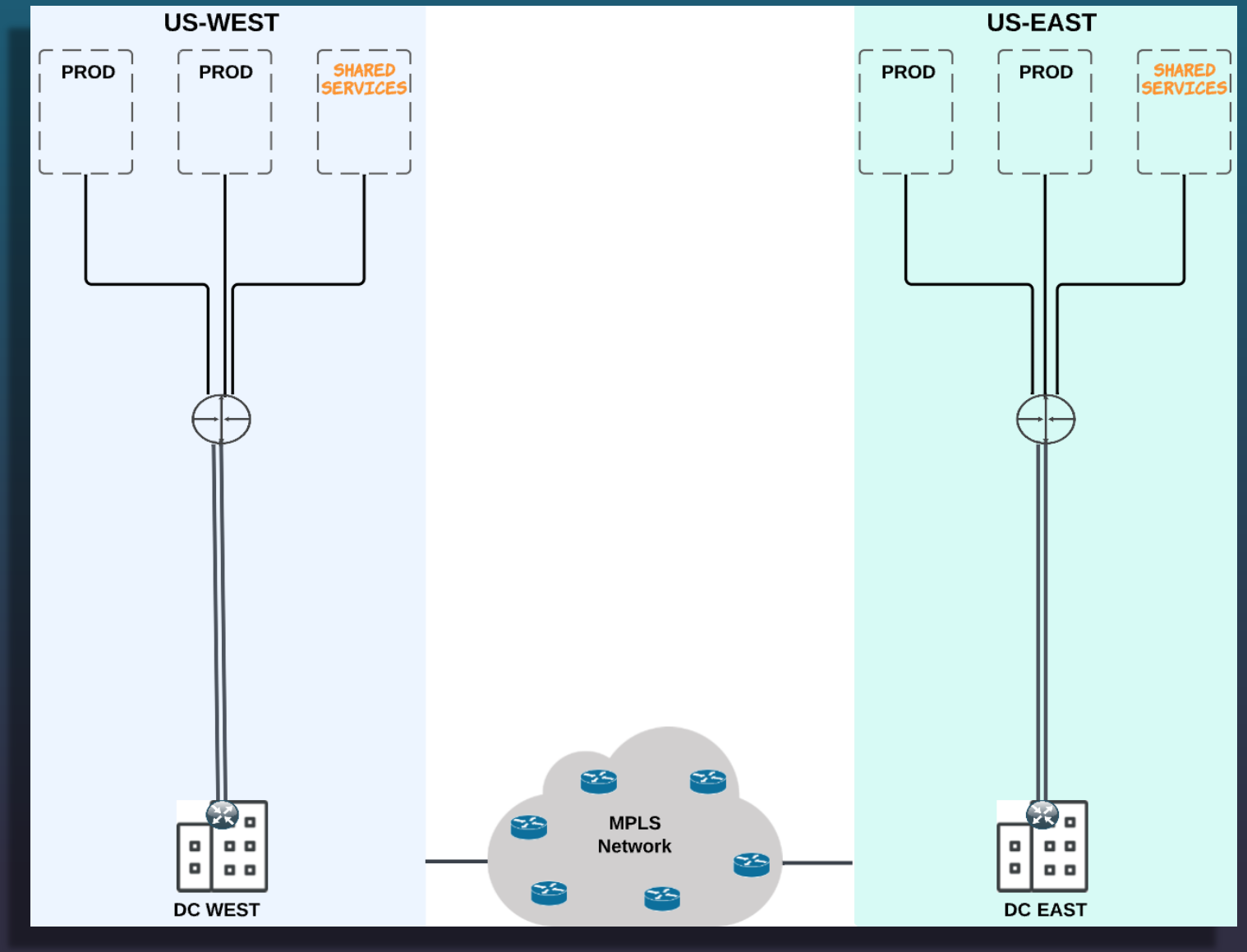
Architecture 1 – Region-to-Region Communication

How to Get Started

- Zoomed-in Existing Architecture



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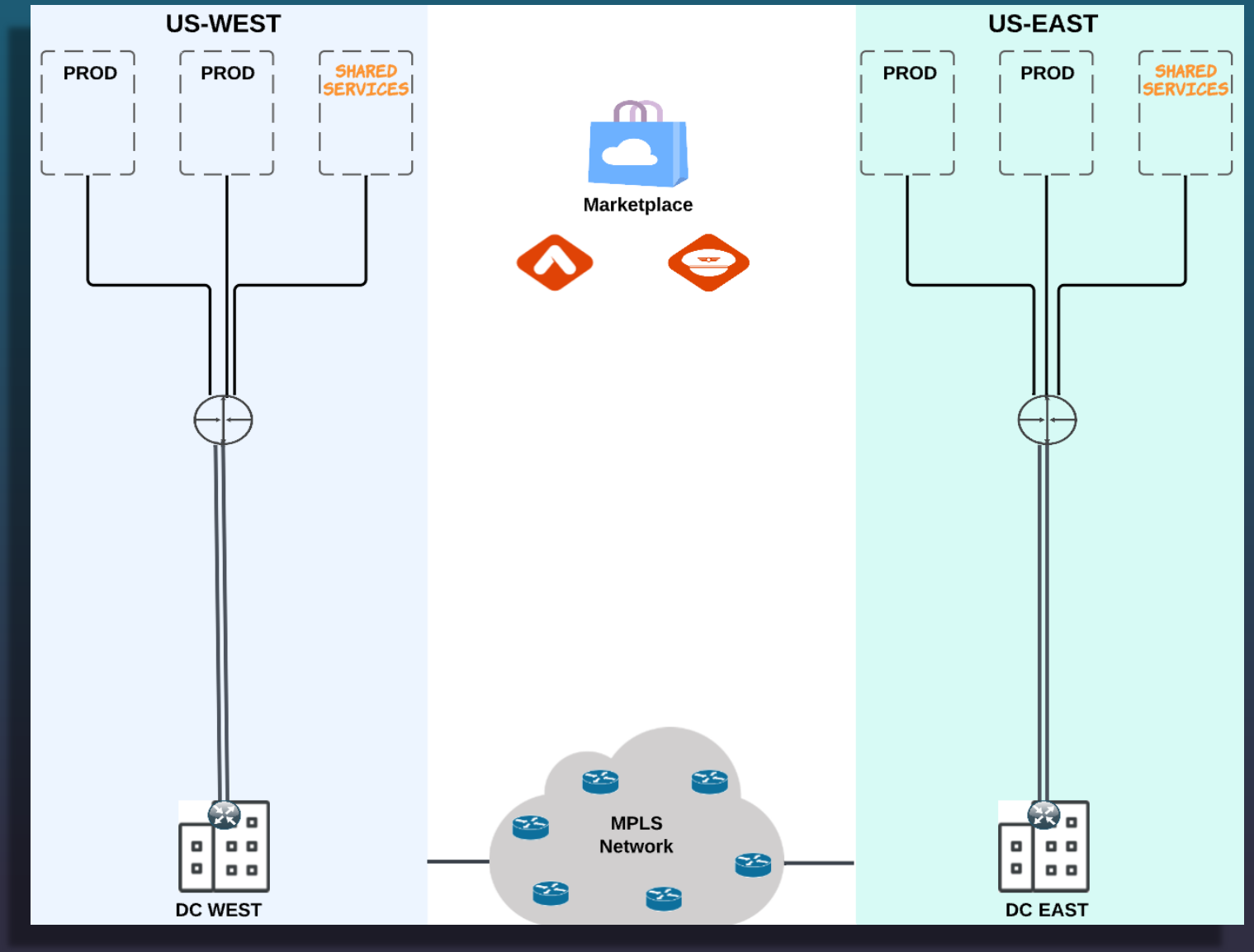

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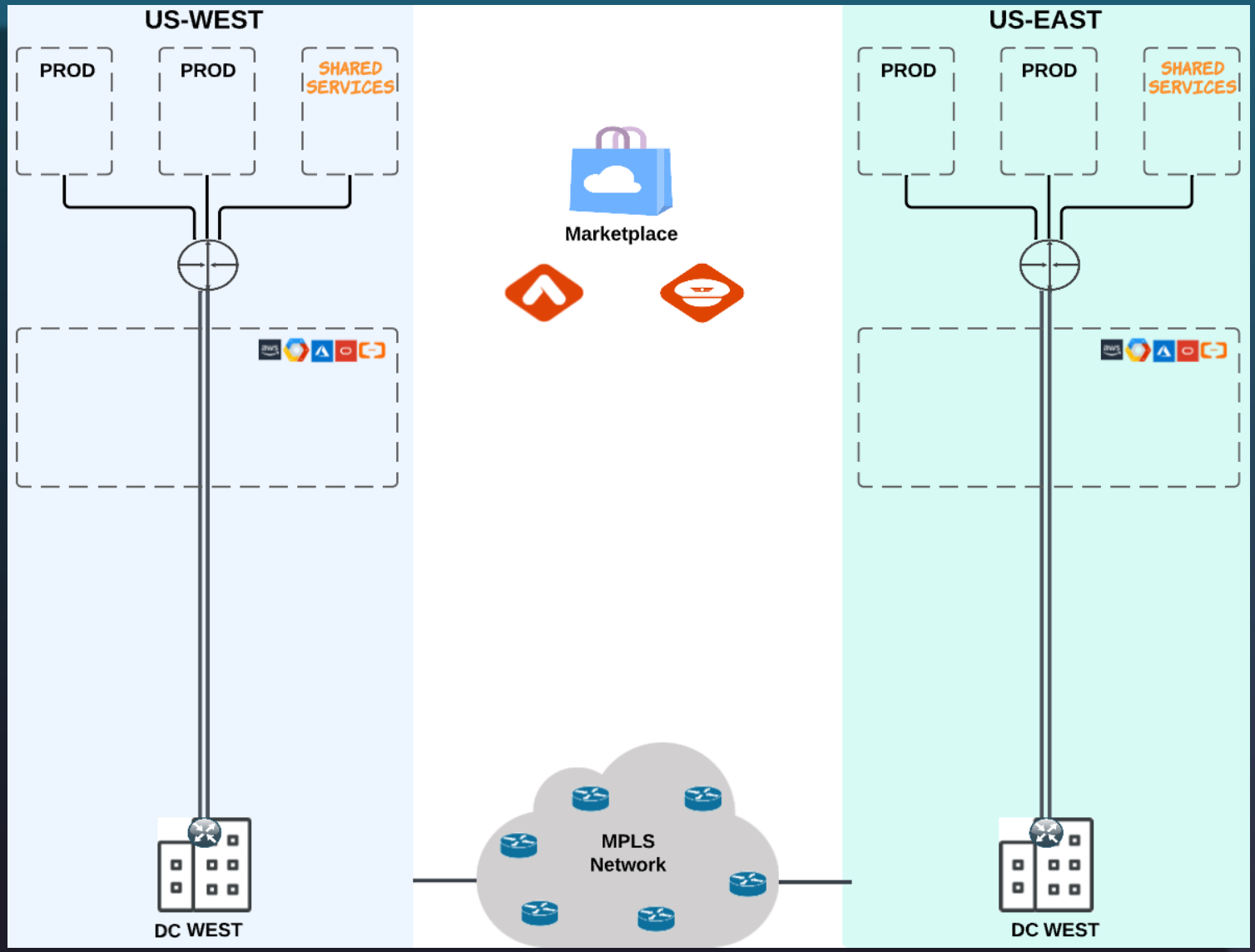

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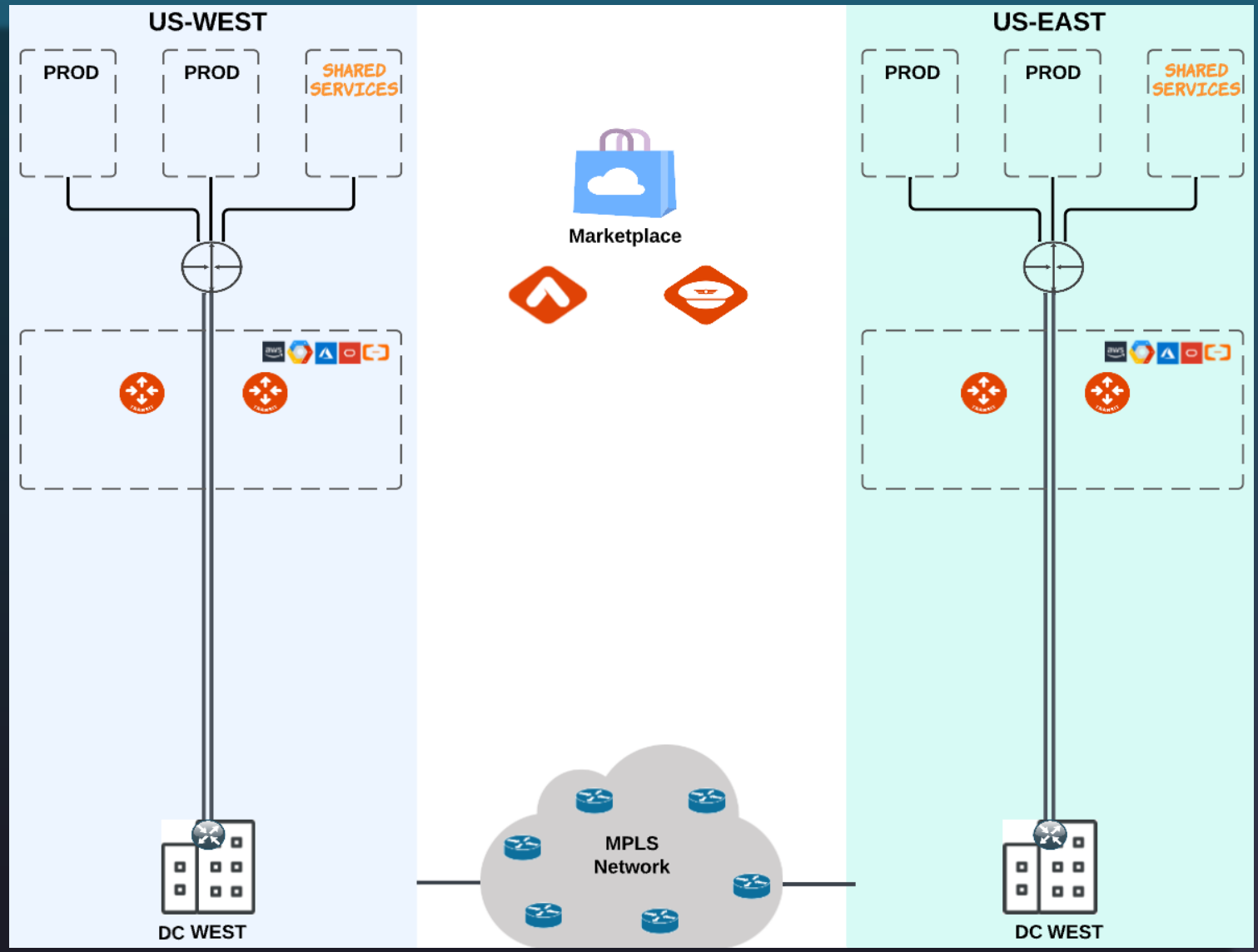
  - Aviatrix Transit Gateways



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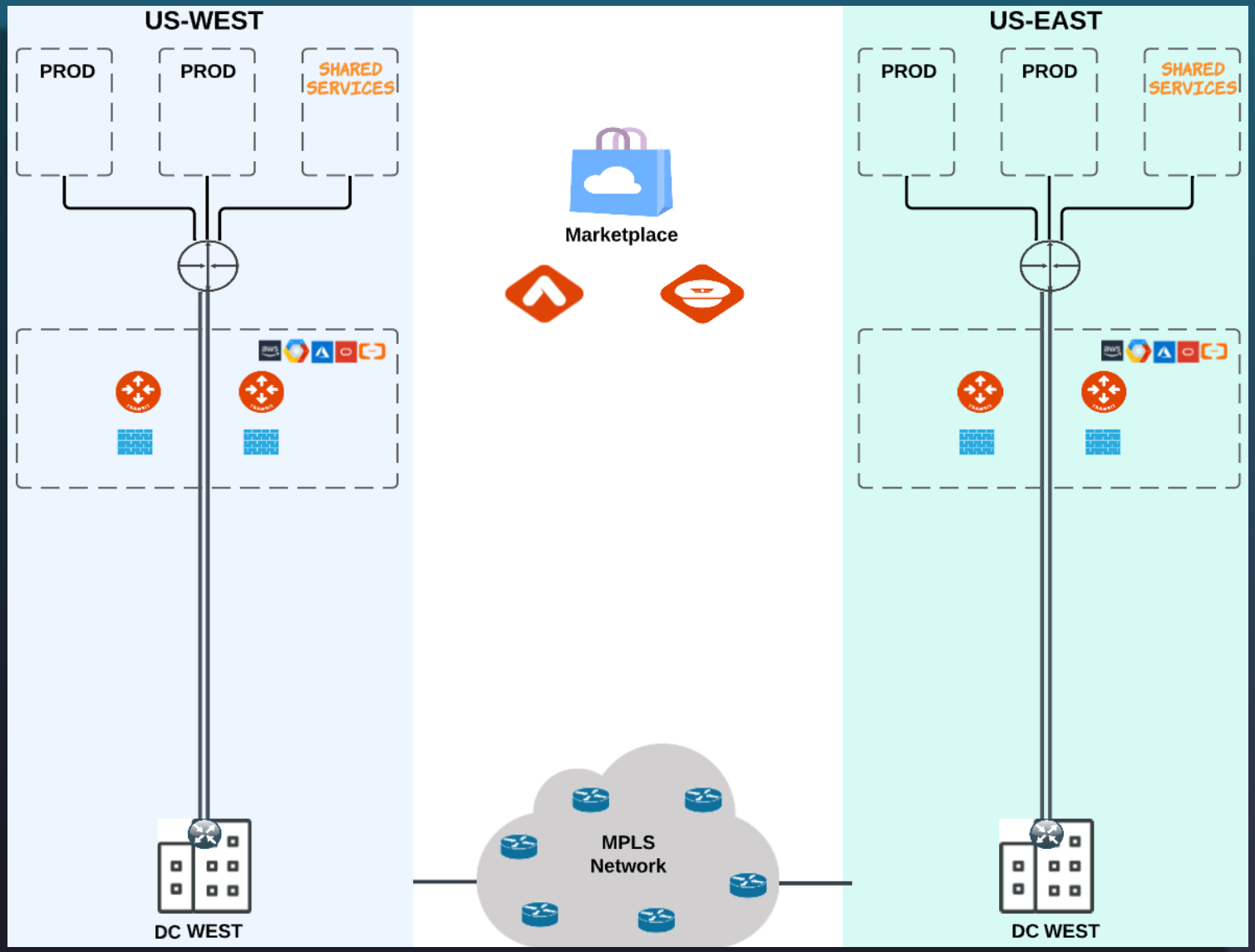
  - NGFWs



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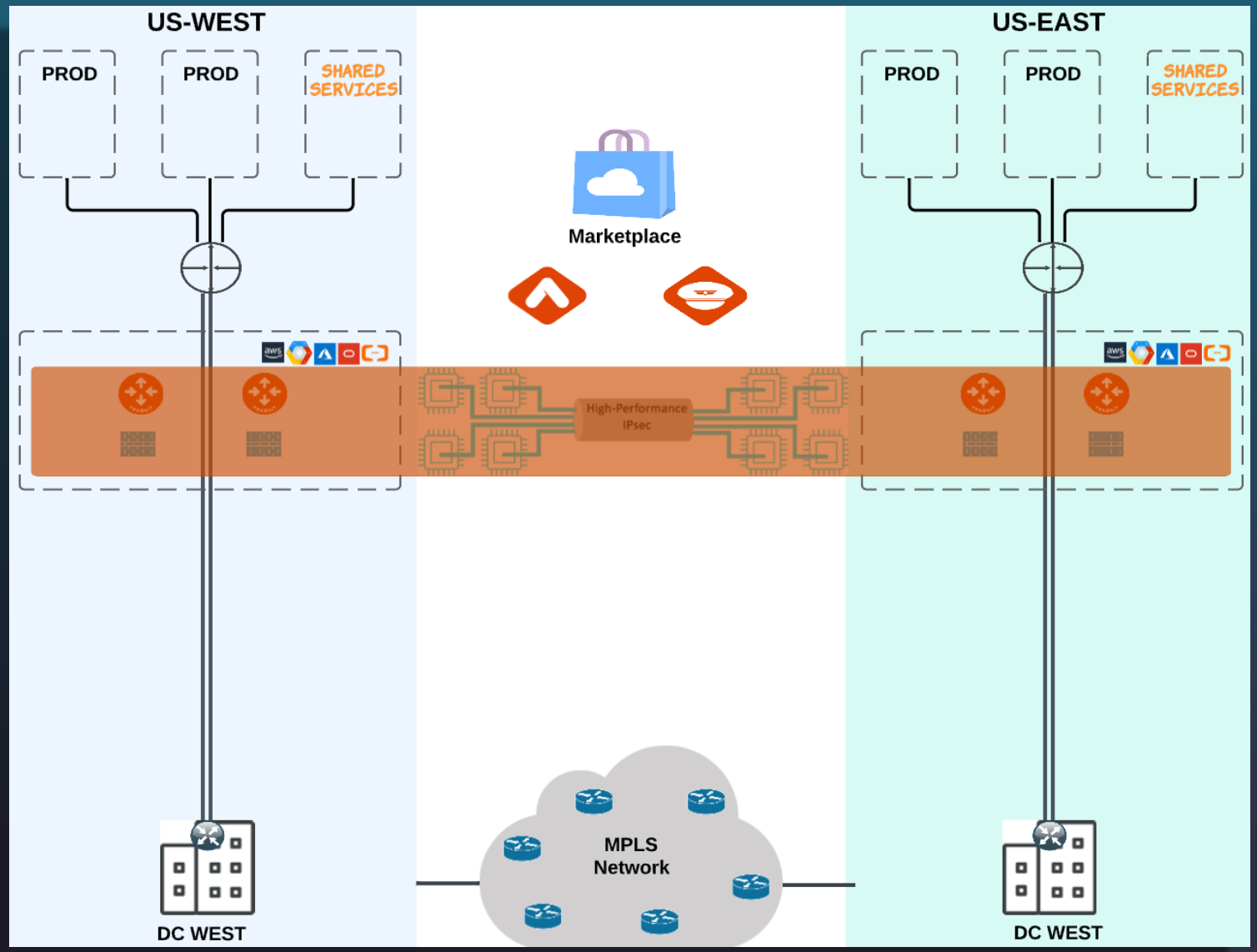
  - NGFWs
  - Deploy Cloud Backbone



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  - NGFWs
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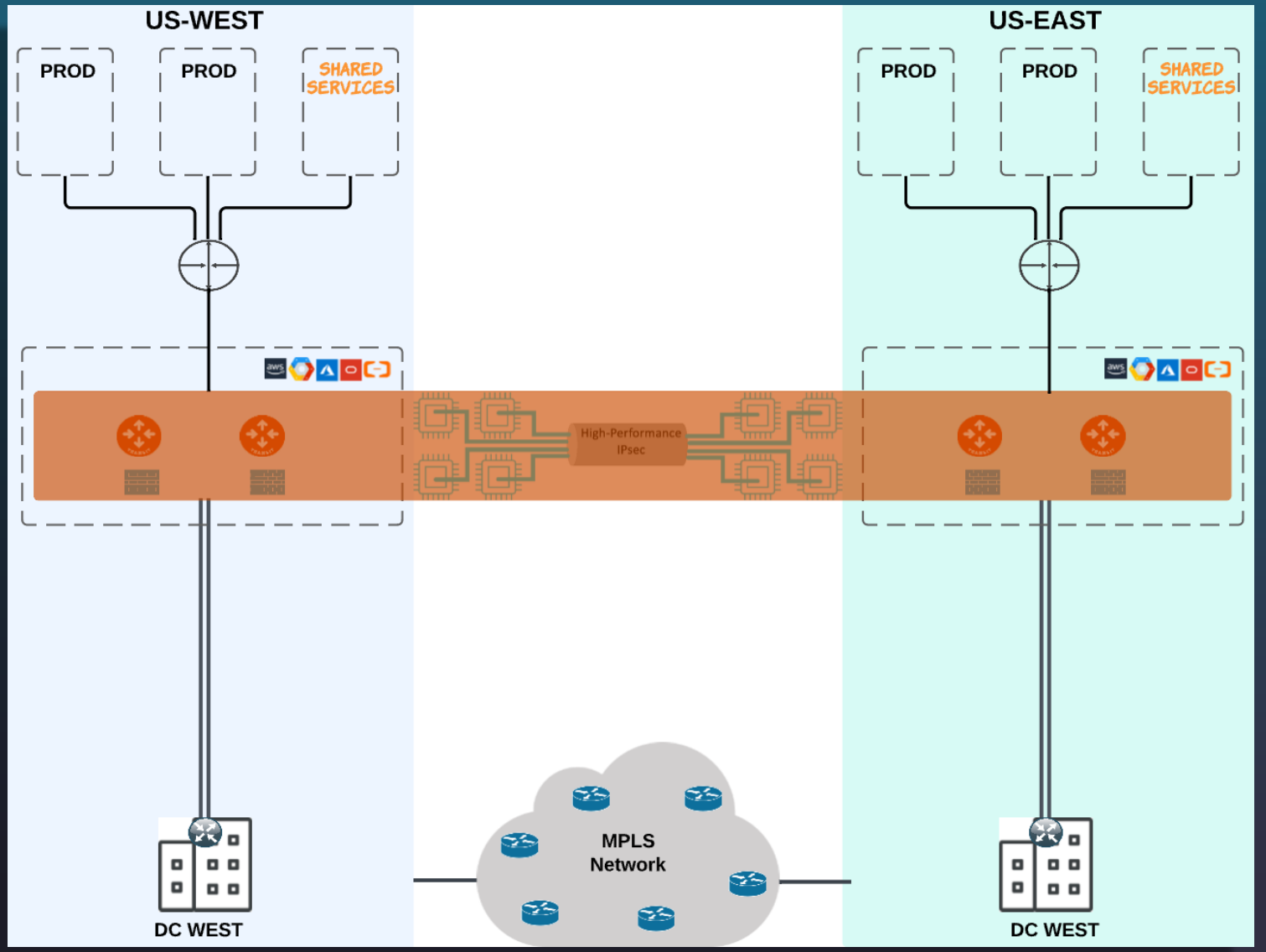
- Connect the native transit construct to the Cloud Backbone
- Switch the private circuits connectivity from the native transit construct to Cloud Backbone



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Enterprise Architecture 2

Colo Extension

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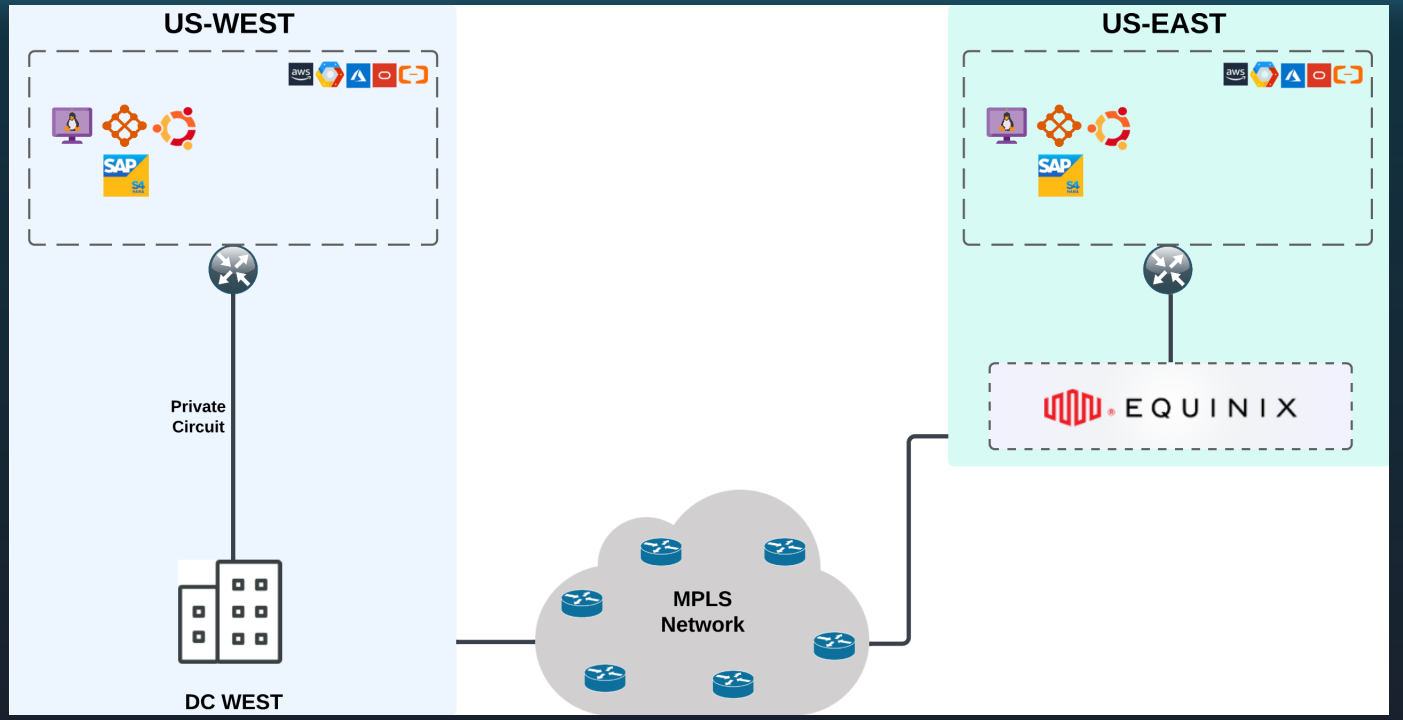
Architecture 2 – CoLo Extension

Inconsistent and Expensive

- Business growing in a new region
  - No plans to invest in the DC business
- DC, CoLo and Cloud region's application dependencies
- MPLS to connect Equinix with the DC
- Equinix provides connectivity to East region's applications
- Inter-region applications experience significant latency
- Expensive to deploy and maintain high-capacity MPLS and CSP private circuits



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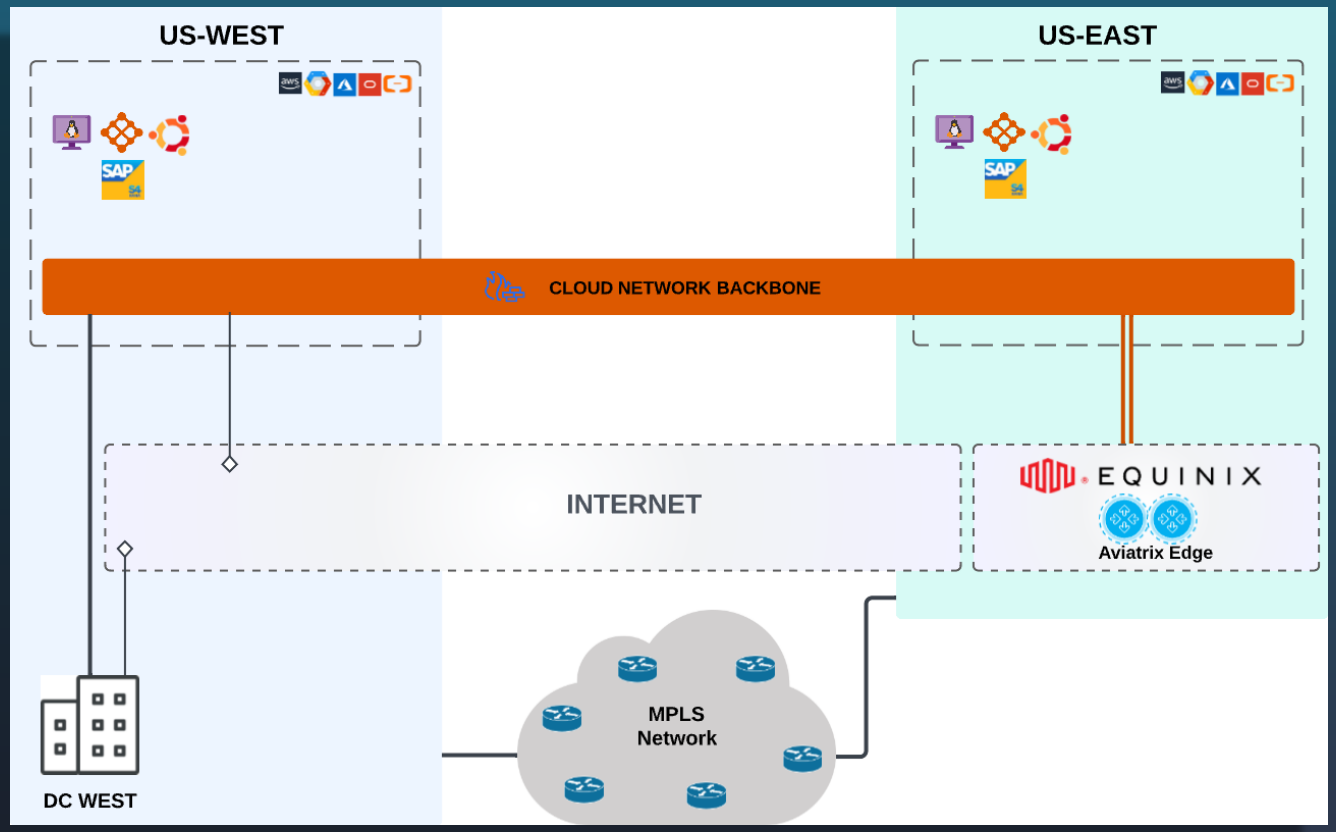
Architecture 2 – CoLo Extension

Aviatrix Cloud Backbone

- Common repeatable architecture in the cloud and in the Equinix
- Leveraging CSP's and Equinix underlay to considerably reduce application latency
- No forced traffic backhauling
- Cost-effective enterprise cloud network backbone solution
  - Reduce private WAN circuits usage
  - Eliminate use of expensive native visibility services
  - No need to involve developers to stitch many visibility and troubleshooting tools



- Enterprise-class embedded telemetry, network visibility and troubleshooting tools

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Architecture 2 – CoLo Extension

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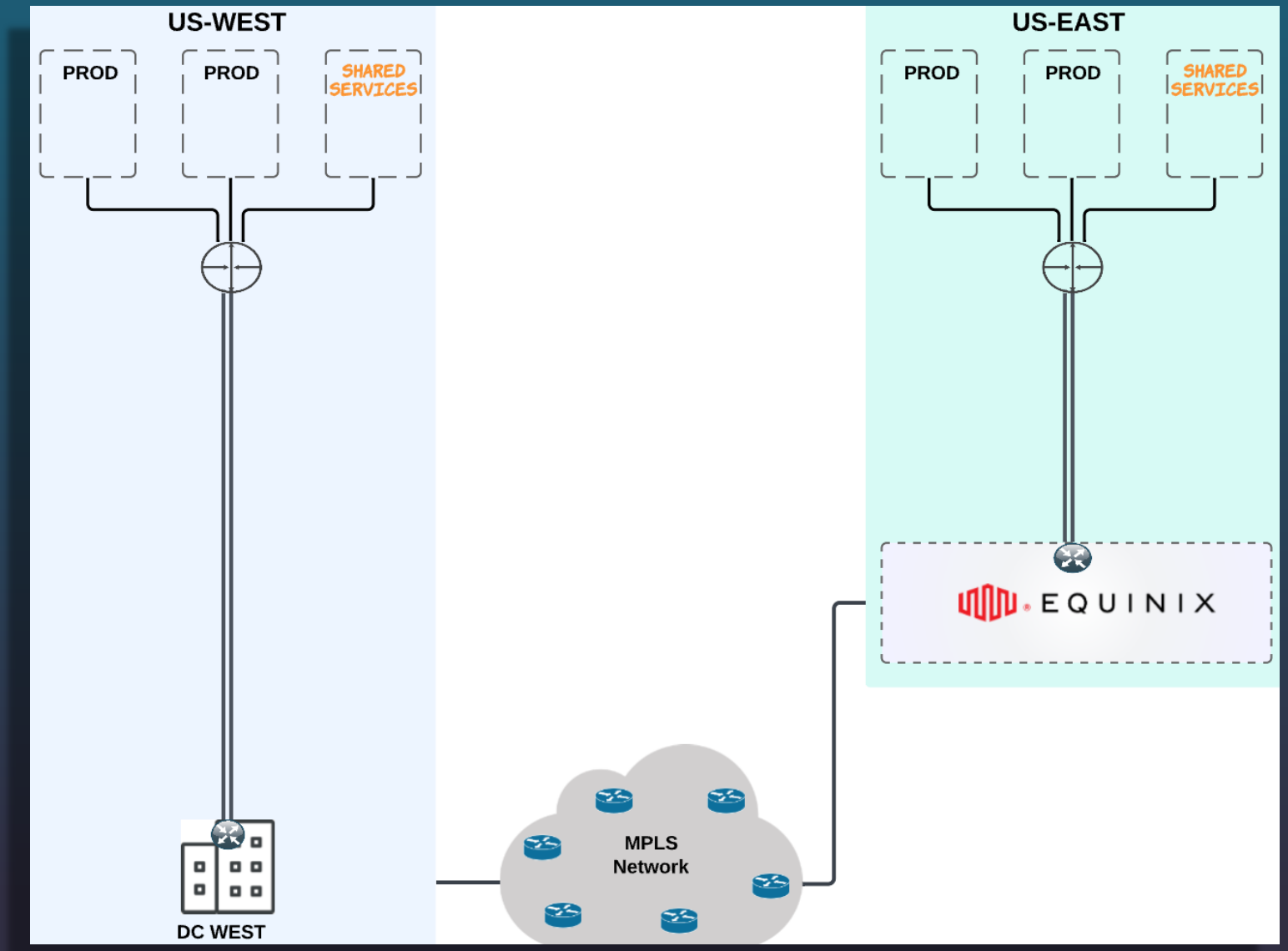

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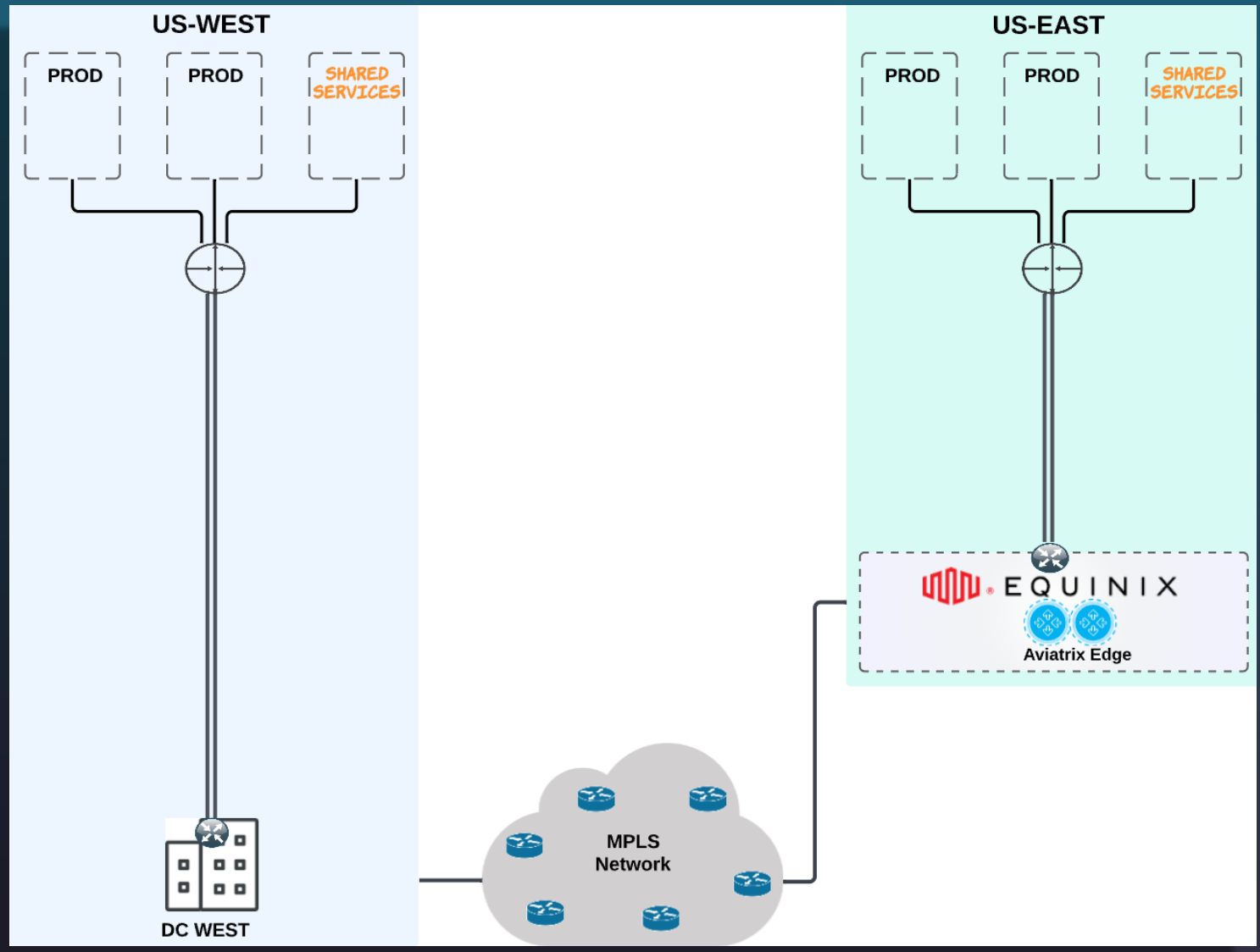
Architecture 2 – CoLo Extension

How to Get Started

- Zoomed-in Existing Architecture
- Deploy Aviatrix Edge from Equinix marketplace



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Architecture 2 – CoLo Extension

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- Deploy Aviatrix Controller & CoPilot from CSP Marketplace
- Create the following from Aviatrix without changing anything in the existing architecture
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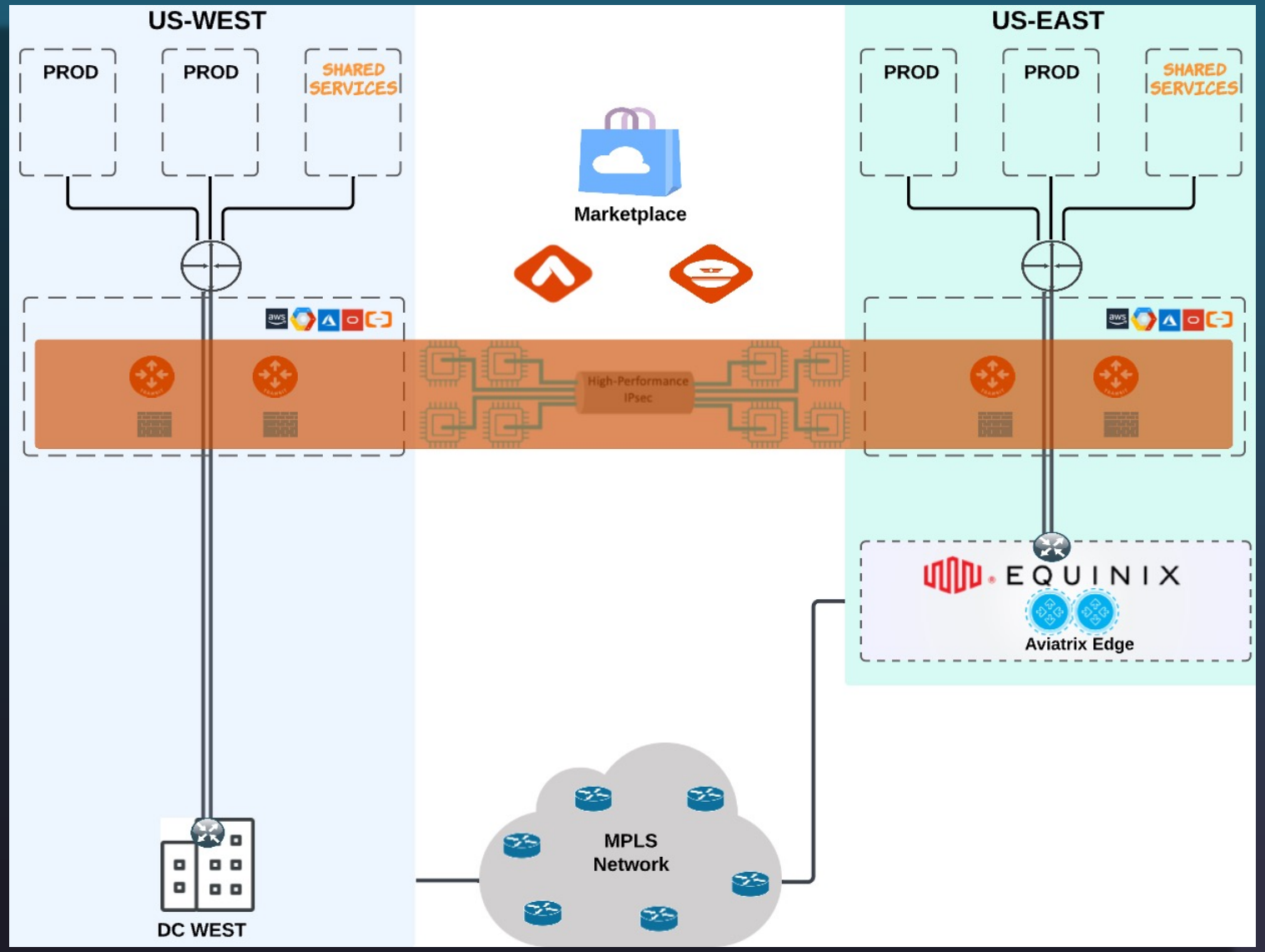
  - Aviatrix Transit GWs
  - Deploy NGFWs
  - Deploy Cloud Backbone



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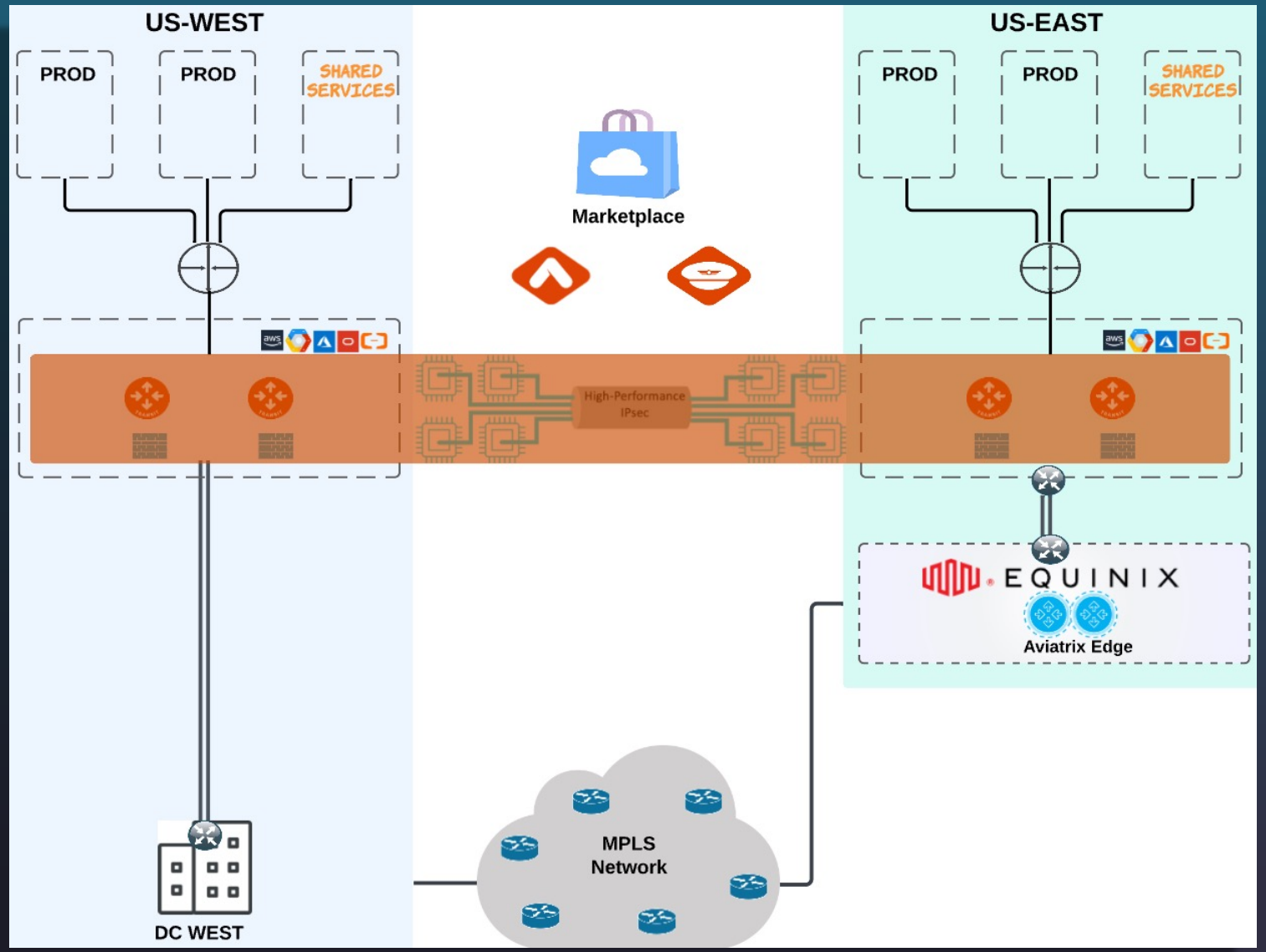
  - Deploy NGFWs
  - Deploy Cloud Backbone
- Connect the native transit construct to the Cloud Backbone
- Create HPE connectivity between Equinix and Cloud Backbone using Aviatrix Edge



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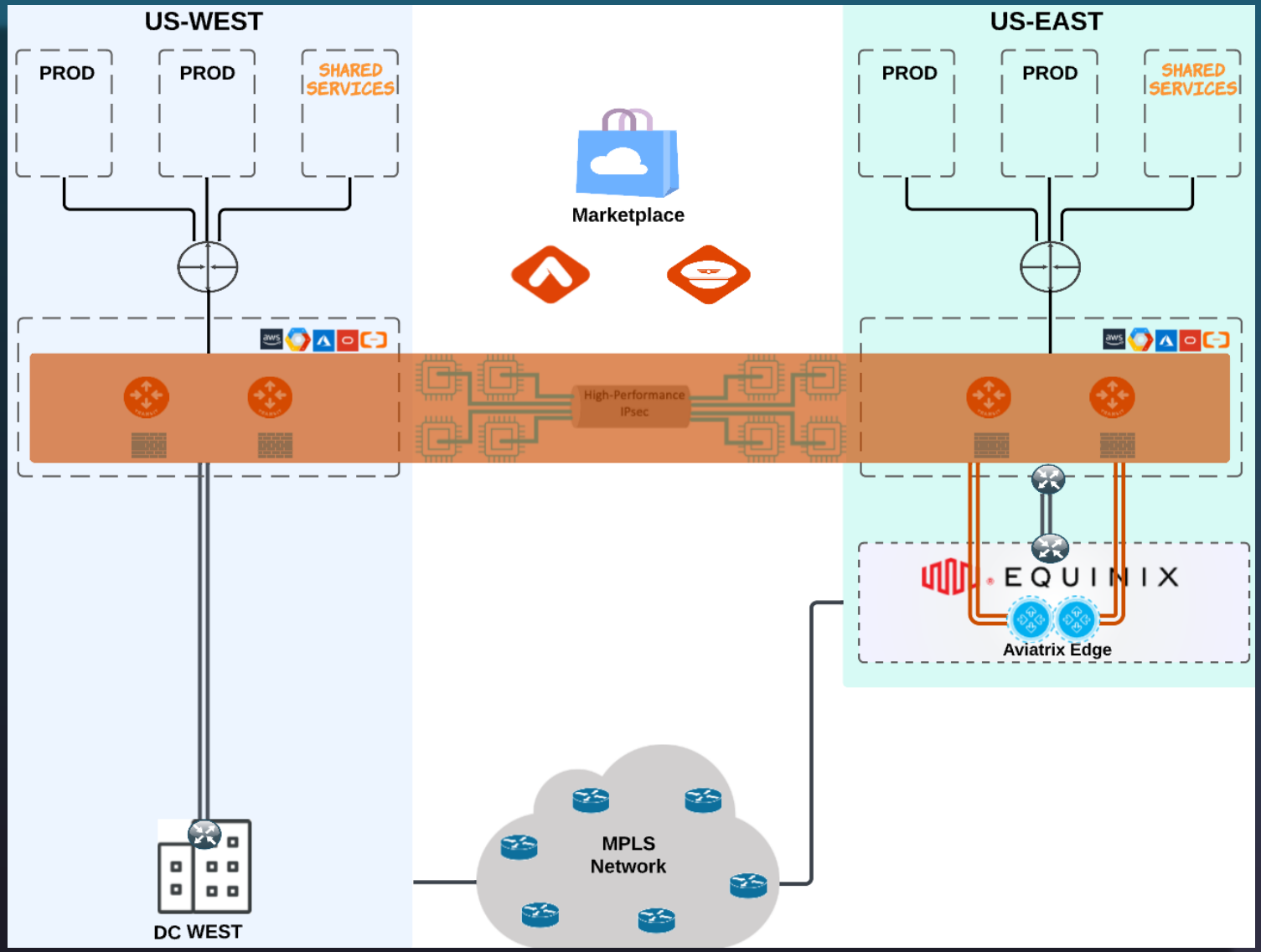
- Switch the private circuits connectivity from the native transit construct to Cloud Backbone



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Architecture 2 – CoLo Extension+

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- Deploy Aviatrix Controller & CoPilot from CSP Marketplace
- Create the following from Aviatrix without changing anything in the existing architecture
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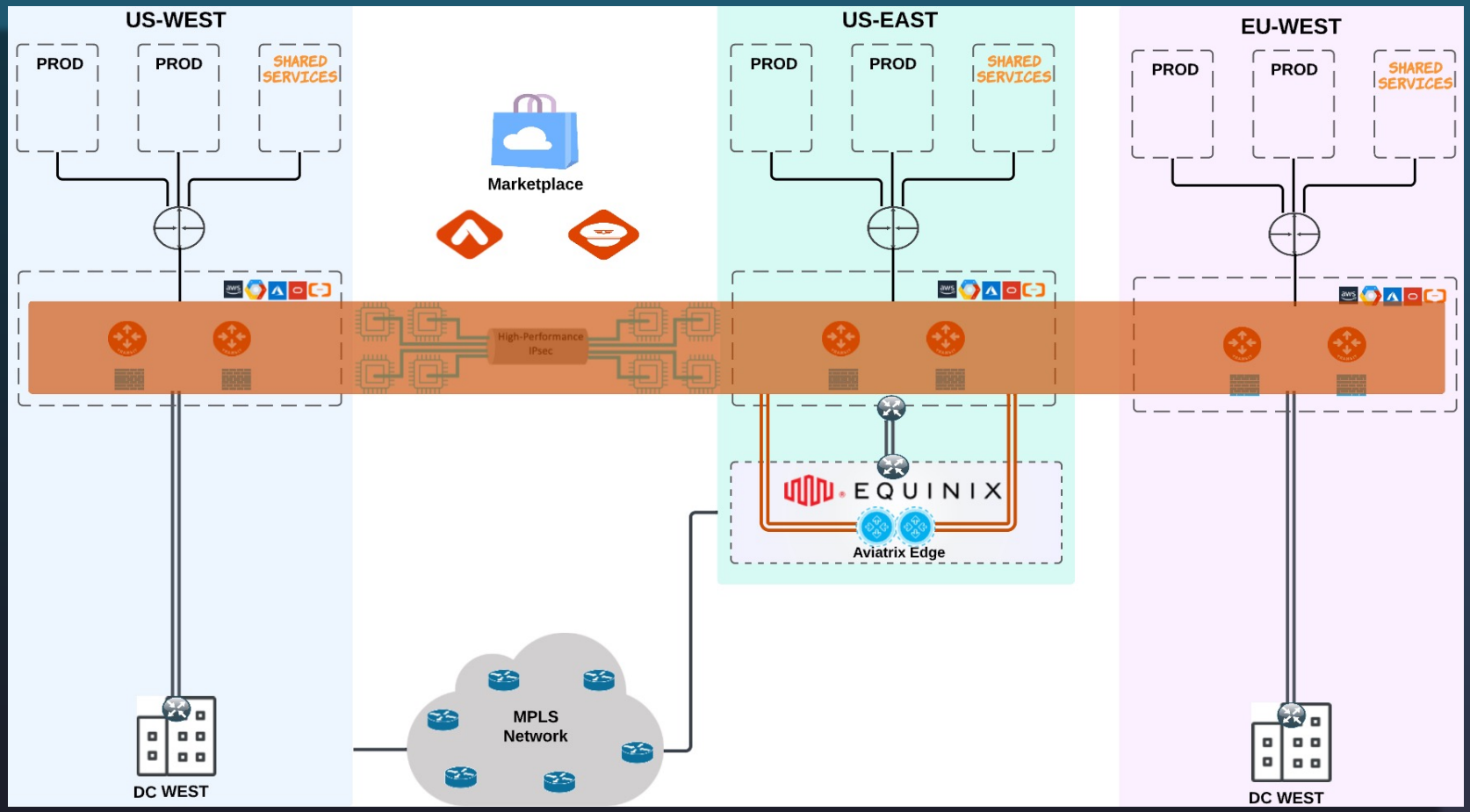
  - Aviatrix Transit GWs
  - Deploy NGFWs
  - Deploy Cloud Backbone
- Connect the native transit construct to the Cloud Backbone
- Create HPE connectivity between Equinix and Cloud Backbone using Aviatrix Edge
- Switch the private circuits connectivity from the native transit construct to Cloud Backbone
- Extend to any new region



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Enterprise Architecture 3

SD-WAN

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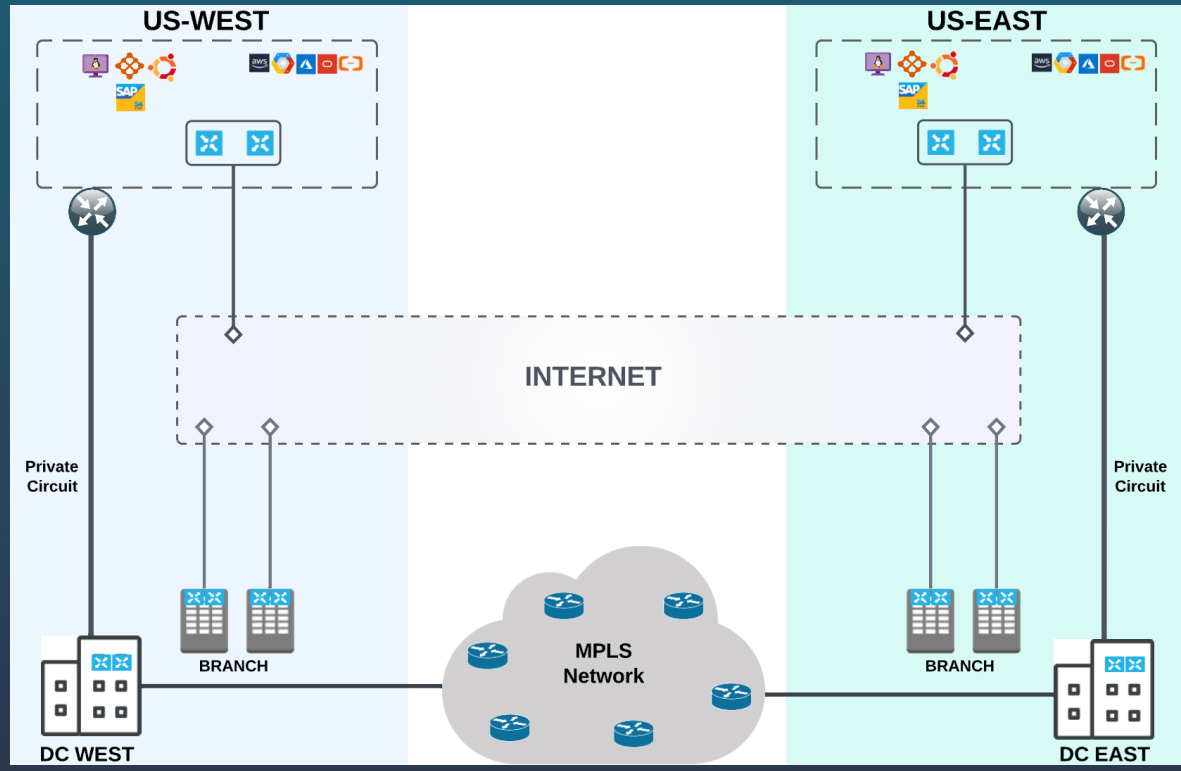
Architecture 3 – SD-WAN

Inefficient, Challenging and Low Performance Solution

- Expensive solution for utilizing only the fundamental features of SD-WAN
- Difficult to manage and deploy hardware at each physical location
- Only understands on-prem environment
  - Cloud on-ramp solution
- SD-WAN hybrid connectivity solutions lacks high-performance encryption
- Runs into native construct's limitations
- Inefficient day2 operations due to many management stations (one per cloud and on-prem)



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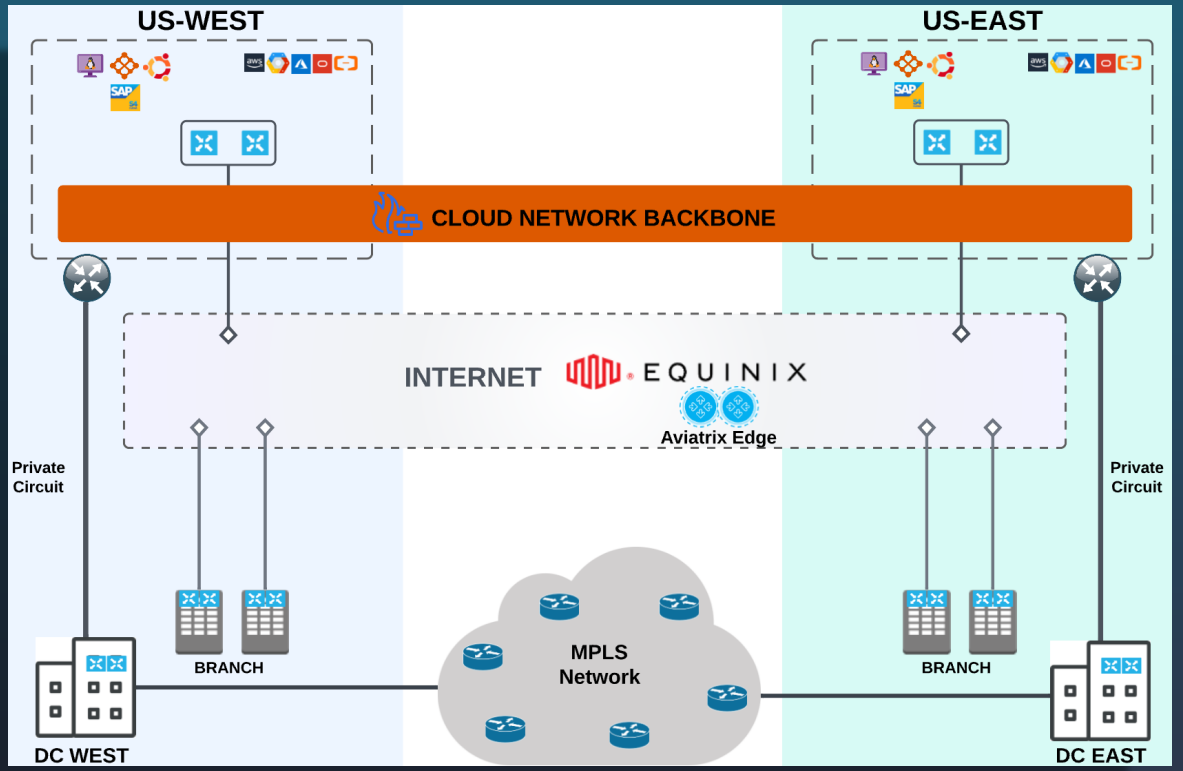
Architecture 3 – SD-WAN

Aviatrix Cloud Backbone

- High-Performance and extremely efficient architecture
- Programmable integration with SD-WAN
- Overcomes native CSP's limitations
- Multicloud native networking and security platform
- Enterprise-class embedded telemetry, network visibility and troubleshooting tools



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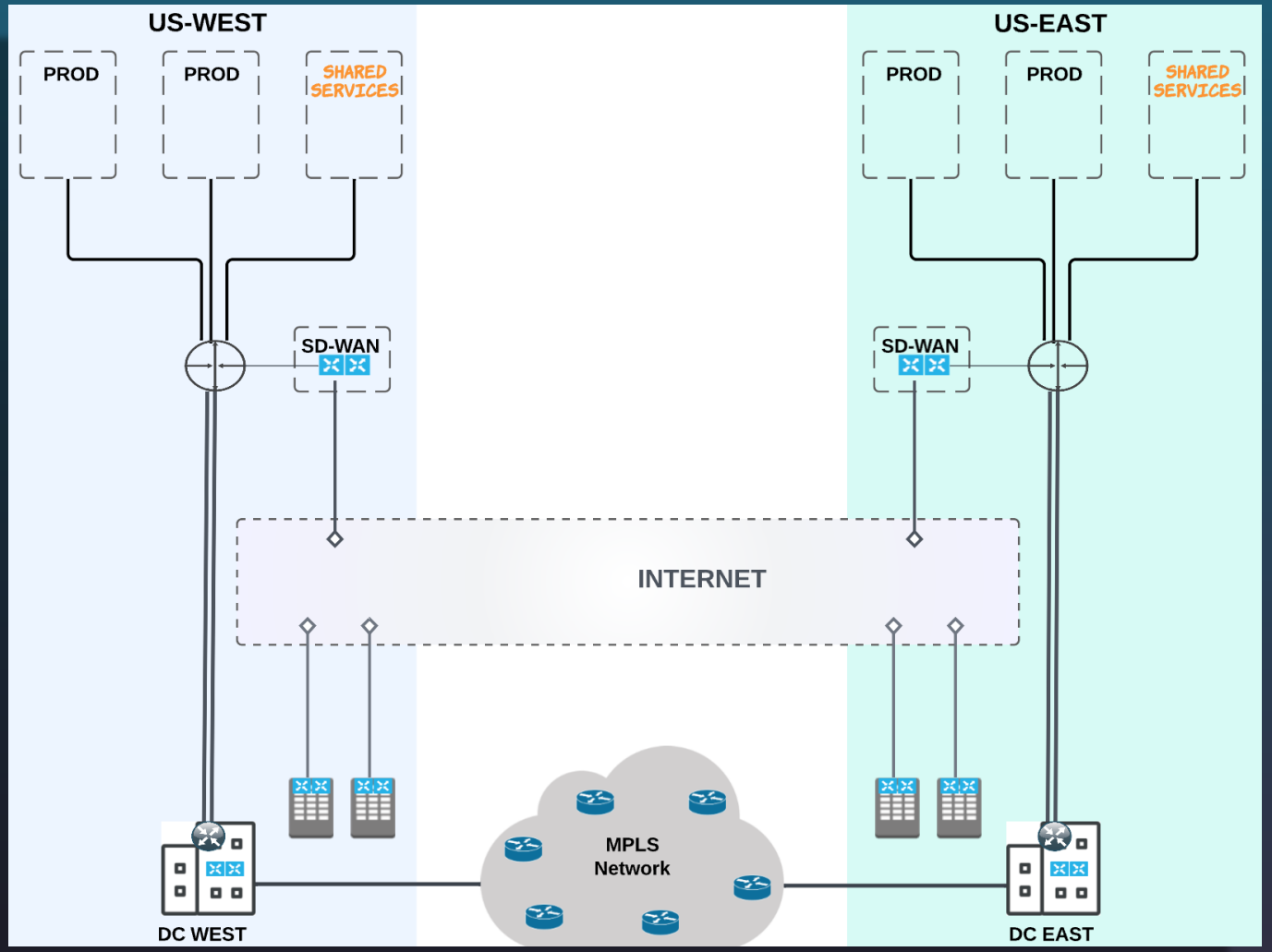
Architecture 3 – SD-WAN

How to Get Started

- Zoomed-in Existing Architecture



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Architecture 3 – SD-WAN

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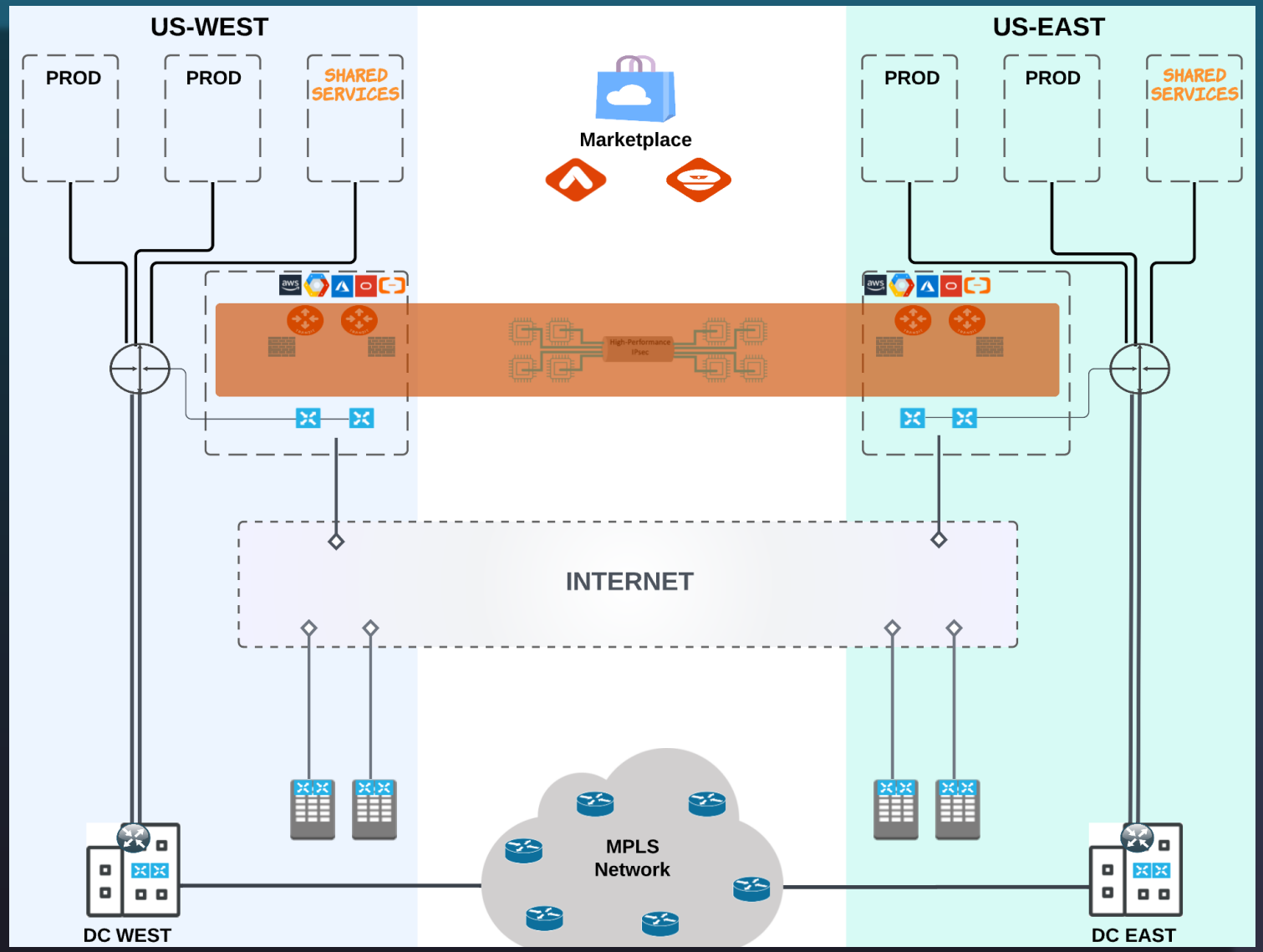
  - Deploy NGFWs
  - Deploy Cloud Backbone



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Architecture 3 – SD-WAN

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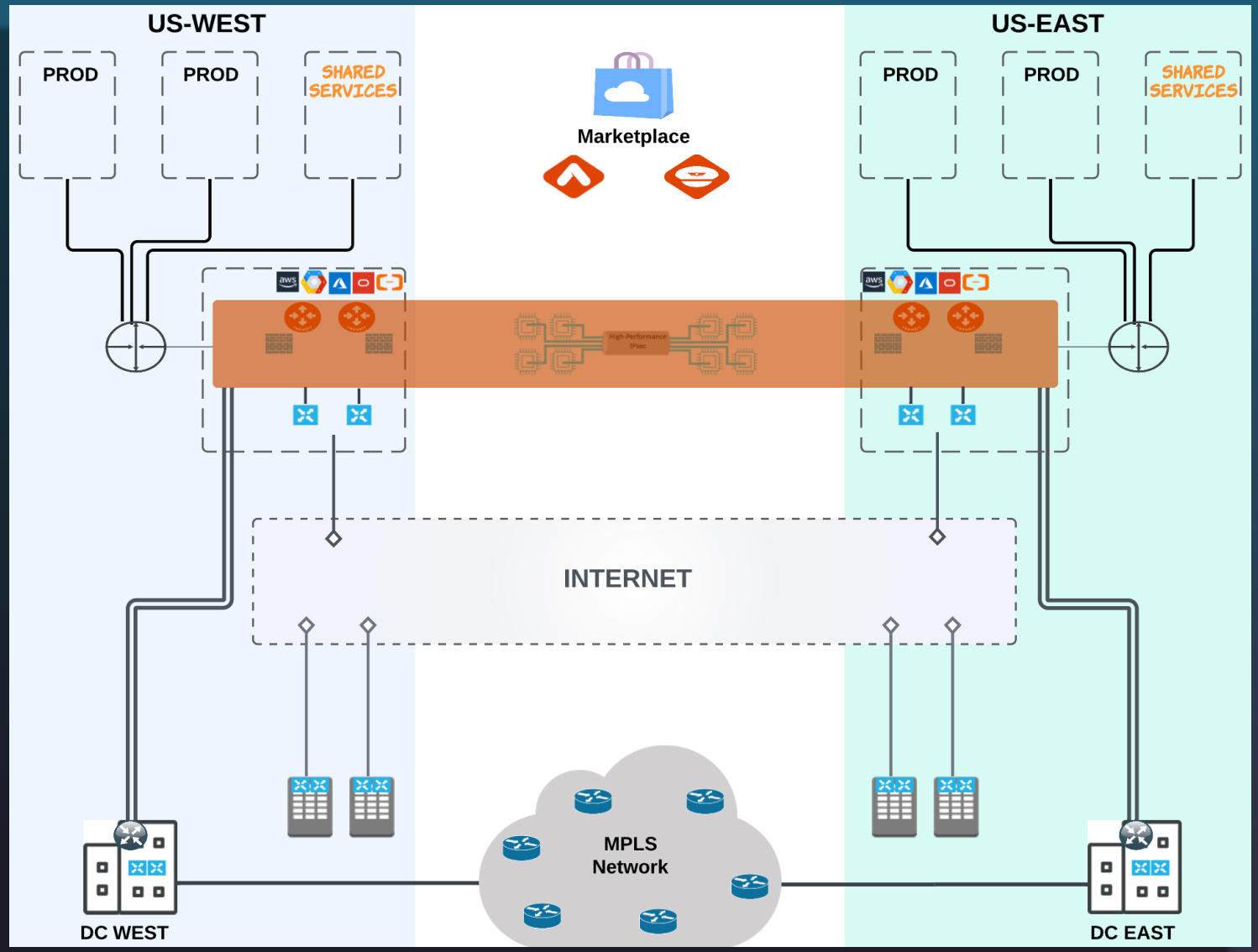
  - Deploy NGFWs
  - Deploy Cloud Backbone
- Build BGP adjacencies between Cloud Backbone and SD-WAN headend
- Switch native transit connection from SD-WAN to Cloud Backbone (BGP)
- Terminate private hybrid connectivity on Cloud Backbone



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Architecture 3 – SD-WAN (Equinix Extension)

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  - Deploy Cloud Backbone
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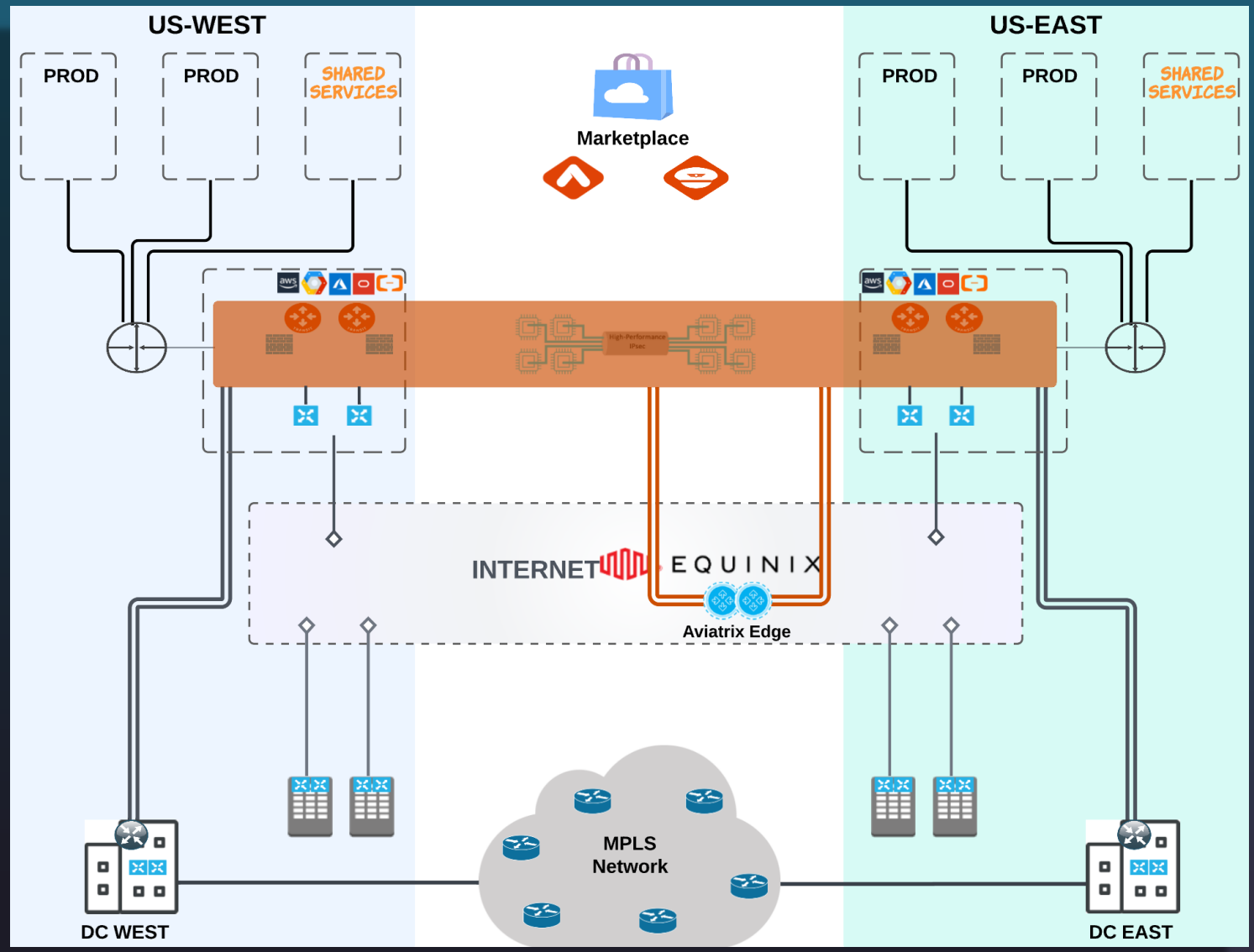
- Switch native transit connection from SD-WAN to Cloud Backbone (BGP)
- Terminate private hybrid connectivity on Cloud Backbone
- Extend to Equinix



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Enterprise Architecture 4

Hybrid Connectivity

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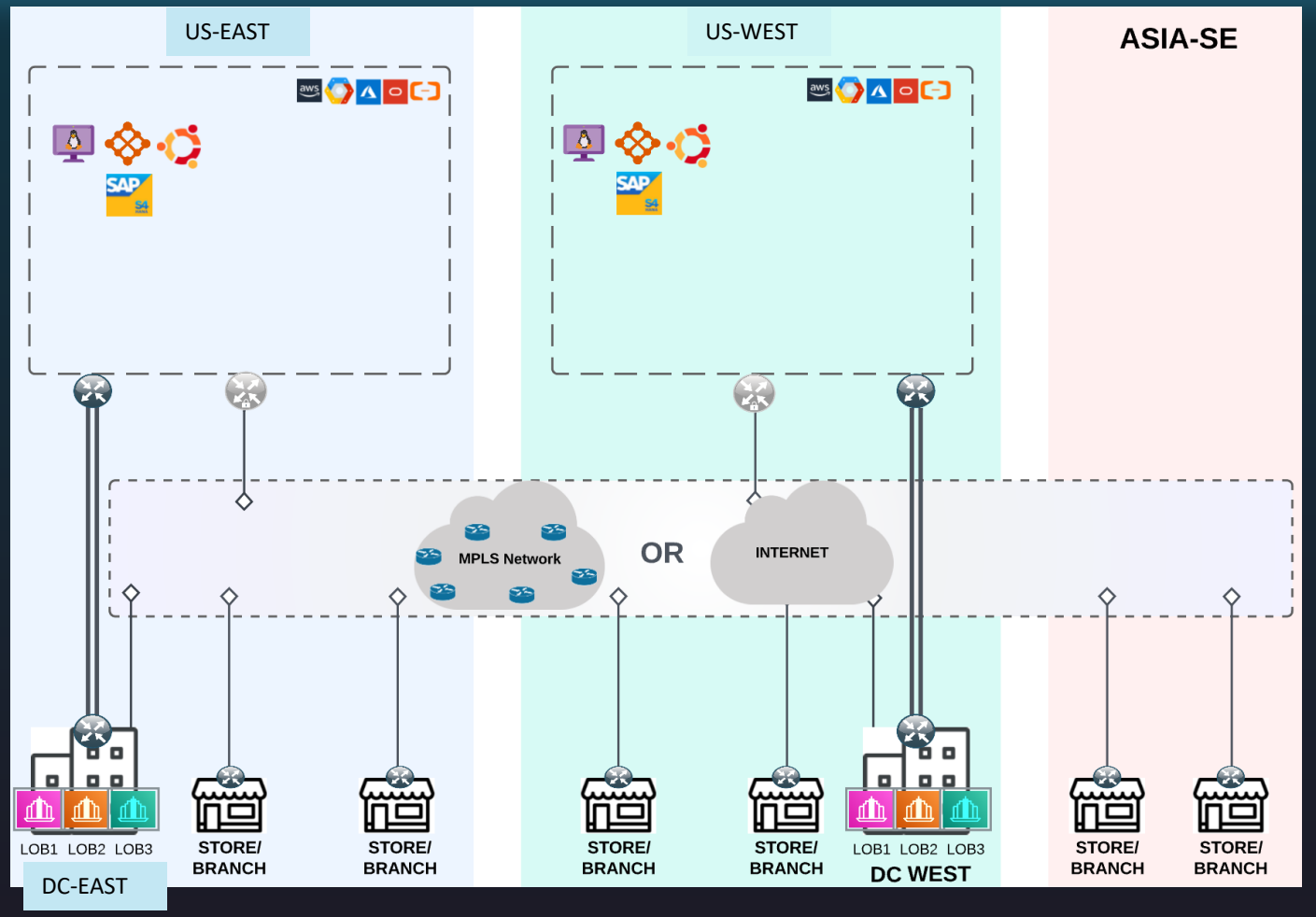
Architecture 4 – Hybrid Connectivity

Insecure, Inefficient & Lacks Programmability

- Native and 3rd party hybrid connectivity solutions lacks Zero Trust Architecture
  - Complex and expensive to achieve segregation between Lines of Businesses (LOBs)
  - Provides either low-performance encryption capabilities or let the traffic pass through unencrypted
  - NextGen FW service insertion
- Cloud-to-OnPrem application latency challenges (remote regions where no applications were deployed)
- Programmability challenges
- Organizational Boundaries Dependence
  - Network team responsible for the hybrid connectivity (on-ramp)
  - Cloud team responsible for the cloud transit architecture
  - Changes made by either team are not visible to the other team
- Expensive to deploy and maintain high-capacity MPLS and CSP private circuits



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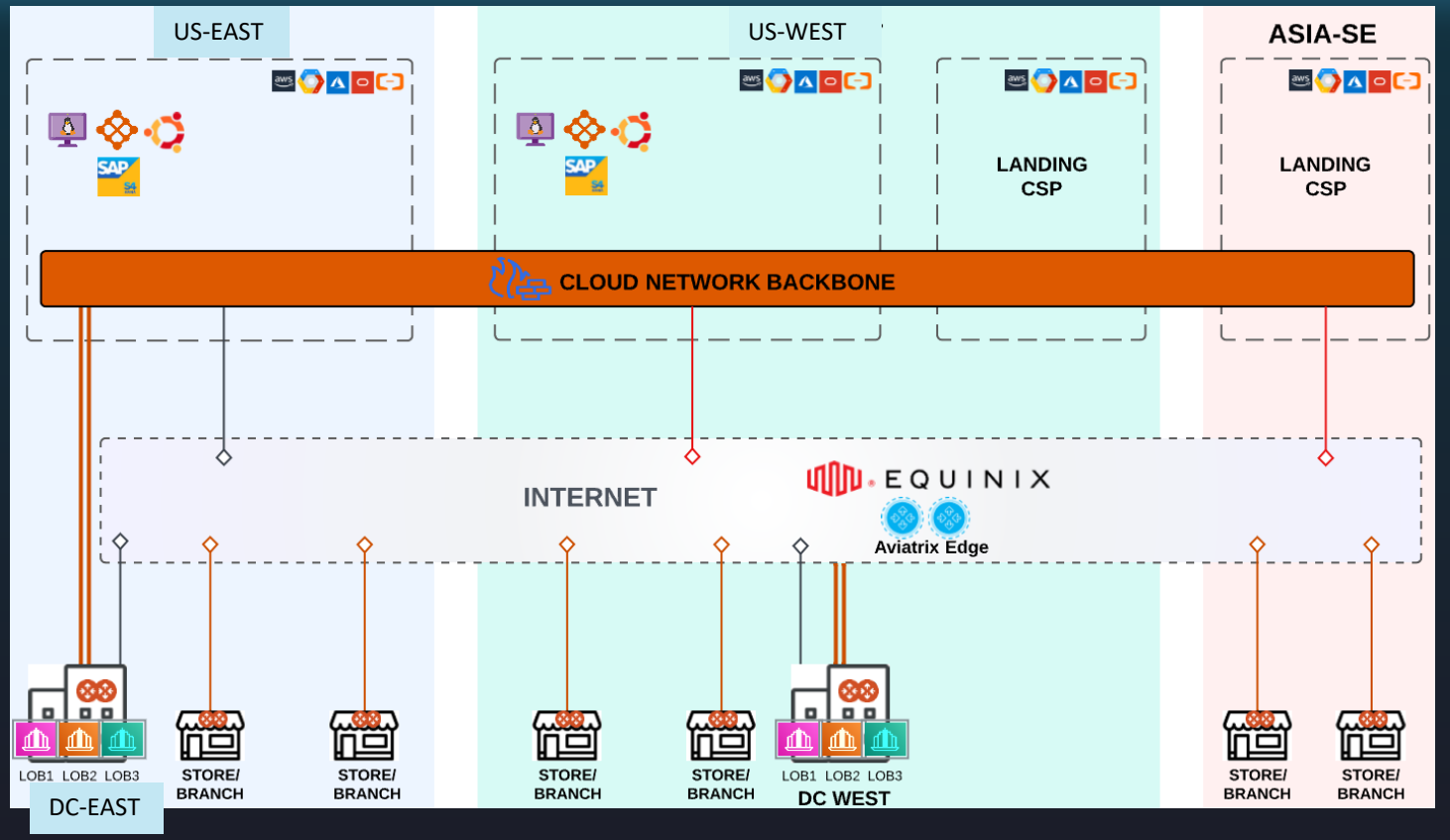
Architecture 4 – Hybrid Connectivity

Aviatrix Cloud Network Backbone

- Zero Trust policy-based security architecture
  - High-performance encrypted inter-region and multicloud connectivity
  - LOBs applications segmentation
  - NexGen FW service in the cloud (No hair-pinning)
- Highly flexible cloud-out solution
  - Utilize landing CSP without deploying applications to overcome latency challenges
- Programmable multicloud and on-prem deployment
  - No need to involve developers to stitch many visibility and troubleshooting tools
- Zero Touch Provisioning
- Cost-effective enterprise cloud network backbone solution
  - Reduce private WAN circuits usage
  - Eliminate use of expensive native visibility services
- Unified management-plane for multicloud and on-prem



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Architecture 4 – Hybrid Connectivity

How to Get Started

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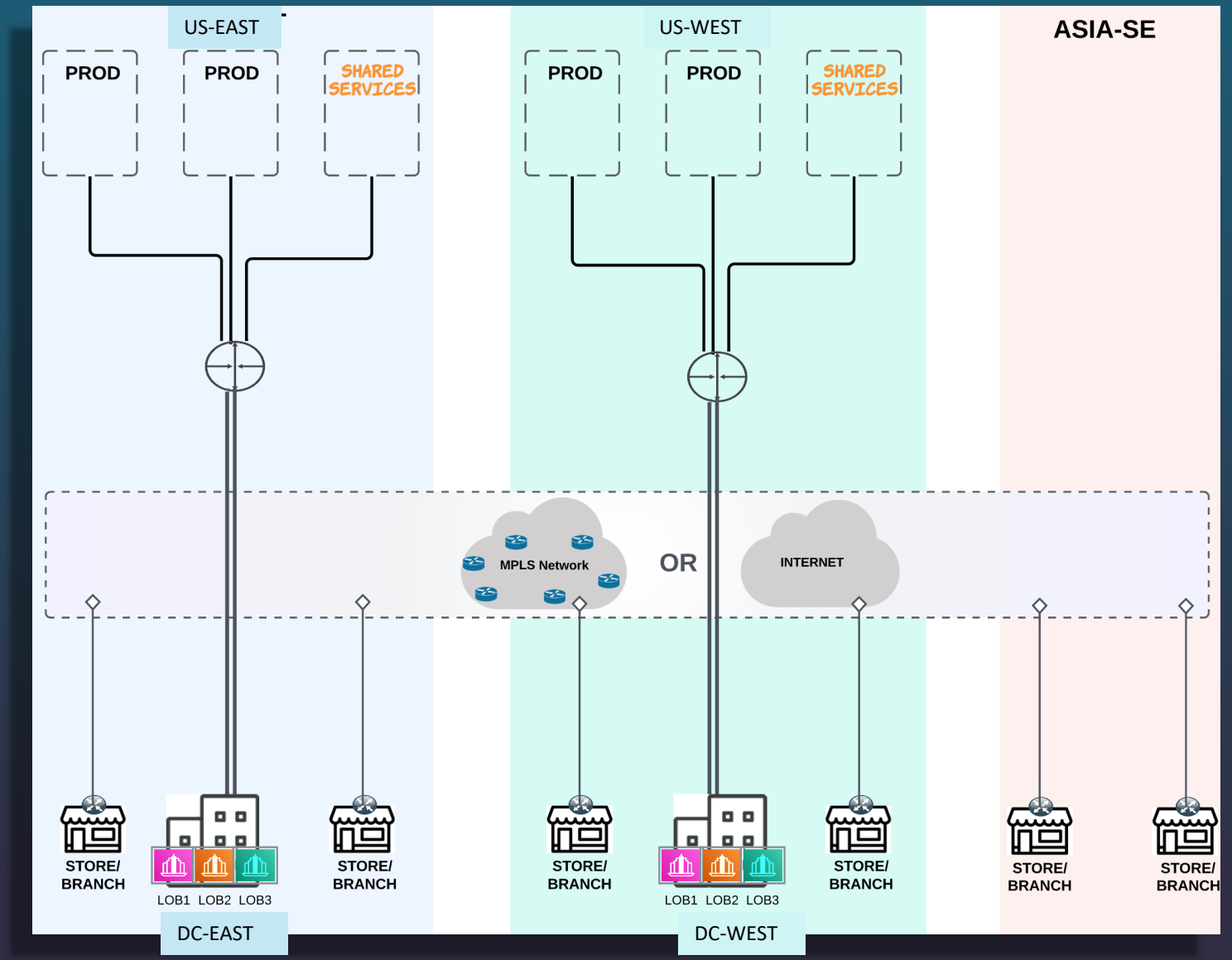

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Architecture 4 – Hybrid Connectivity

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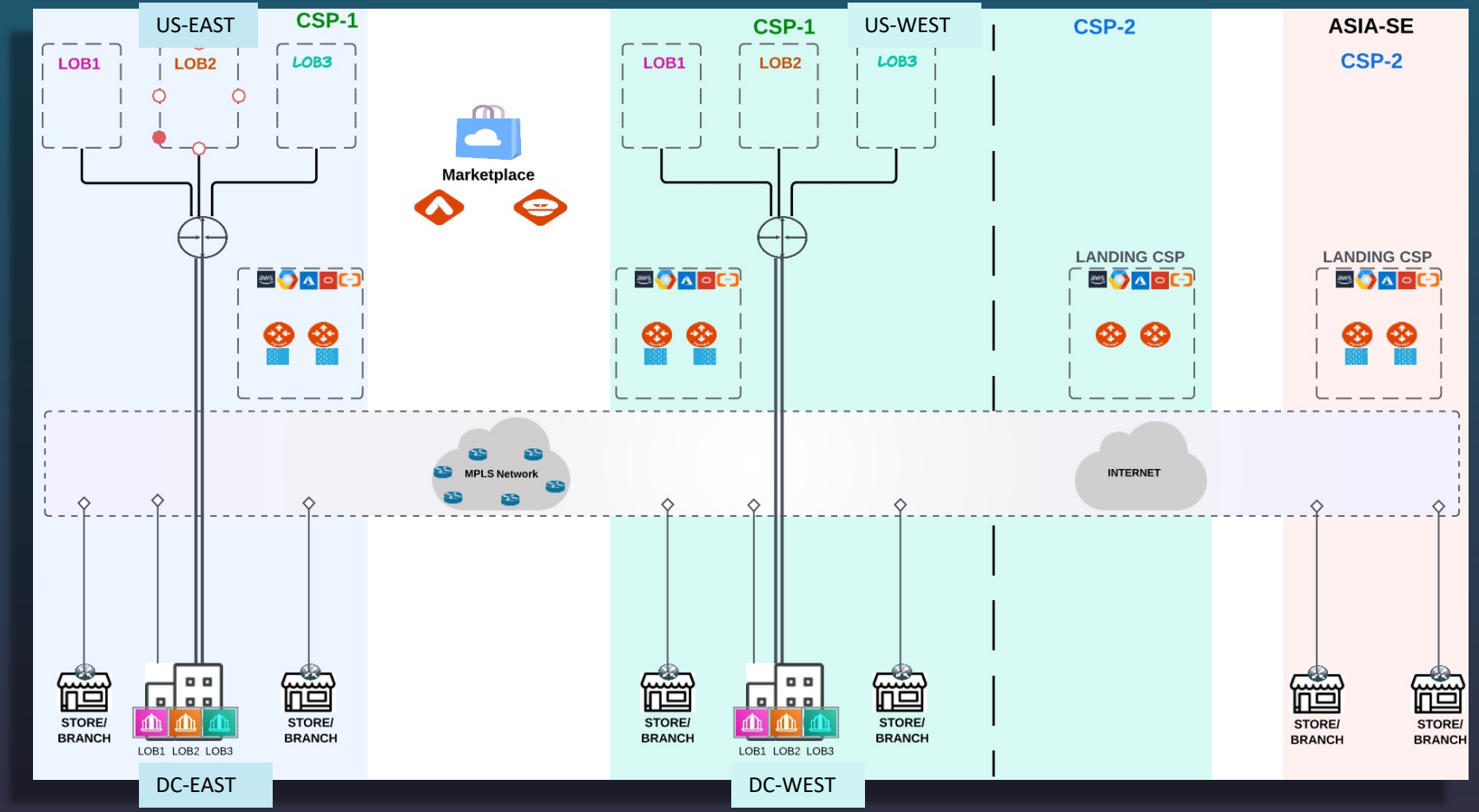

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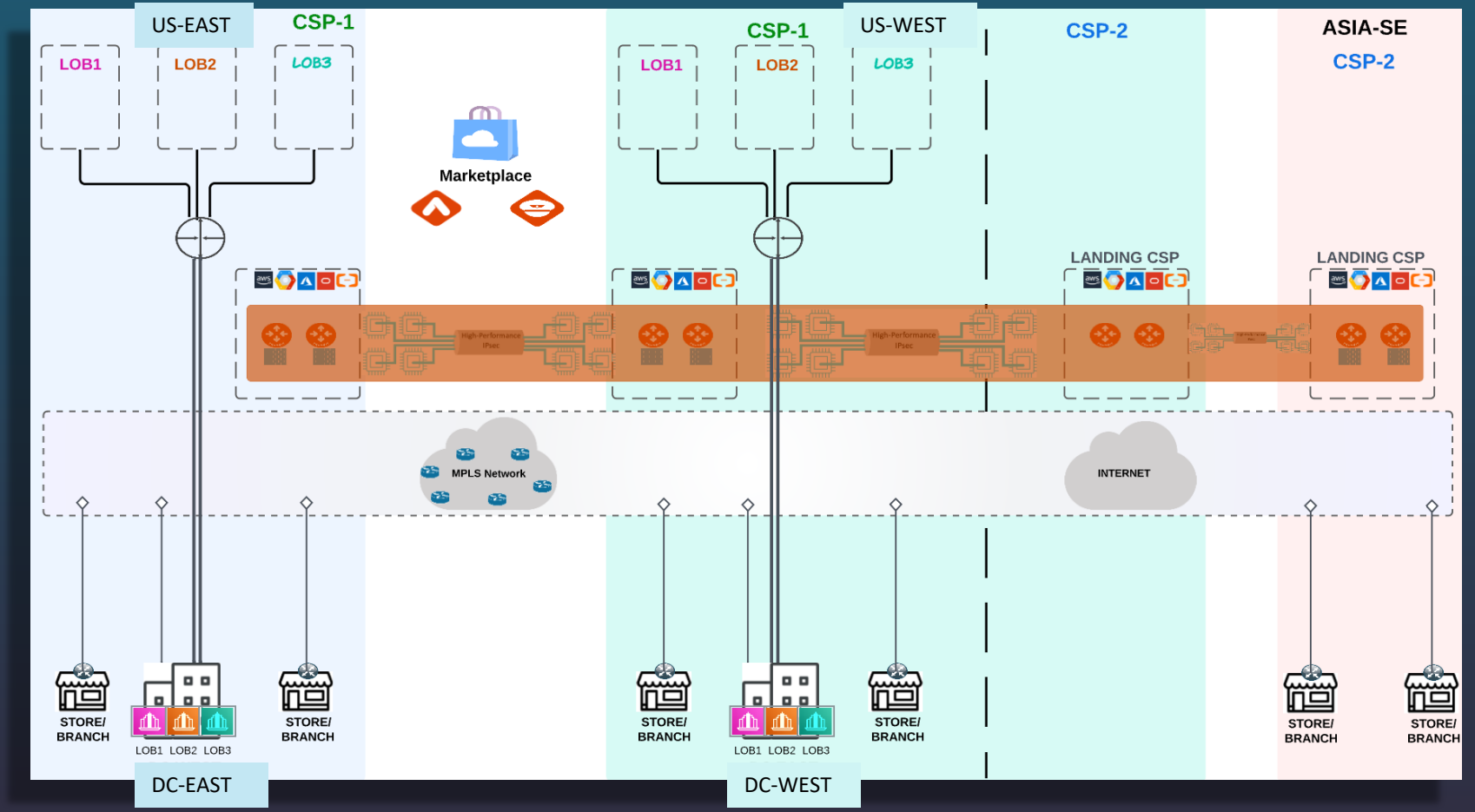
  - Aviatrix Transit GWs
  - Deploy NGFWs except CSP-2 (landing CSP)
  - Deploy Cloud Backbone



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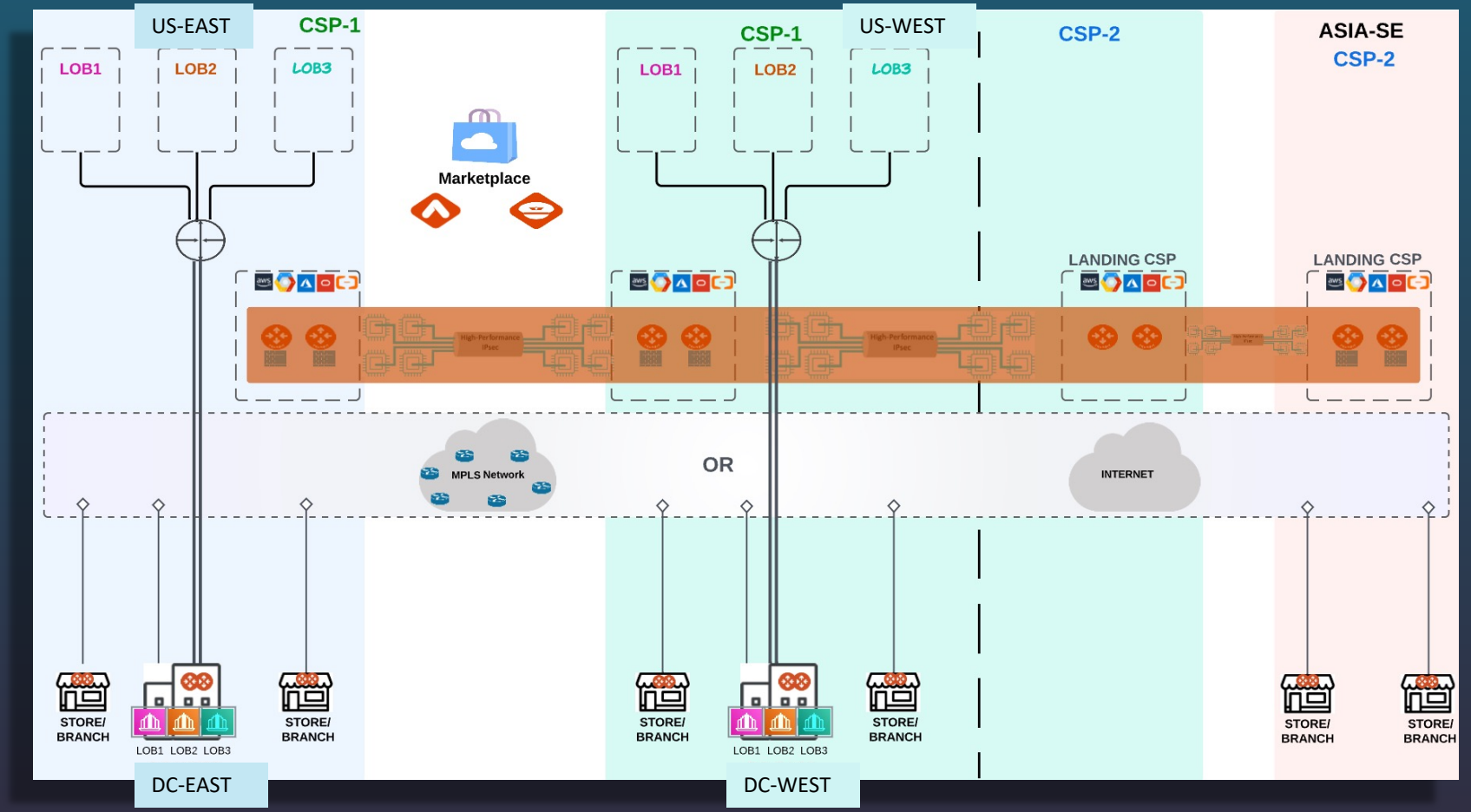
  - Aviatrix Transit GWs
  - Deploy NGFWs except CSP-2 (landing CSP)
  - Deploy Cloud Backbone
- Deploy Aviatrix Edge in the DC and branches



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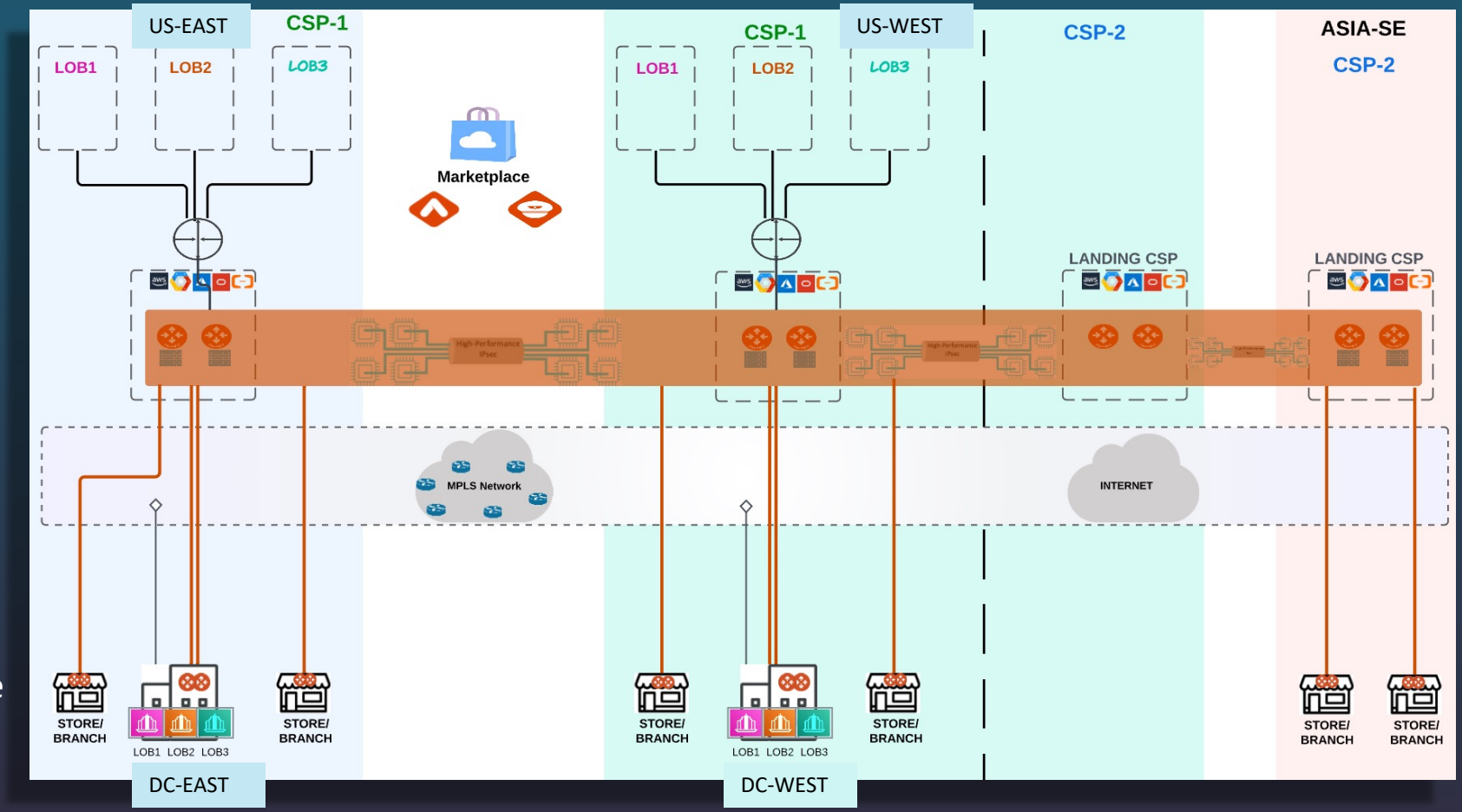
  - Deploy NGFWs except CSP-2 (landing CSP)
  - Deploy Cloud Backbone
- Deploy Aviatrix Edge in the DC and branches
- Connect the native transit construct to the Cloud Backbone
- Switch the private circuits connectivity from the native transit construct to Cloud Backbone
- Connect branches with the Cloud Backbone using Aviatrix Edge



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Architecture 4 – Hybrid Connectivity (Equinix Extension)

How to Get Started

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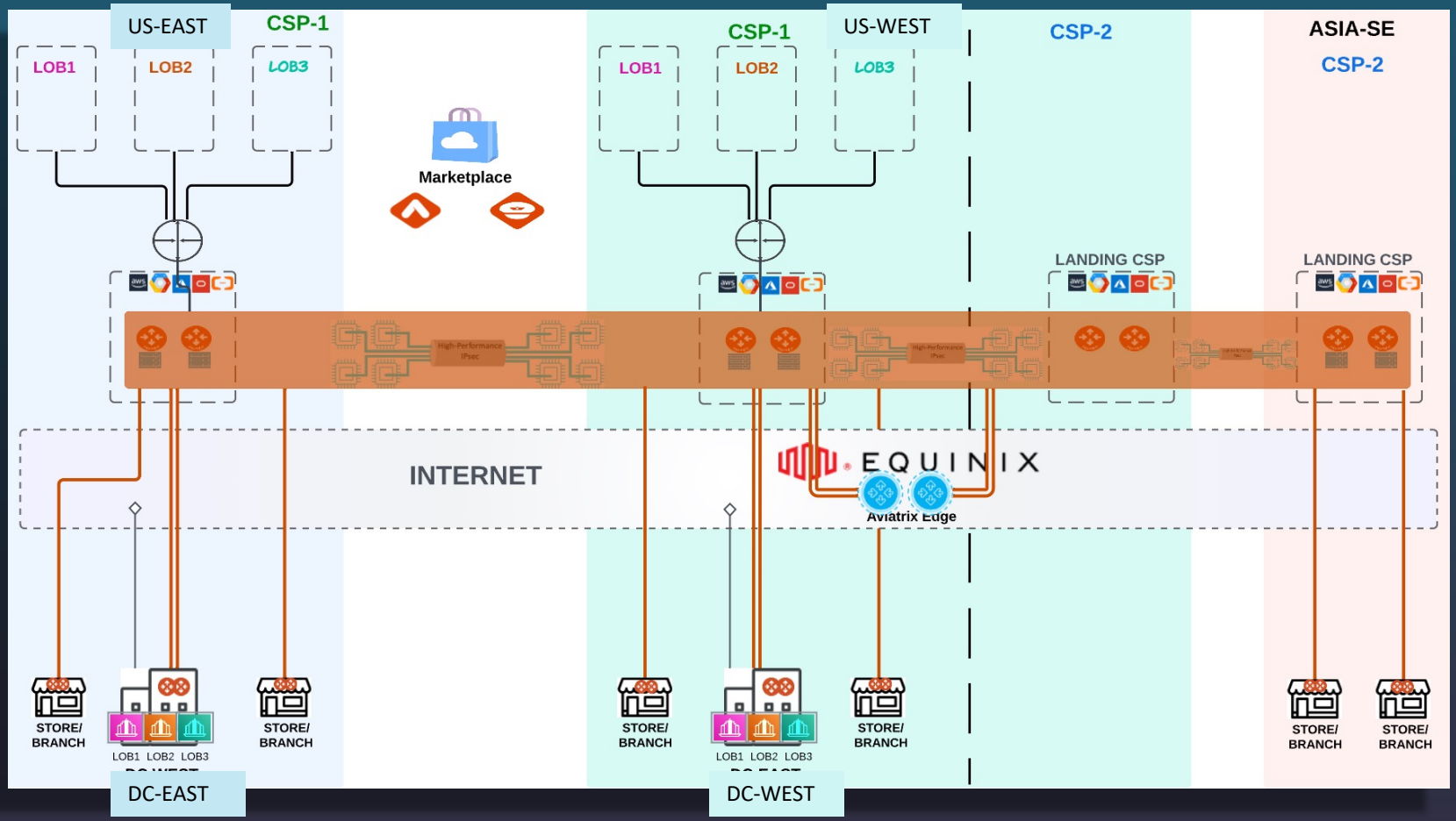
  - Deploy NGFWs except CSP-2 (landing CSP)
  - Deploy Cloud Backbone
- Deploy Aviatrix Edge in the DC and branches
- Connect the native transit construct to the Cloud Backbone
- Switch the private circuits connectivity from the native transit construct to Cloud Backbone
- Connect branches with the Cloud Backbone using Aviatrix Edge
- Create HPE connectivity between Equinix and Cloud Backbone using Aviatrix Edge



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Enterprise Architecture 5

MSPs

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Architecture 5 – Managed Service Providers (MSPs)

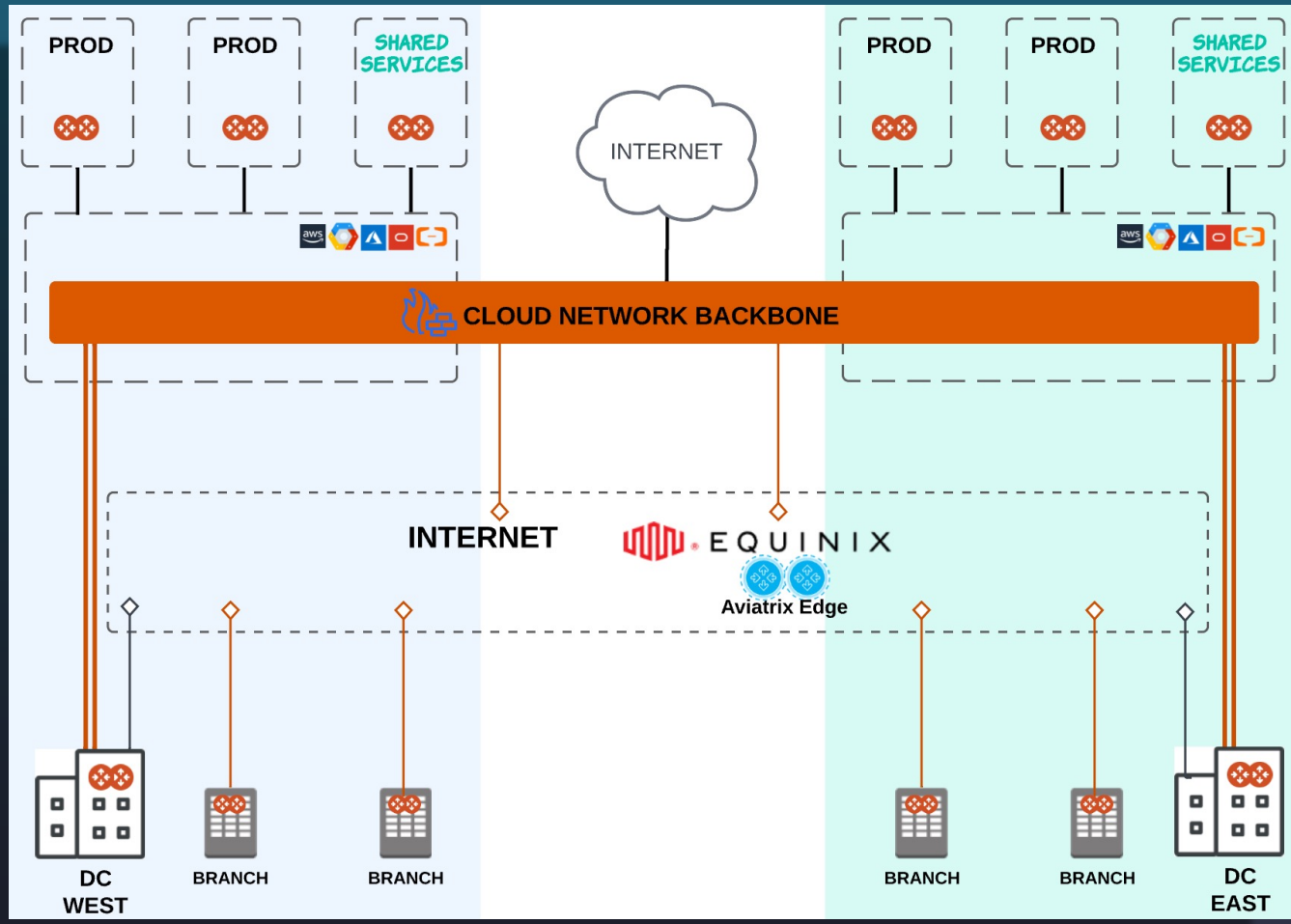
Challenges:

- Slow Digital Transformation
- Locked-in with hardware vendors
  - Challenges in modernization of the solution
  - Solution lacks advanced cloud networking and security infrastructure
- Skills gap challenges
- Customers pushback not to invest in dying technologies
- Hardware staging and deployment delays
- Difficult to maintain multitenancy and segmentation between end-customers and Lines of Businesses (LOBs)
- Inefficient day2 operations due to many management stations (one per cloud and on-prem)

Architecture 5 – Managed Service Providers (MSPs)

Aviatrix Multicloud Network Architecture

- Cutting-edge secure and programmable private cloud network backbone
- Accelerated Digital Transformation
- Multitenancy capable enterprise cloud networking and security solution
- Unified management-plane for multicloud and on-prem



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Enterprise Architecture 6

M&As

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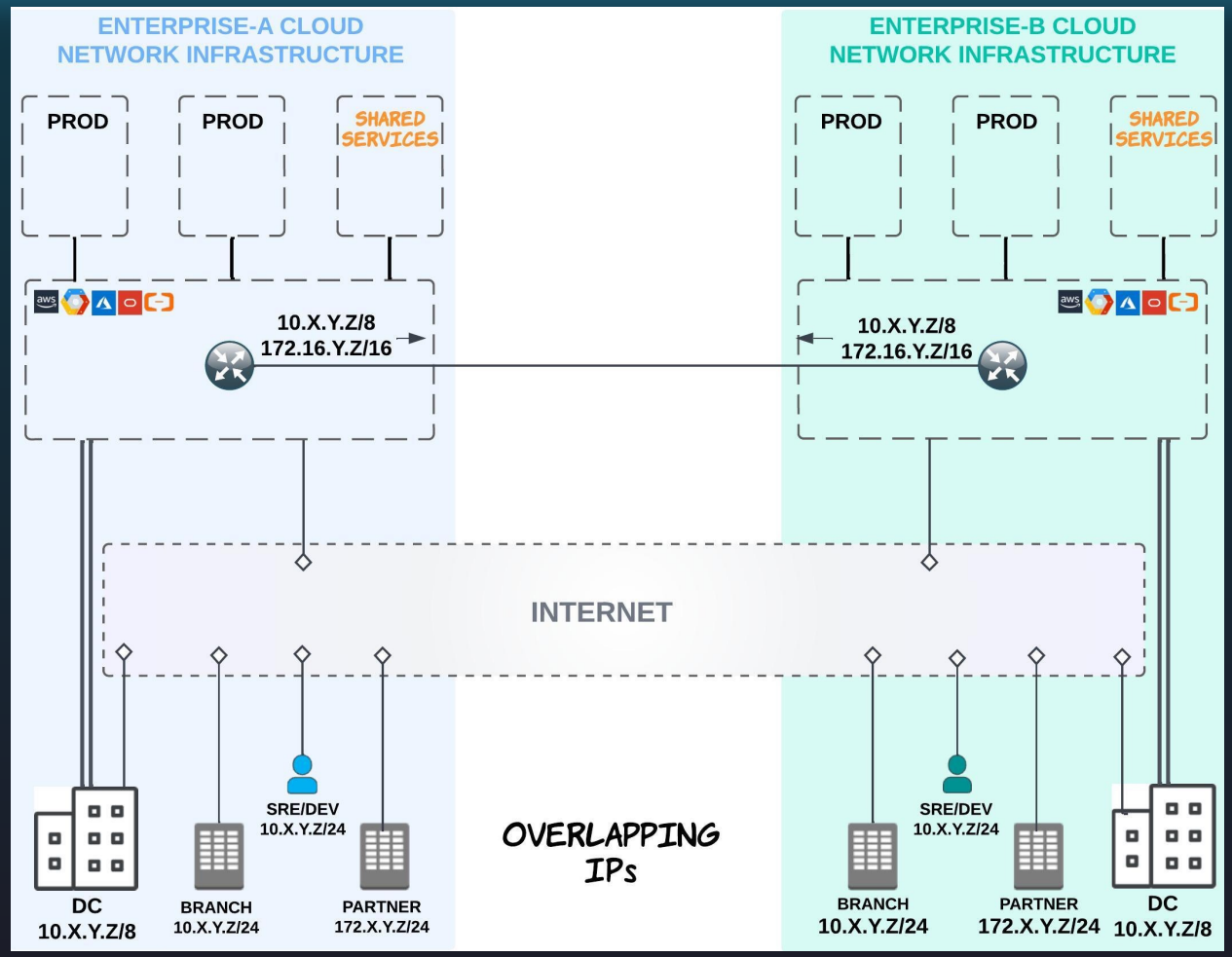
Architecture 6 – Mergers and Acquisitions

Challenges:

- Difficult to learn a new language and its native constructs (acquired enterprise could be in a different CSP)
- Different Security and Compliance Standards
- Different or no Cloud Network Architecture
- Overlapping IPs with:
  - DCs/Branches/Sites
  - Partners



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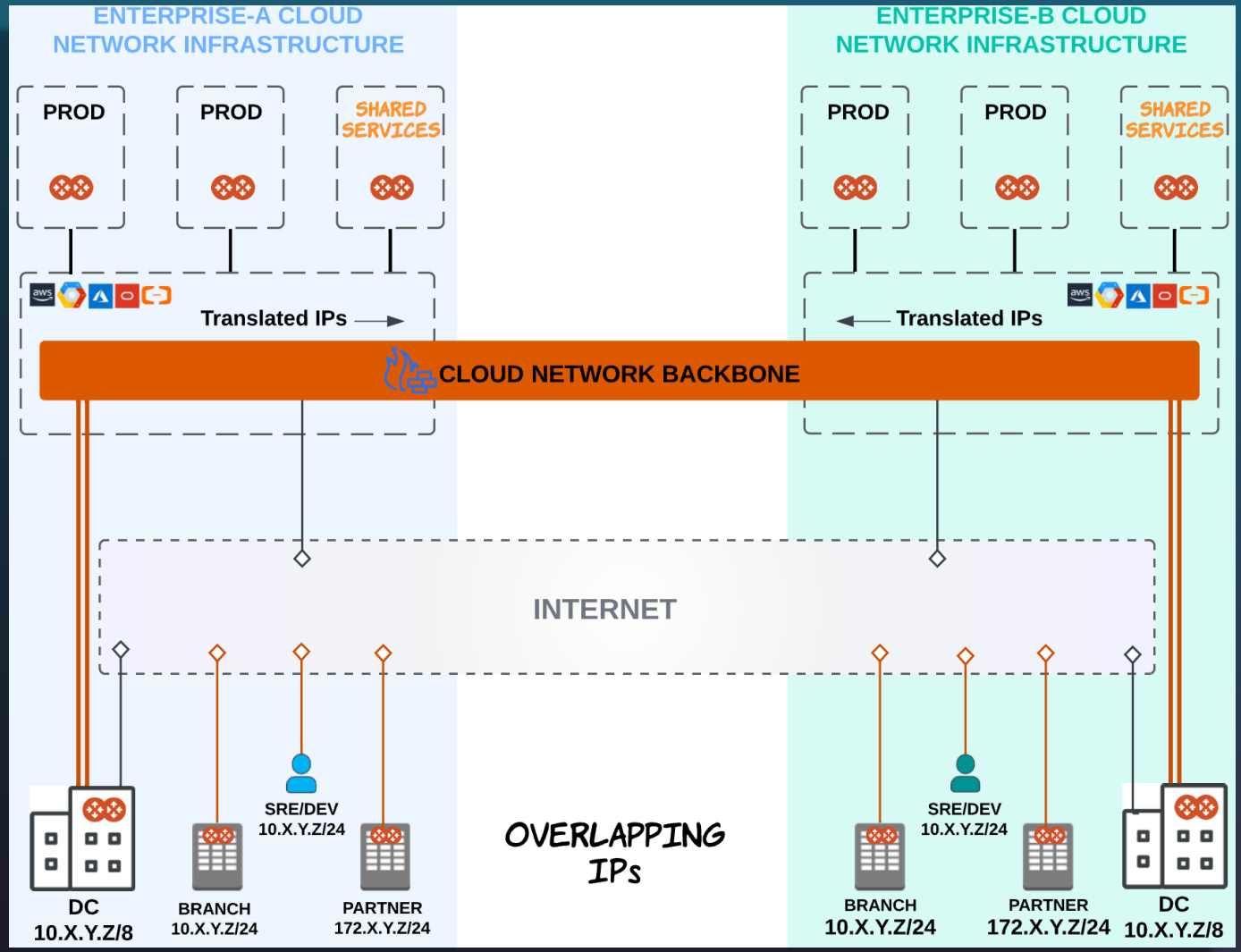
Architecture 6 – Mergers and Acquisitions

Aviatrix Multicloud Network Architecture

- Common Repeatable Multicloud Network Architecture
- Consistent Security and Compliance Standards
- Overlapping IPs Solution at the Edge



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Demo & Lab

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Aviatrix Certified Engineer

https://aviatrix.com/ace/

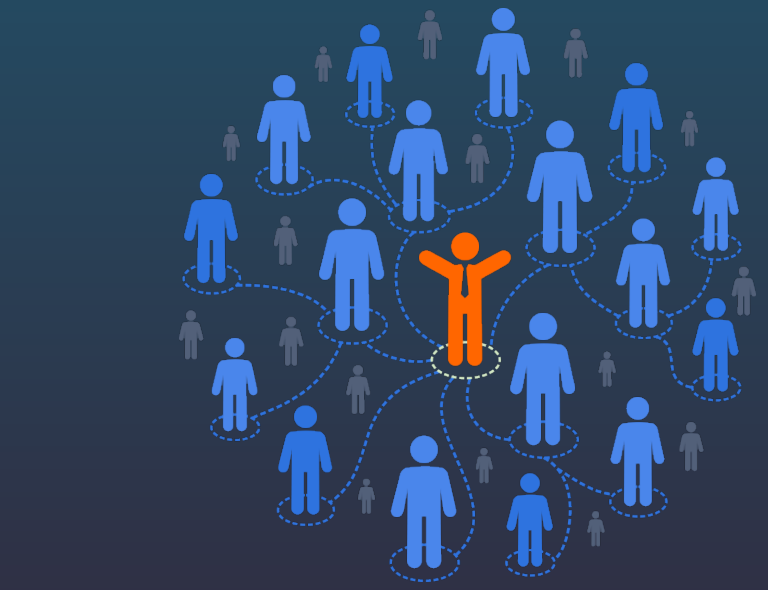
Fast Track learning of networking in major public clouds leveraging enterprise ready architecture of Aviatrix

Associate	Infrastructure as Code	Operations	Professional	Design Expert
Virtual / Self-paced / In-person	Virtual / In-person	Virtual / In-person	Virtual / In-person	In-person
6 hours	2-4 hours	2 days	3 days	1 day
Cloud Professionals	Network Engineers and Technical Staff	Technical Staff; Operations Team	Network Engineers and Technical Sales	Architects
Intro (101) level of cloud networking for AWS, Azure, GCP, OCI	201/301 level, who will be responsible for deploying network infrastructure at scale	201 level cloud networking, Day 2 Operations	201/301 level cloud networking – Aviatrix Implementation	301/401 level Multicloud networking. Design defense in front of a Panel

Join the ACE Community

https://community.aviatrix.com/

Join hands with fellow Network Engineers, help lead transformation in your orgs, and grow your careers



Time for demo and lab!

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Welcome to ACE Cloud Backbone instructor-led training!

This Lab Guide will guide you through the different scenarios of how to build and manage multicloud backbone and hybrid connectivity.

During this hands-on lab, you will experience the following:

- Understanding of enterprise's existing brownfield architecture
- Walkthrough enterprise's multicloud architecture with Aviatrix Cloud Backbone and ensure connectivity between the applications
- Verification of Aviatrix Edge deployment
- Verification of secure backbone deployment and operation
- Troubleshooting and Visibility

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SPECIALTY

https://docs.aviatrixlab.com/ace-backbone/docs/home.html