



Cloud Backbone

HYBRID CONNECTIVITY

ACE Team



Enterprise Architectures



Enterprise Architectures

- Enterprise Architecture 1: Region to Region
- Enterprise Architecture 2: Colo Extension
- Enterprise Architecture 3: SD-WAN
- Enterprise Architecture 4: Hybrid Connectivity
- Enterprise Architecture 5: Managed Service Provider (MSP)
- Enterprise Architecture 6: Mergers and Acquisitions

Enterprise Architecture 1

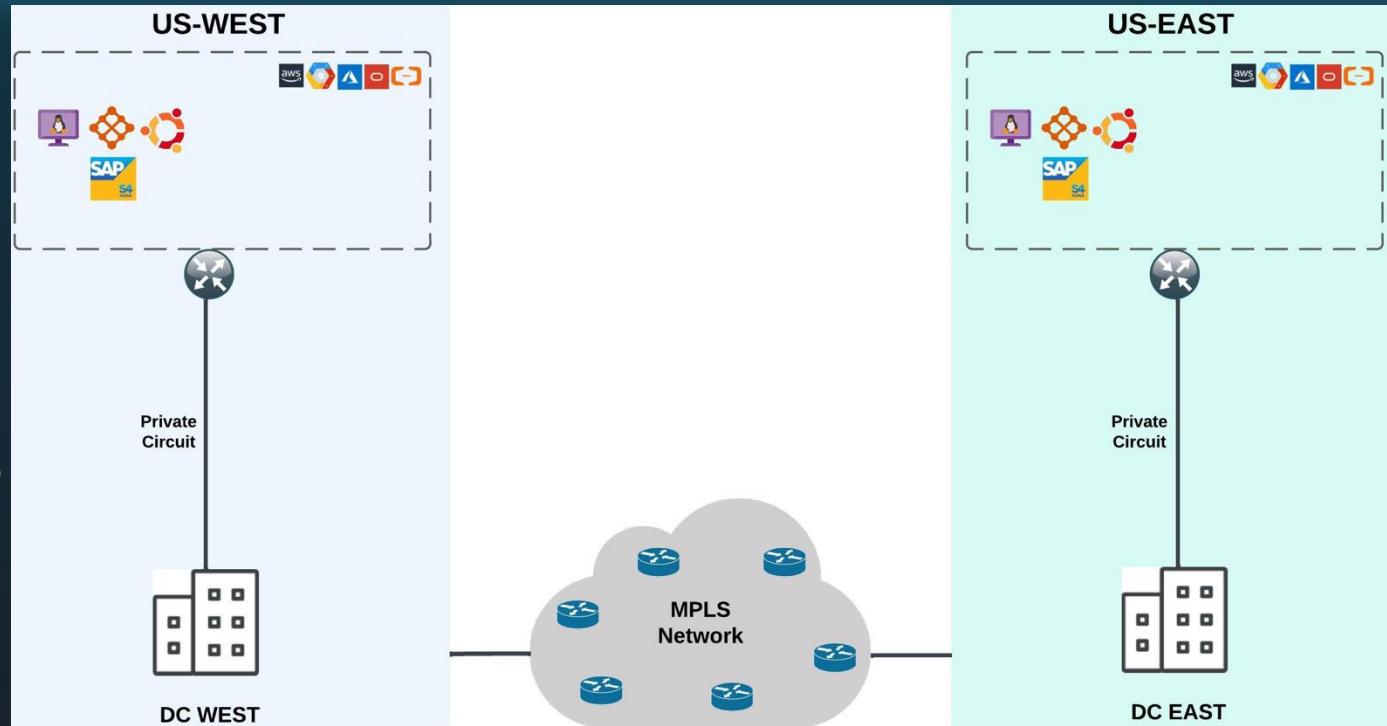
Region to Region



Architecture 1 – Region-to-Region Communication

Suboptimal and Complex Architecture

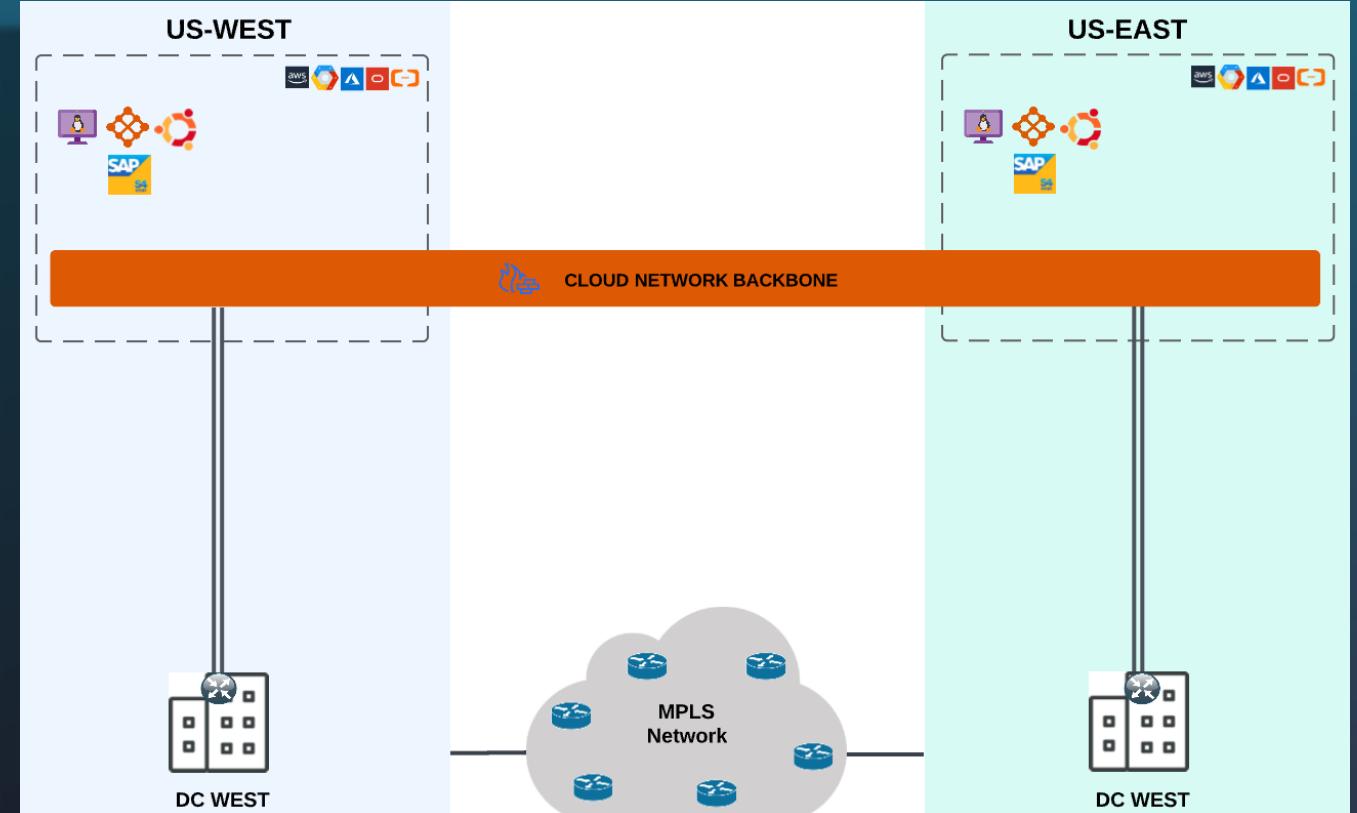
- Inter-region applications experience significant latency
- L7 Service Inspection
- Organizational Boundaries Dependence
 - Network team responsible for the hybrid connectivity (on-ramp)
 - Cloud team responsible for the cloud transit architecture
 - Changes made by either team are not visible to the 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



Architecture 1 – Region-to-Region Communication

Aviatrix Cloud Backbone

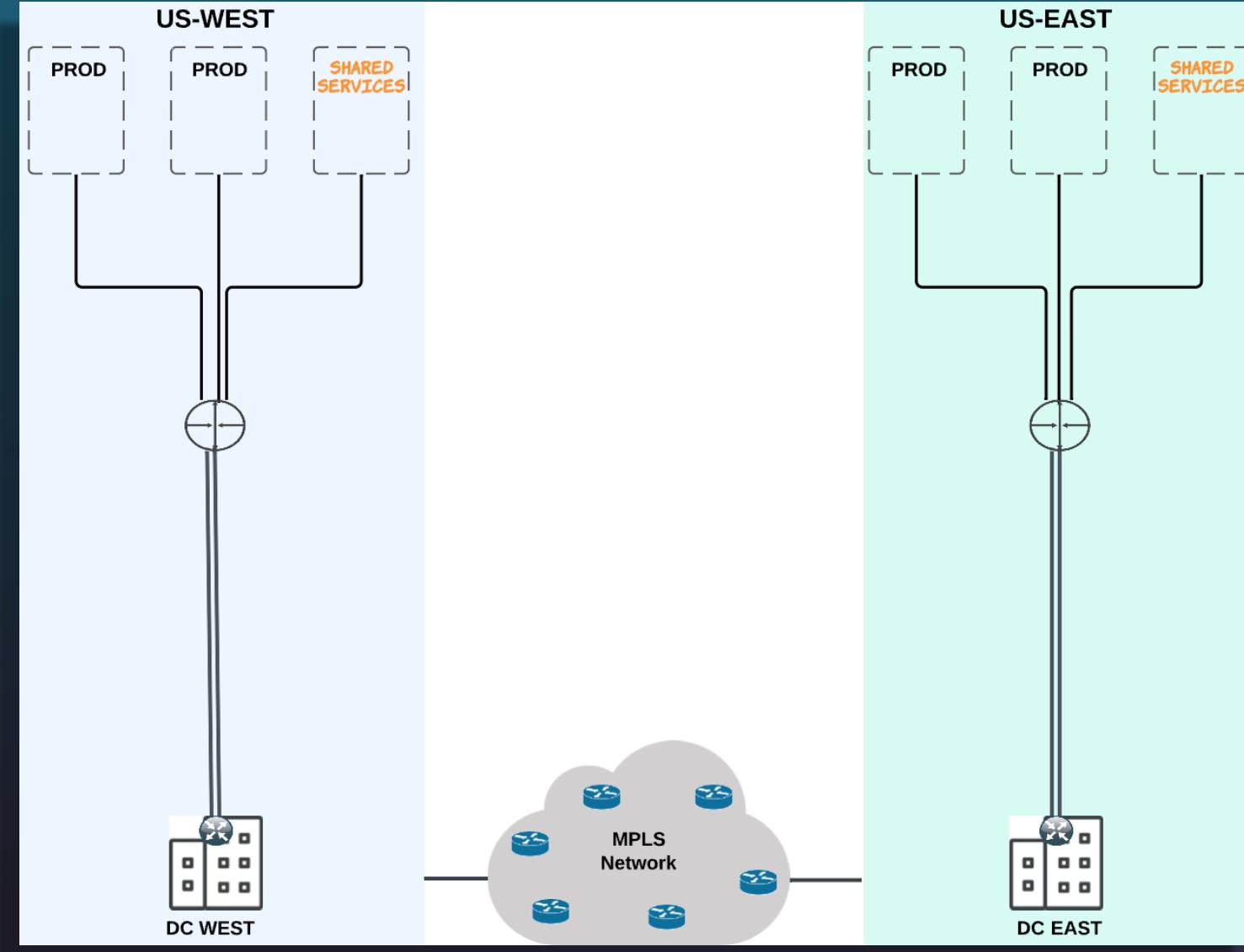
- High-Performance Encrypted Cloud Backbone that eliminates latency challenges
- Full control, independent and traffic engineering capable solution where application data stays within the enterprise network boundary
- Cost-effective enterprise cloud network backbone solution
 - Reduce private WAN circuits 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



Architecture 1 – Region-to-Region Communication

How to Get Started

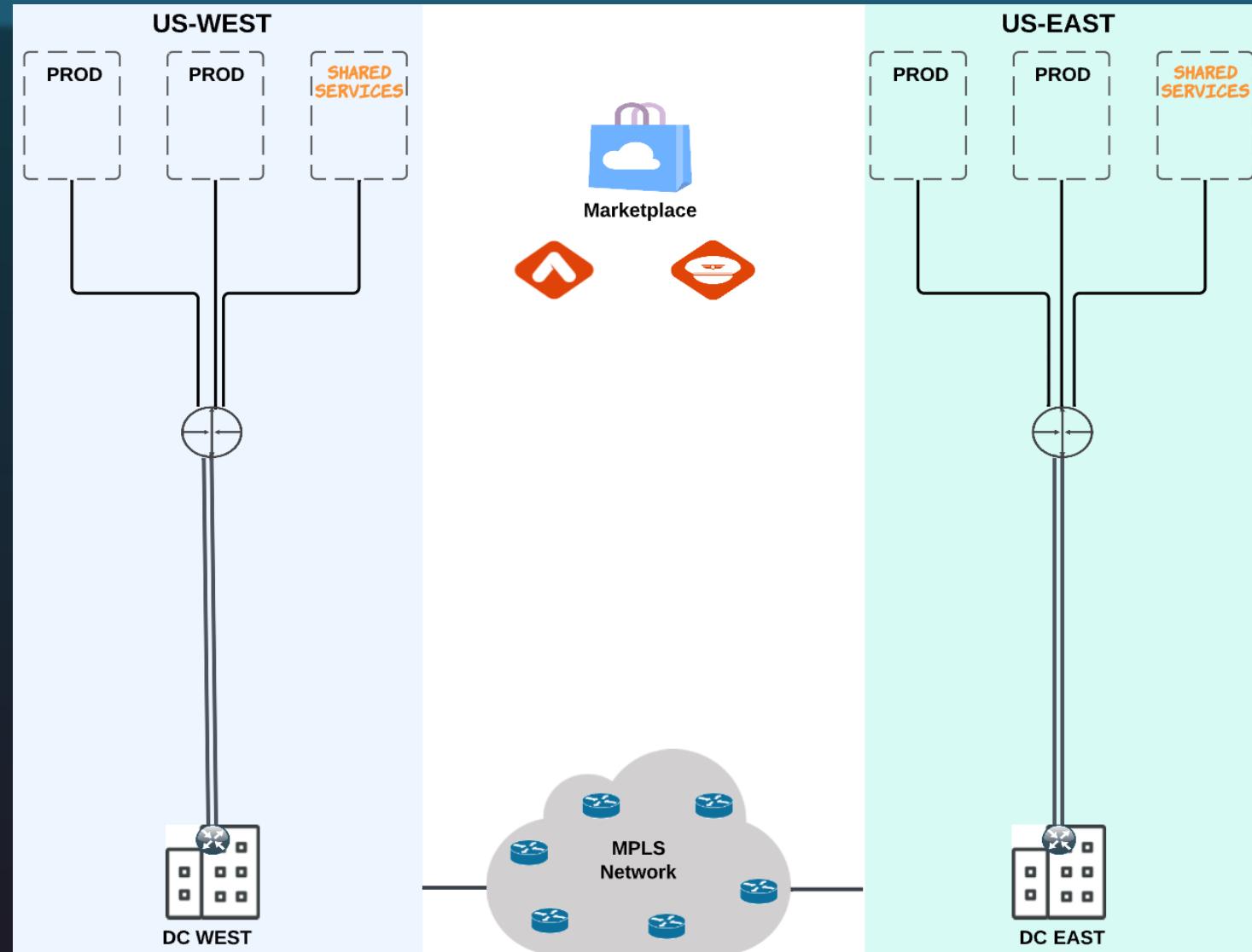
- Zoomed-in Existing Architecture



Architecture 1 – Region-to-Region Communication

How to Get Started

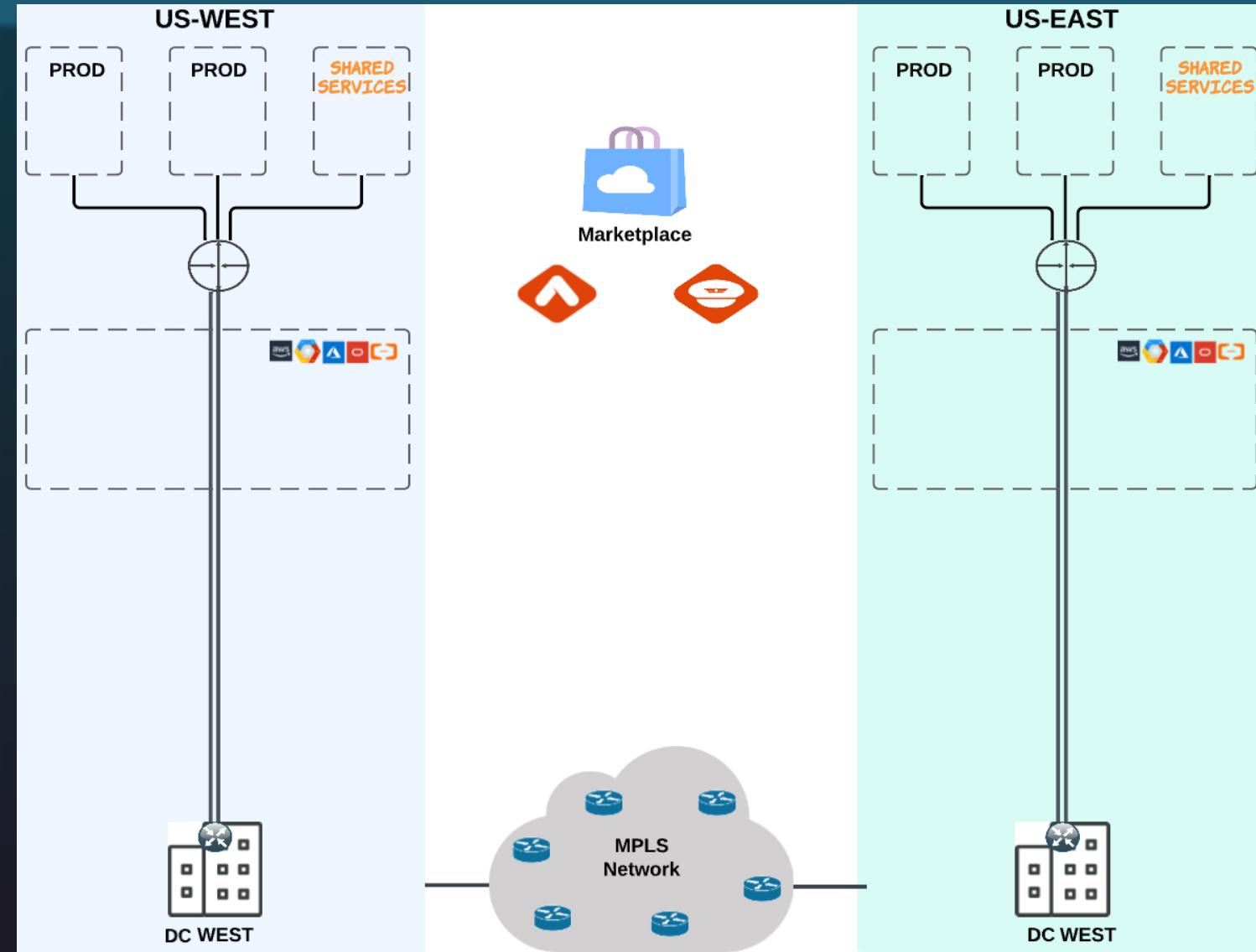
- Zoomed-in Existing Architecture
- Deploy Aviatrix Controller & CoPilot from CSP Marketplace



Architecture 1 – Region-to-Region Communication

How to Get Started

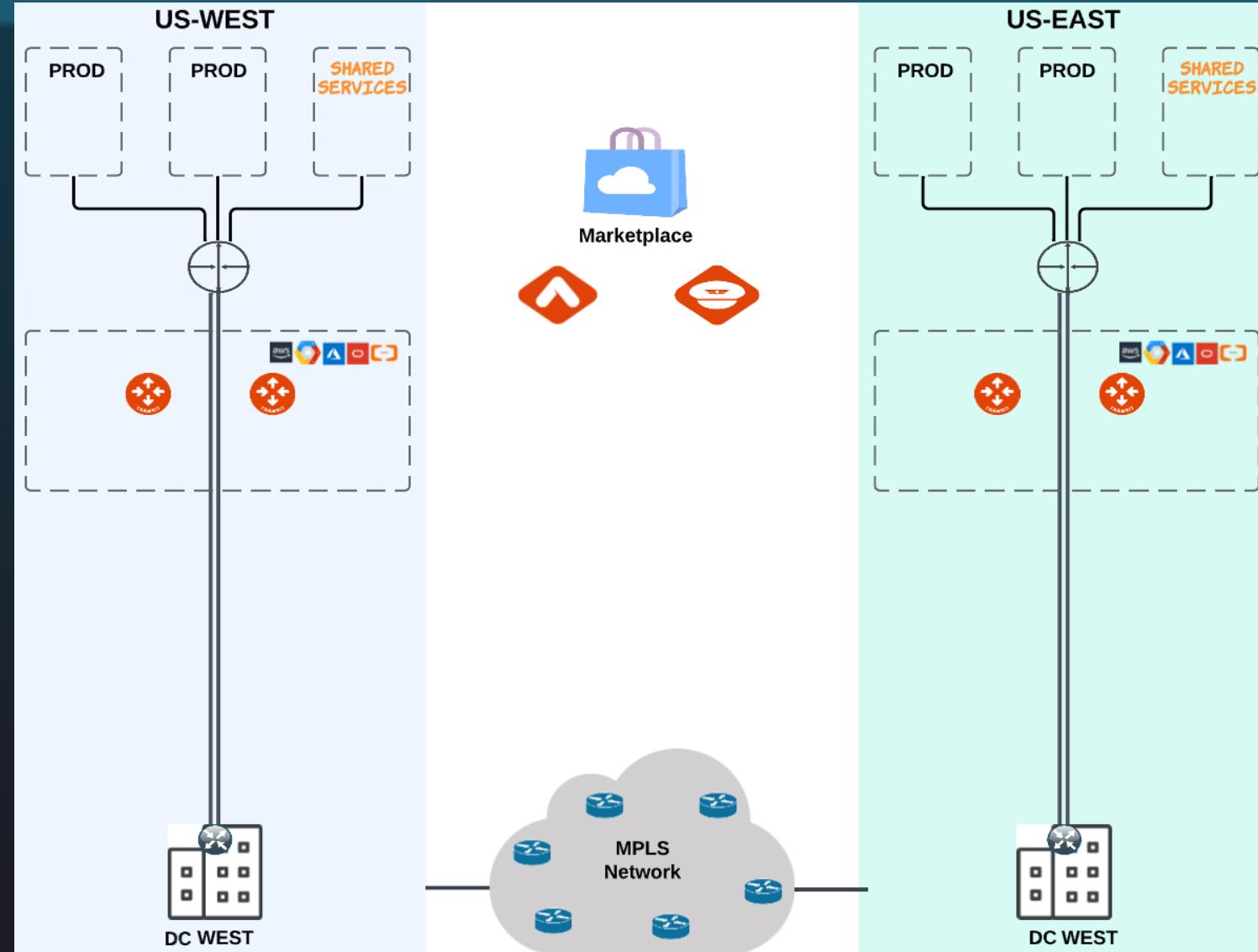
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- Create the following from Aviatrix without changing anything in the existing architecture:
 - Transit VPC/VNET/VCN



Architecture 1 – Region-to-Region Communication

How to Get Started

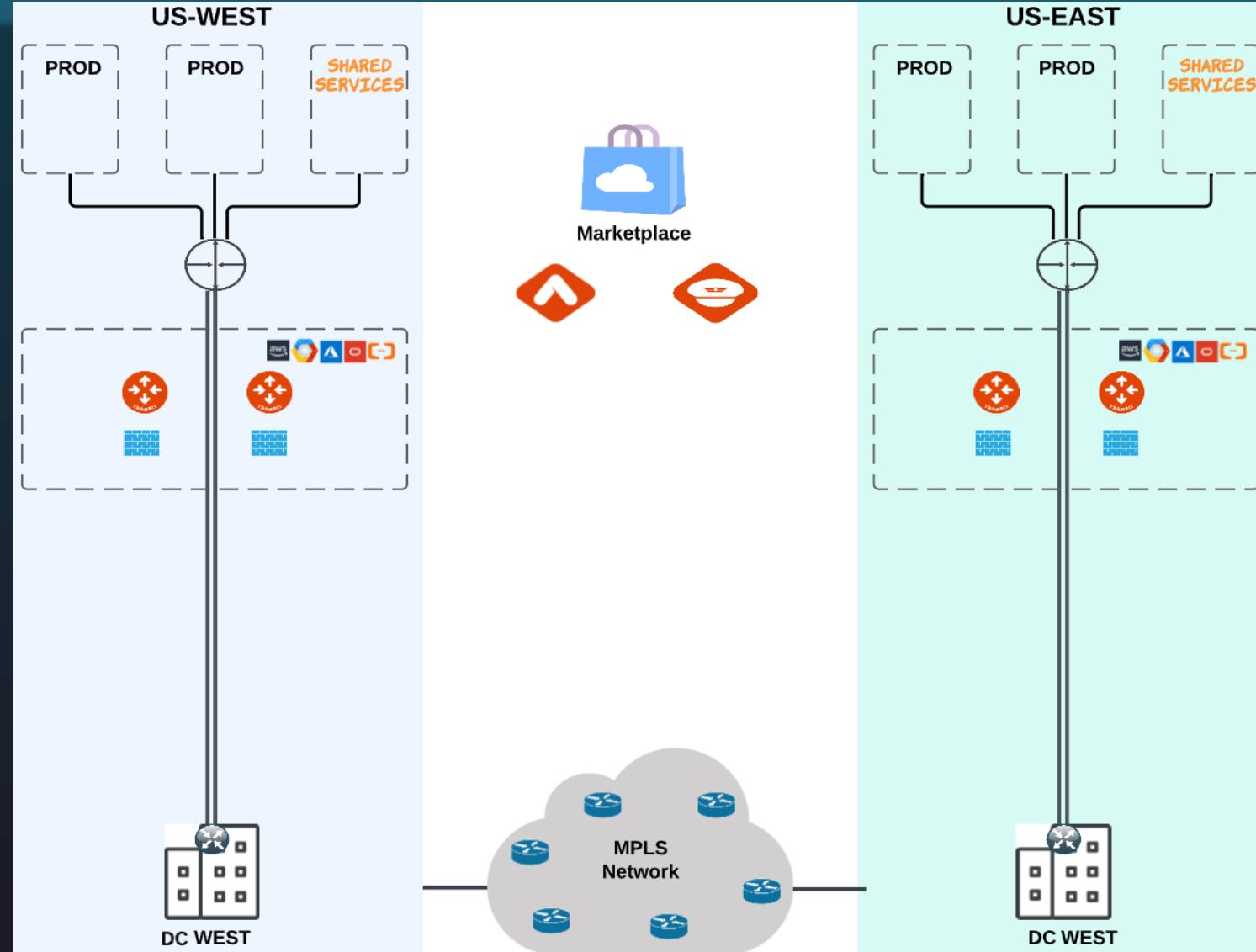
- Zoomed-in Existing Architecture
- Deploy Aviatrix Controller & CoPilot from CSP Marketplace
- Create the following from Aviatrix without changing anything in the existing architecture:
 - Transit VPC/VNET/VCN
 - Aviatrix Transit Gateways



Architecture 1 – Region-to-Region Communication

How to Get Started

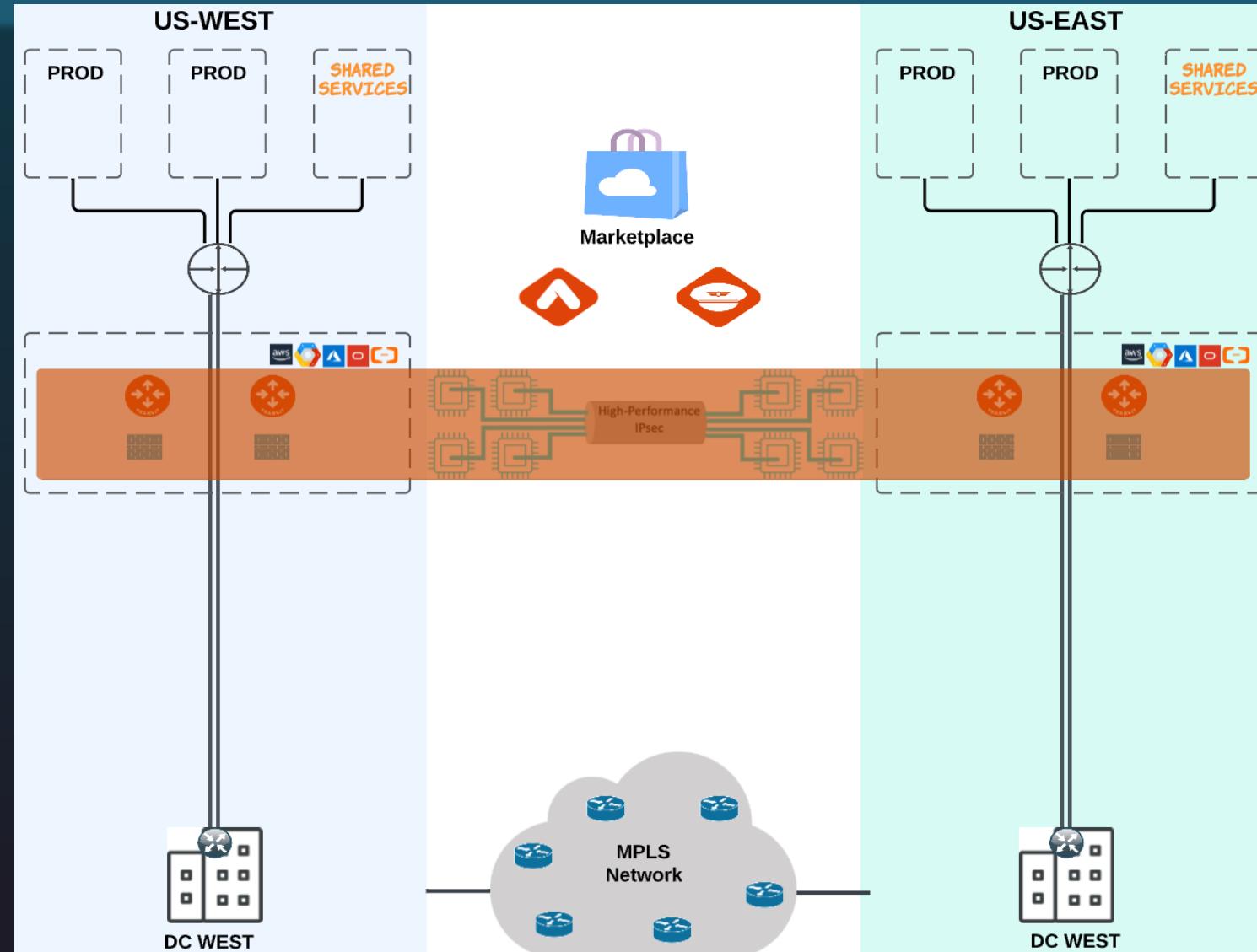
- Zoomed-in Existing Architecture
- Deploy Aviatrix Controller & CoPilot from CSP Marketplace
- Create the following from Aviatrix without changing anything in the existing architecture:
 - Transit VPC/VNET/VCN
 - Aviatrix Transit Gateways
 - NGFWs



Architecture 1 – Region-to-Region Communication

How to Get Started

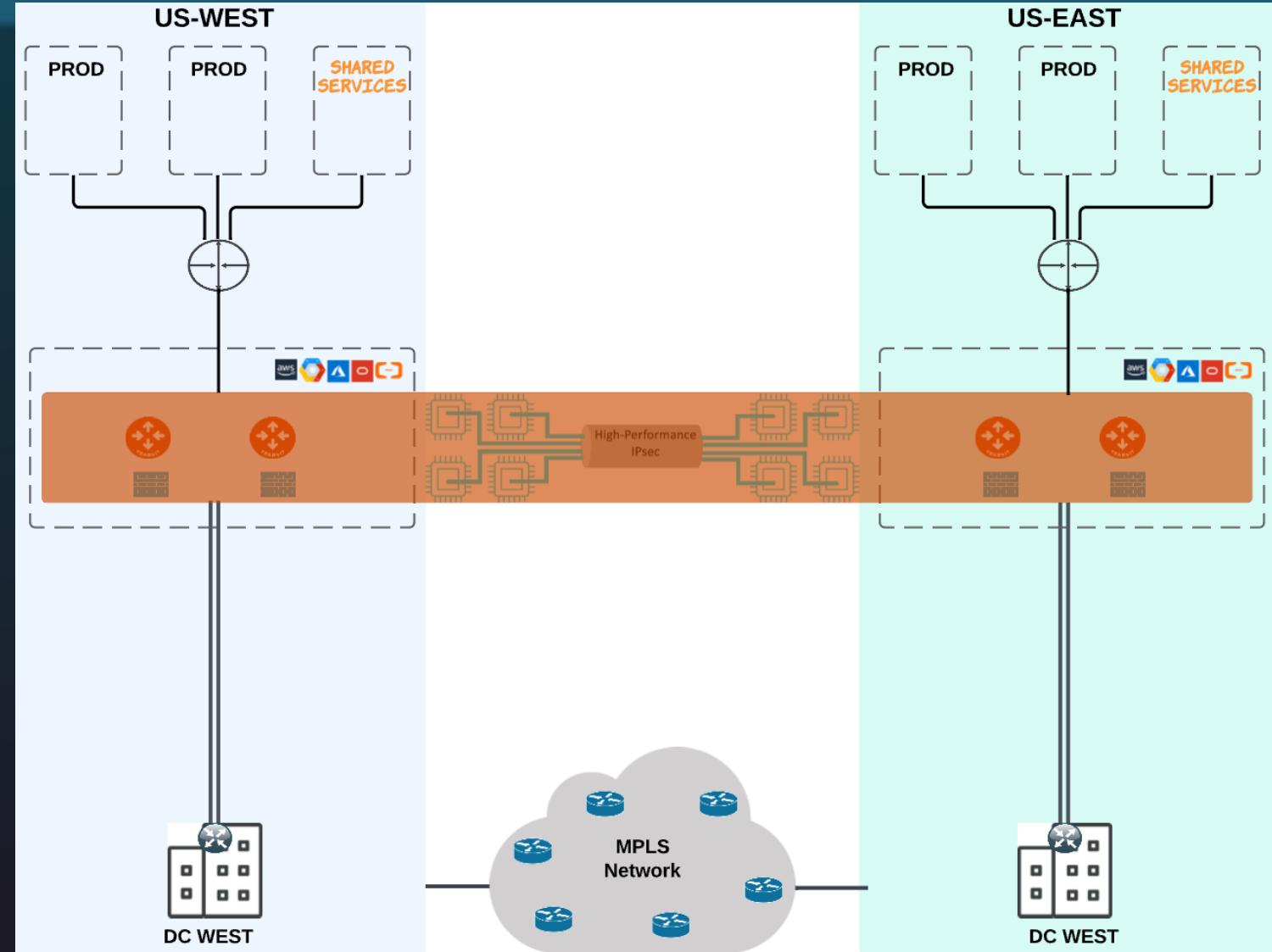
- Zoomed-in Existing Architecture
- Deploy Aviatrix Controller & CoPilot from CSP Marketplace
- Create the following from Aviatrix without changing anything in the existing architecture:
 - Transit VPC/VNET/VCN
 - Aviatrix Transit Gateways
 - NGFWs
 - Deploy Cloud Backbone



Architecture 1 – Region-to-Region Communication

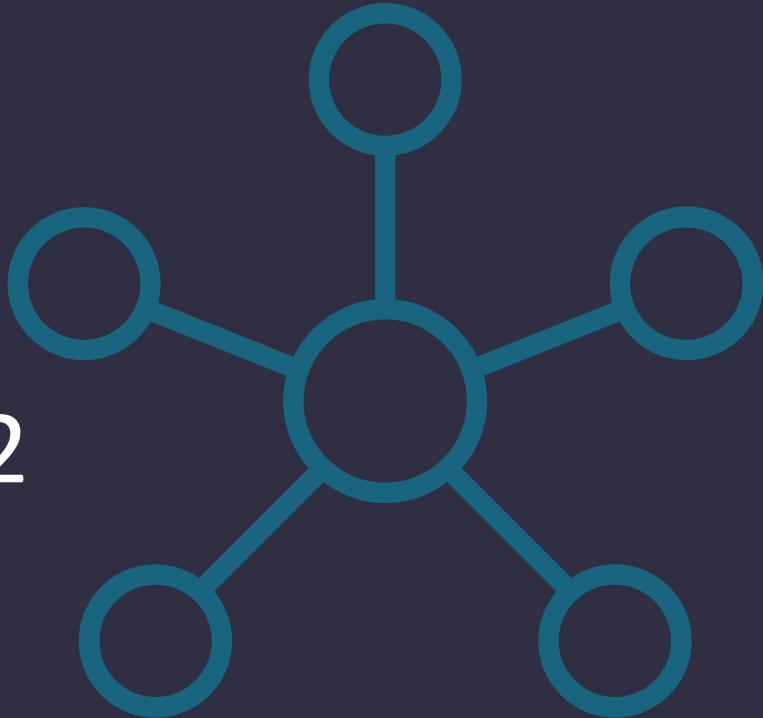
How to Get Started

- Zoomed-in Existing Architecture
- Deploy Aviatrix Controller & CoPilot from CSP Marketplace
- Create the following from Aviatrix without changing anything in the existing architecture:
 - Transit VPC/VNET/VCN
 - Aviatrix Transit Gateways
 - NGFWs
 - Deploy Cloud Backbone
- Connect the native transit construct to the Cloud Backbone
- Switch the private circuits connectivity from the native transit construct to Cloud Backbone



Enterprise Architecture 2

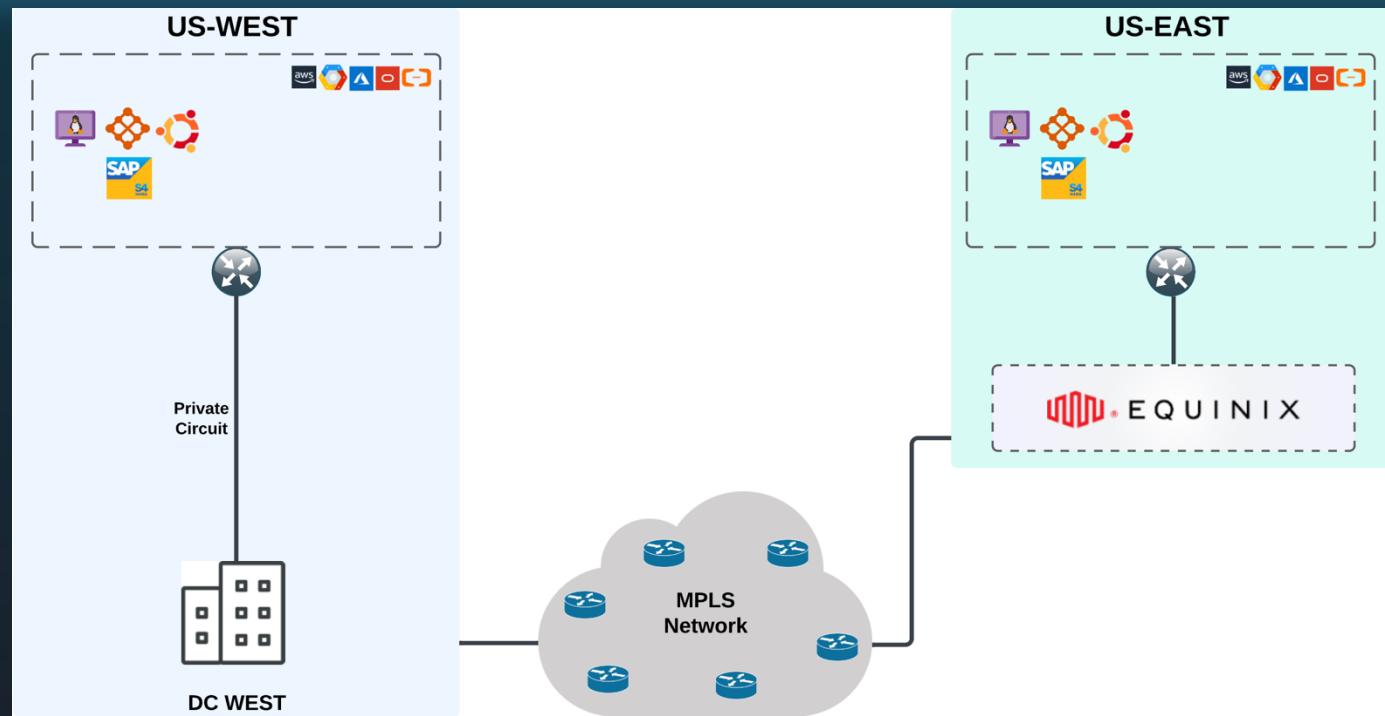
Colo Extension



Architecture 2 – CoLo Extension

Inconsistent and Expensive

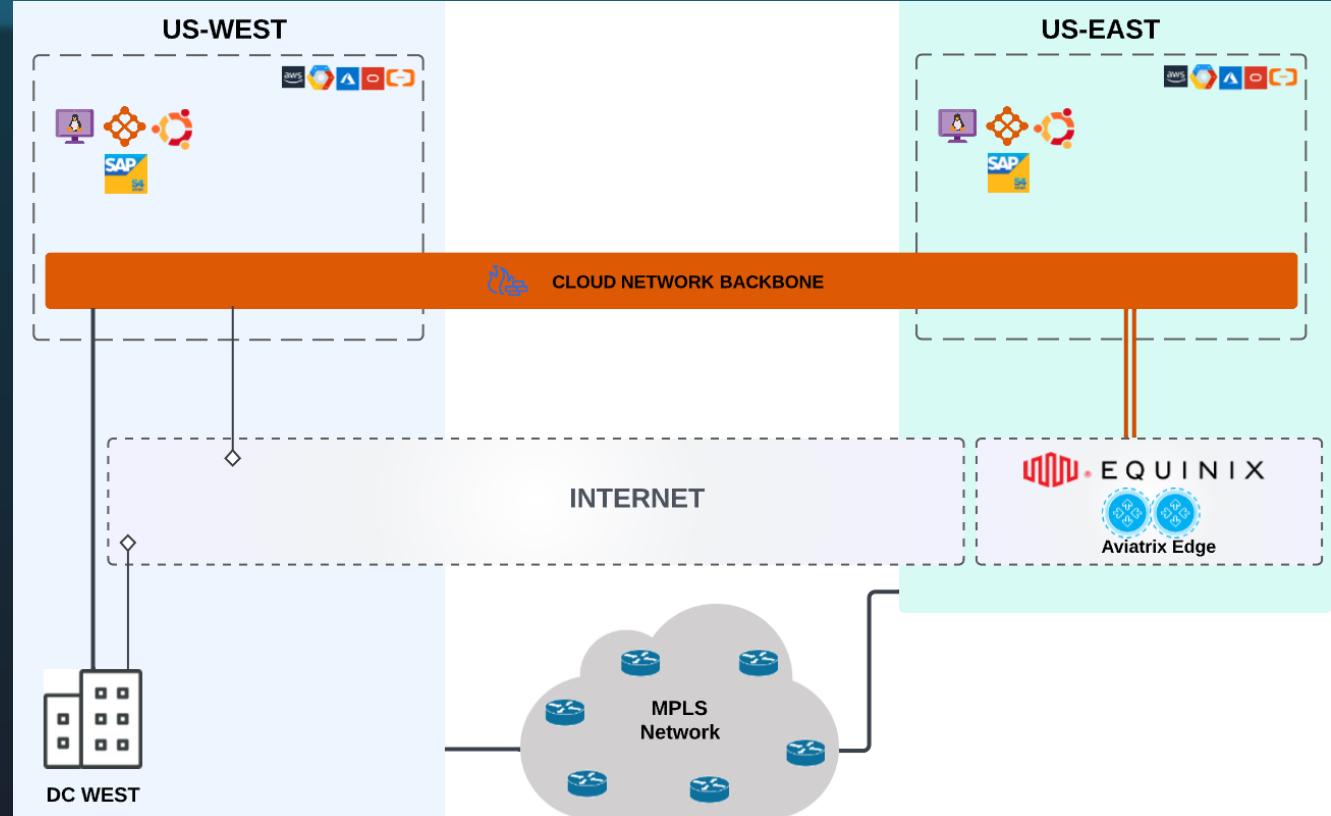
- Business growing in a new region
 - No plans to invest in the DC business
- DC, CoLo and Cloud region's application dependencies
- MPLS to connect Equinix with the DC
- Equinix provides connectivity to East region's applications
- Inter-region applications experience significant latency
- Expensive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



Architecture 2 – CoLo Extension

Aviatrix Cloud Backbone

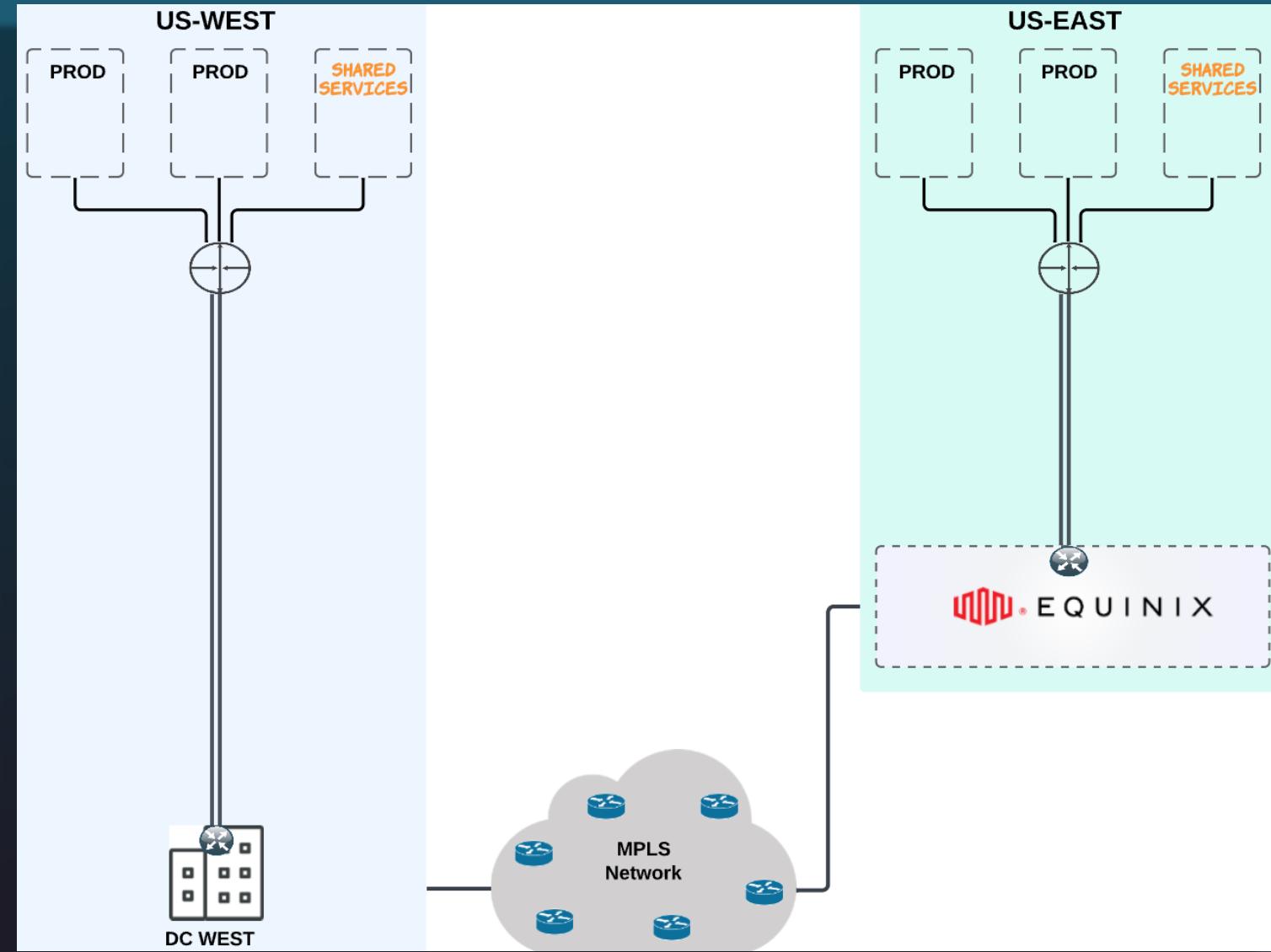
- Common repeatable architecture in the cloud and in the Equinix
- Leveraging CSP's and Equinix underlay to considerably reduce application latency
- No forced traffic backhauling
- Cost-effective enterprise cloud network backbone solution
 - Reduce private WAN circuits usage
 - Eliminate use of expensive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



Architecture 2 – CoLo Extension

How to Get Started

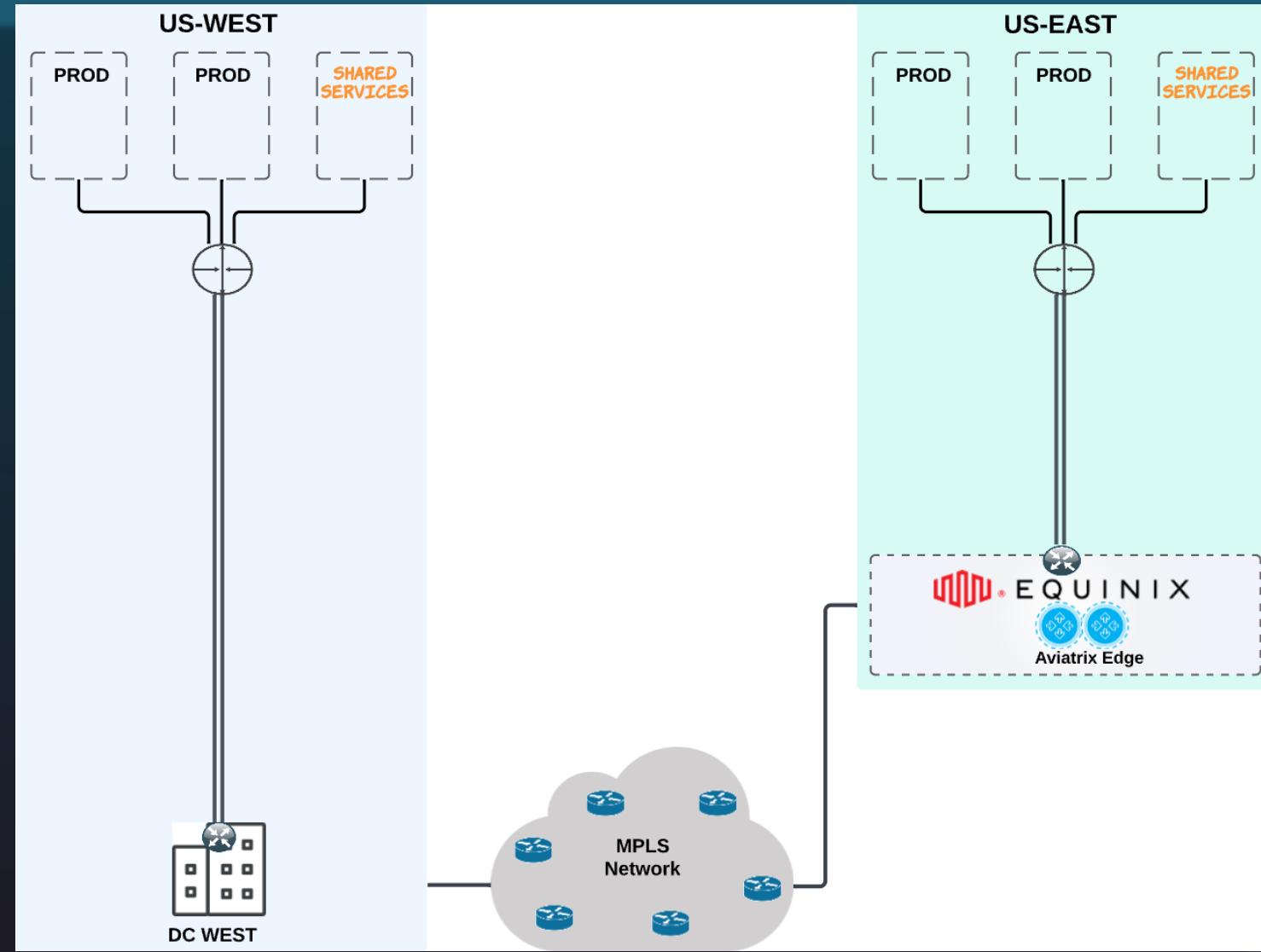
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Architecture 2 – CoLo Extension

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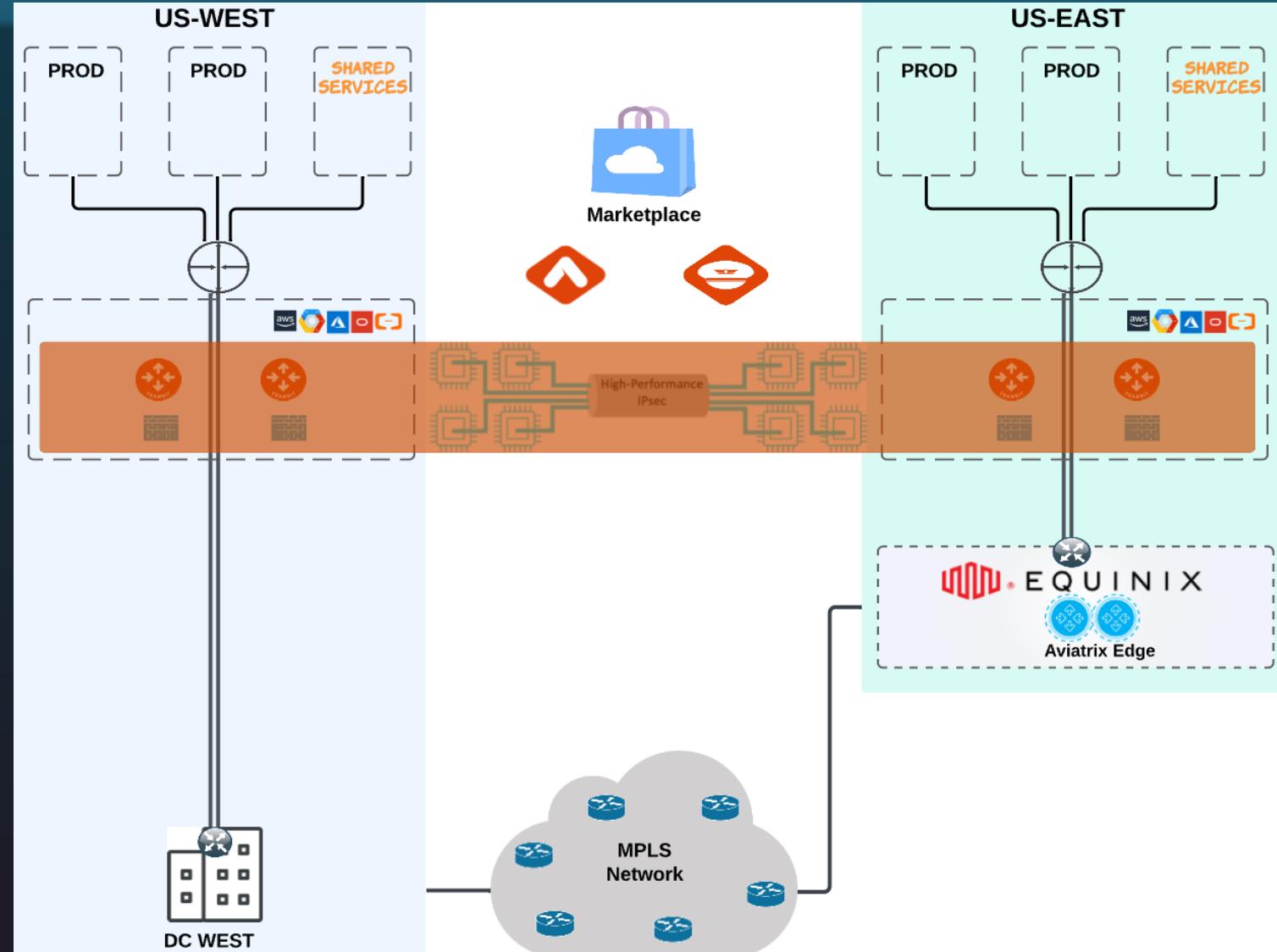
- Zoomed-in Existing Architecture
- Deploy Aviatrix Edge from Equinix marketplace



Architecture 2 – CoLo Extension

How to Get Started

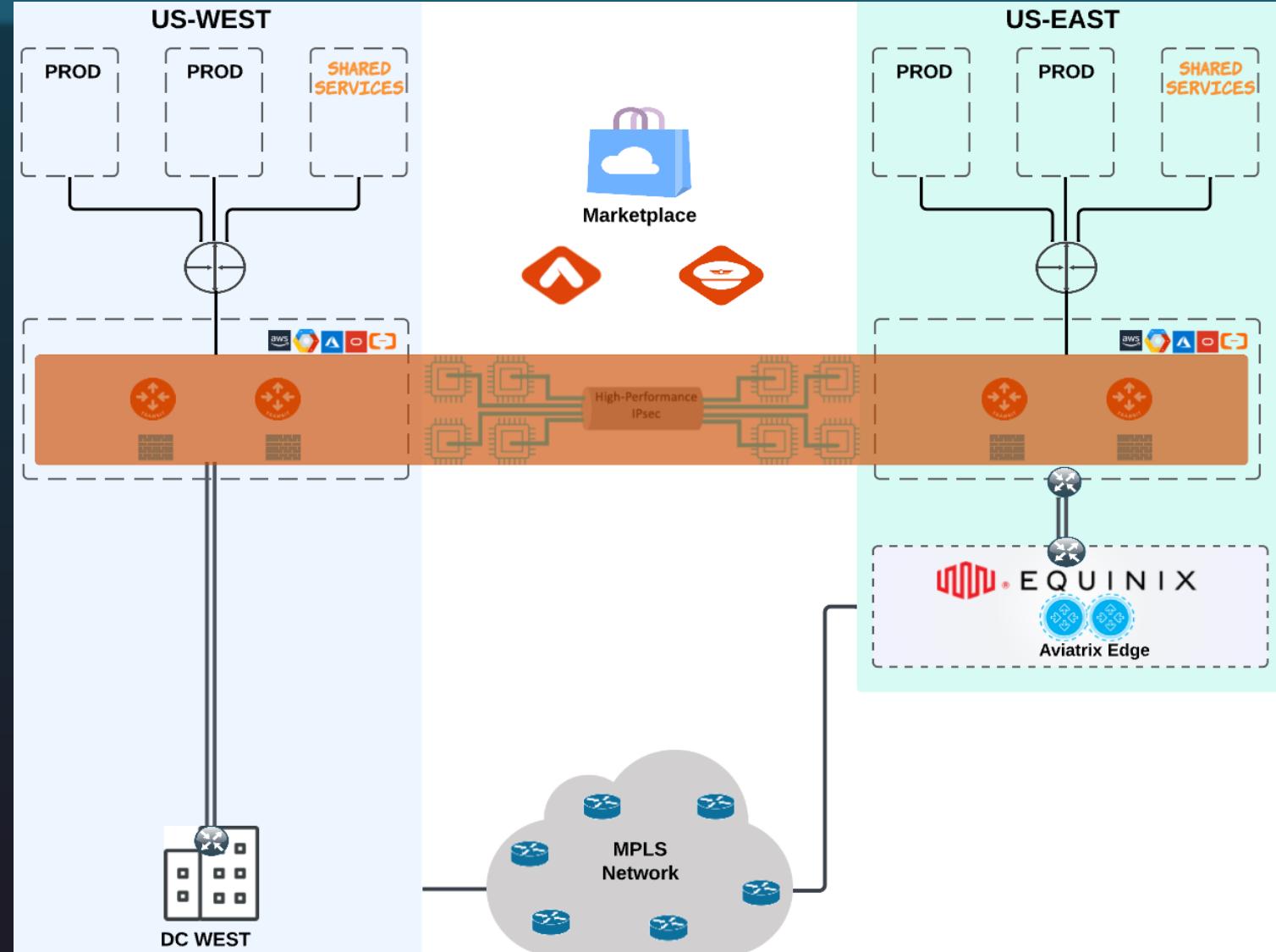
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- Deploy Aviatrix Controller & CoPilot from CSP Marketplace
- Create the following from Aviatrix without changing anything in the existing architecture
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 - Aviatrix Transit GWs
 - Deploy NGFWs
 -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



Architecture 2 – CoLo Extension

How to Get Started

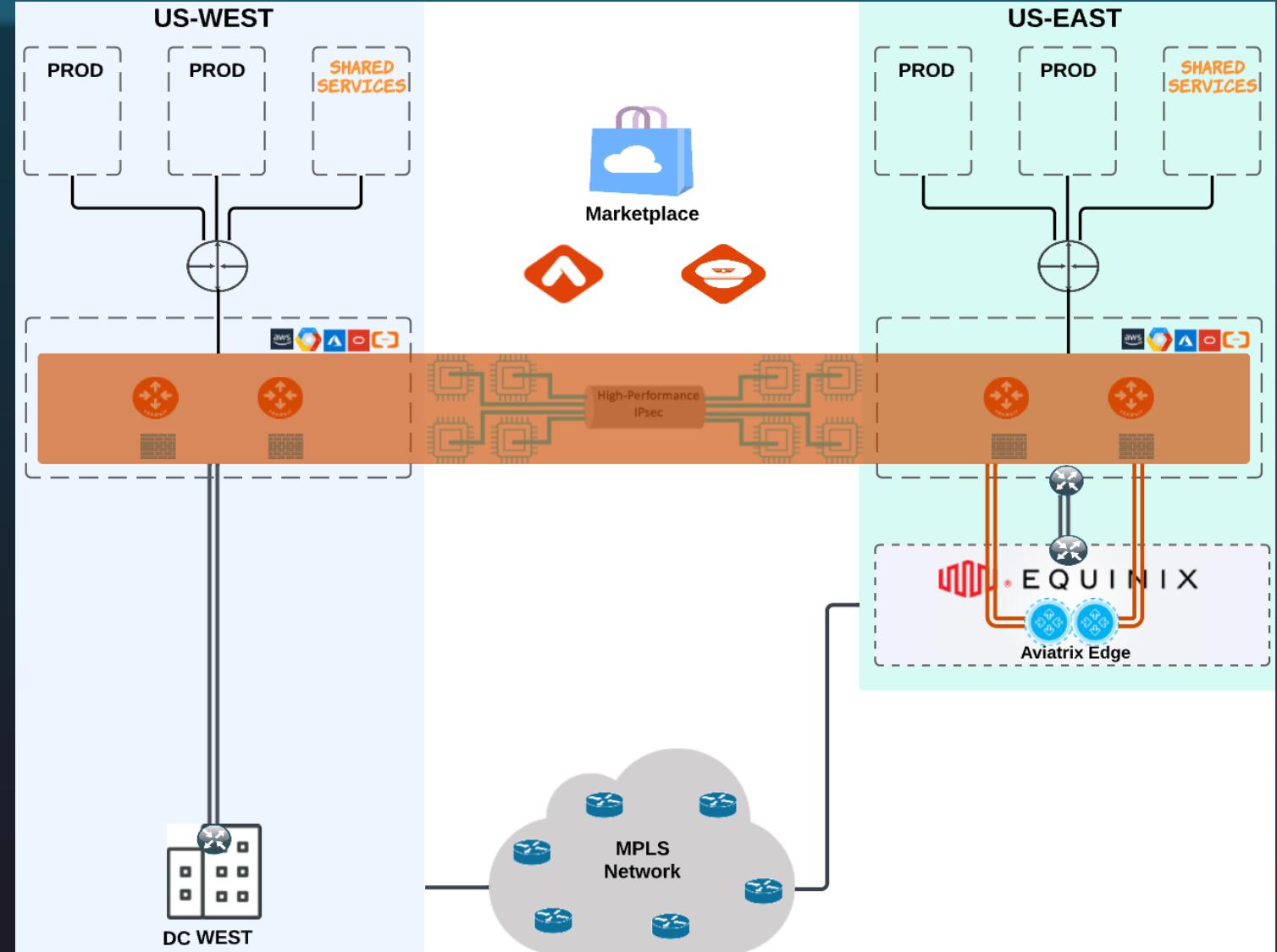
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 - Aviatrix Transit GWs
 - Deploy NGFWs
 - Deploy Cloud Backbone
- Connect the native transit construct to the Cloud Backbone
- Create HPE connectivity between Equinix and Cloud Backbone using Aviatrix Edge



Architecture 2 – CoLo Extension

How to Get Started

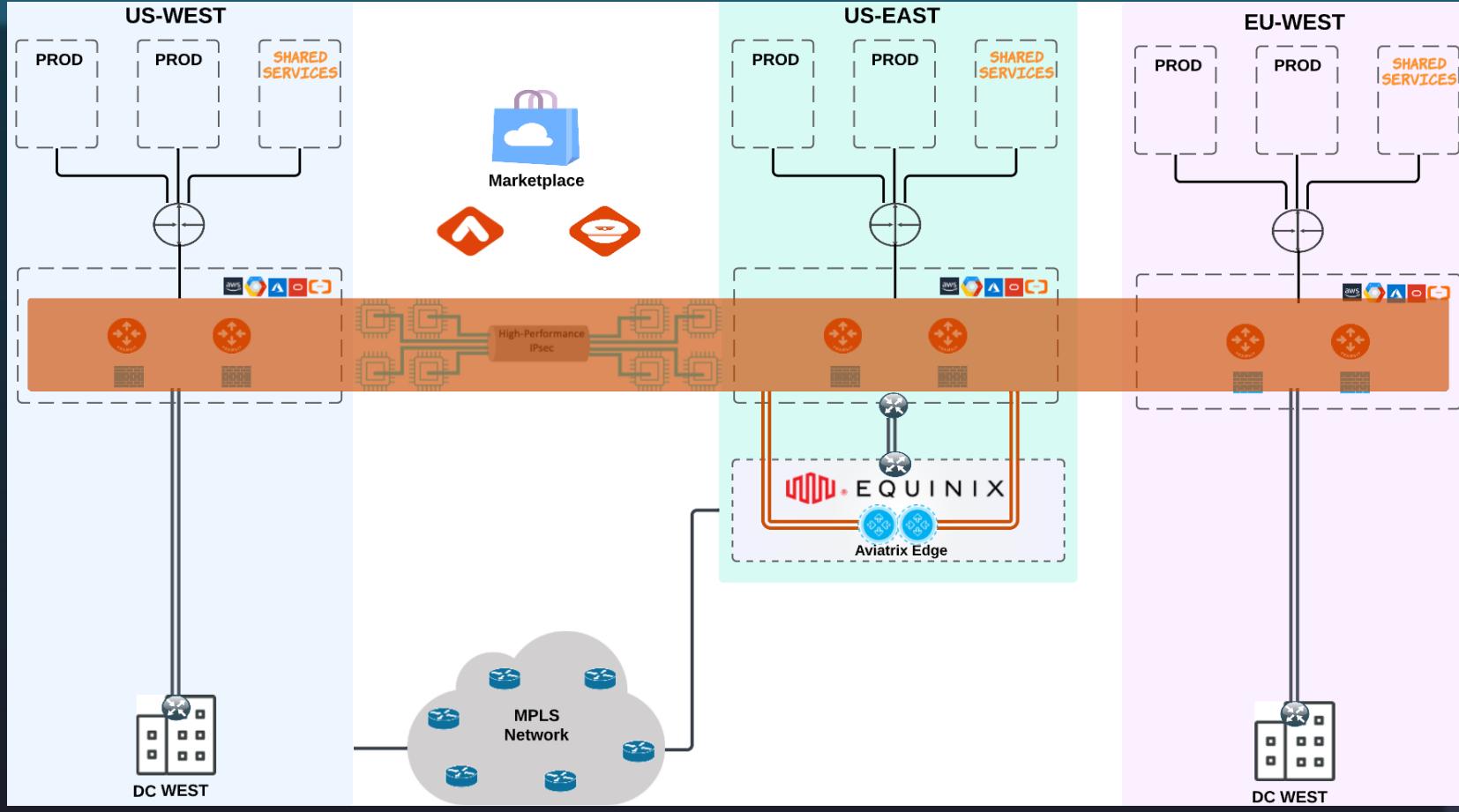
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- Create the following from Aviatrix without changing anything in the existing architecture
 - Transit VPC/VNET/VCN
 - Aviatrix Transit GWs
 - Deploy NGFWs
 - Deploy Cloud Backbone
- Connect the native transit construct to the Cloud Backbone
- Create HPE connectivity between Equinix and Cloud Backbone using Aviatrix Edge
- Switch the private circuits connectivity from the native transit construct to Cloud Backbone



Architecture 2 – CoLo Extension+

How to Get Started

- Zoomed-in Existing Architecture
- Deploy Aviatrix Edge from Equinix marketplace
- Deploy Aviatrix Controller & CoPilot from CSP Marketplace
- Create the following from Aviatrix without changing anything in the existing architecture
 - Transit VPC/VNET/VCN
 - 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



Enterprise Architecture 3

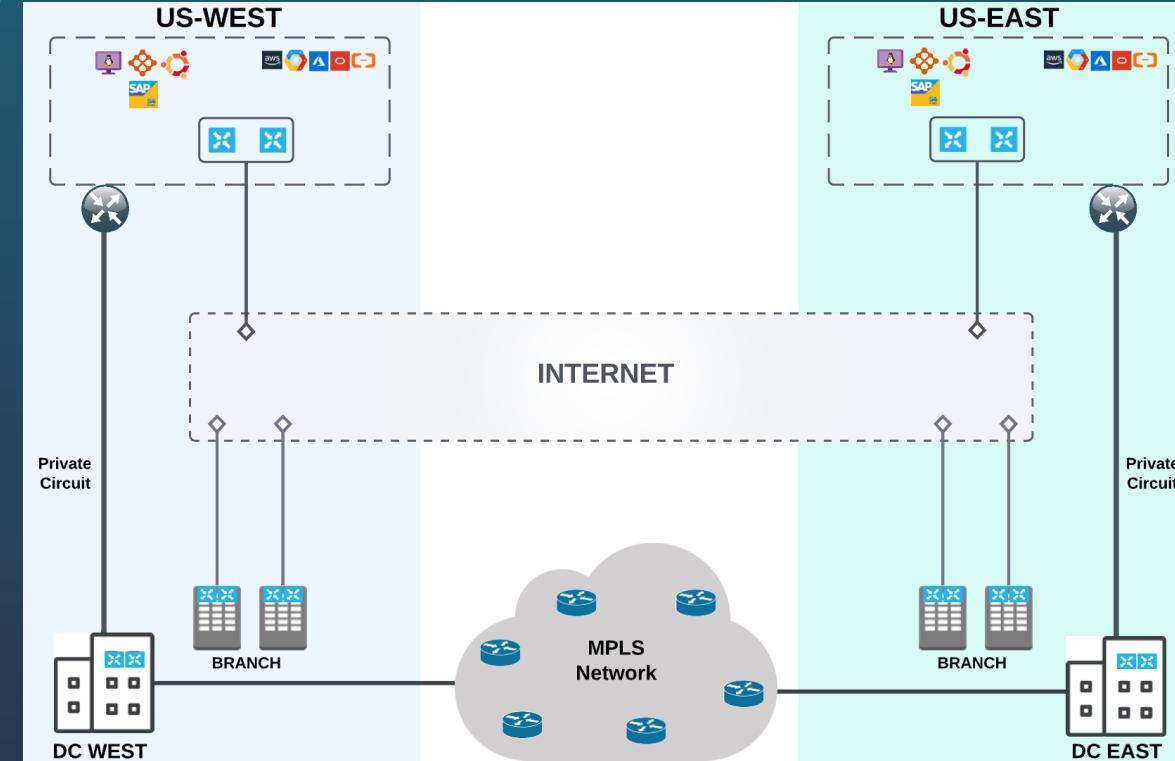
SD-WAN



Architecture 3 – SD-WAN

Inefficient, Challenging and Low Performance Solution

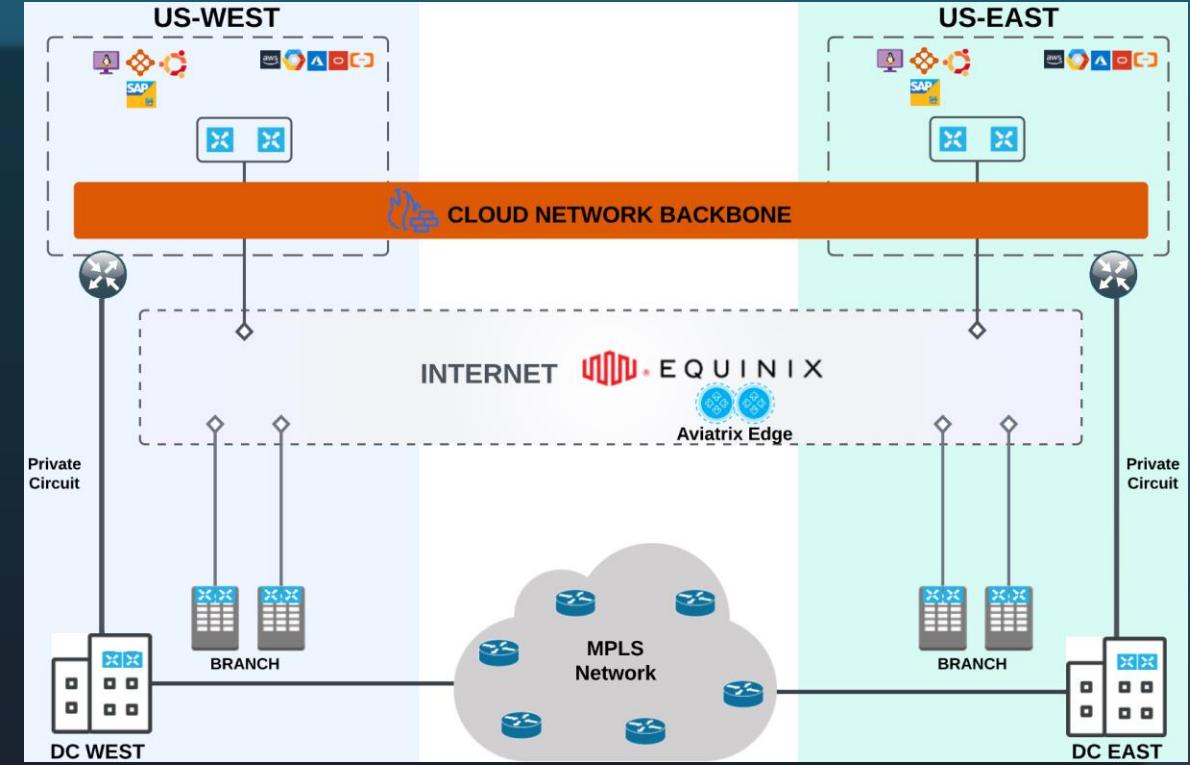
- Expensive solution for utilizing only the fundamental features of SD-WAN
- Difficult to manage and deploy hardware at each physical location
- Only understands on-prem environment
 - Cloud on-ramp solution
- SD-WAN hybrid connectivity solutions lacks high-performance encryption
- Runs into native construct's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



Architecture 3 – SD-WAN

Aviatrix Cloud Backbone

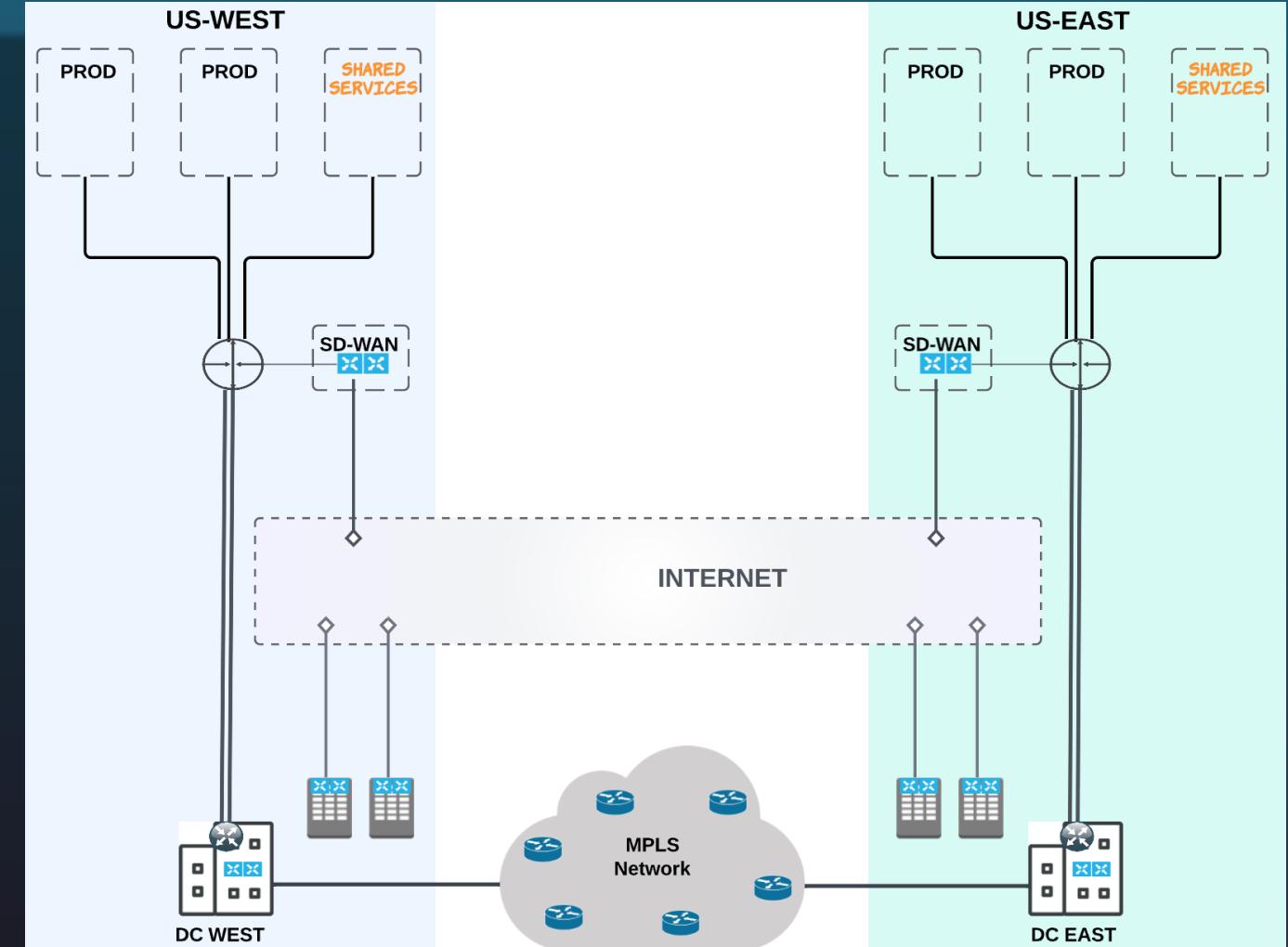
- High-Performance and extremely efficient architecture
- Programmable integration with SD-WAN
- Overcomes native CSP's limitations
- Multicloud native networking and security platform
- Enterprise-class embedded telemetry, network visibility and troubleshooting tools



Architecture 3 – SD-WAN

How to Get Started

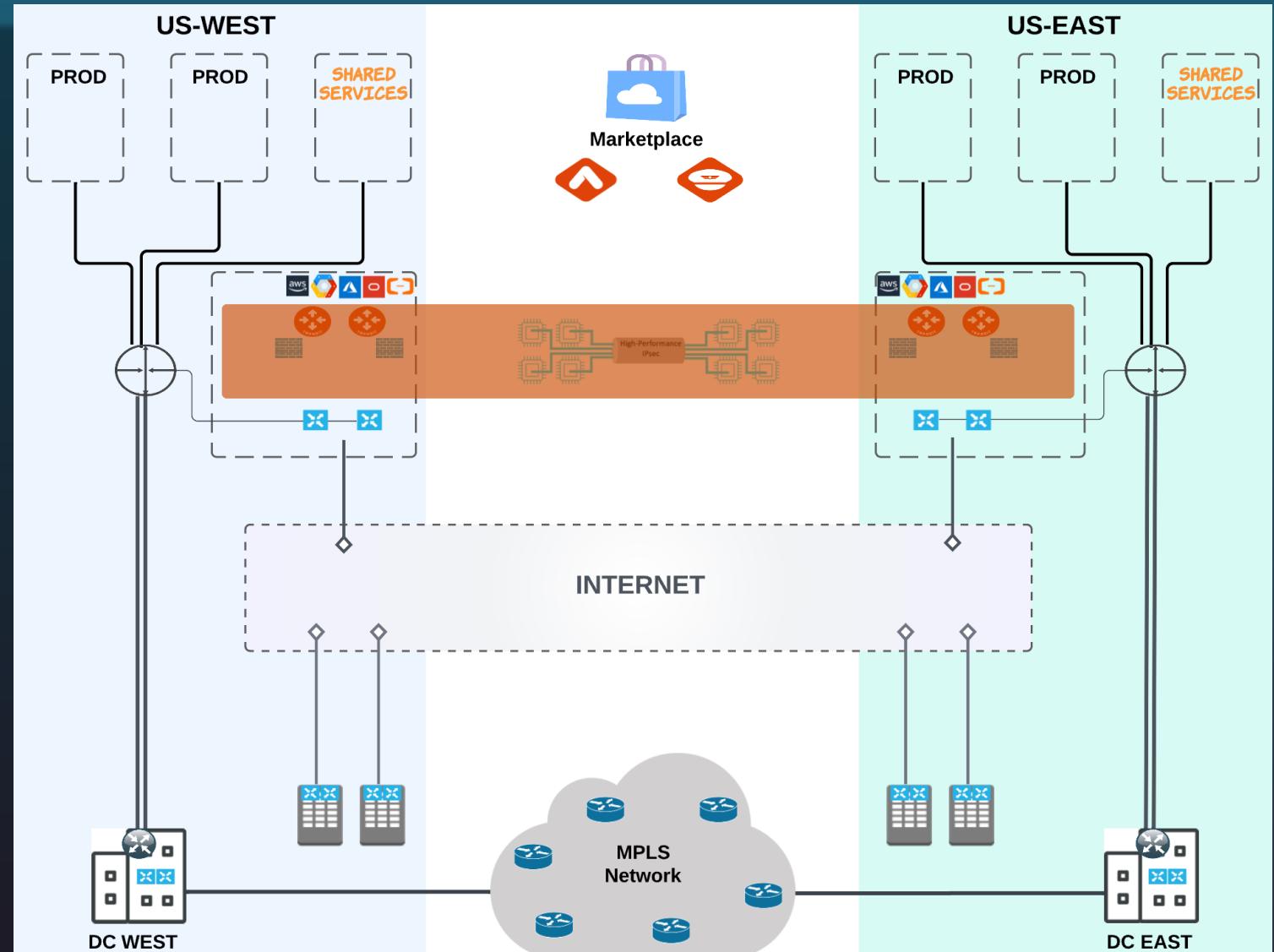
- Zoomed-in Existing Architecture



Architecture 3 – SD-WAN

How to Get Started

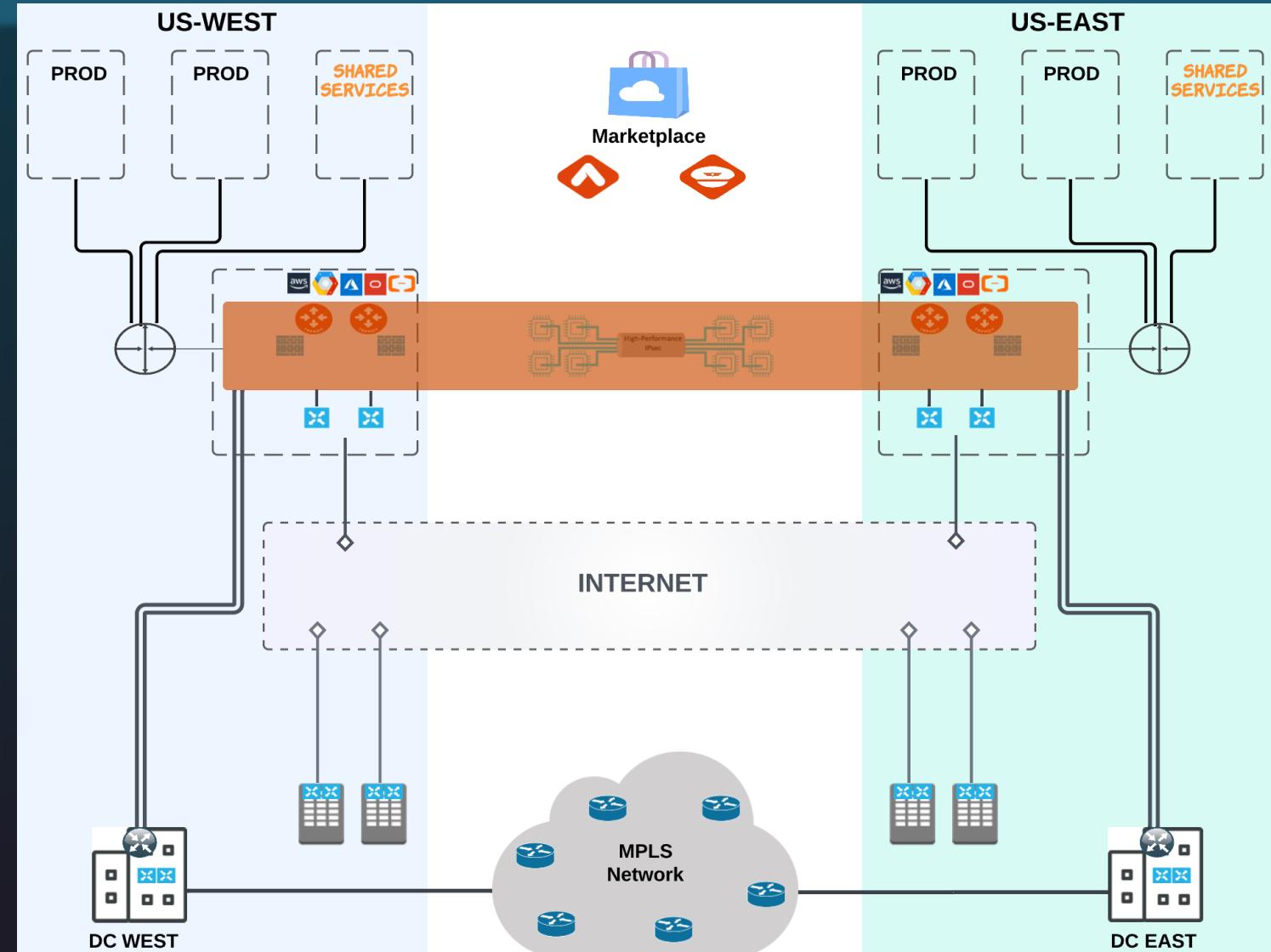
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- Create the following from Aviatrix without changing anything in the existing architecture
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 - Aviatrix Transit GWs
 - Deploy NGFWs
 - Deploy Cloud Backbone



Architecture 3 – SD-WAN

How to Get Started

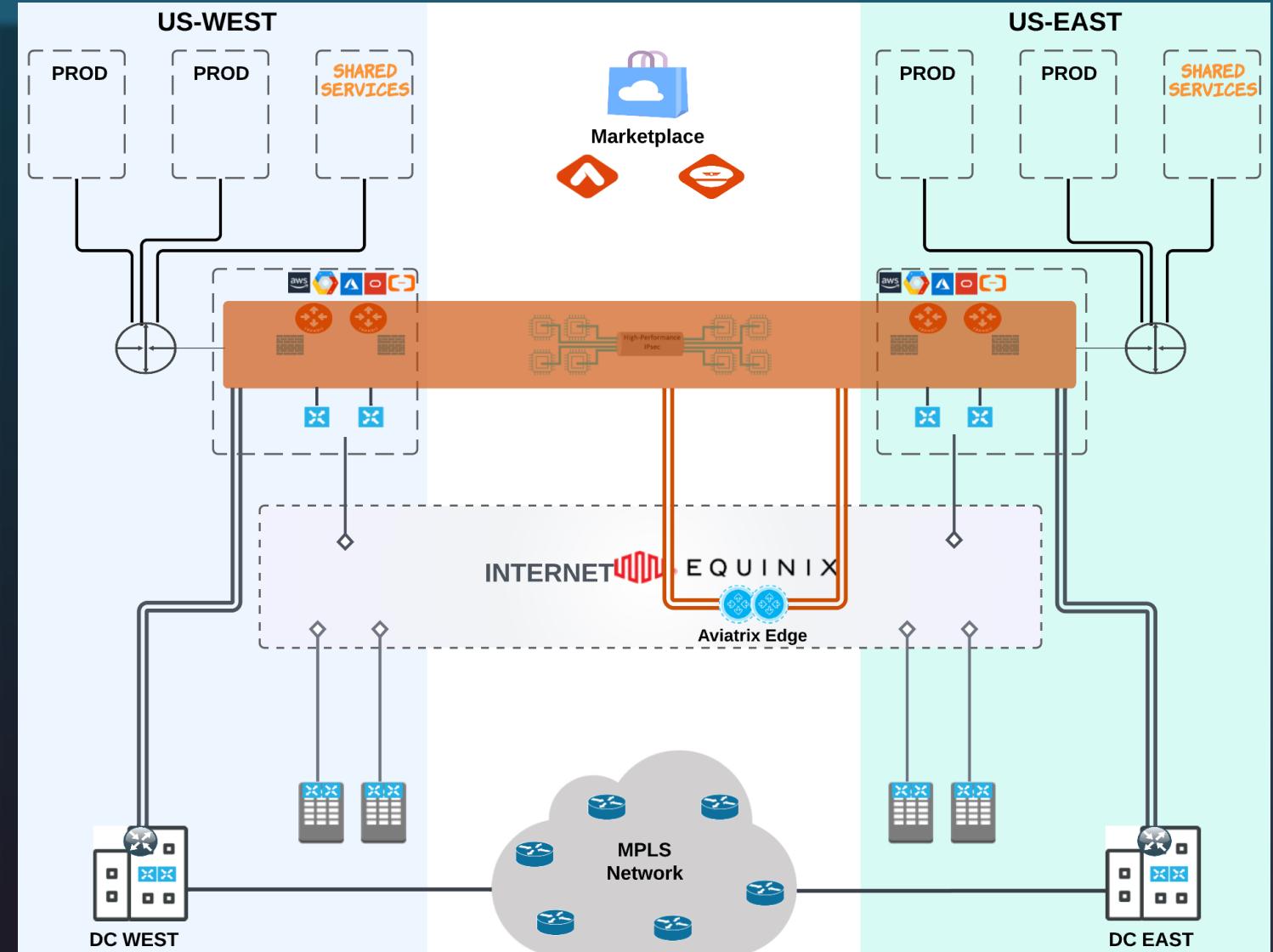
- Zoomed-in Existing Architecture
- Deploy Aviatrix Controller & CoPilot from CSP Marketplace
- Create the following from Aviatrix without changing anything in the existing architecture
 - Transit VPC/VNET/VCN
 - Aviatrix Transit GWs
 - Deploy NGFWs
 - Deploy Cloud Backbone
- Build BGP adjacencies between Cloud Backbone and SD-WAN headend
- Switch native transit connection from SD-WAN to Cloud Backbone (BGP)
- Terminate private hybrid connectivity on Cloud Backbone



Architecture 3 – SD-WAN (Equinix Extension)

How to Get Started

- Zoomed-in Existing Architecture
- Deploy Aviatrix Controller & CoPilot from CSP Marketplace
- Create the following from Aviatrix without changing anything in the existing architecture
 - Transit VPC/VNET/VCN
 - Aviatrix Transit GWs
 - 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
- Extend to Equinix



Enterprise Architecture 4

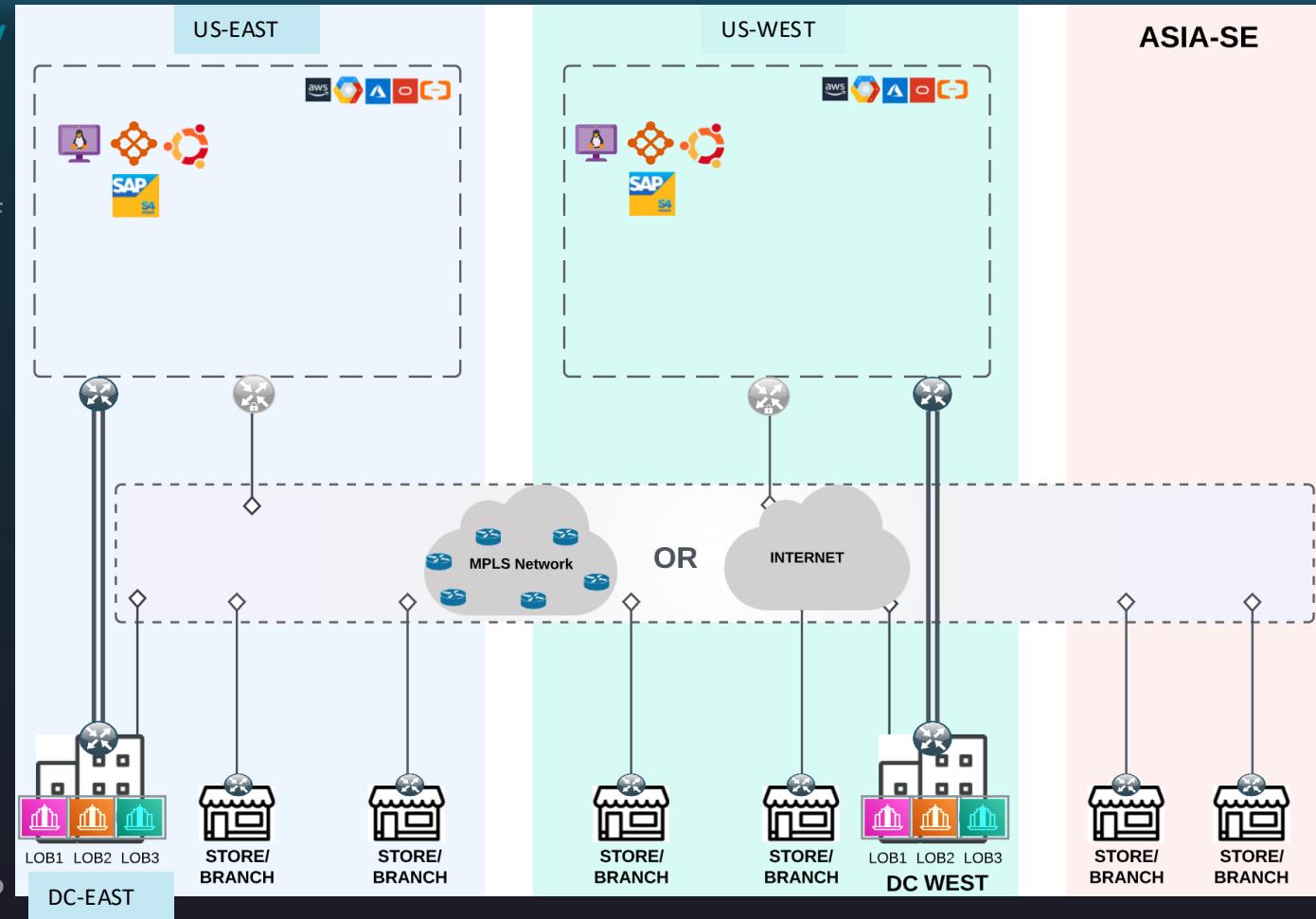
Hybrid Connectivity



Architecture 4 – Hybrid Connectivity

Insecure, Inefficient & Lacks Programmability

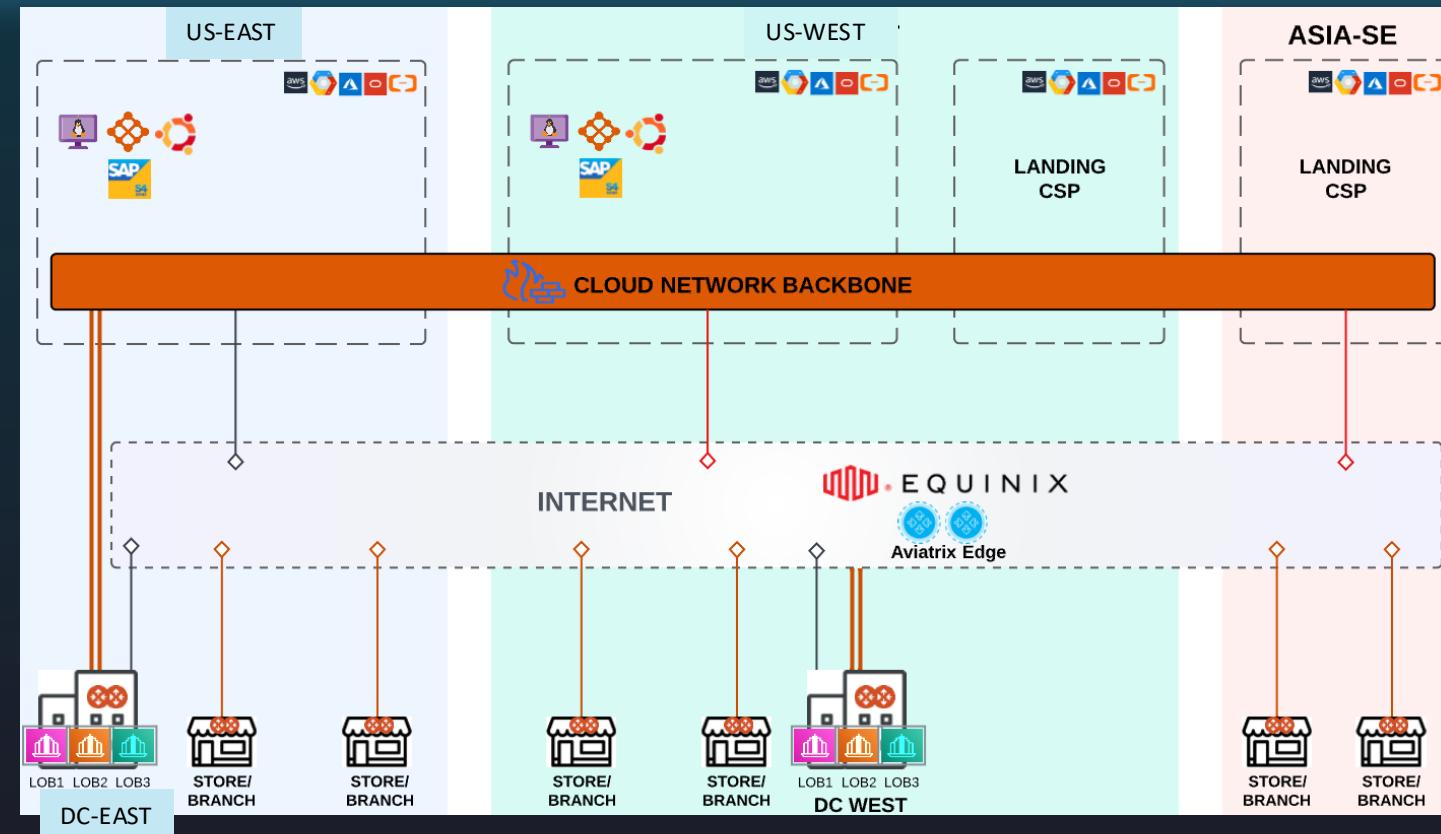
- Native and 3rd party hybrid connectivity solutions lacks Zero Trust Architecture
 - Complex and expensive to achieve segregation between Lines of Businesses (LOBs)
 - Provides either low-performance encryption capabilities or let the traffic pass through unencrypted
 - NextGen FW service insertion
- 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



Architecture 4 – Hybrid Connectivity

Aviatrix Cloud Network Backbone

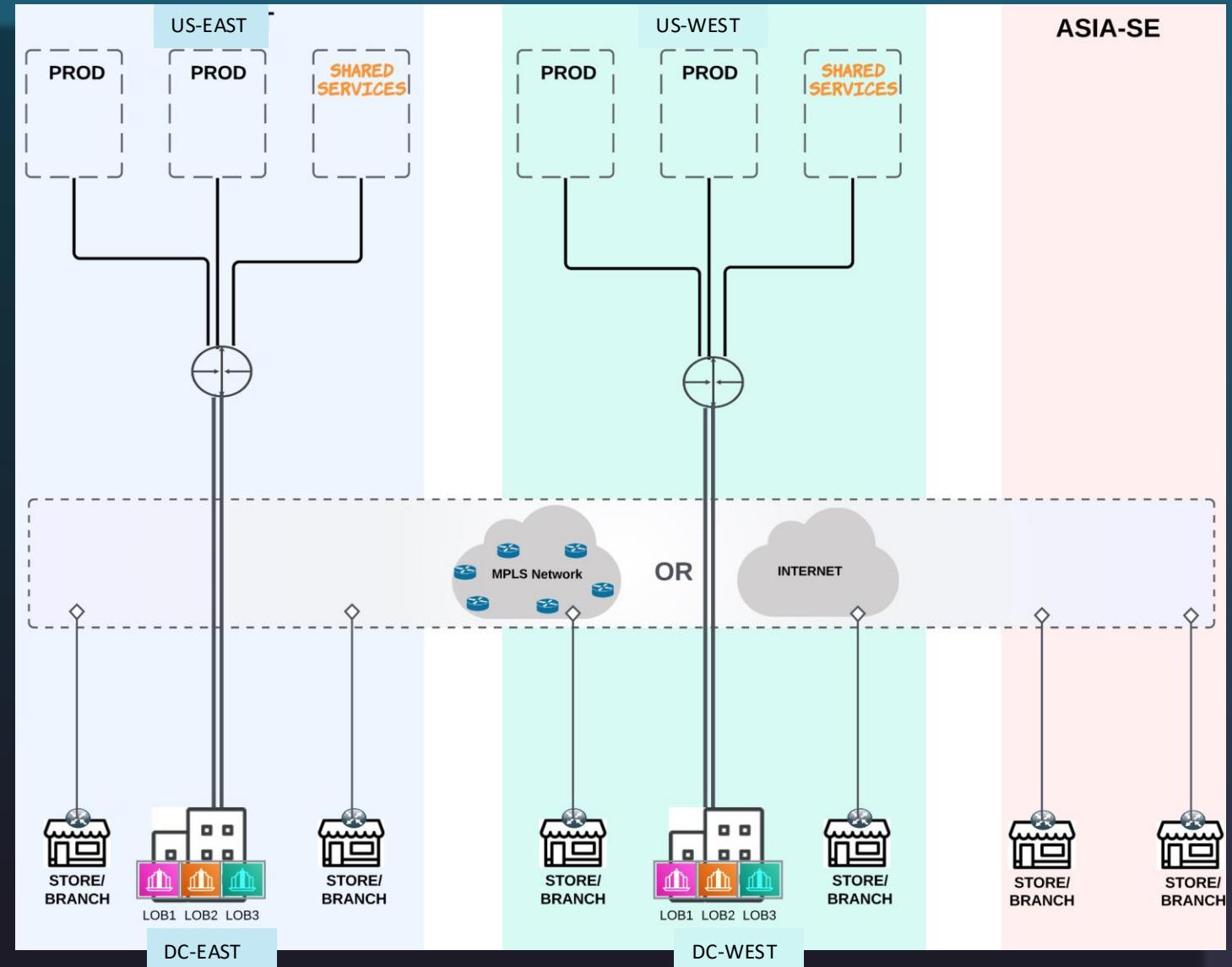
- Zero Trust policy-based security architecture
 - High-performance encrypted inter-region and multicloud connectivity
 - LOBs applications segmentation
 - NexGen FW service in the cloud (No hair-pinning)
- Highly flexible cloud-out solution
 - Utilize landing CSP without deploying applications to overcome 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



Architecture 4 – Hybrid Connectivity

How to Get Started

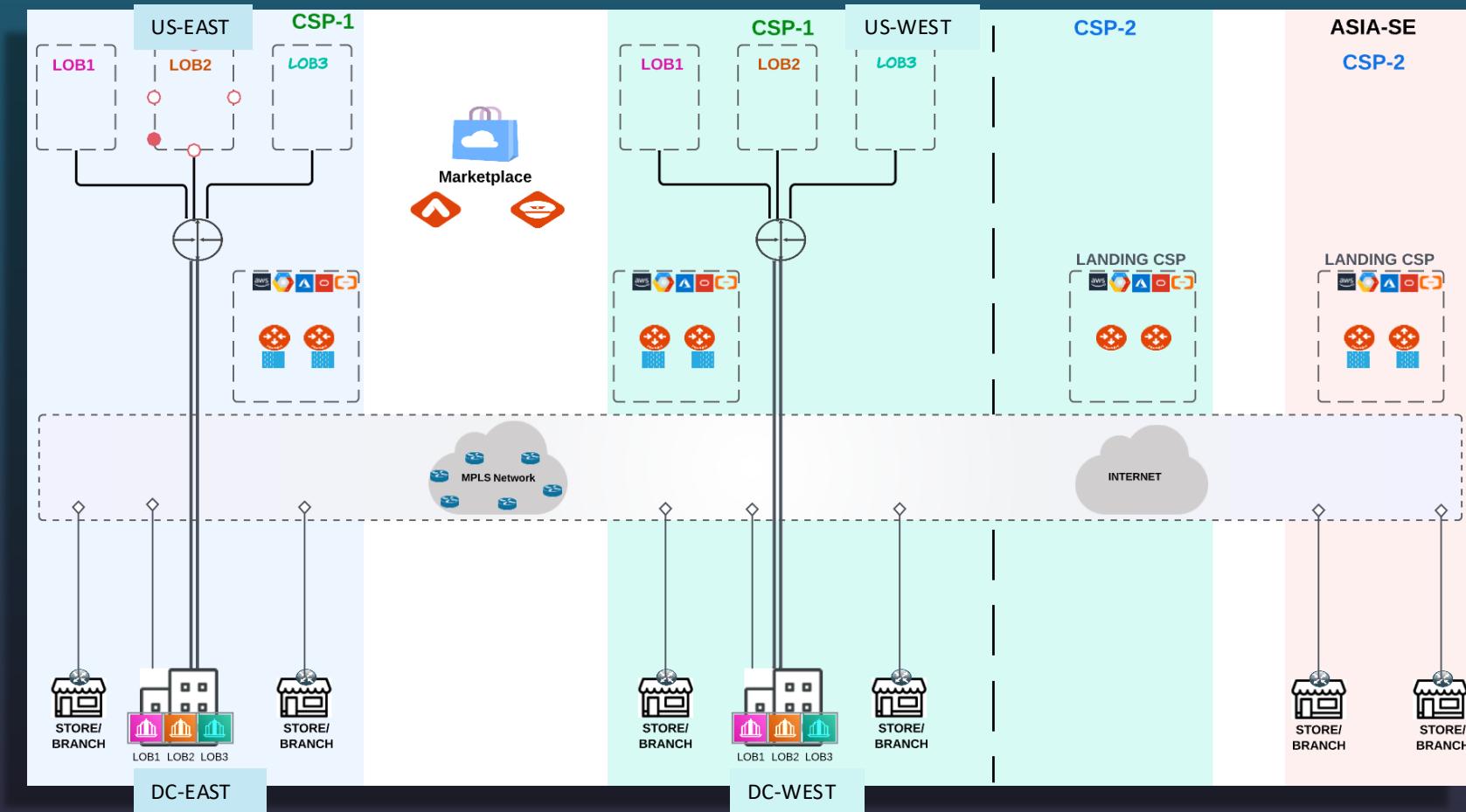
- Zoomed-in Existing Architecture



Architecture 4 – Hybrid Connectivity

How to Get Started

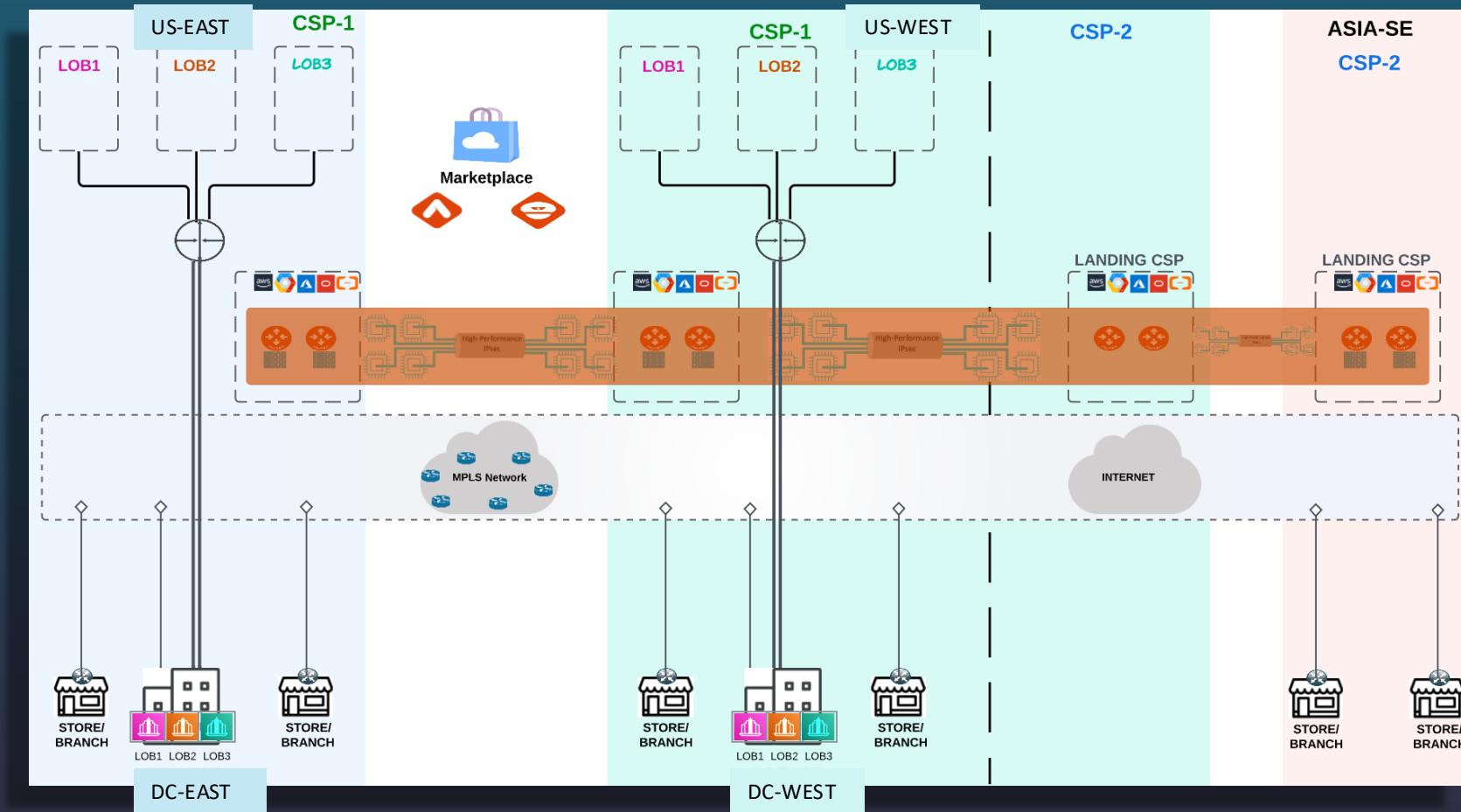
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- Deploy Aviatrix Controller & CoPilot from CSP Marketplace
- Create the following from Aviatrix without changing anything in the existing architecture
 - Transit VPC/VNET/VCN
 - Aviatrix Transit GWs
 - Deploy NGFWs



Architecture 4 – Hybrid Connectivity

How to Get Started

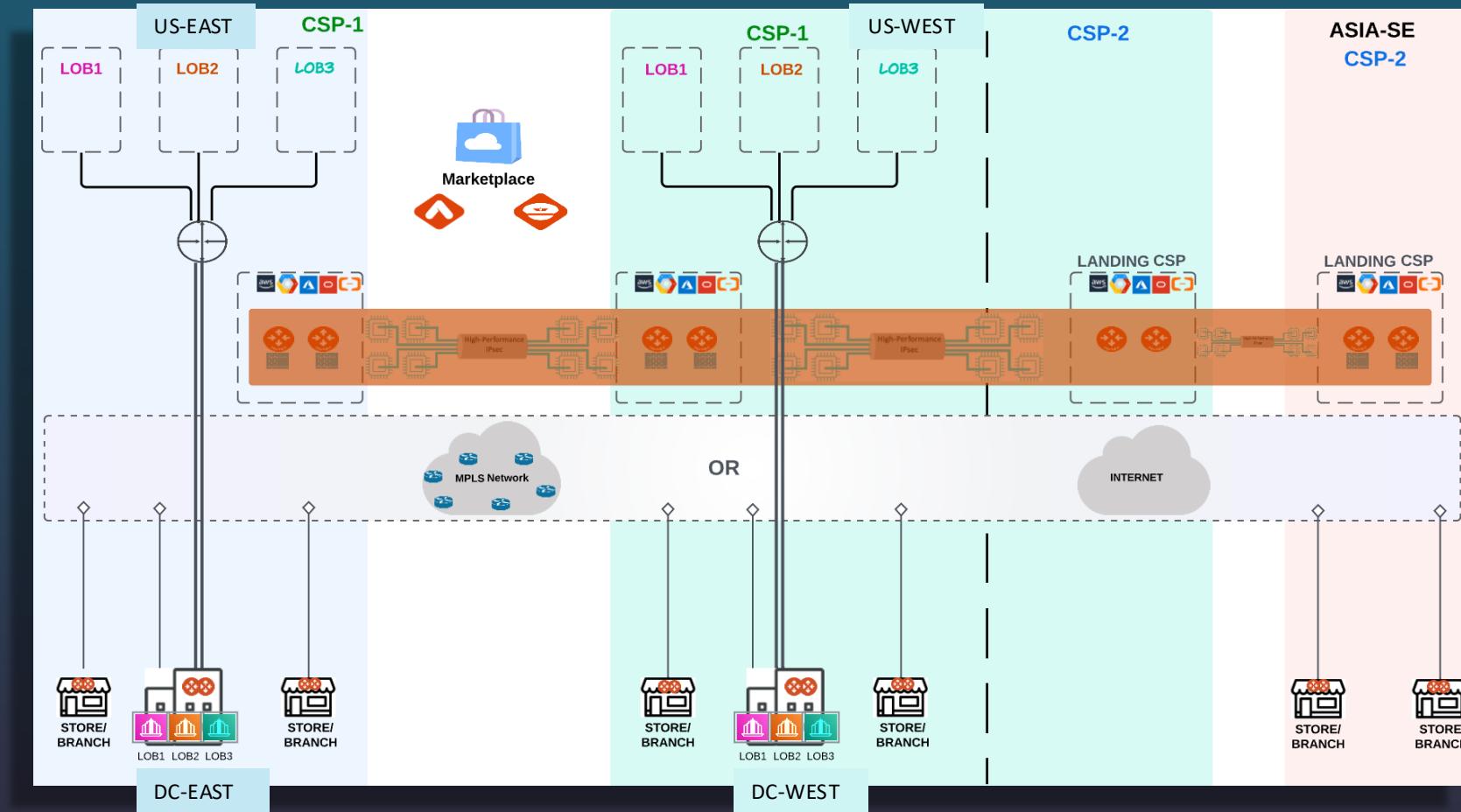
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- Deploy Aviatrix Controller & CoPilot from CSP Marketplace
- Create the following from Aviatrix without changing anything in the existing architecture
 - Transit VPC/VNET/VCN
 - Aviatrix Transit GWs
 - Deploy NGFWs except CSP-2 (landing CSP)
 - Deploy Cloud Backbone



Architecture 4 – Hybrid Connectivity

How to Get Started

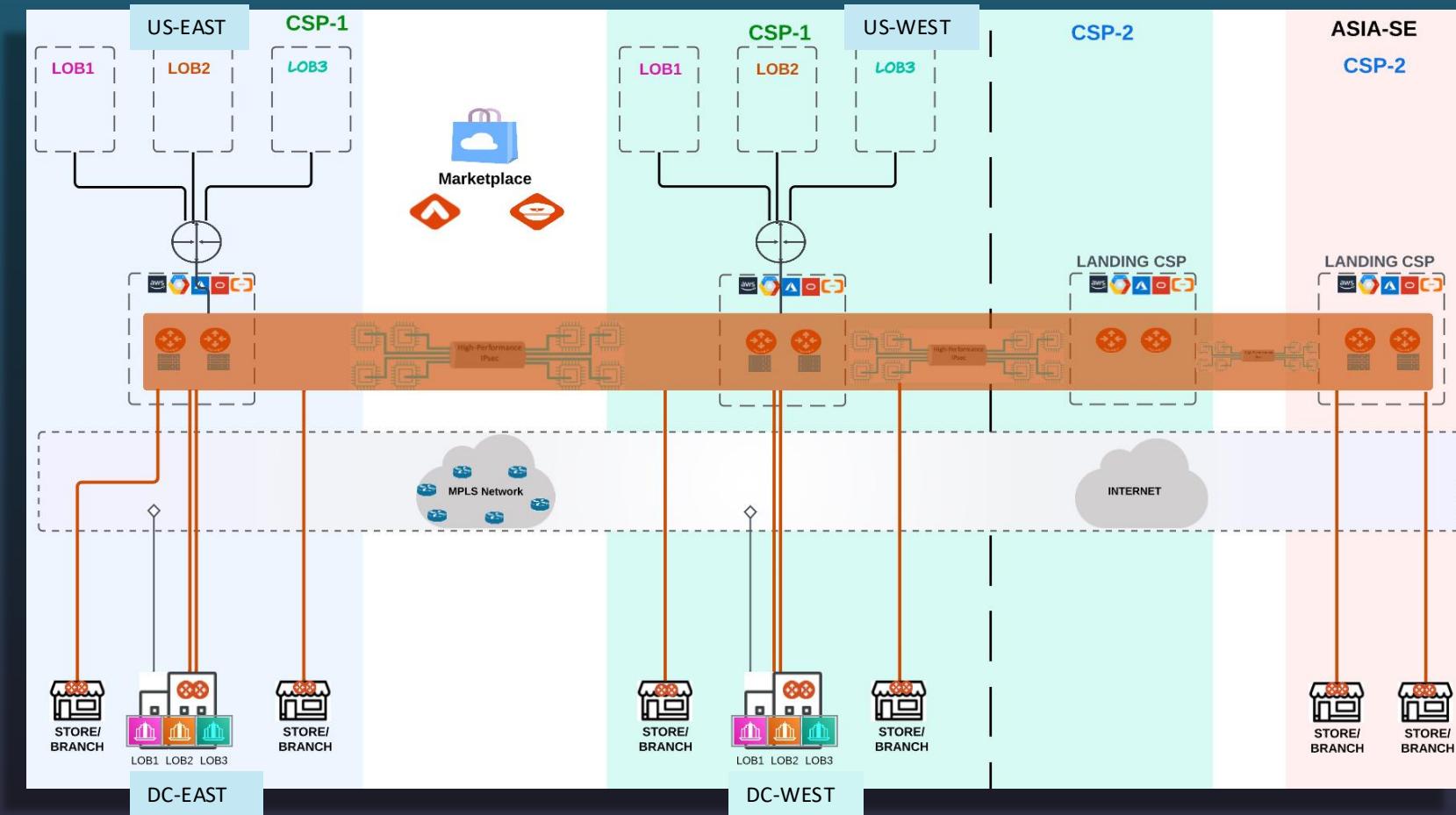
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 - Transit VPC/VNET/VCN
 - Aviatrix Transit GWs
 - Deploy NGFWs except CSP-2 (landing CSP)
 - Deploy Cloud Backbone
- Deploy Aviatrix Edge in the DC and branches



Architecture 4 – Hybrid Connectivity

How to Get Started

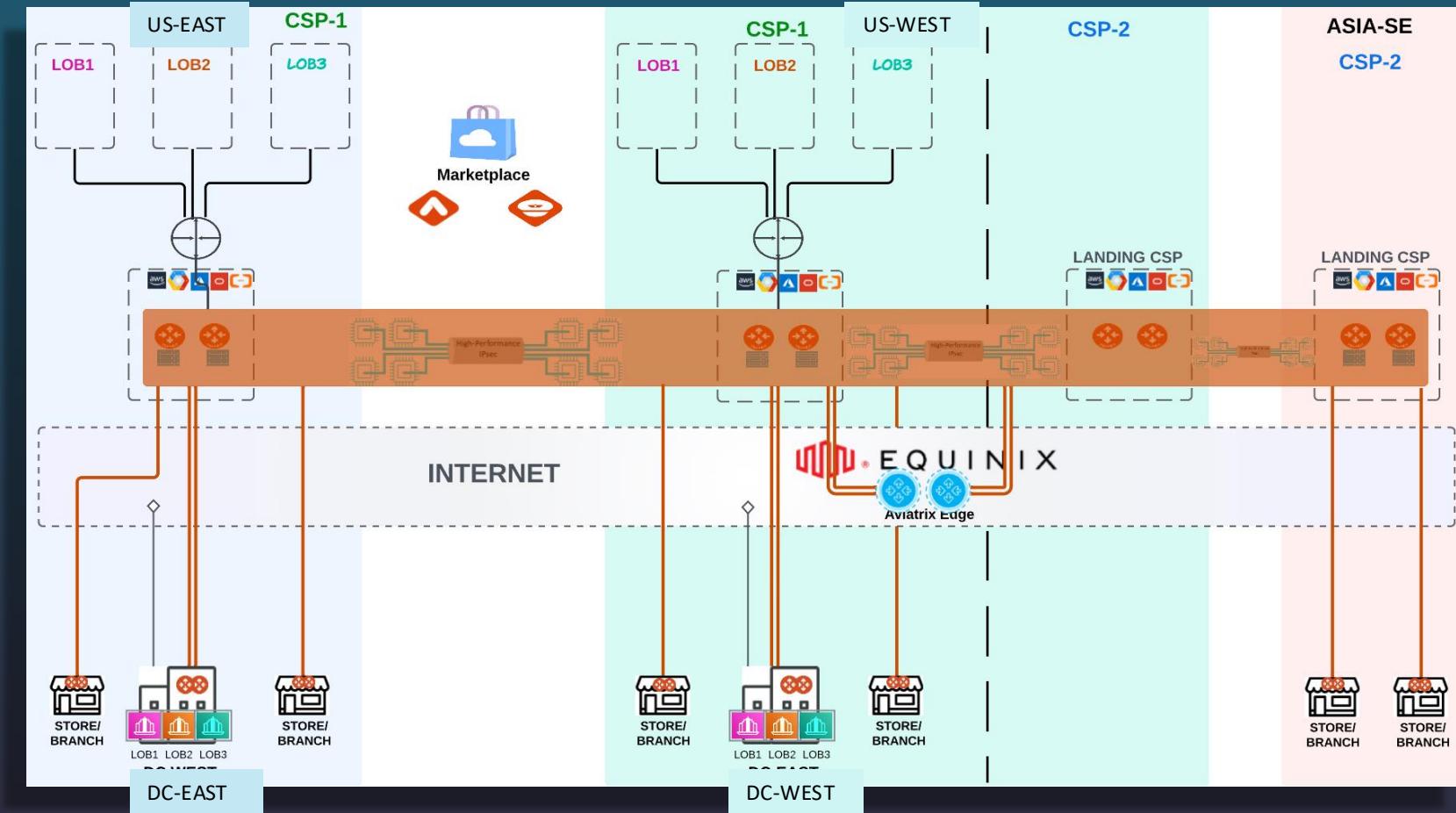
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 - Aviatrix Transit GWs
 - Deploy NGFWs except CSP-2 (landing CSP)
 - Deploy Cloud Backbone
- Deploy Aviatrix Edge in the DC and branches
- Connect the native transit construct to the Cloud Backbone
- Switch the private circuits connectivity from the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



Architecture 4 – Hybrid Connectivity (Equinix Extension)

How to Get Started

- Zoomed-in Existing Architecture
- Deploy Aviatrix Controller & CoPilot from CSP Marketplace
- Create the following from Aviatrix without changing anything in the existing architecture
 - Transit VPC/VNET/VCN
 - Aviatrix Transit GWs
 - 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



Enterprise Architecture 5 MSPs



Architecture 5 – Managed Service Providers (MSPs)

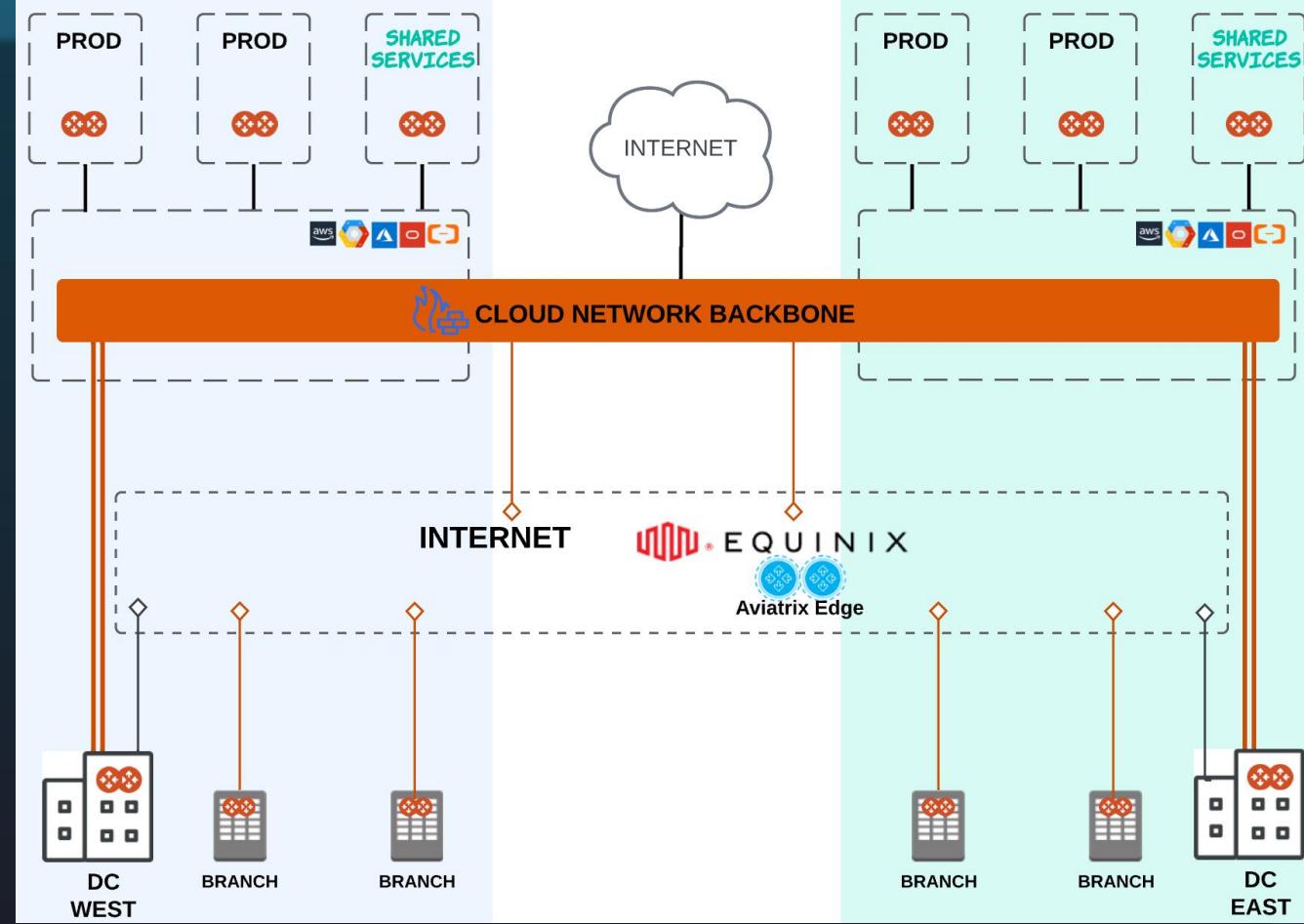
Challenges:

- 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



Enterprise Architecture 6

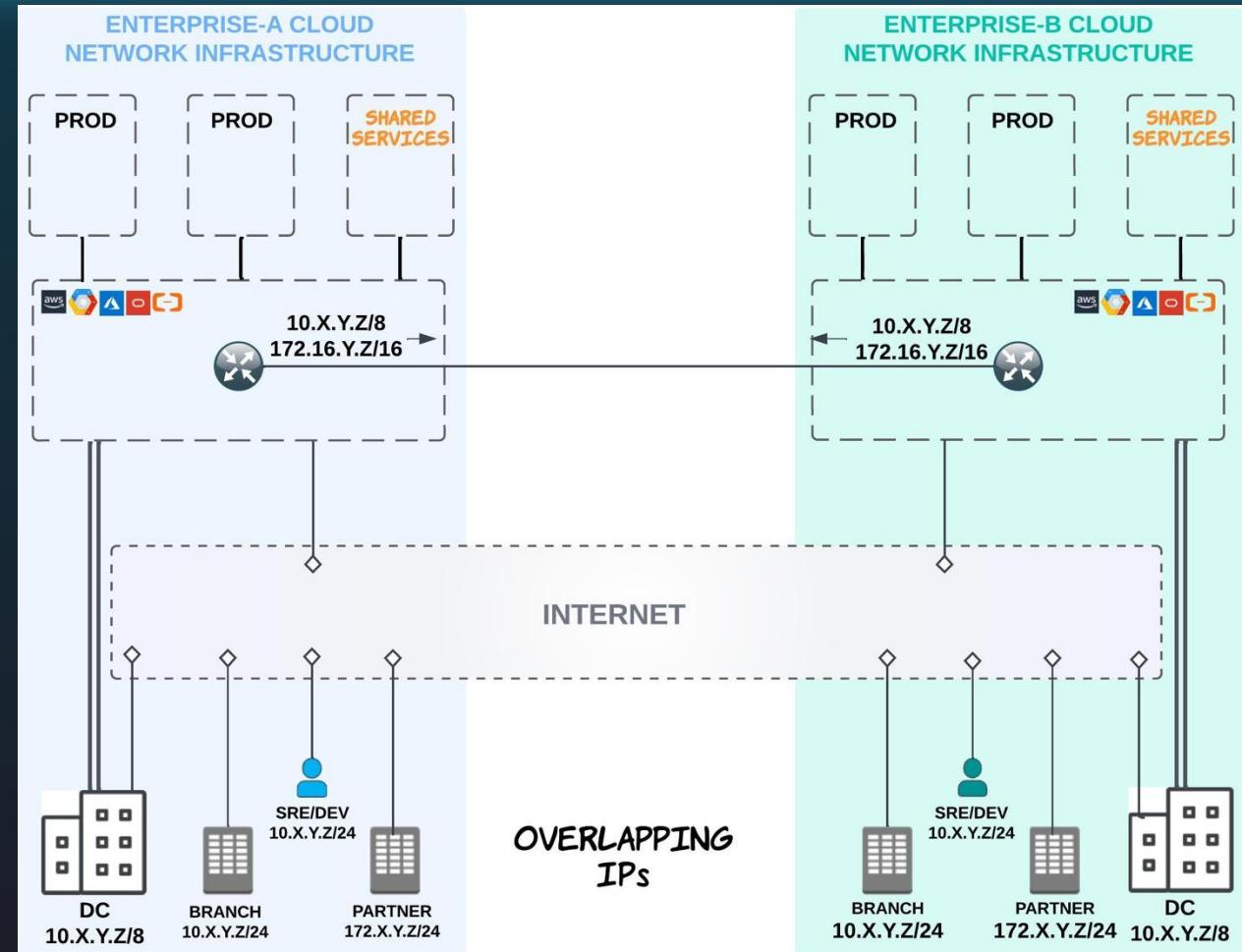
M&As



Architecture 6 – Mergers and Acquisitions

Challenges:

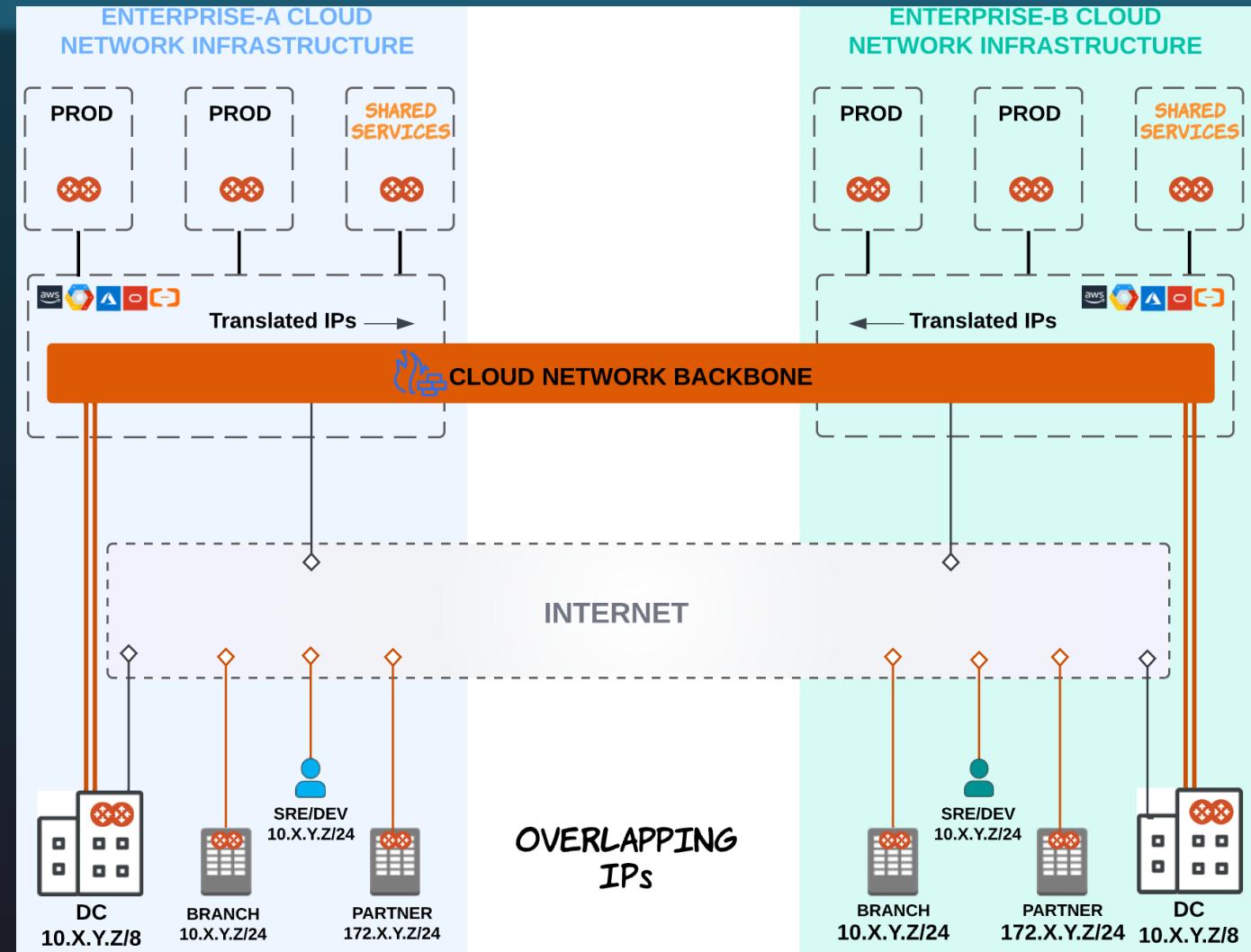
- Difficult to learn a new language and its native constructs (acquired enterprise could be in a different CSP)
- Different Security and Compliance Standards
- Different or no Cloud Network Architecture
- Overlapping IPs with:
 - DCs/Branches/Sites
 - Partners



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



Demo & Lab





Time for demo
and lab!



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

Aviatrix Certified Engineer
Multicloud Network Backbone
Specialty



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