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The bridge to possible

Every Packet Matters

Amazon Operations Networks on Cisco SD-WAN and AWS

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Kevin Echols II (Cisco)

DevNet-1575

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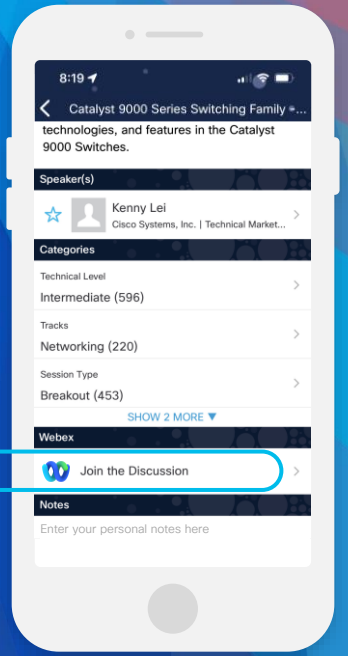

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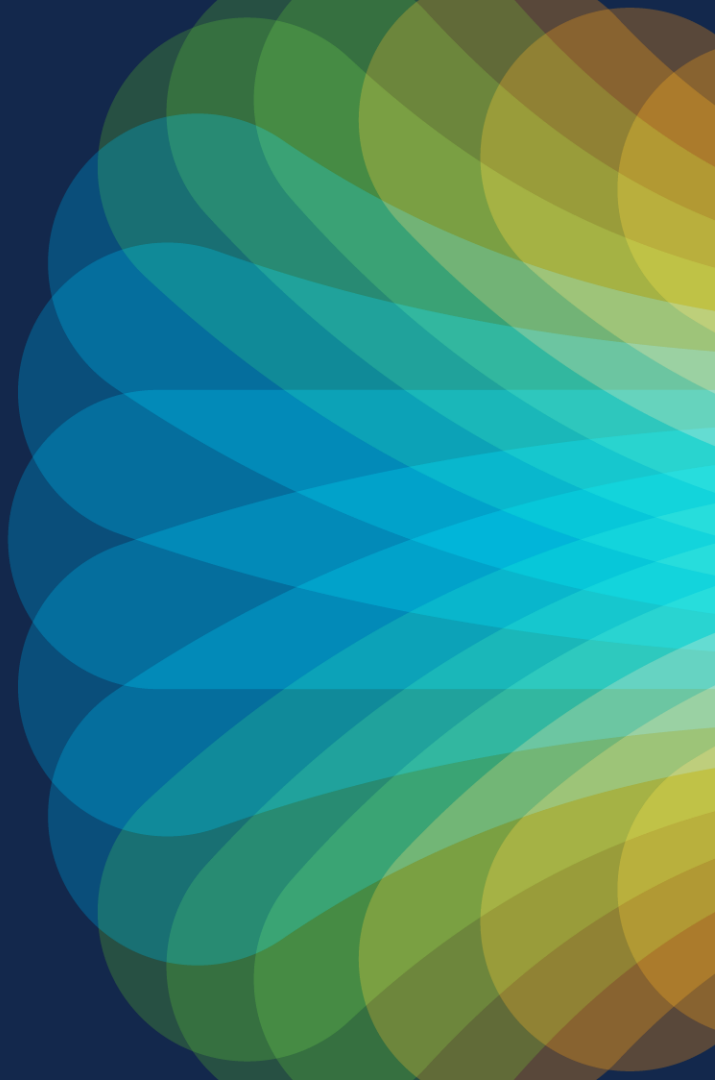
Agenda

- Amazon Operations Networks
- Why SD-WAN on AWS?
- SD-WAN and CloudWAN Primer
- Amazon Operations WAN Architecture powered by Cisco and AWS
- Automation and Monitoring

Overview



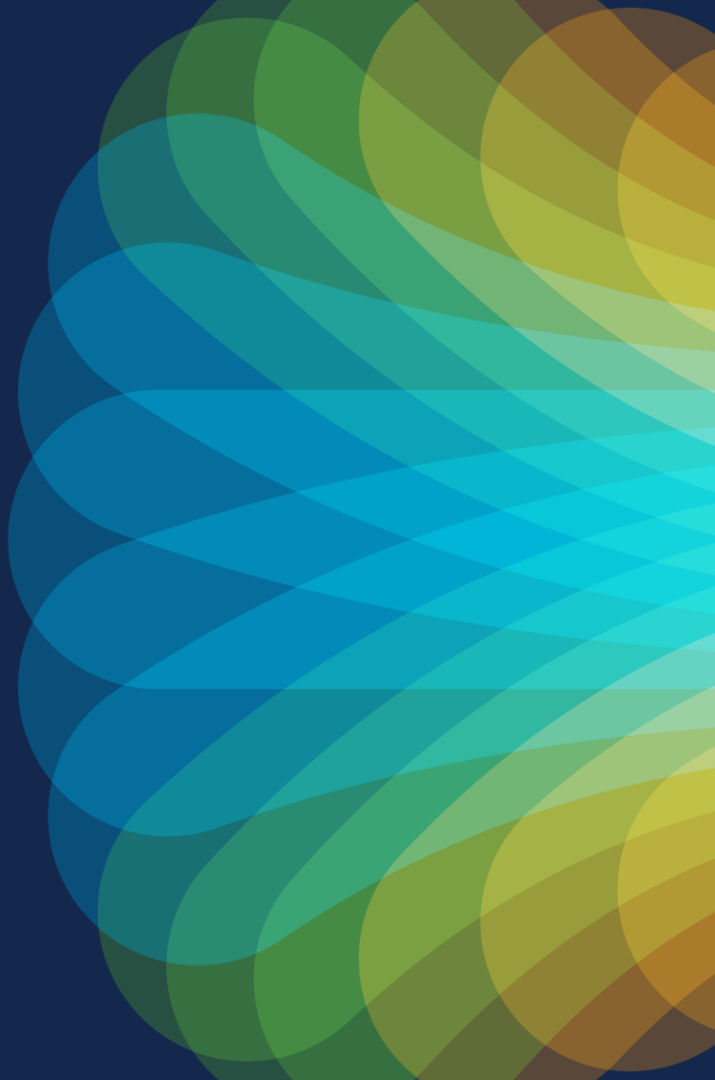
Amazon Operations Network

- 3000+ First, middle and last mile fulfillment center operations sites world-wide
- Sized from Airport Hubs to Delivery stations
- Each location critical to meeting customer promises for package delivery
- Amazon Fulfillment Technologies, Robotics, Supply Chain & Logistics applications and many more hosted in the AWS cloud

Why Cisco SD-WAN on AWS?

- Reliable and fixed latency to AWS-based Applications over diverse WAN circuits
- Automatic failover in event of WAN degradation
- Redundancy, redundancy, redundancy
- Automation first
- Bypass long lead-time replacement with AWS-based Cat8kv
- Prepare for eventual EoL of the ASR1001X

SD-WAN and AWS CloudWAN Primer



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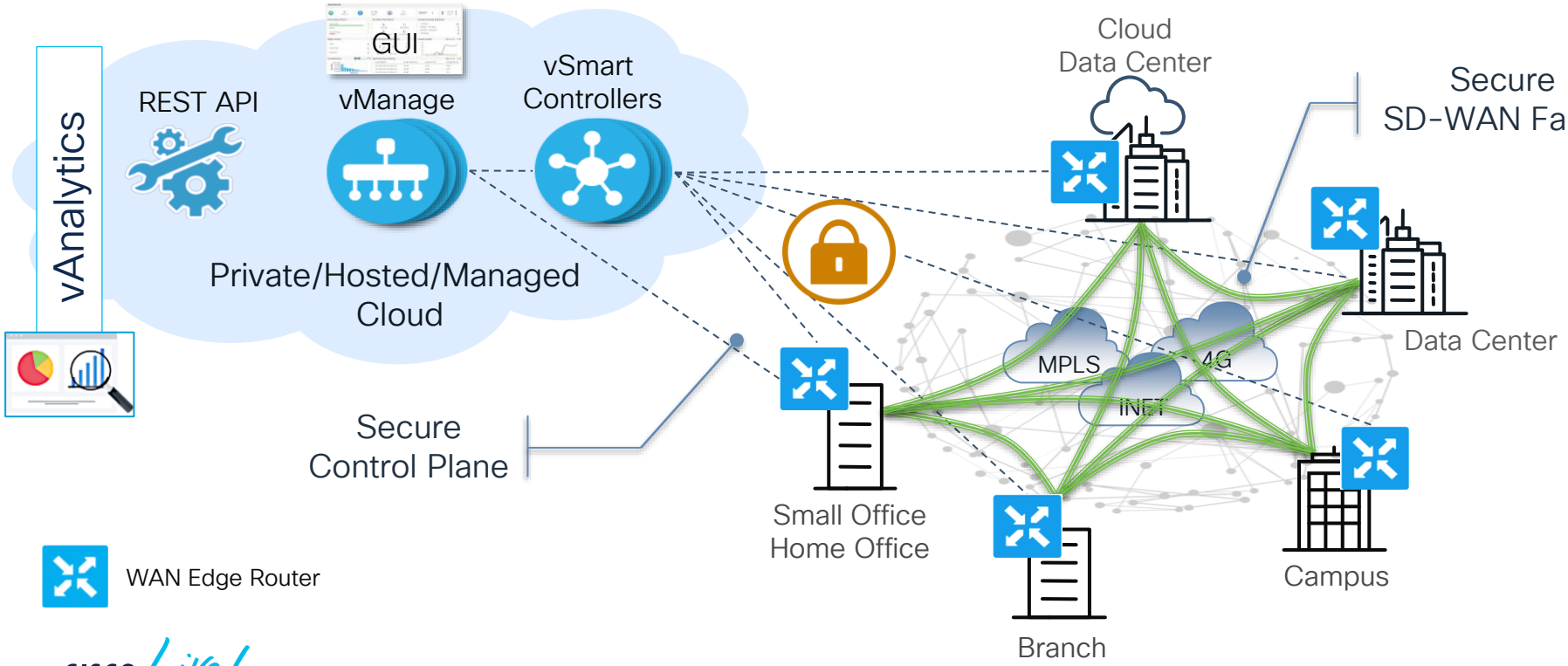
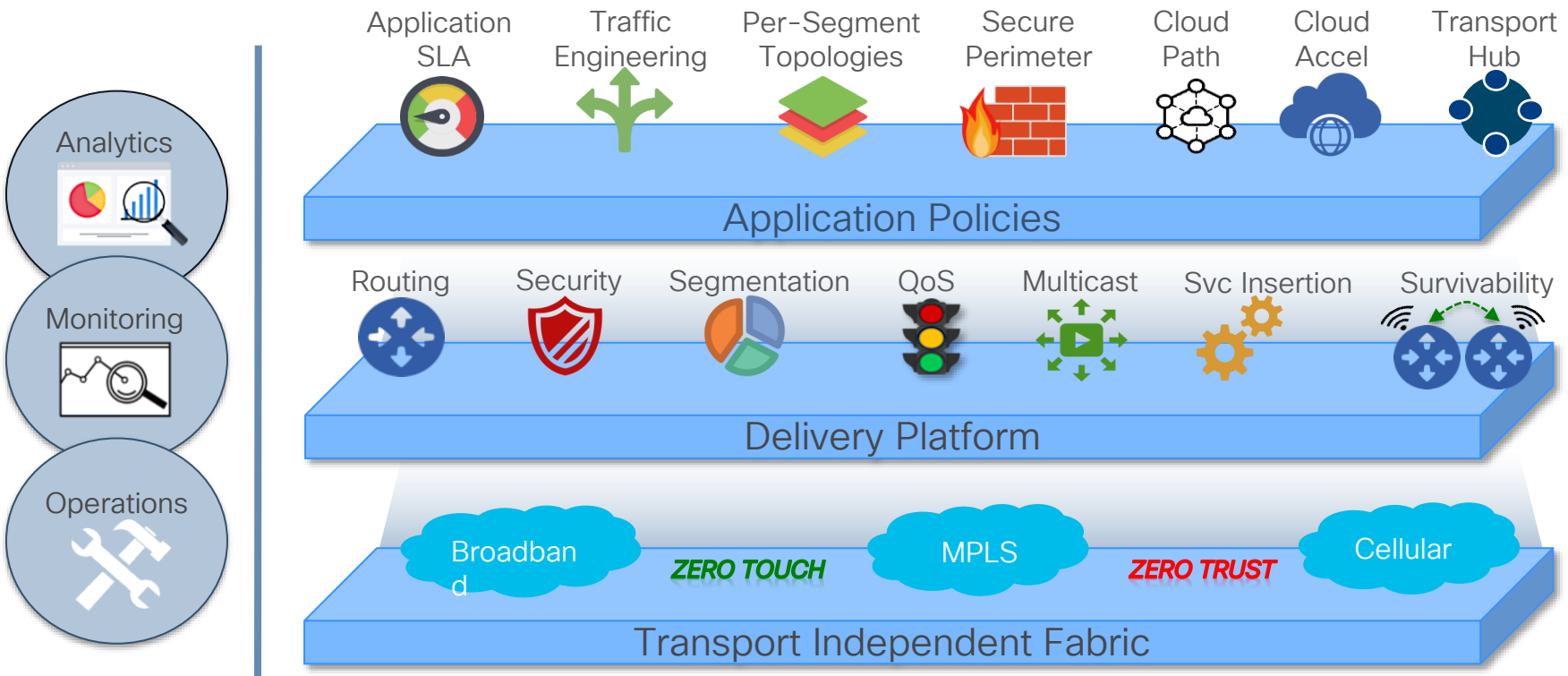
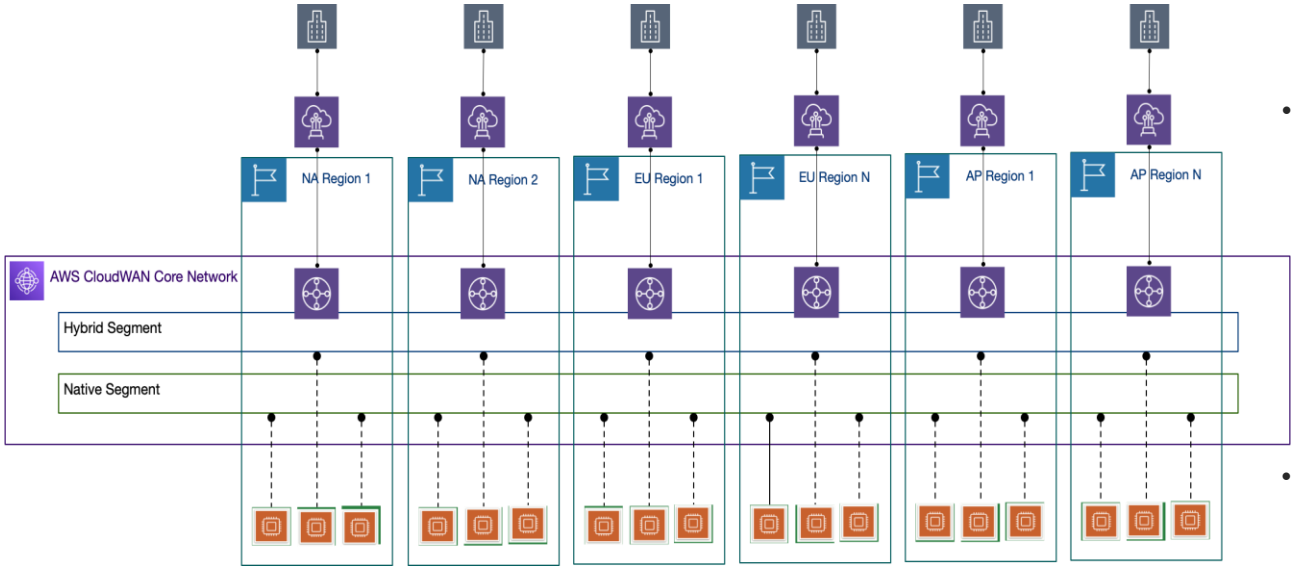
Cisco SD-WAN Architecture



Cisco SD-WAN Solution Philosophy

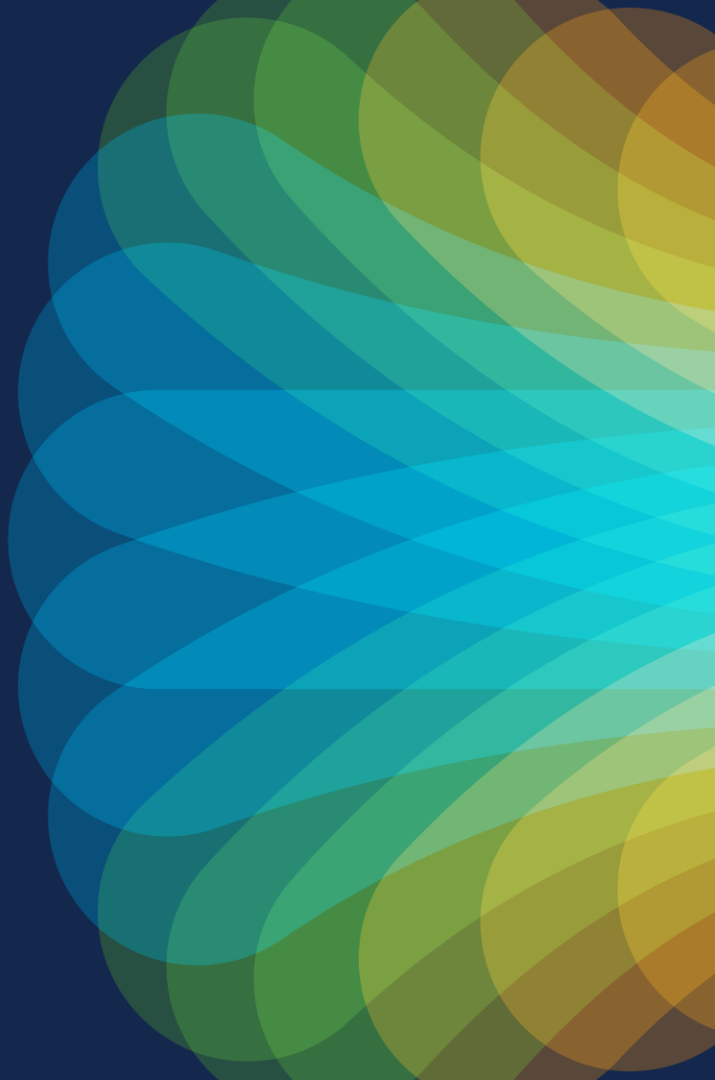


Hybrid Cloud with AWS CloudWAN and DirectConnect

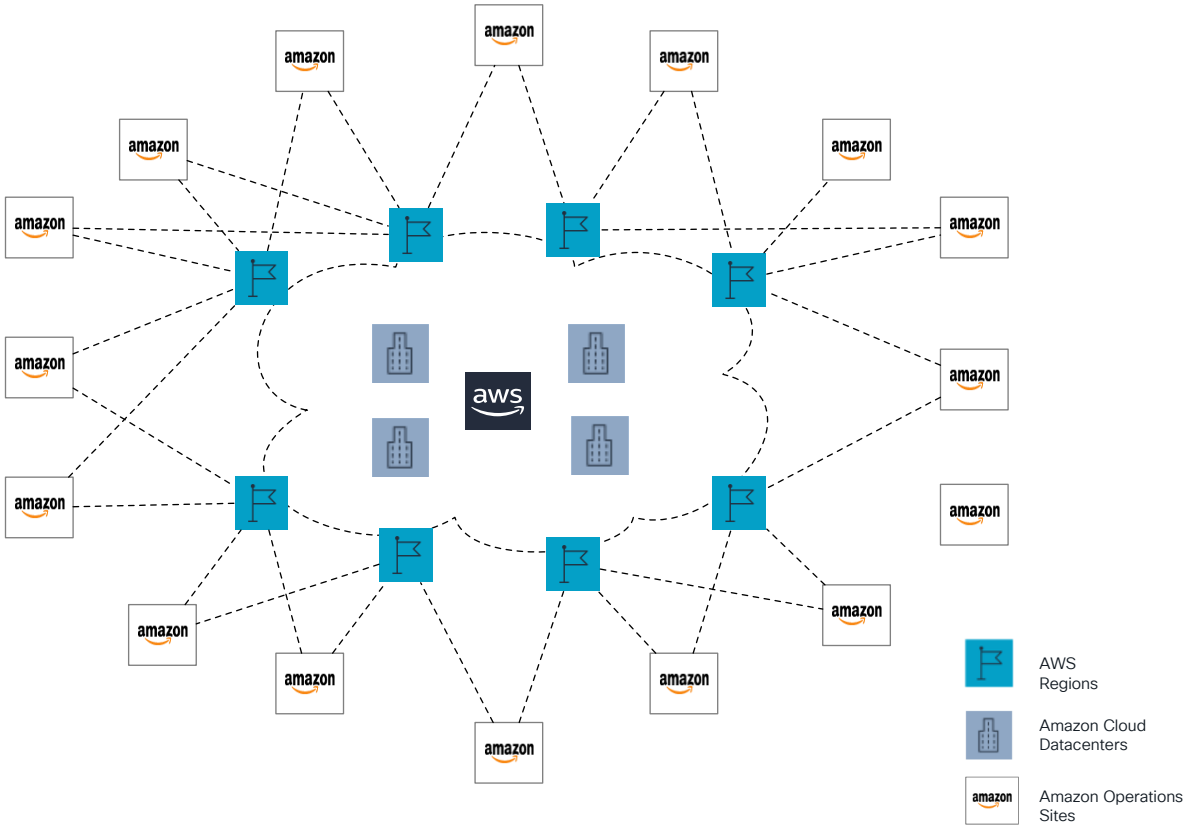


- AWS DirectConnect to peer physical Data centers to AWS Cloud
- Global connectivity between Physical Datacenters and Virtual clouds across all AWS regions using CloudWAN
  - Segmentation with CloudWAN
  - Centralize policy-based orchestration
- Dynamic peering for CAT8kv with CloudWAN segments with AWS Connect attachments.

Architecture

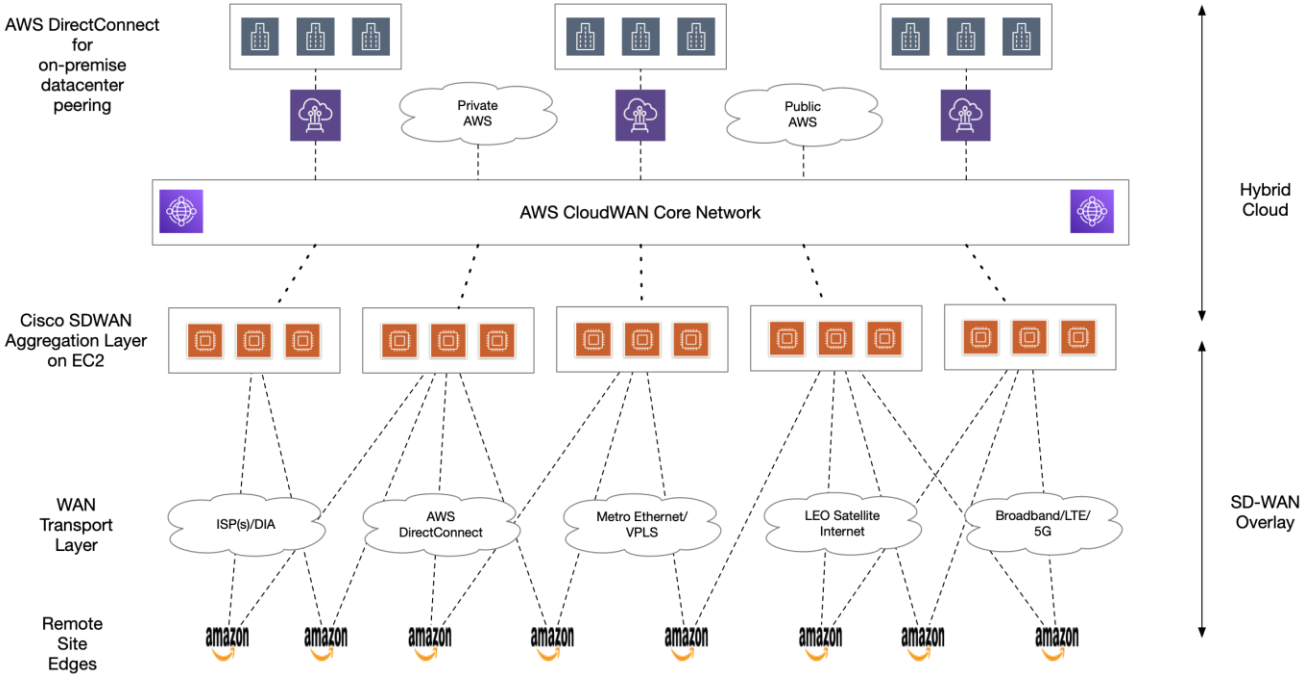


Amazon Operations WAN Architecture HLD



- Secure Cisco SD-WAN into the AWS Cloud
- Highly available Multi-AWS Region Connectivity for every Remote Site
- Maximize use of AWS Backbone
- Leverage the power of EC2 to provision virtual routing layers

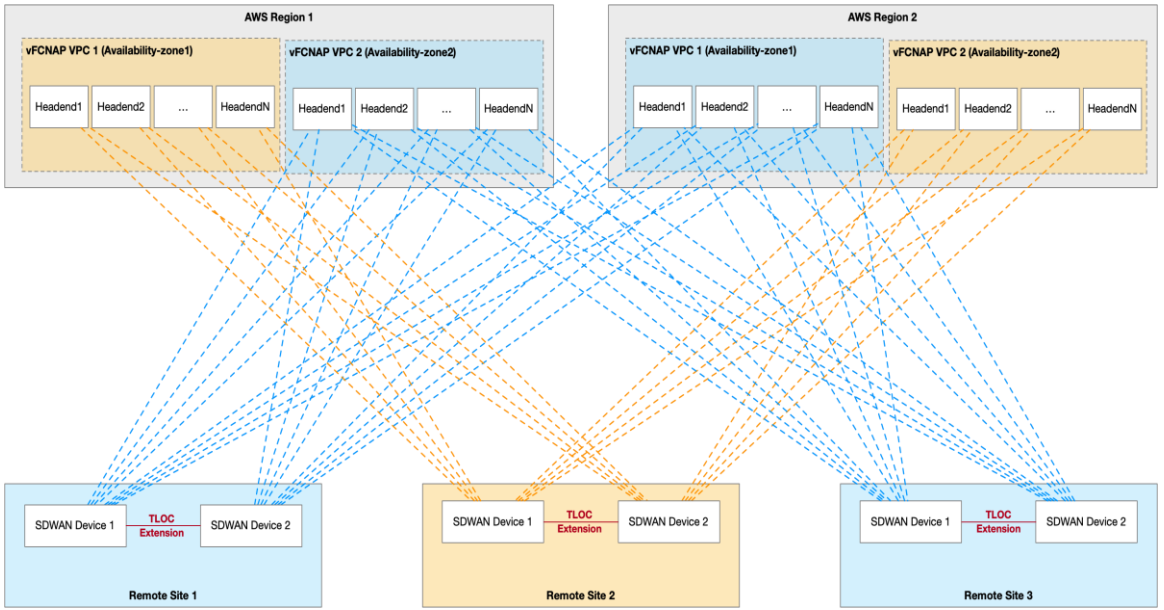
WAN Edge and Backbone
Network in Layers



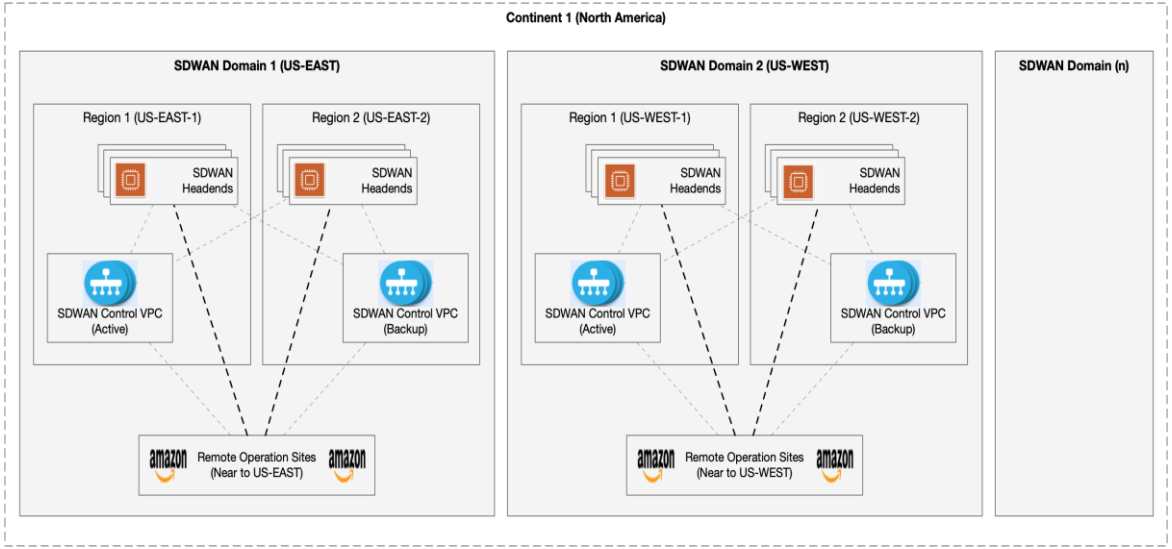
- Hybrid networks comprising of private on-premise datacenters, public and private AWS clouds
- Cisco SDWAN to optimize the transport layer
- Enterprise grade WAN circuits to wireless commodity broadband internet

Data Plane
High Performance and Availability

- High throughput logical connectivity with CAT8kv
- **Redundant at every layer**
  - Edge platform redundancy
  - Diverse WAN connections
  - Aggregation layer redundancy
  - AZ redundancy
  - Multi AWS Region implementation



Control and Management Plane
High Availability and Disaster Recovery



- AZ and Region redundant active/active vSmart and vBond
- Region redundant vManage cluster with Disaster Recovery
- Smaller units of blast radius across the topology
- vAnalytics for insights into traffic and topology

Automation & Monitoring

- CloudFormation, Step Functions and Lambdas for automated provisioning
- S3 and DynamoDB for configuration and topology management
- CloudTrail for logging and audit compliance
- Event-bridge for scheduled tasks
- vManage based code upgrades and config deployments
- One Touch Provisioning using Cisco Plug & Play Portal
- Streamlined HSEC reservation process using Smart Software Licensing Portal APIs

- CloudWatch for all AWS metrics and internal monitoring systems
- API integration with vManage for domain visibility
- Device health monitoring via SNMP today
- vAnalytics for site/region correlation and historical operation metrics

Outcomes

- 18 months for design to global deployment
- 2+ years production environments stability
- Higher Amazon engineer productivity, improved WAN availability, reduced MTTR, and lowered WAN connectivity OpEx
- Allows use of AWS native features and extensibility for monitoring and provisioning
- SD-WAN feature and product innovation
- Simplified network provisioning through centralized controllers

Announcing @Cisco Live US 2023

Cisco SD-WAN with AWS Cloud WAN

Learn about Cisco SD-WAN cloud networking collaboration with AWS at Cisco Live 2023.
We'll be demonstrating benefits of secure cloud access, automated global network connectivity, and improved application performance.

PSOENT-1008 Session
Keep your head in the clouds and feet firmly on the ground with Cisco SD-WAN and AWS Cloud WAN
Vipul Shah – Senior Product Manager, Cisco
Shridhar Kulkarni – Product Manager, AWS VPC & Cloud WAN, AWS
Tue. Jun 6 - 3:00 PM - 3:30 PM PDT

BRKENT-2283 Session
4 steps to unify Multi-Cloud Connectivity and Design with Cisco SD-WAN principles
Prashant Tripathi - Principal Sales Architect, Cisco
Prem Sharma - Principal Engineer, Cisco
Wed. Jun 7 - 10:30 AM - 12:00 PM PDT

NET09 World of Solutions Demo
Visit "Multicloud SD-WAN: Automate & integrate cloud connections" to see a live demo
Mon-Thu. Jun 5-8

INTCLD-1101 Innovation Talk Session
Streamlining Global Cloud Experiences
JL Valente – VP, Product, Enterprise Routing & SD-WAN, Cisco
Robert Kennedy – VP Border Network Engineering, AWS
Colin Bannon – CTO BT Business, BT
Wed. June 7 – 4:00 PM – 5:00 PM PDT

AWS Booth #5906 Theater Session
Cisco SD-WAN - Optimizing access to your AWS cloud workloads
Prem Sharma – Principal Engineer, Cisco
Mon. June 5 - 3:00 PM - 3:20 PM PDT
Vipul Shah – Senior Product Manager, Cisco
Tue. June 6 - 12:00 PM – 12:20 PM PDT
Prashant Tripathi – Principal Sales Architect, Cisco
Wed. June 7 - 3:00 PM - 3:20 PM PDT

BRKEWN-2045 Session
Design, validate and certify your wireless streaming telemetry deployment
Sr Systems Architect, Cisco Systems, Inc. - Distinguished Speaker
Thu. June 8 – 10:30 AM - 12:00 PM PDT

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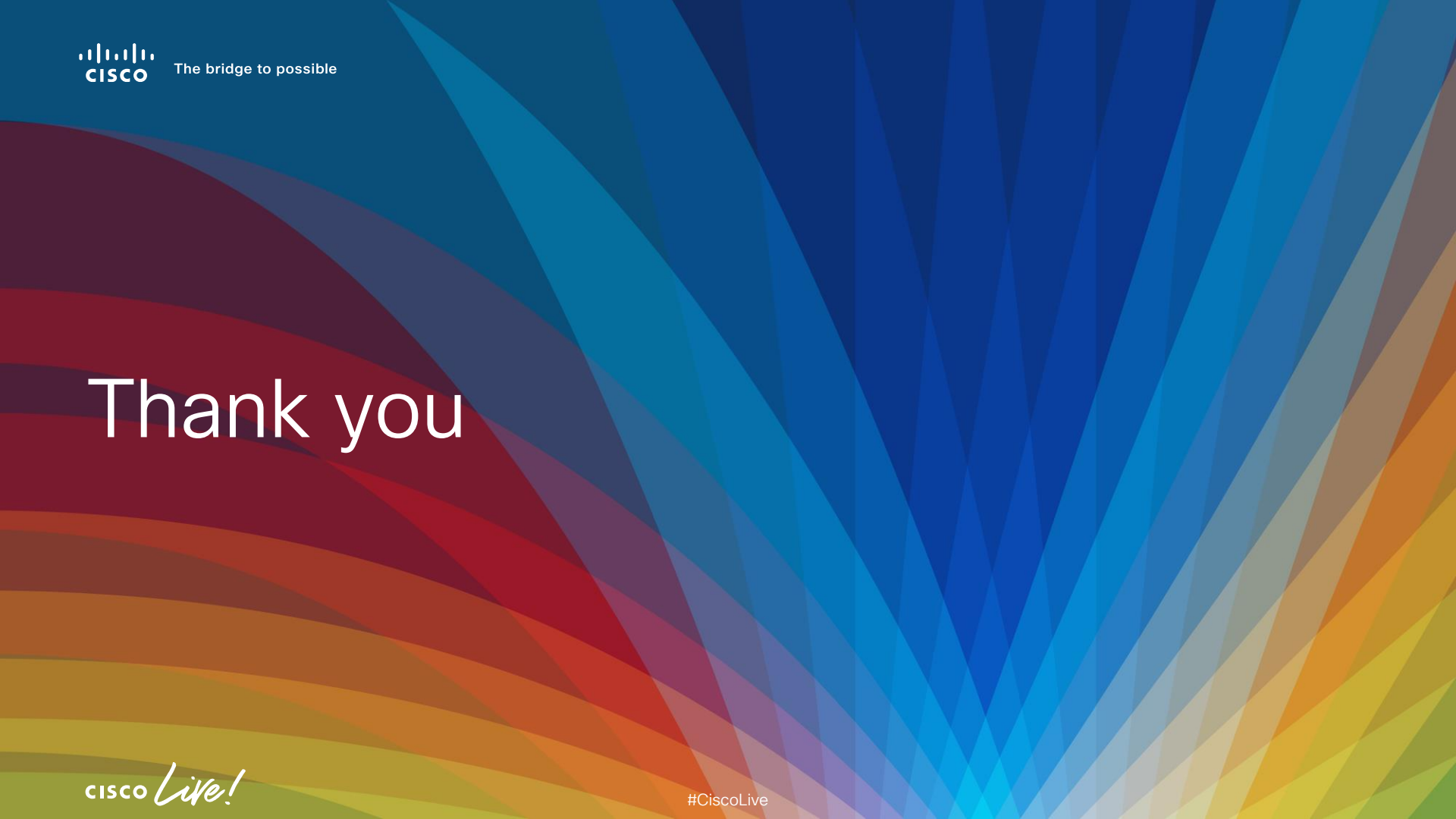
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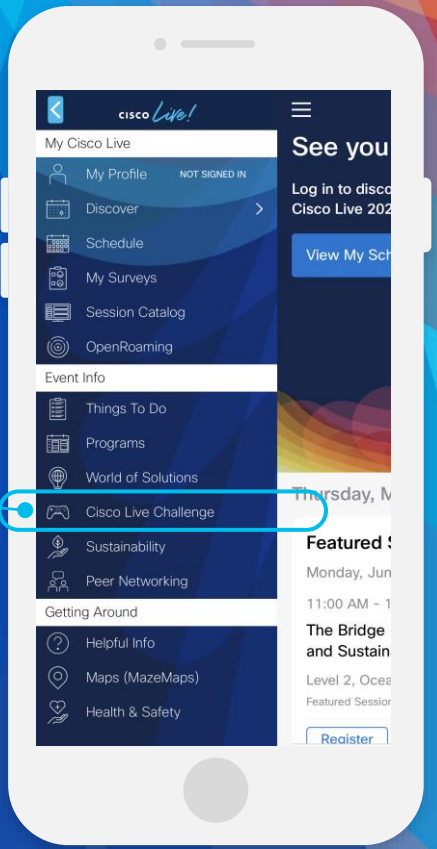


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