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Next-Gen Cisco SD-WAN Architecture

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BRKRST – 1003

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2



Agenda

Introduction

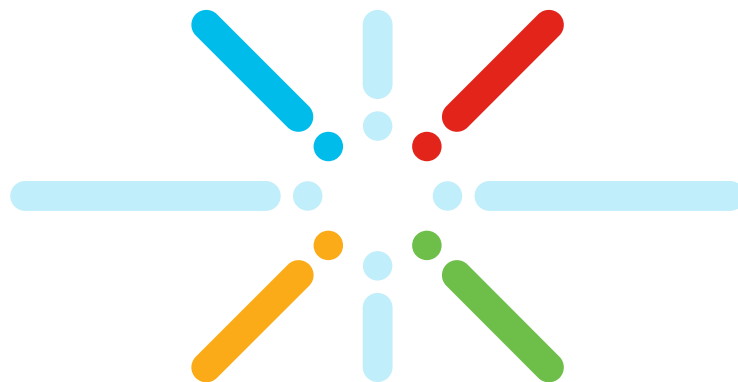
SD-WAN Architecture

SD-WAN Use Cases

- Application Quality of Experience (AppQoE)
- Secure Branch
- Cloud Integration

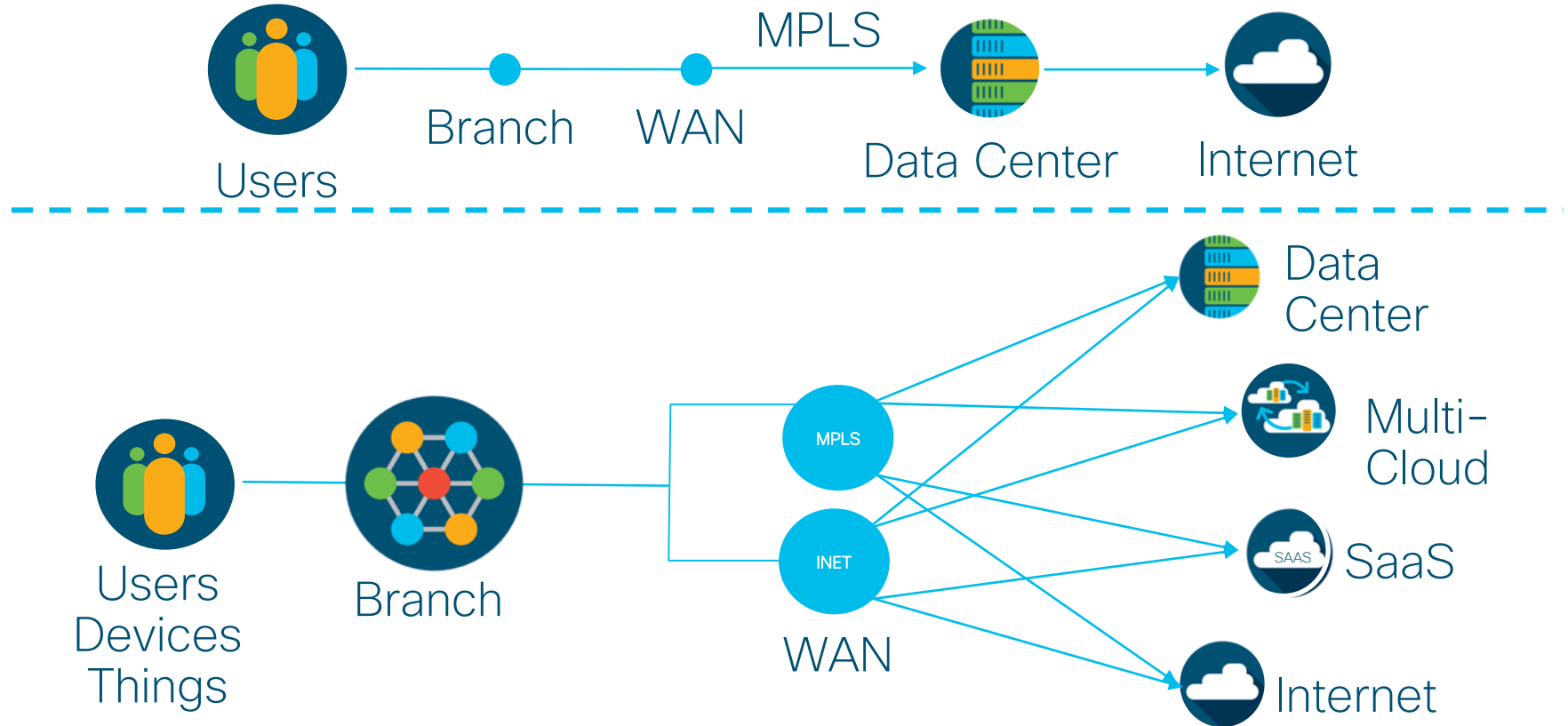
Demo

Introduction



You make networking **possible**

The WAN Has Changed



SD-WAN Architecture



You make networking **possible**

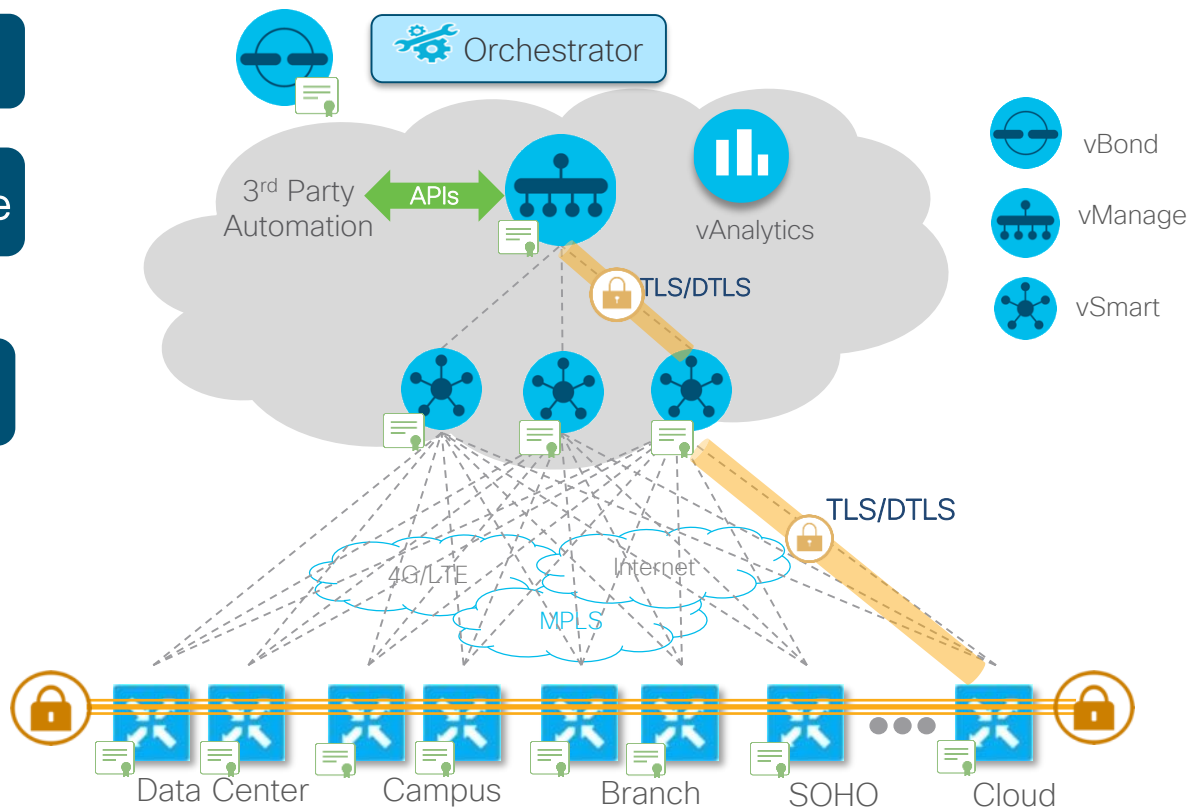
Cisco SD-WAN Architecture Overview

Orchestration Plane = vBond

Management Plane = vManage

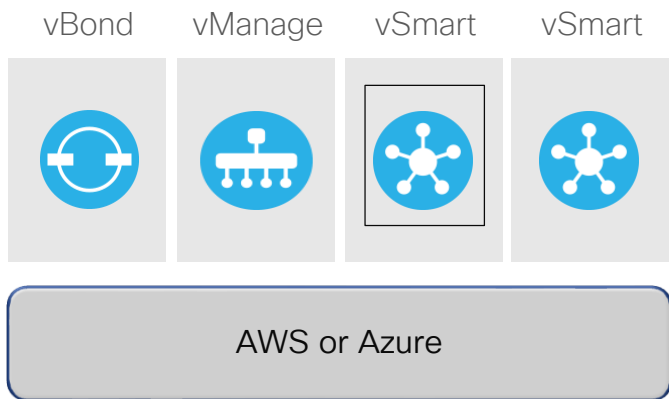
Control Plane = vSmart

Data Plane = WAN Edge
(vEdge, Cisco ISR/ASR/ENCS,
Whitebox)

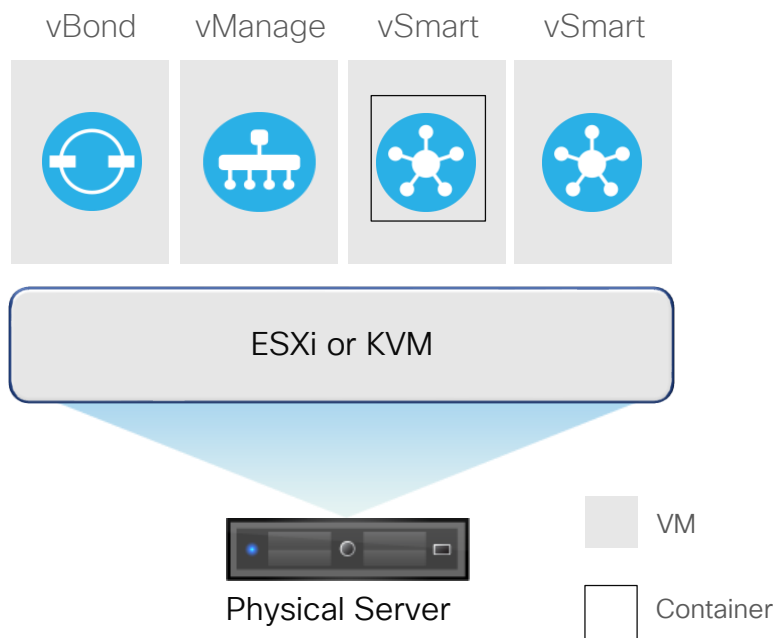


Controllers Deployment Models

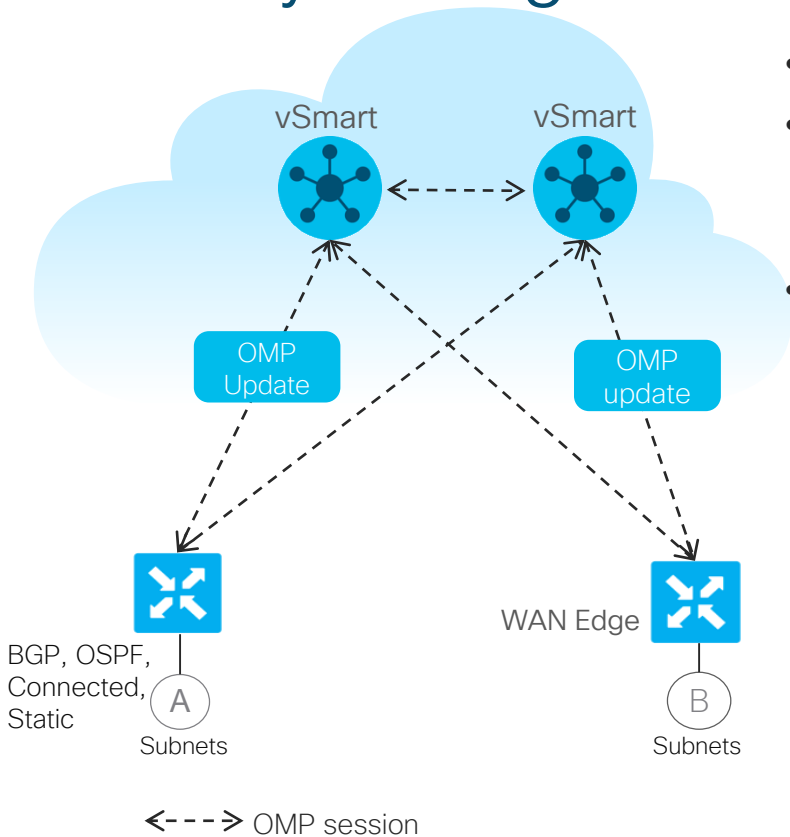
Cloud Hosted



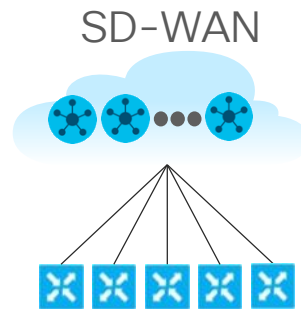
On-Premise



Overlay Management Protocol (OMP)

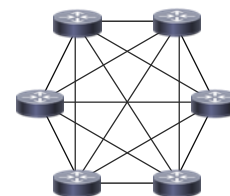


- TCP based extensible control plane protocol
- Runs inside TLS/DTLS tunnels
 - WAN Edge <-> vSmart
 - vSmart <-> vSmart
- **OMP update**
 - Routing Prefixes
 - IPSEC encryption keys
 - Policies



$O(n)$ Control Complexity

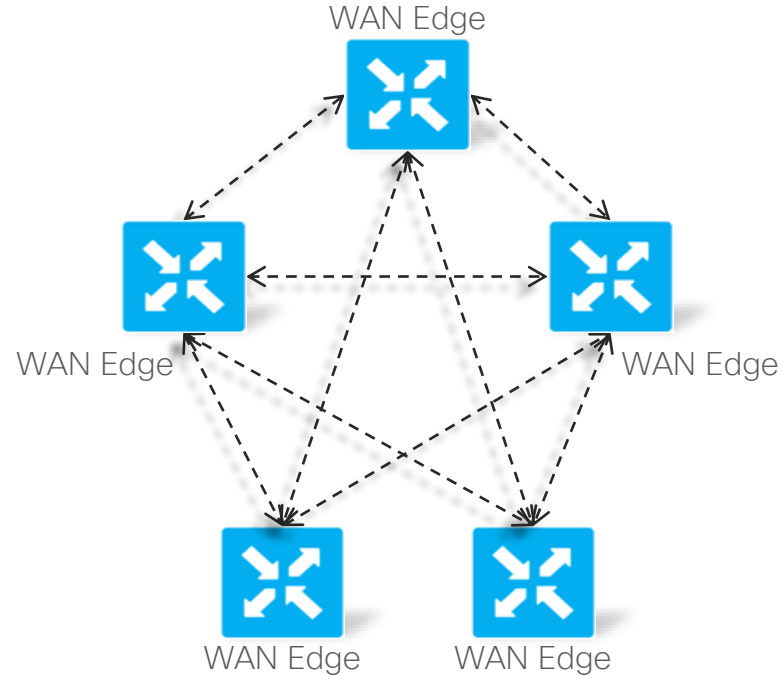
Traditional



VS

$O(n^2)$ Control Complexity

Data Plane Liveliness and Quality



- **Bidirectional Forwarding Detection (BFD)**
- Path liveliness and quality measurement
 - Up/Down, loss/latency/jitter, tunnel MTU
- Runs between all WAN Edge routers
 - Inside IPSEC tunnels
 - Across all transports
 - Operates in echo mode
- Uses hello interval, poll interval and multiplier for detection
 - Fully customizable per-WAN Edge, per-transport

SD-WAN Use Cases

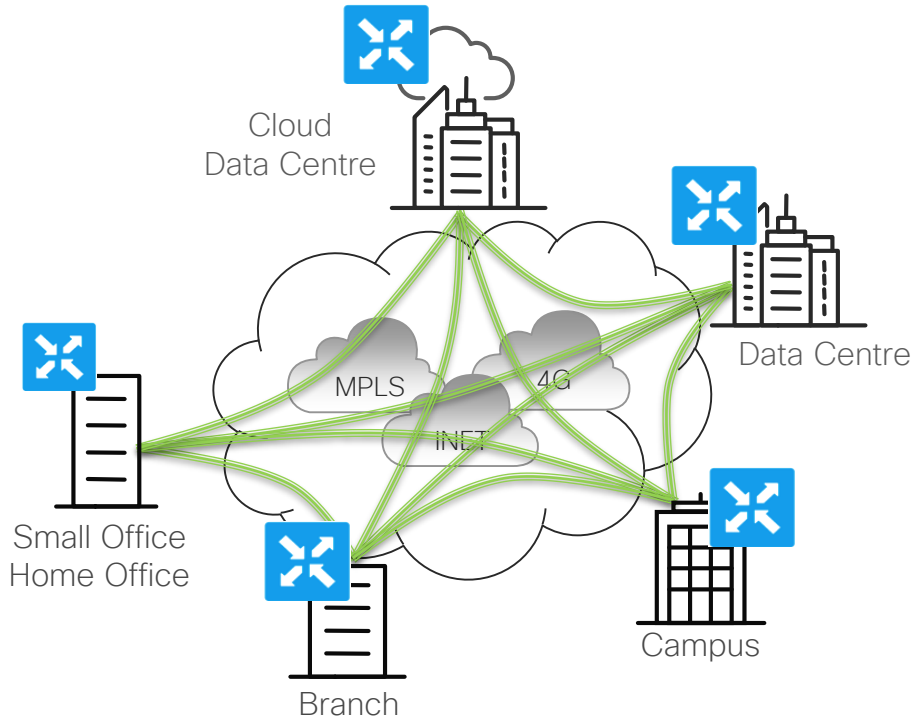
- 1 Application Quality of Experience
- 2 Secure Branch
- 3 Cloud Integration
 - SaaS Optimisation
 - Extend SD-WAN to Public Clouds (IaaS)

Application Quality of Experience (AppQoE)

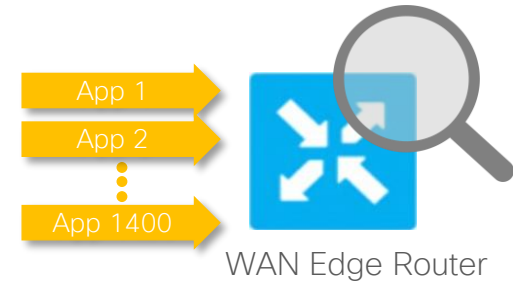


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Application Visibility and Recognition



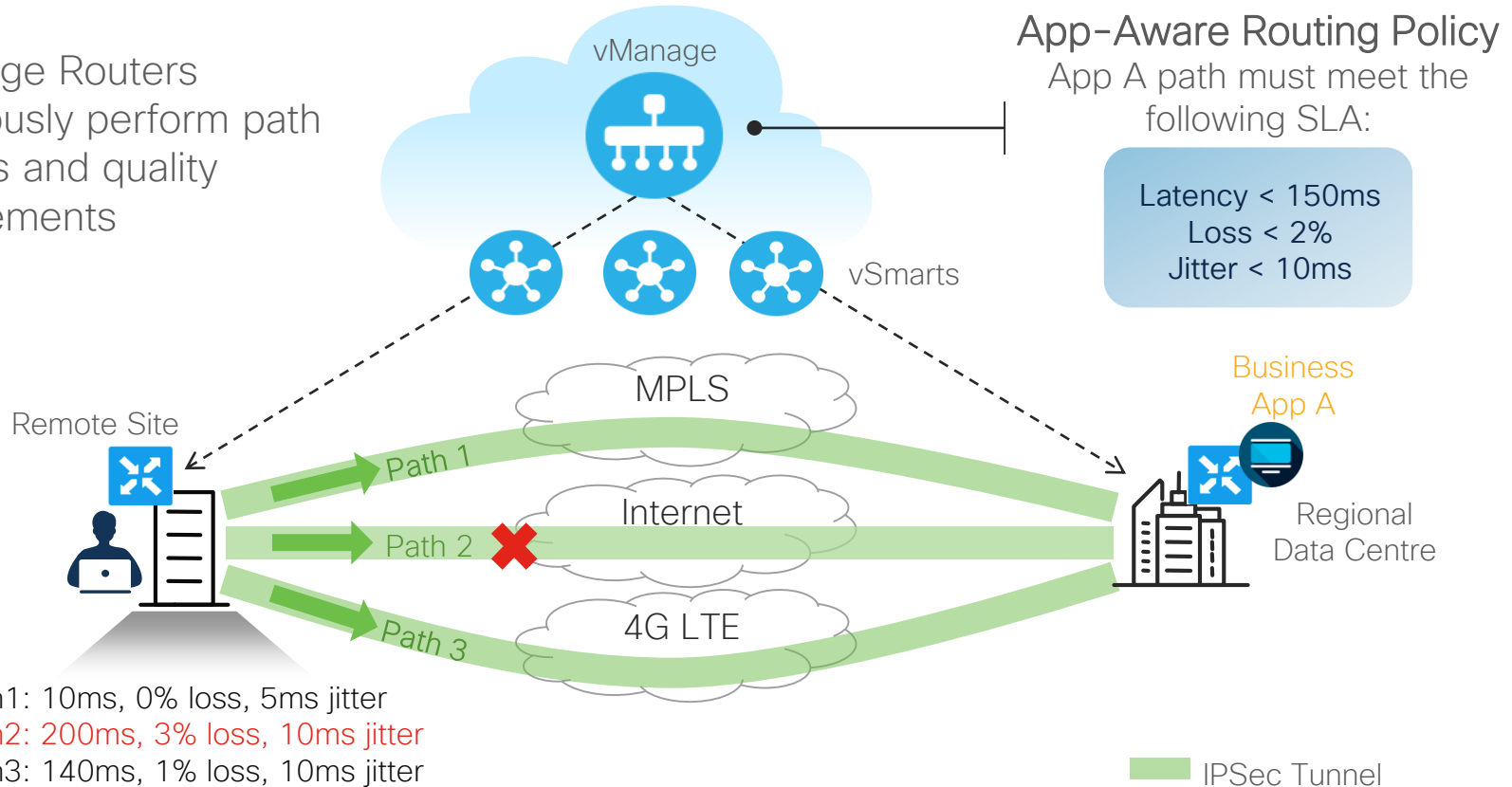
Deep Packet Inspection



- Application Firewall
- Traffic Prioritisation
- Transport Selection

Application-Aware Routing

- WAN Edge Routers continuously perform path liveliness and quality measurements

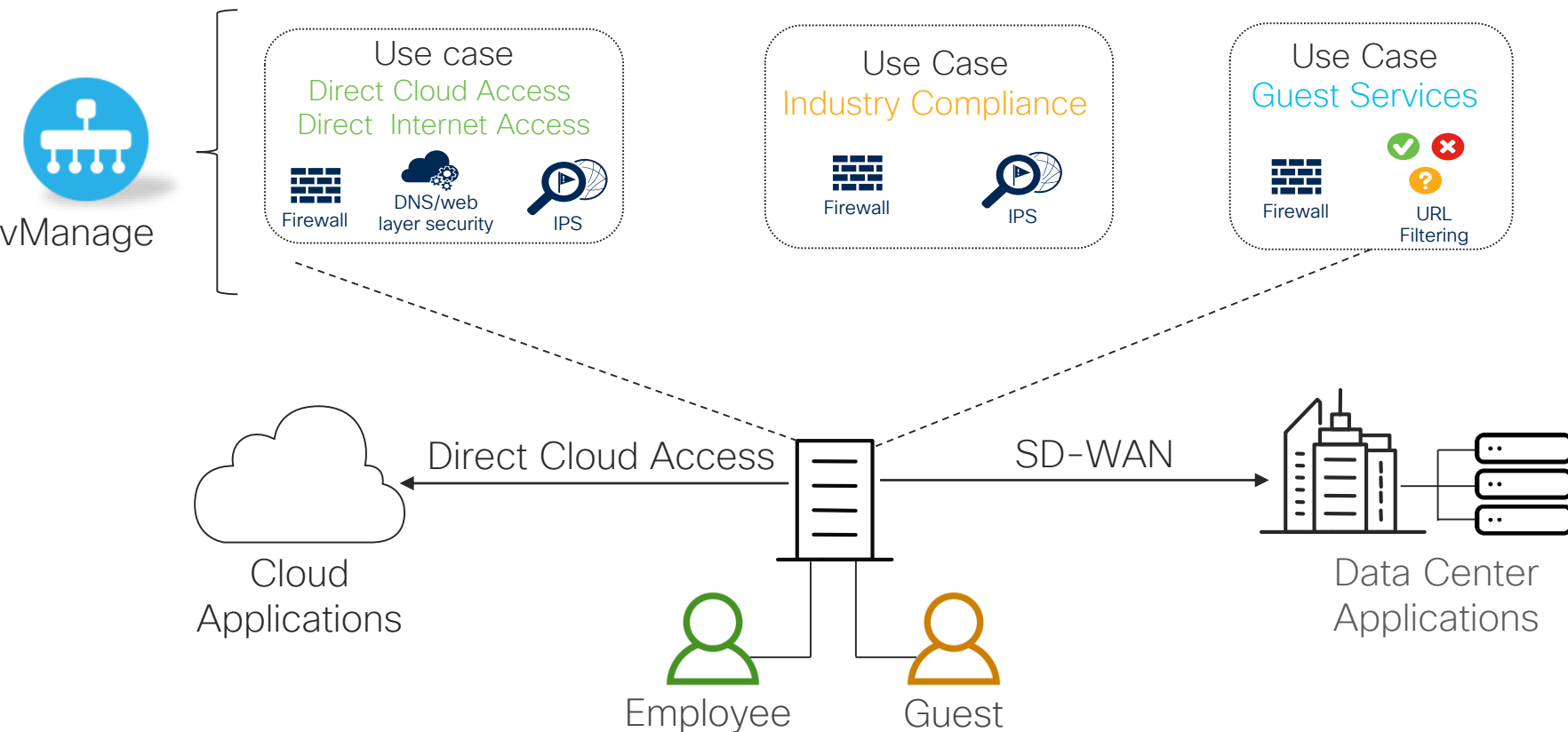


Secure Branch

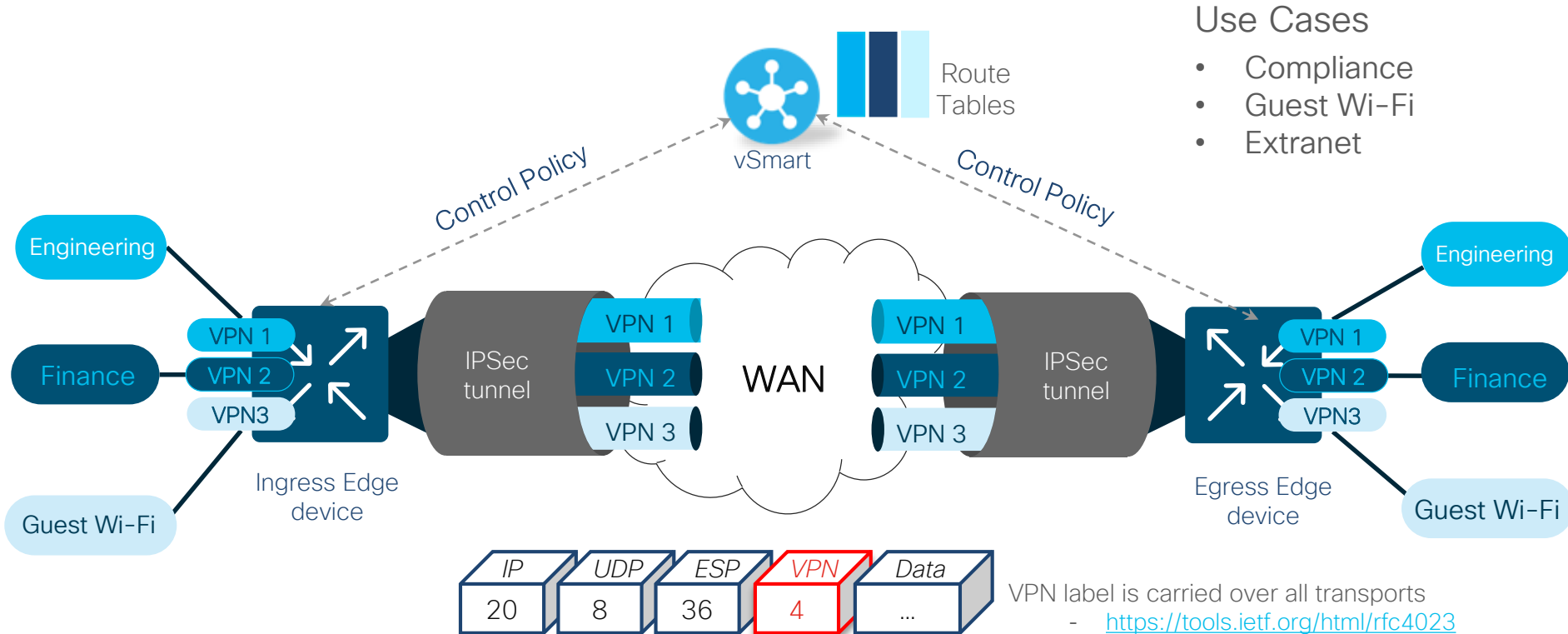


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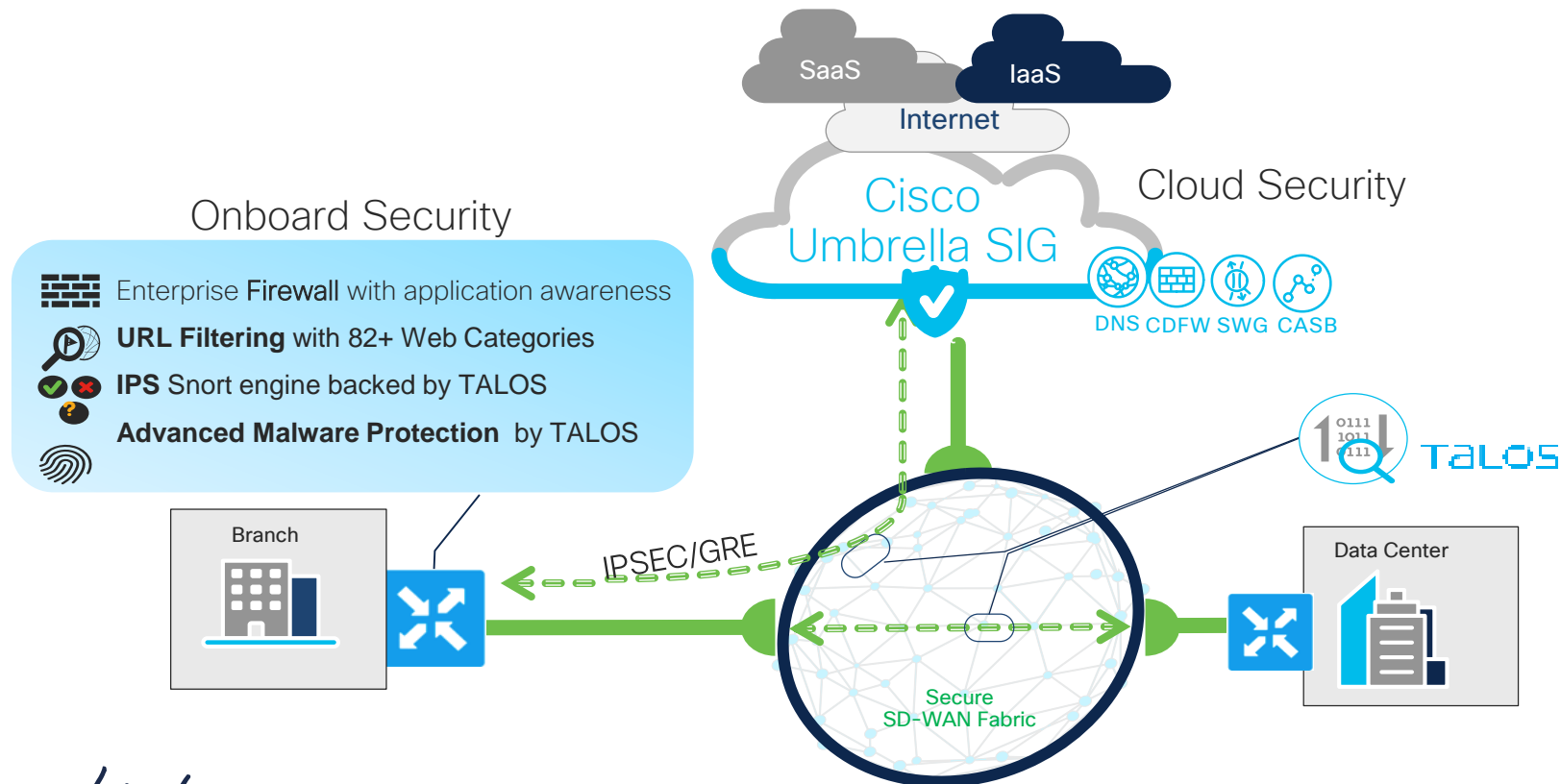
Secure Branch – Use Cases



Secure Branch - E2E Segmentation



Secure Branch – Onboard & Cloud Security

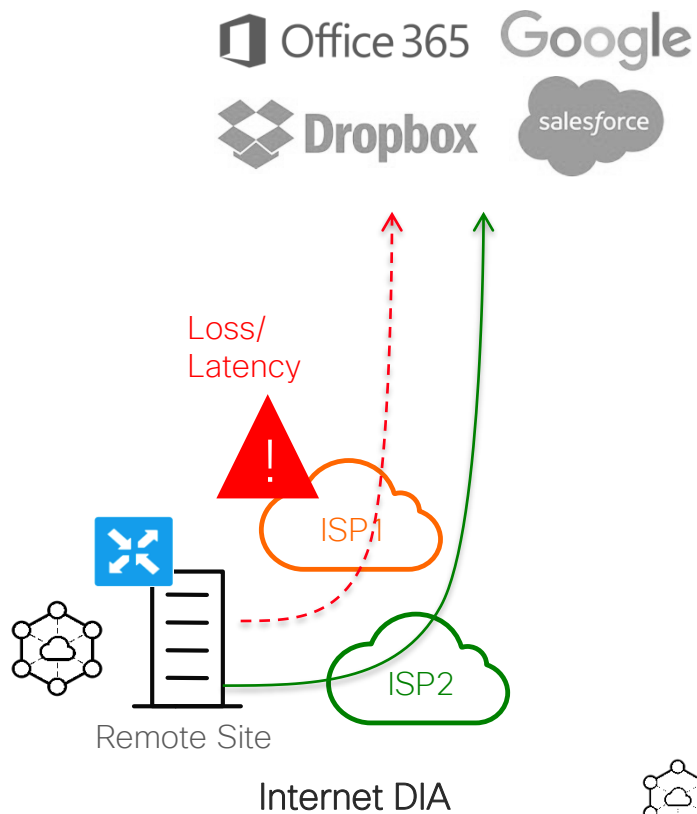


Cloud Integration

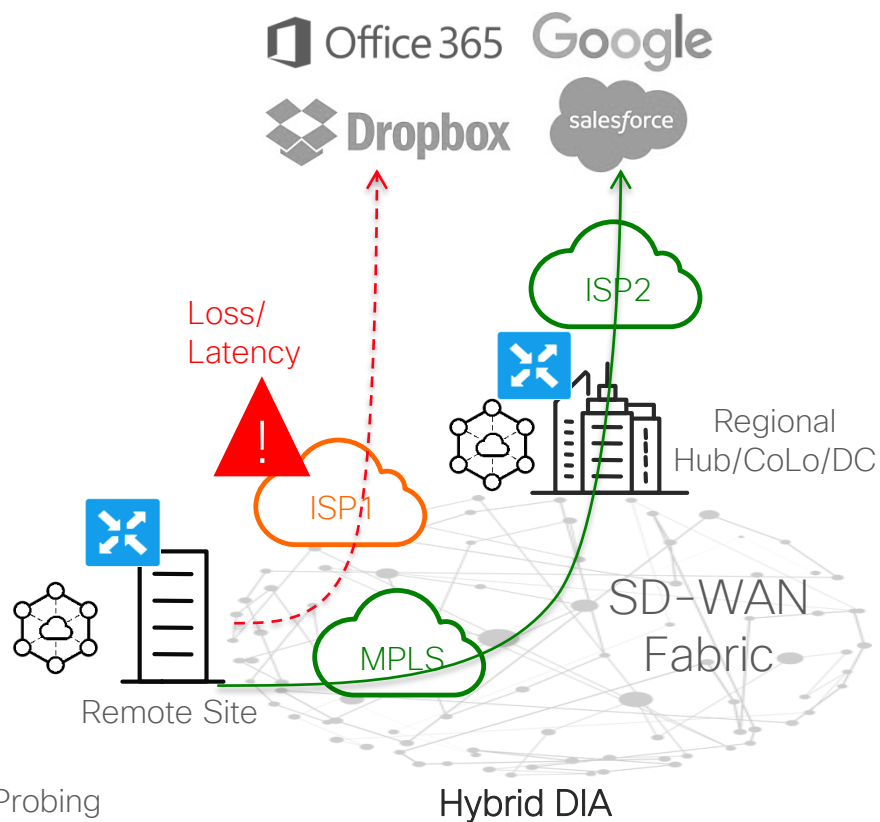


You make multi-cloud **possible**

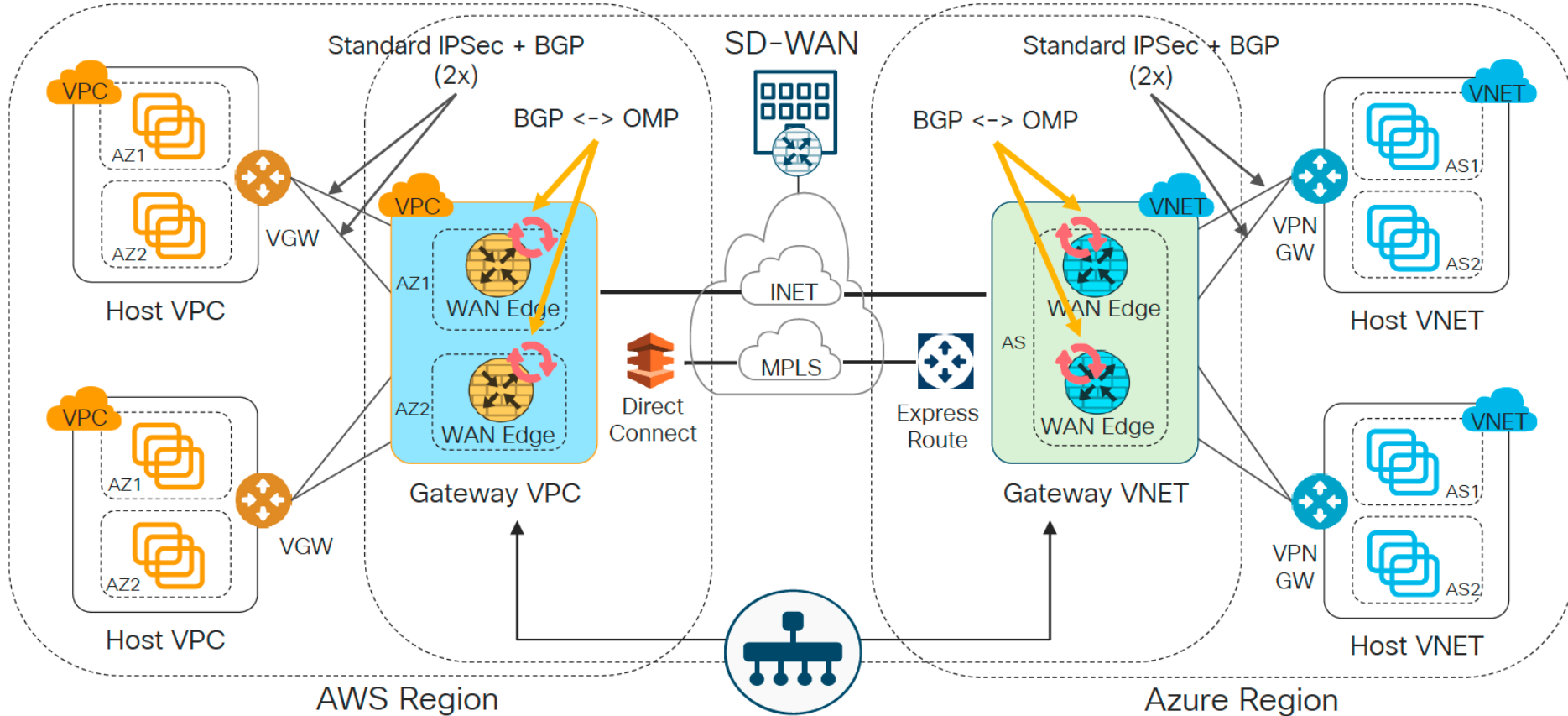
Cloud onRamp - SaaS Optimisation



Quality Probing



MultiCloud onRamp for IaaS - Explained



vManage Demo



You make multi-cloud **possible**



Thank you





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