



OmniClouds SD-WAN Solution Overview

About OmniClouds

OmniClouds is one of the world's most comprehensive platform offering ICT as a service solution, data migration, cloud-based solutions that support the demands of your business, website, or applications. As a Digital Service Provider (DSP) our premium solutions are catered to both businesses and individuals with full customization at a fraction of the cost of traditional ISP providers, across the EMEA and South-East Asian regions.

OmniClouds : Your Platform to Transform!



The OmniClouds Global Footprint

What makes us stand out from ISP's and other providers is our

Global network, Secure Solutions, Agile and Cost-effective solutions

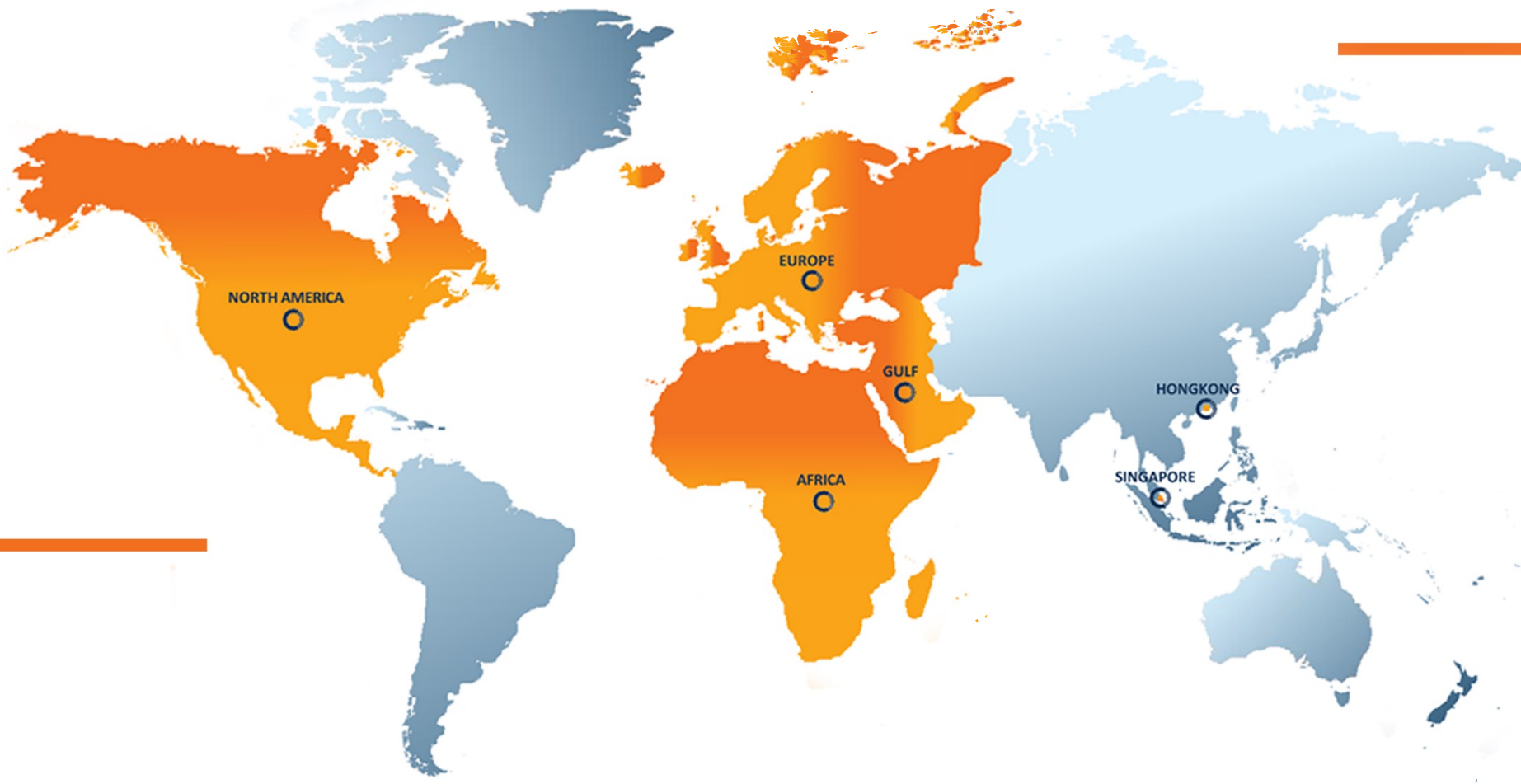
Recognizing the need of the hour in an ever-shrinking world - **OmniClouds has one of the most extensive global dedicated network linking the majority of public cloud infrastructures worldwide. We believe in catering to the needs of all our customers- whether they're right next door or on the other side of the world.**

More than 28 gateways, dedicated connection to 1600 cloud providers, 8 telecom operators in 28 countries





Global Network



Key References

A Platform To Transform

Telco Alliances



Retail & e-Commerce



noon



Conglomerates and Manufacturing Industry



Govt. Sector

République de Djibouti

Unité - Égalité - Paix
MINISTÈRE DE L'ÉDUCATION NATIONALE
ET DE LA FORMATION PROFESSIONNELLE



جمهورية جيبوتي
الوحدة - المساواة - السلام
وزارة التعليم الوطني والتكوين المهني



Financial Sector



Current Enterprise Connectivity Challenges

Traditional WAN Challenges –
The branch and WAN cannot keep up...



Poor user experience

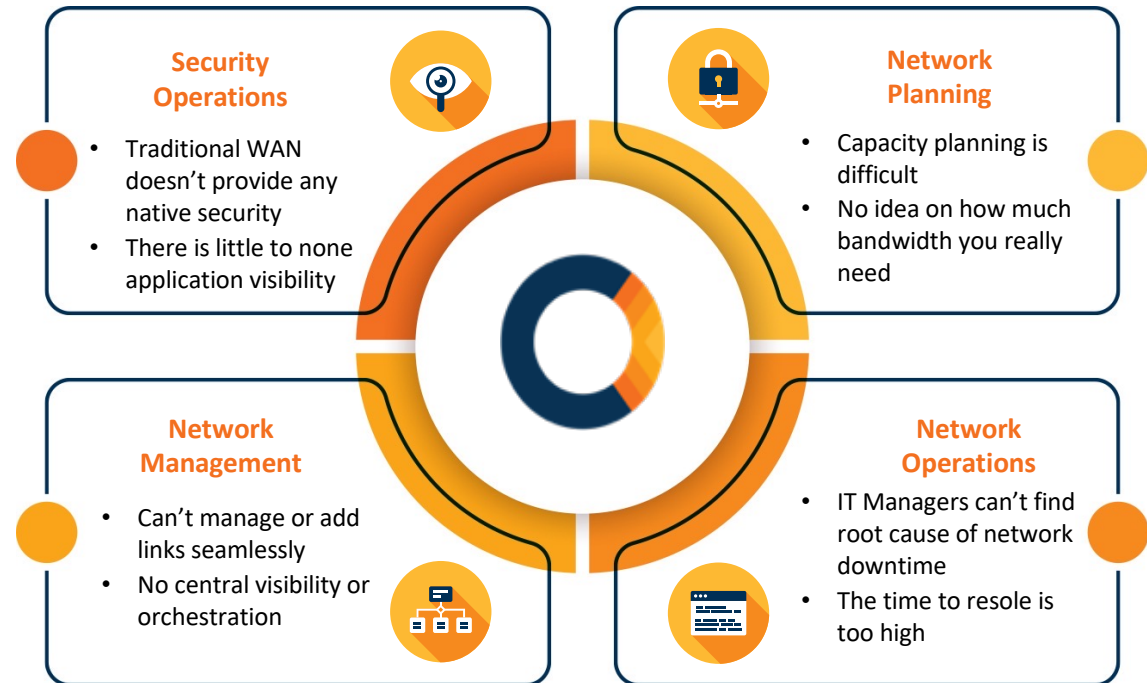
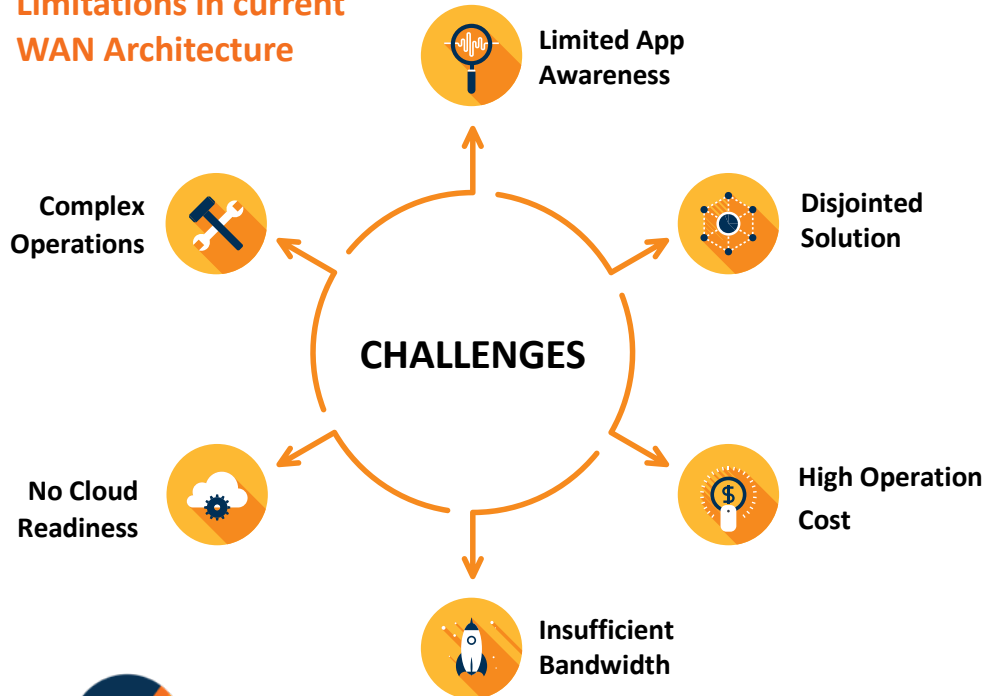


Complex to operate



Difficult to secure

Limitations in current WAN Architecture



OmniClouds SDX Services



OmniClouds SD-WAN solution is an application driven network that supports public & private cloud integration to dynamically route traffic and deliver the best user experience.



Accelerate Business Deployment



Reduce Risks



Ensure Business Continuity



Separation of management, control, data for scaling



Centralized Management Hosted Service Offering



Zero-touch provisioning in minutes, not days



Full segmentation support for fast app deployment



Choice of topologies with point-and-click



Complete visibility from single pane of glass



Internet Centric



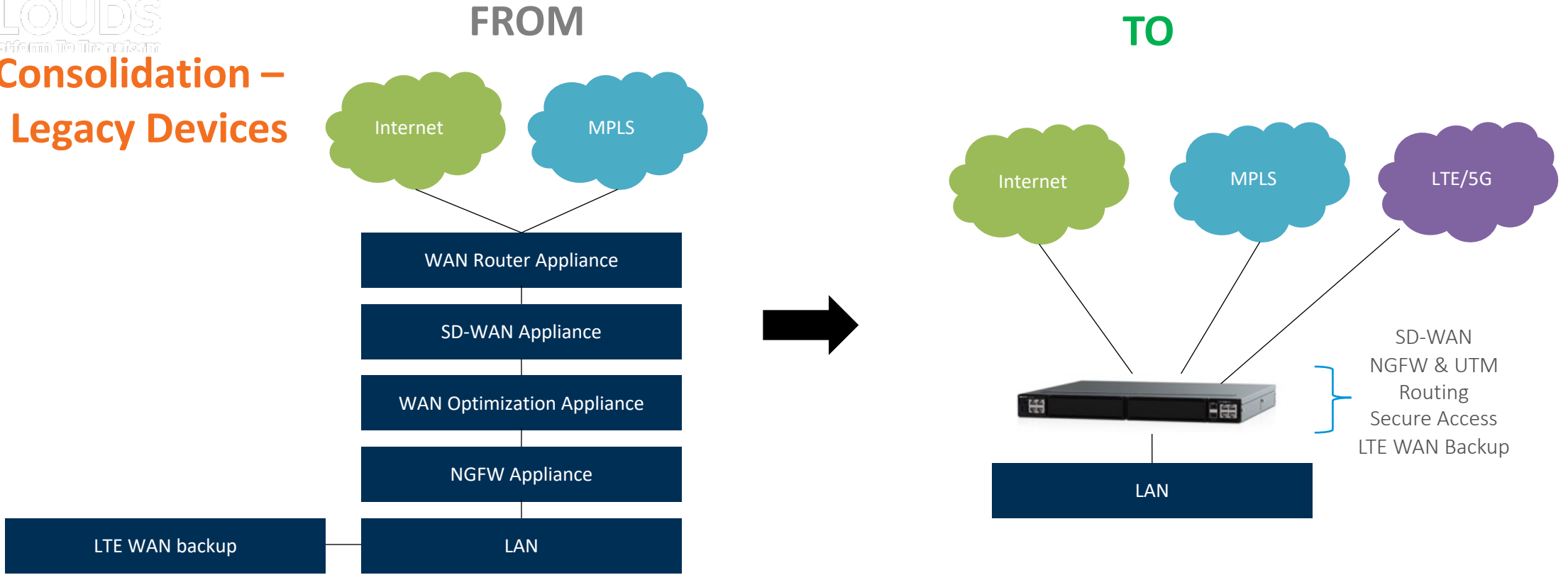
Application Centric



Orchestration Centric



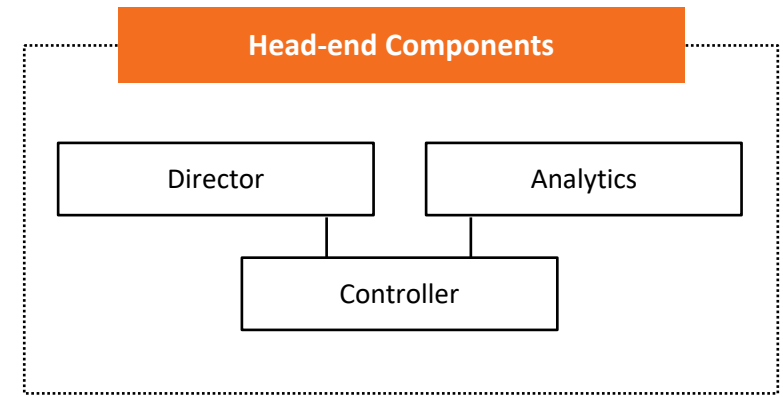
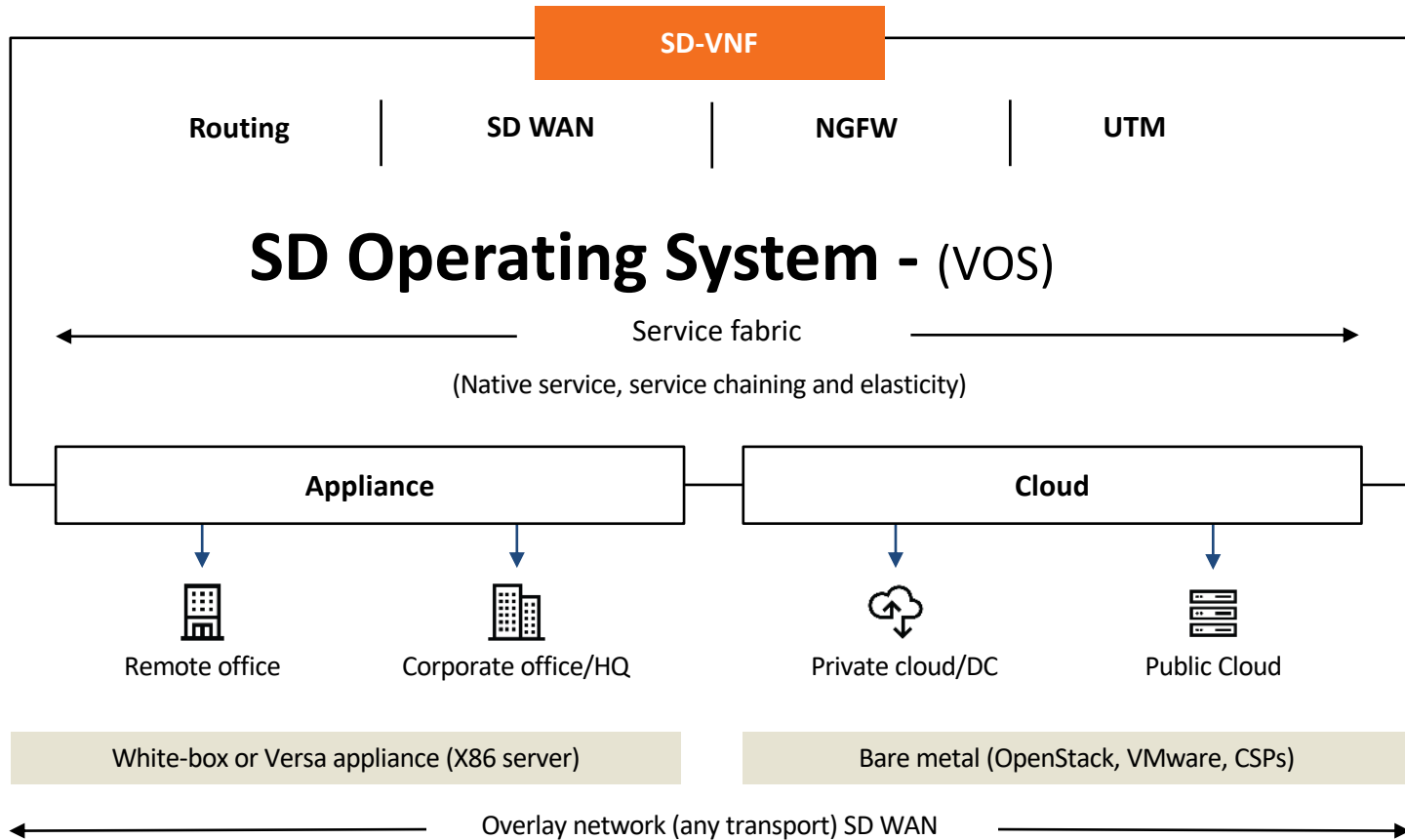
Branch Consolidation – Replace Legacy Devices



	LEGACY MODEL	SECURE SD-WAN
COST	\$\$\$\$\$	\$
DEPLOYMENT	Complicated, Time-Consuming	Zero Touch Provisioning, Agile
MANAGEMENT TOOLS	Lots of Management Tools	One Orchestration



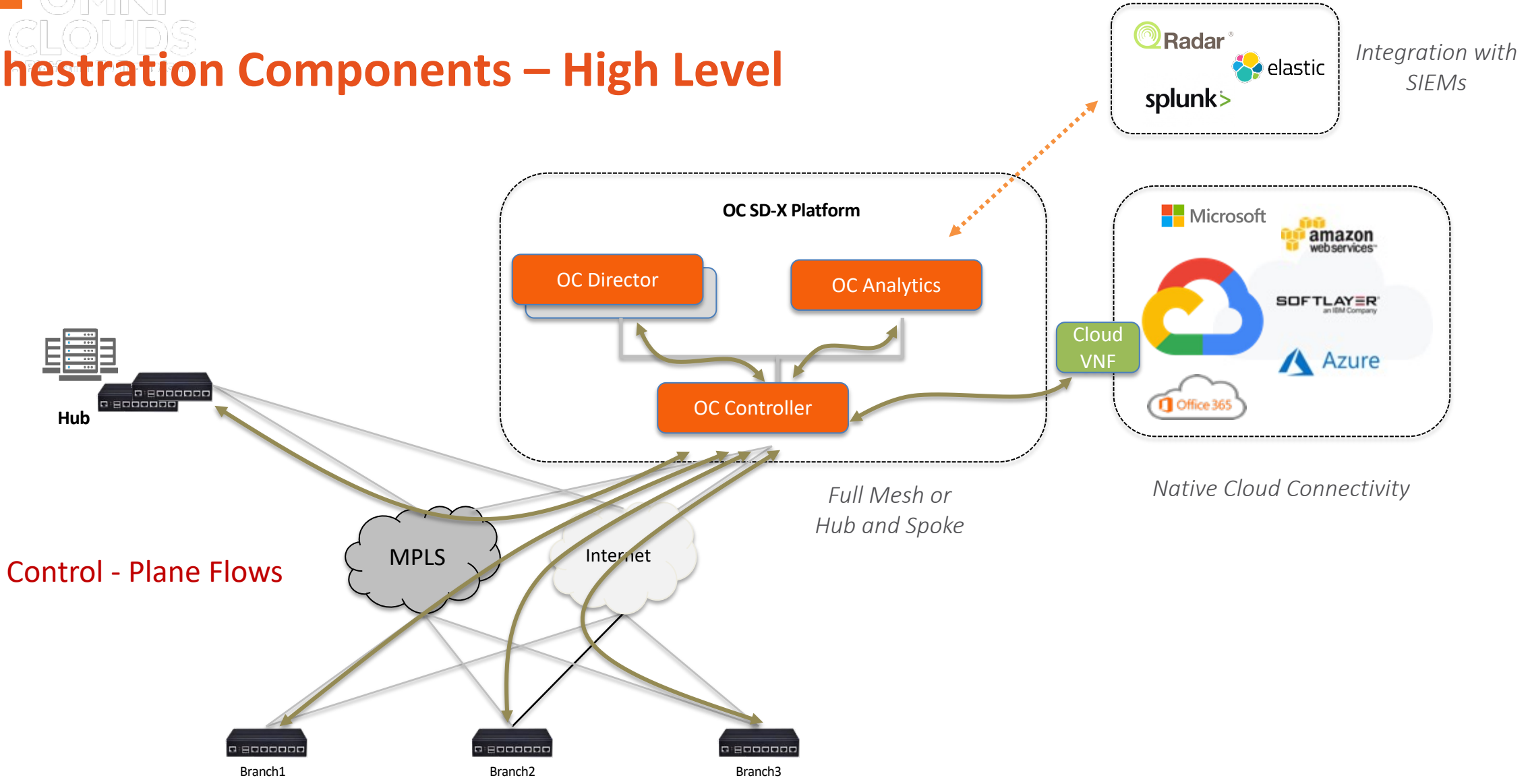
Software Defined Secure Branch - Components



SD WAN = software-defined wireless area network
NGFW = next-generation firewall
UTM = unified threat management

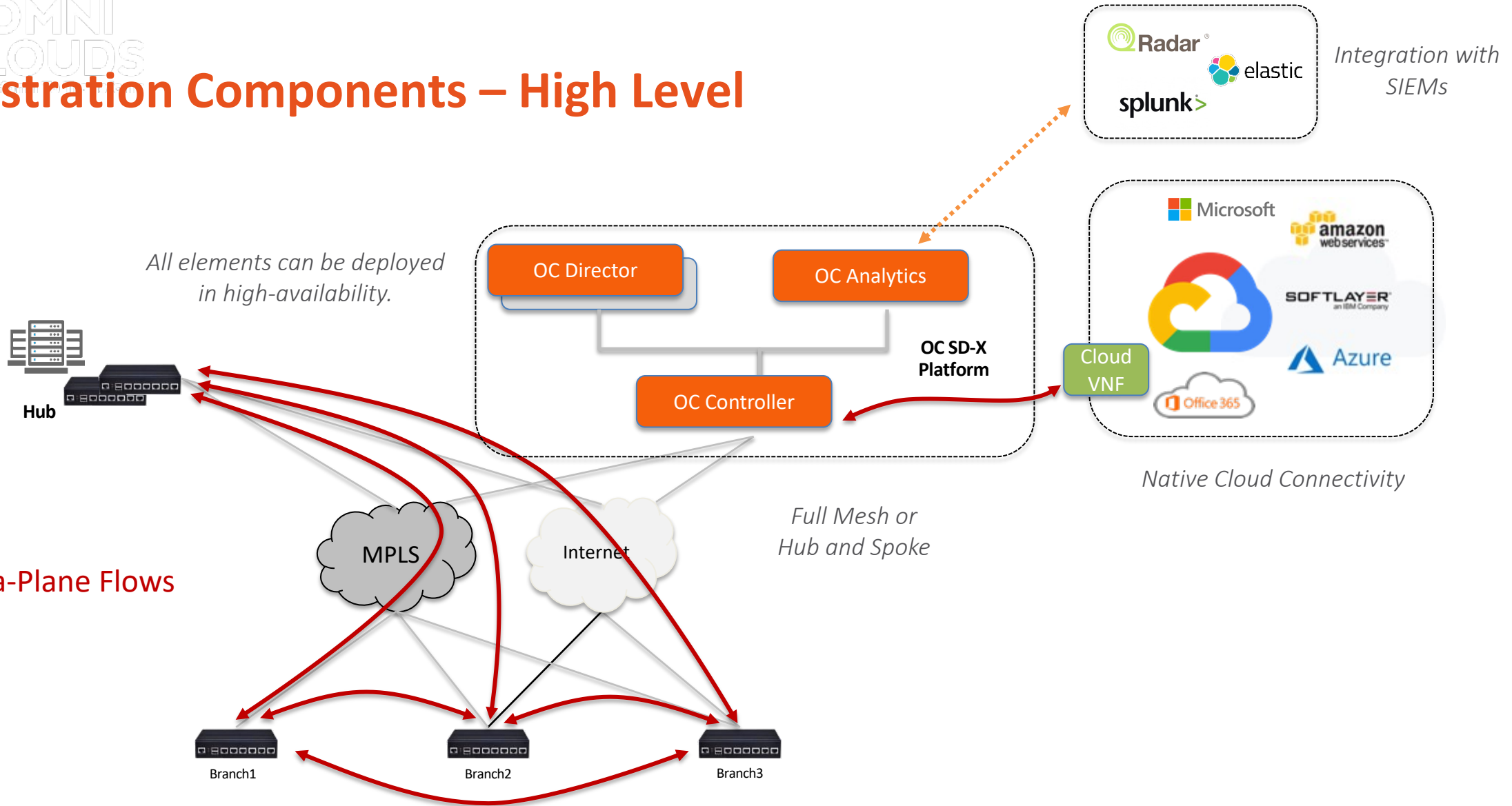


Orchestration Components – High Level

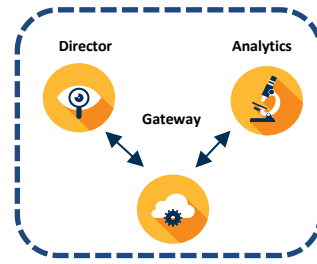


Orchestration Components – High Level

Data-Plane Flows



Overall Architecture for Enterprise



OC Centralized Management Orchestration

PRIVATE DATA CENTER



PUBLIC CLOUD

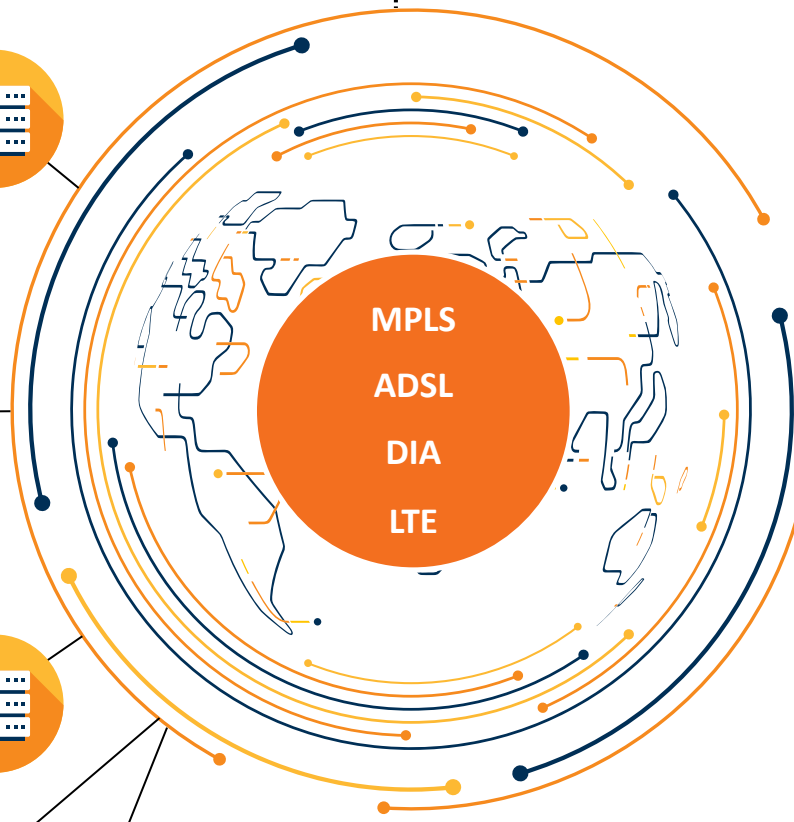


LARGE ENTERPRISE

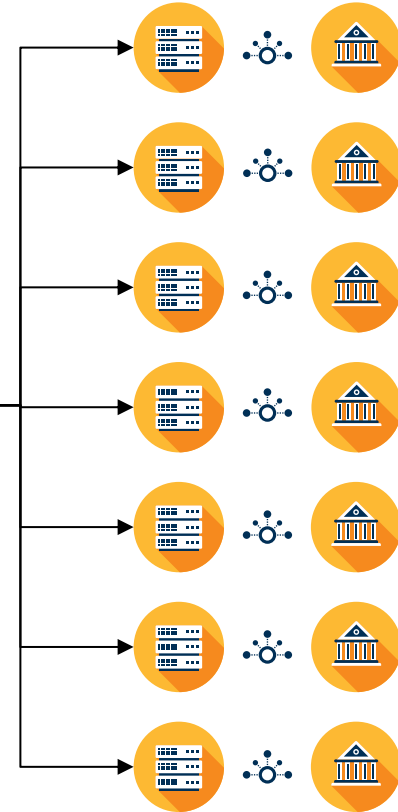


MOBILE WORKERS

SASE Clients



BRANCH LOCATIONS



Transport Agnostic

Support Any WAN Underlay Technology

Simplified WAN Management

Ensure Operational Efficiencies

Application Awareness

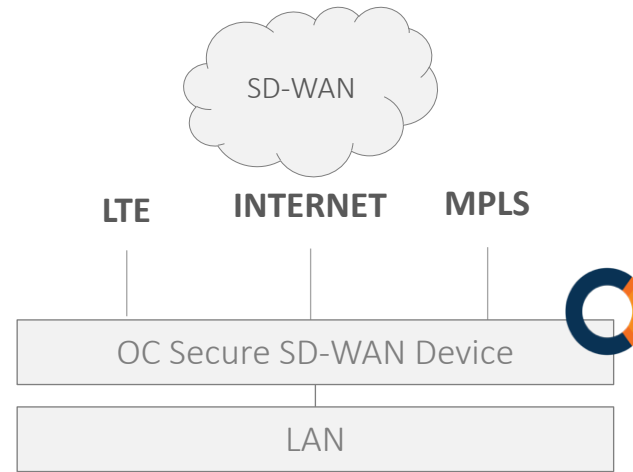
App & User based Traffic Engineering

Visibility & Sec. Analysis

Integrated System-wide Security



Granular Policy Definitions



TRAFFIC FORWARDING PATH SELECTION DECISION BASED ON

- ✓ Application / SaaS Application
- ✓ IP Services (HTTP/HTTPS, FTP, etc)
- ✓ DSCP Packet Markings
- ✓ URL Category
- ✓ Time of Day
- ✓ User & Group
- ✓ IP Source/Destination

DEFINE SLA'S BASED ON

- ✓ Latency
- ✓ Jitter
- ✓ Packet Loss
- ✓ Link Utilization
- ✓ Application Health
- ✓ Voice MOS Score

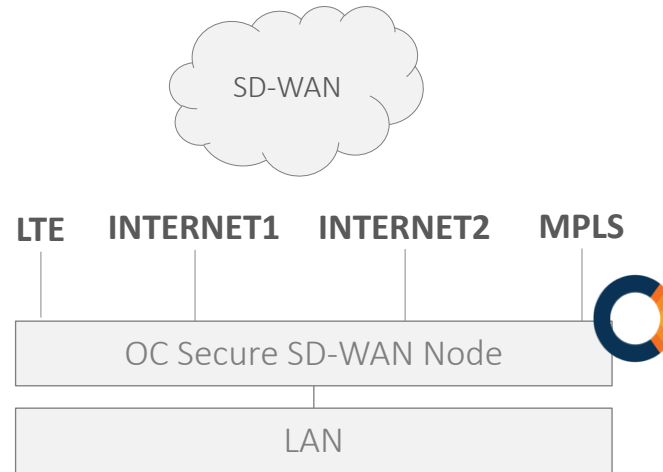
UPON SLA VIOLATION, WE CAN

- ✓ Apply Forward Error Correction (FEC)
- ✓ Apply Packet Replication
- ✓ Change Path
- ✓ Enable Load Balancing (on up to 8 transports.)



ENSURE THE ENTERPRISE USER EXPERIENCE

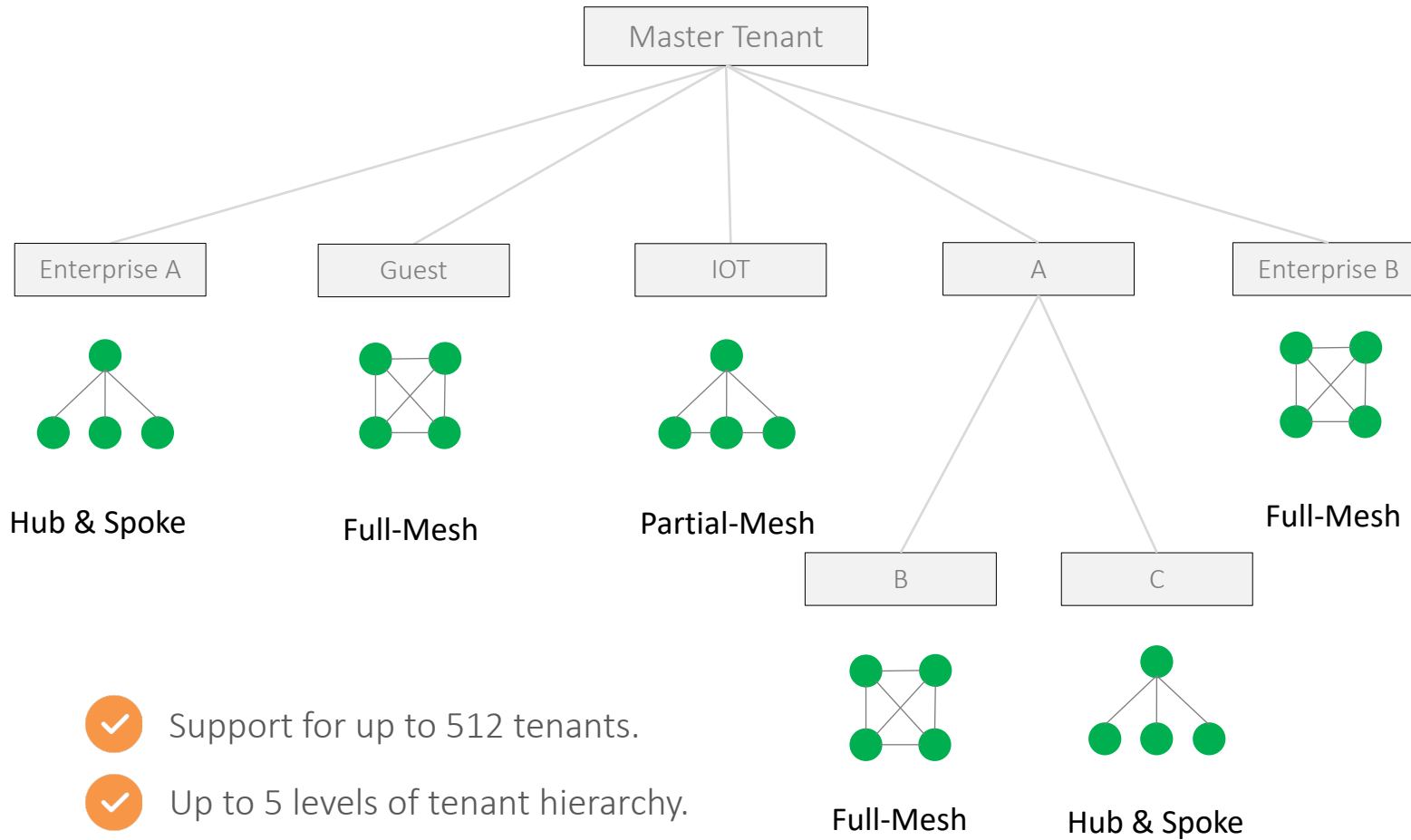
Example SD-WAN Scenarios



	EXAMPLE #1	EXAMPLE #2
CHALLENGE	Preserve MPLS Bandwidth unless Internet Transport is saturated	For a single transport site, ensure high quality voice.
SLA	If Internet transport utilization exceeds 80% enable load balancing across Internet & MPLS.	If Voice MOS score drops below 4 or packet loss exceeds 1%, enable forward error correction.



Multi-tenancy for Customers



- ✓ Support for up to 512 tenants.
- ✓ Up to 5 levels of tenant hierarchy.

FULL STACK MULTI-TENANCY	
Director	
Analytics	
Controllers	
Hubs	
Branches	
Network Policy	
Security Policy	



Multiple Deployment Options



RUNS ON

Pre-installed
Network
Appliances

Dell VEP Network
Appliances

OmniClouds Certified
White Box

Cloud

Virtual



DELL EMC

Advantech

Lanner

ARM

OEM



← SHIP WITH VERSA SECURE SD-WAN INSTALLED →



OMNI CLOUDS

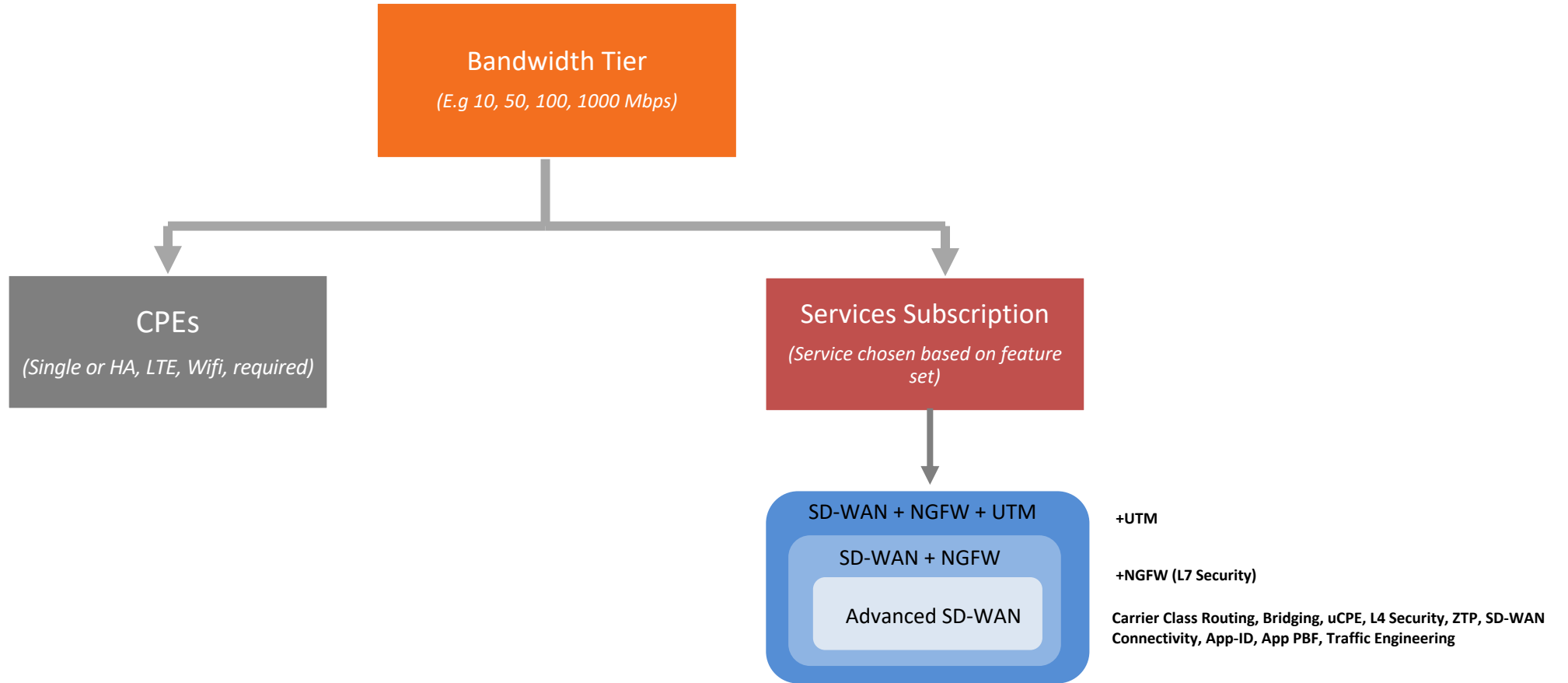
Device Varieties



Branch Units	Campus / Hub Sites	DC Units	Dell Units
V1xx Range Products	V8xx Range Products	V1xxx Range Products	VEP Series
V210: 200+ Mbps (*) V220: 2+ Gbps (*) CSGs: 2+ Gbps (*)	V800: 4 Gbps (*) V810: 6 Gbps (*)	V1000: 14 Gbps+ (*)	VEP14xx: Upto 3 Gbps VEP46xx: 13+ Gbps
Integrated LTE, WiFi Options	N/A	N/A	External
SD-WAN, NGFW: All UTM: V220s, CSG770 uCPE: V220s, CSG770	SD-WAN, NGFW: All UTM: All uCPE: All models	SD-WAN, NGFW: All UTM: All uCPE: All models	SD-WAN, NGFW: All UTM: All uCPE: All models
Processor Family: Atom	Processor Family: Xeon-D	Processor Family: Xeon	Processor Family: Xeon

- Features activated simultaneously during testing : IPv4 Routing / Forwarding, IPSec Encryption, Layer 7 Application based traffic steering, CGNAT, Nextgen Firewall (NGFW), QOS (Classification and Marking), SLA monitoring, internal service chaining, URL Filtering (URL Filtering requires 4C/8GB system).
- Testing done with IMIX sized traffic distribution
- IPS, IDS and Antivirus are not included





OmniClouds SD-WAN Stack Features List

Advanced SD-WAN Functions					SD-Security/NGFW Stack				UTM Add-Ons
ZTP	Application ID	Application TE & Application SLA	FEC	MOS Score	NG-Firewall (NGFW)	DoS Prevention	Device Authentication	IPSec	File Filtering
Dynamic IPSec Overlays	Application PBF	SDWAN Fabric Traffic Management	Packet Cloning	DIA and SaaS Traffic Optimizations	CGNAT	HTTP / SSL Proxy	DNS Security	URL Filtering	IPS-IDS
Carrier-grade NAT	Application QoS	Probes, Inline Measurements	Packet Striping	Stateful Firewall	Proxy	User & Group Authentication	Web & IP Feeds	Visibility & Analytics	Anti-Virus

- **Flexible Deployment Options**

- Baremetal – Whitebox
- Graybox
- VM

- **Distributed Architecture**

- Every node with full set of L3, L4, L7 functions
- Leverages Controller to distribute information via centralized node(s) across tenant branches

- **Built on top of proven technologies**

- MP-BGP, L3VPN and strong suite of routing protocols
- Rich set of QoS/HQoS, Shaping, Policing, Marking Support

- **Multi-tenancy across the whole stack**

- FlexVNF, Director, Analytics and Controller
- Built for SP and ENT
- RBAC per tenant, per role

- **Visibility & access control**

- Application, domain & URL
- User, device & location

- **Layer 3**

- ARP, IP ICMP protocol defense
- IP spoofing
- Strict source routing

- **Layer 4**

- Reconnaissance
- DoS protection (ICMP, UDP, TCP flood)
 - Rate limiting

- **Layer 7 & content security**

- SSL decryption
- App / URL / file filtering
- Anti-virus
- IDS-IPS
- DNS Security

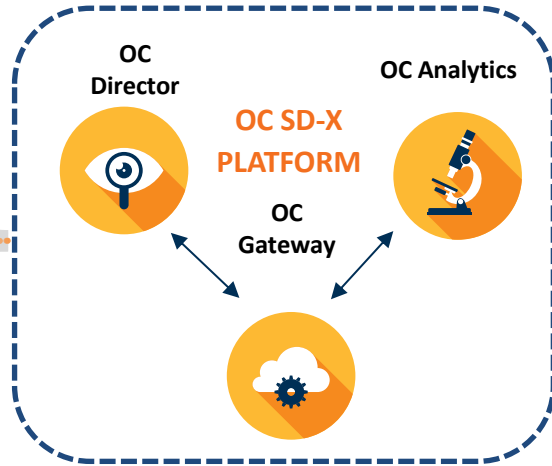


Enhancing SASE Security with XDR

1. SASE Based Detections



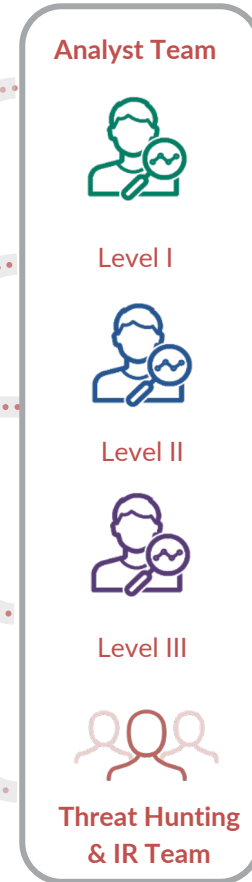
2. Centralized Data Ingestion into SD-X Platform



3. Live Ingestion into XDR Engine & Incident Correlation

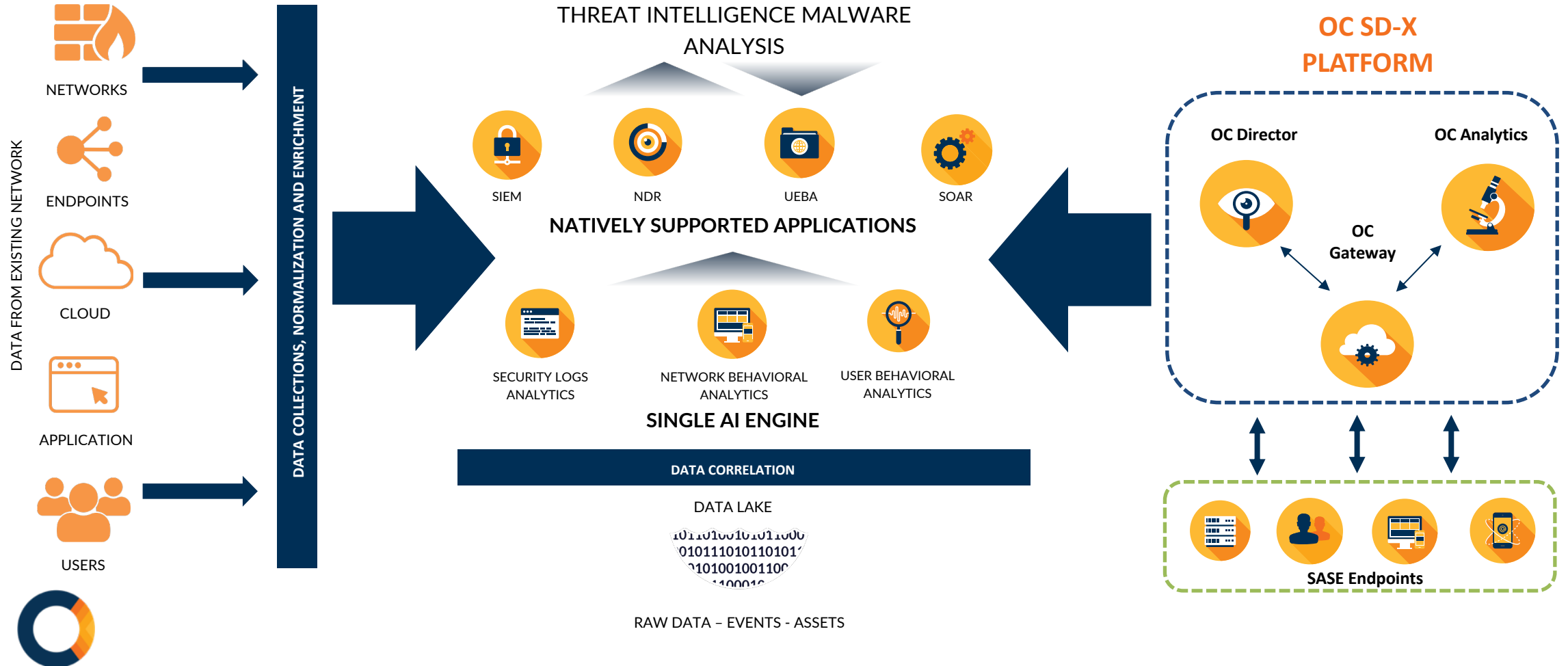


4. Intelligent Detection & Response





A Single Unified Platform to Close the Visibility Gap



Solution Advantage



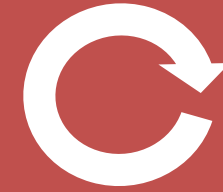
Managed SD-WAN Offering

(Service packages provided as an end-to-end SD-branch offering)



Cost savings

(Consolidate branch services and eliminate point products)



Bundled Cloud Connect Services

(Managed connectivity from providing direct access to Cloud Providers)



Software-defined agility

(ZTP, faster branch rollout, easier network management & operations)



Intelligent WAN Services

(Managed multiple MPLS, ADSL, LTE, 5G links through 'one' orchestration)



Why OmniCloud SD-WAN?



**Modular Products
& Services**



**Single Ticketing System
with 2-way integration**



**24/7 Services
Support Services**



**Pay As You Grow
options**



**Integrated
Security Offering**



**End-to-end SLA Driven
Service Management**



**UAE Hosted Centralized
Management**




**Flexible Payment
Models (NRC/MRCs)**



**Capabilities for Total SD-
Branch Outsourcing**

SD-WAN Use Cases

Applicable Scenarios	Solution 1: Hybrid WAN: Bonded Internet/MPLS	Solution 2: Application Aware Routing	Solution 3: Local Internet Breakout	Solution 4: Cloud/SaaS Connect	Solution 5: Any-to-any Connectivity	Option 6: SD-WAN over LTE/5G	
<div data-bbox="25 442 267 635" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  <p>Centralized Policy Management</p> </div> <div style="display: flex; justify-content: space-around;"> <div data-bbox="165 592 573 1063"> </div> <div data-bbox="611 635 1019 1063"> </div> <div data-bbox="980 592 1363 1063"> </div> <div data-bbox="1375 449 1758 1078"> </div> <div data-bbox="1770 578 2153 1078"> </div> <div data-bbox="2178 606 2522 1085"> </div> </div>	Benefits	Combine MPLS and Internet Links to increase availability	Route Internet bound traffic via Internet and prioritize critical applications over MPLS	Create secure Local Internet Breakout directly from the branch	Allow direct branch connectivity to your Cloud through SD-WAN tunnel	Setup branches with Full-Mesh connectivity and use any type of connectivity in any branch	Connect lean branches or remote sites through 4G/5G networks and reduce costs





**Omnichouds
Product
Overview**

Carrier and F1000 Enterprise Class Product

Best in Class SD-WAN Features

Integrated Complete Security Stack

Strong Routing Suite

Unmatched Multi-Tenancy, Segmentation

Single Pane of Glass, Ease of Management

Solution Based on Standard Protocols, Open Architecture

Coupled Together with Innovative Business Case



Why We Win.. SLA , Service not Technology

Best In Class WAN Edge - Unified

- Carrier Class Product
- Best in class Routing, Networking services, SD-WAN, uCPE, Wi-Fi, LTE & Security services
- Integrated solution, eliminating appliance sprawl
- Host 3rd Party VNFs

Smooth Migration

- Featured to connect to legacy networks
- IPv4/IPv6, OSPF/BGP, MPLS, NAT, IPSec, GRE etc.
- Seamless connectivity across current MPLS managed and SD-WAN nodes
- Self Healing

Ease of Management

- Single plane of glass management for Routing, SD-WAN, Security, uCPE
- Visibility & Control for applications, network & security
- User, Device, App visibility and control
- Fully Programmable (REST API)

Cloud Native

- Enables distributed Internet breakout to Multi-Cloud
- DIA/DCA SaaS Traffic Optimization
- Runs on across all major cloud stacks
- Native integration with leading cloud provider APIs

Competitive (It is all Boxes and Licenses!)



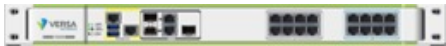
	HPE	CISCO	vmware	silverpeak™	CLOUDGENIX
Carrier Class SDWAN	●	●	●	●	●
Segmentation and Multi-Tenancy	●	●	●	●	●
Integrated Security	●	●	●	●	●
Routing	●	●	●	●	●
uCPE	●	●	●	●	●
WAN Optimization	●	●	●	●	●
Analytics (Detailed Historical)	●	●	●	●	●
Open Hardware Options	●	●	●	●	●
Legacy Interfaces / Connectivity	●	●	●	●	●

SD-Branch from Omniclouds

Hardware



Whitebox Hardware
or



Versa Hardware

Software



Versa VOS

Management



Omniconnect Director

S/W Support



Included

H/W Support



15% per annum

Omniconnect is transforming the branch and the WAN with a single piece of software to perform SD-WAN, Routing, and NGFW all managed through a single pane of glass.



THANK YOU