VERSATILITY

Software-Defined “Network as a Service” (NaaS)

Versatility 2026

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Solution overview

CSG Alliance NaaS

VERSATILITY

Solving customer problems for over 15 years

- We’re vendor agnostic, client focused, and price conscious
- Provide implementable IT solutions and services to our customers
- Specialize in solutions integration:
  - Global telecommunications services
  - Financial products including cryptocurrency training
  - Logistical and supply chain management
  - Business analysis
  - Big data analytics
- Customer-centric scalable NOC solutions ensuring success of critical infrastructure, systems, and applications

CSG™

Consulting Services Group, LLC

- Founded January 2010
- Privately owned; no external investment
- Headquarters in Herndon, VA

What is CSG Alliance NaaS?

Service features	
	Zero Touch Provisioning (**ZTP**)
	Artificial Intelligence Operations (**AIOps**)
	Multi-Tenancy
	Capacity Planning, Inventory Management, Situational Awareness and **Service Billing**
	**USG customers** in the unclassified or low-side ecosystem

Why CSG Alliance NaaS?

Efficiency	Agility	Resiliency	Security	Organizational enhancements

• OpEx: Lowered by leveraging a fully automated service catalog vs. human configurations
• CapEx: Lowered by deploying virtual services using Network Function Virtualization (NFV) instead of physical devices
• Dev Sec Ops: Continuous integration and continuous delivery (CI/CD) of all assets
  ○ OS upgrades
  ○ License changes
  ○ Hardware upgrades
	• Providing a global service with multiple compute access points per region
	• Well established relationships with commercial telco providers for last mile bandwidth
		• Leveraging SD-WAN technology to take advantage of any type of available bandwidth (cellular wireless, LEO, GEO, ISP, carrier Ethernet) to guarantee SLAs
		• Diversification of last mile bandwidth into multiple colos per region and a fully diversified backbone
			• Implementing ZTA for network security by leveraging SASE, NSM-8
			• Obfuscation of service, leveraging fractional routing and cloud hopping
			• Implementing security controls, NIST 800-53
				• Tech debt mitigated by 5- to 7-year IT refresh cycle
				• Limited in-house expertise, focus on mission challenges
				• Continuous improvement via customer feedback

Standard services

Cloud Access

Ability to access data stored in a public cloud. Access to data and applications can be achieved globally.

- Access to Google, MS, AWS, and Oracle
- VPN for public access
- Private access
- Automated and managed cost/price capability on a monthly term
- AES 256 encryption provided
- Latency < 100ms to cloud compute

Global Transport

Transport data from any customer-to-customer location.

- L3 internet service provider (ISP); LEO and cellular services also available
- L2 carrier Ethernet and L3 VPN
- Standard offering – SLA 99.9% of committed information rate (CIR)
- High availability – SLA 99.99% guarantee CIR with a single failure, redundant colocations
- Bandwidth speeds for L2 defined by MEF 1M, 10M, 100M, 1G, and 10G; 100G will be custom
- Fully automated and managed
- Ability to cost/price on a monthly term
- AES 256 encryption provided

Custom services

Customer Operated/Managed Service

Customer can operate services as a service provider. Allows customer to provision standard services and have access to status of services (situational awareness).

- Minimal system configuration can only execute automated services
- Provide API information to customer OSS/BSS systems, as needed
- System tools presented at customer NOC (Blue Planet, ServiceNow, performance, etc.)

Network Function Virtualization (NFV)

Ability to host virtual network functions and service.

- Ciena (Blue Planet, Versa) certified virtual functions (firewalls, routers, etc.)
- Ability to manage NFV (MANO)
- Customer owns lifecycle of the virtual function (configuration, updates, recap/refresh, etc.)

Zero Trust Architecture (ZTA)

Leveraging Versa to execute zero trust principles, including secure access service edge (SASE), to exceed commercial best practices.

- Achieve National Security Memorandum-8 Federal mandate
- Versa ZTNA, SWG, and CASB
- Obfuscation via fractionalized routing with SD-WAN aggregation

Solution elements

Carrier-grade hardware and software

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Leveraging Ciena's carrier-grade heritage

Innovation	Patents		R&D specialists	Headquarters in
1.6 Tb/s	**2,400+**	ciena	**4,500+**	**Maryland**

Core business
We specialize in high-speed optical connectivity and automation

→

Expansion opportunities
We are leveraging our optical leadership to grow into new adjacent markets

Blue Planet software control and automation

Optical long distance		Optical regional/metro		Converged routing and switching		AI and data center fabric interconnects	
Submarine	**Long haul**	**Metro**	**DCI**	**Access & aggregation**	**Metro routing**	**Around (Scale across)**	**Inside (Scale up/out)**
Optical systems				Optical pluggable modules and components			

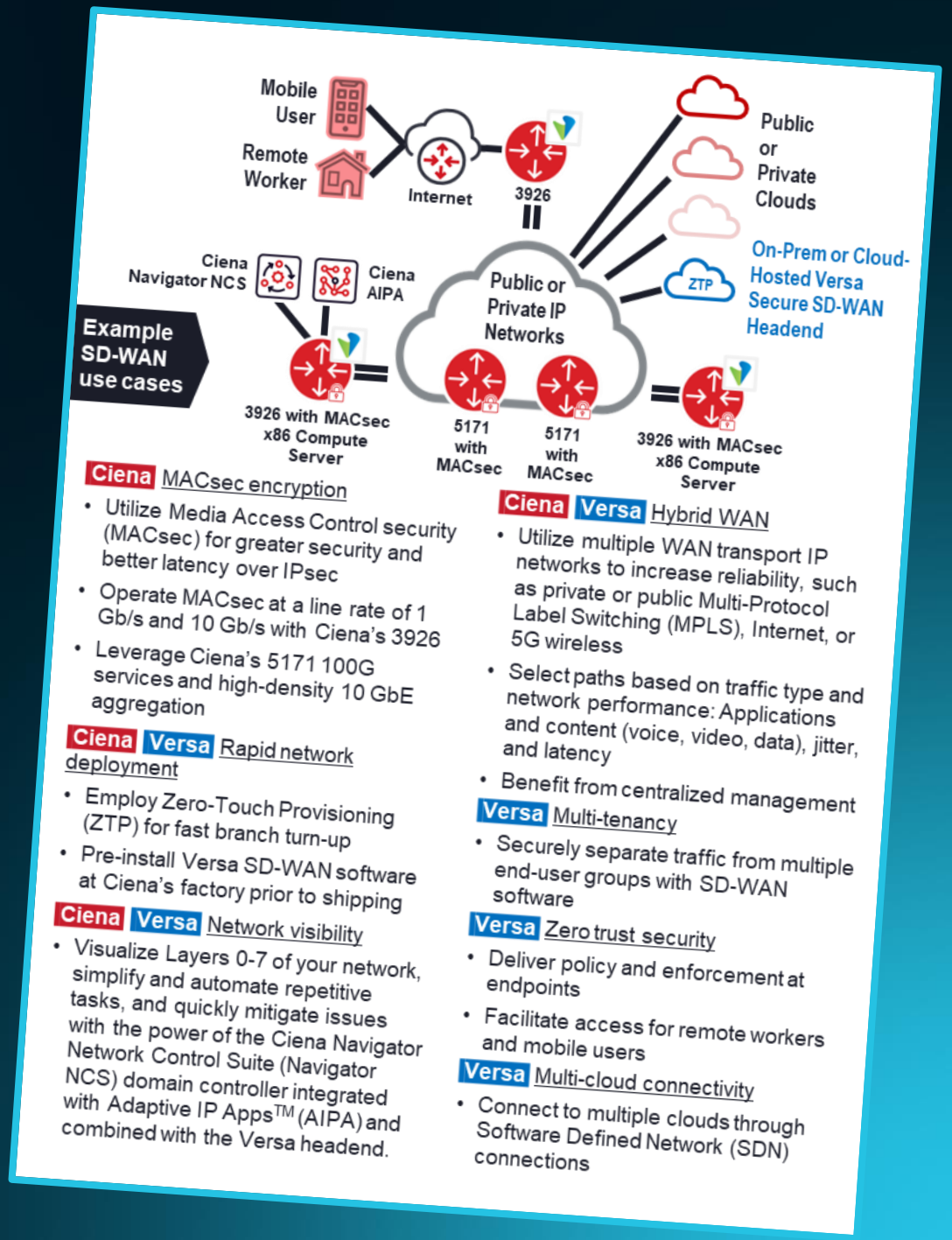
Optical foundation

Secure SD-WAN and SASE

CSG + ciena + VERSA

- Combine carrier-grade Ciena uCPE with Versa SD-WAN and SASE capabilities
  - Build an on-premises, air-gapped private cloud, or blended solution
  - CSG provides wholistic solution: service catalog, NOC support, and underlay services
- Agency enterprises can realize up to 59% reduction in the total cost of ownership over five years with the Ciena Virtualized Edge solution.
- Versa Networks is one of only three vendors appearing in all three Gartner Magic Quadrant reports for SD-WAN solutions
- DOD certifications

Common Criteria | DODIN APL | NIAP | FIPS 140-3



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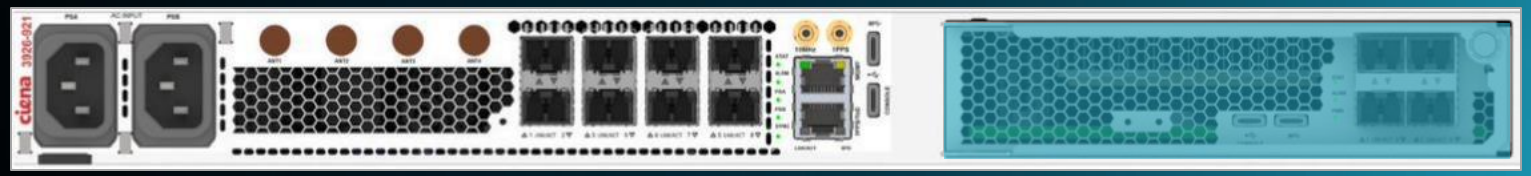
Alliance uCPE

	Ciena 3926	Versa CSG5000
Target deployment	Small sites (<1 Gbps) Medium sites (<10 Gbps)	Large sites (<100 Gbps) Hub and data center sites
Size	1RU	2RU
Data ports	2x 1 GE SFP 6x 1/10 GE SFP+	16x SFP+ 10 GE 4x QSFP 100 GE
Power supplies	Redundant AC	Redundant AC
Hardware-based MACsec	Yes	No
DOD certifications	Yes	Yes
x86 CPU	Intel Ice Lake Xeon D-2796NT	AMD EPYC 7713P
x86 Memory	64 GB	256 GB
x86 Disk	1.9 TB SSD	1 TB SSD

1 RU



Ciena
3926 with x86
compute server

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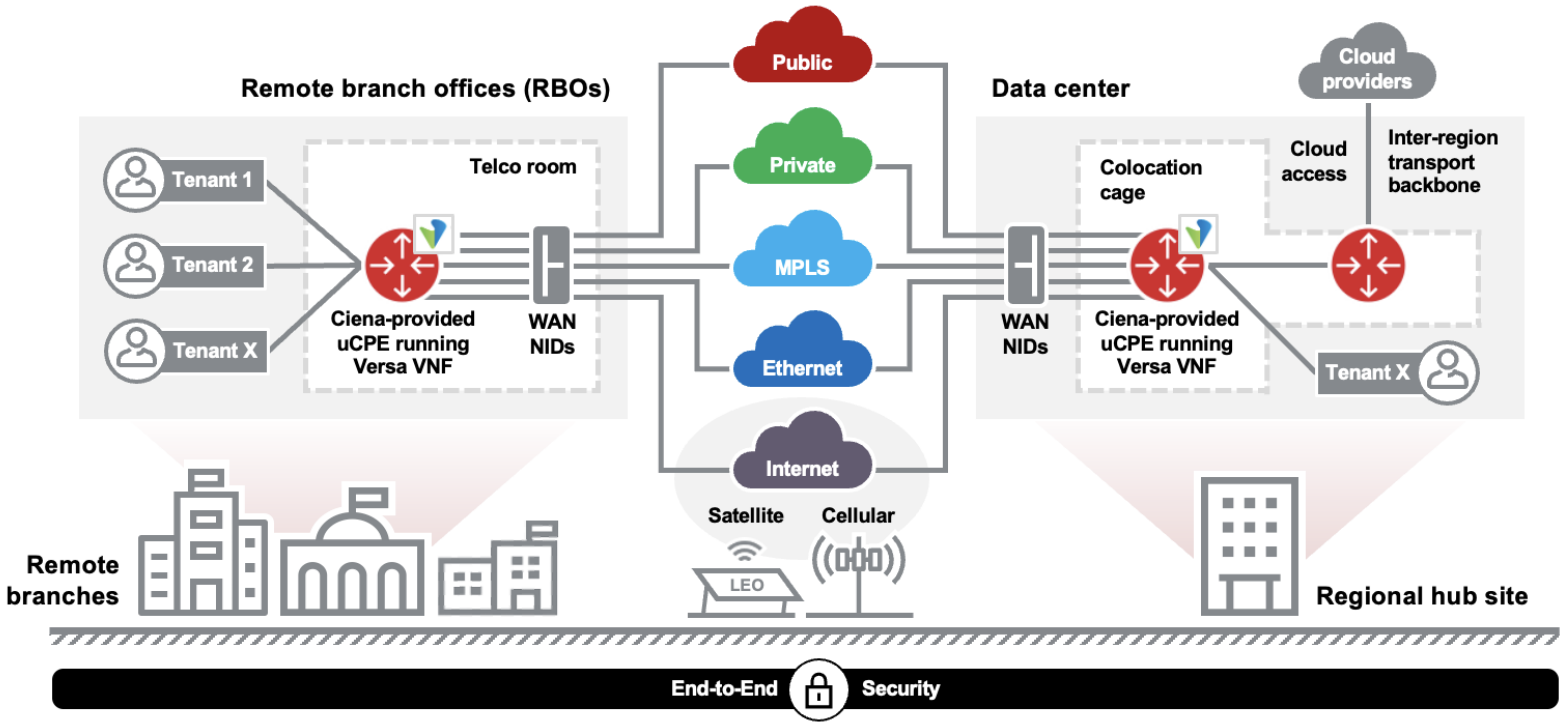
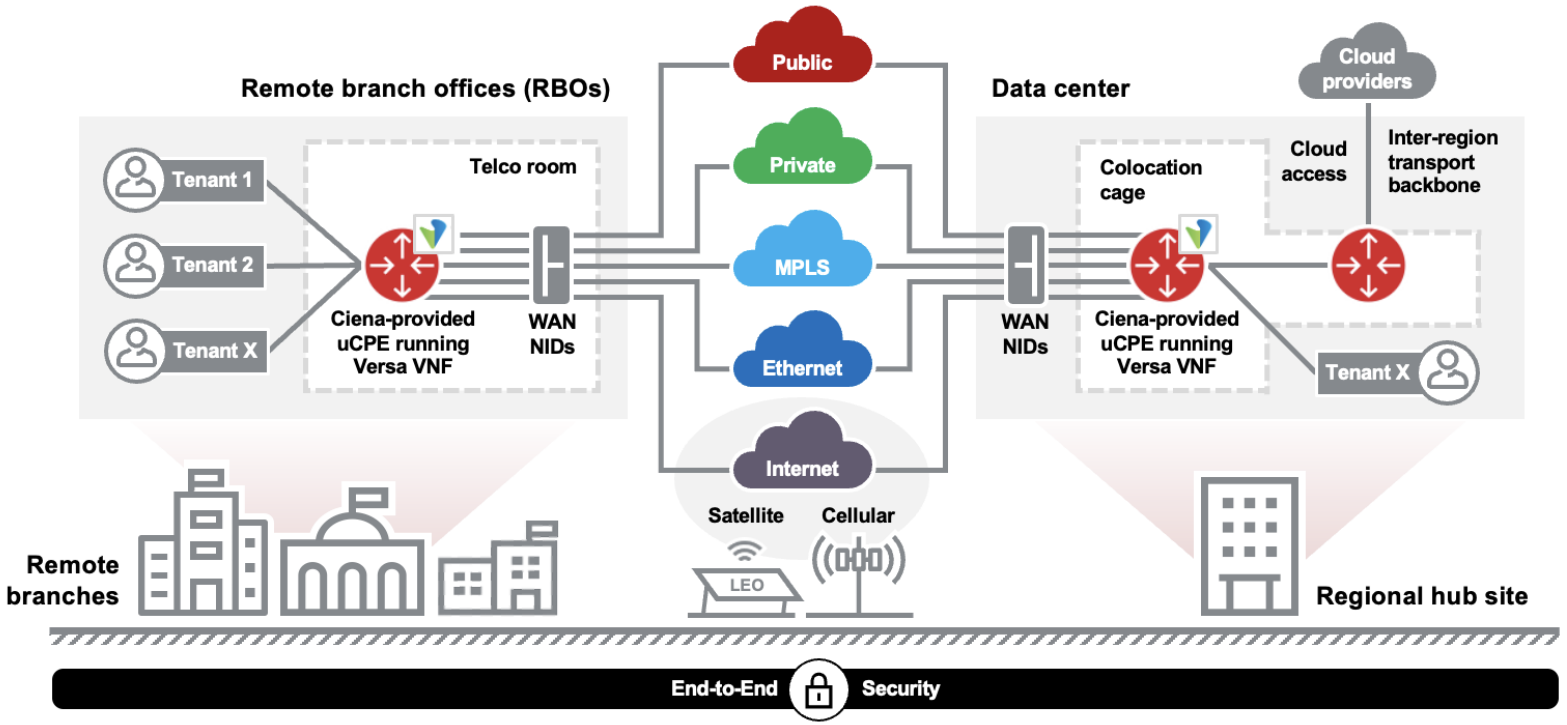
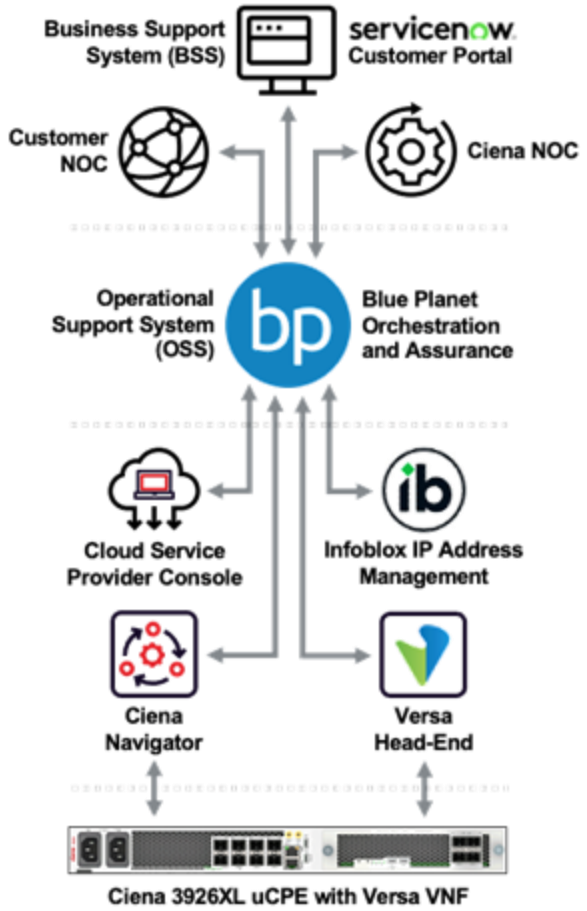
Remote branch offices and hub sites



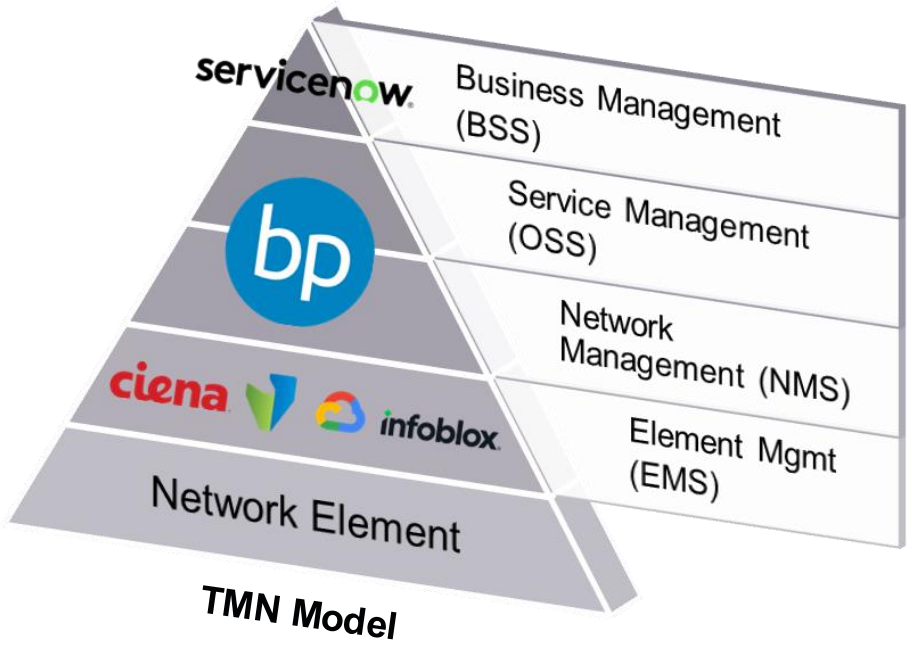
Fully automated





Open APIs are key

- We follow the Telecommunications Management Network (TMN) framework
  - All software communicates in an organized fashion via each other's APIs
- ServiceNow (SN) performs tasks such as order management, ticketing, and billing
- Ciena's Blue Planet Orchestration (BPO) receives orders from SN, breaks them down into discrete services, and orchestrates service provisioning
- Once services are active, Blue Planet Assurance (BPA) correlates alarms and sends updates to SN
- Element Management Systems (EMS) – such as Ciena Navigator, Versa Head-End, and CSP consoles – are responsible for directly managing network elements



TMN Model

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Lessons learned

Government and commercial applications

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USG driving virtualization at the tactical edge

- Global presence
  - Large enterprise
  - Service provider
- Multi-domain theater of operations
  - Land
  - Sea
  - Subsea
  - Air
  - Space
  - Cyber
- Intelligence and agility at the edge
- Cyber everything
- Cloud connectivity
- Satellite access and private 5G

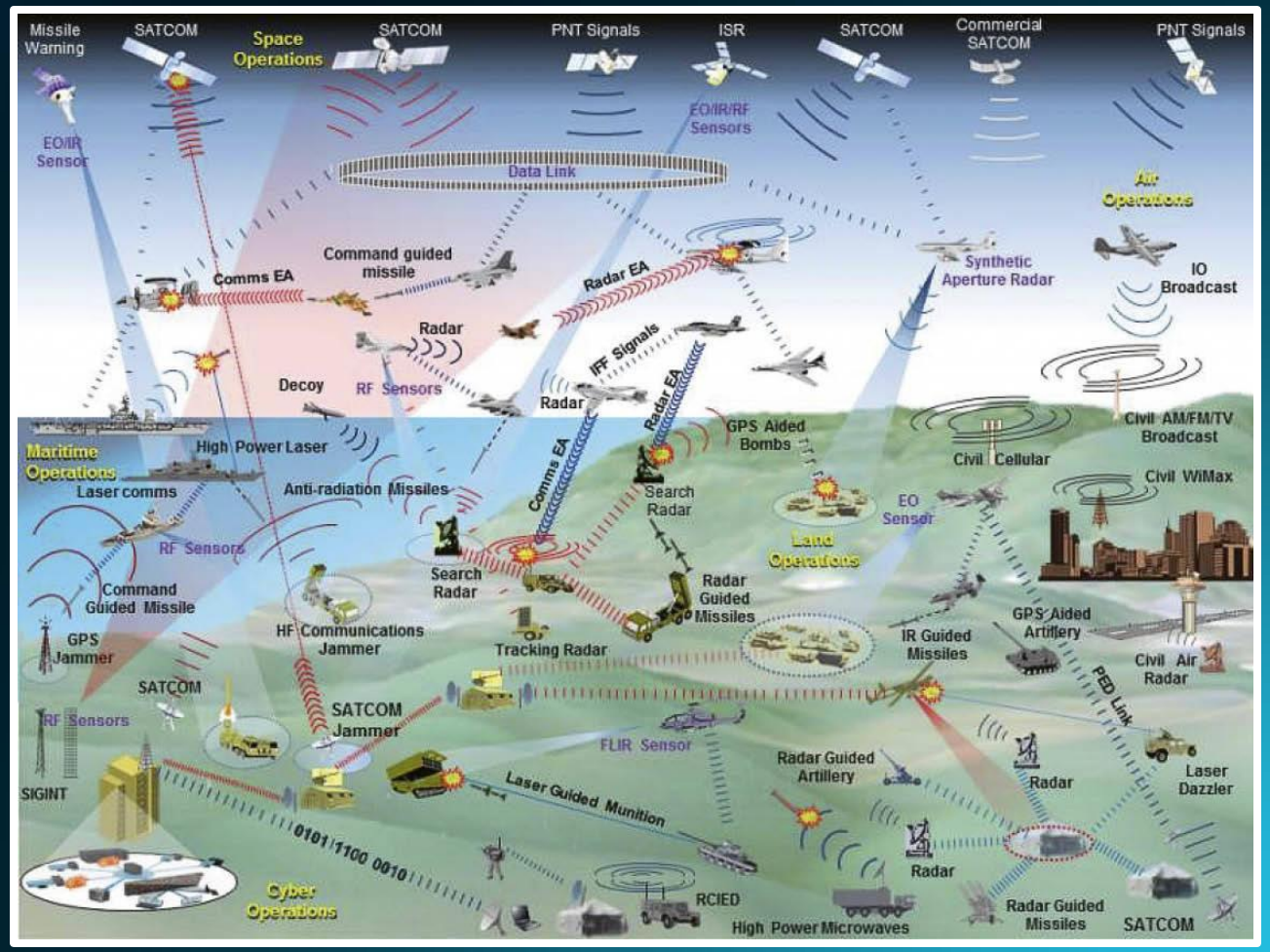

Image source: US Department of Defense

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The networking mission stands the test of time

The need to do more with less

The need for speed

The need for seamless* connectivity

** Equal access to applications, speed, and security – independent of location.*

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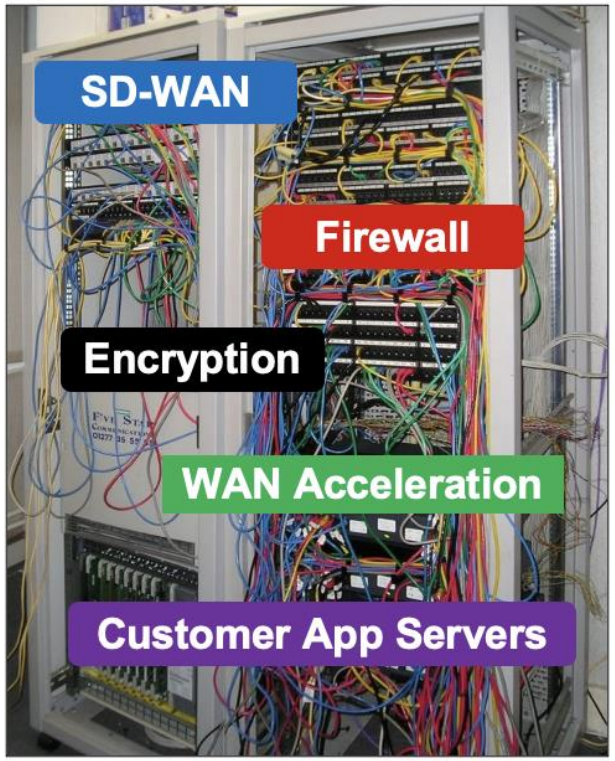
The promise of NFV at the edge

Enterprise branch closet



MACsec

Carrier Grade Platform

x86 Compute Server

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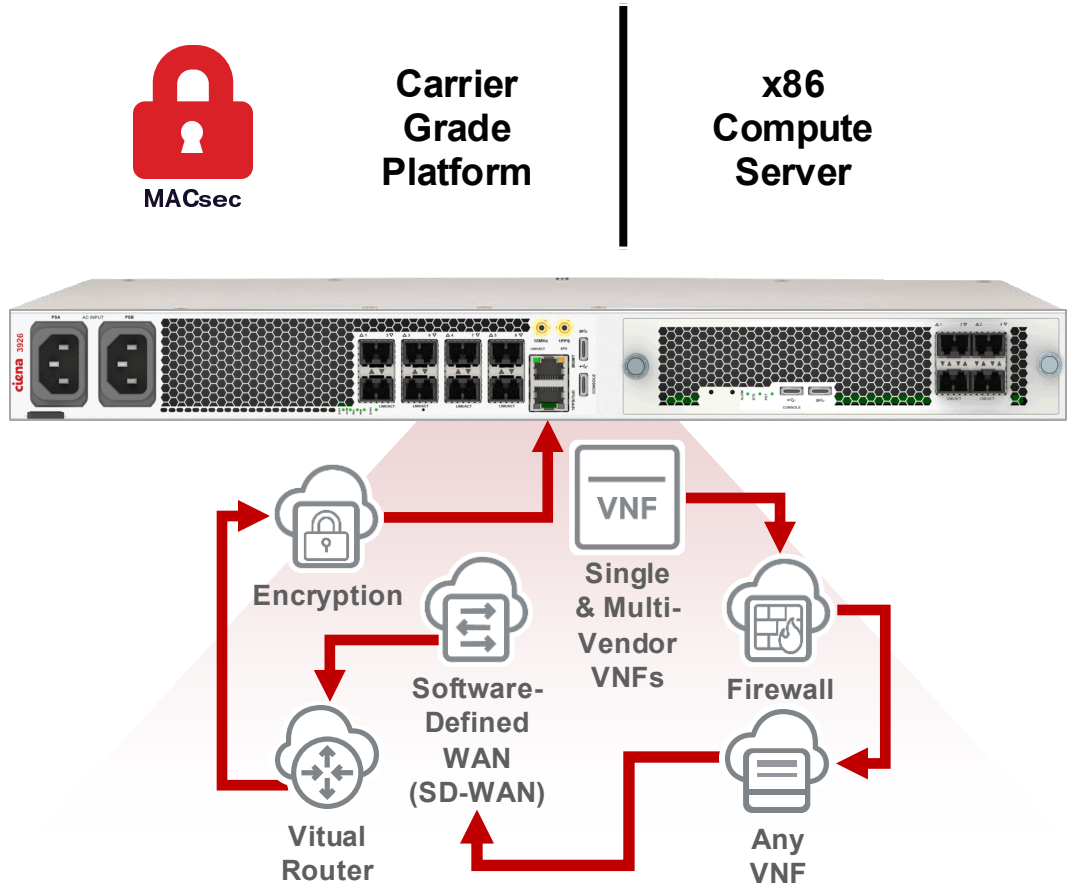
Lessons Learned #1 The need to do more with less

- NFV breaks the “more with less” rule
  - It is really “more for more,” at least at the onset of the journey
  - Initially your OpEx will likely increase, not decrease
  - Service chaining VNFs is more complicated and often consumes more resources than managing physical hardware
  - By leveraging NFV, you will have a much better platform in the long run, but it will require investment
- Open APIs help the journey
- Remember, not all VNFs are created equally



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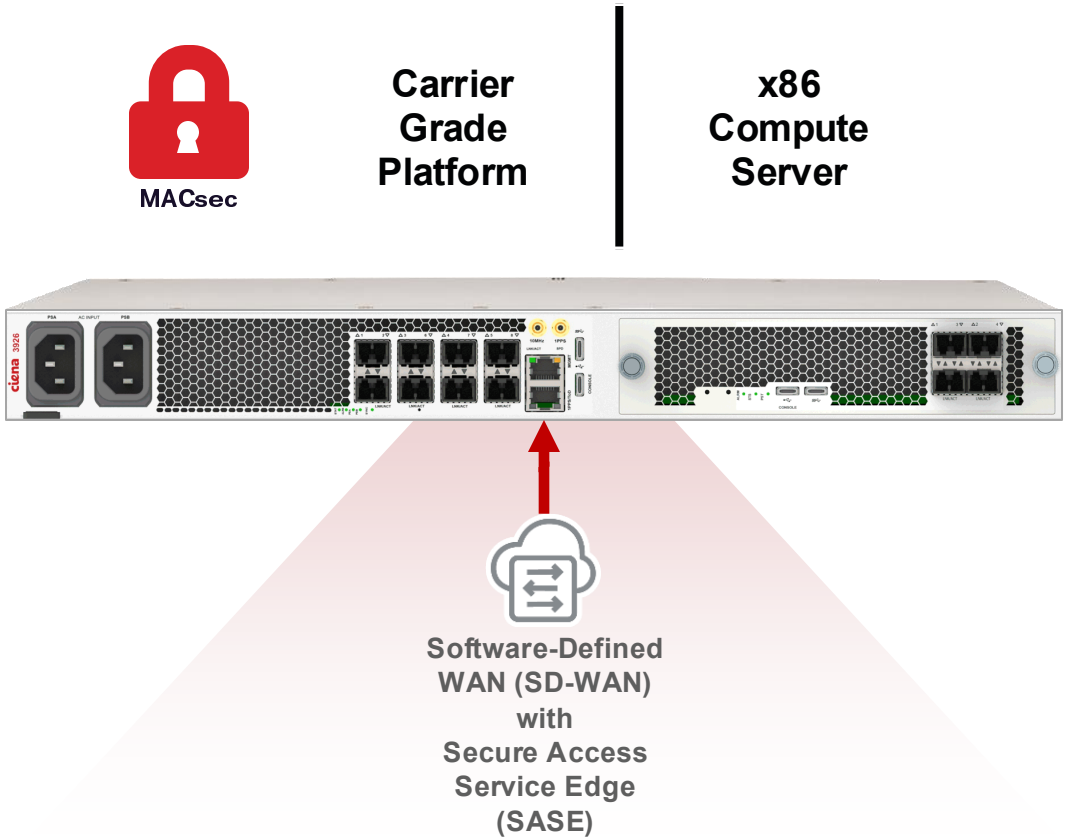
- Remember, not all VNFs are created equally
- Use a single software stack solution VERSA



Lessons Learned #2 The need for speed

- Plan for service automation at the onset
  - Hyper-scale service providers plan for automation from Day One of service creation
  - In the past, traditional service providers and enterprises waited for large-scale success, then optimized for OpEx efficiency
- It’s much easier and faster to automate, or at least plan for automation, from the beginning
- Define APIs, select open architectures
- Business case for transformation is fueled by revenue acceleration and OpEx reduction
- Competitive pressures continue to drive the need for speed

Greenfield **Brownfield**

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Lessons Learned #3

- Seamless connectivity is enabled by Open APIs
- Open APIs enable automation across solution platforms
- TMN framework
  - Model made up of a set of international standards defined by ITU-T
  - How to manage open systems in a communications network
  - Adds structure with distinct layering
- Enable the design of an architecture with software operating at defined levels
- Communication between adjacent levels happens via well-defined interfaces

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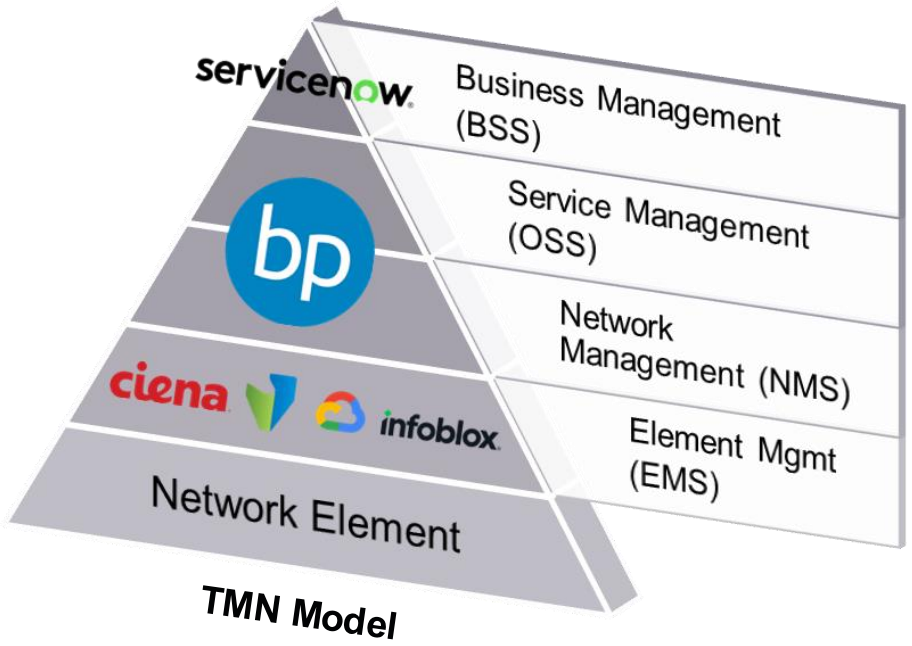
The need for seamless connectivity



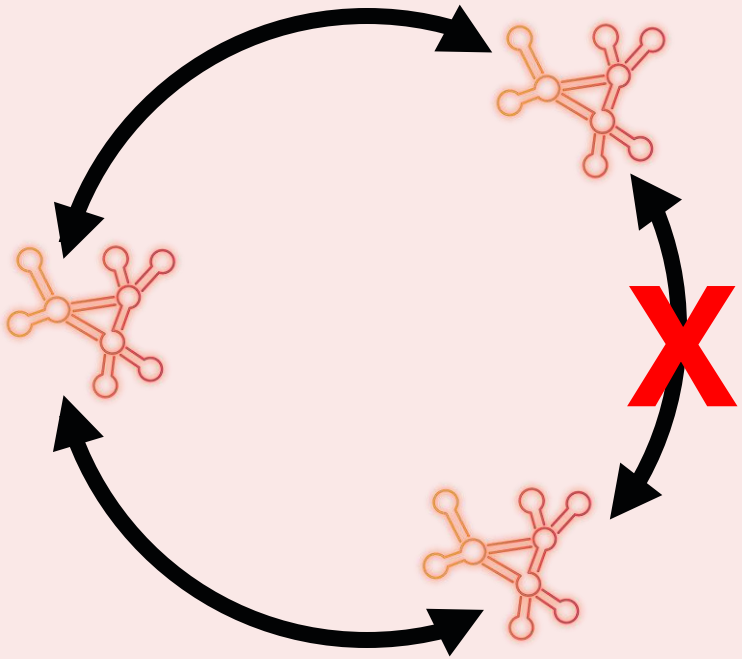
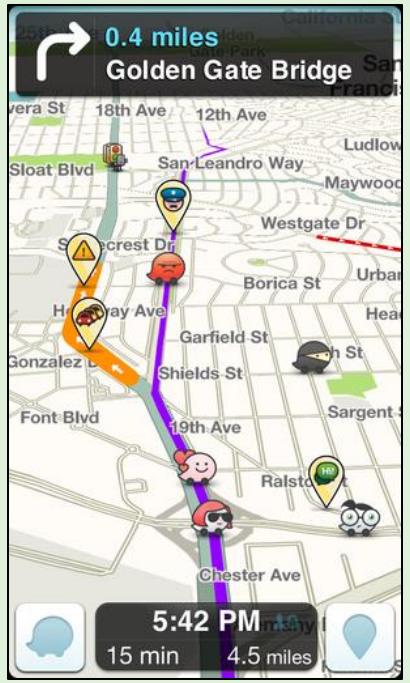
Lessons Learned #4

Open source vs. Open architecture

- Open source can be a workforce multiplier with low-to-no upfront cost
  - However, there are other costs to consider: security, long-term supportability, accountability, development, and certifications
- Open architecture with vendor DevOps reduces the risk of the enterprise journey, and gives agencies a better feel for value creation
- Within real-world network automation use cases
  - Many are moving from solely running a network to automating a network
  - Generally, more IT skills are required
  - You want to write code and participate in the DevOps journey
  - However, you will need a safety “backstop” for the project as your folks already have full-time roles
- Are you ready to answer the phone in the middle of the night?

Lessons Learned #5

Leveraging analytics for adaptive behavior

Reactive	Proactive
	

Closed loop analytics enables proactive, intelligent avoidance of problems.

Lessons Learned #6 Zero-touch provisioning

Image source: Getty

- ZTP is not always realistic at scale
  - Not enough bandwidth to load apps
  - Slow and unreliable turn-up
  - Very difficult troubleshooting
- Pre-staging prior to site delivery is recommended

Demonstration overview

Use cases

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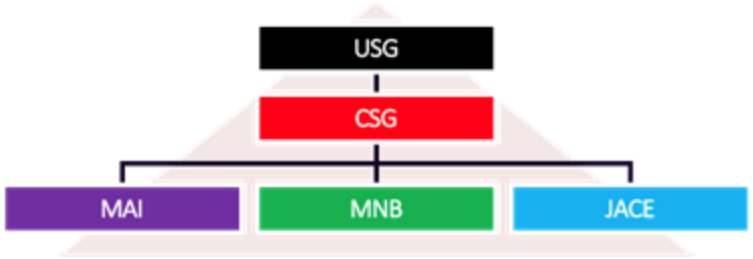
Proof of concept (POC)

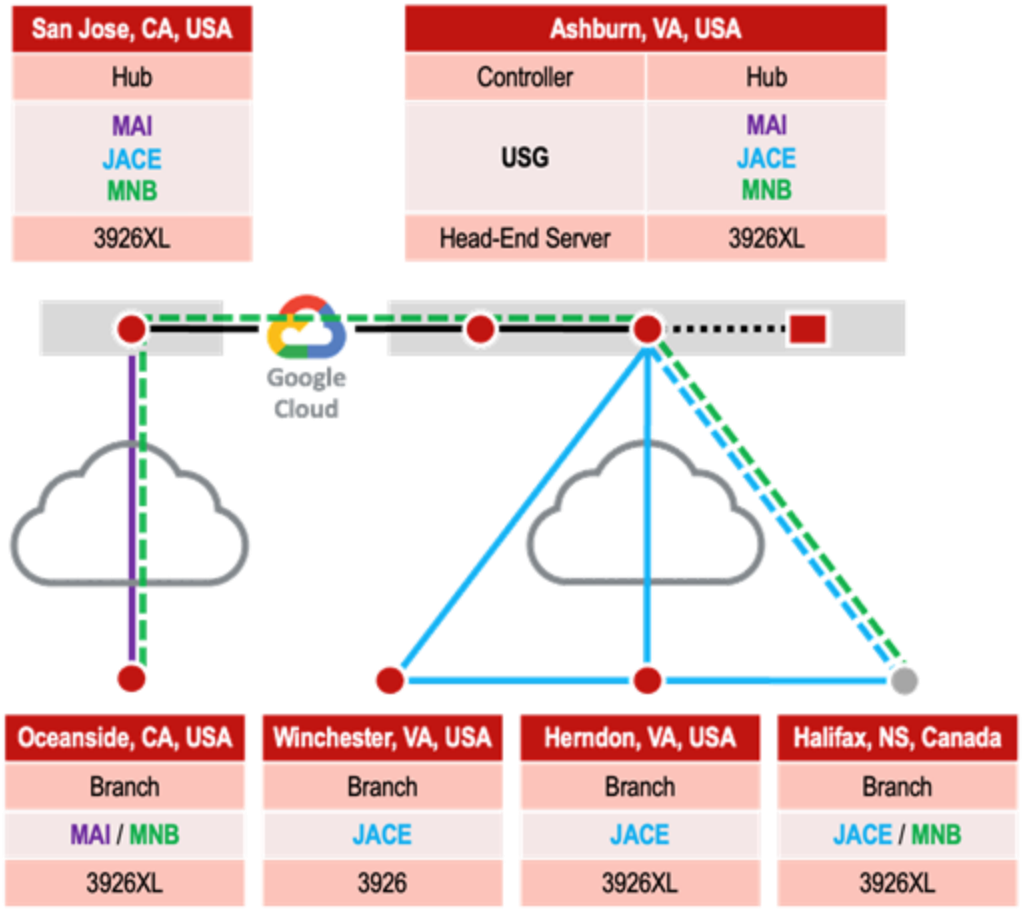
Organization Structure



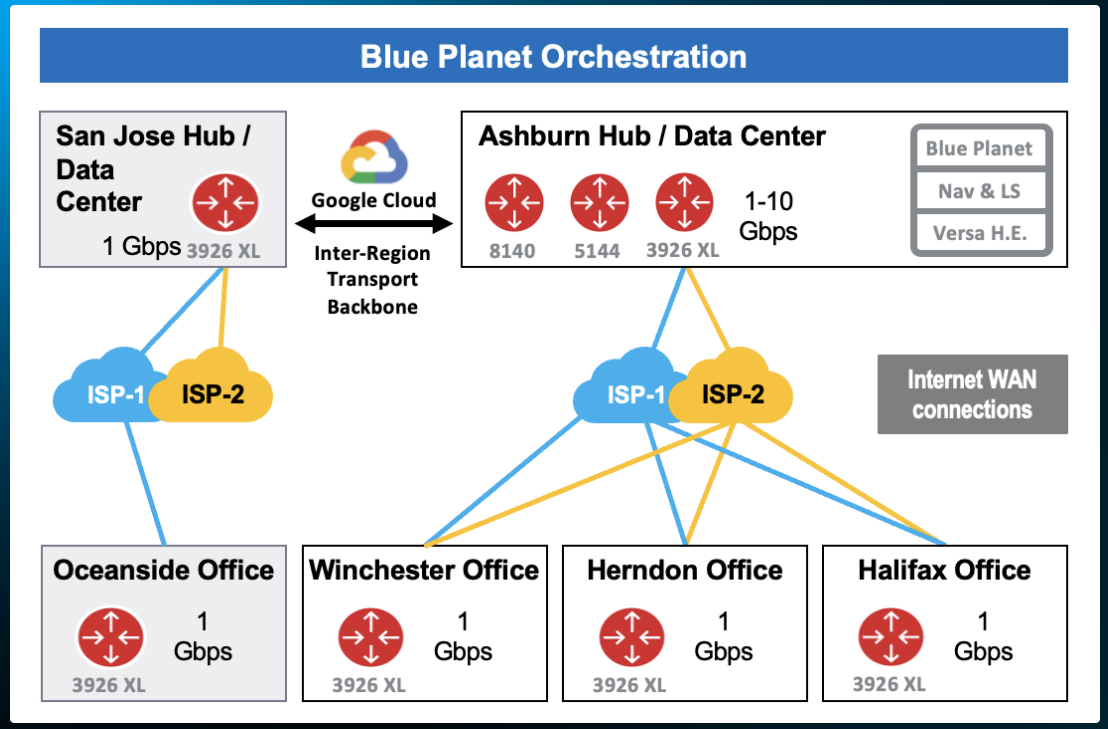
Use Cases

1. New site request: Onboard new site and uCPE with a connection ordered from the service catalog. Show ZTP-lite processes due to customer required checkpoints for order approval, underlay circuit installation, site readiness, etc.
2. Global cloud transport: Add a new tenant to an existing site. Show it can be done without any human intervention.
3. Cloud access: Establish connectivity to customer's VPC in cloud (without Versa branch in the cloud).
4. Cloud egress: Provide secure Internet+ access from any cloud POP (with Versa branch in the cloud).

Network Topology



POC network



Hardware

- Ciena 3926 XL (Qty 5+1)
- Ciena 5144 (Qty 1)
- Ciena 8140 (Qty 1)
- Servers
  - 1x Server for Ciena Navigator and License Server
  - 1x Server for Versa Head-End
  - 1x Server for Blue Planet Orchestration and Assurance

Software

- Versa Head-End VMs
  - Director
  - Controller
  - Analytics
- Versa OS for Ciena x86 compute server
  - Subscription tier Premier Elite SD-WAN
- Ciena Navigator

WAN

- 2x 1 Gbps (ISP) and 10 Gbps (Google) at hub sites
- 1x or 2x 1 Gbps ISP at remote sites (terrestrial and satellite)

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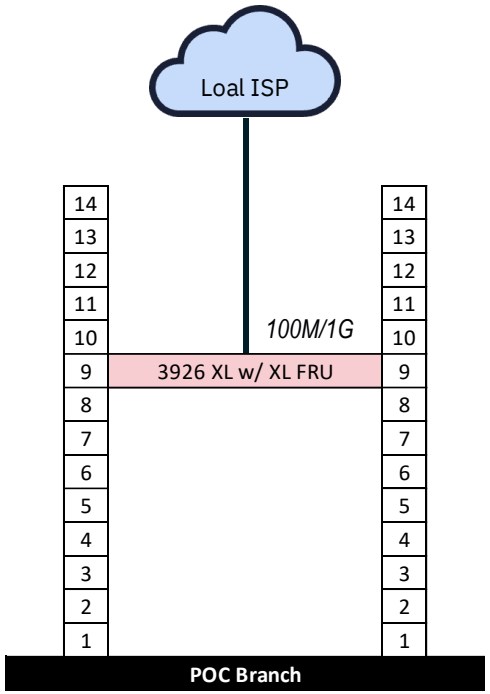
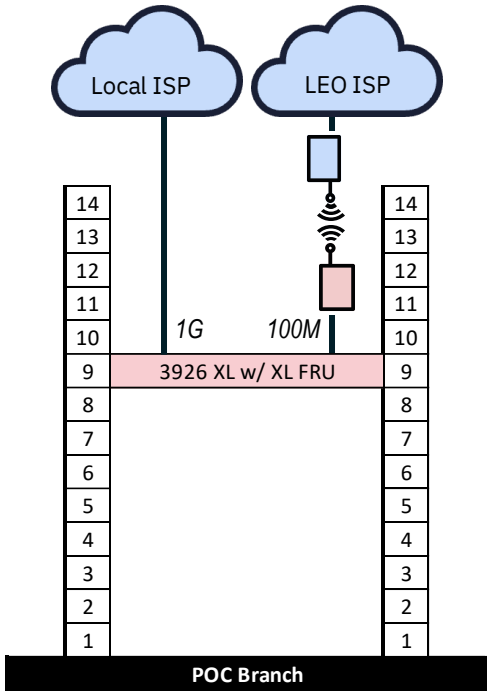
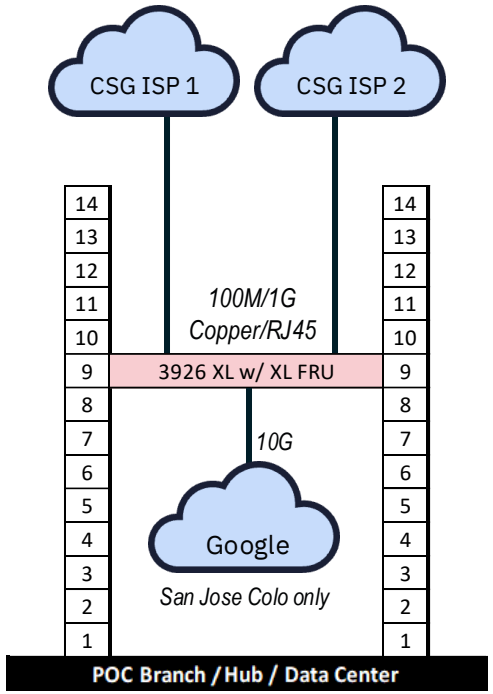
Rack elevation diagrams with connections



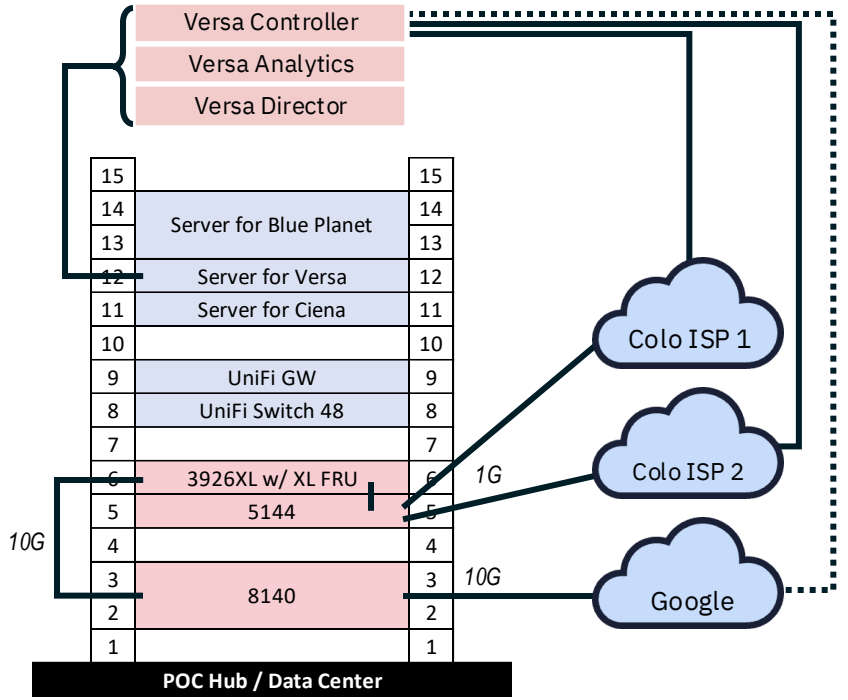
Branch in Oceanside, CA



Branch in Winchester, VA

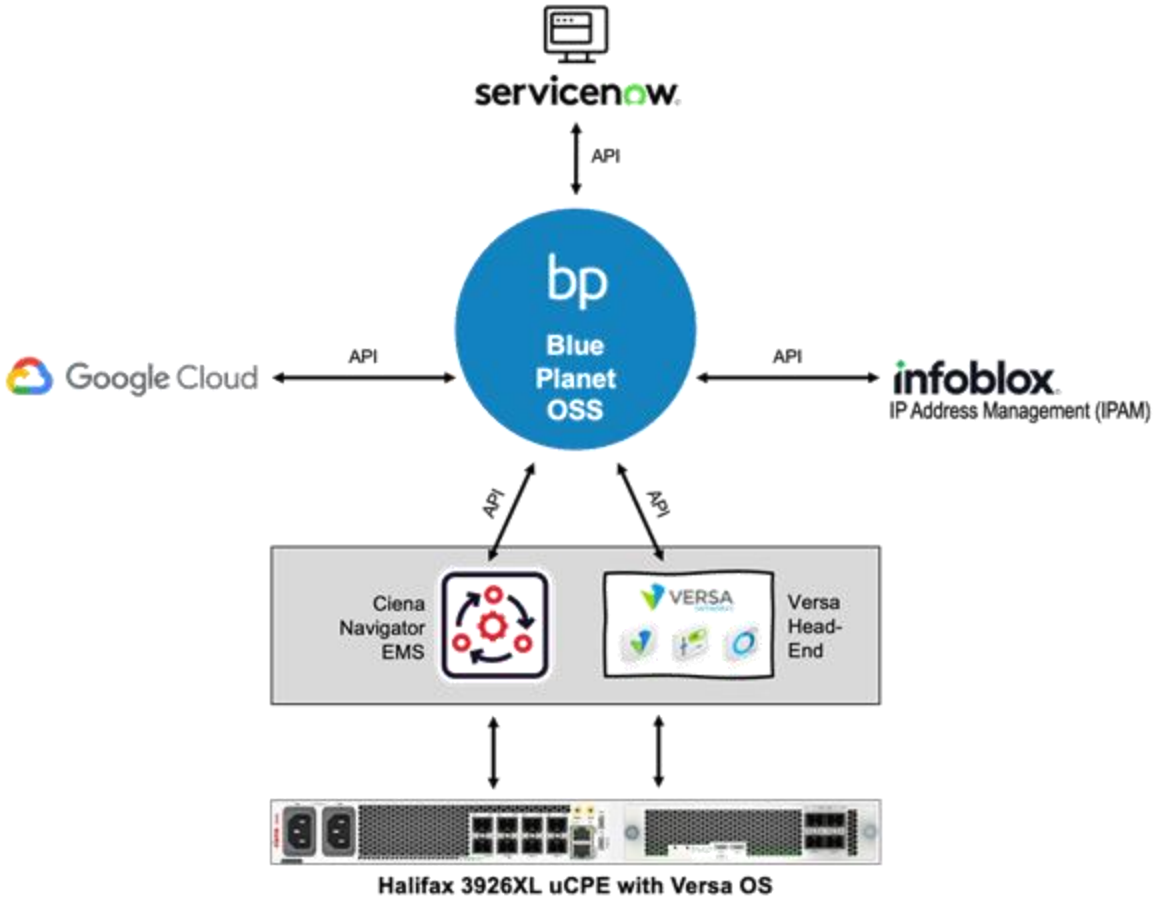


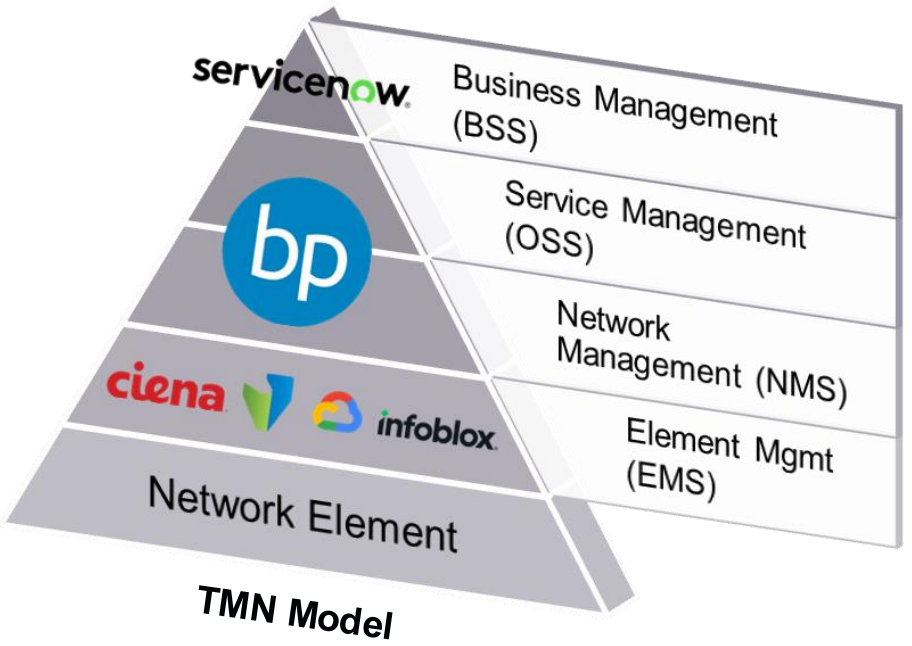
Branch in Herndon, VA (CSG lab)
CSG Colo in San Jose, CA
Branch in “Halifax” (CSG conference room)



CSG Colo in Ashburn, VA

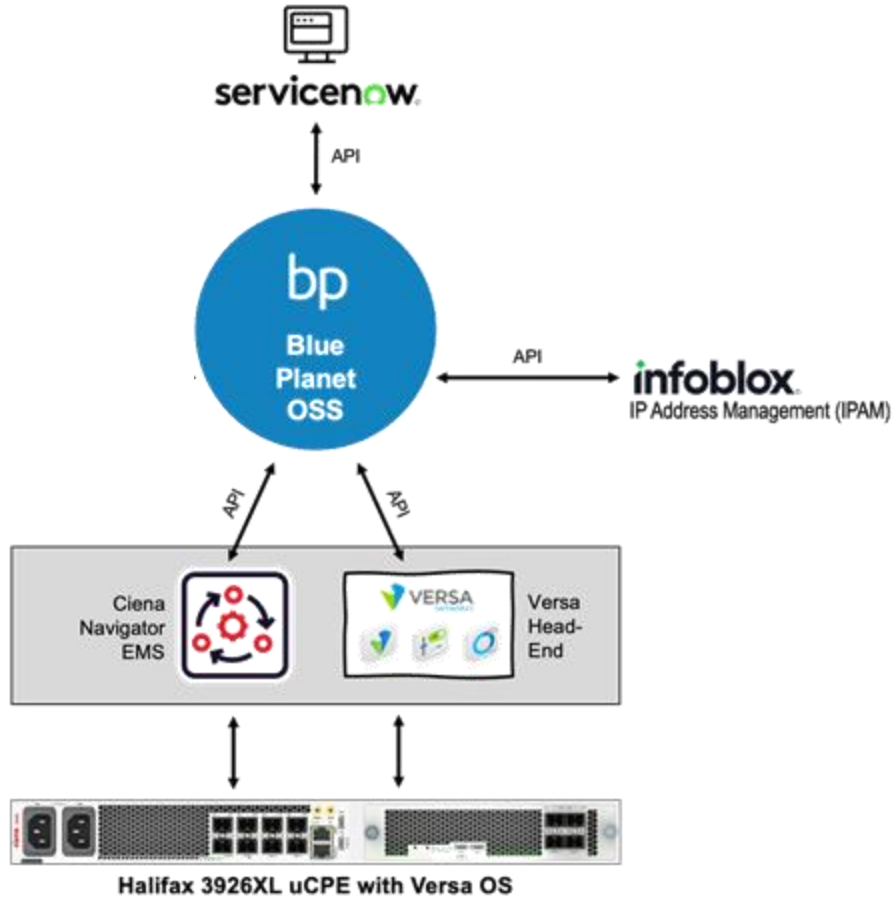
POC elements





Example service deployment workflow

ServiceNow	1	Customer submits ServiceNow order for new uCPE device at new location.
Alliance program team	2	Alliance team works with the customer to assess site engineering requirements, including: underlay, equipment, management, power, IP addresses, etc.
	3	Alliance program team identifies and ships: (1) remote office uCPE device with pre-config from warehouse and (2) instructions with activation command.
Blue Planet	4	Once equipment is received, Blue Planet processes service order from ServiceNow.
	5	Blue Planet imports ServiceNow customer data into workflow.
	6	Blue Planet creates customer objects in Assurance and IPAM if not already there.
	7	Blue Planet reserves IP addresses from IPAM's customer subnet.
	8	Blue Planet pushes RBO configuration to Versa Director and raises ServiceNow ticket for customer to complete installation.
End user	9	Branch user "installs" uCPE equipment, runs onboarding script, and updates ServiceNow ticket
Blue Planet	10	Blue Planet validates wiring connections.
	11	Blue Planet performs speed tests of underlay WAN connections and stores the initial record.
	12	Blue Planet onboards the branch uCPE device to Ciena Navigator.
	13	Navigator pushes device config to branch uCPE.
End user	14	Customer runs staging script to onboard branch uCPE device and updates ServiceNow.
Blue Planet	15	Versa pushes SD-WAN NaaS configuration to branch uCPE.
	16	Blue Planet promotes service in Assurance to active for monitoring.
	17	Blue Planet pushes order completion notice to ServiceNow.
ServiceNow	18	Order complete, commence billing.



Next steps

- Adapt and automate new customer requirements to support mission scenarios
  - We continue to evolve the service catalog
  - We're always listening
  - We value demo feedback

- Next round of demonstrations are scheduled for June

Scan the QR code or visit our booth in the Partner Expo Hall for more information

ALLIANCE

Network as a Service（NaaS）

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