Customer Use Cases and Transformation Journey with Juniper Cloud CPE/SD-WAN Solutions

NXTWORK2017
JUNIPER CUSTOMER SUMMIT

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JUNIPER NETWORKS

Agenda

1. Managed Services Delivery Platform and Journey - Juniper
2. IBM Cloud Managed vCPE Solution - IBM
3. Enterprise Differentiated SDWAN Solution - Amdocs

Service Provider CEO Outlook

A recent KPMG survey of Telecom CEO – titled “Embracing Disruption”

CEO Strategic Priorities	Execution
Greater Speed-to-Market	Agile Service Delivery Platform
Stronger Client Focus	Democratization / Decentralization of Cloud
Digitization of business	New Business Models and Approaches
Become more data driven	Platform/Ecosystem Value
Fostering Innovation	Enriched Customer Experience

Evolving Managed Services Offering with SDN/NFV

FULLY MANAGED END-TO-END SERVICES/INDUSTRY PLATFORM INTEGRATORS

ORCHESTRATION AND GOVERNANCE

EXPANDED ECOSYSTEM OF PARTNERS AND SERVICES

NETWORKING SERVICES

- Remote access
- Data Center Interconnect
- V-LAN
- Caching
- WAN optimization
- Virtual Edge/RR/PE

NETWORK FUNCTION VIRTUALIZATION

SECURITY SERVICES

- Firewall
- Audits and analytics
- IPS/IDP
- UTM
- Cloud security

SDSN

TRANSPORT SERVICES

- Mobile device management
- WiFi/HotSpot management
- IP VPN/L2 VPN
- IPSEC/SD-WAN

POLICY DRIVEN NETWORKING

CLOUD SERVICES

- Hosting/private DC
- AWS, Azure, GCP, IBM Softlayer Cloud Connect
- Multi-Cloud
- Analytics & telemetry

CLOUD, DC AND HYBRID CLOUD SERVICES

APPLICATION SERVICES

- SaaS
- M2M
- IOT
- Blockchain, Payments
- Industry platforms

APPLICATIONS AND INDUSTRY PLATFORMS

Service Delivery Platform Building blocks

Orchestration, Management Automation

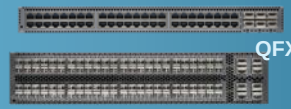
Contrail Service Orchestration

OPENCONTRAIL ANSIBLE python AppFormix openstack OPENCONFIG SALTSTACK

Systems

NFX 250

MX 150



QFX

MX

Software

JUNOS SOFTWARE

vNFX

vSRX

vMX

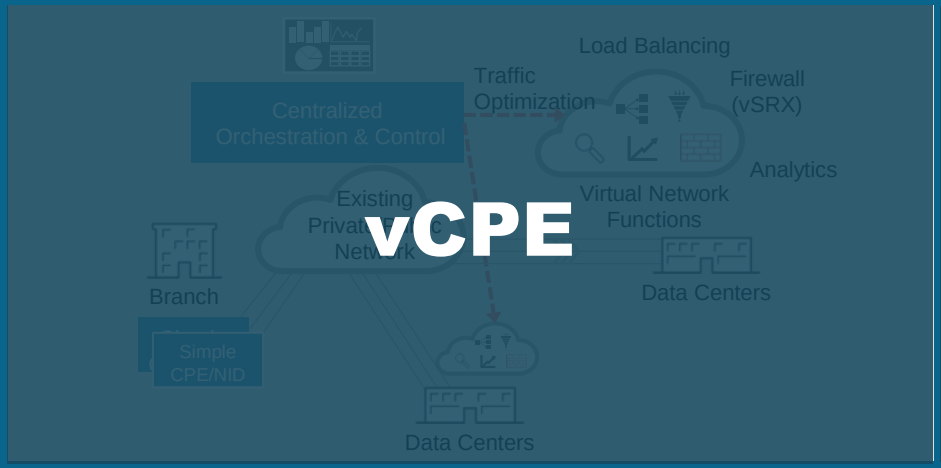
cSRX

Silicon

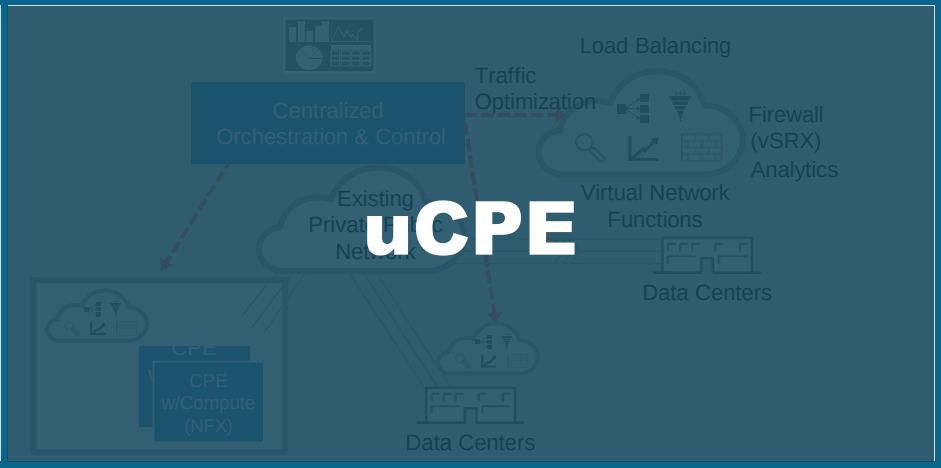
Express+

Trio

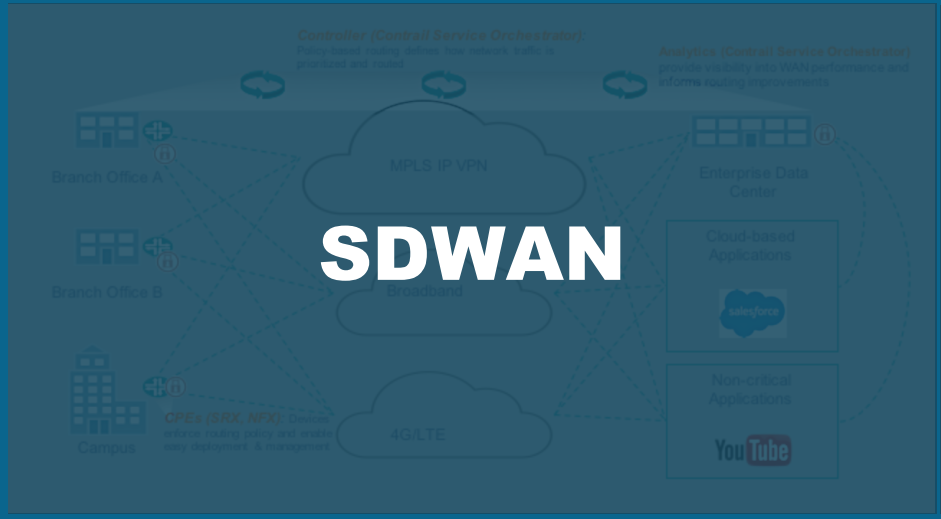
BROADCOM connecting everything



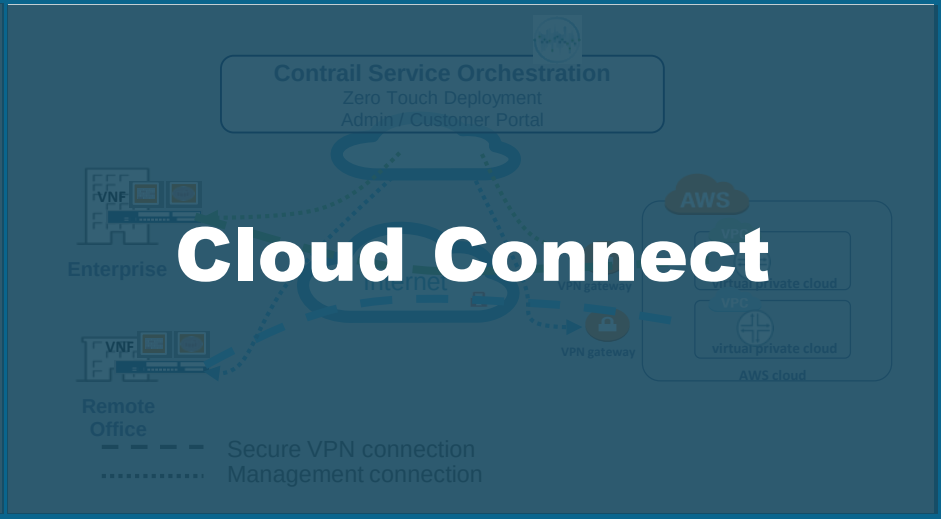
vCPE



uCPE



SDWAN

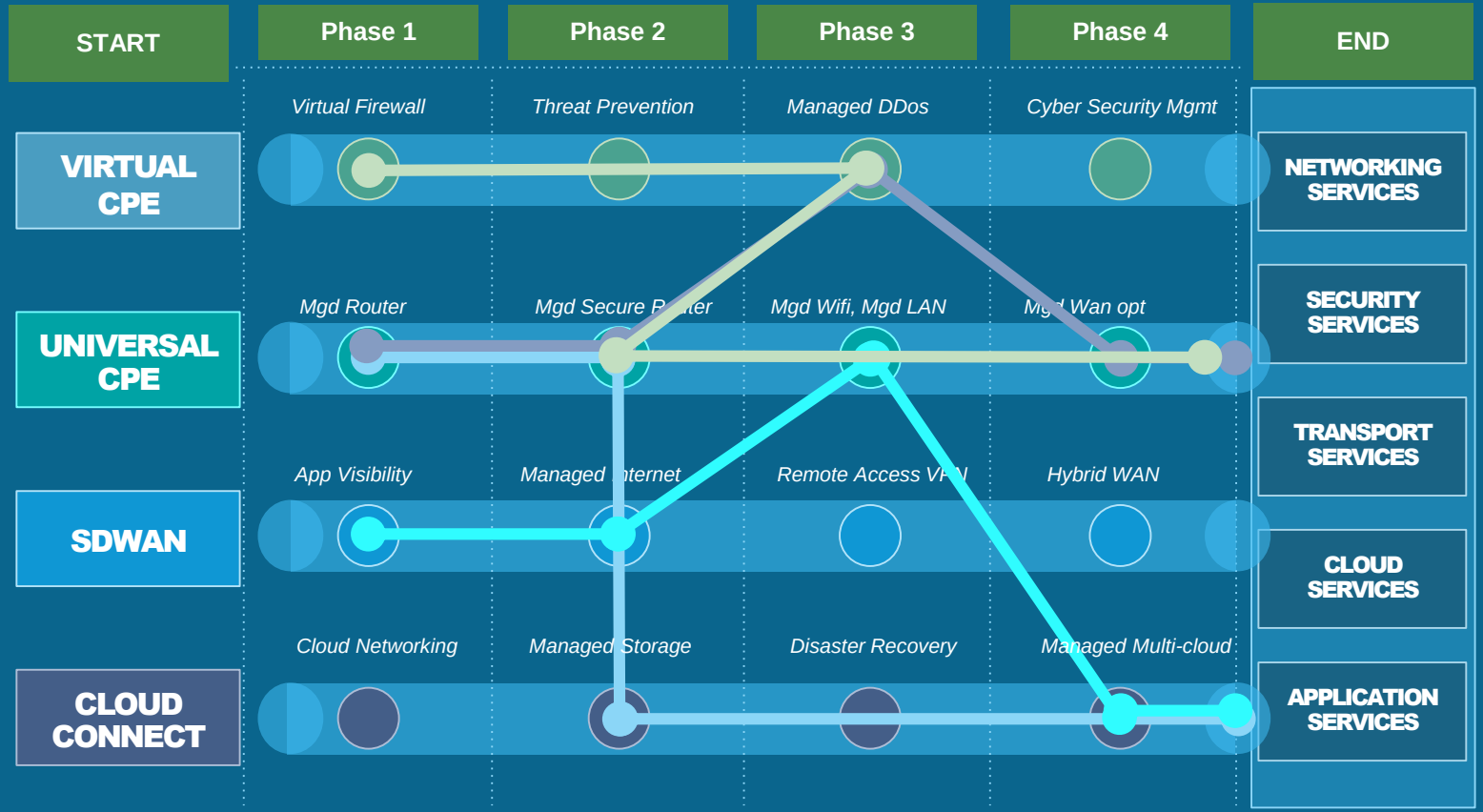


Cloud Connect

Managed Services Journey Map

CONSIDERATIONS FOR STARTING JOURNEY

- Business Plan
- Market Segment focus
- Competitive Pressure
- New Customer Pain Points
- Services Upsell/Attach



Customer Business OUTCOMES with SDN/NFV

Reduce / Avoid Expenditures	
25%	Reduction in the number of network elements needed - CapEx and OpEx savings
50%	Reduce up-front CapEx with Pay-as-you-go business models

Business Agility	
75%	Service elasticity based on needs, and demands
50%	Deployment of best-of-breed vs.

Operational Excellence	
65%	Single pane of glass management
70%	Operational efficiencies through virtualization i.e. Scaling, Monitoring, etc.

Risk Mitigation	
30%	Reduced hardware complexity
90%	More deployment options with a unified management process

Accelerate Time to Market	
40%	Accelerated delivery of new and differentiated services with service chaining
50%	Faster certification

Economics	
20%	Improved asset utilization
55%	Speed-up chargeback or revenues

Summary

Don’t boil the ocean – *Focus on specific business case and use case*

Modernize Service Creation/Delivery Platform – *One Platform Multiple Services increases ROI*

Build Cloud Native Infrastructure - *Its all about Automation, API’s, programmability*

Partner with a sense of urgency – *Partner with Juniper to help you with your Transformation Journey*

Customer Journey with Cloud CPE and SDWAN with IBM Cloud Managed vCPE

Steven Teitzel (steitzel@us.ibm.com)
Global Solution Exec
IBM Telecommunications, Media & Entertainment Industry
December 12, 2017

Speaker

Steven Teitzel
Solution Executive
IBM Telecommunications & Media

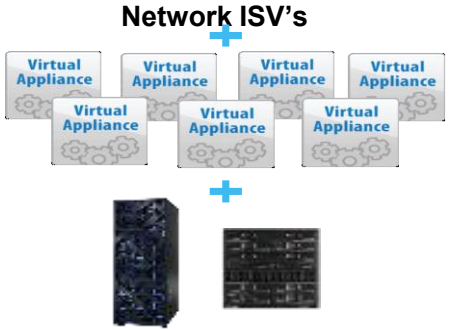
Steven Teitzel (steitzel@us.ibm.com) is a global solution executive at IBM, leading strategy and business development for the Global Telecommunications, Media and Entertainment Industry. Steven applies cognitive analytics, cloud, assurance, and agile DevOps to build cloud-based networking for communication service providers and cable operators; hence, enabling cost take out and monetization of the network. Steven has over 30 years of experience in the telecommunications industry.

The Journey to NFV…… open, multifunction, multivendor, cloud native

Stage 0

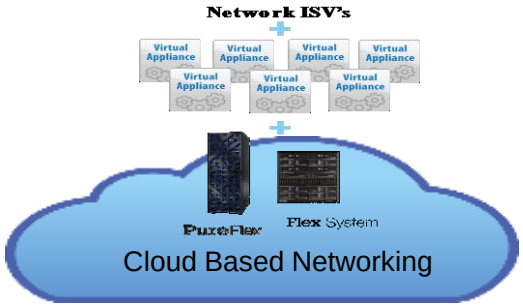
- Device Dependent Scaling
  - Fixed Scaling
- Common Platform
  - Sometimes Open or Vendor/Function Specific

Stage 1



- Manual Operations
  - Function Focused Virtual Silos
  - Event Driven
- Network Functions Moved to Cloud
  - Virtualized Functions
  - Siloed Services
  - Limited Shared Infrastructure

Stage 2



- *Cloud Native* Network Functions
  - Microservice enabled
- Highly Automated Management and Orchestration
  - Service Lifecycle Performance Driven
  - High Agility and Resiliency
  - Open multiple location cloud
- Factory Approach

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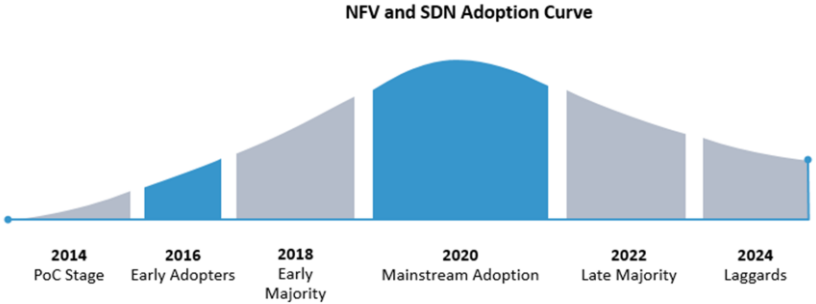
Cloud-based networking trends
– Network virtualization adoption on the rise but challenged



TBR NFV/SDN Telecom Landscape 3Q 2017

KEY ADOPTION BARRIERS

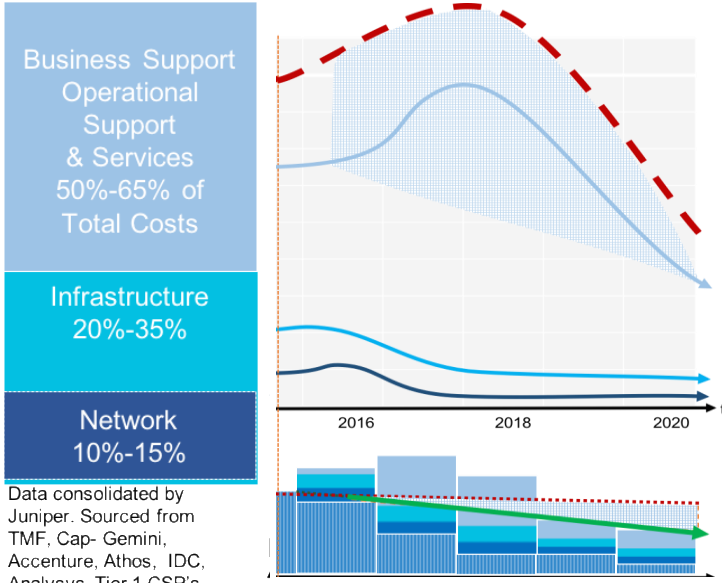
Key Challenges:

Mindset : Hardware centric to Software enabled
Processes : Agility to adapt fast changing network demands
Skill set : Cloud, cognitive & agile DevOps

Biggest Challenges:

- *Integration across multiple vendors*
- *Hybrid Networking*
- *Demonstrating Return on Investment*

Operation transformation is required to realize the full value of virtual networking

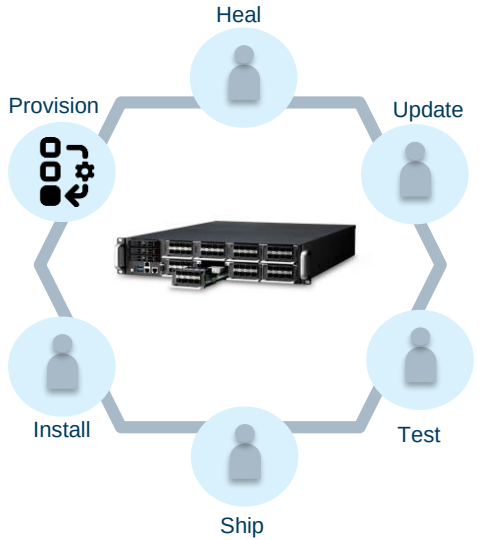


Data consolidated by Juniper. Sourced from TMF, Cap- Gemini, Accenture, Athos, IDC, Analysys, Tier 1 CSP's

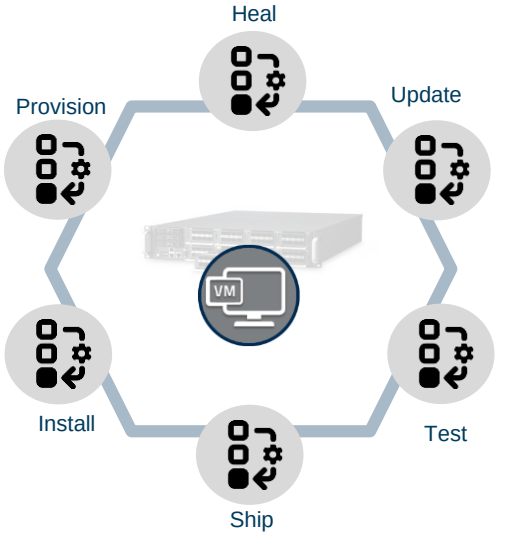
A transformational approach to operations:

- Requires a path from present mode of operations (PMO) future mode of operations (FMO),
- Provides greatest return on capital investment
- Accelerates Total Cost of Ownership improvement
- Reduced initial cost needed to drive a shorter time to value

Virtual appliances have more automation requirements than traditional appliances



The **majority** of the today's physical appliance lifecycles are **performed manually**. **Automated** tasks primarily focus **only** on **provisioning**



In a very distributed software environment the **entire lifecycle** of the appliance **must be automated**

How can CSPs rapidly begin to gain value from virtualized networks without having to transform their entire operations?

IPS[1]

Router
Firewall

WAN
optimization

Switch

Old branch

- Multiple devices and redundant scaling
- High operational costs and truck rolls
- Slow time and revenue to market
- Declining revenues
- High touch (configuration)
- Hard-wired service chains

Universal CPE
NFX250

Application VNFs[2]:

- WAN optimization VNF
- Router VNF
- Firewall VNF
- Software-defined WAN VNF
- IT applications VNF

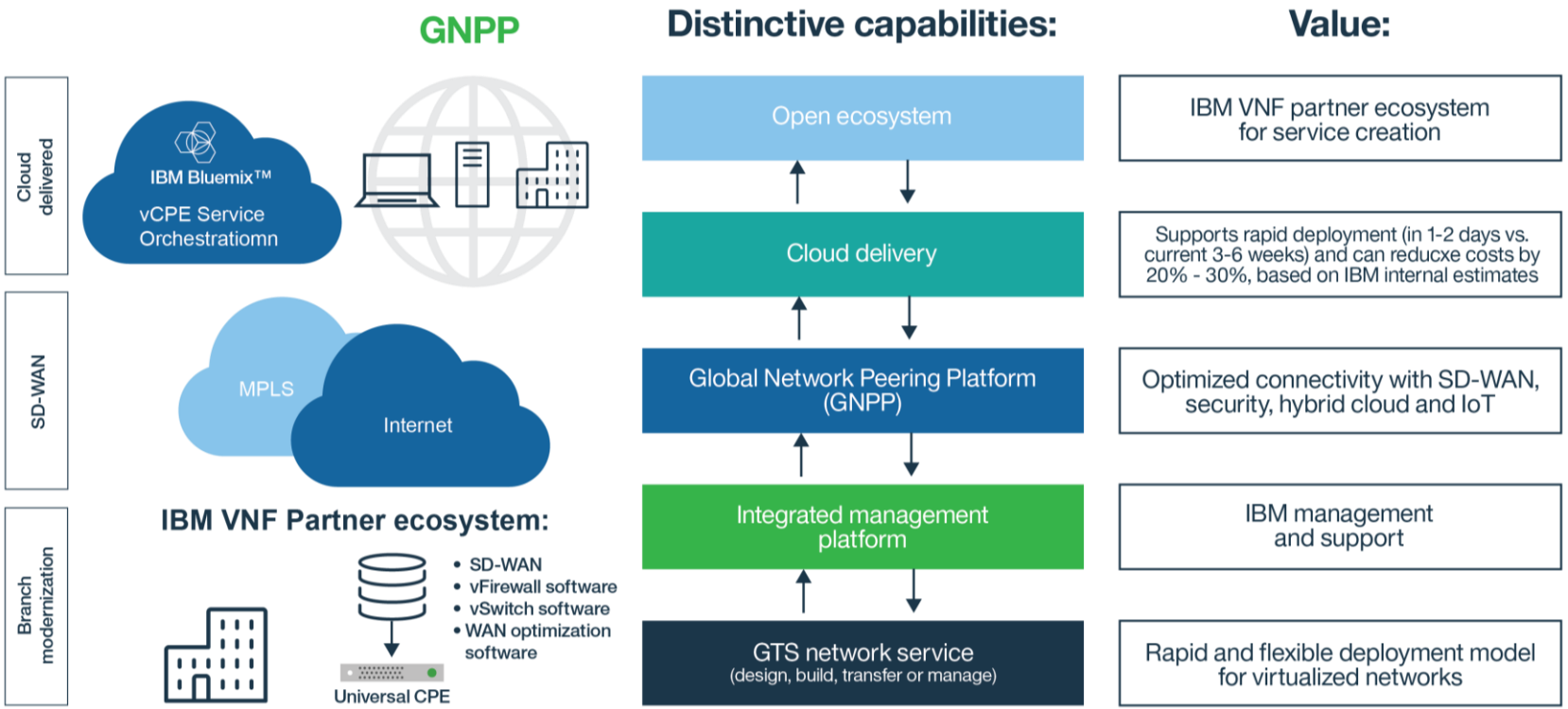
Modern branch

- Single universal customer premises equipment (CPE) device with customizable services offering
- Service richness based on a pay-as-you-go software model
- Services installed in a branch or telecommunications company (Telco) cloud
- Automated operations and zero touch provisioning (ZTP)

- Device consolidation
- Branch management agility with plug-and-play deployment
- Simplified operations with built-in automation and self-service portals
- IT and software models for networking and security
- Reduced branch connectivity costs with software-defined WANs

[1] Intrusion prevention system (IPS); [2] Virtual network functions (VNFs)

IBM Cloud Managed vCPE Service − overall value proposition



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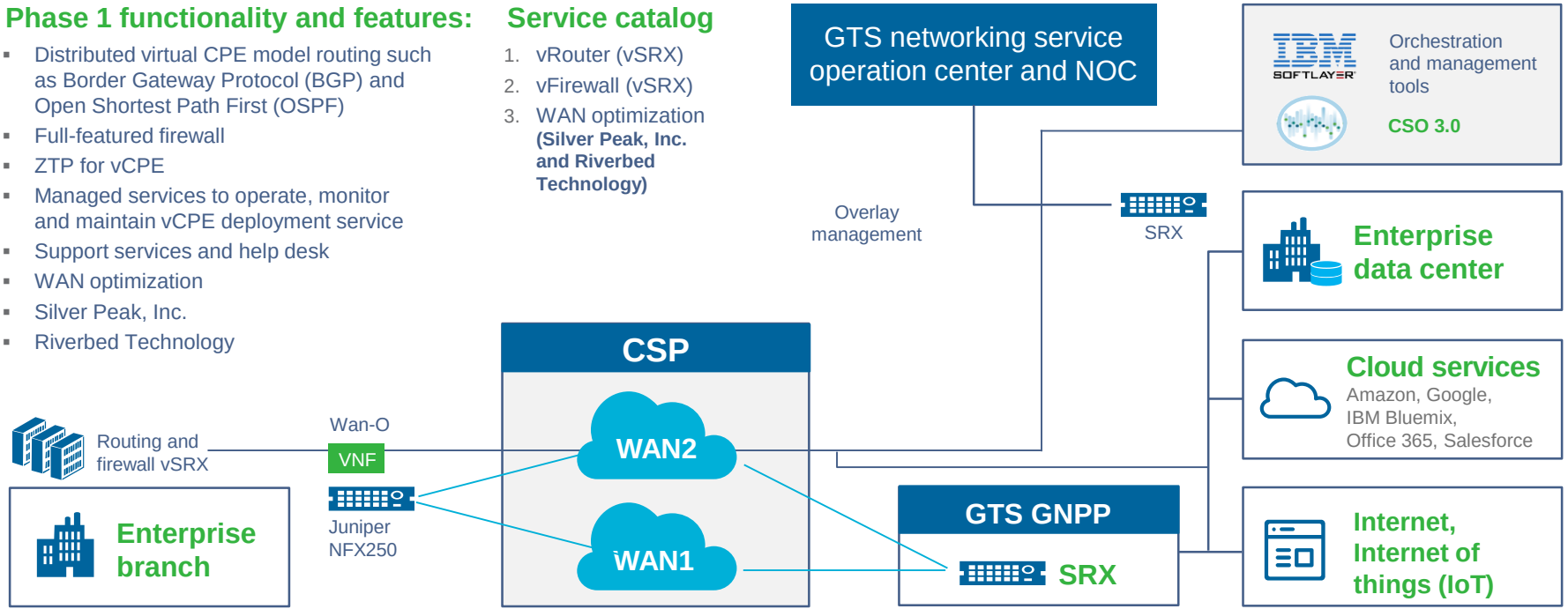
The Cloud Managed vCPE Service initial implementation can provide the ability to automatically deploy distributed vCPE devices in the CSP infrastructure.

Phase 1 functionality and features:

- Distributed virtual CPE model routing such as Border Gateway Protocol (BGP) and Open Shortest Path First (OSPF)
- Full-featured firewall
- ZTP for vCPE
- Managed services to operate, monitor and maintain vCPE deployment service
- Support services and help desk
- WAN optimization
- Silver Peak, Inc.
- Riverbed Technology

Service catalog

1. vRouter (vSRX)
2. vFirewall (vSRX)
3. WAN optimization **(Silver Peak, Inc. and Riverbed Technology)**



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Pay-as-you-go implementation using as-a-service pricing

Key features of IBM Cloud Managed vCPE as-a-service capabilities:

- Faster time to market
- Less intrusiveness in CSP infrastructure than a centralized CPE model
- The ability to move from mostly CAPEX to mostly operating expense (OPEX) spending
- Pre-integrated and tested NFV components and functionality including third-party VNFs
- Evergreen technology instead of 3 - 5 year refresh cycles
- Prompt provisioning and deprovisioning with no termination penalties
- Simpler cloud integration with easier access to IBM SoftLayer®, AWS[1], Azure[2] and other platforms
- Managed vCPE as a service for Tier 2 and 3 service providers
- Pricing strategy of “per device, per month” without termination charges

- Virtualization and cloud use help reduce up-front costs for CSPs
- Orchestration and dynamic provisioning can cut transition cost and time
- Moving to a DevOps, agile model is key to an evergreen strategy

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[1] Amazon Web Services (AWS); [2] Microsoft Azure

IBM Network and OSS Transformation capabilities

OSS Transformation Services
Set of consulting and integration services to help Communication Service Providers address complexity in a changing world – Tools, Processes and Organization transitions needed to optimize and automate the network operating environment today.

Cognitive Operations
Generate efficiencies and optimization in Network Operations. Applies analytics and cognitive to network operations with IBM Netcool Operations Insight; allowing for simplify and focus operations while enabling proactive operations. Using Service Operations actions can be prioritized based on impact to services and customer experience

Cognitive Field Service Advisor
Enables technicians to resolve field service requests using cognitive insights that elevate the expertise of the field force and drive operational efficiency.

System Integration for Hybrid Networks
End-to-end integration services, leveraging proven reference architectures and integration project methodologies for faster time-to-value and reduced project risks for IP networks and SDN/NFV.

IBM Agile Lifecycle Manager
Provides a complete NFV devops tool chain delivering superior operational lifecycle automation that allows for intent based management throughout a service lifecycle simplifying, optimizing, and automating operations for multi-vendor environment.

IBM Agile Service Manager
Extend Netcool Operations Insight by providing Operations with a complete up-to-date visibility of highly dynamic hybrid infrastructures and services, both currently and historically that is critical for management of NFV & SDN.

ONAP Integration Services
Provide integrations services for open source ONAP, that enables a real time, policy-driven orchestration and automation of physical and virtual network functions to create new services. This is augmented with IBM cloud and cognitive software and services.

Cloud Managed vCPE
Provides a network platform as-a-service to an operator that allows them to use virtualization to reduce costs and increase service velocity while going through the transformation needed for cloud-based networking enabled through NFV/SDN.

Why IBM?

IBM deep expertise in cloud, cognitive, systems integrations, security, and operations along with business and industry perspectives

A ***commitment to open*** standards and implementation with Open Source to reduce cost and speed time to value for innovation

A ***vendor-neutral,*** collaborative approach with *partnerships* with the major market leaders for each component

Transformation and Systems integration experience for a full lifecycle of standardized and customizable services from assessment to design, deployment and ongoing managed operations

IBM Research, Industry Solution Centers and Network Innovation Centers that are available to innovate what is possible in Cloud-based Networking

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For More information on cognitive networking and how IBM is helping clients reinvent their networks visit:

Living Networks

(https://www-935.ibm.com/industries/be-en/telecom-media-entertainment/reinventing-network/solutions/index.html)

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Enterprise services innovation through differentiated SD-WAN solutions

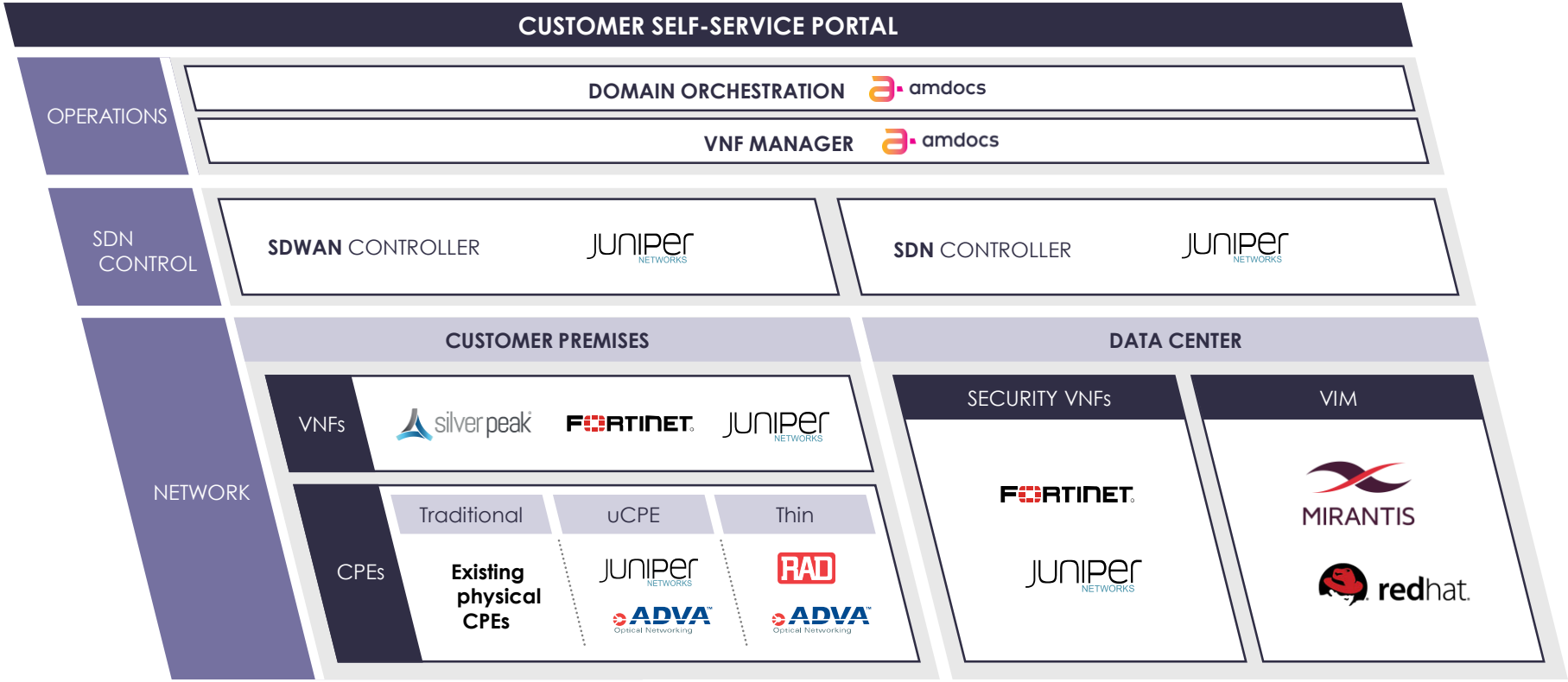
Challenges in taking SD-WAN solutions to production

Dan Hod
Head of Strategic Alliances & Initiatives

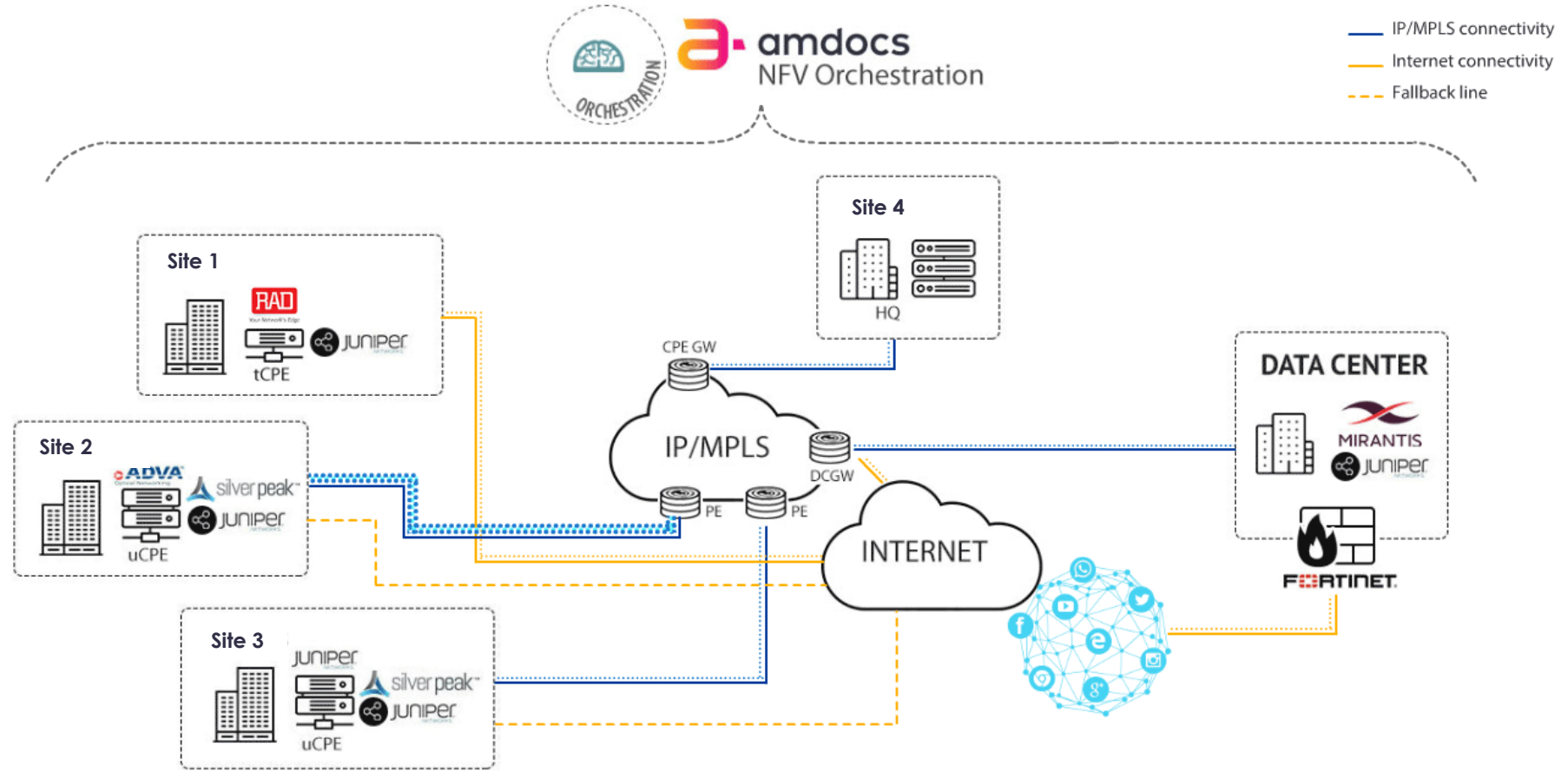
Dec. 2017

amdocs

Live POC with Tier 1 European CSP

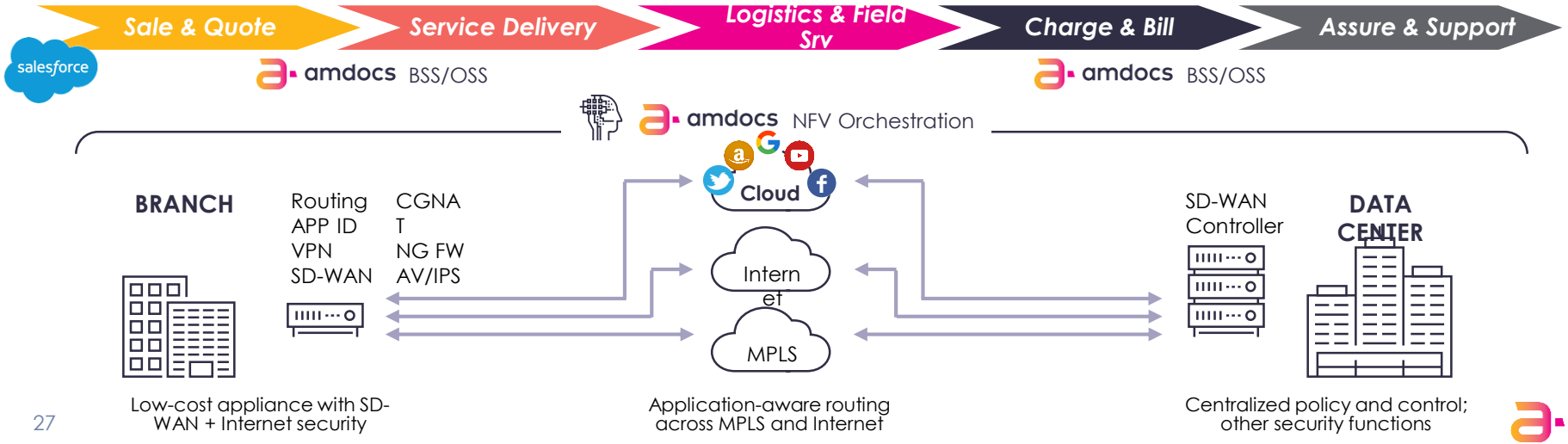


Proactive Service Management – Juniper SD-WAN Controller is offloading part of the traffic to the internet connection

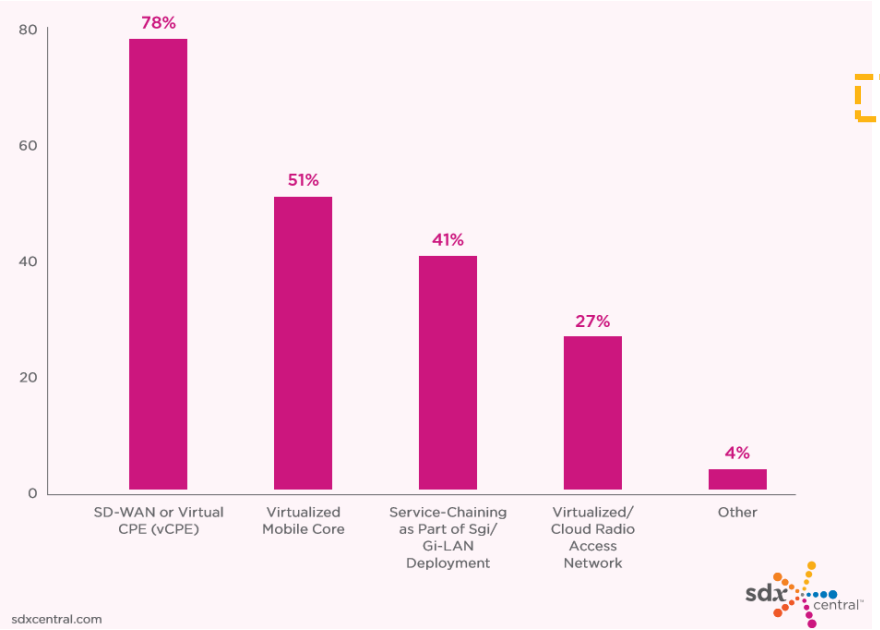


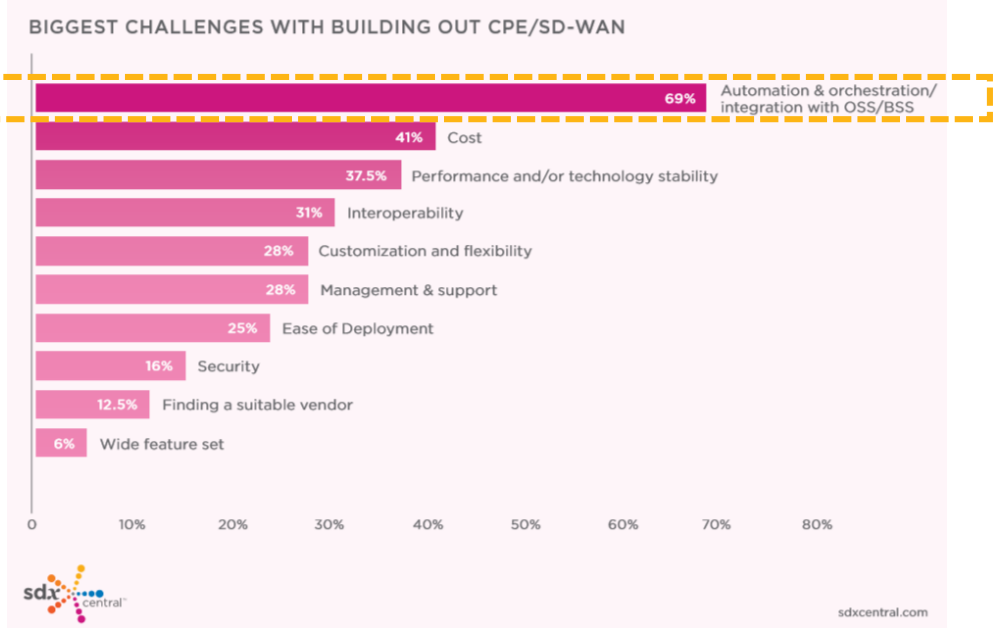
Hybrid WAN Example (in production)

Greenfield SDWAN Deployment	Greenfield SDWAN Deployment			Single End to End Orchestrator	MPLS replacement
Deploy SD-WAN service along with an Internet service to each customer location	**USE CASE 1** MPLS and SD-WAN with failover/dynamic path control	**USE CASE 2** **Mix of MPLS and SDWAN** sites with an interconnect	**USE CASE 3** An **overlay SD-WAN** with IP-VPN tunnels across MPLS and BB (future)	Project, Service Orders, Network (Physical/ underlay & Virtual / overlay SD-WAN)	Future



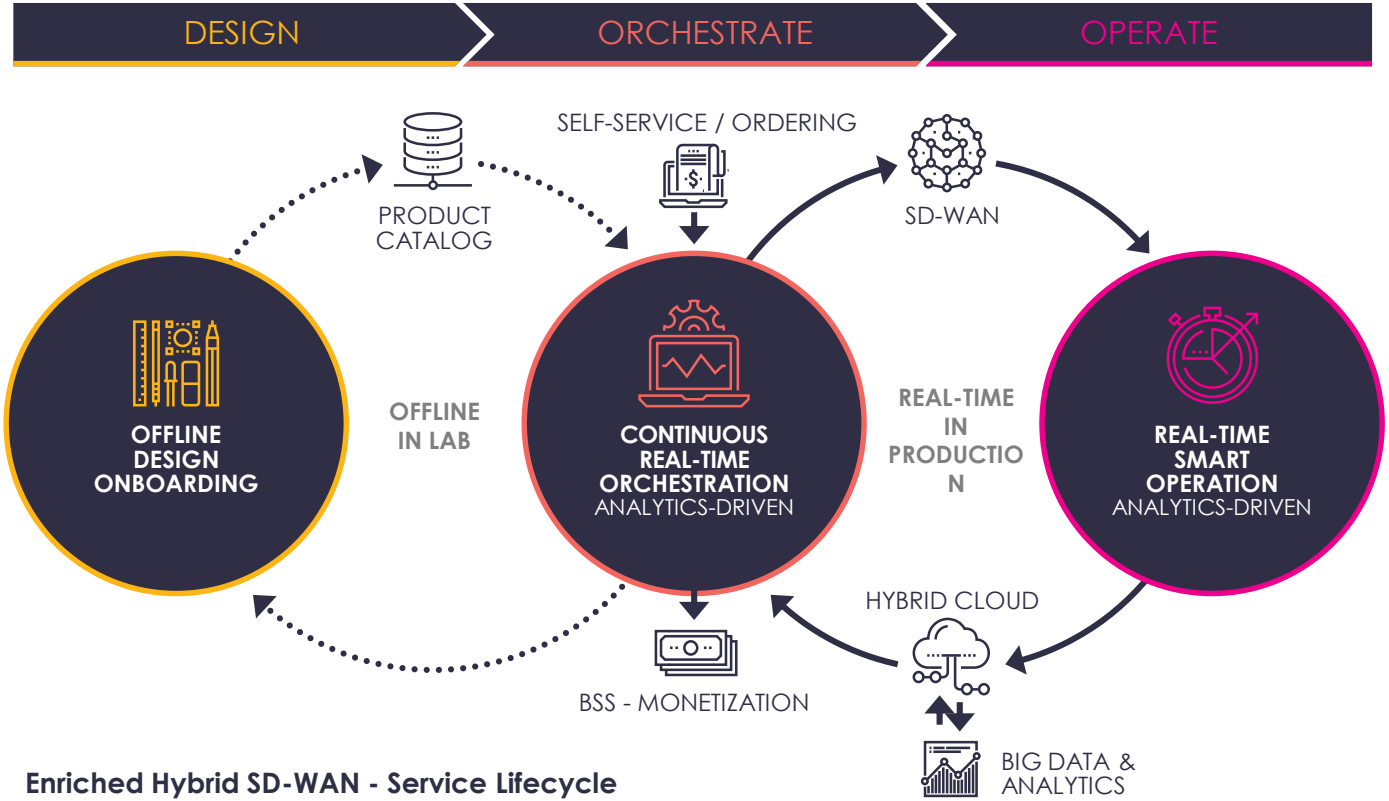
Leading NFV use cases and biggest challenges





Virtual Edge Expanding: The 2016 SD-WAN and vCPE Report
Custom Edition for SD-WAN Summit Sep. 2017

Challenges in deploying an SD-WAN solution



Enriched Hybrid SD-WAN - Service Lifecycle Management

Summary and Key Takeaways

Differentiation is key

Service providers need to leverage their uniqueness when providing SD-WAN – offer as carrier grade hybrid solution bundled with VAS services

Service lifecycle management is key

Management and Orchestration plays a crucial role for adding services connecting to exiting systems and analytics

Existing systems and processes must evolve

Service fulfilment, inventory, assurance and service operations must evolve to meet SD-WAN and other NGN services requirements