SD-WAN and The Enterprise Cloud Transformation
Driving the convergence of Cloud, Network and Security

December 2017

Joao Gomes
Director, Solutions and Business Development
Strategic Alliances - IBM
Cell: +1 650 224-6432
Email: joaog@juniper.net

Sandeep Dhingra
Global Head - Alliance and Consulting
IBM GTS Network Services
Cell: +1 408 893 8470
Email: dhingra@us.ibm.com
Confidentiality and Legal Notices

• This material contains information that is confidential and proprietary to IBM and Juniper Networks, Inc. Recipient may not distribute, copy, or repeat information in the document.
• This statement of product direction sets forth Juniper Networks’ current intention and is subject to change at any time without notice. No purchases are contingent upon Juniper Networks delivering any feature or functionality depicted in this presentation.
What is driving the Enterprise IT?

**OPERATING EXPENSES**  
# servers managed per admin

- **GOOGLE**: 1 per 10,000 servers  
  Each admin can operate ~10,000 servers

- **Ent/SP**: Less than 100  
  Each admin can manage up to ~100 servers = large headcount

**TIME TO SERVICE DEPLOYMENT**  
Code to production launch

- **AMAZON**: Few seconds  
  STAT MUX Service on Existing Infrastructure

- **Ent/SP**: 10-12 Months  
  Mobile Operators quote many months per service; mostly manually

**OPERATIONAL COMPLEXITY**  
# of SKUs to manage

- **GOOGLE**: 10s Configs  
  Google: ~10 shared hardware system bundles

- **Ent/SP**: Thousands configs  
  1000’s of SKUs to manage makes IT overly complex

---

Flexible business models  
Capex to Opex  
Subscription models  
Accelerate Time to Market  
Innovation and digital transformation
The Enterprise Cloud Transformation in motion

SD-WAN Branch Transformation

Mobile workforce

Branch Offices

Network Function Virtualization

Universal CPE

SD-WAN

Internet

MPLS

Security

Public Cloud

SaaS, PaaS, IaaS

Applications

Consolidation and Modernization to a Software Defined Environment

Enterprise Data Centers

Multi/Hybrid Cloud

Private Cloud

IBM Cloud

APIs, SDN, Automation, etc

Mobile workforce

Branch Offices

Network Function Virtualization

Universal CPE

SD-WAN

Internet

MPLS

Security

Public Cloud

SaaS, PaaS, IaaS

Applications

Consolidation and Modernization to a Software Defined Environment

Enterprise Data Centers

Multi/Hybrid Cloud

Private Cloud

IBM Cloud

APIs, SDN, Automation, etc
How Juniper Cloud CPE enables the SD-WAN Branch Transformation

Old Branch
- Multiple devices/Redundant Scaling
- High operational costs/Truck rolls
- Slow time-to-market / revenue
- Declining revenues
- High Touch (Configuration)
- Hard-wired Service Chains

Modern Branch
- Single universal CPE device with customizable services offering
- Services richness based on pay as-you-go software model
- Services installed in Branch or Telco Cloud
- Automated operations/Zero Touch Provisioning

Applications VNFs:
- WAN Opt. VNF
- Router VNF
- Firewall VNF
- SD-WAN VNF
- IT Applications VNF

Universal CPE NFX250

Device Consolidation
Simplified Operations with automation and plug & play deployment
IT/Software model to Networking and Security
Reduced Branches connectivity costs with Software Defined WAN
SD-WAN Architecture

SD-WAN
QoS and SLA using MPLS
Reduced cost per Mbps with traffic offload
Fast deployment with BB and Automation
Central policy enforcement
Management of SD-WAN Service
Distributed Security

MPLS IP-VPN
Excellent performance, QoS and SLA
High cost per Mbps
Long deployment times

Broadband Services
Low Cost per Mbps
Quick to Deploy
No QoS or SLA

Broadband

Hub & Spoke
Centralized Security
Un-efficient Cloud/Internet Traffic

Enterprise Data Center

Cloud-based Applications

Non-critical Applications

Enterprise

4G/LTE

Juniper/IBM confidential
Juniper Cloud CPE - Platform to deliver VNF Based Managed Services and SD-WAN

Service Orchestration
Contrail Service Orchestration

Infrastructure Orchestration
Contrail Networking + OpenStack = Contrail Cloud

Virtual Network Functions
vSRX and vMX and Third Party VNFs

CPE Devices
NFX Series
Network Services Platform
SRX Series
SD-WAN - Security

Service Hubs and Telco infra
SRX Service Gateways and MX Series Routers

Telco-Cloud

Service Orchestration (MANO)

Infrastructure Orchestration (VIM and VNF managers)

VNFs

Branch

Internet
**Typical enterprise requirements** are focused on improving the user experience, agility, and flexibility while enabling cloud delivery

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Improve user experience</strong></td>
<td>for employees, agents, partners, and clients – ensure all applications are usable wherever they are</td>
</tr>
<tr>
<td><strong>Enable cloud adoption</strong></td>
<td>interconnect company sites and clients effectively with cloud services and public Internet while ensuring reliable, high performance, and secure connectivity end-to-end</td>
</tr>
<tr>
<td><strong>Increase agility</strong></td>
<td>reduce network delivery as a barrier to quick business and application development and deployment while simplifying moves adds and changes throughout the environment</td>
</tr>
<tr>
<td><strong>Improve Security</strong></td>
<td>embed security into every network service by leveraging next generation security services</td>
</tr>
<tr>
<td><strong>Reduce risk</strong></td>
<td>improve network resiliency by diversifying carrier service and reduce errors through enhance automated provisioning</td>
</tr>
<tr>
<td><strong>Enable global business</strong></td>
<td>simplify global operations, vendors, technologies, management for various transport and equipment providers e.g. single pane of glass for management</td>
</tr>
</tbody>
</table>
IBM SD-WAN Values

1. Global SD-WAN Cloud Platform
2. Comprehensive Security Model
3. Applied Cognitive Analytics to Management and Monitoring
4. “Services” vs “Systems” Integration Approach
5. Services scale, reach and multivendor expertise
Removes the data center as hub of the network

Enables flexible selection of carrier services

Leverages Internet VPN to reduce cost by 20-30%

Provides access to multiple carriers and high capacity connections to cloud service providers

Consolidates multiple independent networks into one global network

Provides access to all applications from any location
Leveraging IBM Cloud Footprint

Data Centers
55 Total
IBM cloud data centers

Network Architecture
3 Networks
separate public, private, and internal management networks

Connectivity
+15 Tbps
global backbone connectivity

*Designates a location where IBM operates multiple cloud data centers.*
The IBM SD-WAN Service provides a management platform for operations as well as future technology innovation

- The service is a fully managed service, customers gain visibility and insight into network operations and performance through a single portal.
- Independence from providers leading to greater speed to market and flexibility for moves, adds and changes in the network at contained cost.
- Global coverage with the strongest provider for each geographical area.
- Reduced latency for Cloud Connectivity.
- Typically up to 30% more bandwidth and 25% lower MPLS costs.
- Automated load sharing, high availability and integration across multiple providers.
**IBM Secure SD-WAN - Security Hubs**

**CUSTOMER Branches**
- Branch office
- Wireless centric site
- Legacy site
- Remote user

**WAN TRANSPORT**
- Internet VPN
- MPLS

**SECURITY HUB**
- QRADAR (SEIM, FLOW, FORENSICS)

**IBM PEERING POINT**
- Secure VPN

**CLOUD RESOURCES**
- WATSON IOT
- SOFTLAYER
- INTERNET
- AWS
- AZURE

**Available Security Features**
- Next Gen firewall
- IPS
- Anti-spam
- URL Filtering
- Malware / AV detection
- Command & control traffic detection
- Geo IP blocking
- SSL VPN
- IPSec
- Dynamic routing (eBGP, iBGP, OSPF)
- QoS
- User FW with machine identification
- SSL forward proxy
Build an agile ITaaS environment to meet ever-changing business needs by:

- Establishing a catalog of composable, compatible services
- Seamlessly integrating the right mix of services, at scale
- Establishing end-to-end governance

Ensure a client's environment is always on, always secure, always improving by focusing Watson on three main objectives:

- Designing superior IT solutions
- Managing IT operations
- Optimizing IT performance
We are reinventing the Services model ... shifting from a Systems Integrator to a Services Integrator and driving technology led services.

From **systems integration** to achieve IT outcomes

To **services integration** to enable business outcomes

---

**Workloads**

- **Mainframe**
- **Storage**
- **Server**

**Network**

**Security**

---

**ITaaS Environment**

- **Workloads**
- **Brokerage**
- **IBM Services**
- **3rd Party Services**
- **Orchestration**
- **Operations**

**Software-Defined Hybrid Cloud Environment**

- **Traditional IT**
- **Private Cloud**
- **Public Cloud**

Hybrid Networks – Private, Public, Physical, Virtual, SD-WAN, SD-LAN, SD-Access, SD-Things

Security, Cognitive, Analytics, Automation and DevOps

Juniper/IBM confidential
IBM GTS provides a broad set of modular services to address the Enterprise infrastructure needs

**Systems Services**
Build and manage highly efficient infrastructure to respond to change and drive innovation

- 300+ client and IBM data centers under management

**Mobility Services**
Plan your approach, manage devices and end-user applications and related network infrastructure

- 5.5M+ mobile devices under management

**Resiliency Services**
Maintain business continuity and recover critical business applications no matter the circumstances

- 2.3+ Exabytes backed up annually

**Networking Services**
Design, implement and manage integrated communications and networking environments

- 270K+ network devices under management

**Technology Support**
Simplify management and streamline maintenance of IBM and multi-vendor environments

- 30,000+ products covered by Multi-Vendor Services

**Cloud Services**
Reinvent your business with the power of cloud computing

- 50+ cloud data centers across six continents

**Security Services**
Protect your enterprise from complex IT security threats while reducing costs

- 35B events managed per day in more than 130 countries
IBM Hardware and Software Support Services has the depth and breadth to deliver speed and quality.

- **Speed + Quality**

IBM support is designed to:
- **Prevent** downtime with proactive, first-rate service
- **Resolve** outages faster if they do occur to better protect your brand
- **Optimize** IT and user productivity—and revenue—to enhance business results
- **Protect** your brand reputation and help keep your customer base
- **Simplify** support to save time, resources and costs

- **57 support centers** worldwide with regional and localized language support
- **19,000 IT support specialists** worldwide who know technology
- **585 parts centers** with 1.3 million IBM and non-IBM parts
- **30,000 multivendor products**
- **94% First-call hardware success rate**
- **40% Reduction in problem determination time by using IBM® Watson®**
- **A combined total of 6M hardware and software service requests**
- **11 global research laboratories**
- **114 hardware and software development laboratories**

Source: Based on internal IBM data
Enterprise Cloud Transformation is driving the convergence of Network, Security and Cloud with SD-WAN.

IBM Secure SD-WAN solution powered by Juniper combines:
- Cloud, Cognitive, Security, Services at global scale, from IBM
- Juniper technology innovation to deliver Secure SD-WAN as a Service

IBM and Juniper are jointly enabling the Enterprise Cloud Transformation in a holistic way including Network and Security.
IBM and Juniper Breakout Sessions @ NXTWORKS

- **Tuesday 10.30a to 11.20a - Breakout Session #1 – Security Transformation and Secure SD-WAN**
  Ritesh Agarwal and Ben Hendrick

- **Tuesday 11.30a to 12.20p - Breakout Session #2  SD-WAN and the Enterprise Cloud Transformation - Convergence of Cloud, Network and Security**
  Joao Gomes and Sandeep Dhingra

- **Tuesday 4.30p to 5.20p - Customer Use Cases and Transformation Journey with Juniper Cloud CPE/SD-WAN Solutions**
  Ripin Checker + Steve Teitzel + customer

VISIT US @ IBM BOOTH
THANK YOU