

Software Defined Networking

THAT'S THE ANSWER

WHAT'S THE QUESTION?

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Level Setting



Software Networking Definitions

SOFTWARE
DEFINED
NETWORKING

Programmatic

Still
Don't
kNow

NETWORK
FUNCTIONS
VIRTUALIZATION

Not
For
eVeryone

Network Design for the New Era

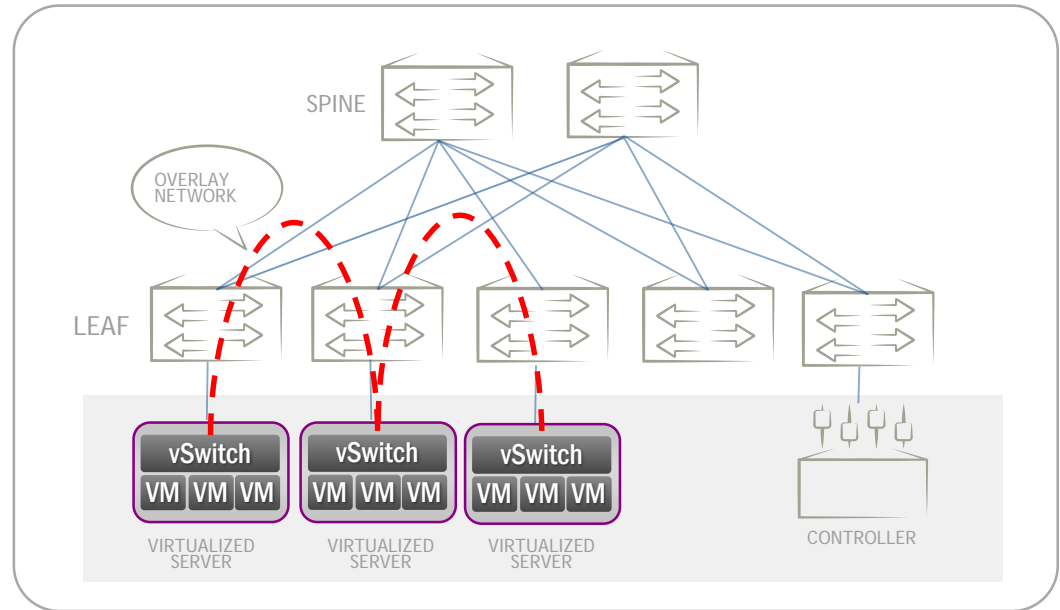


Ok, Now What?



Network Virtualization with Overlays

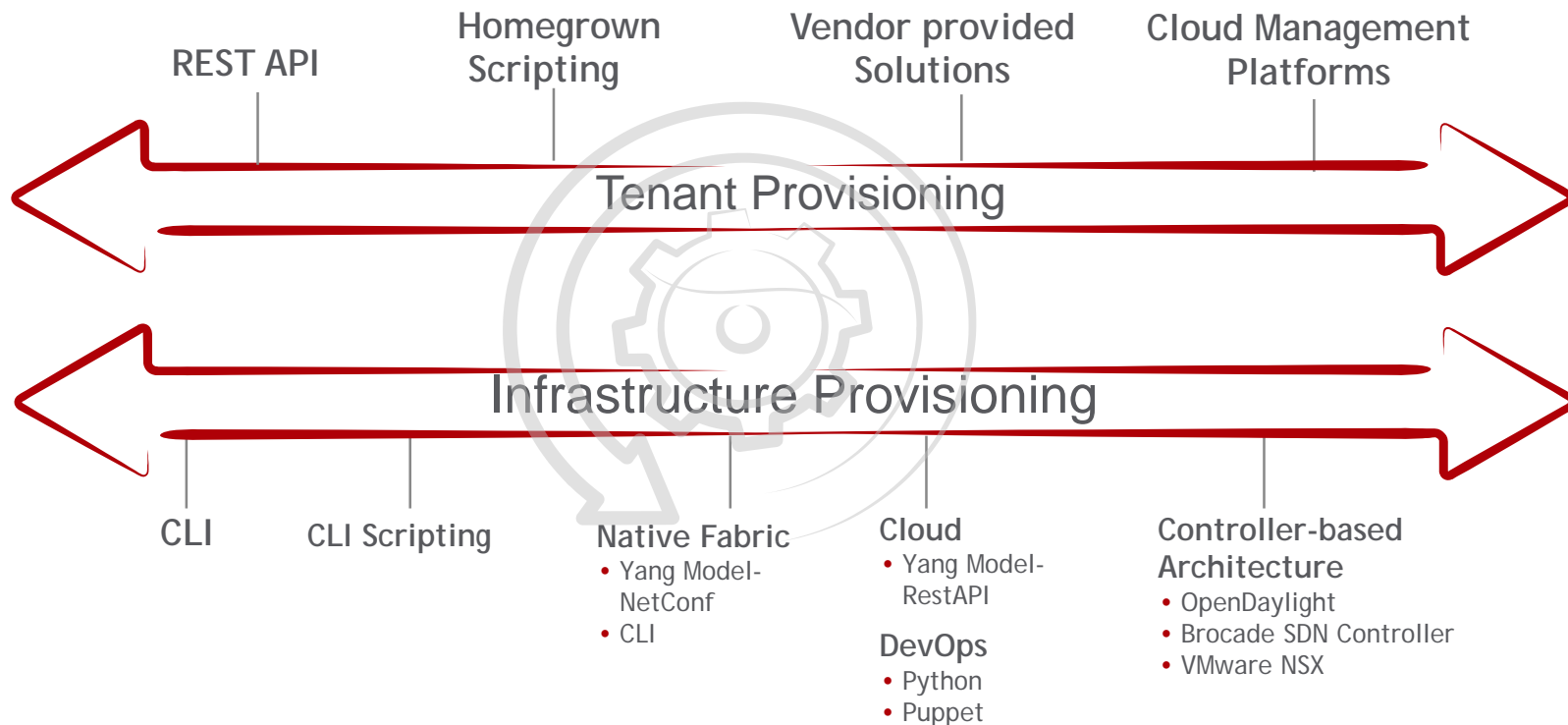
- NV is an approach which provides a flexible virtual network atop an existing physical network infrastructure using an overlay technology
- NV helps automate network configuration while provisioning applications/tenants
- NV provides a scalable, multi-tenant virtual network via overlay technology



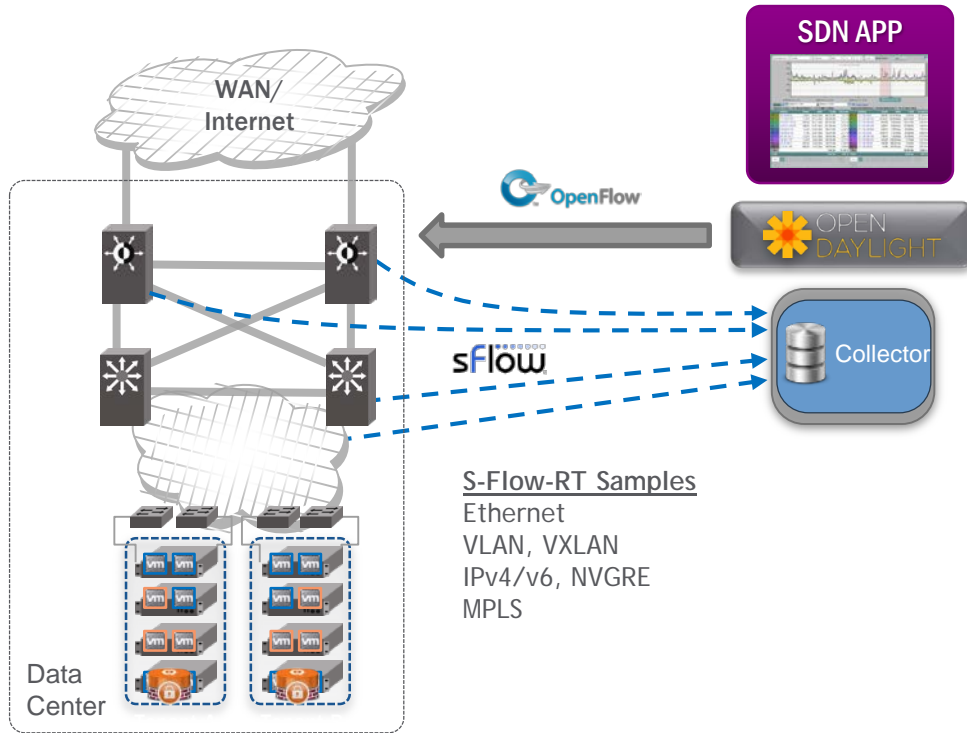
NETWORK VIRTUALIZATION WITH HYPERVISOR BASED OVERLAY NETWORKING



Network Automation & Orchestration



Network Programmability

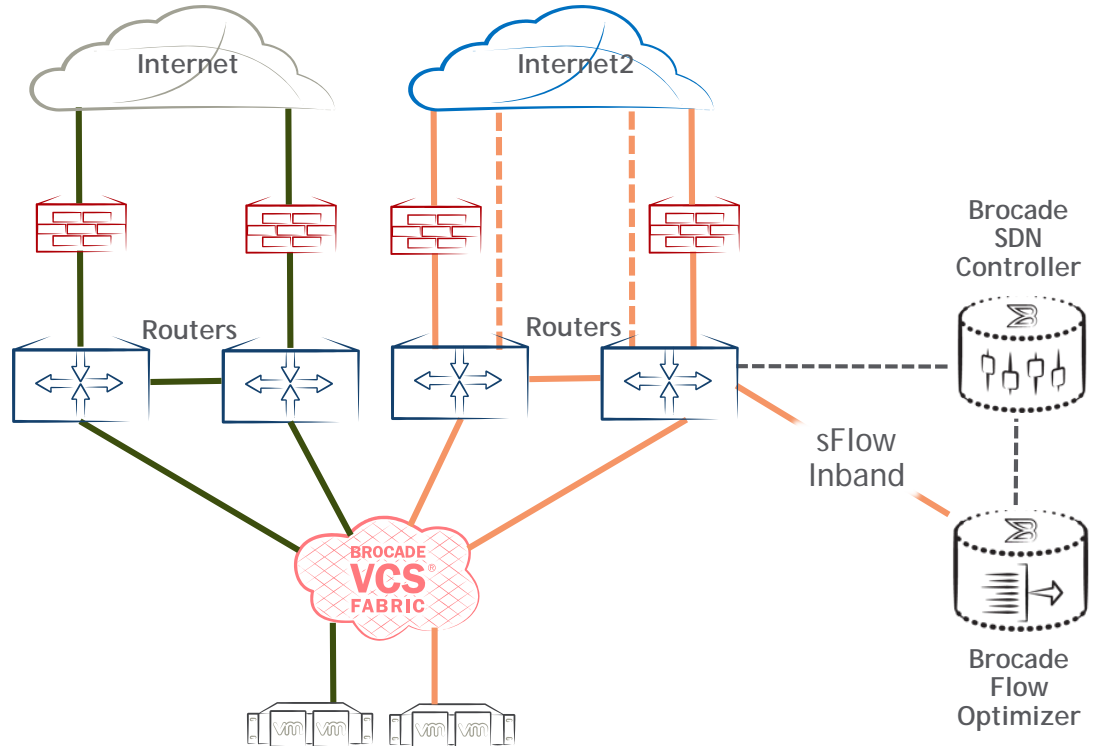


- Sample Traffic and Stats
 - Core and Leaf/Spine devices
 - sFlow-RT samples and ACL stats
- Post Analysis
 - Analyze DC L2-L4 usage/reporting
 - Adhoc Troubleshooting
 - Identify reliability issues due to mis-configurations (storms)
- Reporting/Trigger based use cases
 - Drop, Re-direct or Replicate
 - OpenFlow 1.3 (Upto 128K flows per device)

Intelligent Flow Management

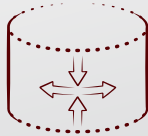
Solution Benefits

- Firewall Bypass
 - Provide high performance file transfers for trusted research traffic directly to Internet 2
- Brocade SDN Controller
 - OpenDaylight software supported by Brocade



Network Functions Virtualization

vRTR



- Virtualized router
- Network Segmentation in Cloud
- Tenant Router

vFW



- East-West DC FW
- Cloud based FW
- Virtual edge FW

vVPN

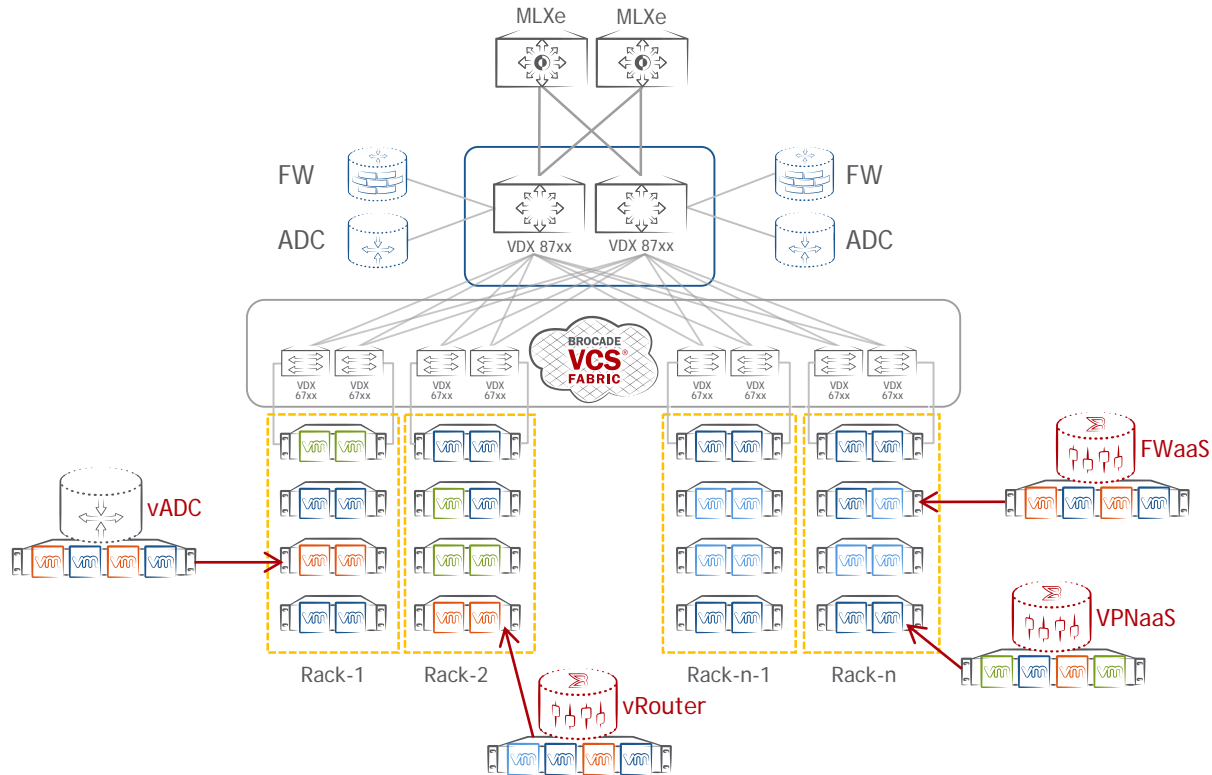


- Site-2-site
- Remote access to the cloud
- Hybrid cloud VPN

Management: CLI, GUI, SNMP, Syslog, RESTful API, Netconf/Yang

Platforms: VMware, KVM, Hyper-V, Xen, x86

Network Functions Virtualization in the DC

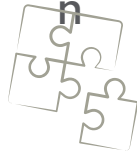


The Road to Nirvana

Hardware Underlay



Orchestration



Programmability



Policy Driven



- Majority of infrastructure not SDN capable
- Move from legacy 3 tier to Ethernet Fabric in DC

- First step in the journey of SDN for many
- Software skills are extremely critical for success

- Use case scenarios will vary by each environment
- Apps emerging that address specific needs

- A true paradigm shift in how networking is implemented
- Silos broken down to support a horizontal focus



Who Would You Rather Be?

Old School



The New IP



Thank you