SD-WAN Lab Demo
Simplicity of use

BORIS ILOVAR, Fast Lane CEE
CTO
27.03.2019
SD-WAN Overview
Cisco’s Intent-based Networking
What is SD-WAN?

Cisco SD-WAN = Cisco + Viptela
VIPTELA

- Acquisition from 2017
- Cisco is committed to Viptela’s SDWAN solution and architecture
- Integrated into Cisco HW (ASR, ISR, Meraki SDWAN, …)
- Cloud-first mgmt with flexible deployment options
- Solution simplifies mgmt, increases agility, reduces the costs associated with interconnecting dispersed enterprise networks
Cisco Fabric Architectures
Why Fabric Architectures

- Simplicity and Mobility
- Automation
- Overlay on Any Transport
- Consistent Policy Enforcements
- User/Device Identity Network Wide
- Policy Abstraction at User/Group and Application levels
Cisco SD-WAN Solution Overview

- **Management/Orchestration Plane**
- **Control Plane**
- **Data Plane**

- vBond
- vAnalytics
- vManage
- APIs
- 3rd Party Automation
- vSmart Controllers
- vEdge Routers
- Cloud
- Data Center
- Campus
- Branch
- SOHO
- MPLS
- INET
- 4G
Cisco SD-WAN Solution Overview (Cont.)

- vBond
  - Orchestrates Control and Mgmt Plane
  - First Point of Authentication
  - Distributes list of vSmarts/vManage to all vEdge routers

- vSmart Controller
  - Control Plane Function Separated From Routers
  - Implements Control Plane Policies
  - Distributes Data Plane and App-aware Routing Policies to vEdge routers
  - Dramatically Reduces Control Plane Complexity
Cisco SD-WAN Solution Overview (Cont.)

- vEdge Router
  - WAN Edge Router
  - Secure Data Plane
  - Establish Secure Control Plane with vSmart Controllers (OMP)
  - Implements Data Plane and App-aware Policies
  - Exports Performance Statistics

- vManage
  - Single Pane of Glass for Day0, Day1, Day2 Operations
  - Centralized Provisioning
  - Troubleshooting, Monitoring, Software Upgrades
Cisco SD-WAN Solution Overview (Cont.)

- APIs
  - Programmatic Control Over All Aspects of vManage
  - Secure HTTPS Interface, Authentication, Authorization
  - Python Scripting, …

- vAnalytics
  - Analyzes Fabric Telemetry
  - Capacity Projections
  - SLA violation trends
  - Optional module
  - Cloud only
## Cisco SD-WAN Products Portfolio

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
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<tbody>
<tr>
<td>No Integration</td>
<td>Platform Integration</td>
<td>Management Integration</td>
</tr>
<tr>
<td>vManage vSmart</td>
<td>vManage vSmart</td>
<td>DNA Center + SD-WAN</td>
</tr>
<tr>
<td>vEdge</td>
<td>vEdge</td>
<td>vEdge</td>
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<tr>
<td>ISR4K SD-WAN</td>
<td>ISR4K SD-WAN</td>
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- **Phase 1**: Support and Scale the current sales motion
- **Phase 2**: Viptela SD-WAN on strategic ISR platform
- **Phase 3**: Deliver end-to-end experience with full DNA integration
Cisco SD-WAN Policy Orchestration Process

1. **vManage GUI – Policy Orchestration**

2. **vSmart controller – Policy Enforcement/Advertisement**

3. **vEdge WAN router – Access Layer Branch/DC**

- **Control Policy:** Routing and Services
- **App-Route Policy:** App-Aware SLA-based Routing
- **Data Policy:** Extensive Policy-based Routing and Services

Combine and Apply per Site

Execute Control Policy
Advertise AAR/Data Policies to Sites

Execute AAR and Data Policy as received
Dynamic Routing and Policies Combine to dictate behavior
vManage GUI
vManage Dashboard
vManage Dashboard – Device Interfaces
vManage Dashboard – SSH to Devices
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