Cisco SD-WAN
Intent-based networking for the branch and WAN

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PSS EN Spain
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Google Trends

Source: Google, SD-WAN searches 5yrs ending August 2017
Unprecedented demands on the network

Digital Disruption
- 63 million new devices online every second by 2020¹

Complexity
- 3X spend on network operations vs network²

Security
- 6 months to detect breach³

Lack of Business and IT Insights

Slow and Error Prone Operations

Unconstrained Attack Surface

¹ Gartner Report - Gartner’s 2017 Strategic Roadmap for Networking
³ Ponemon Research Institute Study on Malware Detection, Mar 2016
The branch and WAN cannot keep up…

- Poor user experience:
  - Delays enabling new connectivity
  - Inconsistent application performance

- Complex to operate:
  - Difficult to manage multiple network devices
  - Increasing bandwidth demands

- Difficult to secure:
  - Support non-traditional devices
  - Can’t use the internet for SaaS
Cisco SD-WAN
Intent-based networking for the branch

4x Improved Application Experience

40% WAN OpEx Savings

3.24h Time to detection

Better user experience
Deploy applications in minutes on any platform with consistent application performance

Greater agility
Simplify the deployment and operation of your WAN and get faster performance using less bandwidth

Advanced threat protection
Securely connect your users to applications and protect your data from the WAN edge to the cloud
What defines Enterprise Class SD-WAN

- Application SLA
- Traffic Engineering
- Per-Segment Topologies
- Secure Perimeter
- Cloud Path
- Cloud Acceleration
- Transport Hub

APPLICATION POLICIES

- Routing
- Security
- Segmentation
- QoS
- Multicast
- Svc Insertion
- Survivability

SERVICES DELIVERY PLATFORM

- Broadband
- MPLS
- Cellular

TRANSPORT INDEPENDENT FABRIC

- ZERO TOUCH
- ZERO TRUST

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Cisco SD-WAN Architecture

Cloud managed and controlled fabric

Application quality of experience

Transport Independence

End-point flexibility (Physical or Virtual)

Integrated Security

Control | Management | Analytics

Internet | MPLS | 4G LTE

Data Center | Campus | Branch | Public Cloud
Intent-based networking for the branch and WAN

- Centralized cloud managed fabric
- Transport independence
- End-point flexibility
- Learnign
- Integrated security
- Application quality of experience
- Security
- Context
- Inten
- Transport independence
The Network. Intuitive.
Constantly learning, adapting and protecting.

DNA Center
Policy  Automation  Analytics

Intent
LEARNING

CONTEXT
Intent-based Network Infrastructure

SECURITY

Turns business intent to business results

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Comprehensive threat protection
Integrated security

- Meet industry compliance with end-to-end segmentation
- Reduce attack surface with cloud and on-prem security
- Talos threat intelligence protects all users devices
## Best of breed trusted security services

<table>
<thead>
<tr>
<th>Cloud Security</th>
<th>Traditional Firewall</th>
<th>Next Gen Firewall</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Umbrella Branch</strong></td>
<td><strong>ASAv</strong></td>
<td><strong>NGFWv</strong></td>
</tr>
<tr>
<td>Cloud-delivered security</td>
<td>Multilayered protection</td>
<td>Advanced defense for end-to-end protection</td>
</tr>
<tr>
<td>First layer of defense against threats at branch offices</td>
<td>Integrated approach that consolidates security services in a single platform</td>
<td>Harden virtual services and enable secure access</td>
</tr>
<tr>
<td>Visibility and enforcement at the DNS layer</td>
<td>Optimized for DC, designed for NFV</td>
<td>On-premise or cloud management</td>
</tr>
</tbody>
</table>

Secure Overlay | Trustworthy Systems | Encrypted Traffic Analytics*
Easier to deploy, manage and operate
Centralized cloud managed fabric

✅ Cloud-first management and operations with a single WAN fabric across all end-points

✅ Simplified workflows for easier configuration, monitoring and troubleshooting.

✅ Advanced analytics and assurance for application service level agreement
Simplify migration to the cloud
Application quality of experience

- Secure branch to cloud connectivity protects data in motion
- Agile workflows simplifies extending the enterprise to IaaS or SaaS
- Analytics determines the optimal path for the best application experience
Deploy branches faster at lower cost
Transport independence

✔ Leverage internet for public cloud and Internet access

✔ Secure VPN overlay for private and virtual public cloud access

✔ Seamless extension to the cloud enables business policy to follow workloads
Reduce complexity for remote sites
Single rich services branch platform

SD-WAN
Unified Communications
Cloud Based Security
Application hosting
Application Optimization

- Easy to deploy and manage services on-demand
- On-demand physical and virtual form factors
- Best of breed trusted network services
Deploy rich services across on any platform
End-point flexibility

<table>
<thead>
<tr>
<th>Branch virtualization</th>
<th>Public Cloud</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENCS 5100</td>
<td>Microsoft Azure</td>
</tr>
<tr>
<td>• Up to 250Mbps</td>
<td>Web services</td>
</tr>
<tr>
<td>ENCS 5400</td>
<td>Amazon web services</td>
</tr>
<tr>
<td>• 250Mbps – 2GB</td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>SD-WAN</th>
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<tbody>
<tr>
<td>vEdge 100</td>
</tr>
<tr>
<td>• 100 Mbps</td>
</tr>
<tr>
<td>• 4G LTE &amp; Wireless</td>
</tr>
</tbody>
</table>

| vEdge 1000 |
|• Up to 1 Gbps |
|• Fixed |

| vEdge 2000 |
|• 10 Gbps |
|• Modular |

<table>
<thead>
<tr>
<th>Branch Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISR 1000</td>
</tr>
<tr>
<td>• 200 Mbps</td>
</tr>
<tr>
<td>• Next-gen connectivity</td>
</tr>
<tr>
<td>• Performance flexibility</td>
</tr>
</tbody>
</table>

| ISR 4000 |
|• Up to 2 Gbps |
|• Modular |
|• Integrated service containers |
|• Compute with UCS E |

| ASR 1000 |
|• 2.5-200Gbps |
|• High-performance service w/hardware assist |
|• Hardware & software redundancy |

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Cisco SD-WAN
Open and Programmable

DevNet Cisco Developer Program
Program your network stronger, simpler, and faster – build and develop with Cisco APIs

Cisco IOS XE
Improve security and reliability with an open and programmable network operating system

3rd Party VNF’s
Customizable for ’best of breed’ virtual network functions

Easier to integrate with third-party solutions
What Is Enterprise NFV?

Centralized Orchestration and Management
SDN Applications

Consistent, trusted network services across all the platforms
Virtual network functions (VNFs)

Hardware and software independence
Virtualization layer

Freedom of choice
Hardware platform
Introducing Cisco Enterprise NFV
Network Services in Minutes, on Any Platform

Cisco Enterprise Service Automation (ESA) on DNA-Center
Network Services Orchestrator (NSO)

Virtual Router (ISRv)
Virtual Firewall (ASAv)
Virtual WAN Optimization (vWAAS)
Virtual Wireless LAN Controller (vWLC)
Third-Party VNFs

Network Functions Virtualization Infrastructure Software (NFVIS)

Cisco 4000 Series ISR + UCS® E-Series
Enterprise Network Compute System (ENCS)
Cisco® UCS C-Series
What Enterprise NFV Can Do For You

- Quickly roll out new services and locations
- Gives you flexible deployment options
- Simplify day to day operations

Simple and easy to design, provision, manage the trusted services that are critical to your business