



You make **possible**



# SD-WAN and the Evolution of the WAN Edge

Cisco Live - 2020

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@lloydno

PSORST-1020

**CISCO** *Live!*

Barcelona | January 27-31, 2020



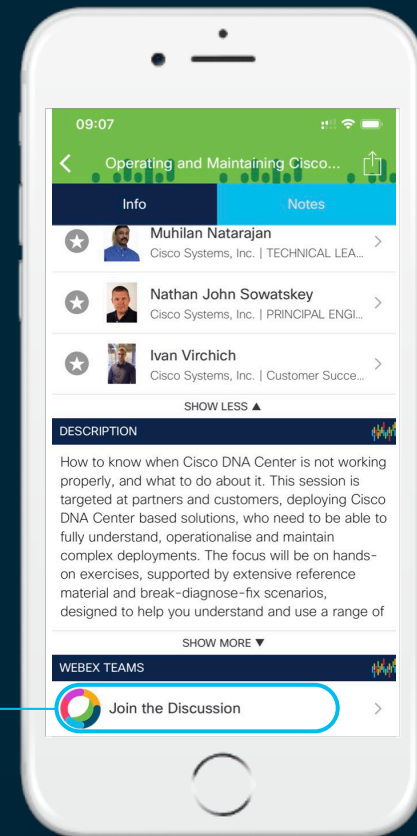
# Cisco Webex Teams

## Questions?

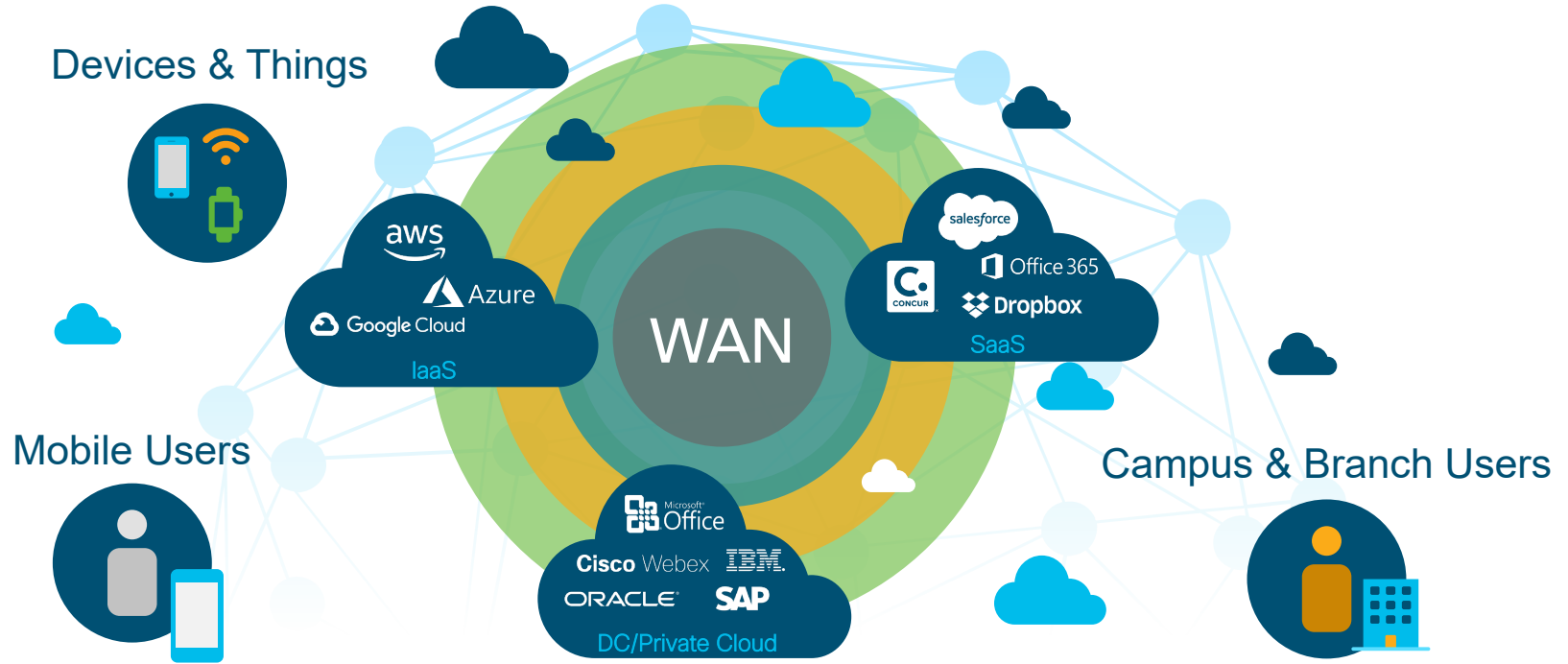
Use Cisco Webex Teams to chat with the speaker after the session

## How

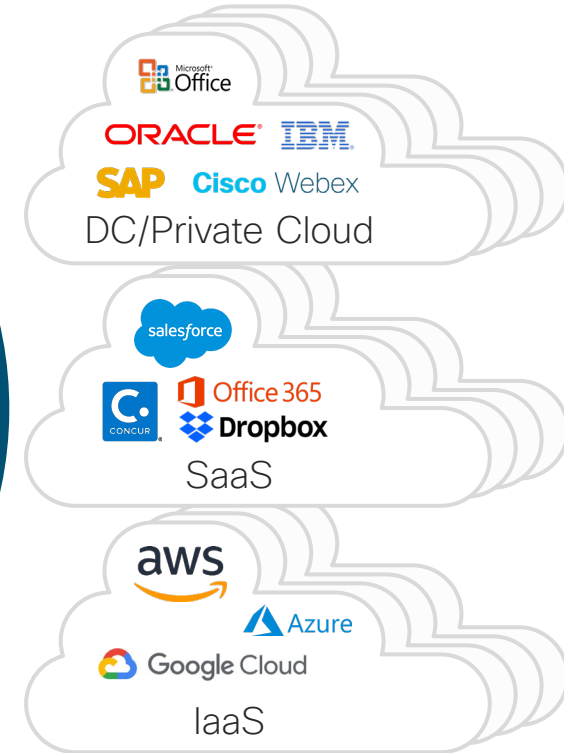
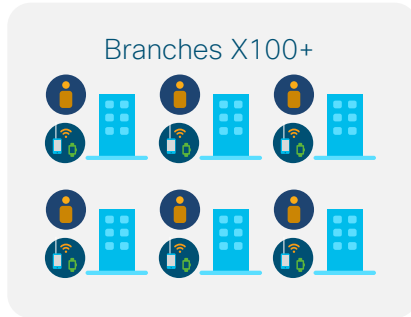
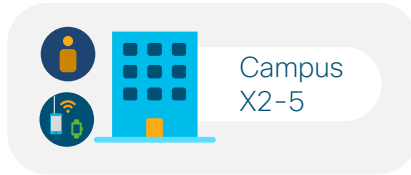
- 1 Find this session in the Cisco Events Mobile App
- 2 Click “Join the Discussion”
- 3 Install Webex Teams or go directly to the team space
- 4 Enter messages/questions in the team space



# It's a Multicloud World



# Multicloud Break Traditional WANs



More users, things and applications, everywhere

# Multicloud Needs Comprehensive SD-WAN Capabilities

## Summary of Basic SD-WAN Capabilities\*

Circuit Load Balancing  
Direct Internet Access  
Centralized Management & Orchestration  
Circuit Cost Savings



## Cisco SD-WAN Extended Capabilities

Multi-Domain IBN Network



Multi-Domain

Multi-layered Security



Cloud / OnPrem Security



Secure Segmentation

Multi-Cloud Optimization



SaaS  
Optimization



IaaS  
Onboarding



App Aware  
Dynamic Routing



SD-WAN Fabric

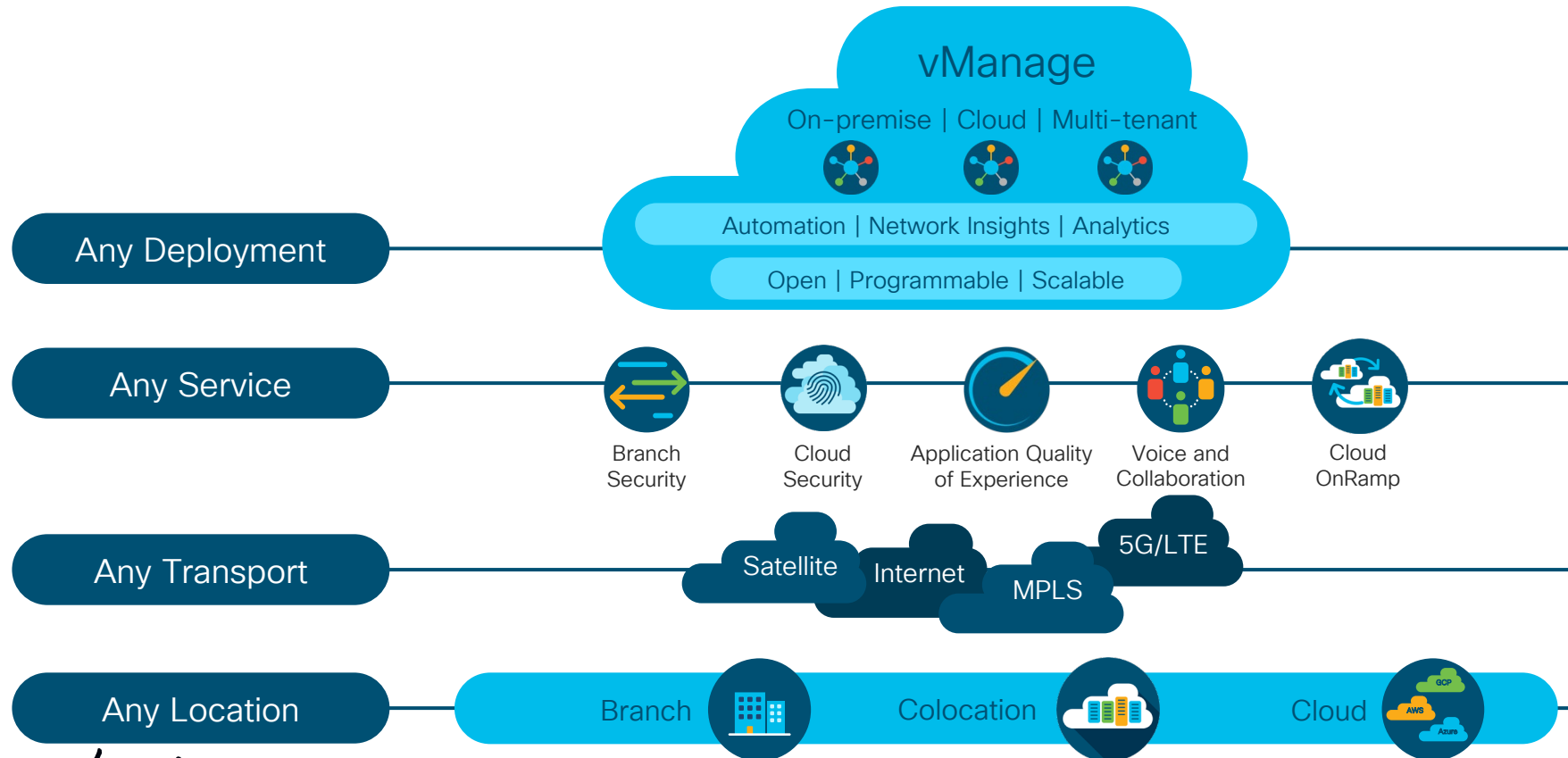


vAnalytics



Voice

# With Secure Cloud Scale SD-WAN Architecture



# Key benefits of cloud-scale SD-WAN

## Predictable application experience



Support evolving business application strategy

Cloud OnRamp for IaaS, SaaS and Colocation

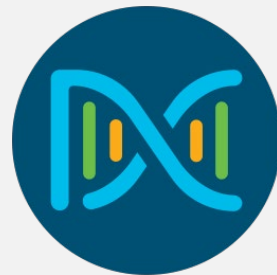
## Right security, right place



Segmentation across the entire network stack

Integrated full stack branch security

## Enterprise grade, simplified



Intent-based networking with multi-domain policy

Proven deployments to over 10,000+ sites

vManage: One user interface across branch, cloud and co-location



# Multicloud And Security

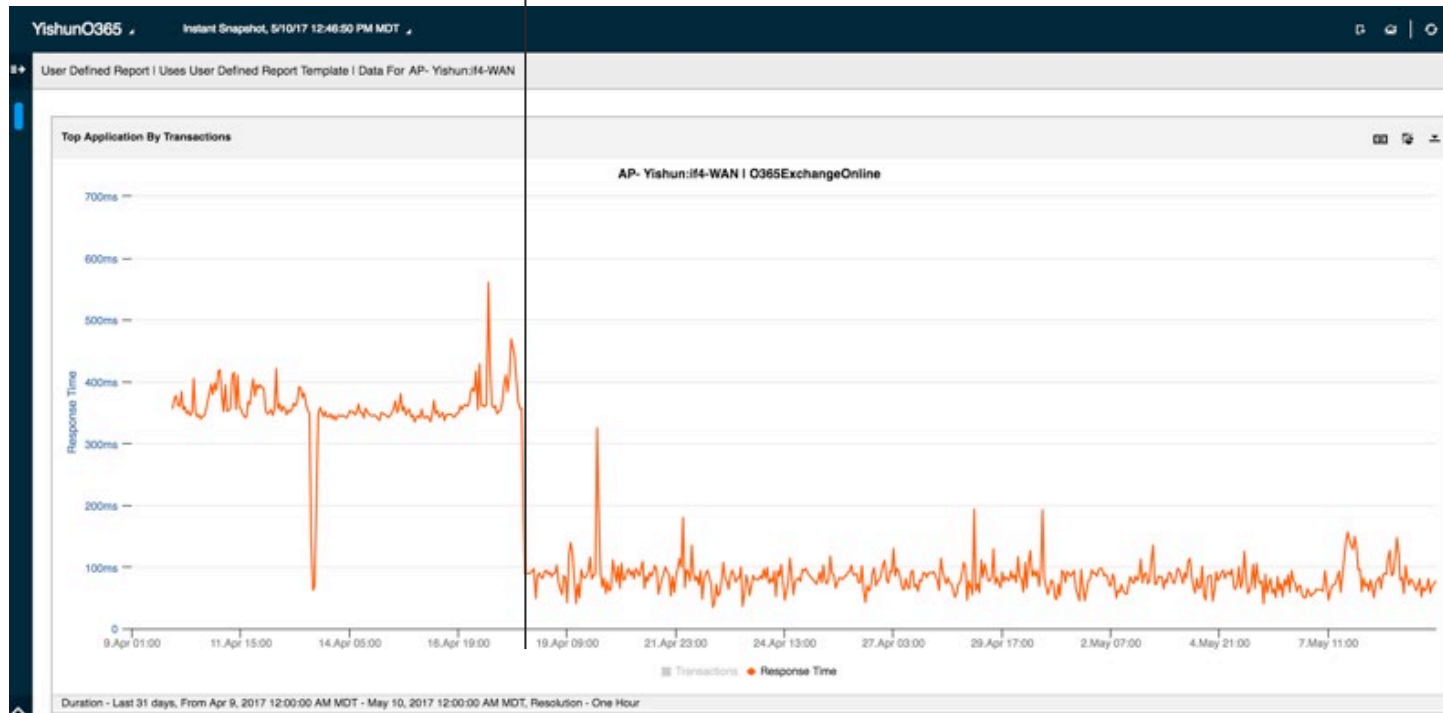
# Office365 Performance: Before/After SD-WAN

←  
380ms

→  
93ms



**Agilent  
Technologies**

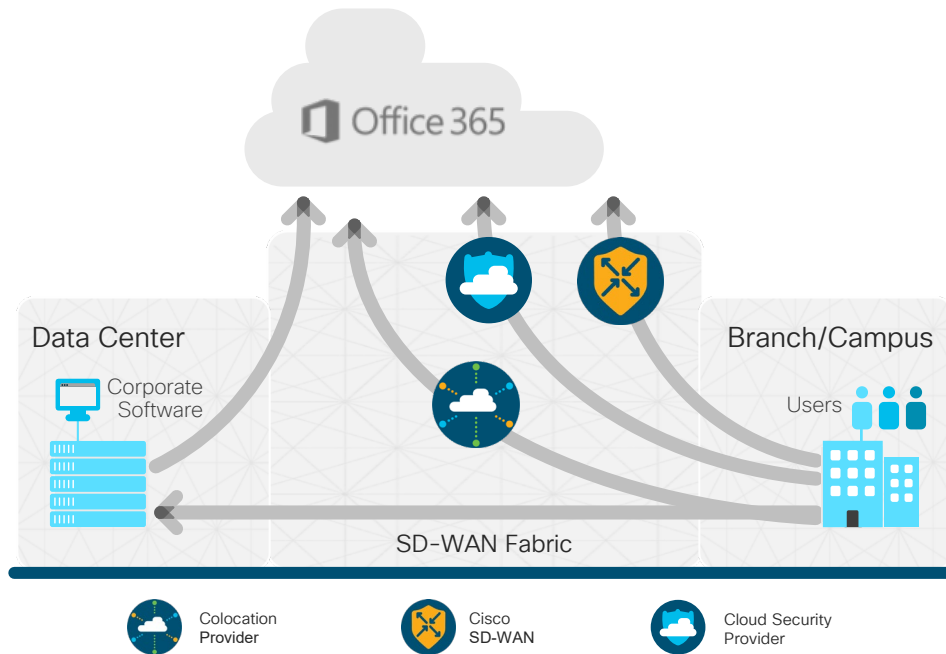


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# And More Office 365 Optimization is Possible

## Optimization via multipath

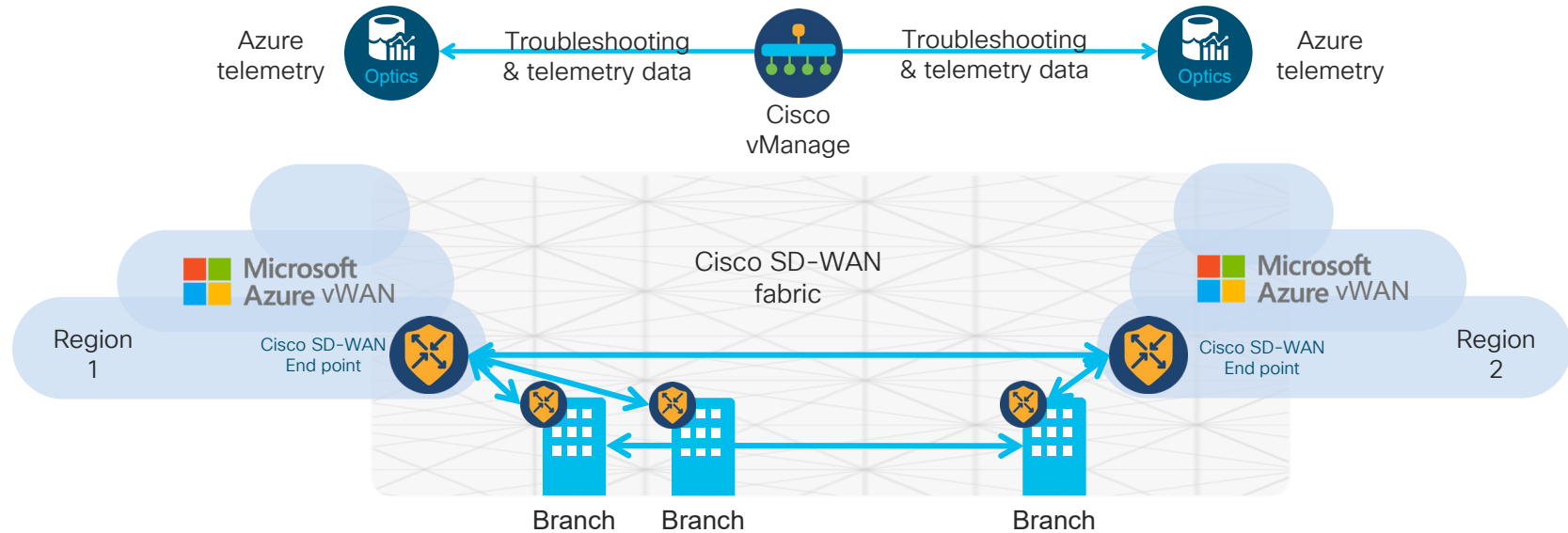
- Policy based enablement of DIA
- Dynamic path selection
- O365 application aware prioritization



Increased reliability and utilization of best path for SaaS applications

# Cisco SD-WAN integration with Microsoft vWAN

Deep integration between CSR SD-WAN and Azure Virtual WAN

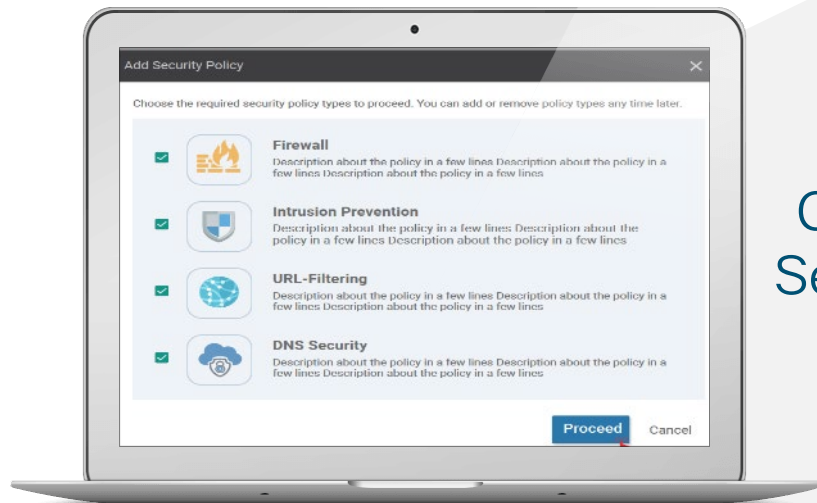


CSR SD-WAN Endpoint in vWAN Hub

Auto Peering with vWAN Hub

Policy synced with vWAN and vManage

# Combining Best of Breed in Security and SD-WAN



Cisco SD-WAN

Cisco  
Security

**Enterprise Firewall**

+1400 layer 7 apps classified

**Intrusion Protection System**

Most widely deployed IPS engine in the world

**URL-Filtering**

Web reputation score using 82+ web categories

**Adv. Malware Protection**

With File Reputation and Sandboxing (TG)

COMING  
SOON!

**Secure Internet Gateway**

DNS Security/Cloud FW with Cisco Umbrella

COMING  
SOON!

**SSL Proxy**

Detect Threats in Encrypted Traffic



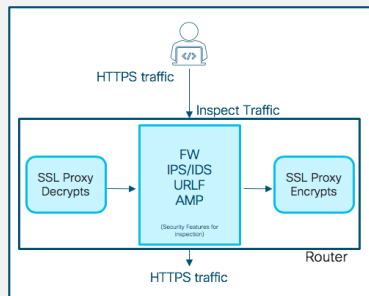
Hours instead of weeks and months

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# SD-WAN Security Features – Overview

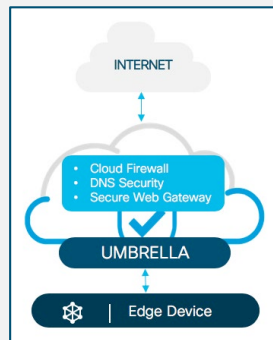
COMING SOON!

## TLS/SSL Proxy Support with SD-WAN



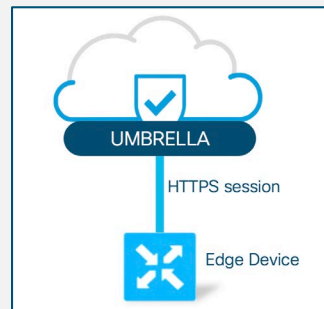
SSL Proxy helps to decrypt and inspect network traffic for malware

## IPSec Auto-Tunnel to Cisco Umbrella



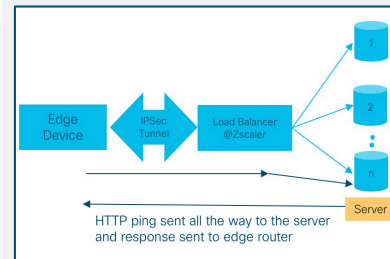
Push SIG feature template and setup IPSec tunnel to Umbrella SIG

## Auto-Registration to Cisco Umbrella



Smart Account enables Auto Registration & Provisioning between SD-WAN and Umbrella

## Layer 7 Health Check to Zscaler SIG



Deterministic way to ensure the network traffic to Zscaler SIG is not blackholed

# AppQoE for Voice & Internet Apps



**Consistent Voice SLA  
during temporary link  
problems**

new



**FEC**

+

**Packet Dup**

Fault tolerance for  
unreliable links



Redundancy for  
failures and unreliable  
links



**High Performance for  
SaaS & Internet**

**TCP Opt**

Lower latency & higher  
bandwidth for TCP



Comprehensive features for real-time application optimization

# Case Studies



# IDC Study of Eight SD-WAN Customers



- 8 Mid to Large Enterprises
- Healthcare, Financials, Retail, Technology, Energy/Manufacturing
- \$15+ Billion Median Revenue
- 200+ Apps Running on SD-WAN
- 13,000+ Median Internal Users
- 600+ Avg Branches

## Key Results



**33%**

More efficient WAN Management



**38%**

Lower 5-year cost of operations

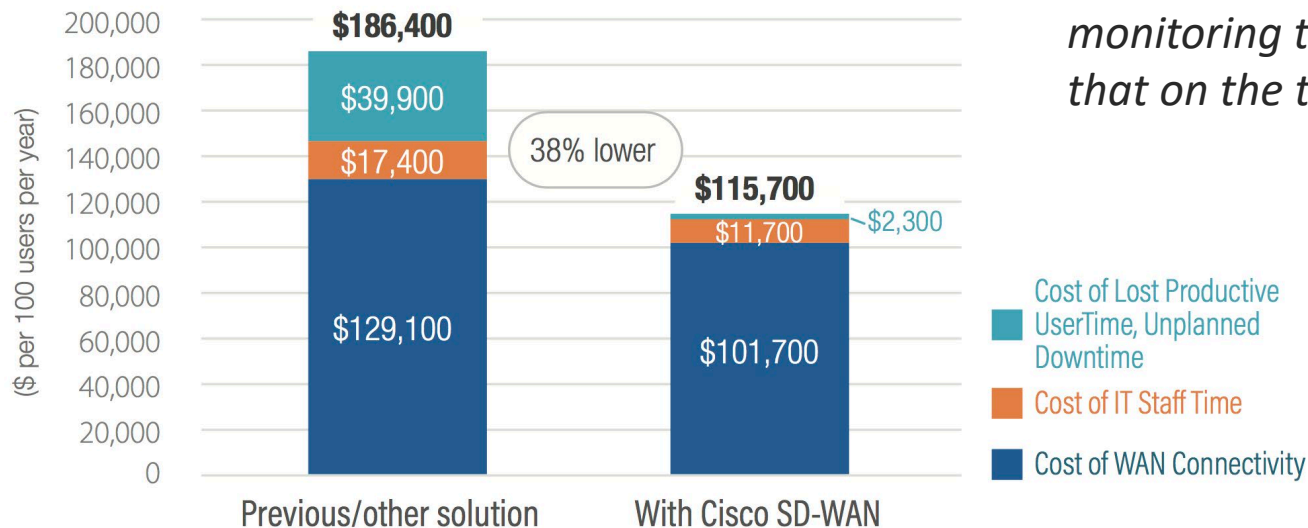


**45%**

Reduced app latency

[\*\*Download IDC SD-WAN Study\*\*](#)

# 38% Lower WAN Costs Over 5 Years



## Customer Quote

*"I would estimate a 40% reduction in time spent in troubleshooting and monitoring the environment – most of that on the troubleshooting side."*

# Significant Improvement in Business Productivity

## Business Agility and Performance Metrics



### Customer Quote

*"We've enabled cloud-based services – both SaaS and IaaS – where the 'network' is no longer the bottleneck. . . We've seen downtime shrink to almost zero, and we're doing all of this at a lower cost than before."*



# Johnsonville Sausages

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## Background

- DMVPN dual MPLS/MetroEthernet network
- Problems with Apps: SAP, Factory Automation, IoT, VDI, Office Productivity, Teleconferencing
- Operationally complex

## Results

- DMVPN to SD-WAN
- “lights on” migration during peak production hours
- Existing ISRs flashed to XE SD-WAN
- Zero CAPEX! All Hardware Cisco ASR/ISR Platforms were repurposed
- Enabled “Network on a Template” architecture. End to end provisioning. No Policy Drifts.



# National Instruments

## Background

- Full Mesh MPLS + DMVPN Backup
- 70 locations, 10+ Countries
- Replication of large files, painful delay
- Skype / Teams, poor audio/ video
- Citrix, keystroke lag (despite high priority Q)

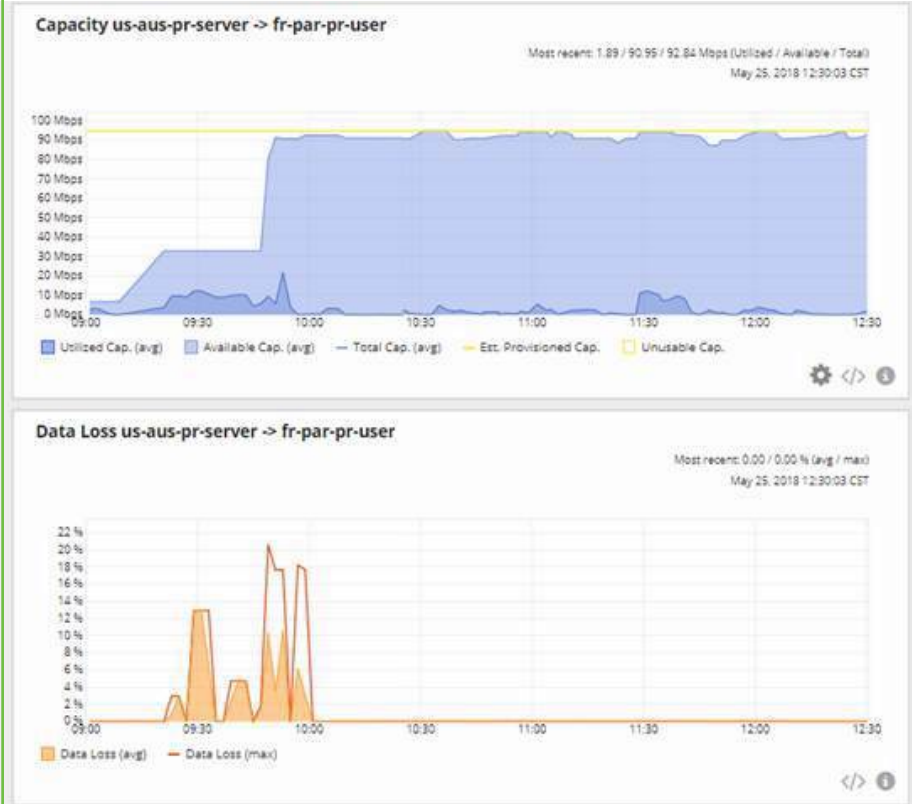
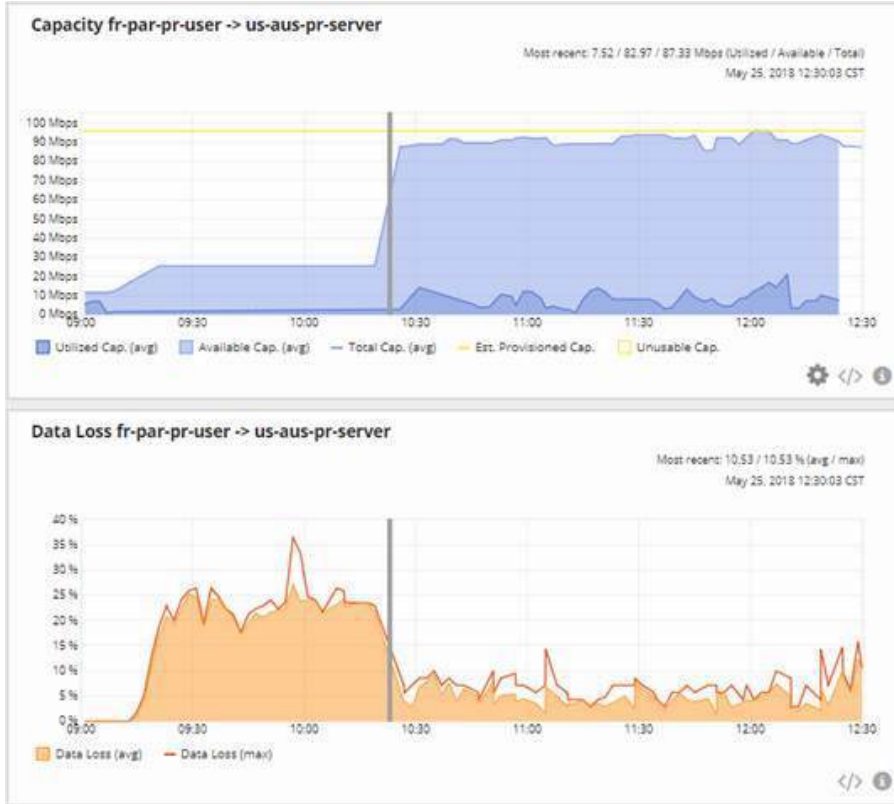
## Results

- Citrix is Deterministic: Queuing lags down 300ms -> 4ms
- File replication time down by >50%
- Voice Jitter better on Broadband than MPLS
- Video on higher Codec (no 700k throttle)
- Cost ROI expected 20%, but achieved ~40%

# Before/After Results: Capacity & Retransmission (Paris – Austin)

Paris → Austin

• Austin → Paris





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Walk-In Labs



Meet the Engineer  
1:1 meetings



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