

WEBCAST

SD-WAN for Remote Work

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Dell EMC Networking portfolio



Fabric/Spine switches



PowerSwitch Z series

Top-of-rack/Leaf switches



PowerSwitch S series

Module I/O



FN-IOM for FX2

MX modules for MX7000

MXL/IOA for M1000e

Next-generation access



Virtual Edge Platform

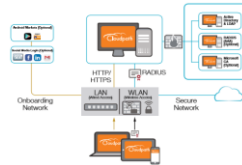
SD-WAN Edge Powered by VMware

Campus/Branch switching



PowerSwitch N series

Wireless networking



Dell EMC Ruckus

Networking software



DELLEMC
OS9, SmartFabric OS10
SmartFabric Director
vmware NSX
SONIC
big switch networks
Pluribus NETWORKS
PICA8

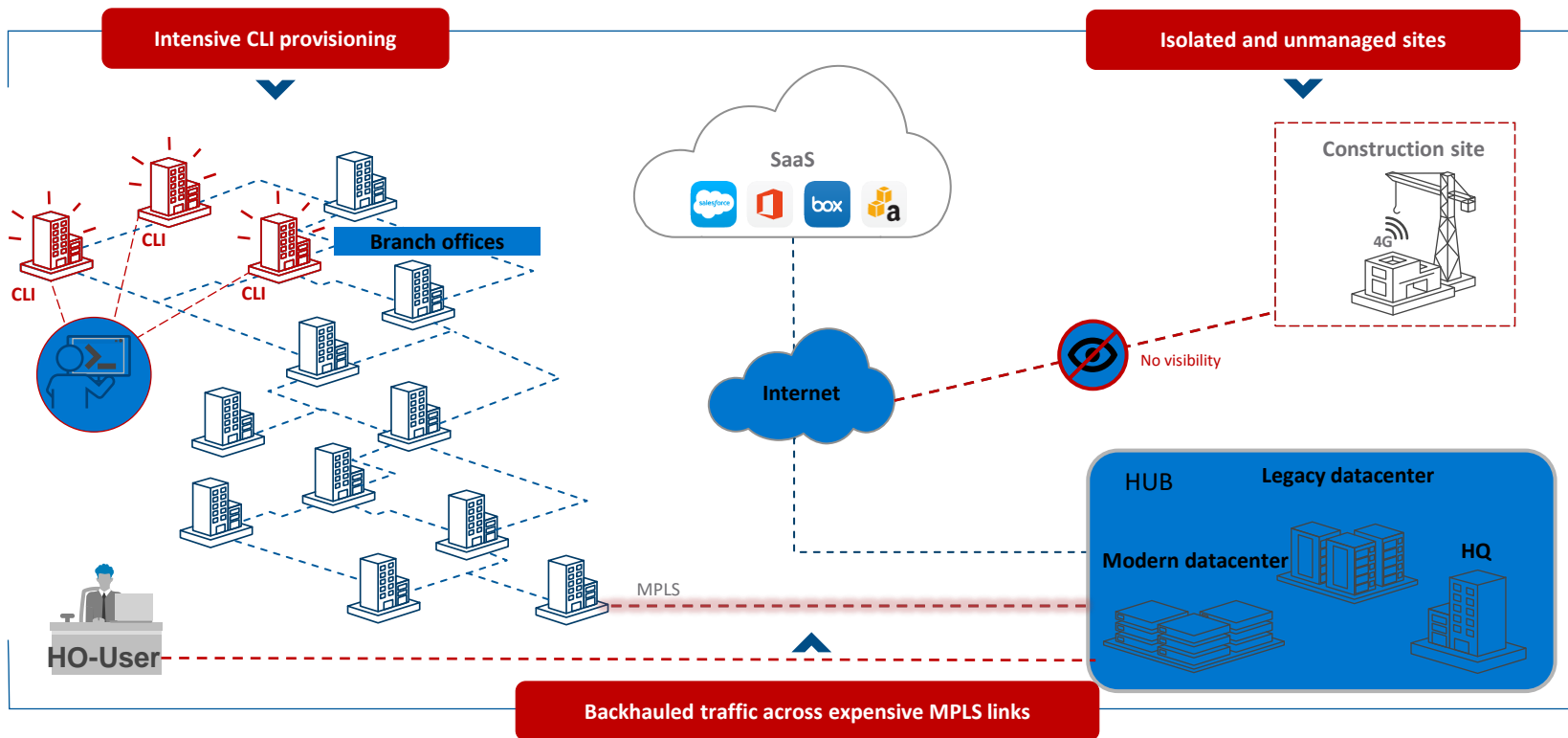
Ecosystem partners



puppet labs
ANSII
CHEF
paloalto networks.
apstra.
ADVA Optical Networking

SD-WAN Technologie

Traditionelles WAN im Unternehmen



SD-WAN VeloCloud Solution

Komponenten der Dell EMC SD-WAN Lösung



Dell EMC SD-WAN Edge

SD-WAN Edges werden entweder als **Hardware-Appliance** oder **virtuelle Instanz** bereitgestellt.

Edge Appliance + Software, All in one



Dell EMC Dedicated Orchestrator

Mit dem Orchestrator können **virtuelle Services** mit nur einem Klick bereitgestellt werden.

Zentralisiertes Management



VMware SD-WAN Gateways

Gateways bieten **optimierte Datenpfade** für alle Anwendungen, Zweigstellen und Rechenzentren.

Bereitstellung von **Netzwerkservices** über die Cloud.

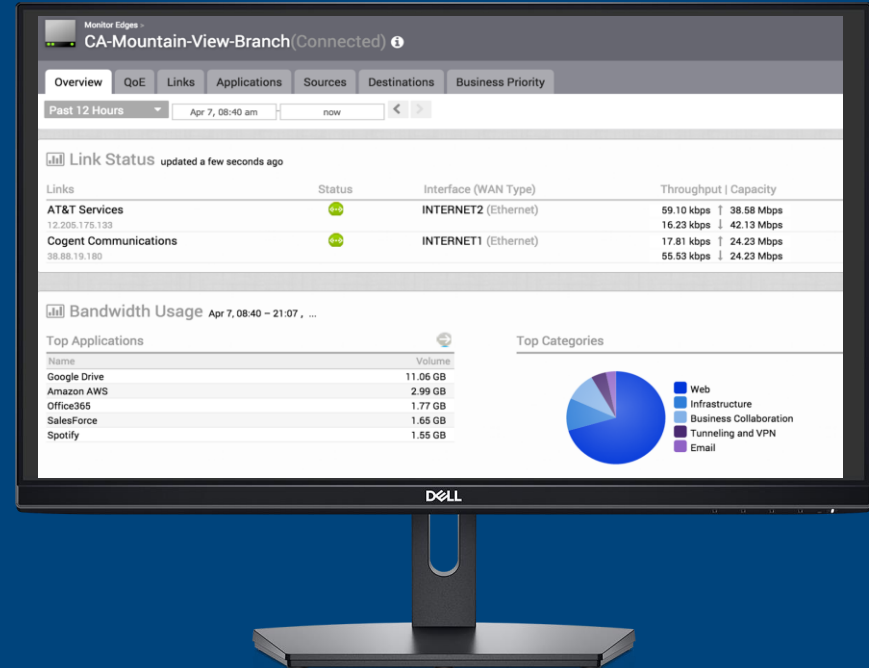
Alle drei Komponenten arbeiten eng zusammen. Eine einfache Lösung für Sie und ihre Kunden!

Dell EMC SD-WAN Orchestrator

WAN Ressourcen über ein Cloud basiertes Portal managen



- ✓ Centralized management
- ✓ Cloud-based portal
- ✓ VMware software
- ✓ Fully-managed by Dell EMC
- ✓ Zero-touch provisioning
- ✓ Group policies
- ✓ Automatic link profiling

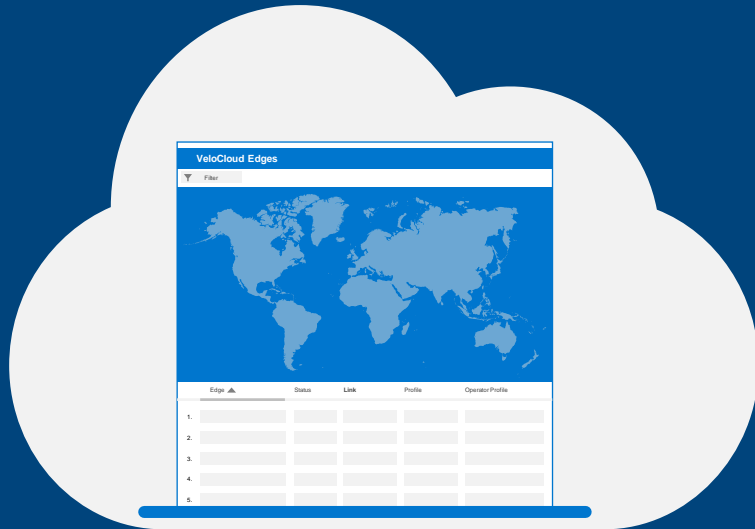


SD-WAN Orchestrator

Mit dem Orchestrator können virtuelle Services mit nur einem Klick in der Zweigstelle, in der Cloud oder im Rechenzentrum des Unternehmens bereitgestellt werden.

VMware Virtual Cloud Gateways (SD-WAN GW)

Optimierte Datenpfade und Standortanbindung

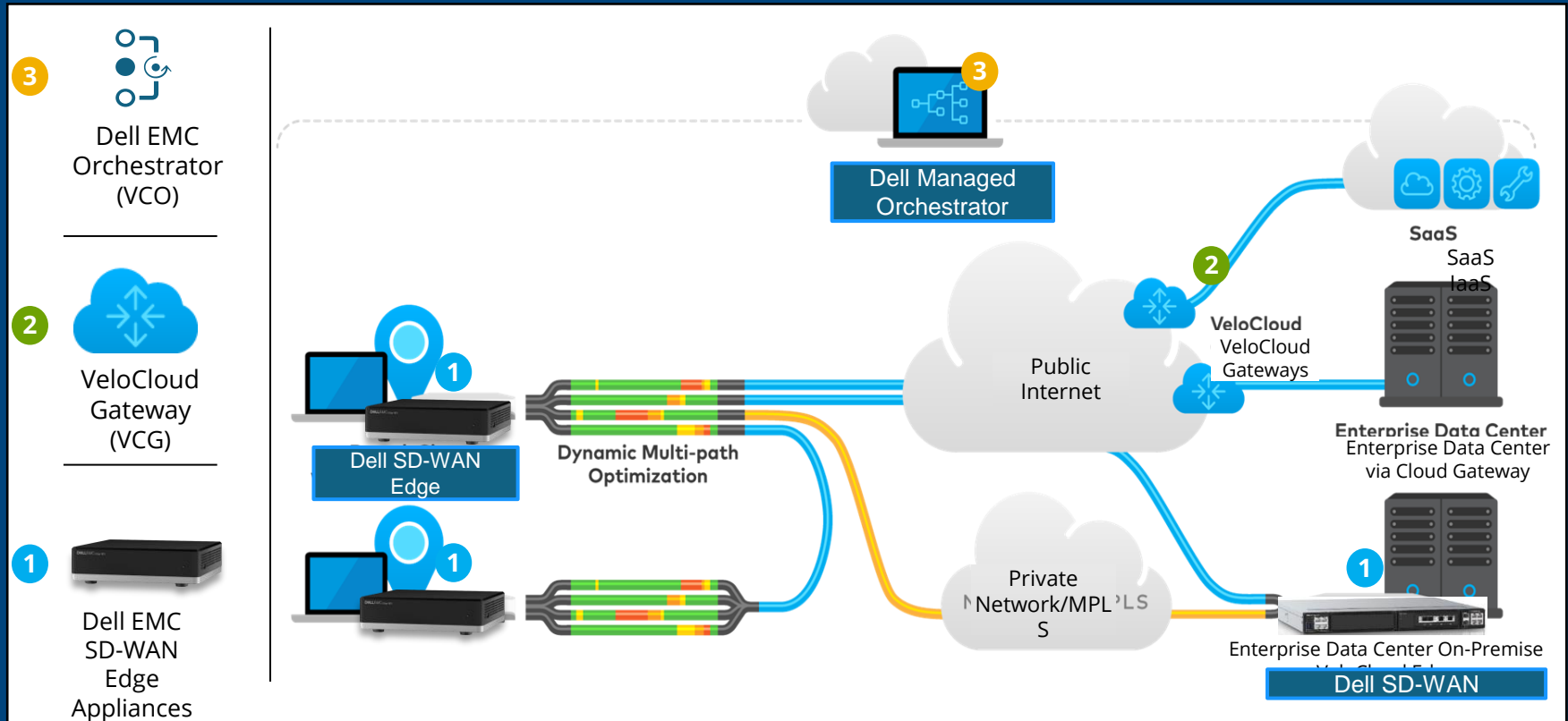


SD-WAN Gateway

Gateways bieten optimierte Datenpfade für alle Anwendungen, Zweigstellen und Rechenzentren sowie die Bereitstellung von Netzwerkservices über die Cloud.



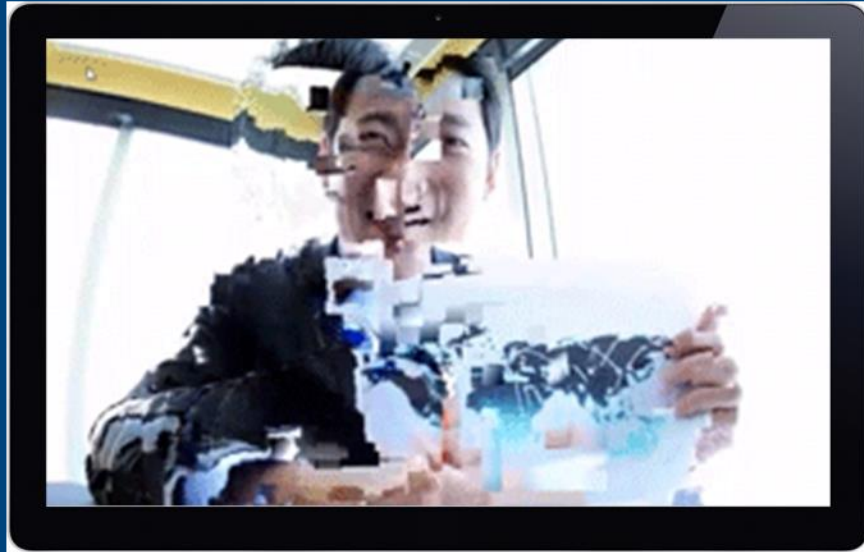
Komponenten der Dell EMC SD-WAN Lösung



DMPO – Dynamic Multipath Optimization

DMPO in Action

Video conference over a WAN link with 2% packet loss



Without VMware SD-WAN

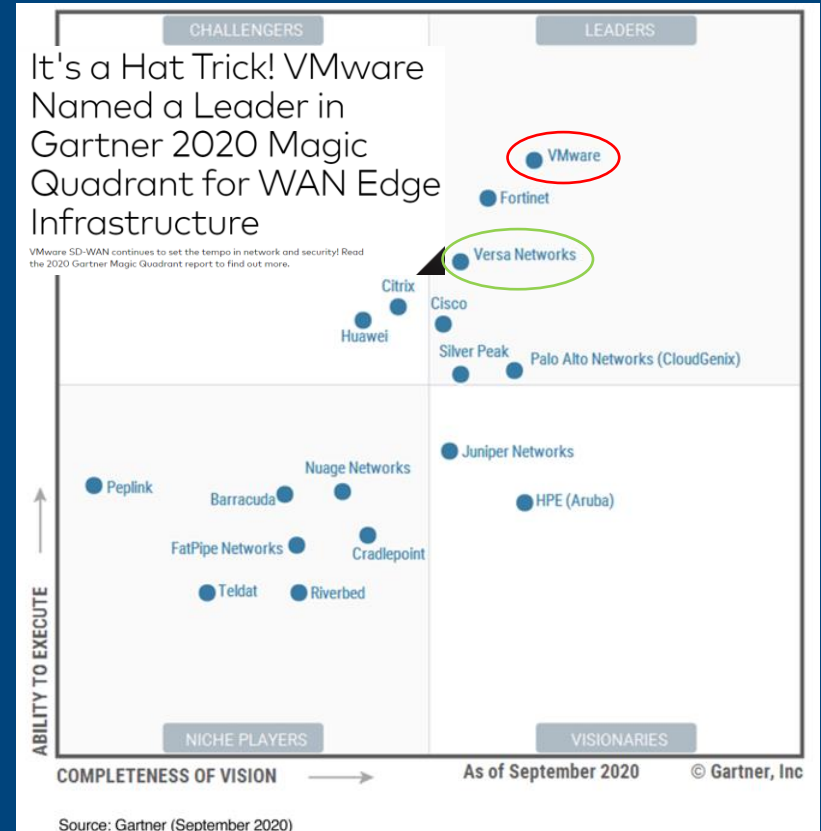


With VMware SD-WAN



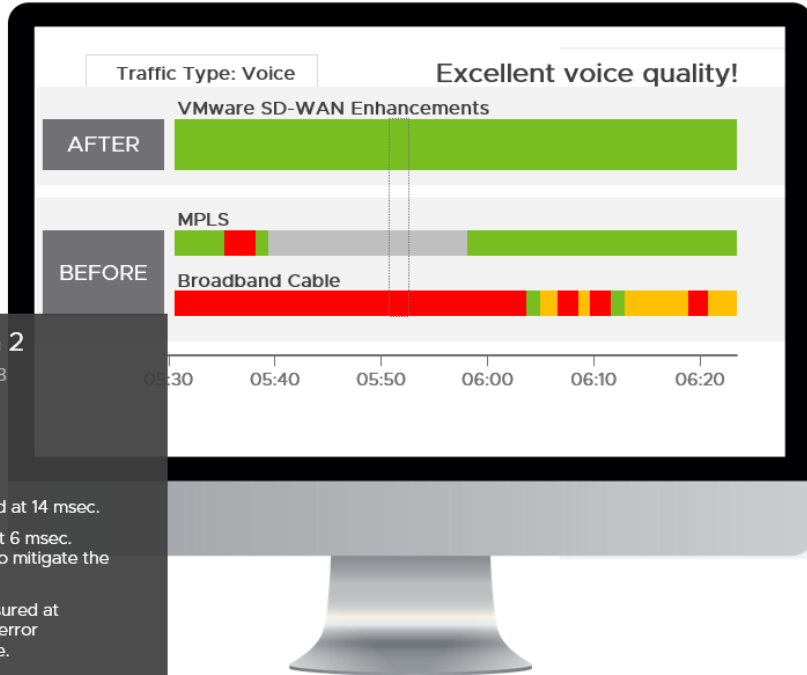
VMware is Leader in the Gartner Magic Quadrant for SD-WAN Edge

- Recognized as a LEADER for the third consecutive year
- SASE security capabilities
- Multicloud Onramp
- AI/ML for improved analytics with the integration of Nyansa
- Simplified WAN Operations
- Deep visibility with proactive self-healing



Dynamic Multipath Optimization (DMPO)

Assured application performance over any type of link



Internet Connection 2

Monday, November 19, 2018
7:12 AM (5 hours)

Latency	Fair
Jitter	Fair
Packet Loss	Critical

Downstream latency measured at 14 msec.

Downstream jitter measured at 6 msec.
Edge enabled jitter buffering to mitigate the issue.

Downstream packet loss measured at 2.08%.
Edge enabled forward error correction to mitigate the issue.



Application-based policy
Pre-defined and customizable



Continuous link monitoring
Drives automation and optimization



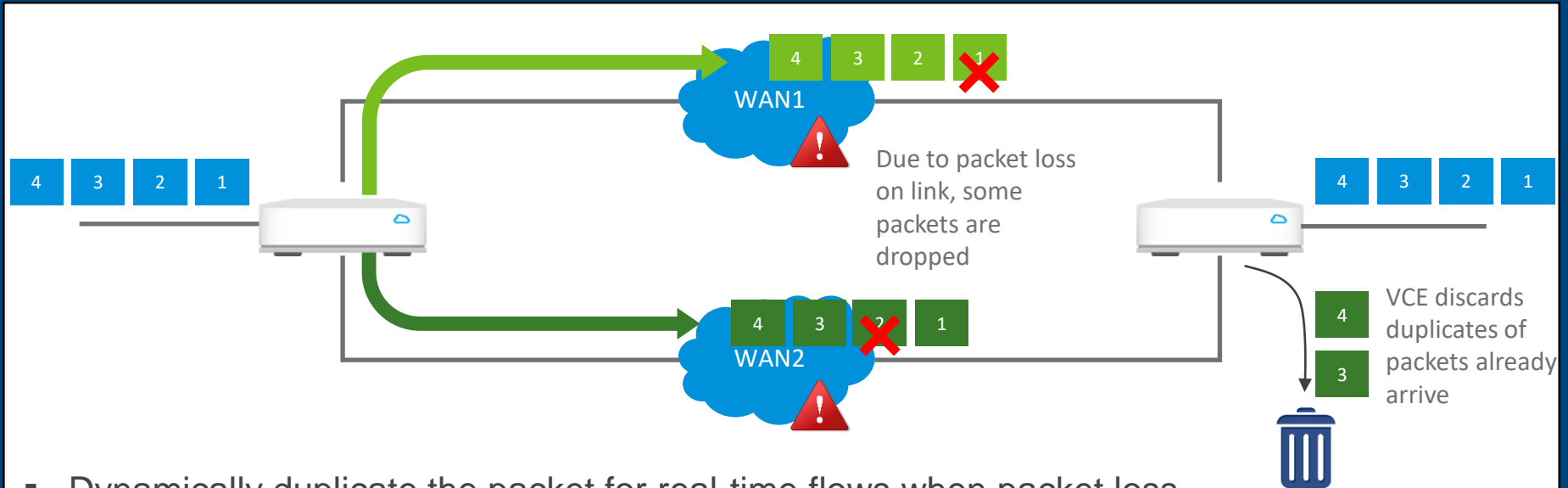
Dynamic per packet steering
Sub-second steering without session drops
Aggregated bandwidth for single flows



On demand remediation
Protect against concurrent degradation
Enables single link performance

On Demand Remediation

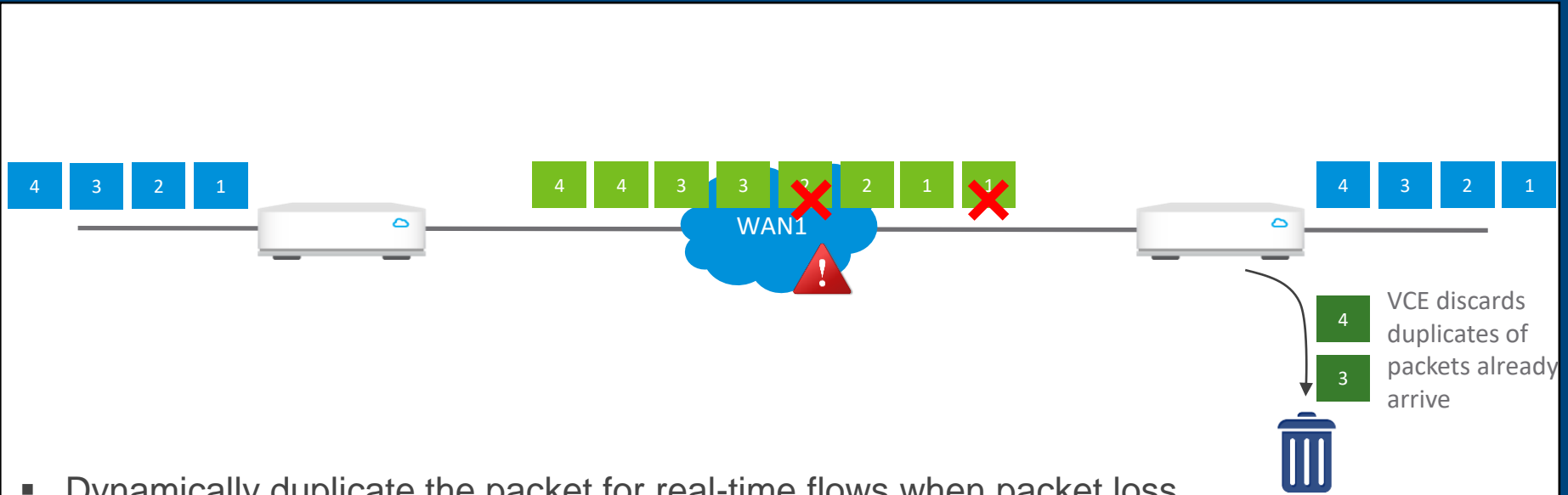
Real Time Traffic & Multiple Links



- Dynamically duplicate the packet for real-time flows when packet loss above threshold is detected
- Leverage multiple links to duplicate packets if available
- Receiving VCE takes the first packet arriving and discard any duplicates

On Demand Remediation

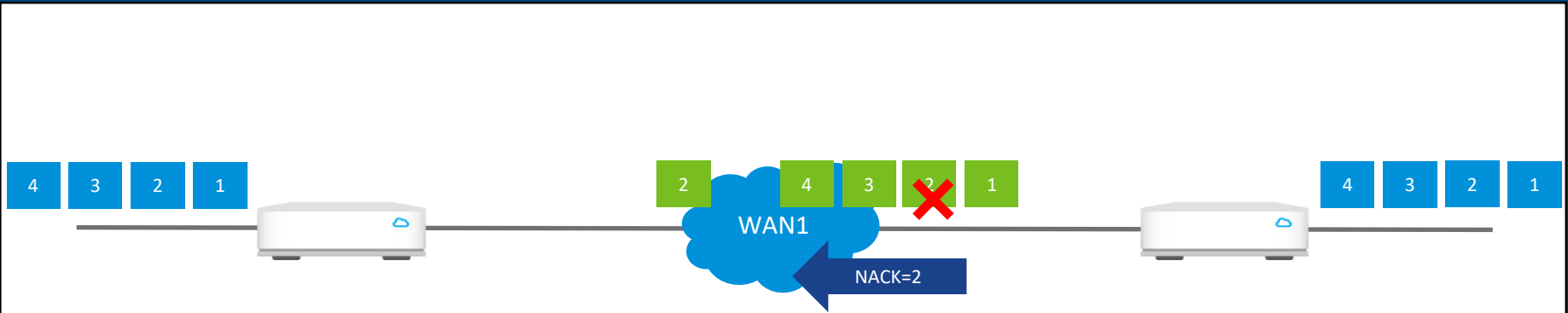
Real Time Traffic & Single Link



- Dynamically duplicate the packet for real-time flows when packet loss above threshold is detected
- Receiving VCE takes the first packet arriving and discard any duplicates

On Demand Remediation

Transactional & Bulk Traffic



- Upon missing packet, the received side VCMP endpoint sends NACK toward the sender
- Sending VCMP endpoint immediately retransmits the missing packet
- End host completely shielded from packet loss on the WAN transport, hence no impact to TCP window size
- 3-4x throughput improvement under lossy condition
- Applicable to both TCP and UDP since it takes place at VCMP level

Produkte

Dell EMC Edge 510-LTE

Kleine Zweigstellen, Baustellen und Home-Office Users



Dell EMC Edge Solution 510-LTE

- Bietet schnelle Anbindung von Zweigstellen und temporären Standorten an das WAN-Netz mit eingebauten LTE-Modems an.
- Sicherer Verbindung für Power-User von Zuhause durch redundante Wege (DSL + LTE).

- Fanless
- WLAN
- BW: 200Mbps
- Built-in 4G LTE modem with dual SIM card slots
- Größe: ca. DIN A5 (Buch)
- Gewicht: 1Kg
- Tunnels: 25

SD-WAN Edge Appliances 600 und 3000

Zweigstellen und kleine Data-Center Lokationen

Edge 610/620/640/680



Purpose-built for **Branch-Offices**.
Preferred only for single SD-
WAN Software installation.

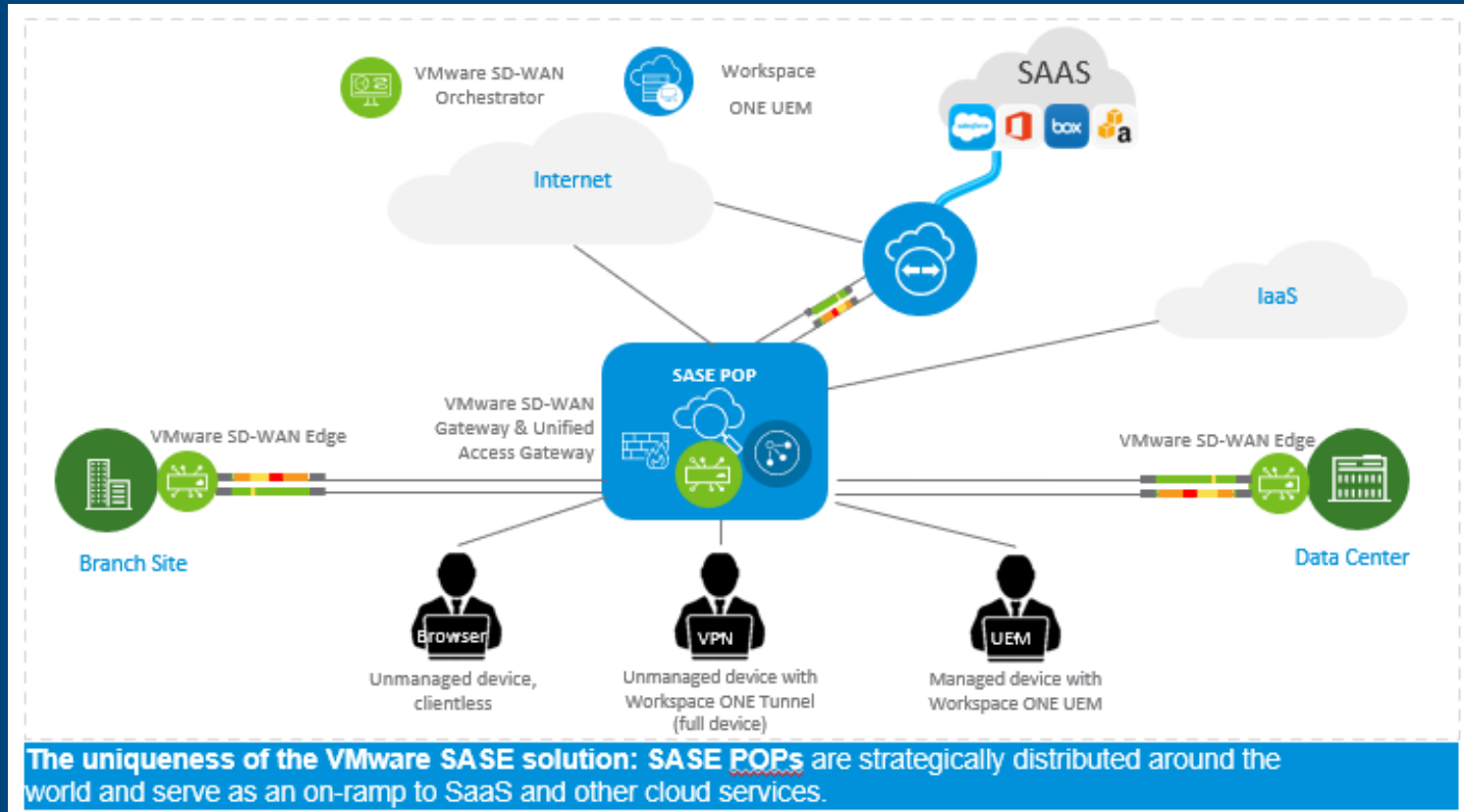
Edge 3400/3800



High-performance, purpose-built,
open uCPE platform,
ideal for hosting **SD-WAN** and
other VNFs (Virtual Network
Functions) like **routing, firewall or
deep-packet inspection**.

SASE

VMware SASE solution Architecture



Installation von SD-WAN

Einfaches und schnelles RollOut

1. Create Config & Send Key



IT Admin adds a new VeloCloud Edge in the customer account.



IT Admin generates an activation key and emails it to the Installer.

2. Device Ships



Dell EMC SD-WAN Edge appliance with pre-loaded config is shipped to site



Office Admin powers up the device and connects it to the Internet.

3. Install, Authenticate & Pull Config



Office Admin plugs in the device and connects to the Internet through VeloCloud Edge WLAN/LAN



Office admin clicks on activation link in the email. Edge is activated.

<https://www.youtube.com/watch?v=MoVvsVzc88E>

No IT visit required

No pre-staging, nor security risk if device lost

No site by site link knowledge required

No tracking by S/N required

Video zum Onboarding von VeloCloud Devices



<https://www.youtube.com/watch?v=MoVvsVzc88E>

Dell EMC SD-WAN Solutions

Vorteile der Dell EMC SD-WAN Lösung

X86 Standardisierte Plattform

Weltweite Bereitstellung

Weltweiter Support (und Service)

VMware (SD-WAN, NFV)

1. All in one Appliance



2. uCPE (VEP)

SD-WAN Links und weitere Informationen

Gartner SD-WAN Report zu VeloCloud

<https://sdwan.vmware.com/sd-wan/gartner-magic-quadrant-wan-edge-infrastructure-sdwan-2021>

Dell SD-WAN Solutions

<https://www.delltechnologies.com/en-us/networking/sd-wan-solution/index.htm>

Dell SD-WAN Solutions Overview Sheet

<https://www.delltechnologies.com/en-us/collaterals/unauth/brochures/products/networking/dell-emc-networking-solution-brief-sd-wan-solution-by-vmware-full-overview.pdf>

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