SD-WAN SERVICES EVOLUTION

OVERVIEW

This **SD-WAN** report is about providing a status on the current developments with respect to SD-WAN technology, partners, service features, SLA and pricing logic. Aspects around uCPE and VNFs as well as cloud connectivity are also tackled.

This strategic paper is based on InfoCom's ongoing research program on SD-WAN, including discussions with market participants (both vendors and service providers), and analysis of publicly available information from various sources.
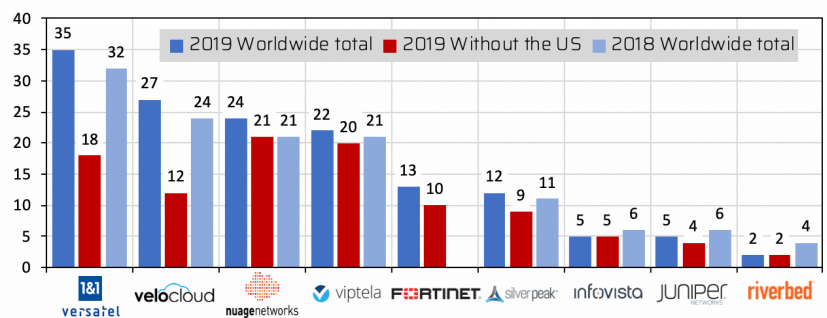
KEY ASPECTS COVERED

- **Main SD-WAN vendors**
- **uCPE and VNFs approach**
- **Cloud connectivity and security**
- **Self-care portal**
- **SLA**
- **Pricing logic**
- **Other key aspects** (ZTP, BYOA, Devices, AAR, DPI, WANx)

SNAPSHOTS | EXCERPTS

With SD-WAN the vendors are much more at the forefront and visible than with usual L3 IP MPLS VPN services where the infrastructure vendors (be they Cisco, Huawei, Juniper, Nokia Alcatel-Lucent etc.) were rather in the background.

However, where usual L3 IP MPLS VPN services and SD-WAN services may not be so far apart, is that some, especially very large enterprises, may have a preference for some vendors, i.e. similarly as when customers sometimes insist on IP MPLS routers, e.g. from Cisco, a few may insist on SD-WAN from Cisco Viptela or VeloCloud etc. Indeed, this is one reason why some of the larger SD-WAN providers choose to carry different SD-WAN offers, based on different vendors.

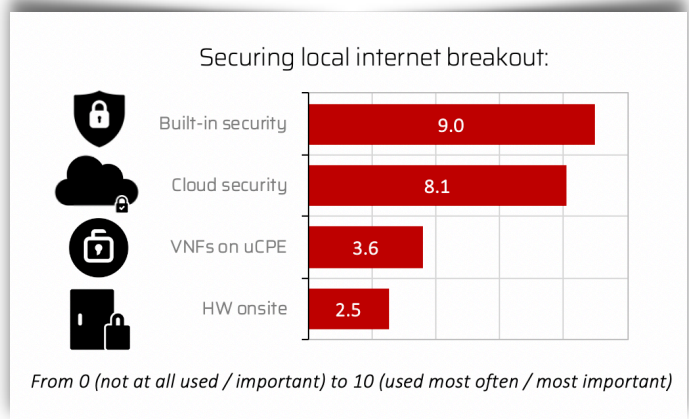### SD-WAN vendors with most identified references amongst carriers

Legend: ■ 2019 Worldwide total ■ 2019 Without the US ■ 2018 Worldwide total

Vendor	2019 Worldwide total	2019 Without the US	2018 Worldwide total
1&1 versatel	35	18	32
velocloud	27	12	24
nuage networks (From Nokia)	24	21	21
Viptela	22	20	21
FORTINET	13	10	
silver peak	12	9	11
infovista	5	5	6
JUNIPER NETWORKS	5	4	6
riverbed	2	2	4

Based on the analysis of public information of about 100 service providers

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Internet breakout and security

Local internet breakout is an advantage of SD-WAN, but therefore how to secure it is a central question. Currently most providers offer the various following methods for securing local internet breakout:

- **1) FW and other security features integrated as standard in the SD-WAN service;**
- **2) Zscaler or other cloud FW**
- **3) FW VNFs on uCPE**
- **4) traditional approach with dedicated FW appliances onsite**

Securing local internet breakout:

Built-in security	9.0
Cloud security	8.1
VNFs on uCPE	3.6
HW onsite	2.5

From 0 (not at all used / important) to 10 (used most often / most important)

OTHER SPECIFIC AREAS DISCUSSED

- The challenges of uCPE and VNFs
- End-customers using SD-WAN providers' uCPE for their own VNFs
- Beyond uCPE to VNFs marketplaces with multiple deployment models
- Security and SD-WAN in general
- Current status – own developments versus vendors' portal
- User-rights, role-based access controls and multi-tenancy
- Self-management and impact on SLAs
- Potential for self-management
- Location of portal and central components

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