
Throughput Performance for Release 21.1.4

This article provides throughput performance numbers for Versa Operating System™ (VOS™) Release 21.1.4.

All throughput performance testing was done under the following conditions:

- Routing, forwarding, and Layer 7 application-aware traffic steering were activated.
- Testing was done with UDP traffic, as specified in RFC 2544, with a 0.1 percent acceptable loss rate, using 1024 sessions with application offloading and with CPU isolation enabled.
- The session timeout was set to high value (3600 seconds).
- The encryption was AES128-GCM, which is the default encryption.
- A Spirent tester was used for testing SD-WAN traffic (refer to Layer 1 traffic statistics).
- Performance is the amount of traffic processed by the CPU; that is, it is an aggregate of WAN-to-LAN and LAN-to-WAN traffic.
- Performance numbers were captured at 100% of the service load under ideal test conditions, so all numbers should be considered as maximum values.

For all testing, the following internet mix (IMIX) distribution was used:

Frame Size (Bytes)	Percentage	Weight
66	45	45
78	8	8
218	8	8
594	2	2
1354	16	16
1418	21	21

Versa Cloud Services Gateways (CSGs)

For items in the table marked with a plus (+), numbers are limited by number of ports used.

Model	Packet Size	UDP Throughput	
		Direct Internet Access (DIA)	SD-WAN Branch to Branch
CSG350	1400	2 Gbps	800 Mbps
	Internet mix	1.5 Gbps	350 Mbps
	100	275 Mbps	70 Mbps
CSG355	1400	3.5 Gbps	800 Mbps
	Internet mix	1.5 Gbps	350 Mbps
	100	275 Mbps	70 Mbps
CSG365	1400	4 Gbps+	1.2 Gbps
	Internet mix	2 Gbps	550 Mbps
	100	425 Mbps	100 Mbps
CSG730	1400	2.5 Gbps	800 Mbps
	Internet mix	1 Gbps	350 Mbps
	100	210 Mbps	70 Mbps
CSG750	1400	4 Gbps+	2 Gbps
	Internet mix	3 Gbps	900 Mbps
	100	600 Mbps	185 Mbps
CSG770	1400	4 Gbps+	3.5 Gbps
	Internet mix	4 Gbps+	1.7 Gbps
	100	825 Mbps	420 Mbps
CSG1300	1400	19.5 Gbps	8 Gbps
	Internet mix	8 Gbps	3.7 Gbps
	100	1.5 Gbps	850 Mbps
CSG1500	1400	40 Gbps+	27.5 Gbps
	Internet mix	25 Gbps	12.5 Gbps

Model	Packet Size	UDP Throughput	
		Direct Internet Access (DIA)	SD-WAN Branch to Branch
	100	4.5 Gbps	2.5 Gbps

Versa White Boxes

For items in the table marked with a plus (+), numbers are limited by number of ports used.

Model	Packet Size	UDP Throughput	
		Direct Internet Access (DIA)	SD-WAN Branch to Branch
Versa 110/510	1400	4 Gbps+	1.2 Gbps
	Internet mix	2 Gbps	550 Mbps
	100	425 Mbps	100 Mbps
Versa 120/520	1400	4 Gbps+	2.8 Gbps
	Internet mix	3.2 Gbps	1.3 Gbps
	100	700 Mbps	310 Mbps
Versa 200	1400	2.5 Gbps	800 Mbps
	Internet mix	1 Gbps	350 Mbps
	100	210 Mbps	70 Mbps
Versa 210	1400	4 Gbps+	2 Gbps
	Internet mix	3 Gbps	900 Mbps
	100	600 Mbps	185 Mbps
Versa 220	1400	15 Gbps	5.5 Gbps
	Internet mix	7.5 Gbps	2.4 Gbps
	100	1.6 Gbps	500 Mbps
Versa 240	1400	19.5 Gbps	8 Gbps

Model	Packet Size	UDP Throughput	
		Direct Internet Access (DIA)	SD-WAN Branch to Branch
	Internet mix	8 Gbps	3.7 Gbps
	100	1.5 Gbps	850 Mbps
Versa 810	1400	36 Gbps	12 Gbps
	Internet mix	16 Gbps	5.6 Gbps
	100	3 Gbps	1.1 Gbps
Versa 1000	1400	40 Gbps+	25 Gbps
	Internet mix	28 Gbps	12 Gbps
	100	5.7 Gbps	2.5 Gbps
Versa 1800	1400	40 Gbps+	37 Gbps
	Internet mix	39 Gbps+	24 Gbps
	100	10 Gbps	4.5 Gbps

Versa Dell Appliances

For items in the table marked with a plus (+), numbers are limited by number of ports used.

Model	Packet Size	UDP Throughput	
		Direct Internet Access (DIA)	SD-WAN Branch to Branch
VEP-1425	1400	4 Gbps+	2 Gbps
	Internet mix	3 Gbps	900 Mbps
	100	600 Mbps	185 Mbps
VEP-1445	1400	15 Gbps	5.5 Gbps
	Internet mix	7.5 Gbps	2.4 Gbps

Model	Packet Size	UDP Throughput	
		Direct Internet Access (DIA)	SD-WAN Branch to Branch
	100	1.6 Gbps	500 Mbps
VEP-1485	1400	19.5 Gbps	8 Gbps
	Internet mix	8 Gbps	3.7 Gbps
	100	1.5 Gbps	850 Mbps
VEP-4600-V910	1400	38 Gbps	12 Gbps
	Internet mix	16 Gbps	5.3 Gbps
	100	3 Gbps	1.2 Gbps
VEP-4600-V930	1400	40 Gbps+	27.5 Gbps
	Internet mix	25 Gbps	12.5 Gbps
	100	4.5 Gbps	2.5 Gbps

Versa CPE on AWS Instance

By default, AWS interfaces are SR-IOV capable. It is recommended that you use only SR-IOV capable interfaces.

AWS instances use a network I/O credit mechanism to allocate network bandwidth to instances based on average bandwidth utilization. They accrue credits when their bandwidth is below their baseline bandwidth, and they can use these credits when they perform network data transfers. For more information, open an AWS support case and ask about baseline bandwidth for the specific instance types that you are interested in.

VOS and traffic generator instances are in single virtual private cloud and AWS region.

All numbers need to be considered the maximum as claimed by AWS instance limits.

For items in the table marked with an asterisk (*), testing was limited by the AWS infrastructure or the VOS software.

AWS Instance	Packet Size	UDP Throughput	
		Direct Internet Access (DIA)	SD-WAN Branch to Branch
c5. xlarge	1400	6.9 Gbps*	4 Gbps*

AWS Instance	Packet Size	UDP Throughput	
		Direct Internet Access (DIA)	SD-WAN Branch to Branch
	Internet mix	3 Gbps*	2.2 Gbps*
	100	500 Mbps	450 Mbps
c5.2xlarge	1400	7.7 Gbps*	7.5 Gbps*
	Internet mix	3.3 Gbps*	3 Gbps*
	100	550 Mbps*	650 Mbps
c5.4xlarge	1400	9 Gbps*	7.7 Gbps*
	Internet mix	3 Gbps*	3 Gbps*
	100	550 Mbps*	650 Mbps*

All numbers need to be considered the maximum and may change with addition of extra features and packet sizes that are not listed above.

Additional Information

[Hardware and Software Requirements for Headend](#)

[Versa Analytics Scaling Recommendations](#)

[Versa Solution Scalability](#)