

NetScaler SD-WAN increases the performance and reliability of traditional enterprise applications, SaaS applications and virtual desktops over any network while simplifying the branch network.



Businesses rely on branch offices to serve customers, to be near partners and suppliers and to expand into new markets. As desktop virtualization increases and applications move to the cloud, IT managers face the challenge of providing applications reliably and without a performance disadvantage to branch users. Now enterprises can use NetScaler SD-WAN to

software define their WAN, rendering it more scalable, easier to configure, cost-effective and ready to connect to the cloud, while ensuring excellent application performance. At the same time, NetScaler SD-WAN can help you to effectively and economically simplify the branch WAN edge with integrated routing, firewall, and WAN optimization capabilities.

Why NetScaler SD-WAN

- Maintain high performance for mission critical applications even when a network link fails
- Improve the virtual desktop experience to branch-office and mobile users and accelerate traditional enterprise applications
- Expand WAN capacity with low-cost broadband connections, while maintaining MPLS-level quality and reliability
- Support cloud migration with integrated security to protect enterprise data
- Simplify IT with integrated routing, firewall and WAN Optimization to reduce network footprint
- Secure data across the WAN and to the cloud with strong encryption, application-level security policies and data segmentation
- Gain visibility into application delivery in order to proactively manage the user experience
- See the quality of your users' experience at a glance and shorten the time to troubleshoot with the HDX QoE Dashboard

NetScaler SD-WAN features



WAN Virtualization for WAN Efficiency

NetScaler SD-WAN creates a reliable WAN from diverse network links, including MPLS, broadband, and wireless, continuously measuring and monitoring each link for loss, latency, jitter and congestion. Link outages and errors are mitigated by NetScaler SD-WAN's ability to move traffic off poor performing links without impact to the applications, resulting in predictable and consistent performance. Mission critical applications are always routed across the paths with the fastest transit time, real-time application traffic can be duplicated to guarantee no loss and traffic from high bandwidth applications can be balanced across multiple links to provide high performance for large file transfers.



Application QoS for Assured Delivery

NetScaler SD-WAN identifies applications through deep packet inspection technology that results in the industry's best accuracy granularity. Application and application elements can be grouped into different categories with different priorities and bandwidths. With the granular application awareness combined with network intelligence, the platform can ensure that critical applications receive priority and are routed across the highest-quality link. Lower quality links are used for lower priority applications that can tolerate higher latency. The NetScaler SD-WAN endpoints also communicate with each other on congestion conditions, allowing sending devices to adjust transmission rates to match network capacity.



Dynamic Routing for Branch Simplification

NetScaler SD-WAN provides an alternative to the legacy branch router, enabling a simpler branch network with lower infrastructure and support costs. Multiple overlay routed networks can be software defined, with separate policies and security rules applied to each. With Dynamic Routing, NetScaler SD-WAN can participate in your routing topology in overlay mode for easy network insertion or operate in edge mode for a streamlined branch network with assured application delivery.



Integrated Firewall for Complete Security

NetScaler SD-WAN brings strong data protection to the network, from link layer security to a stateful firewall function. The firewall integrates with the application QoS to allow security policies to be centrally defined by application or application element, allowing you to limit or reject traffic by applications or application elements. NetScaler SD-WAN also allows users to be segmented into different zones, allowing different policies to be applied per zone. Finally, NetScaler SD-WAN provides strong encryption as data crosses public and private networks while easily integrating with cloud web gateways.



Application and WAN Optimization usability and bandwidth efficiency

Through features such as TCP flow control, data compression, de-duplication and protocol optimization, NetScaler SD-WAN can improve the end-user experience as well as provide a reduction in WAN bandwidth expenses. And with video usage on the rise, NetScaler SD-WAN can optimize video delivery within Citrix XenDesktop environments as well as for popular websites and internal video content repositories.



Management and Visibility for centralized policies

To ensure great user experiences, enterprise IT must be able to quickly and easily deploy new sites on the network, easily define network and application policies, and identify the sources of problems in application delivery. NetScaler SD-WAN center allows centralized policy definition across all network services and zero touch deployment, radically simplifying the time and effort to turn up a new location on the WAN. Automatic bandwidth detection and adaptive bandwidth control simplifies the detection of WAN and provides detailed reporting on the true bandwidth available on each link over time. Through its integration with Citrix NetScaler MAS, NetScaler SD-WAN monitors how well applications are being delivered to users in the branch.

Standard Edition appliances

Appliance	5100			4100		
Model	5100-3000-SE	5100-4000-SE	5100-5000-SE	4100-1000-SE	4100-2000-SE	4100-3000-SE
Licensed throughput ¹	6 Gbps	8 Gbps	10 Gbps	2 Gbps	4 Gbps	6 Gbps
Max virtual paths	550	550	550	256	256	256

Appliance	2100					2000		
Model	2100-0200-SE	2100-0300-SE	2100-0500-SE	2100-1000-SE	2100-1500-SE	2000-100-SE	2000-200-SE	2000-300-SE
Licensed throughput ¹	400 Mbps	600 Mbps	1 Gbps	2 Gbps	3 Gbps	200 Mbps	400 Mbps	600 Mbps
Max virtual paths	128	128	128	128	128	32	32	32

Appliance	1000			410			
Model	1000-020-SE	1000-050-SE	1000-100-SE	410-020-SE	410-050-SE	410-100-SE	410-150-SE
Licensed throughput ¹	40 Mbps	100 Mbps	200 Mbps	40 Mbps	100 Mbps	200 Mbps	300 Mbps
Maximum virtual paths	16	16	16	16	16	16	16

Standard Edition virtual and cloud appliances

Appliance	VPX					
Model	VPX-020-SE	VPX-050-SE	VPX-100-SE	VPX-200-SE	VPX-500-SE	VPX-1000-SE
Licensed throughput ¹	40 Mbps	100 Mbps	200 Mbps	400 Mbps	1 Gbps	2 Gbps
Max virtual paths	8	16	16	16	16	128

Hypervisor support²

XenServer	XenServer 6.5 SP1	XenServer 6.5 SP1	XenServer 6.5 SP1	XenServer 6.5 SP1	XenServer 6.5 SP1	XenServer 6.5 SP1
VMWare	ESX/ESXi 5.5 & 6.0	ESX/ESXi 5.5 & 6.0	ESX/ESXi 5.5 & 6.0	ESXi6.0	ESXi6.0	ESXi6.0
HyperV	2012 R2	2012 R2	2012 R2	2012 R2	2012 R2	2012 R2
KVM	Ubuntu 16.04	Ubuntu 16.04	Ubuntu 16.04	Ubuntu 16.04	Ubuntu 16.04	Ubuntu 16.04
Processor	Dual core Intel VTx2	Dual core Intel VTx2	Dual core Intel VTx2	Quad Core Intel VTx2	Quad Core Intel VTx2	Quad Core Intel VTx2
Memory	4 GB	4 GB	4 GB	4G	8G	16G
Virtual CPU	2 vCPU @ 2.7 Ghz	2 vCPU @ 2.7 Ghz	2 vCPU @ 2.7 Ghz	4vCPU @ 2.7GHz	8vCPU @ 2.7GHz	8vCPU @ 3.0GHz

Cloud Support³

AWS	m4.2xlarge	m4.2xlarge	m4.2xlarge	m4.2xlarge	c4.2xlarge	c4.4xlarge
Azure	D3_v2	D3_v2	D4_v2	F8	n/a	n/a

Software features

Deployment	In-line overlay, One-armed overlay, Edge gateway, Cloud
Path assignment	Per-packet, Packet load balancing, Packet duplication, By application
QoS	Scheduling, Shaping, Classification, Remarking
Routing	eBGP, iBGP, OSPF, Static, Multicast
Security	L4-7 application firewall, NAT, Secure web gateway connectivity, FIPS compliant
Layer 2	VLAN (802.1Q), Bridging, SVI
Tunnel Interfaces	GRE, IPSec, Citrix virtual path
Network Encryption	128 bit AES, 256 bit AES, IPSec
Authentication	Local database, RADIUS, TACACS+
Manageability	SNMP V3, DHCP relay/agent/client, Syslog, Netflow, REST API
Configuration	Zero Touch Deployment service, GUI, Customizable templates, REST API

¹Licensed throughput refers to total amount of bandwidth that the appliance model is licensed for, both upstream and downstream, and is based on AES-128 encryption..

²The VPX images are qualified to run on Intel processors only.

³Cloud server types are the minimum recommended server size to support the listed performance numbers for each model.

Enterprise Edition appliances

Appliance	2000		
Model	2000-100-EE	2000-200-EE	2000-250-EE
Licensed throughput ⁴	200 Mbps	400 Mbps	500 Mbps
Maximum virtual paths	32	32	32
Optimized application capacity ^{5,6}	10 Mbps	20 Mbps	50 Mbps
Maximum HDX CCUs ⁷	100	200	300
Maximum Accelerated TCP sessions ⁷	20,000	20,000	20,000

Appliance	1000			
Model	1000-010-EE	1000-020-EE	1000-050-EE	1000-100-EE
Licensed throughput ⁴	20 Mbps	40 Mbps	100 Mbps	200 Mbps
Maximum virtual paths	16	16	16	16
Optimized WAN capacity ^{5,6}	4 Mbps	6 Mbps	10 Mbps	20 Mbps
Maximum HDX CCUs ⁷	40	60	100	200
Maximum Accelerated TCP sessions ⁸	10,000	10,000	10,000	10,000

Software features

Deployment	In-line overlay, One-armed overlay, Edge gateway, Cloud
Path assignment	Per-packet, Packet load balancing, Packet duplication, By application
QoS	Scheduling, Shaping, Classification, Remarking
Routing	eBGP, iBGP, OSPF, Static, Multicast
Security	L4-7 application firewall, NAT, Secure web gateway connectivity, FIPS compliant
Layer 2	VLAN (802.1Q), Bridging, SVI
Tunnel Interfaces	GRE, IPSec, Citrix virtual path
Network Encryption	128 bit AES, 256 bit AES, IPSec
Authentication	Local database, RADIUS, TACACS+
Manageability	SNMP V3, DHCP relay/agent/client, Syslog, Netflow, REST API
Configuration	Zero Touch Deployment service, GUI, Customizable templates, REST API

⁴Licensed SD-WAN throughput refers to total amount of bandwidth that the appliance model is licensed for, both upstream and downstream, and is based on AES-128 encryption.

⁵Only outbound WAN traffic is counted against the licensed bandwidth (Mbps or Gbps purchased). QoS and / or unaccelerated traffic do not count against the licensed bandwidth. Unaccelerated and QoS traffic can, however, impact the total amount of outbound accelerated traffic.

⁶Some protocols (for example ICA) can limit the processing capacity of the appliance before the licensed bandwidth is reached.

⁷User count is based upon a medium level workload as defined by Login VSI and XenDesktop / XenApp advanced encryption security. User count is limited by link bandwidth and TCP session counts. No user count is enforced. Published numbers are for guidance purposes only.

⁸TCP session count will be reduced by active HDX sessions. No session count is enforced. Published numbers are for guidance purposes.

WANOP Edition appliances								
Appliance	5100		4100			3000		
Model	5100-1500-WO	5100-2000-WO	4100-310-WO	4100-500-WO	4100-1000-WO	3000-050-WO	3000-100-WO	3000-155-WO
Optimized WAN capacity ^{9,10}	1.5 Gbps	2 Gbps	310 Mbps	500 Mbps	1 Gbps	50 Mbps	100 Mbps	155 Mbps
QoS/unaccelerated bandwidth limit	2 Gbps	4 Gbps	500 Mbps	1 Gbps	2 Gbps	500 Mbps	500 Mbps	500 Mbps
Maximum HDX CCUs ¹¹	3,500	5,000	750	1,200	2,500	300	400	500
Maximum Accelerated TCP sessions ¹²	120,000	160,000	40,000	60,000	120,000	50,000	50,000	50,000
Concurrent NetScaler SD-WAN client plug-ins	3,600	4,800	1,100	1,800	3,600	750	1,000	1200
Video caching						•	•	•
WCCP clustering	•	•	•	•	•	•	•	•
NetScaler Cloud Connector	•	•	•	•	•			
Group mode						•	•	•
Appliance	2000			1000				
Model	2000-010	2000-020	2000-050	1000-006	1000-010	1000-020		
Optimized WAN capacity ^{9,10}	10 Mbps	20 Mbps	50 Mbps	6 Mbps	10 Mbps	20 Mbps		
QoS/unaccelerated bandwidth limit		200 Mbps			50 Mbps			
Maximum HDX CCUs ¹¹	100	200	300	60	100	200		
Maximum Accelerated TCP sessions ¹¹	20,000	20,000	20,000	10,000	10,000	10,000		
Concurrent NetScaler SD-WAN client plug-ins	100	200	750					
Video caching	•	•	•	•	•	•		
WCCP clustering	•	•	•	•	•	•		
NetScaler Cloud Connector								
Group mode	•	•	•	•	•	•		
Appliance	1000WS			800				
Model	1000WS-006-WO	1000WS-010-WO	1000WS-020-WO	800-002-WO	800-006-WO	800-010-WO		
Optimized WAN capacity ^{9,10}	6 Mbps	10 Mbps	20 Mbps	2 Mbps	6 Mbps	10 Mbps		
QoS / unaccelerated bandwidth limit	50 Mbps	50 Mbps	50 Mbps	50 Mbps	50 Mbps	50 Mbps		
Maximum HDX CCUs ¹¹	60	100	200	20	60	100		
Maximum Accelerated TCP sessions ¹²	10,000	10,000	10,000	10,000	10,000	10,000		
Concurrent NetScaler SD-WAN client plug-ins	100	200	750					
Video caching	•	•	•	•	•	•		
WCCP clustering	•	•	•	•	•	•		
NetScaler Cloud Connector								
Group mode	•	•	•	•	•	•		
Windows Server Resources	2vCPU, 8 GB RAM, 1 TB File Storage							

⁹Only outbound WAN traffic is counted against the licensed bandwidth (Mbps or Gbps purchased). QoS and / or unaccelerated traffic do not count against the licensed bandwidth. Unaccelerated and QoS traffic can, however, impact the total amount of outbound accelerated traffic.

¹⁰Some protocols (for example ICA) can limit the processing capacity of the appliance before the licensed bandwidth is reached.

¹¹User count is based upon a medium level workload as defined by Login VSI and XenDesktop / XenApp advanced encryption security. User count is limited by link bandwidth and TCP session counts. No user count is enforced. Published numbers are for guidance purposes only.

¹²TCP session count will be reduced by active HDX sessions. No session count is enforced. Published numbers are for guidance purposes.

WANOP Edition virtual appliances

Appliance

VPX

Model	VPX 2	VPX 6	VPX 10	VPX 20	VPX 50	VPX 100	VPX 200	
Optimized WAN capacity ^{17,18}	2 Mbps	6 Mbps	10 Mbps	20 Mbps	50 Mbps	100 Mbps	200 Mbps	
QoS/unaccelerated bandwidth limit	15 Mbps	50 Mbps	75 Mbps	150 Mbps	250 Mbps	250 Mbps	300 Mbps	
Maximum HDX CCUs ¹⁹	20	60	100	200	300	400	500	
Total TCP sessions ²⁰	5,000	5,000	5,000	10,000	10,000	20,000	30,000	
Concurrent NetScaler SD-WAN client plug-ins	20	60	100	200	300	400	500	
Video caching	•	•	•	•	•			
WCCP clustering					•	•	•	
NetScaler Cloud Connector ²¹	•	•	•	•	•	•	•	
Group mode								
Hypervisor	XenServer 5.5 - 6.2 , Hyper-V 2008R2SP1 - 2012 , ESX/ESXi 4.1-6.0							
Processor	Dual core (quad core recommended) Intel VTx or AMD-V 64-bit x86 ²²							
Memory	4 GB					8 GB	16 GB	
Virtual CPU	1 x XenServer & 2 x Vmware vSphere (>2.33GHz)	2-4 x XenServer,Hyper-V & VMware vSphere (>2.33GHz)					2-4 x XenServer, Hyper-V & VMWare vSphere (~3.0GHz)	
Hard drive ²³	100 GB	100 GB	250 GB	250 GB	250 GB	500 GB	500 GB	
Network interface	2 virtual NICs							

¹⁷Only outbound WAN traffic is counted against the licensed bandwidth (Mbps or Gbps purchased). QoS and / or unaccelerated traffic do not count against the licensed bandwidth. Unaccelerated and QoS traffic can, however, impact the total amount of outbound accelerated traffic.

¹⁸Some protocols (for example ICA) can limit the processing capacity of the appliance before the licensed bandwidth is reached.

¹⁹User count is based upon a medium level workload as defined by Login VSI and XenDesktop / XenApp advanced encryption security. User count is limited by link bandwidth and TCP session counts. No user count is enforced. Published numbers are for guidance purposes only.

²⁰TCP session count will be reduced by active HDX sessions. No session count is enforced. Published numbers are for guidance purposes.

²¹For NetScaler SD-WAN appliances, the NetScaler Cloud Connector is delivered as a separate software appliance.

²²The VPX images are qualified to run on Intel processors only.

²³For best performance, use solid state drives or high IOPs storage devices.

Hardware specifications					
Appliance	5100-SE	5100-WO	4100-SE	4100-WO	3000
Storage					
Total disk space	2 TB (HDD)	6.8 TB (HDD)	2TB (HDD)	5.2 TB (HDD)	2.4 TB
Compression history (SSD)	N/A	4.3 TB	N/A	2.8 TB	1.5 TB
RAM	128 GB	128 GB	96 GB	96 GB	32 GB
Network interfaces²⁴					
Fail to Wire	4 x 10GBase-SR	4 x 10GBase-SR	2 x 10GBASE-SR 4 x 1000BaseTX	2 x 10GBASE-SR 4 x 1000BaseTX	6 x 1000BaseTX -or- 4 x 1000BaseSX
Non-Fail to Wire	4 x 10G/1G SFP+	4 x 10G/1G SFP+	4 x 10G/1G SFP+	4 x 10G/1G SFP+	
Management	2 x 1000Base- TX	2 x 1000Base- TX	2 x 1000Base- TX	2 x 1000Base- TX	2 x 1000Base- TX
Mechanical					
Rack units	2U (3.5 inches / 8.90 cm)				1U (1.75 inches / 4.45 cm)
Rack options	EIA 310-D, IEC 60297, DIN 41494 SC48D rack width with mounting brackets				
System depth	28" / 72 cm	28" / 72 cm	28" / 72 cm	28" / 72 cm	24" (63.5 cm)
System weight	60 lbs (27.2 kg)	60 lbs (27.2 kg)	60 lbs (27.2 kg)	60 lbs (27.2 kg)	33 lbs (15 kg)
Shipping dimensions	36.5" x 24.5" by 11" (94 x 63 x 28 cm)	36.5" x 24.5" by 11" (94 x 63 x 28 cm)	36.5 X 24.5 X 11 (94 x 63 x 28 cm)	36.5 X 24.5 X 11 (94 x 63 x 28 cm)	32" x 23.5" x 7.5" (81.5 x 59.7 x 19.1 cm)
Shipping weight	69 lbs (31.3 kg)	69 lbs (31.3 kg)	69 lbs (31.3 kg)	69 lbs (31.3 kg)	40 lbs(18.1 kg)
Power, environmental and regulatory					
Power supplies	Dual Redundant, Hot Swappable				Single (optional dual redundant)
Wattage (Max)	1000W	1000W	1000W	1000W	450W (900W w/ redundant PSU)
Input voltage / frequency ranges	100-240 VAC, 47-63 Hz	100-240 VAC, 47-63 Hz	100-240VAC, 47-63 Hz	100-240 VAC, 47-63 Hz	100-240 VAC, 50-60 Hz
Input current	9.0 - 4.5A	9.0 - 4.5A	7.0-3.5A	7.0-3.5A	2.5 - 1.0A
Operating temperature	32 – 104 F (0 – 40 C)				
Operating altitude	0 – 4921 ft. (0-1500M)				
Storage temperature	14F to 140F (-10C to 60C)				
Allowed relative humidity	20%-80%, non-condensing	20%-80%, non-condensing	20%-80%, non-condensing	20%-80%, non-condensing	5%-95%, non-condensing
Safety certifications	CSA	CSA	CSA	CSA	UL, TUV-C
Electromagneticemissions, safety and environmental	FCC (Part 15 Class A), CCC, KCC, NOM, CITC, EAC, DoC, CE, VCCI, RCM				
Environmental compliance	RoHS, WEEE				
Citrix compliance regulatory model	2U1P1D	2U1P1D	2U1P1B	2U1P1B	NS 6xSFP 6xCU

²⁴Published Ethernet interfaces compliant per IEEE802.3-2002/2005/2008/2012.

Hardware specifications					
Appliance	2100	2000	1000	800	410
Storage					
Total disk space (SSD)	240GB (SSD)	600 GB	300 GB	240 GB	60 GB
Compression history (SSD)	N/A	275 GB	148 GB	80 GB	N/A
RAM	32GB	32 GB	24 GB	8 GB	
Network interfaces²⁴					
Fail to Wire	4 x 1000BaseTX	4 x 1000BaseTX		6 x 1000BaseTX	
Non-Fail to Wire	4 x 1GE SFP	-		-	
Management interfaces	1 x 1000BaseTX	2 x 1000BaseTX		1 x 1000BaseTX	
Mechanical					
Rack units	1RU (1.75 inches / 4.45 cm)				
Rack options	EIA 310-D, IEC 60297, DIN 41494 SC48D rack width with mounting brackets				
System depth	24" (63.5 cm)	24" (63.5 cm)	10.5" (26.7 cm)	10.5" (26.7 cm)	14" (35 cm)
System weight	32 lbs	32 lbs (14.6 kg)	8 lbs (3.63 kg)	8 lbs (3.63 kg)	8.5 lbs (3.87 kg)
Shipping dimensions and weight	33"L x 24"W x 8"H	32" x 23.5" x 7.5" (81.5 x 59.7 x 19.1 cm)	25.5" x 6.1" x 18.5" (64.8 x 15.5 x 47.0 cm)	25.5" x 6.1" x 18.5" (64.8 x 15.5 x 47.0 cm)	26" x 6.5" x 18.5" (66.1 x 16.6 x 47.0 cm)
Shipping weight	40 lbs	39 lbs (17.8 kg)	14.0 lbs (6.35 kg)	14.0 lbs (6.35 kg)	13.5 lbs (6.14 kg)
Power, environmental and regulatory					
Power supplies	Single (optional dual redundant)	Single	Single	Single	Single
Wattage (Max)	450W (900W with redundant PSU)	300W	200W	200W	200W
Input voltage / frequency ranges	100-240 VAC, 50-60 Hz				
Input current	3.4-1.7A	1.5 - 0.6A	2.6A Max	2.6A Max	3 - 1.5A
Operating temperature	32F to 104F (0C to 40C)				
Operating altitude	0 - 4921 ft. (0-1500M)				
Storage temperature	14F to 140F (-10C to 60C)		-4F to 140F (-20C to 60C)		14F to 140F (-10C to 60C)
Allowed relative humidity	20%-80% non-condensing	5%-95% non-condensing			20%-80% non-condensing
Safety certifications	CSA	UL, TUV-C			CSA
Electromagnetic emissions, safety and environmental	FCC (Part 15 Class A), CCC, KCC, NOM, CITC, EAC, DoC, CE, VCCI, RCM				
Environmental compliance	RoHS, WEEE				
Citrix compliance regulatory model	1U1P1A	NS 6xCu	CB 504-2		512-2

²⁴Published Ethernet interfaces compliant per IEEE802.3-2002/2005/2008/2012.



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