

# NetScaler

## The world's most advanced cloud network platform



NetScaler is the industry's leading web and application delivery controller that maximizes the performance and availability of all applications and data, and also provide secure remote access to any application from any device type. NetScaler products are easily selected by determining the edition providing functional needs and the appropriate physical or virtual appliance platform to fulfill performance needs

Feature	Enterprise Edition
<b>Application availability</b>	
L4 load balancing and L7 content switching	•
Microsoft SQL, MYSQL	•
AppExpert rate controls	•
IPv6 support	•
Traffic domains	•
Subscriber-aware traffic steering	•
Global server load balancing (GSLB)	•
Carrier-Grade Network Address Translation (CGNAT)	•
Dynamic routing protocols	•
Surge protection and priority queuing	•
TriScale Clustering	•
<b>Application acceleration</b>	
Client and server TCP optimizations	•
AppCompress	•
AppCache	•
<b>Application security</b>	
L4 DoS defenses	•
L7 DoS defenses	•
L7 rewrite and responder	•
XenMobile NetScaler connector	•
AAA for traffic management	•
NetScaler AppFirewall with XML security	•
IP Reputation	•
nFactor authentication	•
NetScaler Cloud Connector	
<b>Front-end optimization**</b>	
Content layout	•
Domain sharding	•
Image optimization	•
Style sheets and JavaScript optimization	•
<b>TCP protocol optimization</b>	
Multi-path TCP	•
BIC and cubic TCP	•

Feature	Enterprise Edition
<b>Simple manageability</b>	
NetScaler Insight Center-Web Insight	•
AppExpert visual policy builder	•
ActionAnalytics	•
AppExpert service callouts, templates and visualizers	•
Role-based administration and AAA for administration	•
Configuration wizards	•
Native Citrix web interface	•
Comtrade Management Pack for NetScaler	
Citrix Command Center	•
<b>Unified Gateway</b>	
Federated Identity	•
One URL/SSO using SAML 2.0	•
Centralized Policy Management (SmartControl)	
Stateless RDP proxy	•
Cluster for ICA proxy (Striped)	•
Monitoring of XenApp/XenDesktop traffic (Real time)	•
Monitoring of XenApp/XenDesktop traffic (Historical)	
Monitoring of Gateway traffic (Real time)	•
Monitoring of Gateway traffic (Historical)	
<b>NetScaler Gateway</b>	
Broad client support for plugins	•
Customizable web portal	•
SSL VPN remote access	•
ICA proxy to XenApp and XenDesktop	•
Contextual policies for XenApp/XenDesktop (SmartAccess)	•
End Point Analysis	•
Secure browser-only access (CVPN)	•
Always-On	•
Integration with StoreFront	•

• Standard • Option

\* Universal license is required on top of a NetScaler (Platinum, Enterprise, Standard) or a Gateway (AGEE) license. Standard and Enterprise Editions include (5) Universal licenses. Platinum Edition includes (100) Universal licenses.

\*\* An integrated cache license is required for several front-end optimization features

<b>NetScaler Platform</b>	<b>MPX/SDX 14020</b>
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<b>Platform attributes</b>	
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Memory	64 GB
Ethernet ports	16x 10GE SFP+
Transceivers support	10GE SFP+: SR, LR; 1G cu
Pay as you grow	Upgrade option to MPX/SDX 14030, 14040, 14060, 14080 and 14100

<b>Platform performance</b>	
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System throughput, Gbps	20
HTTP requests/sec	1,400,000
SSL transactions/sec (2k)*	22,000
SSL throughput	21
Compression throughput	4.4
ICA Proxy/SSL VPN concurrent users	20,000
Number of instances included/ Maximum number of instances (on SDX models)	5/25

<b>Platform mechanical, environmental and regulatory</b>	
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Power supplies	2
Input voltage	100-240VAC full range, 47-63 Hz
Optional DC power supply	Yes
Max power consumption	528W
Typical power consumption	300W 1024 BTU/Hr
Weight, lbs	60
Height	2U
Width	EIA 310-D, IEC 60297, DIN 41494 SC48D rack width with mounting brackets
Depth	28" / 71.2 cm
Operating temperature	0-40C
Allowed relative humidity	5%-95%, non-condensing
Safety certifications	CSA
Electromagnetic emissions certifications	FCC (Part 15 Class A), DoC, CE, VCCI, CNS, AN/NES
Regulatory compliance	RoHS
Citrix compliance regulatory model	2U1P1B

\* Performance varies depending on ciphers deployed, contact your Citrix sales representative for details

# Technical aspects

## Unified Gateway

- Provides consolidation of secure remote access infrastructure with One URL
- Provides SAML 2.0 federated identity to provide Single Sign-On across all applications whether in a datacenter or in a cloud
- One URL to access any application
- Always-On allows auto-reconnect of SSL VPN session when users are moving between networks
- Integration with StoreFront allows importing UI changes from StoreFront to Gateway portal and vice versa
- Gateway Insight for monitoring and troubleshooting all Gateway traffic for issues like authentication and EPA failures, single sign-on failures etc.
- nFactor authentication for all applications
- Stateless RDP proxy
- Support for Linux (Ubuntu 14.04 32bit / 64bit, Ubuntu 12.04 32bit / 64bit)
- Support for Mac (OS X 10.9 (Mavericks), OS X 10.10 (Yosemite))
- Support for Windows 7, 8, and 8.1 (32bit / 64bit)
- Support for iOS 7.1 or later. Compatible with iPhone, iPad and iPod touch.
- Support for Android 4.1.x & 4.2.x (Jelly Bean), 4.4.x (KitKat), 5.x (Lollipop).

## Secure access

- XA/XD/XM integration
- Device certificate scanning
- Single sign-on using NTLM/Kerberos/SAML etc.
- SmartAccess: Adaptive application and action control enforced on XenApp and XenDesktop servers
- SmartControl: Adaptive application and action control enforced on NetScaler Unified Gateway, thereby providing centralized policy management and security at the edge • Integrated NetScaler Unified Gateway SSL VPN
- Five SSL VPN concurrent user (CCU) licenses included in Standard and Enterprise Editions and 100 CCUs included in Platinum Edition
- End point analysis of user device
- SAML 2.0 and nFactor; passwords for single sign on to backend services stored on NetScaler Unified Gateway
- AAA traffic management
- SAML 2.0 and NTLMv1/2 support for configuring NetScaler with single sign-on (SSO)
- Support for Active Directory, LDAP, RADIUS, TACACS+, OCSP, Diameter etc.

## L4-7 traffic management

### Layer 4 load balancing (LB)

- Protocols supported: TCP, UDP, FTP, HTTP, HTTPS, DNS (TCP and UDP), SIP (over UDP), RTSP, RADIUS, DIAMETER, SQL, RDP, IS-IS, SMPP
- Algorithms: Round Robin, Least Packets, Least Bandwidth, Least Connections, Response Time, Hashing (URL, Domain, Source IP, Destination IP, and CustomID), SNMP-provided metric, Server Application State Protocol (SASP)
- Session persistence: Source IP, cookie, server, group, SSL session, SIP CALLID, Token-based, SESSIONID, Diameter AVP
- Session protocols: TCP, UDP, SSL\_TCP, Multi-path TCP, SPDY
- Server monitoring: Ping, TCP, URL, ECV, scriptable health checks, Dynamic Server Response Time
- Link load balancing
- CloudBridge load balancing

### Layer 7 content switching

- Policies: URL, URL Query, URL Wildcard, Domain, Source/ Destination IP, HTTP Header, Custom, HTTP and TCP Payload Values, UDP, Diameter AVP
- Switch requests based on protocol of incoming packets

### Database load balancing

- Support for: Microsoft SQL Server and MySQL
- Switching algorithms include SQL query parameters such as user and database names and command parameters
- Token-based load balancing provides advanced configuration for persistence and fault tolerant deployments

### TriScale Clustering<sup>2</sup>

- “Scale-Out” with clustering up to 32 NetScaler appliances into single system image and up to 3 Tbps throughput
- Configuration Coordinator node for centralized management and synchronization
- Compatible with Pay-As-You-Grow and Burst Pack performance upgrades
- Traffic distribution mechanisms include: Equal Cost Multiple Path (ECMP), Link-sets, and Cluster Link Aggregation Group (CLAG)
- Available on NetScaler MPX, SDX and VPX and with NetScaler EE and PE editions
- Modules may be configured on all nodes in a cluster or using “spotted VIPs” they are added only to a select subset of nodes

### Rate-based policy enforcement

- Trigger NetScaler policies based upon connections per second, packets per second, or bandwidth used
- Source or destination-based upon header or payload information

### Traffic domains

- Allows overlapping IP addresses
- Provides separate routing flows within a single appliance
- Enables basic multi-tenancy implementations

### Admin Partitioning

- Independent instances that share resources on the appliance
- Maximum number of 512 admin partitions per appliance

### Global server load balancing (GSLB)

- Algorithms: site health, geographic proximity, network proximity, connections, bandwidth, AG-E SSL VPN users
- Site health checking on status, connection load, packet rate, SNMP-provided metrics

### Surge protection and priority queuing<sup>2</sup>

- Adaptive rate control for TCP connections and HTTP requests

- Prioritized transaction dispatch for critical application requests

#### **Carrier-Grade Network Address Translation<sup>2</sup>**

- Support for: Full-cone NAT, Deterministic NAT,
- Endpoint-Independent Mapping and Filtering, Hair-pinning
- Application Layer Gateways: FTP, TFTP, ICMP, SIP, RTSP, PPTP, GRE

#### **Subscriber-aware traffic steering**

- Policy control interface: Gx, RADIUS

#### **Application acceleration**

##### **TCP optimization**

- Multiplexing, buffering, connection keep-alive, windows scaling, selective acknowledgement, fast ramp, TCP Westwood
- AppCompress
- Gzip-based compression for HTTP traffic AppCache<sup>3</sup>
- Caching for static and dynamic application content
- HTTP GET and POST method support
- Policies defined based upon HTTP header and body values

#### **Application security**

##### **DoS attack defense**

- Continue service to legitimate users while protecting against attacks such as: SYN Flood, HTTP DoS, and Ping of Death
- ICMP and UDP rate control

##### **Content rewriting and response control**

- Policy-based bidirectional rewriting of HTTP header and payload elements
- Policy-based redirection of incoming requests
- Body URL rewrite
- Responder module
- Custom responses and redirects
- Policy-based routing
- Network aware policies

##### **SSL Encryption**

- Supports Thales nShield and SafeNet HSM integration

##### **DNSSEC**

- DNS proxy
- Authoritative DNS
- DNS signing

##### **Packet filtering**

- Layer 3 and 4 Access Control Lists (ACL)
- Network Address Translation (NAT)
- IPv4/IPv6 Network Address Translation (NAT)

##### **Support for XenMobile MDM<sup>5</sup>**

- Front end optimization scalable to over 100,000 concurrent users
- XenMobile NetScaler Connector (XNC) provides a device level authorization service
- Application level policy controlled SSL VPN tunneling for mobile clients

#### **Network integration**

- Static routes, monitored static routes, weighted static routes
- OSPF, RIP1/2, BGP2
- VLAN 802.1Q
- Link Aggregation 802.3ad
- Stateful IPv6 to IPv4 network address translation and DNS64
- Static and stateless network address translation from IPv4 to IPv6

##### **High availability**

- Active/Passive
- Active/Active
- VRRP
- ECMP
- Connection mirroring

#### **Simplified installation and management**

##### **User interface**

- Graphical application visualizer
- Secure web-based GUI
- CLI, Telnet, SSH, Console
- Real-time performance dashboard
- LB, GSLB Application Firewall and EdgeSight<sup>®</sup> for NetScaler configuration wizards
- XenApp configuration wizards

##### **Policy management**

- AppExpert Visual Policy Builder
- Policy extensibility via HTTP service callouts
- AppExpert templates
- AppExpert Visualizers

### **Citrix Command Center**

- Centralized configuration and management of over 200 NetScaler appliances

### **NetScaler Insight Center and AppFlow:**

- NetScaler Insight Center is a software solution enabling traffic visibility; it includes HDX Insight and Web Insight and is based on AppFlow
- HDX Insight parses ICA sessions to provide troubleshooting, network analysis and end-to-end performance for XenApp/XenDesktop sessions. Historical data included in Platinum Edition
- Web Insight monitors real-time web application traffic and assists capacity planning and helps ensure SLAs
- AppFlow Standards-based NetFlow/IPFIX (Internet Protocol Flow Information Export) solution
- Supported by leading performance monitoring and management vendors
- Provides transaction level visibility for HTTP, SSL, TCP, and SSL/TCP flows

### **Action analytics**

- Aggregates real-time traffic statistics and enables their use in setting dynamic policies
- Charting and analysis utilities using HDX Insight

### **Third party management support**

- SNMPv1, SNMPv2 and SNMPv3: NetScaler MIB and MIB-II support
- Microsoft System Center Operations Management (SCOM) support
- Comtrade support with Management Pack for Citrix NetScaler
- Microsoft System Center Virtual Machine Manager (SCVMM) support
- XML/SOAP API for automated application-driven configuration

### **Real-time consolidated logging**

- Offloads logging from application server to a central location

### **Native web interface**

- Integrated Web Interface Server for XenApp and XenDesktop
- Supports JAVA environments with MPX and VPX platforms running NetScaler nCore OS
- Authentication methods include: LDAP, RADIUS, NTLM, TACACS+, Client Certificate
- Manage HTTPS requests via included SSL VPN
- Wizards-based configuration through NetScaler GUI
- Login page customization
- Includes Smart Access, smooth roaming, STA server redundancy, and session reliability

## **Lower total cost of ownership**

### **Web cache redirection<sup>2</sup>**

- Automatically direct requests with content not cached on NetScaler to cache farm
- N-tier multilayer load balancing support of cache servers

<sup>1</sup> Additional NetScaler packs with 3 (8xxx) or 5 (all other models) instances each are available. For SDX 8015 maximum number of instances is 5.

<sup>2</sup> Available in NetScaler Enterprise and Platinum editions only.

<sup>3</sup> Included in Platinum edition only; not available with Standard or Enterprise editions.

<sup>4</sup> Available as a license upgrade on all editions and for MPX, SDX (excluding 22000 series) and VPX appliances.

<sup>5</sup> Enterprise edition with AppCache or Platinum edition recommended.

### **About Citrix**

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