# NetScaler FIPS Platforms

NetScaler is the industry’s leading web and application delivery controller that maximizes the performance and availability of all applications and data. The NetScaler FIPS, compliant platforms meet the performance and scalability needs of today’s highly secure data centers. FIPS, compliant multi-tenant platforms extend these benefits even further by consolidating services across secured virtual instances.


### Application availability

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<tbody>
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<tr>
<td>TriScale clustering</td>
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### Application acceleration

- Client and server TCP optimizations
- AppCompress
- AppCache

### Application security

- 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

### Front-end optimization*

- Content layout
- Domain sharding
- Image optimization
- Style sheets and JavaScript optimization

### TCP protocol optimization

- Multi-path TCP
- BIC and cubic TCP

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## Data Sheet

### NetScaler

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<thead>
<tr>
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<tbody>
<tr>
<td><strong>Simple manageability</strong></td>
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<tr>
<td>NetScaler Insight Center-Web Insight</td>
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<td>AppExpert visual policy builder</td>
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<td>ActionAnalytics</td>
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<td>AppExpert service callouts, templates, and visualizers</td>
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<td>Role-based administration and AAA for administration</td>
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<td>Configuration wizards</td>
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<td>Native Citrix web interface</td>
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<td>Comtrade Management Pack for NetScaler</td>
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<td>Citrix Command Center</td>
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<td><strong>Unified Gateway</strong></td>
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<td>Federated identity</td>
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<td>One URL/SSO using SAML 2.0</td>
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<td>Centralized Policy Management (SmartControl)</td>
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<td>Stateless RDP proxy</td>
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<td>Cluster for ICA proxy (striped)</td>
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<td>Monitoring of XenApp/XenDesktop traffic (real time)</td>
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<td>Monitoring of XenApp/XenDesktop traffic (historical)</td>
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<td>Monitoring of Gateway traffic (real time)</td>
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<td>Monitoring of Gateway traffic (historical)</td>
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<tr>
<td><strong>NetScaler Gateway</strong></td>
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<td>Broad client support for plugins</td>
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<td>Customizable web portal</td>
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<td>SSL VPN remote access</td>
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<td>ICA proxy to XenApp and XenDesktop</td>
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<td>Contextual policies for XenApp/XenDesktop (SmartAccess)</td>
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<td>Endpoint Analysis</td>
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<td>Secure browser-only access (CVPN)</td>
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<td>Always-On</td>
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<td>Integration with StoreFront</td>
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- **Standard**
- **Option**

An AppCache license is required for several front-end optimization features.
<table>
<thead>
<tr>
<th>NetScaler Platform</th>
<th>MPX/SDX 14080 FIPS</th>
<th>MPX/SDX 14060 FIPS</th>
<th>MPX/SDX 14030 FIPS</th>
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<tbody>
<tr>
<td><strong>Platform attributes</strong></td>
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<tr>
<td>Memory</td>
<td>64 GB</td>
<td>64 GB</td>
<td>64 GB</td>
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<tr>
<td>CPU cores</td>
<td>9</td>
<td>8</td>
<td>6</td>
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<td>Ethernet ports</td>
<td>16x 10GE SFP+</td>
<td>16x 10GE SFP+</td>
<td>16x 10GE SFP+</td>
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<tr>
<td>(Published Ethernet interfaces compliant per IEEE802.3-2002/2005/2008/2012)</td>
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<tr>
<td>Transceivers support</td>
<td>10GE SFP+: SR, LR, 1G cu</td>
<td>10GE SFP+: SR, LR, 1G cu</td>
<td>10GE SFP+: SR, LR, 1G cu</td>
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<tr>
<td>Raid support</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Pay-As-You-Grow and Burst Pack license upgrades</td>
<td>Upgrade option to SDX 14080 FIPS</td>
<td>Upgrade option to SDX 14060 FIPS, 14080 FIPS</td>
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</table>

| **Platform performance** |                  |                   |                   |
| System throughput, Gbps (L7 throughput) | 80                | 60                | 30                |
| L7 HTTP requests/sec | 2,000,000         | 1,800,000         | 1,400,000         |
| SSL transactions/sec (2K key certificates)* | 33,000            | 25,000            | 18,000            |
| SSL throughput, Gbps | 30                | 23                | 18                |
| Compression throughput, Gbps | 6.8              | 6                 | 5                 |
| ICA Proxy/SSL VPN concurrent users | 20,000            | 20,000            | 20,000            |
| Number of instances included/Maximum number of instances | 25/25             | 25/25             | 10/25             |

| **Platform mechanical, environmental, and regulatory** |                  |                   |                   |
| Power supplies | 2                  | 2                 | 2                 |
| Input voltage and frequency ranges | 100-240VAC full range, 47-63 Hz | 100-240VAC full range, 47-63 Hz | 100-240VAC full range, 47-63 Hz |
| Optional DC power supply | Yes               | Yes               | Yes               |
| Max power supply | 528W              | 528W              | 528W              |
| Typical/max power consumption | 300W 1024 BTU/Hr | 300W 1024 BTU/Hr | 300W 1024 BTU/Hr |
| Weight, lbs     | 60                | 60                | 60                |
| Height          | 2U                | 2U                | 2U                |
| Width           | EIA 310-D, IEC 60297, DIN 41494 SC48D rack width with mounting brackets | EIA 310-D, IEC 60297, DIN 41494 SC48D rack width with mounting brackets | EIA 310-D, IEC 60297, DIN 41494 SC48D rack width with mounting brackets |
| Depth           | 28 in / 71.2 cm   | 28 in / 71.2 cm   | 28 in / 71.2 cm   |
| Operating temperature | 0-40C            | 0-40C            | 0-40C            |
| Allowed relative humidity | 5%-95%, non-condensing | 5%-95%, non-condensing | 5%-95%, non-condensing |
| Safety certifications | CSA              | CSA              | CSA              |
| Electromagnetic emissions certifications and susceptibility standard | FCC (Part 15 Class A), DoC, CE, VCCI, CNS, AN/NES | FCC (Part 15 Class A), DoC, CE, VCCI, CNS, AN/NES | FCC (Part 15 Class A), DoC, CE, VCCI, CNS, AN/NES |
| Regulatory compliance | RoHS, WEEE, FIPS 140-2, Level 3 | RoHS, WEEE, FIPS 140-2, Level 3 | RoHS, WEEE, FIPS 140-2, Level 3 |
| Citrix compliance regulatory model | 2U1P1B          | 2U1P1B          | 2U1P1B         |

Performance varies depending on ciphers deployed; contact your Citrix sales representative for details.
Technical aspects

NetScaler 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 data center or 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 and 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.NetScalerUnifiedGateway, thereby providing centralized policy management and security at the edge
- Integrated NetScaler Unified Gateway SSL VPN
- NetScaler 11.1, and earlier Standard and Enterprise Editions include (5) Universal licenses. Platinum Edition includes (100) Universal licenses. Starting at NetScaler 11.1, Standard includes 500 Universal licenses, and there are no Universal license requirements with Platinum Edition. Universal license entitlements are per HA pair or per cluster depending on how you deploy NetScaler.
- Endpoint analysis of user device
- SAML 2.0 and nFactor; passwords for single sign-on to applications running behind 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
- 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

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
- “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
- Adaptive rate control for TCP connections and HTTP requests
- Prioritized transaction dispatch for critical application requests

Carrier-Grade Network Address Translation
- Support for: Full-cone NAT, Deterministic NAT, Endpoint-Independent Mapping and Filtering, Hairpinning
- Application Layer Gateways: FTP, TFTP, ICMP, SIP, RTSP, PPTP, GRE

Subscriber-aware traffic steering
- Policy control interface: Gx, RADIUS

Application awareness

TCP optimization
- Multiplexing, buffering, connection keep-alive, windows scaling, selective acknowledgement, fast ramp, TCP Westwood
- AppCompress
- Gzip-based compression for HTTP traffic
- 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)

NetScaler AppFirewall with hybrid security model
- Positive security model protects against: buffer overflow, CGI- BIN parameter manipulation, form/hidden field manipulation, forceful browsing, cookie or session poisoning, broken ACLs, cross-site scripting (XSS), command injection, SQL injection, error triggering sensitive information leak, insecure use of cryptography, server misconfiguration, back doors

and debug options, rate-based policy enforcement, well known platform vulnerabilities, zero-day exploits, cross site request forgery (CSRF), credit card and other sensitive data leakage prevention

- Negative security model with automatically updated signatures to protect against L7 and HTTP application vulnerabilities
- Integrates with third-party scanning tools
- Common event format (CEF) logs
- XML security: XML denial of service (xDoS)
- XML SQL injection and cross site scripting, XML message validation, format checks, WS-I basic profile compliance, XML, XPath injection attachment check, xQuery Injection protection
- WSDL scan prevention
- Attachment checks
- URL transformation
- Cookie proxy and encryption
- SOAP array attack protection

IP Reputation service
- Enhanced service that provides a continuously updated list of malicious IP addresses in near real-time

NetScaler Cloud Connector
- Network connectivity protection via IPSec security
- Datacenter extension through GRE-based network bridging

Support for XenMobile MDM
- 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 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 SLAs
- 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/SDK 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
- Automatically direct requests with content not cached on NetScaler to cache farm
- N-tier multilayer load balancing support of cache servers

1 Additional NetScaler packs with 3 (8xxx) or 5 (all other models) instances each are available. For SDX 8015, the maximum number of instances is 5.
2 Available in NetScaler Enterprise and Platinum editions only.
3 Included in Platinum edition only; not available with Standard or Enterprise editions.

About Citrix
Citrix (NASDAQ:CTXS) is leading the transition to software-defining the workplace, unifying virtualization, mobility management, networking and SaaS solutions to enable new ways for businesses and people to work better. Citrix solutions power business mobility through secure, mobile workplaces that provide people with instant access to apps, desktops, data and communications on any device, over any network and cloud. With annual revenue in 2014 of $3.14 billion, Citrix solutions are in use at more than 330,000 organizations and by over 100 million users globally. Learn more at www.citrix.com.

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