DATA SHEET

Brocade ServerIron ADX Application Delivery Switches

HIGHLIGHTS

- Supports the diverse requirements of applications and cloud service delivery models with a comprehensive Brocade application delivery portfolio
- Maximizes consolidation of networking infrastructure with Brocade ADX hardware-based virtualization, helping to reduce CapEx and OpEx by up to 75 percent
- Enables on-demand performance and capacity scalability with a pay-as-you-grow licensing model for fixed platforms and fully interchangeable modules for chassis systems
- Simplifies the deployment of new and differentiated revenue streams to increase Average Revenue Per User (ARPU) via the Brocade OpenScript engine
- Helps reduce operational costs by enabling the automation and orchestration of application delivery with Brocade Application Resource Broker
- Minimizes the investment risk of cloud-optimized network deployments with Brocade Network Subscription

Delivering Efficient, Scalable, and Agile Cloud Services without Compromising on Performance

Cloud computing technologies have transformed how organizations design and operate their data centers. More than ever, they must find a cost-effective means to scale capacity to support business growth, maximize infrastructure utilization, and increase operational efficiency and business agility.

This requires a resilient and adaptable network that can facilitate the rollout of new services or applications in real time. The underlying infrastructure must be able to consolidate network resources into shared, reusable assets, allowing administrators to more efficiently distribute workloads and manage peak traffic while adhering to Service Level Agreements (SLAs).Moreover, it must allow organizations to streamline data center operations and automate workloads within their virtual and physical infrastructures, to help ensure predictable and reliable service delivery.

Brocade® application delivery solutions provide the flexibility and scale to meet the demands of service-driven data centers—all without compromising on performance and reliability. Whether an organization requires dedicated hardware, hardware-based multitenancy, or a virtual platform, the Brocade ServerIron® ADX® Series provides a comprehensive application delivery portfolio.

The Brocade ADX Series is used by the world's most demanding service provider networks and large enterprise data centers. With the Brocade ADX Series, these organizations gain a highly scalable and carrier-grade platform designed to ensure the cost-effective, reliable delivery of cloud services and maximum Return on Investment (ROI).

Purpose-built for Service Delivery

A flexible and highly scalable system architecture is at the heart of the Brocade ADX Series. As a result, these switches can provide superior performance and scalability as well as low-latency switching (20 microseconds) for response-sensitive applications.

Distributed System Architecture

The Brocade ADX Series is built on a distributed architecture that helps maximize application performance while ensuring complete physical separation of the management and data planes. It features a high-density, multicore architecture and dedicated switching

fabric to simplify network deployments and enable high-speed interconnects among application, management, and interface modules.

Hardware-based Multitenancy

When deployed in multitenant mode, the Brocade ADX Series offers:

- **Maximum infrastructure efficiency:** Consolidates multiple Brocade ADX instances on a single platform, providing maximum infrastructure efficiency while reducing costs associated with power and cooling, rack space, license management, system maintenance, and administration.
- **Tenant flexibility and operational simplicity:** Enables maximum flexibility to mix and match capacity, features, and services according to change in demand. Provides on-demand provisioning, unified management, and monitoring of multiple Brocade ADX instances via a common control plane, in support of true cloud service delivery.
- **Full tenant isolation:** Allows multiple, fully isolated Brocade ADX instances to run on a single physical system—each with its own system configuration, network stack, resource, and management—when the Brocade ADX Series is deployed as a shared device. This hardware-based virtualization of the Brocade ADX system helps ensure security, compliance mandates, and adherence to service SLAs.
- **Complete high availability:** Ensures that applications and services are always available by providing redundancy at both the device and tenant levels. As a fully isolated tenant on a shared device, each Brocade ADX instance can be deployed as a high-availability pair in either an active/standby or active/active configuration. Organizations can enable comprehensive configuration synchronization for increased redundancy of the device and all tenants that are enabled on it.

Capacity on Demand

All Brocade ADX switches can be quickly upgraded in the field using software license keys. This allows organizations to enable a full suite of hardware and software options when needed without taking the platform offline. Organizations can quickly increase performance and port capacity, as well as add advanced features to the Brocade ADX 1000 Series switches, with a simple software license upgrade that supports the "pay-as-you-grow" deployment strategy. The capacity expansion is also available for the modular chassis platforms of the Brocade ADX 4000 and 10000 Series, which can leverage interchangeable modules.

Scalable and Seamless IPv6 Transition

Growing demand for IP-based services, combined with the move to cloud-based networking, presents new opportunities for today's organizations. The rapid growth of billions of Internet-enabled devices and applications has led to IPv4 address depletion. As a result, thousands of organizations are seeking to enable next-generation IPv6 for their products and services as a way to mitigate further Internet growth. The Brocade ADX Series offers a pragmatic strategy for IPv6 transition and IPv4/v6 co-existence by enabling organizations to maximize their existing IPv4-based investments while connecting with the growing IPv6-based world (see Figure 1).

Dual Stack

The Brocade ADX Series supports all major use cases on both IPv4 and IPv6—and with near-equivalent performance. For modern applications running on a modern OS, Brocade recommends running dual stack on the server with dual-stack Application Delivery Controller (ADC) functions. Brocade also supports dual-stack GSLB for application redundancy.

Network Transition

The Brocade ADX Series scales existing services and interconnects IPv4 or IPv6 network islands using gateway-based, large-scale NAT services (444 or 64). For large networks of IPv4-only endpoints (legacy) or IPv6-only clients (such as 4G mobile headsets) in which bidirectional traffic is needed, an application-aware NAT64 gateway is the best solution. The Brocade ADX Series network transition solution provides organizations scale, monitoring, and application audit capabilities.

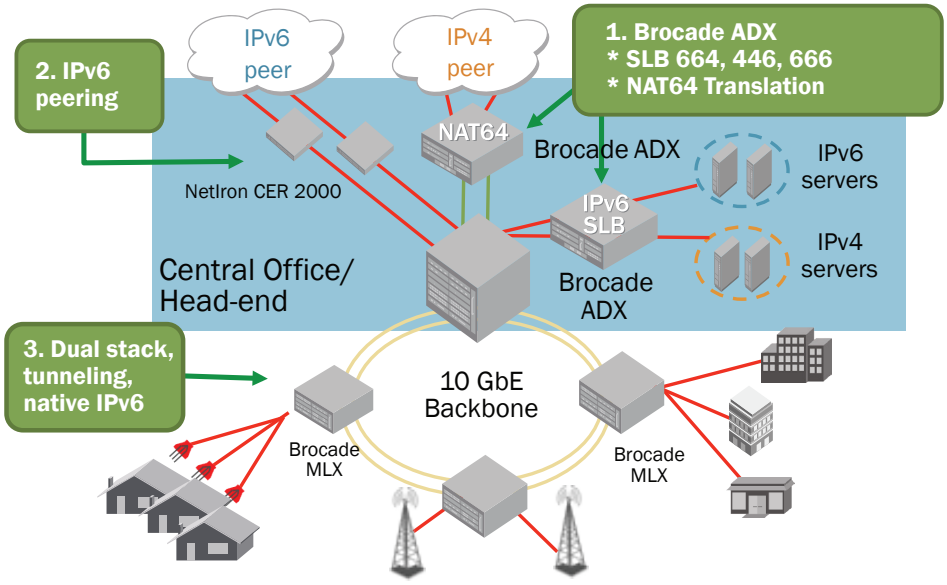

Figure 1. The Brocade ADX Series enables a scalable and seamless transition to IPv6.

Application Transition

The Brocade ADX Series also supports the migration of Virtual IPs (VIPs) and real servers from IPv4 to dual stack or to native IPv6 with a complete suite of Server Load Balancing (SLB) translation services. For older applications or operating systems, Brocade provides a complete suite of SLB translations, including 664 to legacy IPv4 servers and 446 to new IPv6-only servers. While the application is in transition, one VIP—IPv4 or IPv6—can host a combination of IPv4 and IPv6 real servers behind it.

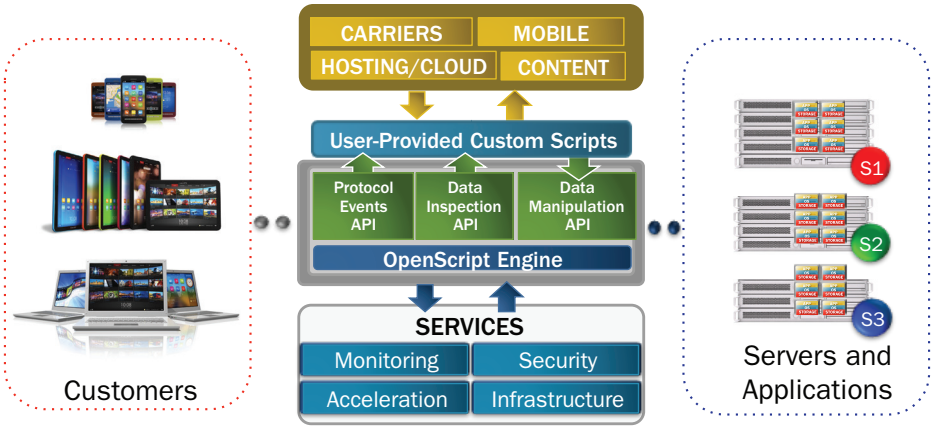

Figure 2. The Brocade OpenScript engine.

High-Performance Application Delivery

The Brocade ADX Series enables efficient distribution of traffic among application and infrastructure servers using load-balancing methods that monitor server connection load, server resources such as CPU and memory, application response time, and pre-assigned server weights for an optimal application experience.

Web and Application Server Load Balancing

The Brocade ADX Series provides uninterrupted, high-performance, and low-latency delivery of popular applications—including Microsoft Exchange, Microsoft SharePoint, Microsoft Lync, SAP, Oracle, BEA WebLogic, IBM WebSphere, and Siebel—and financial services applications based on the Financial Information eXchange (FIX) protocol. The Brocade ADX Series also provides high-performance Layer 7 features, including health checking, content switching, content transformation, and application scripting.

Infrastructure Load Balancing

The Brocade ADX Series increases availability and scalability of infrastructure components that are critical for service delivery, including Domain Name Server (DNS), firewalls, caching devices, authentication services such as RADIUS and LDAP, and secure IPv4 and IPv6 DNS as well as DNS Security Extension (DNSSEC) servers.

Maximum Flexibility and Control of Service Delivery

The Brocade ADX Series provides a highly scalable and flexible way to accelerate the creation and delivery of new, innovative cloud service offerings while maintaining predictable performance.

Brocade OpenScript Engine

The Brocade OpenScript® engine (see Figure 2) is a carrier-grade application scripting engine for real-time application services that offers:

- **Distributed architecture:** Provides better scale and stability compared to shared memory architectures. The memory footprint of the OpenScript engine is extremely small, increasing the number of scripts that can run simultaneously. Data traffic is isolated in a separate "script memory," localizing the impact of a defective script and making it well suited for multitenant environments.
- **Patent-pending Brocade OpenScript Performance Estimator:** Provides deterministic network performance estimates of custom scripts without running live traffic.
- **Perl-based scripts:** Enable faster execution because they run byte code and objects are passed as handles—in contrast to other implementations that use TCL, which are interpreted at run time, thus slowing performance.
- **Objects-based flow inspection:** Allows manipulation of a response based on information in the request and vice versa, and improves intelligent traffic-handling capabilities.
- **Open architecture framework:** Allows the addition of select third-party Perl modules and OpenSource libraries (such as www.cpan.org).

Application Security and Protection

Today's organizations need strong protection against increasingly sophisticated infrastructure attacks and application threats. Brocade solutions provide a single security strategy to safeguard systems against rapidly evolving threats. These solutions offer network-based Access Control Lists (ACLs), scalable DDoS/SYN protection, and accelerated SSL proxy and offload.

Enhanced Application Security

The Brocade ADX Series stops attacks from illegitimate connections and denies service to unauthorized users through hardware-based ACLs. Moreover, the Brocade ADX Series can proactively mitigate attacks by limiting concurrent connections and the rate of new connections.

Infrastructure Protection

The Brocade ADX Series provides protection against DNS amplification attacks by inspecting DNS packets for query names, query types, and other DNS flags, and then enforcing security policies. The Brocade ADX Series drops or rate-limits these packets without sacrificing overall DNS delivery performance. Moreover, the Brocade ADX Series provides simple and hassle-free integration with DNSSEC service without disturbing the provider's pre-existing certificate management policy framework.

SSL Offload and Acceleration

The Brocade ADX Series offloads CPU-intensive Secure Sockets Layer (SSL) negotiation and connection management tasks from application servers, thereby freeing up CPU cycles for application delivery and improving application response time. With the new SSL acceleration module, the Brocade ADX chassis-based system supports the advanced 2048-bit SSL acceleration, providing a 70 percent performance gain in new SSL sessions per second.

High-Speed Attack Prevention

DDoS/SYN attacks are becoming increasingly severe, with attackers launching sophisticated attacks and even building botnets in the cloud. The Brocade ADX Series leverages its distributed hardware architecture to offer maximum protection against several forms of DDoS attacks, preventing up to 120 million attacks per second while ensuring the undisrupted flow of legitimate traffic.

Deep Packet Inspection

The Brocade ADX Series OpenScript programming toolkit enables administrators to create customized security policies to respond to unknown attacks. In addition, OpenScript can provide protection from key application vulnerabilities while permanent application patches are installed.

Always-on Application Availability

Brocade ADX application delivery switches maximize availability and provide non-stop delivery of business-critical applications through a range of capabilities.

High Availability

The Brocade ADX Series provides multiple high-availability options to suit varying infrastructure and business needs for overall enhanced application resiliency. Real-time synchronization of sessions between two peer Brocade ADX units operating in high-availability mode provides protection against system outages. If one device shuts down, then the second device transparently resumes control of client traffic, with no loss to existing sessions or connectivity.

Business Continuity and Site Redundancy

Organizations deploying multiple, geographically disparate data centers can benefit from Global Server Load Balancing (GSLB). This capability allows Brocade ADX Series switches to distribute client traffic to servers based on site availability, site load, proximity, and other advanced metrics in order to provide the optimal user experience. Similarly, the Brocade ADX Series provides a site redundancy solution for non-DNS-based infrastructures by injecting network routes for healthy VIPs from multiple data center locations. These network routes are propagated through routing protocols such as BGP, IS-IS, and OSPF, enabling clients to connect to the closest available site.

Simplified Management and Automated Provisioning

The Brocade ADX Series provides a rich collection of tools to deploy, manage, and monitor Brocade ADX devices, providing greater administrative control over the network.

Intuitive GUI

The Brocade ADX Series features a dynamic Web-based Graphical User Interface (GUI) that leverages the XML API to provide an intuitive system dashboard for detailed traffic and system statistics, simplified navigation, configuration management, and real-time system monitoring of Brocade ADX switch deployments. The Brocade ADX GUI helps simplify management by providing organizations with maximum visibility into the overall health of their Brocade ADX systems (see Figure 3).

Figure 3. The Brocade ADX Series Web-based Graphical User Interface (GUI).

Industry-Standard CLI

The Brocade ADX Series includes a powerful Command Line Interface (CLI) that simplifies device management and reduces the administrative learning curve by incorporating an industry (de facto) standard look and feel, tab completion, and in-line help.

Role-based Management

The Brocade ADX Series allows organizations to create multiple administrative domains and assign access privileges to users inside these domains, enabling custom views for different types of administration.

Comprehensive SOAP/XML API

The Brocade ADX Series leverages a standards-based SOAP/XML API that integrates control of Brocade ADX switches with both custom and third-party orchestration and automation tools. Application professionals can leverage the rich XML API extensions—from basic load balancing and system management to advanced services—to increase operational efficiency and improve the performance and reliability of their applications.

Application Resource Broker

Brocade Application Resource Broker is an infrastructure software component that simplifies the management of application resources and helps ensure optimal application performance by dynamically adding and removing application resources as workload conditions demand. Brocade Application Resource Broker—which works in tandem with the Brocade ADX Series—provides these capabilities through real-time monitoring of application responsiveness, traffic load, and infrastructure capacity.

Brocade Application Resource Broker builds on the strengths of its on-demand resource provisioning function to enable core cloud use cases, such as cloud bursting as a hybrid cloud service and business continuity (disaster avoidance) within globally distributed data centers (see Figure 4).

To accommodate the changing cloud environment, Brocade Application Resource Broker seamlessly integrates with custom and third-party virtual management suites and orchestration frameworks via a combination of RESTful APIs and standard messaging protocols, including Advanced Message Queuing Protocol (AMQP).

Brocade Application Resource Broker is available as a tightly integrated plug-in to the VMware vSphere Client and as a stand-alone application for heterogeneous virtual environments that include VMware, XenServer, and Microsoft Hyper-V.

Load Balancing as a Service (LBaaS)

Brocade ADX plug-ins allow service organizations to extend their orchestration environments to support the dynamic control of their application delivery infrastructure. Using these plug-ins, they can integrate their systems with open cloud frameworks such as OpenStack or with third-party management solutions, including VMware and Microsoft.

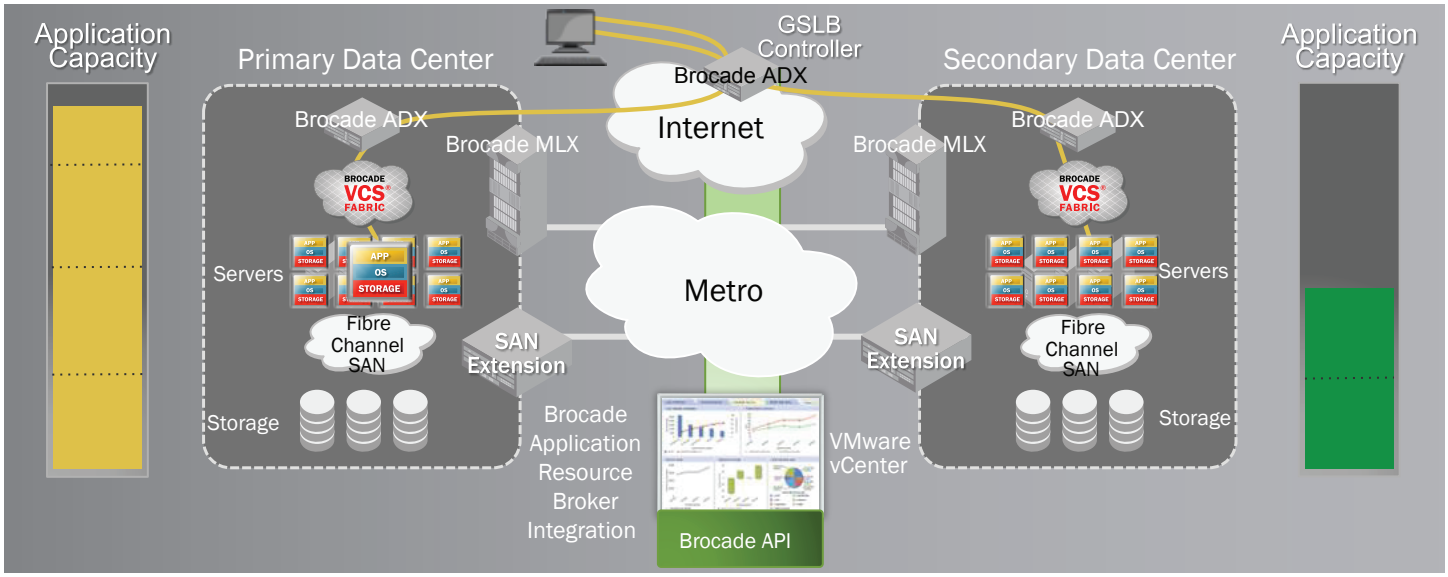

Figure 4. Brocade Application Resource Broker.

Brocade Web 2.0 Communities

Brocade Communities provides a thriving social networking venue where information and ideas are shared. Visitors can connect with industry peers and Brocade leaders, share thoughts and opinions with other members, and learn about the latest product development, solutions, and technology trends. The following sites focus on the Brocade ADX solution:

- **The Brocade Application Delivery Community:** Focuses on Brocade ADX products and associated partner technologies, and provides resources for real-time discussions, the latest product information, configuration examples, and implementation guidance. To learn more, visit http://community.brocade.com/adi.
- **The Brocade ADX OpenScript Community:** Is changing the way application development and delivery professionals learn about, share, browse, and contribute dynamic application scripts. For more information, visit http://community.brocade.com/openscript.

Brocade Global Services

Brocade Global Services has the expertise to help organizations build scalable, efficient cloud infrastructures. Leveraging 15 years of expertise in storage, networking, and virtualization, Brocade Global Services delivers world-class professional services, technical support, and education services, enabling organizations to maximize their Brocade investments, accelerate new technology deployments, and optimize the performance of networking infrastructures.

Affordable Acquisition Options

Brocade Capital Solutions helps organizations easily address their IT requirements by offering flexible network acquisition and support alternatives. Organizations can select from purchase, lease, Brocade Network Subscription, and Brocade Subscription Plus options to align network acquisition with their unique capital requirements and risk profiles. To learn more, visit www.Brocade.com/CapitalSolutions.

Maximizing Investments

To help optimize technology investments, Brocade and its partners offer complete solutions that include professional services, technical support, and education. For more information, contact a Brocade sales partner or visit www.brocade.com.

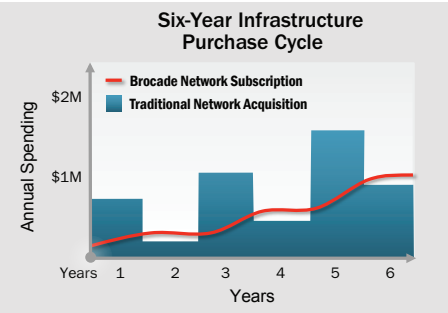

Figure 5. Brocade Network Subscription.

Brocade ADX Software Feature Overview

All Brocade ADX platforms run the same software and support the same features. In addition, the base model for all Brocade ADX platforms can be upgraded via two software licenses—a Premium feature license and an SSL license.

	Licenses		Hardware Platform Support		
Software Features	**Base**	**Prem**	**ADX 1000 /1000F**	**ADX 4000**	**ADX 10000**
Load Balancing Methods					
Least Connections, Weighted Least Connections, Round Robin, Weighted Round Robin, Static Weighted Round Robin, Enhanced Weighted, Dynamic Weighted (SNMP-based), Response Time	●	●	●	●	●
Layer 4/Layer 7 Load Balancing Support					
TCP, UDP, HTTP/HTTPS, SSL, FTP, TFTP, SMTP, IMAP4, POP3, LDAP, DNS, WTS, SIP, NNTP, RADIUS, MMS, RTSP	●	●	●	●	●
Brocade OpenScript engine	●	●	●	●	●
Global Server Load Balancing (GSLB)		●	●(1)	●	●
Application Health Monitoring					
Layer 2 ARP; Layer 3 PING; Layer 4 checks for TCP and UDP ports; Layer 7 checks for applications that include DNS, RADIUS, HTTP, SSL, LDAP, LDAPS, MMS, RTSP, SMTP, TELNET, FTP, NNTP, IMAP4, PNM, POP3, SIP	●	●	●	●	●
High Availability					
Hot-Standby, Active-Standby, and Active-Active	●	●	●	●	●
IPv6 Transition and Services					
NAT64, Layer 4-7 Server Load Balancing Services (SLB 446, SLB 664, SLB 666, dual stack IPv4/IPv6), Layer 3 routing protocols		●	●	●	●
Layer 2/Layer 3 Capabilities and Advanced Layer 3 Routing					
802.1d Spanning Tree Protocol, 802.1w Rapid Spanning Tree Protocol, 802.3ad Link Aggregation Control Protocol (LACP), VLANs, and 802.1q VLAN Tagging	●	●	●	●	●
VRRP, VRRP-E, static routing, RIPv2, OSPFv2, OSPFv3, IS-IS, Multiprotocol BGP		●	●	●	●
Application Security and Protection					
Layer 3/Layer 4 Access Control List (ACL), Network Address Translation (NAT)	●	●	●	●	●
DDoS/SYN protection, Transaction Rate Limiting, DNS Deep Packet Inspection (DPI)	●	●	●	●	●
SSL proxy, SSL termination, 2048-bit key SSL encryption, TLS 1.1/1.2	SSL License(2)	●	●	●	
Multitenancy					
Hardware-basezd virtualization		●	●(3)	●	●
Management					
SSHv2, Telnet, SNMP v1, 2, and 3, Command Line Interface (CLI), Web-based GUI, Brocade Application Resource Broker, SOAP/XML API, Brocade Network Advisor	●	●	●	●	●
Cloud Orchestration					
Brocade Application Resource Broker with support for VMware, Citrix, and Microsoft	●	●	●	●	●
Open cloud framework (OpenStack)	●	●	●	●	●
Third-party plug-ins (VMware vSphere and Microsoft System Center Virtual Machine Manager [SCVMM])	●	●	●	●	●
Standards Compliance					
NEBS compliant	●	●	●	●	●
RoHS compliant	●	●	●	●	●

1. Brocade ADX 1008-1/1008F-1 (entry-level Brocade ADX 1000) does not support GSLB controller function.
2. Additional SSL license is required to activate the SSL features.
3. Brocade ADX 1008-1/1008F-1 and 1016-2/1016F-2 do not support multitenancy. Multitenancy is supported on systems with four or more cores.

BROCADE ADX SERIES SPECIFICATIONS

	Fixed-Form Systems				Chassis-based Systems	
	ADX 1008-1/ 1008F-1	ADX 1016-2/ 1016F-2	ADX 1016-4/ 1016F-4	ADX 1216-4/ 1216F-4	ADX 4000	ADX 10000
						
Connections Per Sec (CPS)	93,750	187,500	375,000		1,500,000	3,000,000
Transactions Per Sec (TPS)	625,000	1,250,000	2,500,000		10,000,000	20,000,000
Application throughput	2 Gbps	4.5 Gbps	9 Gbps		35 Gbps	70 Gbps
DNS queries/sec (stateful)	106,250	212,500	425,000		1,700,000	3,400,000
DNS queries/sec (stateless)	562,500	1,125,000	2,250,000		9,000,000	18,000,000
Maximum SSL CPS (1024-bit key)	1625	3250	6500		25,000	50,000
Maximum SSL CPS (2048-bit key)	938	1875	3750		25,000[4]	50,000[4]
Maximum SSL TPS (1024-bit key)	7250	14,500	29,000		116,000	232,000
SYN flood protection (attacks/sec)	3,750,000	7,500,000	15,000,000		60,000,000	120,000,000
Hardware DDoS protection (packets/sec)	3,750,000	7,500,000	15,000,000		60,000,000	120,000,000
Maximum concurrent connections	4,000,000	8,000,000	16,000,000		64,000,000	128,000,000
Maximum concurrent sessions	8,000,000	16,000,000	32,000,000		128,000,000	256,000,000
Packet-switching latency	20 microseconds	20 microseconds	20 microseconds		20 microseconds	20 microseconds
Maximum number of VIPs	32	1024	1024		Up to 4096	Up to 4096
Maximum real servers	256	4096	4096		Up to 16,384	Up to 16,384
Maximum application ports	2048	8192	8192		Up to 32,768	Up to 32,768
Maximum number of tenants (multitenancy)	N/A	N/A	4		16	32
Platform Attributes						
Maximum application cores	1	2	4		16	32
Maximum system memory	2 GB	4 GB	8 GB		32 GB	64 GB
Maximum 1 Gigabit Ethernet (GbE) copper ports	1008: 8 1008F: 8	1016: 16 1016F: 8	1016: 16 1016F: 8	1216: 16 1216F: 8	Up to 24 copper or fiber	Up to 48 copper or fiber
Maximum 1 Gigabit Ethernet (GbE) fiber ports	1008: 0 1008F: 8	1016: 0 1016F: 16	1016: 0 1016F: 16	1216: 0 1216F: 16	Up to 24 copper or fiber	Up to 48 copper or fiber
Maximum 10 GbE ports	0	0	0	2	8	16
Management port	1 10/100/1000 Mbps	1 10/100/1000 Mbps	1 10/100/1000 Mbps		1	2
Maximum power supply (AC/DC)	Up to 2	Up to 2	Up to 2		Up to 2	Up to 4
Platform Characteristics						
Physical dimensions Height Width Depth	4.3 cm (1.7 in.) 44.3 cm (17.4 in.) 45.8 cm (18.1 in.)				17.7 cm (7.0 in.) 44.3 cm (17.4 in.) 44.5 cm (17.5 in.)	44.5 cm (17.5 in.) 44.3 cm (17.4 in.) 44.5 cm (17.5 in.)
Weight	37.5 lb fully loaded (17.0 kg)				54.0 lb fully loaded (24.5 kg)	112.3 lb fully loaded (50.9 kg)
Maximum power requirements	390 watts				952 watts	1920 watts
Power supply AC input rating	100 to 240 V, 50/60 Hz, 6.0 A max.				100 to 240 V, 50/60 Hz, 16.0 A max. per power supply	
AC operating voltage range	85 to 264 V, 50/60 Hz				90 to 264 V, 50/60 Hz	
DC input rating	-48 V, 15.0 A				-48 V, 30.0 A max. per power supply	
DC operating range	-40 to -60 VDC				-40 to -60 VDC	
Warranty	1-year hardware, 90-day software, upgrades to higher levels available					

4. 2048-bit SSL performance is based on the Brocade ADX chassis system with the updated SSL module (SI-AEM-SSL-2).

BROCADE ADX SERIES SPECIFICATIONS (continued)

The Brocade ADX family of application delivery switches includes:

Brocade ADX 1000 Series:

- Compact, 1U application delivery switch with multiple port configurations and three different performance options available through Capacity on Demand licensing
- Available in both copper and fiber interface configurations

Brocade ADX 4000 Series:

- A 4U chassis-based modular application delivery switch that can be equipped with one management module and up to two Application Switch Modules (ASM)

Brocade ADX 10000 Series:

- A 10U chassis-based modular application delivery switch that can be equipped with up to two management modules and up to four ASMs

Safety Compliance	
EN 60950-1:2006+A11:2009/IEC 60950-1:2005	UL 60950-1
EN 60825-1	CE Safety Low Voltage Directive 2006/95/EC
CAN/CSA C22.2 No. 60950-1-03	NEBS Compliant for Brocade ADX 1000 and 10000
	RoHS Compliant (RoHS Directive 2002/95/EC)

EMI Compliance	
FCC Part 15, Subpart B (Class A)	EN55024 (CE mark) (Immunity) Information Technology Equipment
EN 55022 (CE mark) (Class A)	ICES-003 (Canada) (Class A)
EN 61000-3-2	AS/NZ 55022 (Australia) (Class A)
EN 61000-3-3	VCCI (Japan) (Class A)
EN 61000-6-1	

Environmental	
Temperature	Operating: 0°C to 40°C/32°F to 104°F (dry bulb)
	Storage: -25°C to 70°C/-9°F to 158°F (dry bulb)
Humidity	Operating: 5% to 90% (relative, non-condensing)
	Storage: 5% to 95% (relative, non-condensing)
Altitude	Operating: 0 to 6600 ft. (0 to 2012 m) maximum
	Storage: 15,000 ft. (4500 m) maximum

Mounting Options
19-inch universal EIA (Telco) rack, or tabletop

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