



# THUNDER ADC

## Next-generation Application Delivery Controller

### Supported Platforms



**Thunder ADC**  
physical appliance



**Thunder HVA**  
hybrid virtual appliance



**vThunder**  
virtual appliance



**aGalaxy**  
centralized management

A10 Thunder™ ADC product line of high-performance, next-generation application delivery controllers enable customers' applications to be highly available, accelerated and secure. Thunder ADC is our premium ADC product line, delivering performance scalability up to 150 Gbps, the broadest range of form factors (physical, virtual and hybrid), and with expanded system resources designed to support future feature needs.

The A10 Thunder ADC product line is built upon A10's Advanced Core Operating System (ACOS®) platform, with our Symmetric Scalable Multi-Core Processing (SSMP) software architecture that delivers high performance and a range of deployment options for dedicated, hosted or cloud data centers.

- **Application availability for customer satisfaction:** Enable your Web and key infrastructure servers to scale seamlessly to meet customer demand and ensure business continuity to maximize revenue and user satisfaction.
- **Application acceleration for efficient operations:** Provide fast and responsive service to your customers for competitive advantage and reduced infrastructure requirements for both application delivery and critical services, driving down CAPEX and OPEX.
- **Security for compliance and risk reduction:** Protect against advanced and emerging attacks for uninterrupted operations, brand protection, and revenue loss while meeting required regulatory compliance obligations for Payment Card Industry Data Security Standard (PCI DSS) and other regulations.

### Overview

**A10 Thunder Series is a family of hardware and software appliances ready to match any deployment need. Each Thunder Series form factor is powered by ACOS software, which brings a unique combination of shared memory accuracy and efficiency, 64-bit scalability and advanced flow processing.**

A10 Thunder ADC delivers critical services in the most efficient hardware- and software-based form factors. Thunder ADC product line ensures that your rack space is maximized and your power consumption is reduced (via optimal ADC CPU and memory optimization, infrastructure optimization and overall data center cooling).

## Features and Benefits

Whether you are an enterprise, service provider or Web giant, A10 Thunder ADC offers key benefits to make your data center applications available, accelerated and secure.

### Application Availability

**Highly available applications and data centers:** Advanced server load balancing (SLB) and global server load balancing (GSLB) ensure maximum uptime by detecting local and remote outages. Acting on advanced health checks, A10 Thunder ADC directs connections to active servers and data centers in a way that is transparent to the end user.

**Next-generation cloud data center evolution:** Equip your network for the next phase in network evolution with Infrastructure-as-a-Service (IaaS) capabilities. Benefit from integration of software defined networks (SDNs) with overlay networking (VXLAN and NVGRE), cloud orchestration systems (OpenStack, Microsoft SCVMM and more), network functions virtualization (NFV) using vThunder virtual appliances, and enable service chaining and traffic insertion.

**Fast deployment and proven application configuration and provisioning:** Rapidly enable and deploy business critical applications with predefined smart templates for popular applications from Microsoft (Exchange, Lync, SharePoint), Oracle and many more, to deploy in hours, not days or weeks.

## Application Acceleration

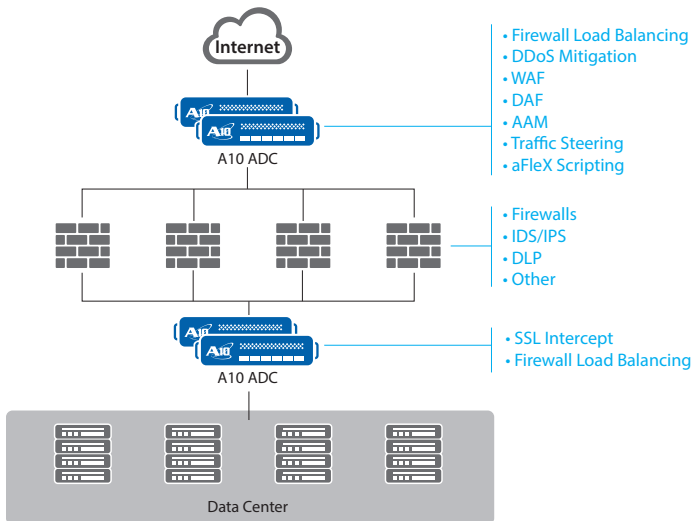
**Application acceleration for a better user experience and infrastructure utilization:** Offload application infrastructure from CPU and memory intensive tasks to reduce costs. Techniques include SSL offload (including offload of demanding 2048- and 4096-bit key operations), HTTP compression, TCP reuse, and RAM caching. Deliver a faster experience for your customers and reduced CAPEX and OPEX as your infrastructure scales efficiently without wasted compute cycles.

**Virtualization for ADC and SLB consolidation:** Choose the best option for your network to enable multi-tenancy. Maximize density with our application delivery partitions (ADPs), providing L3 virtualization and per tenant role-based administration (RBA) on hardware or software appliances. Rapidly deploy pure software vThunder appliances or HVA hardware appliances to provide strong isolation and complete resource isolation as required.

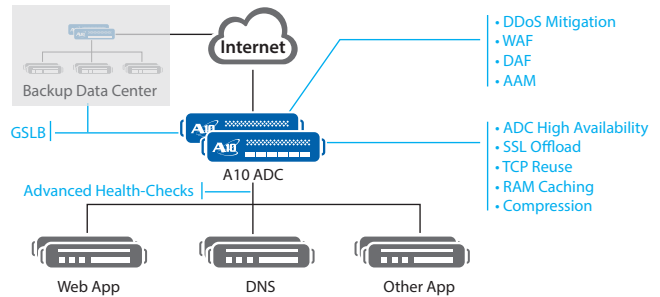
**Full control and deep packet inspection (DPI) capabilities to solve complex problems:** aFlex<sup>®</sup> TCL scripting provides granular traffic transformation capabilities to adjust traffic as needed for your applications. Additionally, advanced ADC capabilities enable the most common requirements to be met with specific preconfigured templates and capabilities, for example L7 URL switching.

**Flexible management to optimize IT operations:** Multiple management capabilities simplify operation tasks using the aGalaxy centralized management system to control any A10 Thunder device, whether pushing configurations, aFlex rules, backing up SSL keys and much more. Our aXAPI<sup>®</sup> REST-based API gives complete management control with custom scripting for homegrown management operations or integration into third-party management systems. Also, plug-ins and packages are available to be used with partners' management systems such as Microsoft SCVMM and others.

## Architecture and Key Components



DMZ security device scaling, offload and acceleration



Application delivery example for Web, DNS and other services

## Secure

**Enhance your data center security:** Our web application firewall (WAF) guards Web servers against the critical Open Web Application Security Project (OWASP) top ten threats facing web-based application servers, while our DNS application firewall (DAF) gives advanced protection against domain name system (DNS) infrastructure exploitation, with granular application rules for query behavior and mitigation methods such as rate limiting.

**Enhance, scale and optimize your existing DMZ security infrastructure:** With our appliances supporting up to 150 Gbps per device, firewall load balancing (FWLB) enables existing security products to scale seamlessly. Thunder ADC also provides visibility into encrypted traffic for all devices with SSL Intercept (SI), eliminating the SSL “blind spot” facing enterprise networks today by allowing all devices to see and take action on all encrypted traffic. SI also utilizes SSL security processors in hardware appliances to provide high-performance decryption.

**Protect against the latest emerging threats:** As threats emerge, the Thunder Series enables your network to be ready with effective countermeasures. DDoS protection is standard in all appliances, and with FPGA FTA-based models, protection can be enabled for the highest volume attacks against application servers. The FPGA mitigates common volumetric attacks, while general purpose CPUs can be used to mitigate more sophisticated L7 attacks (e.g. exhaustion attacks like Slowloris and more). For critical applications that require Internet access, whole categories of attacks can be rendered inert by utilizing our application access management (AAM) technology, which presents an authentication challenge and validation against your choice of identity server, before the connection can reach the application server.

## Product Description

### A10 Thunder ADC Series Product Line

A10 Thunder Series is a family of hardware and software appliances ready to match any deployment need. Each Thunder Series form factor is powered by ACOS software, which brings a unique combination of shared memory accuracy and efficiency, 64-bit scalability and advanced flow processing.

- **Thunder Hardware Appliances:** Our Thunder Series line of hardware ADC appliances fits all size networks with entry-level models starting at 5 Gbps and moving up to a 150 Gbps high-performance appliance for your most demanding requirements. All models are dual power supply-capable, feature

solid-state drives (SSDs) and use no inaccessible moving parts for high availability. All models benefit from our Flexible Traffic Acceleration (FTA) technology, with select models featuring field programmable gate arrays (FPGAs) for hardware optimized FTA processing; this provides highly scalable flow distribution and distributed denial of service (DDoS) protection capabilities. Also in select models, dedicated security processors provide SSL offload, and switching and routing processors provide high-performance network processing. Each appliance offers the best performance per rack unit and the highest level “80 PLUS” Platinum” certification for power supplies to ensure a green solution and reduce power consumption costs. Coupled with high density 1 Gbps, 10 Gbps and 40 Gbps port options, Thunder ADC meets the highest networking bandwidth demands.

- **vThunder Virtual Appliances:** The vThunder™ ADC line of virtual appliances is designed to meet the growing needs of organizations requiring a flexible and easy-to-deploy application delivery and server load balancer solution running within a virtualized infrastructure or public cloud service. Each vThunder instance has a full set of features that can run atop your choice of commodity hardware and also your choice of leading hypervisor; for example, VMware ESXi, Microsoft Hyper-V, KVM and XenServer. vThunder ADC for Amazon Web Services (AWS) is also available within the Amazon Cloud. Powered by our aCloud™ services, the vThunder line is also available from leading cloud service providers.
- **Thunder Hybrid Virtual Appliances (HVA):** Offering you the combined flexibility of a virtual appliance and the power of the performance optimized hardware appliances, A10 Thunder HVA appliances enable multi-tenancy with multiple vThunder virtual appliances running on dedicated, turnkey hardware appliances with a high density of instances that are strongly isolated from each other, each with its own dedicated ACOS instance and dedicated compute resources. The fact that each instance can use dedicated SSL security processor technology with Single Root I/O Virtualization (SR-IOV) to offload and accelerate SSL sessions is a key hardware advantage. All vThunder ADC instances are included within the HVA appliance.

Additional management options are also available to enhance your Thunder Series infrastructure. A10's aGalaxy® line of hardware and software appliances centrally manage all Thunder Series hardware and software appliances for streamlined operations, resulting in reduced OPEX.

## Appliance Summary/Specifications Table

	Thunder 930 ADC	Thunder 1030S ADC	Thunder 3030S ADC	Thunder 5430S ADC	Thunder 6430 ADC	Thunder 6430S ADC
Application Throughput (L4/L7)	5 Gbps / 5 Gbps	10 Gbps / 10 Gbps	30 Gbps / 30 Gbps	77 Gbps / 75 Gbps	150 Gbps / 145 Gbps	150 Gbps / 145 Gbps
Layer 4 CPS	200k	450k	750k	2.8 million	5.3 million	5.3 million
Layer 4 HTTP RPS	1 million	2 million	3 million	17 million	31 million	31 million
Layer 7 CPS (1:1) ^	50k	150k	250k	670k	1.35 million	1.35 million
SSL CPS (1024/2048)	1.9k / 400	25k / 7k	47k / 14k	100k / 68k	N/A	134k / 130k
DDoS Protection (SYN Flood) SYN/sec	2 million	4 million	7.5 million	112 million	212 million	212 million
Application Delivery Partitions (ADP) RBA/L3V	128 / 32	128 / 32	128 / 64	128 / 1023	128 / 1023	128 / 1023
<b>Network Interface</b>						
1 GE Copper	6	6	6	0	0	0
1 GE Fiber (SFP)	2	2	2	0	0	0
1/10 GE Fiber (SFP+)	2	2	4	16	16	16
40 GE Fiber (QSFP+)	0	0	0	4	4	4
Management Interface	Yes	Yes	Yes	Yes	Yes	Yes
Lights Out Management	No	Yes	Yes	Yes	Yes	Yes
Console Port	Yes	Yes	Yes	Yes	Yes	Yes
Solid-state Drive (SSD)	Yes	Yes	Yes	Yes	Yes	Yes
Processor	Intel Xeon Dual-core	Intel Xeon Quad-core	Intel Xeon Quad-core	Intel Xeon Octo-core	2 x Intel Xeon Octo-core	2 x Intel Xeon Octo-core
Memory (ECC RAM)	8 GB	8 GB	16 GB	64 GB	128 GB	128 GB
<b>Hardware Acceleration</b>						
64-bit Linear Decoupled Architecture	Yes	Yes	Yes	Yes	Yes	Yes
Flexible Traffic Acceleration	Software	Software	Software	2 x FTA-3 FPGA	4 x FTA-3 FPGA	4 x FTA-3 FPGA
Switching/Routing	Software	Software	Software	Hardware	Hardware	Hardware
SSL Security Processor	No	Single	Single	Dual	No	Quad
Power Consumption (Typical/Max)	66W / 76W	98W / 108W	131W / 139W	450W / 550W	590W / 680W	680W / 780W
Heat in BTU/hr (Typical/Max)	225 / 259	334 / 369	447 / 474	1,535 / 1,877	2,013 / 2,320	2,320 / 2,661
Performance Per Watt (PPW)*	2,632	4,167	5,396	5,091	7,794	6,795
Power Supply (DC option available)	1 x 600W**	1 x 600W**	Dual 600W RPS	Dual 1100W RPS	Dual 1100W RPS	Dual 1100W RPS
	80 Plus "Platinum" efficiency, 100 - 240 VAC, Frequency 50 - 60 Hz					
Cooling Fan	Hot Swap Smart Fans					
Dimensions	1.75 in (H), 17.5 in (W), 17.45 in (D)			1.75 in (H), 17.5 in (W), 30 in (D)		
Rack Units	1U	1U	1U	1U	1U	1U
Unit Weight	17.8 lbs (1 PSU)	18.0 lbs (1 PSU)	20.1 lbs	34.6 lbs	39 lbs	39 lbs
	19.9 lbs (2 PSUs)***	20.1 lbs (2 PSUs)***				
Operating Ranges	Temperature 0° - 40° C   Humidity 5% - 95%					
Regulatory Certifications	FCC Class A, UL, CE, TUV, CB, VCCI   China CCC†, BSMI‡, RCM (replace C-Tick)‡, GOST-R‡, FAC‡, NEBS‡, FIPS 140-2‡‡‡					
Standard Warranty	90-day Hardware and Software					

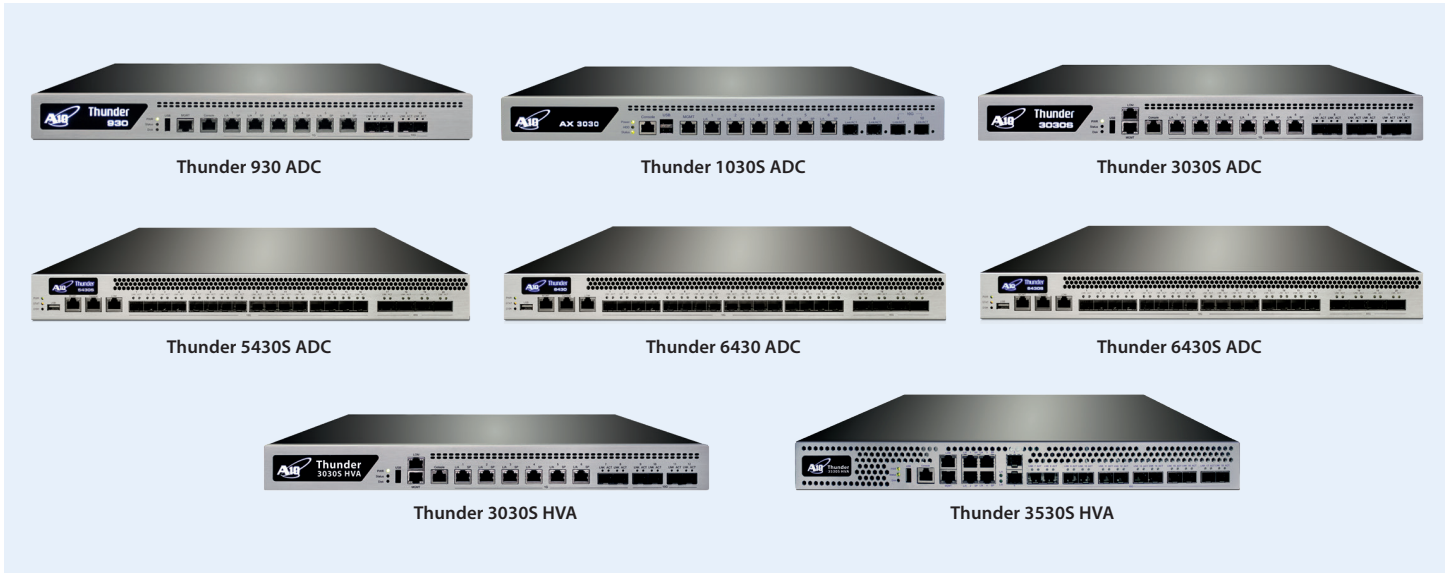
\* Layer 4 CPS per Watt (Max) | \*\* Optional RPS available | \*\*\* With optional RPS | † Except Thunder 5430S, 6430 and 6430S

‡‡ Thunder 5430S, 6430 and 6430S | ‡‡‡ Thunder 1030S, 3030S, 5430S and 6430S (FIPS model must be purchased)

^ Layer 7 connections per second - measures number of new HTTP connections (1 HTTP request per TCP connection, without TCP connection reuse) within 1 second

	<b>vThunder ADC Specification</b>
Throughput	Up to 8 Gbps
Supported Hypervisors	VMware ESXi 4.0 or higher Citrix XenServer 6.0 or higher KVM 0.14 or higher Microsoft Hyper-V on Windows Server 2012
Hardware Requirements	See installation guide
Licenses	Versions vary by price, bandwidth and hypervisor. For example, VMware ESXi: <b>Lab/Developer Edition Production- Entry Level/Lab Editions:</b> 200 Mbps and 1 Gbps <b>Production – High-performance Editions:</b> 4 Gbps and 8 Gbps
Standard Warranty	90-day Software

	<b>Thunder 3030S HVA*</b>	<b>Thunder 3530S HVA</b>
Throughput**	35 Gbps	100 Gbps
vThunder Virtual Appliances Instances (Included)	8	40
<b>Network Interface</b>		
1 GE Copper	6	4
1 GE Fiber (SFP)	2	2
1/10 GE Fiber (SFP+)	4	12
Management Interface	Yes	Yes
Lights Out Management	Yes	Yes
Console Port	Yes	Yes
Solid-state Drive (SSD)	Yes	Yes
Processor	Intel Xeon Quad-core	2 x Intel Xeon Deca-core
Memory (ECC RAM)	32 GB	128 GB
<b>Hardware Acceleration</b>		
64-bit Linear Decoupled Architecture	Yes	Yes
Flexible Traffic Acceleration	Software	Software
Switching/Routing	Software	Software
SSL Security Processor (SR-IOV enabled)	Single	Quad
Power Consumption (Typical/Max)	131W / 139W	380W / 476W
Heat in BTU/hr (Typical/Max)	447 / 474	1,297 / 1,624
Power Supply (DC option available)	Dual 600W RPS 80 Plus "Platinum" efficiency, 100 - 240 VAC, Frequency 50 – 60 Hz	Dual 750W RPS 80 Plus "Gold" efficiency, 100 - 240 VAC, Frequency 50 – 60 Hz
Cooling Fan	Hot Swap Smart Fans	Hot Swap Smart Fans
Dimensions	1.75 in (H), 17.5 in (W), 17.45 in (D)	1.75 in (H), 17.25 in (W), 22.8 in (D)
Rack Units (Mountable)	1U	1U
Unit Weight	20.1 lbs	29.6 lbs
Operating Ranges	Temperature 0° - 40° C   Humidity 5% - 95%	
Regulatory Certifications	FCC Class A <sup>†</sup> , UL <sup>‡</sup> , CE <sup>‡</sup> , TUV <sup>‡</sup> , CB <sup>‡</sup> , VCCI <sup>‡</sup>   China CCC <sup>‡</sup> , BSMI <sup>†</sup> , RCM (replace C-Tick) <sup>‡</sup> , GOST-R <sup>‡</sup> , FAC <sup>‡</sup>	
Standard Warranty	90-day Hardware and Software	
* Available 1H 2014   ** Performance varies by number of virtual machines running and hardware resources assigned		
† Certification in progress		



## Detailed Feature List\*

### Application Delivery

- Comprehensive IPv4/IPv6 Support
- Advanced Layer 4/Layer 7 Server Load Balancing
  - Fast HTTP, Full HTTP Proxy
  - High-performance, template-based Layer 7 switching with header/URL/domain manipulation
  - Comprehensive Layer 7 application persistence support
- Comprehensive load balancing methods
  - Round Robin, Least Connections, Weighted RR, Weighted LC, Fastest Response, & more
- aFlex – deep packet inspection and transformation for customizable, application-aware switching
- Advanced Health Monitoring
  - Comprehensive Protocol Support – ICMP, TCP, UDP, HTTP, HTTPS, FTP, RTSP, SMTP, POP3, SNMP, DNS, RADIUS, LDAP, & more
- TCL scriptable health check support
- High Availability – Active-Active, Active-Standby configurations
- SIP Load Balancing for VoIP
- STARTTLS support for Secure Email (POPS, SMTPS, IMAPS) & LDAPS
- Spam Filter Support – high-speed application of very large black/white lists
- Firewall Load Balancing (FWLB)
- Global Server Load Balancing (GSLB)
- Transparent Cache Switching (TCS)
- Link Load Balancing (LLB)
- Diameter AAA Load Balancing
- Database Load Balancing

### Application Acceleration

- HTTP Acceleration and Optimization
  - HTTP Connection Multiplexing
  - HTTP Caching
  - HTTP Compression

### Security

- Web Application Firewall (WAF)
- Next-generation DDoS protection
- Application Access Management (AAM)
- DNS Application Firewall (DAF)
- SSL Intercept (SI)
- SSL Acceleration
  - SSL Offload
  - Support for all TCP Protocols – SSL Termination, SSL Bridging (SSL Initiation)
  - TLS 1.2 and 4096-bit SSL key support
- SSL Session ID Reuse
- IP Anomaly Detection
- Connection Rate Limiting/ConnectionLimiting

### High Performance, Scalable Platform

- ACOS (Advanced Core Operating System)
  - Multi-core, Multi-CPU support
  - Linear Application Scaling
  - Linux on control plane
- ACOS on data plane

### Networking

- Integrated Layer 2/Layer 3
- Transparent Mode/Gateway Mode
- Routing – Static Routes, IS-IS (v4/v6), RIPv2/ng, OSPF v2/v3, BGP4+
- VLAN (802.1Q)
- Trunking (802.1AX), LACP
- Access Control Lists (ACLs)
- Traditional IPv4->IPv4 NAT/NAPT
- IPv6->IPv6 NAPT
- Jumbo Frame support

### IPv6 Migration/IPv4 Preservation

- Full native IPv6 management and feature support
- SLB-PT (Protocol Translation), SLB-64 (IPv4->IPv6, IPv6->IPv4)

## Detailed Feature List\* (continued)

### Management

- Dedicated management interface (Console, SSH, Telnet, HTTPS)
- Web-based Graphical User Interface (GUI) with Language Localization
- Industry-standard Command Line Interface (CLI) support
- SNMP, Syslog, email alerts
- Port mirroring
- REST-style XML API (aXAPI)
- LDAP, TACACS+, RADIUS support

### Virtualization

- aVCS (Virtual Chassis System)
- vThunder Virtual Appliance for VMware vSphere, Microsoft Hyper-V, XenServer and KVM
- Multi-tenancy with Application Delivery Partitions (ADPs)
  - Role-based Administration (RBA)
  - Partition-based management
  - L2/L3 virtualization
- Hypervisor acceleration and management integration

### Carrier-grade Hardware

- Advanced hardware architecture
- Hardware-based SYN Cookies
- Hot swap Redundant Power Supplies (AC or DC)
- Smart Fans (hot swap)
- Solid-state drive (SSD)
- High Port Density
- 40 GE ports
- Tamper Detection
- Lights Out Management (LOM/IPMI)

\*Features may vary by appliance.

## About A10 Networks

A10 Networks is a leader in application networking, providing a range of high-performance application networking solutions that help organizations ensure that their data center applications and networks remain highly available, accelerated and secure. Founded in 2004, A10 Networks is based in San Jose, California, and serves customers globally with offices worldwide. For more information, visit: [www.a10networks.com](http://www.a10networks.com) About A10 Networks

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To learn more about the A10 Thunder Application Service Gateways and how it can enhance your business, contact A10 Networks at: [www.a10networks.com/contact](http://www.a10networks.com/contact) or call to talk to an A10 sales representative.