aCELERA DATASHEET

WAN OPTIMIZATION CONTROLLERS

aCelera WAN optimization controllers accelerate applications, speed data transfers and reduce bandwidth costs using a combination of application, network and protocol optimization.

Available on high-performance Array appliances or as software for cloud and virtualized environments, aCelera™ accelerates the transfer of data and improves the performance of business-critical applications across wide area networks. In addition, aCelera greatly improves bandwidth utilization, allowing businesses to reduce costs or increase ROI by doing more with less. Leveraging stream-based differencing, application blueprints, single instance store, traffic prioritization and network, application and TCP optimizations, aCelera physical and virtual appliances and software clients cost-effectively deliver LAN-like performance between any cloud, data center, branch or user.

Highlights & Benefits

- Improve application response times by up to 50x while reducing bandwidth utilization by up to 95%
- Supports 50% more accelerated connections as compared to competing solutions at significantly less cost, delivering ROI in extremely short timeframes
- Purpose-built to reduce the impact of network congestion, latency and packet loss that combine to slow end-user response times and the transfer of data
- Application-specific blueprints and specific protocol optimizations eliminate redundant and chatty traffic
- Stream-based differencing for eliminating the transmission of content previously received in local data stores
- Compression for reducing the amount of data transmitted over wide area connections
- Window resizing, persistent connections and small packet aggregation for dramatically improving TCP performance
- Integrated QoS, traffic shaping and SSL for optimizing, prioritizing and securing traffic on your network
- Deliver cost-effective, seamless audio and video using QoS to guarantee bandwidth and prevent jitter and latency from impacting audio, video and VoIP apps
- Future-proof deployment in today and tomorrow's data centers, public clouds, private clouds, hybrid clouds, remote locations and remote and mobile users – or any combination
- Physical appliances supporting from 10Mbps to 1Gbps and up to 100,000 concurrent TCP connections. Virtual appliances supporting up to 1Gbps and 64,000 concurrent TCP connections
- Software available for VMware ESXi and Windows Server
- Integrated automated failover for high availability in business critical environments
- Simplified management of physical and virtual appliances via transparent addressing, statistical performance dashboards, comprehensive reporting, and auto discovery
- Centralized provisioning of physical and virtual appliances and mobile clients, Web services integration with 3rd party management tools or integration with virtualization management systems

aCelera WAN Optimization

Array's award-winning aCelera WAN optimization controllers help enterprises eliminate network constraints and accelerate application performance to provide a LAN-like experience when accessing applications and data from branch offices, data centers or the cloud. Array Networks® pioneered application-level acceleration and currently leads the way in cross-platform support for physical and virtual appliances and software-only WAN optimization.

Combining advanced features for application and data acceleration with flexible deployment options, aCelera WAN optimization controllers are future-proof IT investments that minimize costs and enable further consolidation of IT operations. If you require application acceleration, virtualization, consolidation, cloud computing or disaster recovery, Array aCelera can help.

Stream-Based Differencing

Array's patent-pending stream-based differencing enables continuous identification and analysis of larger streams of data in sequential order. Stream-based differencing facilitates the compression, organization and differencing of all data types as part of an overall data reduction and optimization process. Stream-based differencing efficiently utilizes system capacity to optimally support a large history database that scales along with available resources.

Single Instance Store

Single instance store provides a scalable resource to implement data differencing so that unchanged data is not sent over the network twice. The store also prevents multiple copies of the same data from being stored and maintained and enables predictive preloading based on usage patterns. The history store scales linearly with memory, and storage space adjustments are easy to implement both on physical appliances and in virtual environments.

Single instance store allows aCelera to scale to support the needs of large deployments while maintaining high levels of performance, and is critical to supporting individual users without over-utilizing data stores in the data center or cloud. Single instance store also enables peak performance for complex environments such as meshed networks.

Proxy & Connection Handling

Proxy and connection handling technologies with protocol transparency for CIFS, MAPI, HTTP, HTTPS, RPC-to-NFS and others are lightweight and high performance and are designed to integrate with and take advantage of high-performance appliances and virtualization platforms. Proxy and connection handling is not tied to underlying hardware or operating systems and scalability varies by physical appliance or with the size of CPU and memory in virtual environments.

Forwarding Plane

Forwarding plane is a proprietary technology that allows aCelera to statefully track hundreds of thousands of flows with minimal CPU impact. The forwarding plane also allows for the most flexible deployment and support of network topologies including WCCP, VRRP, PBR and static routing.

Compression

Compression provides an ideal balance between data reduction and maximized throughput by performing compression on the first pass of data and then leveraging application acceleration blueprints to deliver content-aware de-duplication that separates encapsulation from the payload to prevent long-term performance degradation.

Content-Aware De-Duplication

aCelera content-aware de-duplication goes beyond that of other WAN optimization vendors. As data streams are processed, aCelera segments and builds histories and distinguishes the protocol used to transfer the content. By stripping off both TCP/IP and protocol encapsulation, aCelera creates a clean history based on pure content.

Because disk space is not filled with protocol encapsulations that will never be matched in the future, it can be used more effectively to enable better long-term performance; moreover, content that is written cleanly gets better matching. As a result, aCelera delivers better data reduction, faster data transfers and superior matching when content is transferred using different protocols.

TCP Optimization

TCP optimization makes transfers more efficient across wide area networks and enables better utilization of both high and low bandwidth environments, faster recovery after packet loss and bandwidth fairness with other data flows. TCP optimization features include:

Window Scaling – Increases the default 64K TCP window size to ensure efficient throughput in long fat networks

Slow Start with Congestion Avoidance – Determines available bandwidth and avoids sending more data than networks can handle

Fast Convergence – Rapidly increases throughput of each new TCP connection to ensure optimum throughput

Selective Acknowledgement – Precisely determines packets lost during transmission, retransmits only lost packets

Application Blueprints

Legacy application protocols, such as CIFS for file sharing or MAPI for mail, were not designed to run over wide area networks. These protocols break data up into chunks and wait for one chunk to be received before sending another. This is known as chattiness, and chattiness can only be solved by applying application-level intelligence and optimization.

aCelera application blueprints optimize protocols so they operate efficiently across wide area networks. They use techniques such as local acknowledgements of requests, request pipelining, pre-fetching data and combining requests together to significantly accelerate applications. In addition, application blueprints provide application intelligence to the aCelera de-duplication engine to enable content-aware de-duplication.

Traffic Shaping & Secure WAN

Integrated traffic shaping and SSL encryption allow IT to prioritize and secure traffic on the network. Leveraging traffic shaping, guaranteed bandwidth may be assigned to particular hosts, networks, ports or applications. Moreover, by enabling encryption, accelerated traffic can be transmitted over SSL connections to ensure security for traffic sent between aCelera appliances.

aCelera Configuration Management System (CMS)

The aCelera configuration management system enables global configuration and deployment of physical and virtual aCelera appliances. CMS uses templates, so that settings that are common between appliances can be easily managed from one configuration. Changes only need to be made once and will propagate throughout the system, creating simplicity and eliminating errors.

CMS provides IT administrators with an easy-to-use solution for centralized provisioning, drag-and-drop configuring, appliance management and a centralized view of entire aCelera deployments. CMS was designed with the needs of the CIO and IT administrator in mind, optimizing operational efficiency for branch acceleration management and thereby lowering TCO for the enterprise.

aCelera Mobile

aCelera Mobile provides application acceleration using software installed on laptop computers for users who work remotely and independently and mobile users based out of remote offices. aCelera Mobile allows users to benefit from downloads that others in the remote office have already made. Array's approach to creating peering relationships between aCelera history stores allows multiple users' histories to benefit each other, a feature which is a key differentiator between aCelera and competing solutions. Leveraging the same features and capabilities present on aCelera physical and virtual appliances, Array is able to extend industry-leading WAN optimization performance to remote and mobile environments and users.

Flexible Platform Options

aCelera is available as a physical appliance or as a virtual appliance or as software for Windows Server. Deployed as a physical appliance, aCelera is packaged on Array's high-performance WAN Series hardware to provide the right balance of price, performance and scalability. Deployed as a virtual appliance, aCelera may be installed on industry-leading VMware ESXi hypervisors and may be scaled by increasing CPU cores, memory and disk space. Moreover, aCelera virtual appliances and software can easily be downloaded to remote locations and provisioned dynamically for desired user workloads.

In the data center, aCelera may be deployed on WAN Series hardware or stored on the disks in a SAN and automatically deployed to one or more virtual machines. By deploying the right combination of physical and virtual appliances, IT can achieve the optimal balance of performance, scalability, security, availability and affordability.

The aCelera Advantage

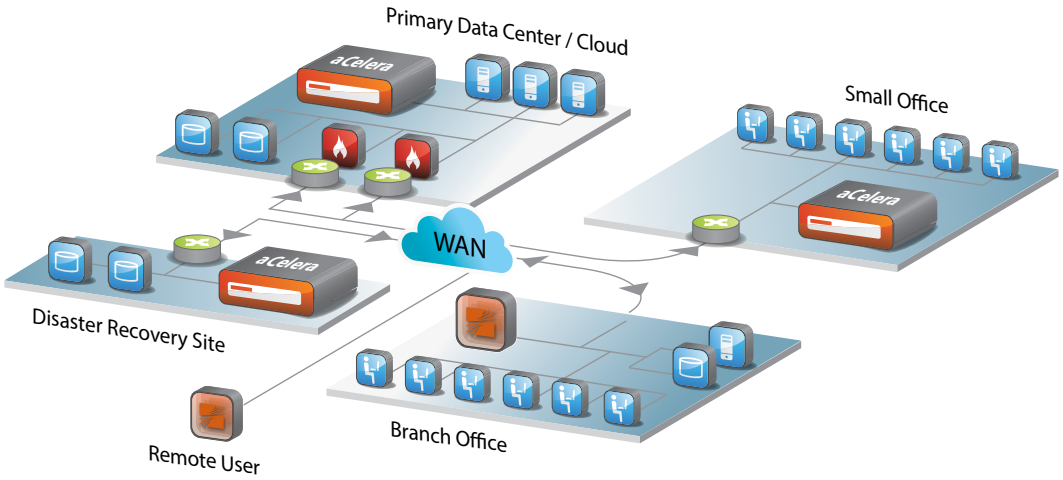
Array aCelera delivers superior acceleration, the ability to scale seamlessly, flexible hardware and software options for data center, cloud and remote environments, comprehensive centralized management and integration with 3rd party management systems, end-to-end security and pricing that is 30-50% less expensive versus rival solutions – enabling greater ROI in less time.

aCelera Application Acceleration

SharePoint	Over 40 times faster response and 95% data reduction
SolidWorks	Over 20 times faster response and 90% data reduction
SolidEdge	Over 20 times faster response and 90% data reduction
Office 365	Over 40 times faster response and 95% data reduction
Microsoft Business NAV, CRM, GP, SL	Over 40 times faster response and 95% data reduction
Oracle Files	Over 40 times faster response and 95% data reduction
Image De-duplication	Over 40 times faster response and 95% data reduction
CA Software Distribution	Over 40 times faster response and 95% data reduction
NetApp NAS	Over 20 times faster backup and recovery times
IBM WebSphere	Over 30 times faster response and 90% data reduction
IBM Tivoli	Over 20 times faster response and 95% data reduction
Any TCP traffic	

Microsoft Office	Over 40 times faster response and 95% data reduction
File Sharing	Over 40 times faster response and 95% data reduction
File Transfer	Over 40 times faster response and 95% data reduction
HTTP Including HTML5	Over 40 times faster response and 95% data reduction
Microsoft Exchange	Over 20 times faster response and 90% data reduction
Video De-duplication & Virtual Media Servers	Over 25 times faster response and 95% data reduction
SAP NetWeaver	Over 40 times faster response and 95% data reduction
EMC NAS & SAN	Over 20 times faster backup and recovery times
Dell EqualLogic & Compellent	Over 25 times faster response and 90% data reduction
IBM Rational Test & Dev	Over 40 times faster response and 95% data reduction
Microsoft System Center	Over 40 times faster response and 95% data reduction
Internet Traffic	

Array WAN Optimization Architecture



aCelera Feature Specifications

● = STANDARD O = OPTIONAL

	Physical Appliance	Virtual Appliance	Windows	Mobile	Configuration Management System
Single Instance Store	●	●	●	●	
Stream-Based Differencing	●	●	●	●	
Application Blueprints	●	●	●	●	
HTTP Optimization	●	●	●	●	
Compression	●	●	●	●	
TCP/IP, CIFS & MAPI Acceleration	●	●	●	●	
Traffic Shaping & QoS	●	●	●	●	
Secure WAN	●	●	●	●	
Comprehensive Reporting	●	●			
RAID 5 Support	●				
Encrypted History/Datastore	●				
IPv6 Support	●	●	●		
Centralized Configuration of: Physical Appliances Virtual Appliances Windows Software Mobile Clients					●

aCelera Platform Support

	Physical Appliance	Virtual Appliance	Windows	Mobile	Configuration Management System
WAN 1100, 2100, 2300, 2500, 2900	●				
VMware		●			
Windows Server 2008R2			●		●
Windows 7				●	●

Physical Appliances

WAN Series Model	1100	2100	2300	2500	2900
Throughput (Mbps)	10	20	100	310	1000 (1Gbps)
TCP Connections	40 to 1000	40 to 2400	40 to 20,000	40 to 40,000	40 to 130,000
Standard Interfaces (1GbE Copper)	•	•	•	•	•
Bypass Ports (1GbE Copper)	•	•	•	o	o
Bypass Ports (10GbE Fiber)				o	o
Dual Bypass Card	•	•	•	•	•
Hard Disk	500 GB	500 GB	1 TB	2 TB	2 TB
Power Supply	60W power adapter	Single: 100-24VAC, 3-1.5A, 50-60Hz		Dual: 90-264VAC, 10-5A, 47-63Hz	
Dimensions	Desktop: 9.1" W x 6" D x 1.7" H	1U: 17.2" W x 11.3" D x 1.7" H		2U: 17" W x 22.5" D x 3.5" H	
Weight	3 lbs.	11 lbs.		24 lbs.	
Environmental	Operating Temperature: 0º to 40ºC, Humidity: 0% to 90%, Non-condensing	Operating Temperature: 0° to 40°C, Humidity: 0% to 90%, Non-condensing		Operating Temperature: 0° to 45°C, Humidity: 0% to 90%, Non-condensing	
Regulatory Compliance	FCC	FCC, 47FR part 15 Class A		ICES-003, EN 55024, CISPR 22, AS/NZS 3548, FCC, 47FR part 15 Class A, VCCI-A	
Safety	CE	CSA, C/US, CE, IEC 60950-1, CSA 60950-1, EN 60950-1			

Virtual Appliance & Software System Requirements

Server Hardware	Certified on VMware hardware compatibility list to run ESX or ESXi; Certified for Windows Server 2008R2
64-bit CPU	Intel CPUs with VT (virtualization technology); AMD CPUs with AMD-V support
Network Interface Card	1 available Ethernet interface for out-of-line deployments; 2 available Ethernet interfaces for inline deployments
Hardware	2 GB RAM; 30 GB free disk space

Ordering Information

Ordering No.	Description
WAN Appliance Hardware - Requires Separate aCelera License	
AW990105	WAN1100 Appliance Hardware (2x1 GbE copper, 2x1 GbE included bypass port, single power adaptor, up to 10 Mbps throughput & 1000 TCP connections, Desktop).
AW990104	WAN2100 Appliance Hardware (2x1 GbE copper, 2x1 GbE included bypass port, single AC power supply, up to 20 Mbps throughput & 2,400 TCP connections, 1U).
AW990101	WAN2300 Appliance Hardware (2x1 GbE copper, 2x1 GbE included bypass ports, single AC power supplies, up to 100 Mbps throughput & 20,000 TCP connections, 1U).
AW990102	WAN2500 Appliance Hardware (2x1GbE copper, 2x1 GbE included bypass ports, dual AC power supplies, up to 310 Mbps throughput & 40,000 TCP connections, 2U).
AW990107	WAN2500 Appliance Hardware (2x1GbE copper, 2x10GbE Fiber included bypass ports, dual AC power supplies, up to 310 Mbps throughput & 40,000 TCP connections, 2U).
AW990103	WAN2900 Appliance Hardware (2x1 GbE copper, 2x1 GbE included bypass ports, dual AC power supplies, up to 1 Gbps throughput & 100,000 TCP connections, 2U).
AW990108	WAN2900 Appliance Hardware (2x1 GbE copper, 2x10GbE Fiber included bypass ports, dual AC power supplies, up to 1 Gbps throughput & 100,000 TCP connections, 2U).
aCelera Licenses	
AW928550	aCelera 40 concurrent TCP connections. Supported as a VM, on Windows and on all WAN hardware appliances.
AW928530	aCelera 80 concurrent TCP connections. Supported as a VM, on Windows and on all WAN hardware appliances.
AW928551	aCelera 125 concurrent TCP connections. Supported as a VM, on Windows and on all WAN hardware appliances.
AW928531	aCelera 250 concurrent TCP connections. Supported as a VM, on Windows and on all WAN hardware appliances.
AW928532	aCelera 400 concurrent TCP connections. Supported as a VM, on Windows and on all WAN hardware appliances.
AW928533	aCelera 600 concurrent TCP connections. Supported as a VM, on Windows and on all WAN hardware appliances.
AW928552	aCelera 800 concurrent TCP connections. Supported as a VM, on Windows and on all WAN hardware appliances.
AW928534	aCelera 1200 concurrent TCP connections. Supported as a VM, on Windows and on all WAN hardware appliances.
AW928535	aCelera 1400 concurrent TCP connections. Supported as a VM, on Windows and on all WAN hardware appliances.
AW928536	aCelera 1600 concurrent TCP connections. Supported as a VM, on Windows and on all WAN hardware appliances.
AW928537	aCelera 2400 concurrent TCP connections. Supported as a VM, on Windows and on all WAN hardware appliances.
AW928553	aCelera 3000 concurrent TCP connections. Supported as a VM, on Windows and on WAN2300/2500/2900 hardware appliances.

Ordering No.	Description
AW928538	aCelera 4600 concurrent TCP connections. Supported as a VM, on Windows and on WAN2300/2500/2900 hardware appliances.
AW928539	aCelera 5000 concurrent TCP connections. Supported as a VM, on Windows and on WAN2300/2500/2900 hardware appliances.
AW928554	aCelera 6000 concurrent TCP connections. Supported as a VM, on Windows and on WAN2300/2500/2900 hardware appliances.
AW928540	aCelera 8000 concurrent TCP connections. Supported as a VM, on Windows and on WAN2300/2500/2900 hardware appliances.
AW928555	aCelera 10000 concurrent TCP connections. Supported as a VM, on Windows and on WAN2300/2500/2900 hardware appliances.
AW928541	aCelera 12000 concurrent TCP connections. Supported as a VM, on Windows and on WAN2300/2500/2900 hardware appliances.
AW928542	aCelera 15000 concurrent TCP connections. Supported as a VM, on Windows and on WAN2300/2500/2900 hardware appliances.
AW928543	aCelera 20000 concurrent TCP connections.Supported as a VM, on Windows and on WAN2300/2500/2900 hardware appliances.
AW928544	aCelera 25000 concurrent TCP connections. Supported as a VM, on Windows and on WAN2500/2900 hardware appliances.
AW928545	aCelera 36000 concurrent TCP connections. Supported as a VM, on Windows and on WAN2500/2900 hardware appliances.
AW928546	aCelera 40000 concurrent TCP connections. Supported as a VM, on Windows and on WAN2500/2900 hardware appliances.
AW928547	aCelera 60000 concurrent TCP connections. Supported as a VM, on Windows and on WAN2900 hardware appliance.
AW928548	aCelera 80000 concurrent TCP connections. Supported as a VM, on Windows and on WAN2900 hardware appliance.
AW928774	aCelera 100000 concurrent TCP connections. Supported as a VM, on Windows and on WAN2900 hardware appliance.
aCelera Centralized Manager for Devices	
AW928570	aCelera Centralized Manager (up to 10 devices)
AW928571	aCelera Centralized Manager (up to 15 devices)
AW928572	aCelera Centralized Manager (up to 25 devices)
AW928574	aCelera Centralized Manager (up to 50 devices)
AW928575	aCelera Centralized Manager (up to 100 devices)
AW928576	aCelera Centralized Manager (up to 250 devices)
AW928577	aCelera Centralized Manager (up to 500 devices)
AW928578	aCelera Centralized Manager (up to 1000 devices)

Ordering No.	Description
AW928579	aCelera Centralized Manager (up to 1500 devices)
AW928580	aCelera Centralized Manager (up to 2000 devices)
aCelera Centralized Manager for Mobile Clients	
AW928740	aCelera Centralized Manager (up to 10 clients)
AW928741	aCelera Centralized Manager (up to 25 clients)
AW928742	aCelera Centralized Manager (up to 50 clients)
AW928743	aCelera Centralized Manager (up to 100 clients)
AW928744	aCelera Centralized Manager (up to 500 clients)
AW928745	aCelera Centralized Manager (up to 1000 clients)

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