ATTO Technology 2017 Editorial Guide

Vocabulary Usage and Terminology Guidelines

ATTO

The Power Behind the Storage

Boiler Plate

ABOUT ATTO

For nearly 30 years, ATTO Technology, Inc., has been a global leader across the IT and media & entertainment markets, specializing in storage and network connectivity and infrastructure solutions for the most data-intensive computing environments. ATTO works with partners to deliver end-to-end solutions to better store, manage and deliver data. Working as an extension of customer's design teams, ATTO manufactures host and RAID adapters, network adapters, storage controllers, Thunderbolt™ enabled adapters and software. ATTO solutions provide a high level of connectivity to all storage interfaces, including Fibre Channel, SAS, SATA, iSCSI, 40/10GbE, NVMe and Thunderbolt. ATTO is the Power Behind the Storage.

All trademarks, trade names, service marks and logos referenced herein belong to their respective companies.

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Elevator Pitches

M&E

For nearly 30 years, ATTO Technology has been a global leader in developing storage connectivity and infrastructure solutions for data-intensive computing environments. ATTO end-to-end solutions enable fast, efficient and reliable data transfers at each workflow step, including ingest, edit, finishing, distribution and archive. With a product lineup encompassing 32Gb and 16Gb Fibre Channel, 40Gb and 10Gb Ethernet, and 12Gb and 6Gb SAS, along with Thunderbolt™ adapters for desktop and mobile workstation connectivity, ATTO products deliver accelerated access for I/O-demanding applications including 8K and 4K editing, 3D/ Stereoscopic and virtual reality.

IT

ATTO provides a wide range of end-to-end connectivity solutions to help customers better store, manage and deliver their data. With experience in engineering advanced technology into real-world product solutions, ATTO provides customers with competitive advantages in data acceleration and protection. Long-established in the media and entertainment industries, ATTO solutions also play strongly in emerging IT markets including medical imaging, oil and gas, enterprise-scale databases, business intelligence, finance, cloud computing and media asset management. The ATTO IT portfolio includes storage controllers, support for all-flash arrays, software defined storage (SDS), and cards with support for Fibre Channel, Ethernet, SAS/SATA and NVMe.

Partner Editorial Guide

For a list of all ATTO Partner trademarks,
please see the Partner Editorial Guide

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ATTO Trademarks

Accelerate™ Partner Program

Access™ Partner Program

ATTO Advanced Data Streaming (ADS™) Technology

ATTO Disk Benchmark Tool™

ATTO CacheAssure Technology™

ATTO Celerity™

ATTO ConfigTool™

ATTO Drive Map Director™

ATTO DriveAssure™ Technology

ATTO DVRAID™

ATTO ExpressNAV™

ATTO Express Power Center™

ATTO ExpressSAS®

ATTO FastFrame™

ATTO FibreBridge®

ATTO intelligent Controller Architecture™

ATTO Latency Scout™

ATTO MultiPath Director™

ATTO QuickNAV™

ATTO Smooth Data Optimization™

ATTO Signal Integrity ™

ATTO ThunderLink®

ATTO ThunderStream®

ATTO Virtual Device Manager™

ATTO Virtual Drive Response™

ATTO vConfigTool™

ATTO WriteStop™

ATTO XstreamCORE™

ATTO Xtend SAN™

ATTO Product Names

ATTO Disk Benchmark Tool™

ATTO Celerity™ 81EN

ATTO Celerity™ 82EN

ATTO Celerity™ 84EN

ATTO Celerity™ 161E

ATTO Celerity™ 162E

ATTO Celerity™ 164E

ATTO Celerity™ 161P

ATTO Celerity™ 162P

ATTO Celerity™ 164P

ATTO Celerity™ 322E

ATTO Celerity™ 321E

ATTO ExpressSAS® H12F0

ATTO ExpressSAS® H120F

ATTO ExpressSAS® H1280

ATTO ExpressSAS® H1208

ATTO ExpressSAS® H1244

ATTO ExpressSAS® H1248

ATTO ExpressSAS® H1288

ATTO ExpressSAS® H608

ATTO ExpressSAS® H680

ATTO ExpressSAS® R644

ATTO ExpressSAS® R608

ATTO ExpressSAS® R60F

ATTO FastFrame™ NS11

ATTO FastFrame™ NS12

ATTO FastFrame™ NS14

ATTO FastFrame™ NT11

ATTO FastFrame™ NT12

ATTO FastFrame™ NQ41

ATTO FastFrame™ NQ42

ATTO FibreBridge® 6500

ATTO ThunderLink® FC 2082

ATTO ThunderLink® FC 2162

ATTO ThunderLink® FC 3162

ATTO ThunderLink® FC 3322

ATTO ThunderLink® NT 2102

ATTO ThunderLink® NQ 3401

ATTO ThunderLink® NQ 3402

ATTO ThunderLink® NS 2101

ATTO ThunderLink® NS 2102

ATTO ThunderLink® NS 3101

ATTO ThunderLink® NS 3102

ATTO ThunderLink® SH 2068

ATTO Product Names (continued)

ATTO XstreamCORE™ FC 7500 storage controller

ATTO XstreamCORE™ FC 7550 storage controller

ATTO XstreamCORE™ FC 7600 storage controller

ATTO XstreamCORE™ ET 8200 storage controller

INDUSTRY TERMS (CASE MATTERS)

bandwidth	digital asset management	iSCSI (lower case i)
byte	Ethernet (cap)	scale/scalable/scalability
cache	failover	tiered storage
cloud (no cap)	Fibre Channel (cap)	transcoding
compression ratio	Fibre Channel fabric	virtual device manager
data center bridging	high availability (no caps)	
data rate	ingest	

ATTO TERMS (CASE MATTERS)

ATTO (always all caps)

Adaptive Path Optimization

Data Mover

Disk Benchmark

Power Center Pro

TECH TERMS (CASE MATTERS)

big data (not capped)	failover	MB / GB (Megabyte / Gigabyte)
data center	flash	*The megabyte is commonly used to measure either 1000² bytes or 1024² bytes.*
direct-attached, network-attached *Note hyphen placement*	I/O IOPS (do not use IOP/S; IO/S, IOPs, iOPS)	*The term gigabyte is commonly used to mean either 1000³ bytes or 1024³ bytes.*
enterprise		Mb / Gb (Megabit / Gigabit) *1 megabit is equal to 125 kilobytes (kB) or approximately 122 kibibytes (KiB).*
fabric		
failback		*1 Gbit is equal to 125 megabytes (MB) or approximately 119 mebibytes (MiB).*

The megabyte is commonly used to measure either 1000^2 bytes or 1024^2 bytes.

The term gigabyte is commonly used to mean either 1000^3 bytes or 1024^3 bytes.

Standard Writing Guide

Use "and" not "&" (unless the "&" is being used due to space constraints in a headline or when referring to "media & entertainment")

block-level (no cap)

capitalization: Only capitalize the first word of a headline or subhead and proper nouns

file-level (no cap)

software-defined storage (no caps)

software-defined networking (no caps)

Thunderbolt™ adapter or Thunderbolt™ enabled (not Thunderbolt-enabled adapter)

ThunderLink® adapter (no cap)

The difference between MB/s, Mb/s, GB/s and Gb/s

$/Gb or dollars per Gb

percent, not % (unless it's a spacing issue in a headline)

Use ™ (Alt+CTL+T) instead of superscript TM

Use ® (Alt+CTL+R) for registered trademark

Higher speeds should be presented first in sequence (i.e. Thunderbolt™ 3 and 2; i.e. Celerity™ 32Gb and 16Gb)

Case matters in terminology and product names (i.e. Thunderbolt™; ThunderLink®; XstreamCORE™)

Comma usage: Do not use the serial/Oxford comma (i.e. The fireworks were red, white and blue).

Do not use ATTO in the possesive. (i.e. "ATTO's".) The acceptable useage is "The ATTO _____."

Abbreviations

CapEx or CAPEX: capital expenditure

*HBA: host bus adapter

*HDD: hard-disk drive

iSCSI: Internet Small Computer Systems Interface

LAN: local area network

LUN: logical unit number

*NIC: network interface card

OpEx or OPEX: operational expenditure

RAID: redundant array of independent disks

*RDMA: remote direct memory access

*RoCE: remote direct memory access over converged Ethernet

*SAN: storage area network

SAS: serial-attached SCSI

SATA: serial advanced technology attachment

SCSI: small computer system interface

SDD: software design description

*SDS: software-defined storage

SMB: small- to medium-sized business

*SSD: solid-state drive

*TCO: total cost of ownership

Spell out first reference, abbreviate thereafter

M&E Dictionary

24 Frames Per Second
The international frame rate standard used when shooting film. The number of frames that are run through the gate of a camera, or projected, per second.

All-Flash Array
A data storage system that contains multiple flash memory drives in place of spinning hard disk drives, allowing for much faster data transfer rates and more efficient use of data center resources.

Aspect Ratio
Describes the proportional relationship between the width and height of an image. The most common aspect ratios used in film are 1.85:1 and 2.39:1. The two most common video aspect ratios are 4:3 and 16:9, which is the universal aspect ratio for high-definition television.

Bandwidth
The total amount of data that can be transferred at one time between CPU and storage. Generally, bandwidth refers to large block data transfers and is measured in MB/sec. For instance, the total bandwidth available on any given UltraSCSI bus is 40 MB/sec. Actual transfer rates are somewhat less than this.

Byte
One of the basic units for measuring digital information, especially relevant to understanding storage capacity on computer disks. 8 bits comprise a byte. Roughly 1000 bytes equals one kilobyte. 1000 kilobytes is one megabyte or meg. 1000 megabytes is a gigabyte. Byte uses a capital "B" (MB = MegaByte) in abbreviations whereas a bit is represented by a lower case "b" (Mb = Megabit).

Cache
Same technology as cache memory used in servers. Storage cache usually resides on RAID controllers and boosts performance because the CPU doesn't have to wait for a disk head to spin. Data can be written to and read directly from cache.

CGI (Computer-Generated Imagery)
Refers to animating digital elements or creating 3D computer graphics that will eventually be composited into a scene to give the illusion as if the elements were a part of the original scene.

CODECs (Compressor / Decompressor)
Software that enables your devices (Camera, Editor, Player) to perform video encoding and/or decoding. Codecs are used to compress raw footage to make it easier to manage since compressed footage requires less storage space and less throughput to stream.

Color Grading / Color Correction
The process of altering or enhancing the color of an image, usually done in what's called a Digital Intermediate suite. This is one of the final creative processes of post-production, where the filmmaker is able to create the specific look of the finished film. Color correction is usually done using raw, uncompressed footage. This requires very high bandwidth and is a good use case for ATTO products.

Color Space
Refers to an abstract mathematical model that describes the way colors are represented to the human eye based on various defined color models. HDTV uses the Rec.709 color space. Digital Cinema uses the P3 color space.

Compositing
The process of combining visual elements from separate sources into single images, usually done through the method of green-screen, and most recently using "virtual sets" that are replaced by computer graphics programs.

Compression Ratio
The ratio between the video's original size and its compressed size. This allows us scale to the video down to a manageable size for the final product. Compression is a tradeoff between storage capacity / storage bandwidth needs and image quality (detail and color).

Dailies
Processed or shot footage that the director reviews to see the results of the previous day's shooting.

Data rate
An attribute assigned to a media file by a compression utility. It is a measure of the amount of digital information transmitted in a given unit of time—usually a second. Thus, a video could be encoded to play back at a rate of 500 kb/s. Digital Asset Management (Also known as Media Asset Management.) How you take in, handle and distribute media assets in digital form.

Digital intermediate
Creating a digital intermediate (DI) refers to the digitizing of motion picture data and manipulating the color and other image characteristics in one of the final stages of finishing the film in post-production. The process uses digital tools to color grade, and ultimately the DI will be used to create the digital master.

DNxHD (digital nonlinear extensible high definition)
A lossy high-definition video post-production codec engineered for multi-generation compositing with reduced storage and bandwidth requirements. It is an implementation of SMPTE VC-3 standard. The DNxHD codec was developed by Avid Technology.

Edit decision list (EDL)
Used in the post-production process of film and video editing. Contains an ordered list of reel and timecode data representing where each video clip can be obtained in order to conform the final cut.

Failover
The automatic substitution of a functionally equivalent system component for a failed one. The term failover is most often applied to intelligent controllers connected to the same storage devices and host computers. If one of the controllers fails, failover occurs and the survivor takes over its I/O load.

Fibre Channel fabric
A Fibre Channel fabric is created by a set of interconnected HBAs, bridges, storage devices and switch(es). Note that a SAN installation often contains multiple fabrics for redundancy.

Gamma
A measurement of the level of midtones in an image.

GPU (graphics processing unit)
A specialized electronic circuit designed to rapidly manipulate and alter memory to accelerate the creation of images in a frame buffer intended for output to a display.

HD (high definition)
HD comes in three different formats, all in widescreen 16:9 aspect ratio. The first (720p) features 720 x 1280 pixel resolution with progressive scanning. The second high definition format (1080i) features greater resolution (1080 x 1920 pixels), but with interlaced scanning. The third (1080p) is currently the ultimate high definition format, with 1080 x 1920 pixel resolution and progressive scanning.

Ingest
Used for digitizing video. Can be done via decks, film scans (Cine), hard drives, solid state disks (ex. P2 media, XDCAM, RED One), satellite feeds, capture cards and breakout boxes.

I/O
Refers to data that is being sent from a CPU to any type of storage device or peripheral.

IOPS
Input/Output operations per second.

IPTV (internet protocol TV)
A system where a digital television service is delivered using internet protocol over a network infrastructure, which may include delivery by a broadband connection. Content, instead of being delivered through traditional broadcast and cable formats, is received by the viewer through the technologies used for computer networks. IPTV is typically supplied by a service provider using a closed network infrastructure. This closed network approach is in competition with the delivery of TV content over the public internet, called Internet Television.

iSCSI
Short for internet small computer system interface, an IP-based standard for linking data storage devices over a network and transferring data by carrying SCSI commands over IP networks. iSCSI supports an Ethernet interface at the physical layer, which allows systems supporting iSCSI interfaces to connect directly to standard Ethernet switches and/or IP routers.

iSCSI initiator
Software or hardware that enables a host computer to send data to an external iSCSI-based storage array through an Ethernet network adapter over a transmission control protocol (TCP)-based Internet Protocol (IP) network. The iSCSI initiator originates the input/output (I/O) command sequence to facilitate data transmission to the storage device, which is also known as an iSCSI target.

JBOD
Just a bunch of disks. Refers to drives that reside in their own enclosure external to the server, but contain no RAID intelligence. JBOD drives are dependent on the server for RAID functionality.

JBOF
Just a bunch of flashdrives. Refers to drives that reside in their own enclosure external to the server.

Linear tape file system (LTFS)
Refers to both the format of data recorded on magnetic tape media and the implementation of specific software that uses this data format to provide a file system interface to data stored on magnetic tape. The Linear Tape File System format is a self-describing tape format developed by IBM to address tape archive requirements. The LTFS Format specification, which was adopted by the LTO Technology Provider Companies, defines the organization of data and metadata on tape - files stored in hierarchical directory structure. Data tapes written in the LTFS Format can be used independently of any external database or storage system allowing direct access to file content data and file metadata. This format makes it possible to implement software that presents a standard file system view of the data stored in the tape media. This file system view makes accessing files stored on the LTFS formatted media similar to accessing files stored on other forms of storage media such as disk or removable flash drives.

LUN (logical unit number)
A logical representation of physical storage. Users can determine whether a LUN is a disk drive, a number of disk drives, or a partition on a disk drive, depending on RAID configuration.

Mirroring
A form of storage array in which two or more identical copies of data are maintained on separate media. Also known as RAID 1, disk shadowing, real-time copy and t1 copy.

Motion capture
The process of filming an actor wearing special sensors in an artificial environment that will be used later during CGI and VFX.

Multipathing
Also called SAN multipathing or I/O multipathing, it is the establishment of multiple physical routes between a server and the storage device that supports it. In storage networking, the physical path between a server and the storage device that supports it can sometimes fail. When there's only one physical path between the two devices, there is a single point of failure (SPoF), which can be a problem if a cable breaks or someone accidentally unplugs the wrong cable. Because SAN multipathing establishes multiple routes between the hardware, however, if someone accidentally unplugged the wrong cable and one path failed, I/O would simply be routed through another path.
In addition to being a useful failover tool, multipathing can assist with load balancing by spreading I/O across multiple paths to reduce latency.

Material exchange format (MXF)
An object-based file format that wraps video, audio, and other bitstreams ("essences"), optimized for content interchange or archiving by creators and/or distributors, and intended for implementation in devices ranging from cameras and video recorders to computer systems. In effect, the format bundles the essences and what amounts to an "edit decision list" (data used by audio-visual content editing systems) in an unambiguous way that is essence-agnostic and metadata-aware.

Network-attached storage (NAS)
An IP-based file-sharing device attached to a local area network. NAS serves a mix of clients and servers over an IP network. A NAS device uses its own operating system and integrated hardware and software components to meet a variety of file service needs.

Network file system (NFS)
A protocol that allows a user on a client computer to access files over a network in a manner similar to how they would access local storage. Benefits include cutting the need for users to have separate home directories on every network machine and lowering disk space on local workstations. NFS, like many other protocols, builds on the Open Network Computing Remote Procedure Call (ONC RPC) system.

Nonlinear editing
Nonlinear distinguishes editing operation from the "linear" methods used with tape. Nonlinear refers to not having to edit material in the sequence of the final program and does not involve copying to make edits. It allows any part of the program to be accessed and modified without having to recopy the material that is already edited. Nonlinear editing is also nondestructive, as it uses hard disks to play this material in the random access order the editor has selected rather than playing a linear videotape.

Offline edit
During post production, an offline edit is the process of cutting a project at a lower resolution in order to save money and time.

Online edit
Once an offline edit is completed, using an EDL, the sequence is then reassembled using high-resolution media for the final output.

OTT (over-the-top)
Refers to the delivery of audiovisual content streamed over the Internet without the involvement of an Internet service provider (ISP) in the control or distribution of the content. The ISP is neither responsible for, nor is able to control, the viewing abilities, copyrights, and/or other redistribution of the content, which arrives from a third party and is delivered to an end-user's device. The ISP is only in the role of transporting IP packets. It's often referred to as "over-the-top" because these services ride on top of the service you already get. OTT services don't require any business or technology affiliations with the entity that controls or maintains the infrastructure through which the content is delivered to end-users.

Pro Res/ QuickTime
Apple's post-production format offering uncompressed HD quality at SD file sizes. Typically used when working with non-native camera formats; or to preserve maximum quality for composites and demanding color grading work. Pro Res is an intermediate codec, primarily used for video editing and not end-user viewing. It retains higher quality than end-user codecs while still requiring smaller storage systems as compared to uncompressed video.

Progressive
Frame-scanning technology that processes each frame as one complete image, as opposed to two separate fields as with interlacing.

Redundant Array of Independent Disks (RAID)
A disk array in which part of the physical storage capacity is used to store redundant information about user data stored on the remainder of the storage capacity. The redundant information enables regeneration of user data in the event that one of the array's member disks or the access path to it fails.

RAID controllers
RAID controllers are I/O devices that control the layout and format of the data. A RAID controller places data across multiple media or device type according to the RAID group specified.

Render
The act of processing and transcoding data.

SAN (storage area network)
A SAN is a configuration of computer and storage systems that incorporate dedicated Fibre Channel connectivity between the computer systems and storage. A SAN bypasses traditional network bottlenecks and supports direct high-speed data transfer between the servers and storage devices. SAN storage may consist of solid state drives, hard-disk drives, RAID Controllers and tape storage devices that are connected through switches and bridges to multiple servers.

Serial-attached SCSI (SAS)
A method used in accessing computer peripheral devices that employs a serial (one bit at a time) means of digital data transfer over thin cables. The method is specified in the American National Standard Institute (ANSI) standard called Serial-attached SCSI (Small Computer System Interface), also known as ANSI/INCITS 376-2003. In the business enterprise, serial-attached SCSI is especially of interest for access to mass storage devices, particularly external hard drives and magnetic tape drives.

Scale/Scalable/Scalability

In computer systems, to grow or support growth in such a way that all capabilities of the system remain in constant ratio to each other. For example, a storage subsystem where data transfer capacity increases by the addition of buses as its storage capacity increases by the addition of disks is said to be scalable.

Server (Video)

A storage system that provides audio and video storage for a network of clients. Aside from those used for video on demand (VOD), video servers are applied in three areas of television operation: transmission, post production and news. Compared to general purpose file servers, video servers must handle far more data, files are larger and must be continuously delivered.

Tape backup

In computers, tape backup is the ability to periodically copy the contents of all or a designated amount of data from its usual storage device to a tape cartridge device so that, in the event of a hard disk crash or comparable failure, the data will not be lost. Tape backup can be done manually or, with appropriate software, be programmed to happen automatically. Tape backup systems exist for needs ranging from backing up the hard disk on a personal computer to backing up large amounts of storage for archiving and disaster recovery purposes in a large enterprise as part of a storage area network (SAN), usually combining a hardware and software package. For enterprise tape backup, Linear Tape-Open (LTO) is an industry open standard from Hewlett-Packard, IBM, and Seagate.

Telecine

The process of scanning film in real-time and outputting to a tape-based or digital format.

Tiered storage

A lifecycle solution where your most critical and often-used data is kept most easily accessible, your aged and less critical information gets moved to secondary storage systems, and eventually ends up in longer-term archive systems – all to achieve a balance of protection, performance and cost.

Transcoding

A process that changes the video or audio features of a file, such as the resolution or bit rate, by changing portions of the audio/visual content but not by reconstructing the content (as would be in encoding). Compressed-domain transcoding also maintains the format of the file.

Ultra high definition (UHD)

A successor to the HDTV format with up to 16 times the pixel resolution (8K).