

Quantum.

# ATFS (ALL-TERRAIN FILE SYSTEM)



DATASHEET

## BENEFITS

### Avoid Unnecessary Storage Spend

ATFS classifies files on ingest, giving administrators a simple view into exactly where and how storage is being used, so unnecessary storage spend can be avoided.

### Avoid Spend on Third-Party Data Management Tools

ATFS gives administrators the ability to easily view and manage all of their files without the use of third-party tools.

### Reduce Storage Management Costs and Administrative Time

With an intuitive dashboard user interface, administrators can see in real time what types of files are taking up the most storage space and enact policies to put these files in the right place based on these rules.

### Increase Productivity via Automated Data Placement

ATFS tag rules and policies make it easy to keep files on high-speed NVMe for those users that require it, speeding data access and improving productivity.

## An Easy-to-Use NAS Platform with Integrated Data Classification

Unstructured data is growing by 30-60% per year, and many organizations lack visibility into what files they are storing. Users of traditional NAS systems end up spending money on storage or data management tools they don't need, often search for hours or days to find files, are fearful to delete anything, and manually move data to different tiers to try to reduce costs.

ATFS addresses these pain points. Quantum ATFS is an easy-to-use NAS platform, and the first NAS platform to identify and classify files with zero performance penalty. This 'zero touch data classification' delivers real-

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**Identify, classify, and organize data based on collected metadata and applied business-centric data tags.**

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time data search and analytics and enables administrators to place data based on policy—for performance, for protection, to reduce costs, or to leverage the cloud.

## ATFS AT SCALE

ATFS may be deployed as a single file system or many file systems (<10K) depending on organizations' needs. Quotas, hard at the file system level and soft at the data level, are supported. Data stored in different directories and file systems may be moved around and viewed in a new, virtual file system or tags view, used to isolate data for collaboration or compliance purposes based on tags and metadata. NFS v.3, v.4 and SMB2.1, SMB3, as well as cross protocol support is available. ATFS file system can scale from a few files to billions with superior performance in file metadata operations.

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**Zero Touch Classification** uses preset rules to tag data as it is ingested into the system.

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**Regular Expression Classification** enables the use of wild cards, seeking files in a sequence or with key words.

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All files entering the system are tagged using Zero Touch Tagging, based on preset rules, Regular Expression tagging, or via integration with applications and workflow managers. These tags are stored together with file metadata enabling real-time monitoring and file and metadata searches, and automated, purposeful data placement. Tags and metadata can trigger movement of data across media types, file system views, or geographic locations. Data can be kept locally, moved to the cloud, or shared with others within and outside of the organization. Tags may also be used to define and execute on data lifecycle management.

LEARN MORE:

[www.quantum.com/atfs](http://www.quantum.com/atfs)

## INTEGRATION WITH YOUR APPLICATION ENABLES AUTOMATION

Using API and integration with applications and schedulers, ATFS places data where and when it needs to be. The system responds to the demands of the application in real-time; ATFS can prefetch required data into read cache for superior accuracy and performance.

Media Asset Management (MAM) tools can tag data to assist with identifying data and its place in the workflow. In addition to MAM and other workflow management tools, policies may be set up to automate data placement over data's life cycle.

For organizations that leverage scripts today, ATFS has incorporated into its user interface a scripting assistant. An administrator tells the wizard what is required, and the wizard provides information what should be included in the script. The script assistant simplifies the creation of and optimizes efficacy of scripts.

## SEAMLESS BRIDGE TO THE CLOUD

ATFS treats **cloud storage** as another **media type**, optimizing writes for maximum capacity utilization.

ATFS manages all file system configurations, attributes, and layout in a database structured format. This enables the system to seamlessly tier to both public and private clouds. ATFS can write to the cloud that allows on-prem users to continue to view and access their data via standard file protocols. Data placed in a cloud bucket continues to be managed by ATFS.

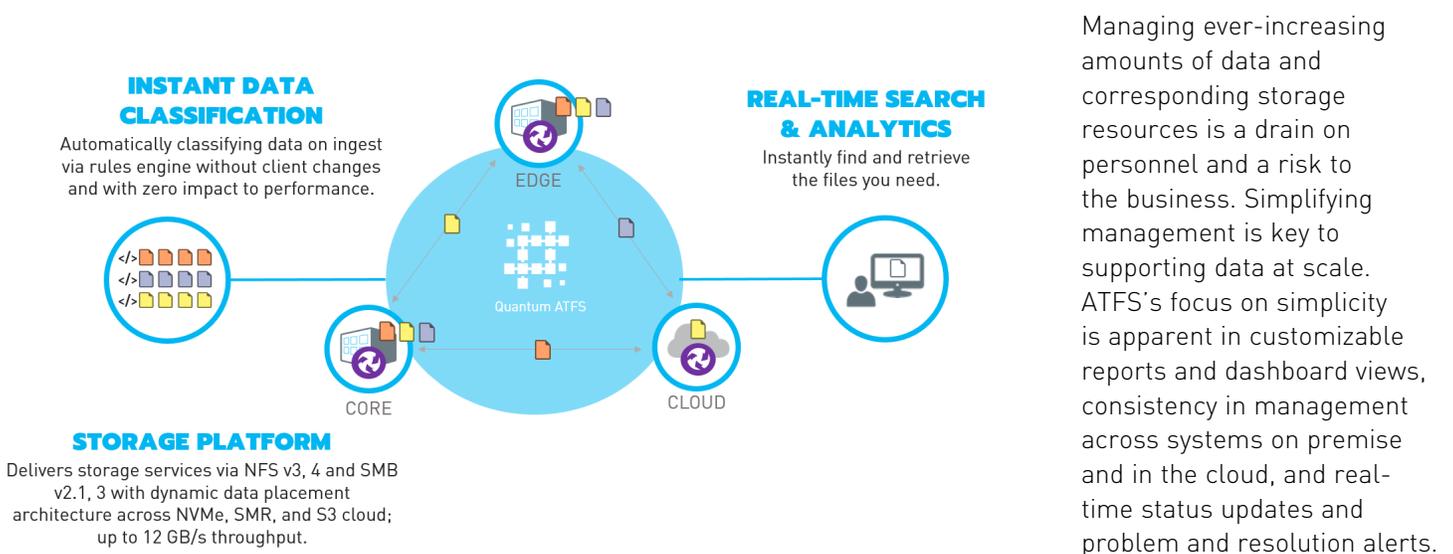
## SMARTER COMPLIANCE AND SECURITY

ATFS supports Active Directory and user roles with different access permissions. Combined with the unique ability to create virtual file system views, users may have access interface with a subset of the system without gaining access to the system at large. This provides a way to securely collaborate or sequester data for governance, regulatory, or privacy compliance.

ATFS tags all data coming into the system and captures its metadata. If a file enters the system from an unknown source, it can be tagged and an alert is sent to notify administrators that an unknown data has entered the environment.

Deleted files may be kept in the garbage bin for an extended period of time to protect against unintended deletions or corrupted versions. Access to the deleted files may be limited based on roles.

## MANAGE WITH SIMPLICITY AT SCALE



Troubleshooting starts with a timely alert (negative) to notify users of the problem. ATFS also issues an alert (positive) when the problem has been resolved, keeping operations, system administrators, and users up-to-date in real-time. All systems have the call home feature where systems are monitored and issues may be proactively mitigated. Environments that don't allow external network connections may turn the call home function off.

## ARCHITECTED WITH AN EYE TO THE FUTURE

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At ingest, data lands in the write buffer where it is aggregated into optimal page sizes for the type of media being used. The ability to customize writes based on media enabled ATFS to incorporate next generation media as they become commercially available and have the cost/capacity/performance profile desired by the organization.

Similarly, other hardware components may be incorporated based on application and business needs and industry developments. The flexibility of the software eliminates rigidity in selecting hardware and responds quickly to availability of innovative components.

## SYSTEM RESILIENCY AND DATA PROTECTION

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The system has been designed to leverage erasure coding to prevent data corruption and loss. Parity is calculated across all the drives in the system with 14:2 protection ratio. The implementation of erasure coding supports fast drive rebuilds without performance impact on the overall system.

ATFS has instituted file versioning with time-based retention. Versions, as a default, are created when a file has changed. Users may also set version creation and retention based on a timetable determined by the business.

## CONCLUSION

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Software is what gives hardware its personality and purpose. ATFS' storage software stack delivers a unique, dynamic platform for managing storage and data. Like a grocery store where all products have barcodes and are tracked, ATFS collects metadata and tags data to keep track of every component of the system. This data is further used to deliver superior efficiency, consistent performance, ability to automate tasks and integrate with application for real-time responsiveness to workflow needs, and insights to understand how resources are being used and what and how data is stored.

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**Automate tasks, simplify  
management at scale,  
and protect investments.**

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## TECHNICAL SPECIFICATIONS

Software Feature	Description
<b>Classification Rules Engine</b>	Leverage Zero Touch rules engine to generate data tags. Tags combined with metadata serve to facilitate classification on ingest.
<b>Real-time Search</b>	Proactive data classification via tags and metadata stored in a structured database format enable real-time searches without crawling the file system.
<b>Real-time Analytics</b>	Data analytics provide reporting and insight to data, which is enhanced by the classification engine. Storage analytics provide detailed IOPs and throughput for storage classes, clients, file systems, shares, and interfaces.
<b>Purposeful Data Placement</b>	Policies set per class of data trigger data placement based on performance, resiliency, access, or location requirements of the application.
<b>Versioning</b>	Versions of files are created on a pre-set time increment. Versions may be retained as long as business requires.
<b>Data Retention Management</b>	Versions of data may be retained for extended periods of time. Data deleted is placed in the garbage bin and separate retention rules can set up for deleted data. This helps prevent unintended data loss due to human error.
<b>NFS v3, v4 and SMB 2.1 and 3.0</b>	Data may be written and read via NFS and SMB. S3 is supported as a backend protocol for data movement.
<b>Cross Protocol Support</b>	Data written via NFS may be read via SMB and vice versa.
<b>Active Directory Integration</b>	AD support for SMB, UI, and API access. Trusted domains and encrypted AD server communications. Posix attributes for UX are also supported. Supports granular RBAC for administration.
<b>Bridge to the Cloud</b>	Data may be placed in the cloud in a managed format without affecting end users' view of their data. ATFS retains all file system formats, metadata, and tags.
<b>ATFS</b>	ATFS's file system supports >10K file systems and billions of files.
<b>System and Data Resiliency</b>	Ingest buffer, metadata and tagging data are mirrored across NVMe fabric. ATFS supports minimum 14:2 erasure coding using all bulk storage drives in the system. Data in read cache is protected in bulk storage.
<b>Virtual FS views</b>	All data, regardless of directory placement, may be aggregated into virtual file system views with separate access controls, resiliency policies, and placement requirements.
<b>Call Home</b>	All systems are equipped with call home features. This allows for proactive monitoring and problem identification and resolution.
<b>Future-proof system</b>	ATFS's software stack is designed to adjust writes based on the needs of the media. New media types may be incorporated with optimal utilization results.
<b>Alerts</b>	Negative alerts notifying of issues are sent based on home call monitoring. Positive alerts are sent out once resolutions have been applied.
<b>Customizable Dashboard</b>	View real-time metrics on performance, usage, tags in use, and other relevant metrics. Custom reports may be set out of information exported to other monitoring tools.
<b>Application/API Integration</b>	Allow applications, MAM, schedulers and other workflow managers to tag data, initiate data placement for performance, archiving, or deletion, establish retention, and facilitate collaboration.
<b>Data prefetch/Read-ahead</b>	Initiating a file read will result in prefetching of the remainder of the file. Files stored in a sequential order will get prefetched when one of the files is accessed. Prefetching is always on.
<b>Networking Support</b>	Supports multiple VLANs, allowing a single ATFS system to be multi-homed to serve clients on disjoint networks. Active/standby and LACP load balancing across multiple physical interfaces is supported via 10, 25, 40, 50, and 100 Gigabit Ethernet.



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