aspera
an IBM® company

Aspera Sync

High-performance multi-directional file synchronization and replication

AT A GLANCE

Key Features

- Multi-directional synchronization of remote files and directories.
- One-to-one, one-to-many, and full-mesh synchronization.
- Open architecture for integration with third-party processes and systems.
- Concurrent synchronization session architecture with support for clustering and multi-gigabit transfer speed.
- Remote sync monitoring through Aspera Console web application.
- Locally detects changes and compares them to file system snapshot without having to check with remote systems.
- Replicates file moves and file renames on the source as a file move or rename on the target, avoiding unnecessary data copying.

Key Benefits

- Designed for extreme scalability, and to eliminate the need for file system scanning in almost all cases.
- Immediately discovers changes in huge file systems - up to 100 million items across thousands of directories.
- Fastest speed for bulk-data synchronization over WANs.
- Efficient change detection and updates.
- 100% reliable, high-speed data delivery with Aspera FASP® transport technology.
- Flexible transfer and bandwidth management.
- Direct-to-Cloud synchronization to object storage (AWS S3, Swift) is compatible for push, pull and bidirectional synchronization of changes on cloud storage.

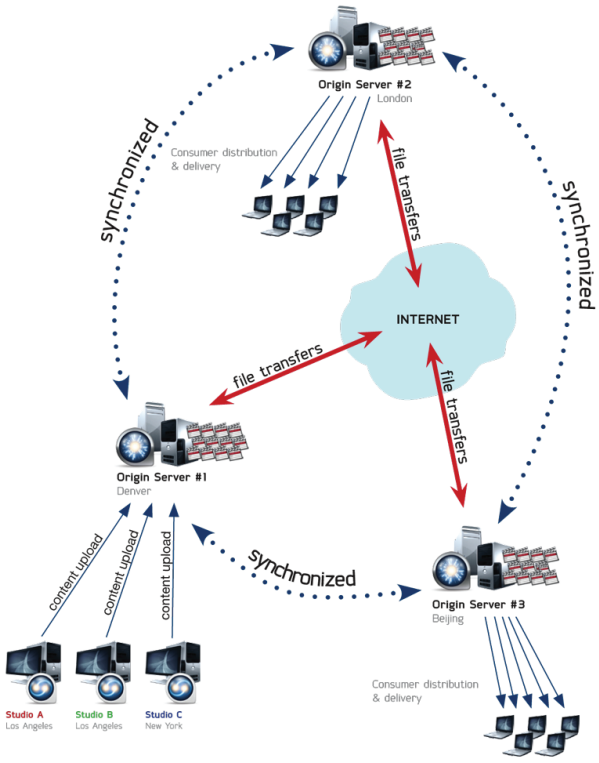
Aspera Sync is purpose-built by Aspera for high-performance, scalable, multidirectional asynchronous file replication and synchronization. Designed to overcome the performance and scalability shortcomings of conventional synchronization tools like rsync, Aspera Sync can scale up and out for maximum speed replication and synchronization over WANs, for today's largest big data file stores—from millions of individual files to the largest file sizes.

THE FASP® ADVANTAGE

Built upon Aspera FASP®, Aspera Sync transfers data between peers at full bandwidth capacity, regardless of distance and network conditions. Running on commodity hardware, Aspera Sync reconciles file system changes with remote peers at extremely high speed over global distances, and does not degrade in performance as the numbers of files increase, resulting in speed improvements up to 100X faster than rsync.

SUPERIOR TO RSYNC

The latest version has new ultra-fast snapshot performance for synchronization of giant file stores containing 1 million or more files. Unlike rsync and conventional replication tools which copy any new data over the WAN, Aspera Sync intelligently recognizes changes and file operations such as moves and renames, instantaneously propagating these to remote peers, avoiding what can be hours of unnecessary copy times. Users familiar with rsync will immediately recognize the similar Aspera Sync command line interface. Aspera Sync offers higher performance, without a steep learning curve - the ideal replacement for rsync.



FLEXIBLE DEPLOYMENT OPTIONS

Unlike unidirectional-only tools, Aspera Sync supports both push and pull mode in bi-directional and multi-directional synchronization topologies where content is changing on multiple nodes. Replication jobs can be configured to run continuously for real-time synchronization, or one-time, on demand. Aspera Sync ensures 100% data integrity: users can safely move, rename, and delete files or entire directory structures, without fear of data loss. Windows ACLs and OS X extended attributes are preserved across syncs and bi-directional workflows on Windows will tolerate files open by users during synchronization.

Aspera Sync

SUPPORTED PLATFORMS

Server

- Linux 64-bit and 32-bit
- Windows 2008r2, 2012, 7, 8, 10

Browsers

- Internet Explorer 8+, Firefox 27+, Chrome 32+

TYPICAL APPLICATIONS

Disaster recovery and business continuity

With FASP-powered transfers, avoid slow transfer speeds between primary and backup sites that can result in incomplete backups and slow recovery times. Replicate and back up mission-critical data at high speed from a primary site to one or more alternate sites to shrink the recovery point and recovery time, and ensure systems remain available after an outage or site loss.

Content distribution and collection

Create multi-site, multi-directional synchronization topographies to collect or distribute content, software updates and business data across remote, geographically dispersed locations, regardless of file sizes, locations and distance.

Real-time system mirroring

Replicate on-demand or continuously synchronize servers in real time over the WAN to improve data access and service availability.

File archiving and remote storage

Create continuous or scheduled archive of inactive data from high-speed primary storage to remove second-tier storage and allocate a specific amount of bandwidth to be utilized, thereby guaranteeing a high level of service for the regular business data network traffic.

Server and VM migration, replication, back-up and recovery

Automate replication and leverage high-speed transfers to minimize setup time, duplication and re-installation of new and existing systems and to maintain accurate copies for development, sandbox, quality assurance and standby.

First Run

Performance comparison synchronizing many small files (average size 100 KB) over WAN of 100 ms/1%

Small files	Number of files	Data Set Size	Sync Time	Throughput
Aspera Sync	978,944	93.3 GB	9,968 sec (2.8 hours)	80.4 Mbps
rsync	978,944	93.3 GB	814,500 sec (9.4 days)	0.99 Mbps
			Speed up difference:	81x

Performance comparison synchronizing many large files (average size 100 MB) over WAN of 100 ms/1%

Large files	Number of files	Data Set Size	Sync Time	Throughput
Aspera Sync	5,194	500.1 GB	4,664 sec (1.3 hours)	921 Mbps
rsync	5,194	500.1 GB	4,320,000 sec (50 days)	0.98 Mbps
			Speed up difference:	940x

Second Run

Synchronization time after adding 31,056 files to 1 million small files (100 KB each) over WAN of 100ms/1%

Change files	Initial files	Added files	Total Size	Sync Time	Throughput
Aspera Sync	978,944	31,056	2.97 GB	947 sec (16 min)	26.9 Mbps
rsync	978,944	31,056	2.97 GB	37,076 sec (10.3 hrs)	0.68 Mbps
				Speed up difference:	39x

Synchronization time after adding new files to to set of large files (100 MB) over WAN of 100ms/1%

Change files	Initial files	Added files	Total Size	Sync Time	Throughput
Aspera Sync	5,194	54	5.49 GB	54 sec	871 Mbps
rsync	5,194	54	5.49 GB	54,573 sec (15 hrs)	0.86Mbps
				Speed up difference:	1000x

FEATURES AND BENEFITS

Unrivaled Aspera performance

- Built on Aspera FASP® technology for maximum transfer speed regardless of file size, transfer distance and network conditions.
- Precise bandwidth control ensures that the entire allocated bandwidth is utilized to achieve maximum transfer speeds, while being fair to other critical network traffic.
- 100% reliable data delivery, real-time reporting of transfer progress and performance.

Familiar rsync interface

- Compatible rsync command line interface shrinks learning curve.
- Simplifies deployment and does not require a rip and replace.

Flexible options for replication and sync of remote files and directories

- One-to-one, one-to-many, and full-mesh synchronization.
- Supports both uni- and bi-directional synchronization in both push and pull mode between peers over WAN/LAN.
- Windows bidirectional synchronization tolerates open files during sync.
- One-time replication as well as continuous synchronization.
- Remote sync monitoring through Aspera Console web application.

Designed for extreme scalability

- Highly scalable architecture supports up to 100 million files across thousands of directories.
- Concurrent synchronization session architecture with support for clustering and multi-gigabit transfer speed.
- Allows large numbers of concurrent clients to compute their differential changes relative to a single snapshot on the server side.

Efficient change detection and updates

- Locally detects changes and compares them to file system snapshot without having to check with remote systems.
- Built-in deduplication (now in bidirectional as well as unidirectional mode) detects multiple copies of a file at the source and creates links to a single copy of the file at destination, saving transfer and storage capacity.
- Super fast scan to detect changes in scan mode for large incremental data sets.
- Replicates file moves and file renames on the source as moves or renames on the target.
- Distributed event collection system enables the fastest possible capture of file system changes on clusters of ingest servers and high availability deployments.

About Aspera

Aspera, an IBM company, is the creator of next-generation transport technologies that move the world's data at maximum speed regardless of file size, transfer distance and network conditions. Part of IBM Cloud, Aspera software is powered by the Emmy®award-winning FASP® protocol to deliver the fastest, most predictable file-transfer, share and sync experience across on-premises, cloud, and hybrid infrastructure. Aspera's core technology delivers unprecedented control over bandwidth, complete security and uncompromising reliability. Organizations across a variety of industries on six continents rely on Aspera software for the business-critical transport of their digital assets.

Learn more at www.asperasoft.com and follow us on Twitter @asperasoft for more information.