

IBM Aspera Streaming for Video

Superior quality & unlimited bit rate with near zero latency over the Internet

Key benefits & capabilities

- Saves considerable costs by reducing or fully replacing satellite delivery and dedicated fiber
 - Delivers timely arrival of any live video source with glitch-free play out and negligible start up over any distance
 - Provides a uniform lossless, in-order byte stream transport
 - Allows one stream source to be sent to multiple destinations concurrently
 - Ensures all streams are securely authenticated and encrypted in transit
 - Enables more video workflows by seamlessly integrating with cloud environments
- Satellite uplinks are often not available on demand, requiring large investment of capital or pre-planning that is impractical for ad hoc events and today's on-location programming and news.
 - The linear feed format limits rapid turnaround and customization demands in file-based production.
 - Satellite transmission is difficult to integrate with modern file-based production and cloud computing environments for transcoding and distribution, and can be disproportionately expensive for long tail content on the Internet.

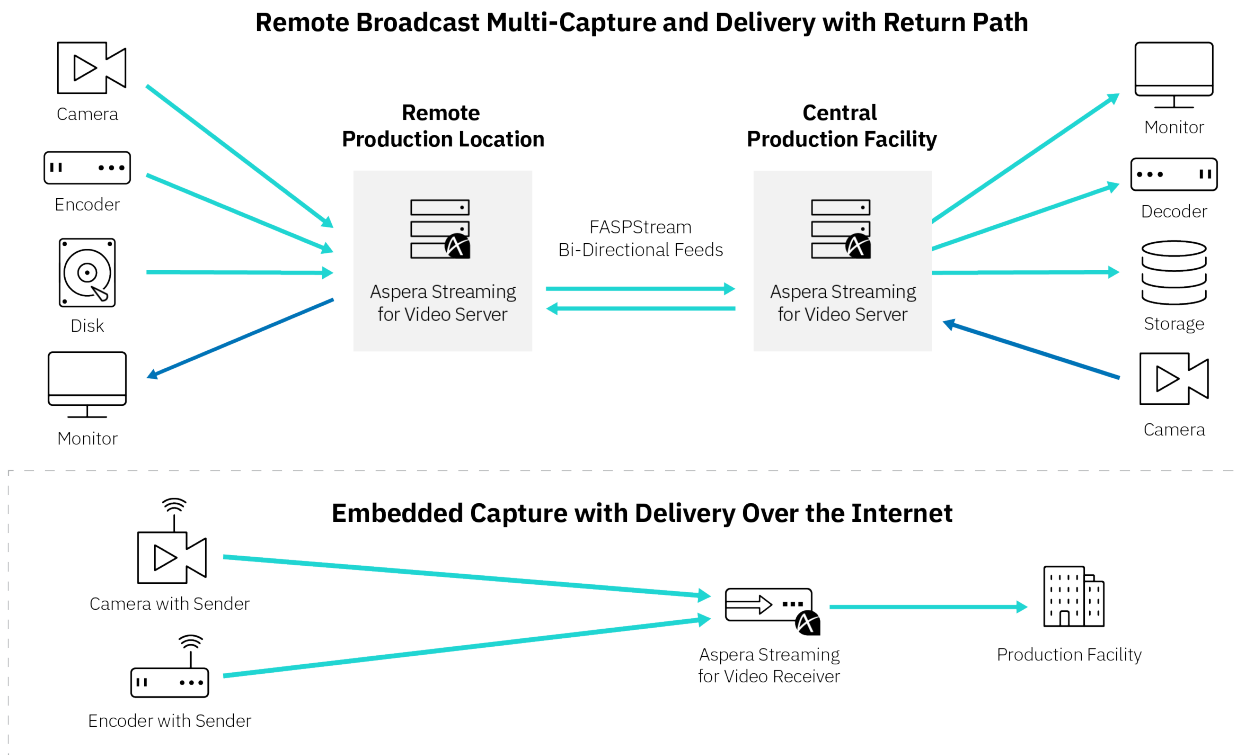
Today's live video opportunities are hungry for new transport solutions over Internet (IP) networks in place of legacy delivery options. As a result, various kinds of technologies and services have been introduced over the past several years that have attempted to reliably deliver video over the Internet such as services that use forward error correction over UDP and peer-to-peer distribution.



However, these technologies have not been able to provide the consistent exceptional broadcast quality and “zero-delay” transport experience provided by traditional satellite backhaul and transmission: Neither FEC over UDP nor peer-to-peer networks are able to guarantee live transmission rates over commodity Internet with variable round trip time and packet loss, and unlimited data rates.

- FEC over UDP methods introduce significant delays from live sources in order to protect against Internet packet drops; the greater the protection provided, the greater the delay.
- Peer to peer distribution networks and CDNs are constrained to locate “ideal routing paths” to minimize stream startup delay and glitching. This limits their practical function because only certain peer paths will work well enough. This in turn can lead to high costs where content has to be transported to “nearby” CDN points for ingest or served from “nearby” edge locations to ensure good quality

The FASPStream transport technology is a breakthrough alternative for Internet video transport because the efficiency of the underlying protocol is able to guarantee timely arrival of live video and data independent of network round-trip delay and packet loss. It does so with negligible startup delay/ pre- buffering (less than 2 seconds for 50 Mbps video streams transported over commodity global Internet conditions, e.g. 200 milliseconds round-trip latency and 2 percent packet loss). Its software core is the Aspera patented FASP® transfer protocol which is already widely used in media and entertainment for high-speed long distance file transfer. This new streaming architecture enables in-order byte stream delivery for live feeds.



Features and benefits

Quality Video Delivery

- Glitch-free play delivery with negligible start up delay at any distance
- Less than 2 seconds of delay from live for 50 Mbps video sources over global Internet networks with round-trip delays of 200 milliseconds and 2% packet loss and for 10 Mbps sources over networks with 500 milliseconds round trip delay and 5% packet loss

Interoperability

- Transport any live video source available on local multicast, unicast TCP/UDP, or growing file sources and output video to the same
- Provides a uniform lossless, in-order byte stream transport that equally supports constant bit rate and adaptive bit rate formats with performance independent of video encoding or network conditions

Reliability and Multi-endpoint capability

- One stream source can be sent to multiple destinations concurrently and provides built-in path redundancy
- Server hosts are natively clustered; stream sessions failover automatically to another host

Security

- All streams are encrypted in transit and security authenticated using standard public/private key authentication or Aspera's multi-tenant access key system
- Built in access control policies can be used to restrict stream providers and consumers by stream protocol, IP address, and ports

Interoperability and Management

- Streaming sessions are designed for full interoperability with the Aspera file transfer platform including writing to on-premises or cloud based "object" storage
- RESTful APIs allow production workflow and broadcast management systems to manage streams and provide status
- Stream sources can include cloud and on premises transcoders / encoders that read from stream and file, and provide stream outputs or growing files

System Requirements

- Windows 64-bit: Windows 7 with service pack 1, 8.1, 10, or Windows Server 2008 R2 with service pack 2, 2012 R2, 2016
- Linux 64-bit: Ubuntu 14.04 LTS, 16.04 LTS, 17.10; RHEL 6-7; CentOS 6-7; SLES 11-12; Debian 7-9; Fedora 26-27; Kernel 2.4 or higher and Glibc 2.5+
- Mac: OS X 10.11, macOS 10.12 (Sierra), 10.13 (High Sierra)

Use Cases

Transport

- Satellite replacement.
- Dedicated fiber replacement.
- Dedicated network (e.g. MPLS) replacement.

Remote Broadcast Capture and Playout

- Simple playout (remote to broadcast facility).
- Multi-site playout
- Complex playout (with inline transcoding/processing, multi-site)

Contribution

- Electronic News Gathering (ENG).
- Complementary Broadcast Content (additional content within live broadcast, second screen, digital experience)

Live Events

- Sports
- Entertainment (concerts, music festivals, award shows, etc.)
- Internal corporate communications and training
- Marketing (product launches, events)
- Education
- Conferences

Delivery and Distribution

- OTT
- VOD
- Affiliates
- CDN'S

IBM Aspera Streaming for Video is available as both a software application (Linux, Windows, Mac) and as an embedded solution integrated into numerous media devices. Perpetual and term licenses are both available. Pricing is based on bandwidth with speeds starting at 10Mbps. Business Partners and Developers may also be interested in the Aspera Developer Network for access to API documentation, SDKs, code samples and much more.

About IBM 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. Based on its patented, Emmy® award-winning FASP® protocol, Aspera software fully utilizes existing infrastructures to deliver the fastest, most predictable file-transfer experience. 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.

For more information

On IBM Aspera solutions, please visit us at <https://www.ibm.com/cloud/high-speed-data-transfer> or contact [aspera-](mailto:aspera-sales@ibm.com)

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