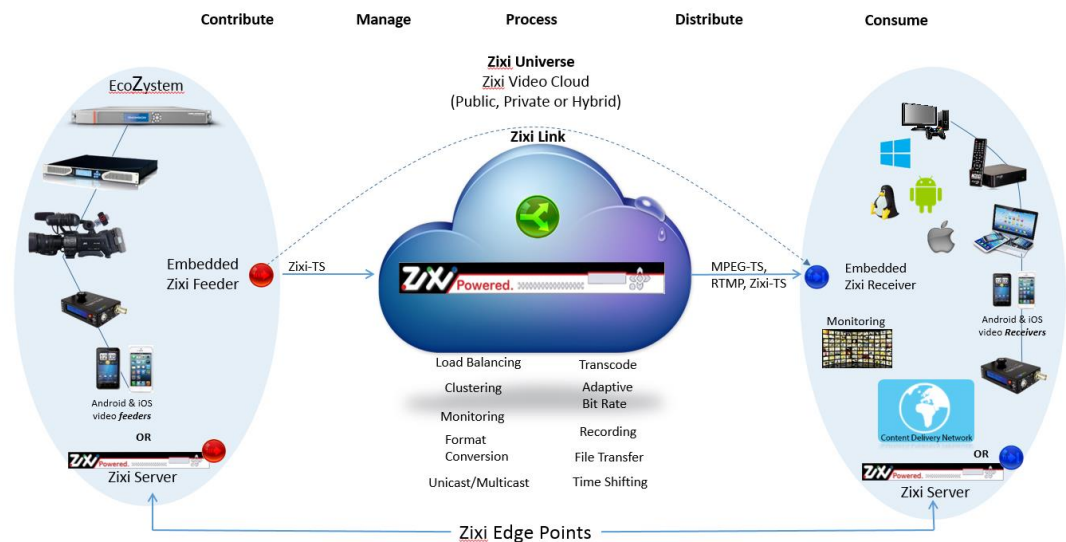


The Zixi Broadcaster platform is the foundation of the Zixi Video Cloud serving as a central hub for management, processing, and distribution of content in various formats. The Zixi Broadcaster Platform, available as an On Premise appliance or as a Cloud Service (SaaS), accepts encoded video from Zixi Feeder allowing users to manage, store, re-format and route video to various targets, including Zixi Receiver embedded in partner HW or SW, Content Delivery Networks (CDN), PCs, tablets and mobile devices.

The Zixi Broadcaster platform is a part of an intelligent, flexible, highly scalable and redundant architecture able to support thousands of destinations. The platform provides video transport management and distribution specifically designed to meet the requirements of broadcasters, sports networks, and video distribution service providers. When used together, Zixi Feeder/Broadcaster Platform/Receiver provide content-aware error correction, bandwidth shaping, and real-time feedback of streaming status enabling content producers to economically transmit HD video over commodity internet connections to support live events, contribution, distribution, and OTT workflows.

Zixi Broadcaster platform offers the following capabilities:

- **Enables robust content delivery over IP** - communicates with Zixi Feeder and Zixi Receiver over UDP-based, video-optimized protocols on private and public IP networks for maximal quality at a predictable latency
- **Adaptive Bit Rate** - Dynamically adjusts stream rate to adapt to changing network conditions, using unicast or multicast, to meet specific application requirements
- **Transcoding** - transcodes to a variety of different profiles and bit rates
- **Format conversion** – supports Internet protocols: HLS/HDS/MPEG-DASH/RTMP/FLV
- **Streaming** – multi-format support:
 - **UDP** - including MPEG-TS re-multiplexing (for professional IRDs)
 - **RTP** - RTP streaming + SMPTE2022 FEC
 - **Zixi** – with support in Bonded link input
- **Recording** - store as an MPEG-TS file.
- **Time-shifting** – Delay when stream will be sent out
- **File transfer** – Accelerated and secure file transfers delivered at wire speed + accelerated HTTP delivery including optimized playback of HLS and HDS over UDP
- **VOD** - stored files can be sent in multiple formats
- **Clustering and load balancing** - provide continuous uptime
- **Transport Stream Analyzer** – MPEG-TS ETSI TR 101-290 analyzer
- **Monitoring** - captures network and content specific statistical information in real-time
- **Easy to use Web GUI for monitoring and management**
- **Supports many to many and any to any:** gateway platform between UDP (unicast/multicast), Zixi protected stream (unicast/multicast), RTMP, or other supported formats



Zixi Broadcaster platform benefits:

- Broad support for industry-standard video formats
- Capability to originate and deliver content wherever Internet connections are available
- Offers layer of security encrypting streams for reliable delivery
- Deliver to any device, anywhere, anytime using standard protocols
- Zixi Broadcaster Platform deployment either on premise or in the public cloud

Specifications

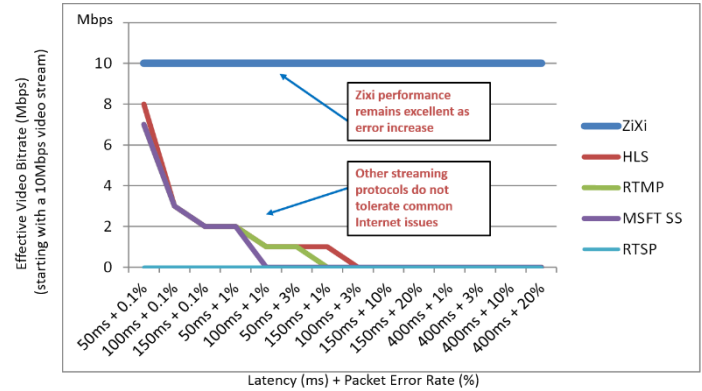
Supported Protocols

Input:

- Zixi protected transport
- MPEG-TS over UDP and/or RTP with SMPTE-2022
- RTMP pull from CDNs and/or other sources
- RTMP push
- Transport stream files from local file system

Output:

- Zixi protected transport
- MPEG-TS over UDP and/or RTP with SMPTE-2022
- RTMP push to CDNs and/or other media servers;
- Apple HTTP Live Streaming (HLS)
- Adobe HTTP Dynamic Streaming (HDS)
- FLV over HTTP (HTTP pseudo-streaming)
- MPEG-DASH (DASH264 profile)
- SHOUTcast
- Transport stream files to local file system
- Re-multiplex output streams to strict CBR for extensive compatibility with Integrated Receiver-Decoders (IRDs)



Adaptive Streaming

Flexible creation of groups containing user-specified adaptive bitrates

HLS, HDS and MPEG-DASH outputs

Recording of adaptive streams

Quality of Service and Error Correction

Transport protocol used between Zixi Broadcaster, Zixi Feeder, and Zixi Receiver optimizes bandwidth to deliver broadcast quality video at a low latency.

Maximum stream latency can be specified

Transcoding

Multiple bitrate streams can be created from single input stream

Supported Video and Audio formats:

Video(decoding):

- MPEG2
- H.264

Video(encoding):

- H.264

Audio(decoding)

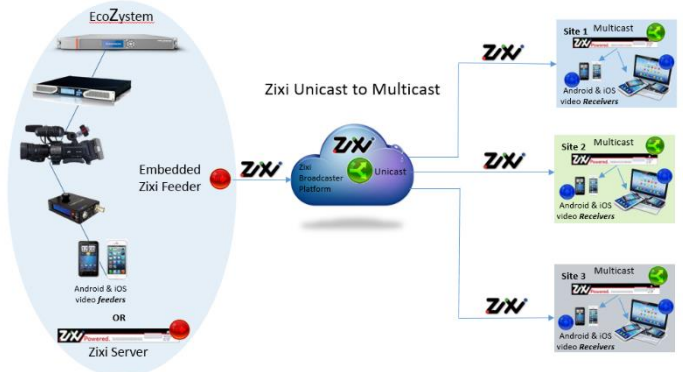
- MPEG1 layer 1/2
- AAC

Audio(encoding):

- AAC

Video Profiles:

- 1080i60 / 1080i59.94
- 1080p30 / 1080p25
- 720p60 / 720p50 / 720p30
- 576i60 / 576p25
- 480i60 / 480p29.97



Transcode Performance:

| OS | Processor | CPU | Profiles |
|------------|--|-----|--------------------------------------|
| Win7 | Intel Core i7-4770 @ 3.4GHz | 60% | 1* 1080i60 1* 720p60 1* 480i60 |
| Win7 | Intel Core i7-4770 @ 3.4GHz | 40% | 5* 720p30 5* 480i60 |
| CentOS 6.4 | Intel(R) Xeon(R) CPU E3-1265L v3 @ 2.50GHz | 60% | 1* 1080i60 1* 720p60 1* 480i60 |
| CentOS 6.4 | Intel(R) Xeon(R) CPU E3-1265L v3 @ 2.50GHz | 40% | 5* 720p30 5* 480i60 |



File Transfer and Video on Demand (VOD)

Accelerated file transfer using Zixi transport protocol; send files to Zixi Broadcaster file system using web interface with selectable speed throttling

Playout of transport stream files and MP4 files directly to devices via HLS, HDS, FLV or Zixi transport (via proxy or custom apps written to Zixi SDK)

Recording + Time shifting

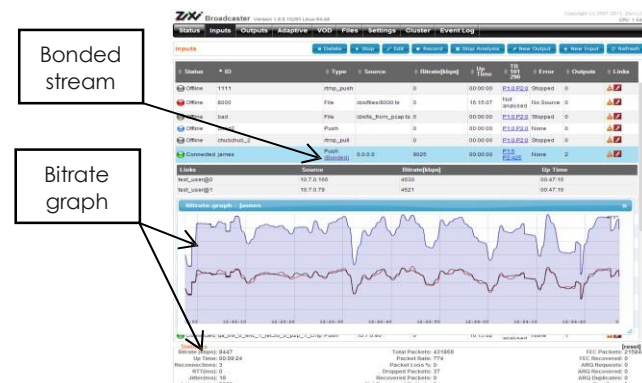
Store input as a MPEG-TS files to local disk drive or mounted drive

Time shifting of input streams with specifiable maximum delay up to 24 hours

De-Bonding

Reconstruction of bonded input stream coming from a Zixi feeder. Streams can be aggregated on multiple physical connections, or over multiple internet routes.

Visual graph of the bitrate of the bonded link



Availability and Reliability

Clustering and load balancing

Support for alternate hosts and/or alternate transmission paths

ETSI TR-101-290 stream analysis (priorities 1 and 2)

System Management

Web administration app for configuration

Remote management over SSH access via secure tunnel

TR-101 290 monitoring and analysis of P1 and P2 errors; results displayed graphically in web administrator

Programmable HTTP/JSON API for monitoring, automation, and customization

Security

Stream password protection

Stream encryption with up to 256-bit AES encryption

Customizable viewer and stream access control models: passwords file, HTTP server, Linux users or Windows Active Directory

System Requirements

Supported operating systems:

- Windows® Server 2008; Windows Server 2012;
- Windows 7; Windows 8;
- CentOS or Red Hat Enterprise Linux 5.x/6.x 32-bit or 64-bit

Recommended processor: Intel® Core™ i3 or better

Memory requirements: 2GB

Network interface cards: Minimum of two gigabit Ethernet adapters are required



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