



## ZIXI BROADCASTER

# Universal Media Gateway and Real-Time Video Processing Software

Zixi Broadcaster is the core media processing engine of the Zixi software platform, providing intelligent routing, normalization, conditioning, and delivery of live broadcast-quality video over IP networks.

Designed for flexible deployment in cloud, on-prem, or hybrid environments, Broadcaster enables reliable contribution, primary distribution, and channel delivery over managed or unmanaged IP. It provides the performance, security, and observability required for mission-critical live workflows – with the interoperability needed to integrate into existing broadcast systems.

Zixi Broadcaster supports any input and output protocol, enabling transport between diverse devices and platforms while maintaining synchronization, quality, and resiliency across networks.

### CORE CAPABILITIES

#### Multi-Protocol Ingest and Egress

Ingest and deliver over Zixi, SRT, RIST, RTP/UDP, RTMP, HLS, and WebRTC with error correction, and adaptive rate control.

#### Resilient, Low-Latency Transport

Recover from up to 40% packet loss with Zixi's adaptive FEC/ARQ and congestion-aware retransmission algorithms. Hitless failover and bonding across multiple networks (fiber, 5G, satellite, public internet) maintain uninterrupted video at sub-second latency.

#### Stream Processing and Conditioning

Perform on-the-fly transcoding, transmuxing, PID mapping, and program normalization. Manipulate and insert SCTE-35/224 signals with ESAM and POIS integration for precise regionalization and ad insertion.

#### Redundancy and Failover

Support seamless switching and failover for complex redundancy designs. Latency offsets and GOP alignment ensure frame-accurate SCTE insertion during transitions.

#### High-Performance Transcoding

Choose between software, NVIDIA GPU, Intel Quick Sync, or NETINT hardware-accelerated transcoding. Zixi Broadcaster optimizes density per core and minimizes CPU load using DPDK for high-throughput packet handling.

#### Advanced Monitoring and Analysis

Integrated TR-101 analysis, SCTE validation, and quality-of-service metrics with timeline correlation. Upstream protocol metadata allows tracing of stream health through multi-hop Broadcaster chains.

#### Secure, Controllable, and Observable

AES-256 encryption, DTLS authentication, and per-stream session control protect content end to end. Zixi Broadcaster integrates with ZEN Master for centralized orchestration, configuration, and performance monitoring.

### USE IN LIVE VIDEO WORKFLOWS

Zixi Broadcaster is a core component across all Zixi live IP workflows:

#### Live Event Contribution

Aggregate live feeds from field encoders or bonded uplinks over public and private IP. Hitless failover and network bonding ensure contribution reliability for remote production, sports, and news events.

#### Ingest, Aggregation, and Normalization

Combine diverse source formats and network inputs, ensuring uniform transport stream structure, synchronized timestamps, and validated ad signaling across the delivery chain.

#### Cloud Playout / MCR Enablement

Provide reliable channel ingest, automated switching, and stream normalization for cloud-native master control and playout.

#### Satellite & Fiber Replacement

Replace or augment legacy satellite and fixed fiber delivery with IP-based distribution. Maintain IRD compatibility, enforce SCTE compliance, and achieve near-satellite reliability with lower cost and greater flexibility.

#### Station Distribution and Aggregation

Normalize feeds from multiple affiliate or regional stations, perform PID and bitrate alignment, and deliver conditioned streams to MVPDs, vMVPDs, and OTT platforms.

## Recent Enhancements (v18.x)

- Upstream Metadata**  
 Embedded health metrics for visibility through multiple Broadcasters.
- HTML5 Preview**  
 MPEG-TS over HTTP for in-browser playback.
- Enhanced SCTE Control**  
 Support for POIS-based replacement and ESAM-controlled insertion.
- Expanded Failover Logic**  
 Improved "no-merge" mode, latency offsets, and error concealment.
- DPDK Optimization**  
 Increased throughput with reduced CPU utilization.
- Improved Protocol Support**  
 ATSC 3.0 STLTP, updated SRT (v1.5.4), extended RIST dejitter options, and RTP header retention options.
- TR-101 Analyzer Enhancements**  
 Added DVB table decoding, NIT/SDT/TDT/TOT, and per-segment CC error reporting.

## TECHNICAL SPECIFICATIONS

Category	Details
<b>Supported Protocols</b>	Zixi, SRT, RIST, UDP/RTP, RTMP, HLS, WebRTC, ATSC 3.0 STLTP
<b>Video Codecs</b>	MPEG-2, H.264/AVC, H.265/HEVC
<b>Audio Codecs</b>	AAC, AC-3, E-AC3, MPEG-1/2, Opus
<b>Transcoding</b>	Software, GPU (NVIDIA), Intel Quick Sync, NETINT
<b>Latency</b>	< 1 second (configurable)
<b>Error Recovery</b>	Adaptive FEC, ARQ, bonding, hitless failover
<b>Encryption</b>	AES-256, DTLS
<b>Control API</b>	REST / JSON
<b>Monitoring</b>	TR-101, SCTE-35 validation, CQA metrics
<b>Failover Modes</b>	Seamless, No-Merge, Hot/Cold standby
<b>Deployment</b>	On-prem, cloud, or hybrid
<b>Throughput Optimization</b>	DPDK support for high packet rates

## DEPLOYMENT AND INTEGRATION

Category	Details
<b>Operating Systems</b>	Linux x86_64 and ARM64 (AWS Graviton, OCI, Akamai Connected Cloud, bare metal).
<b>Interfaces</b>	REST API and JSON endpoints for automation and orchestration.
<b>Integration</b>	Seamless interoperability with ZEN Master, third-party monitoring (Prometheus, Kafka SCTE logging), and broadcast control systems via API.
<b>Deployment Models</b>	On-prem appliance, cloud instance, or hybrid clustered architecture.

### ABOUT ZIXI

Zixi provides Emmy award-winning software solutions for delivering broadcast-quality live video over any IP network with unmatched reliability and cost efficiency. Trusted by leading broadcasters and sports leagues for over 15 years, Zixi empowers businesses in today's fast-paced media landscape to boost revenue, improve operations, and reach wider audiences. Its solutions support multiple live IP video workflows, including content contribution, satellite & fiber replacement, B2B distribution, and D2C enablement.

Zixi's platform offers advanced automation, management, and security features like end-to-end encryption and blackout control. It ensures cost predictability and operational efficiency, providing 99.999% reliability with patented hitless failover technology. This makes Zixi ideal for high-profile sports broadcasts and 24/7 live linear channels. [www.zixi.com](http://www.zixi.com) | [sales@zixi.com](mailto:sales@zixi.com)