

PROTECTED MULTICAST WITH ZIXI

A Resilient, Reliant Solution for Protected Multicast Transport over any IP Network

MULTICAST USE CASES

- Distributed to Remote Facilities –Origin
- Distributed to Remote Facilities –Diversely Hosted
- Distributed to Remote Facilities –EdgepointDelivery
- Protected Multicast Private Network
- Protected Multicast –Origin –Edge Distribution to Media Business

Zixi's Software-Defined Video Platform (SDVP) enables global media organizations to deliver and manage live, broadcast-quality video across any IP, any protocol, any cloud, and any edge device with low latency, total reliability, and the highest-security protection. The only software to provide a resilient, reliant solution for multicast transport over unmanaged networks, no other multicast solution provides the same visibility to the receiving network, and Zixi is the only protocol that can conduct multicast not in push mode, meaning that multicast addresses do not have to be determined in advance making for a more flexible and seamless one-to-many or many-to-many transport solution over any IP.

As more and more media companies shift towards virtualizing their infrastructures, the SDVP allows both on premise and remote users to easily and cost-effectively maintain business continuity and securely orchestrate, manage and monitor broadcast quality, low latency live video workflows from anywhere in the world. With Zixi protected multicast, content owners can efficiently send video to multiple destinations over IP without increasing server load and network traffic.

Current Challenges Faced by Dedicated Networks

There are many challenges to sending live video over IP.

- Limited visibility into an end-to-end network -No access to control or telemetry
- Inability to provide Root Cause Analysis due to limited visibility
- Inefficient use of network with multicast traffic – bandwidth utilization and link quality issues
- No interoperability with unmanaged networks – how do you go from WAN to LAN

Zixi ensures that high value live video assets that traverse unmanaged and managed networks are clean, optimized and guaranteed quality.

SOLUTION: The Zixi Software-Defined Video Platform (SDVP)

Deliver live video routes through clustered Zixi Broadcasters to enable wider protocol support, enhanced video redundancy options and deeper real-time video analytics options. Seamlessly combine Cloud, Hybrid Cloud and On-Prem infrastructure into a single dashboard view and flexibly distribute video over cost and performance optimized live video routes.

Zixi Protocol & Transport

- Zixi Protected Multicast Router
- Integrated Protocol Conversion
 - Protected Multi-cast
 - Ultra-low latency affiliate distribution
 - Dynamic FEC+ARQ on multicast
 - End-to-end telemetry
 - Supports origin and edge caching architectures
- ATSC3 contribution & distribution support for unicast/multicast
- De-multiplexing/Multiplexing for content curation and blackout mgmt

Zixi Broadcaster

- Adaptive bitrate HLS/CMAF packager
- SCTE35|CUE Marker conversion & propagation support
- SCTE-224/ESNI ingest support
- AI driven in-stream content quality analytics with ePSNR/eVMAF scoring
- Ultra-Low Latency Live Transcoding
 - VBR|CBR Conversion
 - Close Caption Propagation/ Insertion
 - Support for 4K/8K
- Recording & Archive Tools
- Normalization and PID Mapping

Intelligent Data Platform (IDP)

- Trained AI/ML analysis with predictive Zixi Health score and live actionable insights
- Automated incident detection and report generation
- Customizable and shareable RCA reporting
- Trending analysis with anomaly detection
- Zixi Blast Radius impacts analysis
- Trained on 9 billion+ daily telemetry data points to deliver actionable insights

ZEN Master Control Plane

- Enhanced telemetry reporting with Zixi Edge Compute
- Infrastructure provisioning and health monitoring
- Live orchestration of video routes for linear and event channels
- Operational dashboards including dynamic grid views with performance penalty boxes
- Monitor live broadcast channels at scale across the Zixi Enabled Network of over 350 integrated devices and services



Zixi Enhancements on Standard Multicast Transmissions

Transmission Features

- ARQ: Efficient re-transmission and congestion avoidance
- FEC: Forward Error Correction is enabled to each multicast client
- Bonding
- Hitless Failover
- AES Encryption
- Adaptive Bit Rate
- No practical Max bitrate for compressed video
- Adjustable Latency
- PID Selection and Normalization
- Auto fallback to Unicast for clients or remote office node that may have issue receiving multicast
- Enhanced QoS across private networks including lower quality circuits

Telemetry Features

- Centrally manage multi-cloud, multi-network workflows internally and between partners
- Ability to orchestrate, monitor and report stream attributes across segments and traverse managed and unmanaged IP networks with unified control plane
- Trace route visibility on signal paths
- TR101 analysis
- Network Analytics
- Device Analytics
- Content Quality and Business Impact Analytics
- AI based Quality Scoring: ePSNR

Zixi SDVP Quantifiable Returns

- **Root Cause Analysis** – Root Cause Analysis is provided in minutes not weeks, with the ability to isolate and identify problems in the supply chain effectively, across teams
- **Network Bandwidth Optimizations** – Reduce infrastructure utilization, streamline hardware footprints, and reduce unnecessary traffic
- **Scalability with Agility** – Easy to onboard, reduce time of deployment, increase reach of resources
- **Virtualized Collaboration** – Manage and control services across the supply chain of resources and global teams
- **Democratize Operational Resources** – Leverage operational resources and maximize specialized engineering skill sets
- **Achieve Business SLAs and Uptime** – Highest availability, optimal recovery time, manage maintenance downtimes
- **Delivery of Highest Quality of Experiences** – Deliver highest possible Quality of Experience across programming and advertising

ABOUT ZIXI

Zixi provides a cloud based and on-premise Software-Defined Video Platform enabling the management, orchestration, monitoring, and delivery of broadcast-quality live and live linear video over any IP network, protocol, cloud provider or edge devices to broadcasters, enterprises, over-the-top video providers, and mobile service providers around the world. Over 15+ years, the Zixi Enabled Network (ZEN) of partners has grown to over 400+ OEM and service providers with whom Zixi serves well over 700+ customers representing most of the top media brands around the world with 20,000+ channels delivered daily.

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ZIXI SDVP BENEFITS

- **Orchestration** – Architect and securely deploy workflows across diverse cloud platforms, global regions and private networks
- **Telemetry** – Extend visibility to endpoints downstream with Zixi protected multicast
- **Interoperability** – 17+ protocols, 200+ integrated partners, open standard transmission options
- **Scalability** – The Zixi Broadcaster software is multi-threaded, so high throughput can be achieved 6Gb+
- **Security** – DTLS connection security, AES content encryption, SSO and password protected
- **Virtualization** – Bridge remote media facilities to maximize value of diversely deployed resources and tools
- **Zixi Sequential Hitless Failover** – Zixi patented hitless failover is extension and improvement of SMPTE 2022-7 with industry leading packet sequence alignment algorithm
- **Bonding** – Zixi dynamically and intelligently manages fluctuating bandwidth, packet loss, and latency differences of individual connections in real-time, to choose the optimal path to route IP packets
- **Low Latency** – Zixi manages latency as an adjustable parameter and automatically drives latency down while achieving desired QoS