

# ULTRA-LOW LATENCY DELIVERY WITH ZIXI

REPLICATE THE TV EXPERIENCE WHILE LEVERAGING ZIXI'S RELIABLE, ULTRA-LOW LATENCY TRANSPORT SOLUTIONS OVER IP

Zixi's Software-Defined Video Platform enables global media organizations to deliver and manage live, broadcast-quality video across any IP, any protocol, any cloud, and any edge device with ultra-low latency, total reliability, and the highest-security protection.

With Zixi's ultra-low latency video delivery, content providers can truly replicate the TV experience while leveraging a more economical transport method. Zixi provides the ability to transport live MPEG-2, H.264/AVC, H.265/HEVC, and JPEG 2000 video at ultra-low latency, making the internet viable for global content transport across distances, ideal for live sports and event streaming, gaming and gambling, or real-time video communication.

Zixi's protocols and applications for real-time delivery do not compromise on visual quality, while ensuring that latency is maintained and synchronized across devices, network locations and conditions so that content providers can deliver video in real-time to the end user with confidence.

## WHAT MAKES ZIXI'S ULTRA-LOW LATENCY DELIVERY UNIQUE

### The Lowest Latency Currently in Production Use

The Zixi protocol provides the lowest latency in the industry for delivering broadcast-quality compressed video. Sub-second worldwide transport latencies are practical and fully supported by the Zixi Software-Defined Video Platform.

Zixi transcoding and HLS packaging supports CMAF and the community recommended chunked-based-encoding-and-transfer-approach supported by CDNs and video players. Using this approach, sub-three second delivery latency is achievable.



*Zixi Provided Low Latency Delivery of the IPL Final in 2019.*

### Customizable Latency with Optimal Tradeoffs

In a communication system there is a 3-way tradeoff between latency, bitrate and resiliency. With the Zixi protocol the tradeoffs are at their optimum, and the latency and overhead are customizable, enabling transport of broadcast-quality video according to your unique needs.

For robust streams that are not time sensitive, or for example if content providers wish playout to be in sync with broadcast or satellite, users can set latency to a few seconds, or greater.

### Unmatched Resiliency with Hitless Failover

Zixi's protocol uses a combination of adaptive FEC, ARQ, network bonding, congestion avoidance and hitless failover to algorithmically reconstruct data down the supply chain in potentially less than a round-trip. Zixi's ultra-low latency delivery is backed up with Zixi's unique, patent pending hitless failover technique, that creates one coherent stream out of multiple stream fragments using a DNA sequence alignment algorithm.

Three-second latency setting with Zixi is very resilient to and from any location globally 90%+ percent of the time pending on architecture and workflow. Zixi latency can be adjusted to provide additional protection at problematic edge-point locations with extreme packet errors percentage, without interruption of the live stream.

**THE ZIXI PROTOCOL HAS  
BEEN MEASURED TO  
RECOVER FROM UP TO  
40% PACKET LOSS.**

## SEQUENCED AND BONDED HITLESS FAILOVER FOR 99.9999%+ RELIABILITY

### SEQUENCED HITLESS WITH ZIXI

Zixi's patent pending Hitless Failover is an extension and improvement of SMPTE 2022-7 with an industry leading packet sequence alignment algorithm.

Zixi's Hitless Failover creates one coherent stream out of multiple stream fragments from multiple IP networks – internet, fiber, satellite or cellular connections.

The Zixi Platform applies a multiple alignment algorithm that works much like a DNA sequence alignment, in order to reconstruct the original sequence of IP packets that best recreates the original stream fragments.

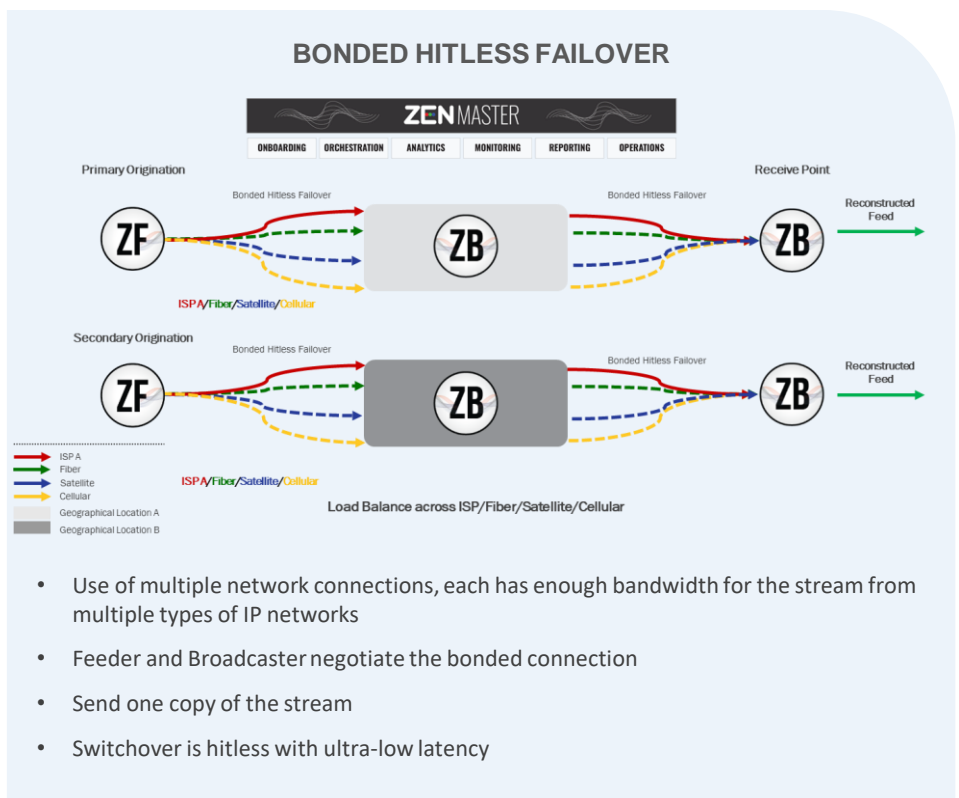
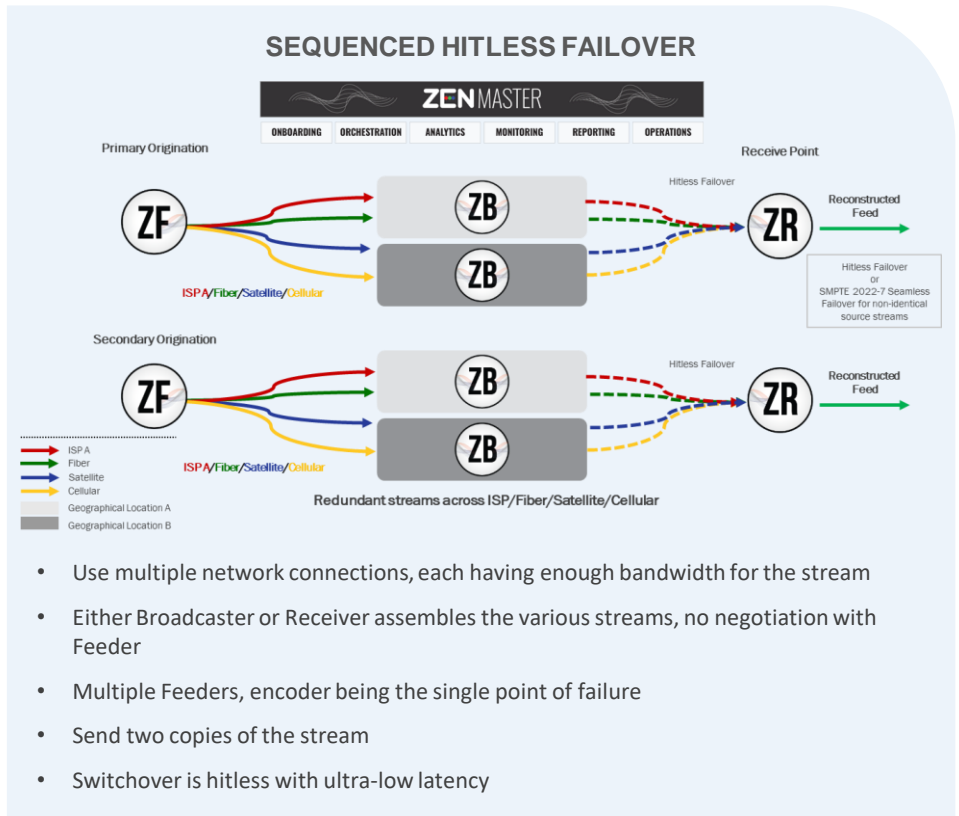
### BONDED BANDWIDTH SHARING AND BONDED HITLESS FAILOVER

Zixi has the capability to blend internet, fiber, satellite and cellular connections from multiple providers to form a virtual bonded network optimized for speed and reliability.

Zixi bonding dynamically and intelligently manages the fluctuating bandwidth, packet loss, and latency differences of individual connections in real-time to choose the optimal path to route IP packets to their destination.

All bonded networks can be conveniently managed in one centralized interface through Zixi's cloud-based ZEN Master control plane.

The result is increased reliability from connection diversity, and higher bandwidth when and where needed.



### 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 device. Over 10+ years, the Zixi Enabled Network (ZEN) of partners has grown to over 200 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. <https://zixi.com/>

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