

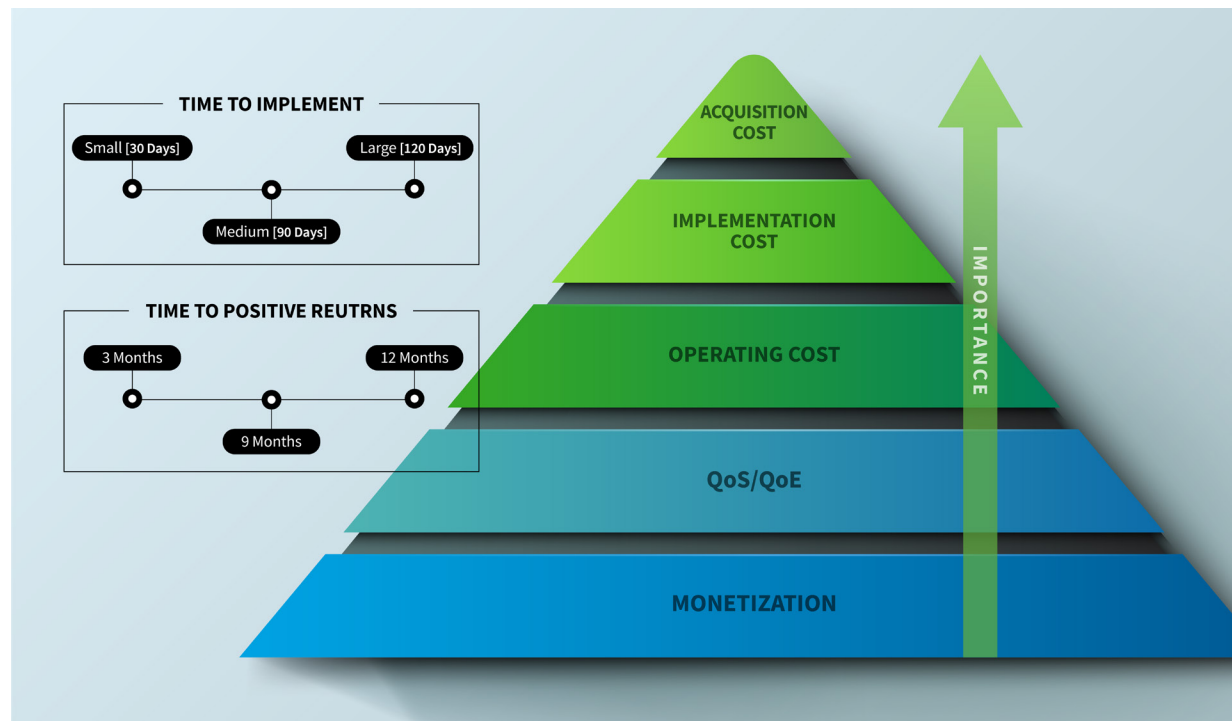
UNLEASHING THE POWER OF ZIXI:

The Most Cost Effective and Lowest Total Cost of Ownership in the Industry

In the dynamic world of video streaming, media organizations are constantly seeking efficient and cost-effective solutions to manage their large-scale implementations. The solution that has revolutionized the industry is Zixi's Software-Defined Video Platform (SDVP®) powered by the Zixi Protocol and Zixi's ZEN Master Control plane. The cost effectiveness comes from a wide variety of optimizations and total cost of ownership (TCO) benefits that Zixi has developed.

Zixi Hierarchy of Streaming – TCO

Like Maslow's Hierarchy of Needs, TCO analysis must start with foundational requirements. Unfortunately, many media companies suffer from upside down thinking. They start at acquisition cost and never fully look at the total picture. As you will see below, solutions that utilize an Open Source Protocol are assumed to be the most cost effective, but when fully analyzed are very expensive and inefficient. True North is monetization which is not likely to occur or be optimal without QoS and QoE. Without fully analyzing the full stack of costs and monetization upside down thinking can occur and benefits are not realized or less than optimal.



SDVP® and Zixi Protocol

Unmatched Compute Efficiency: Zixi's SDVP with the Zixi Protocol is 14 times more compute efficient than alternative solutions employing inefficient protocols like open-source offerings. This increased efficiency plays a pivotal role in reducing the complexity and cost associated with managing the large-scale implementations of the modern broadcaster. This compute efficiency offers more sustainable workflows with significant cost savings by requiring just 7% of the compute requirement as compared other industry options. Zixi's SDVP now also runs on ARM Processors, including AWS Graviton 2/3, which gain an additional 50% cost and energy savings over Intel.

Reduced Infrastructure Requirements: The superior efficiency of the SDVP eliminates the need for excessive virtual machines, leading to substantial cost savings. By requiring fewer virtual machines to handle the same workload, organizations can significantly reduce operations costs, including compute, engineering, operations and energy consumption.

Bandwidth Optimization: The SDVP, powered by the Zixi Protocol, offers bandwidth efficiency through two crucial mechanisms: null packet compression and video awareness. These capabilities help media organizations reduce their bandwidth consumption and transport stream egress costs on average by 50% while maintaining video quality and producing the pre-encode bitrate post-decode.

- 1. Null Packet Compression:** By compressing null packets, Zixi minimizes the amount of data transmitted over the network, resulting in significant bandwidth savings. This compression technique reduces unnecessary overhead, optimizing bandwidth utilization without compromising the quality of the video stream.
- 2. Video Payload Awareness:** The SDVP is video aware, allowing it to detect the content payload of the video and detect and compress unnecessary packets in scenes like snow storms or dark nights. This reduction in bitrate requirements translates to lower bandwidth usage and, consequently, decreased costs associated with network infrastructure and data transfer.
- 3. Transport Stream Egress Cost Reduction:** The Zixi Protocol, in combination with Zixi's SDVP, provides on average a 50% reduction in transport stream egress costs. This advantage stems from the protocol's ability to optimize video transport while ensuring reliable delivery and error correction.
- 4. Reconstructed at Decode:** Since compression, not elimination, occurs for efficiency, the payload is exactly the same at decode as it was prior to encode.

By cutting the transport stream egress cost in half, Zixi enables broadcasters to allocate their resources more efficiently, redirecting budgetary allocations to other critical areas. This cost reduction can have a profound impact on the TCO of video streaming implementations.

Media Processing: Zixi's live transcode capabilities can be used anywhere in the media supply chain, to process and normalize content for consumption.

- On Premise
- Cloud
- At the edge

This allows bit rates to be optimized, as high bit rate production signals are reduced when the stream meets a business partner or is prepared for audience consumption. In live events, linear workflows can leverage low bit rate slates to minimize egress costs in between higher bit rate programming events. Zixi's SDVP allows for media processing where it can have the most cost effectiveness on transport and egress costs, while still providing broadcast quality streams.

Architecture

As media organizations move to IP and Cloud based workflows, it becomes obvious that architectural design drives project economics. Point to point calculations are not relevant as workflows scale.

Considerations

- Individual point to point and Virtual Machine (VM) versus Zixi Broadcast clusters.
- Unit cost per stream and processed services managed at scale.
- Hybrid infrastructure that marries on-premises, direct network connections and the cloud.
- Managing the value of redundancy. Tier 1 content versus Tier 3, and what is the commercial value assigned to a program's SLA.

Zixi's SDVP allows for optimal leverage of all available IP infrastructures to minimize compute and egress costs while providing the base for growth at scale with fractional incremental investment. Multi-cloud deployments are supported, allowing optimized egress rates across vendors while providing network diversity for redundancy.

Control Plane

Legacy program channels multiply exponentially as they convert to IP streams. More takers generate more revenue, but management of existing resources across a variety of technical skills sets requires a force multiplier. A software defined SaaS solution gives finite resources the ability to hyper scale.

Take the recently announced FOX and Zixi Affiliate Program. Implementations like FOX start with a few hundred affiliates/channels, but once you add primary and secondary ingest, intra-cloud, streams for eyes on glass monitoring and then egress of primary and secondary streams to the ultimate number of takers it becomes 3,000+ streams. That is unmanageable without the SDVP and ZEN Master.

Time is Money: How fast can a technical deployment be rolled out? How agile is it through the change process? How easily can phase 1 be extended to phase 2? How do you build a modular tech platform across the media enterprise that is future proof?

System interoperability: Modern workflows and technical work streams utilize many vendors across the media supply chain. Established interoperability minimizes deployment risk and ensures reduction of traditional project timelines.

Zixi's ZEN Master Control plane allows for rapid deployment measured in hours not weeks. It provides integration and control access to devices, systems and services across disparate environments that enable testing to move to deployment with all stakeholders and vendors able to work from a single source of truth. And the 400+ technology partners of the Zixi Enabled Network provide the ultimate in best of breed options for any set of use cases.

Operations

Once a project is rolled out the operational phase becomes critical. How many new tasks have been created? How do operational and technical resources orchestrate workflow individually and between teams?

Monitoring aspects: The traditional approach of “eyes on glass” that would cover 10-12 channels per operator becomes untenable as 100s of channels and 1000s of streams are delivered. Exception based alerts driven by telemetry are the new normal, and only when there is an issue does the system alert generate a call to action.

Incident and Root Cause Analysis (RCA): Knowing there is an issue naturally is followed by where it is and how to resolve it. This leads to a large, multidisciplinary set of teams that need a common view and tool set that confirms and rectifies the issue while providing all the relevant telemetry and logs to verify the analysis. Zixi’s Intelligent Data Platform (IDP) along with ZEN Master uses multi-object correlation analysis (MOCA) to find correlations and automatically generates an editable drill down RCA that provides all the relevant telemetry, graphs and logs for rapid resolution without the need to go on a multidisciplinary and multi-vendor treasure hunt.

The industry average for RCA of a given program channel is \$500k per year. The ability to reduce the raw time and resource exposure in RCA and allow system scale with current resources means that focus can remain on content creation and audience engagement rather than staffing.

Engineering

Engineering Subject Matter Experts (SME) in broadcast video, networking, security and cloud are inherently scarce and expensive. This means that it is more important than ever to inform and mobilize those resources across a range of disciplines. Detailed telemetry, logs and reports allow SMEs to interact efficiently with inter and intra-company teams without prejudice, using a single source of truth and resolve an issue while implementing safeguards to prevent future reoccurrence.

Migration to IP and the cloud with live video is a new and specialized engineering skill set. From production to distribution the expertise required in any given workflow varies. Having a unified software defined platform allows highly efficient synchronization of engineering disciplines in real time that has faster times to resolution while allowing teams to cover the scale of operation on a global basis. The streaming workflows are deployed at divisional, regional and global levels and require the diverse technical resources to design, implement and commission the streaming roll out as well as prepare for operational hand off. Zixi’s ability to use scripting, APIs and multi-vendor integrations allows this process to be highly agile and rapid, while utilizing engineering resources most efficiently and effectively.

Industry Transformation

Migration to IP and the cloud requires a single, unified software defined platform that spans the transformation from legacy deployments to modern, advanced IP based workflows for higher quality content, FAST channels and enhanced viewer experiences.

Zixi's SDVP supports the media and entertainment industry's migration across major use cases:

- Satellite rationalization
- OTT
- D2C
- 5G
- Multicast to STB

The SDVP with the Zixi Protocol offers an impressive array of benefits that directly contribute to cost effectiveness and TCO optimization for organizations managing large-scale video streaming implementations. With its unmatched efficiency, reduced infrastructure requirements, bandwidth optimization and transport stream egress cost reduction, Zixi empowers media companies to maximize their resources, minimize expenses and deliver high-quality video content reliably. By leveraging Zixi's cutting-edge technology, organizations can embrace a future where cost-effectiveness and operational excellence go hand in hand, opening up new possibilities for growth, innovation and enhanced live video streaming experiences.