



Synamedia



WEBINAR

Seamless Migration to IP Transport

December 3rd, 2019

WEBINAR

Seamless Migration to IP Transport



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Senior Product
Manager, Synamedia

Agenda

- Synamedia & Zixi Introduction
- Synamedia Product Offering with Zixi Integration
- Product Demonstration
- Use Case Example
- Key Takeaways & Questions

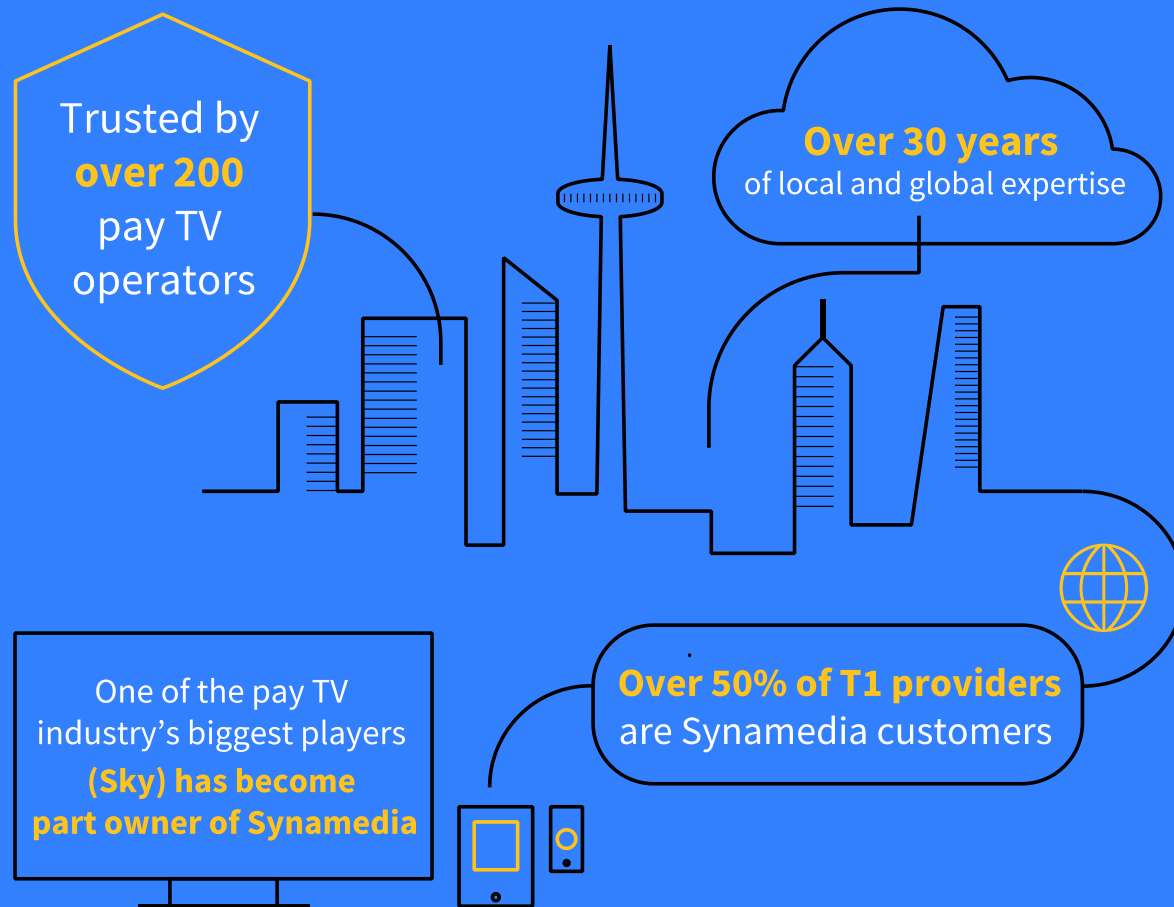
Synamedia

Introduction

Jordi Sander

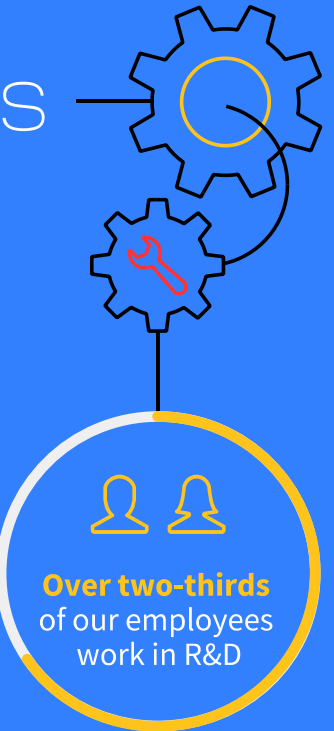
Senior Product Manager

Respected in the industry



Innovators

Over **900** US and non-US patents



30+ years of Experience in Video

Synamedia



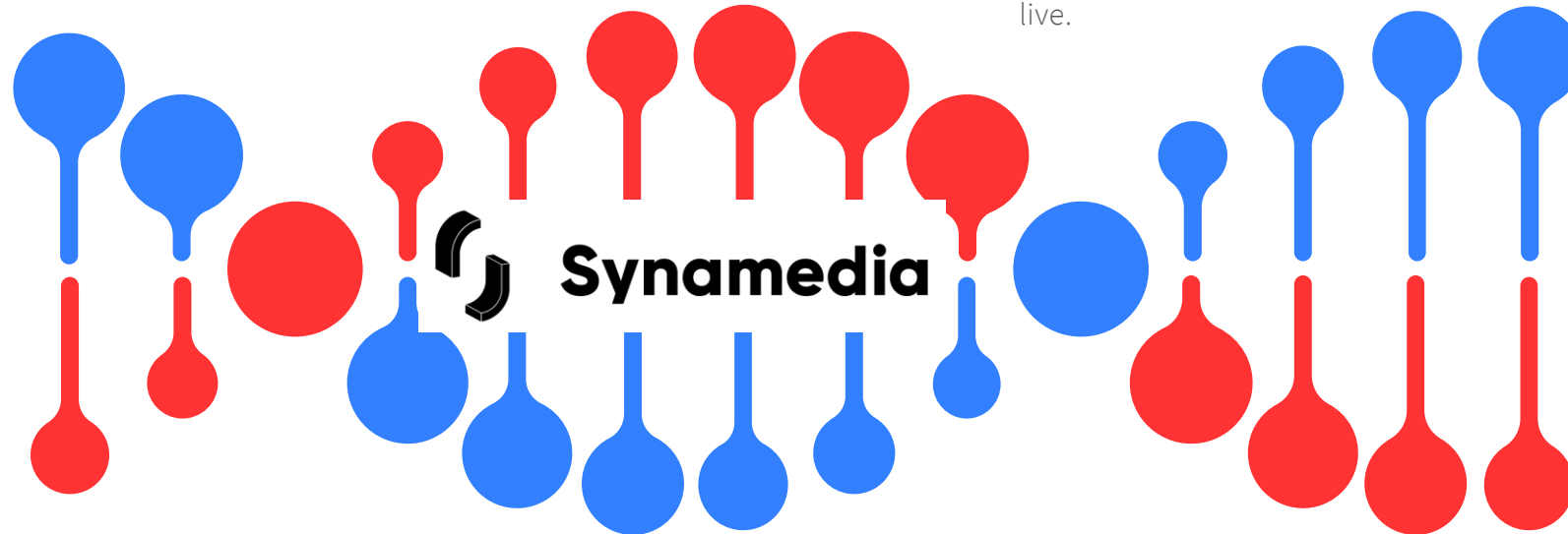
Leading global provider of set-top boxes, end-to-end video distribution networks and video systems integration



Cisco is the worldwide leader in networking that transforms how people connect, communicate, and collaborate. Our technology is changing the nature of work and the way we live.

BARCO

Founded in 1934 as a radio manufacturer, Barco became a pioneer in European color TV in 1949. Leader in visualization solutions



Provider of next-gen solutions for on-demand television and consumer services.



NDS developed software designed to create pay TV video offerings for service providers that enable subscribers to view, search and navigate digital content on any device. Its products included set-top/DVR, program guide and digital-content software, and video headend systems.



Leading provider of Adaptive Bit Rate (ABR) digital media processing platforms.

What we deliver

Video Experiences and Cloud DVR

Platform solutions for managing, cloud recording, viewing content, and subscriber analytics.

Video Security

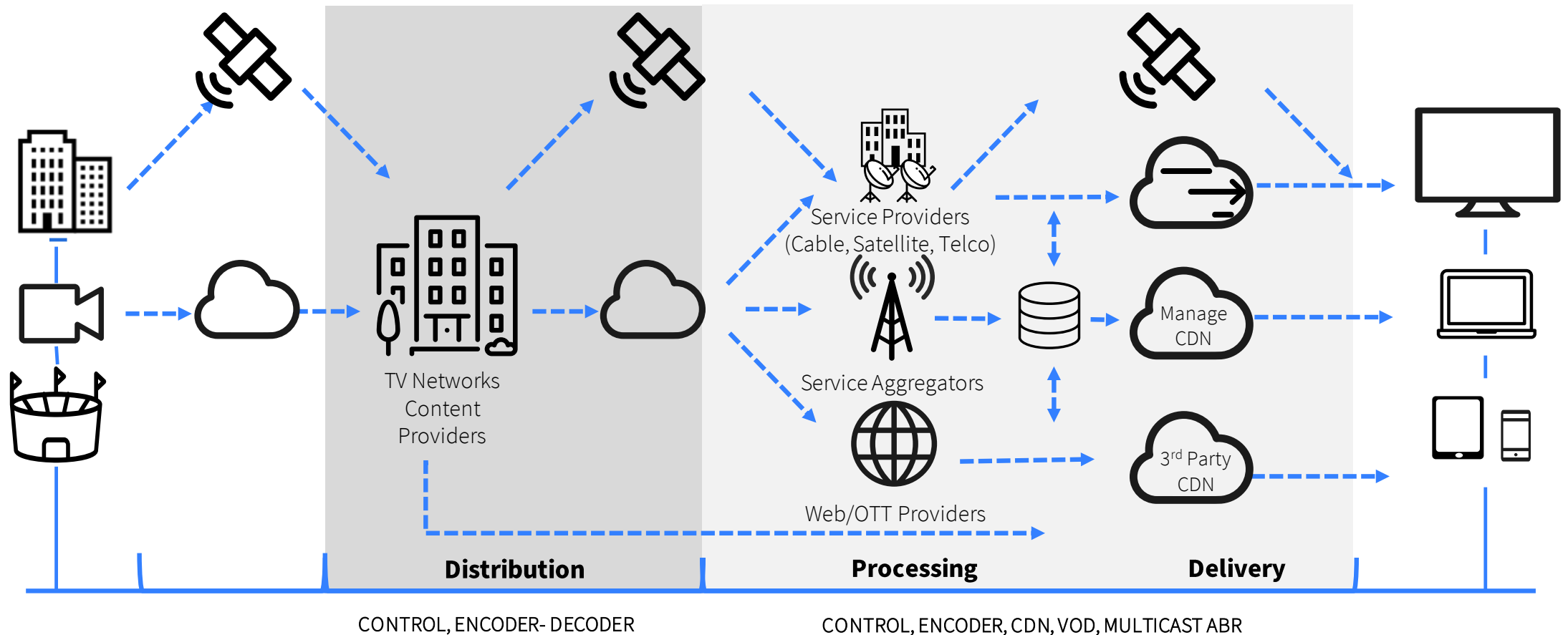
Critical technology to ensure the security of content throughout the video value chain.

Video Network

Content encoding, transcoding, management, and orchestration solutions for live content and VOD on any screen.

Video Network System Diagram

3 addressable verticals: **Distribution, Processing and Delivery**



Video Network Media Distribution

PowerVu Professional Receiver
D9800



Network Transport Receiver to securely distribute over any link (satellite, direct IP connection, Internet and CDN). IP ABR to TS conversion for distribution to traditional end-points.

PowerVu Network Control

Control PowerVu video, audio, data, and other ancillary services of your uplink. Configure and control your PowerVu network devices. Monitoring of IP connected IRDs using PowerVu Insight.

Video Network Media Processing

SW Digital Content Manager



The industry's most mature microservices-based video application for encoding, transcoding, packaging, encrypting, statmuxing, and other mission-critical operations for both live and VOD workflows.

Digital Content Manager

Broadcast quality encoding and transcoding platform to support various applications from content contribution and production; primary and secondary distribution.

Video Service Manager

Management and monitoring platform to simplify media workflow operations. Support for Synamedia's Digital Content Manager, Virtual Digital Content Manager, Encoder D9036, and Integrated Receiver Decoder D9800.

Video Network Media Edge Delivery

Media Streamer

Open and flexible CDN platform to multi-screen experience to all managed and unmanaged consumer devices. Supports Live/ VOD/TSTV/cDVR unicast ABR streaming services.

Media Broadcaster

Cost-effective and scalable solution for streaming HTTP adaptive bit rate live video to the in-home primary screen using network IP multicast.



Introduction

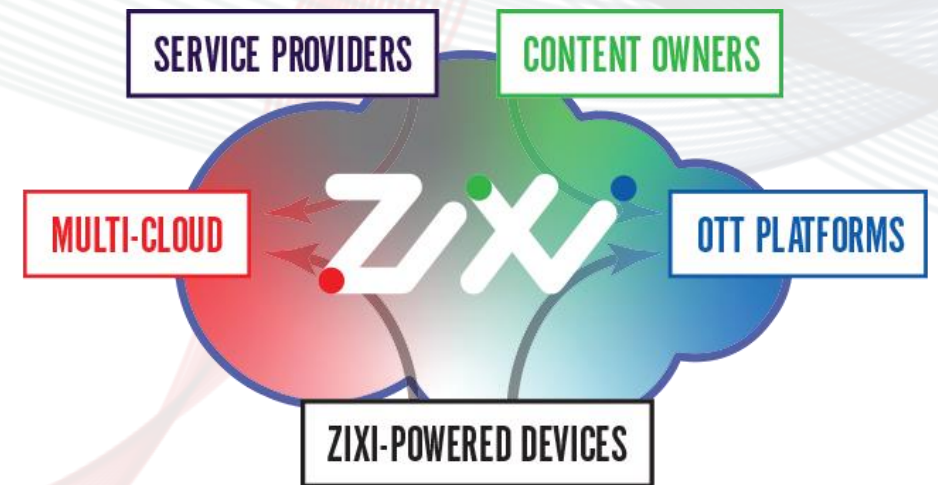
Tim Baldwin

Head of Product

What We Do

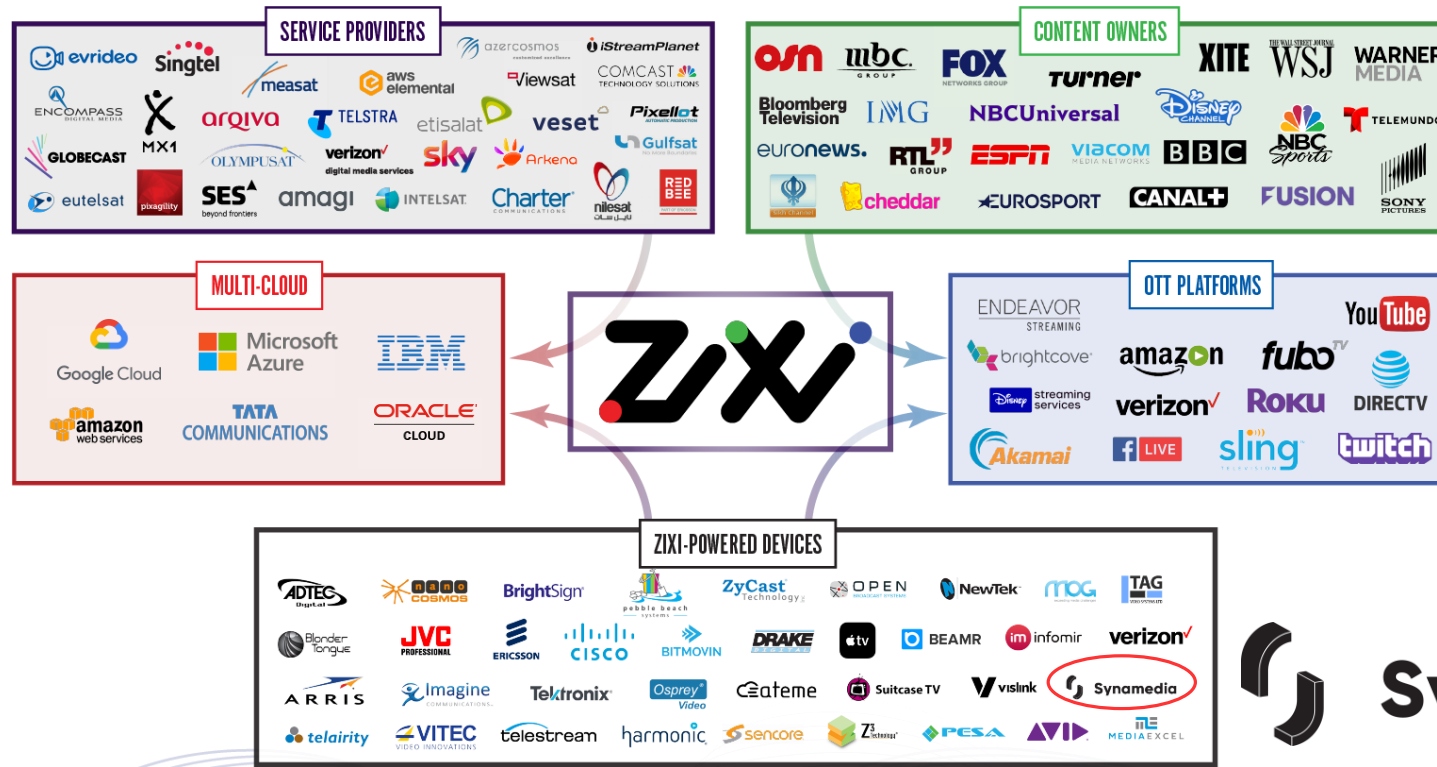
Software-Defined Video Platform that enables broadcast-quality video transport over all IP

- Employed by traditional broadcasters, OTT broadcast services, service providers
- To source, manage, and distribute live events and 24/7 live linear channels over IP
- Through the tight integration of **four crucial elements**:
 1. ZEN Master
 2. Zixi Video Solutions Stack
 3. Zixi Protocol
 4. Zixi Enabled Network



Enabling the Largest Global Ecosystem for Live Video

Zixi provides a scalable platform to easily, quickly and cost effectively interconnect the world's leading media companies, their cloud and service providers, and thousands of edge devices around the world.



Bringing 10+ Disparate Hardware & Software Solutions All Under 1 Platform

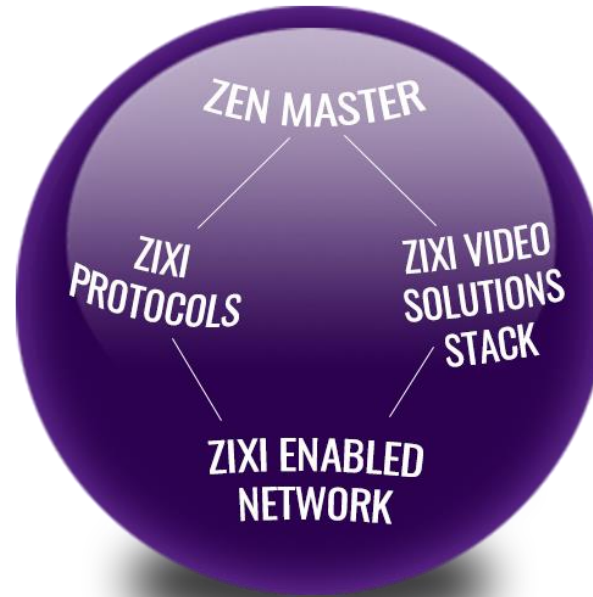
Protocols

- Zixi Protocol:
 - Best protocol in the market, DTLS, FEC, multicast, encoder backpressure, ABR, bonding, business impact analytics, etc.
- 10 Integrated protocols
- Protocol switching

Zixi Video Solutions Stack

- Hitless failover
- 99.999%+ reliability
- Any cloud - public or private
- Any IP network type
- Transcoding & repackaging
- ML based ePSNR
- Recording
- Time shifted delivery
- Auto-slating
- Network analytics
- Transport analytics
- Content and encoder quality analytics

 SOFTWARE-DEFINED VIDEO PLATFORM



Multi-Point Aggregation/Distribution

Multi-Channel Delivery

ZEN Master

- Provisioning
- Deployment
- Orchestration
- Monitoring
- Multi-party supply chain
- Telemetry visualization
- Workflow visualization
- Alerting
- History
- Automation
- Scheduling
- Reporting
- Root cause analysis

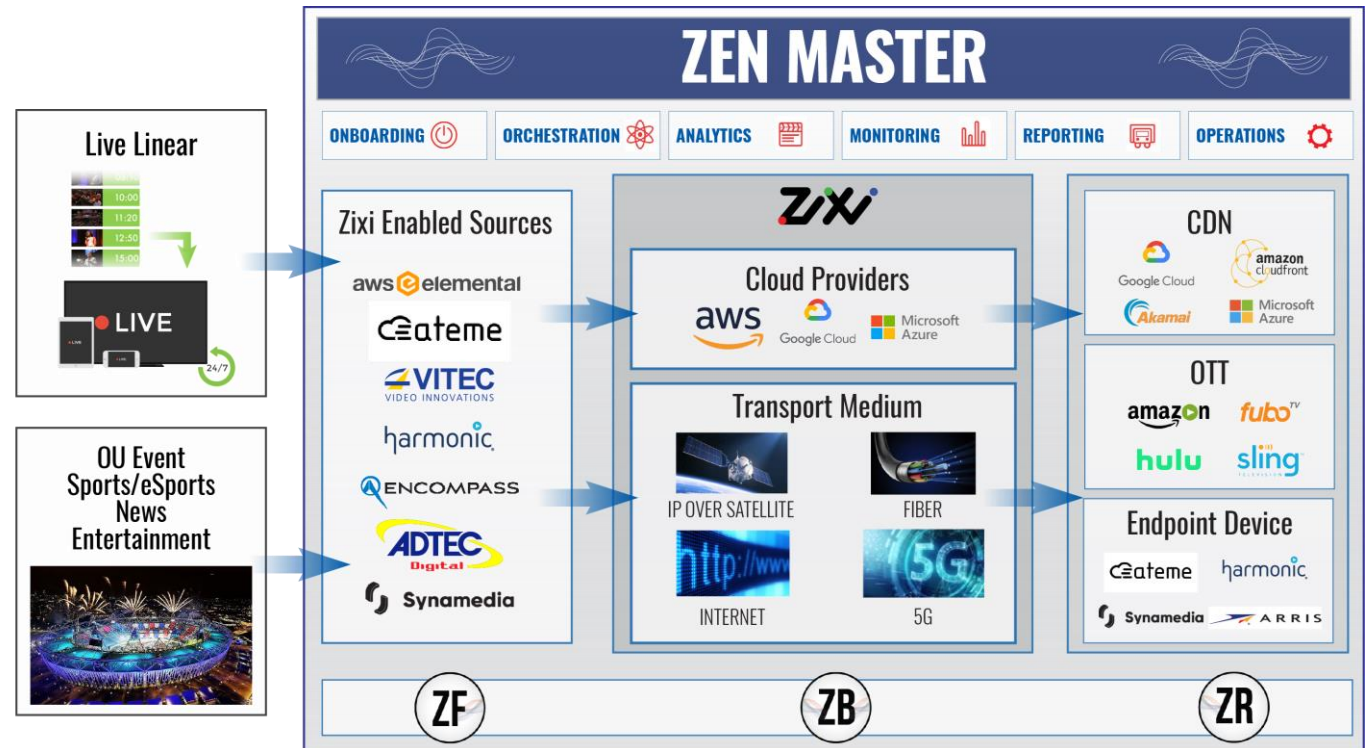
Zixi Enabled Network

- Any edge device
- Interoperability
- Cross supply chain
- 100+ tech partners
- 500+ customers
- 100+ countries

The Only Software-Defined Video Platform Designed for the Future of Media Transport

Zixi is the only flexible, interoperable platform to combine all these elements and is the safe future proof choice.

- ✓ All IP and HYBRID NETWORKS
- ✓ MULTI-PROTOCOL
- ✓ INTERGRATED WITH ALL MAJOR CLOUD PROVIDERS
- ✓ EMBEDDED IN 100s OF EDGE DEVICES



5 Major Use Cases & Growing

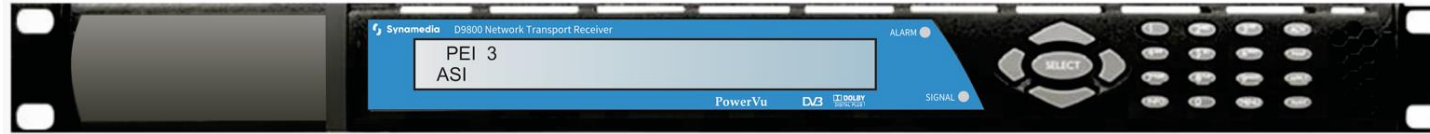
| | Satellite Rationalization | Cost-Effective Content Exchange | Centralized Management & Monitoring | Enable New Revenue Sources | Cloud/Virtualization Infrastructure |
|-------------------|---|--|--|---|--|
| Business Drivers | Customers are moving from satellite because they want flexible cost rather than high fixed cost | Facilitating cost effective content exchange for both content owners and content acquirers | ZEN Master provides a single centralized virtual Control Plane to efficiently monitor and manage content over any and all IP | Drive to monetize more content and content formats across new platforms | Move from hardware based to software defined in order to gain workflow flexibility and speed/agility |
| Customer Examples | | | | | |



Professional Receiver (D9800) and SW DCM

Overview

Synamedia and Zixi offering PowerVu Professional Receiver (D9800)



Ingest

- Supports Satellite, MPEGoIP, HLS and Zixi Reception concurrently
- Supports Disaster Recovery between various input flavors.

Content Protection

- Supports PowerVu, DVB-CAS, BISS and Zixi decryption
- Supports Fingerprinting

xCode

- Support HEVC/AVC/MPEG2 decoding
- Supports HEVC/AVC HD-SD transcoding to AVC/MPEG2 HD-SD

Processing

- SDI/HDMI/Analog output options
- ASI and MPEGoIP TS output options.

Management

- PowerVu Network Center: Control&Monitoring of ProIRD(D9800)
- Zixi Zenmaster certified.



Synamedia and Zixi offering PowerVu Professional Receiver (D9800)



| Product Variant | D9800 SS R4.25 | D9800 MS R4.25 |
|------------------------------|--|---|
| Transport mode | Push/Pull | Push/Pull |
| Zixi FEC | Supported | Supported |
| Zixi Encryption | AES128/196/256 | AES128/196/256 |
| Zixi DTLS | Supported (3.75 and up) | Supported (3.75 and up) |
| Zixi ZENMASTER | Supported (4.75 and up) | Supported (4.75 and up) |
| Zixi input Stream Redundancy | Supported(2) | Supported(2) |
| Max safe TS rate No AES | Tested with <u>15%</u> packet loss 80 Mbps - single Zixi instance (75 Mbps content) | Tested with <u>15%</u> packet loss 160 Mbps : 2 Zixi instances at 80 Mbps each. 120 Mbps : 4 Zixi instances at 30 Mbps each. (respectively 2x75 & 4x27 Mbps content) |
| Max safe TS rate AES | Tested with <u>15%</u> packet loss 40 Mbps - single Zixi instance (36 Mbps content) | Tested with <u>15%</u> packet loss 80 Mbps : 2 Zixi instances at 40 Mbps each. 80 Mbps : 4 Zixi instances at 20 Mbps each. (respectively 2x36 & 4x18 Mbps content) |

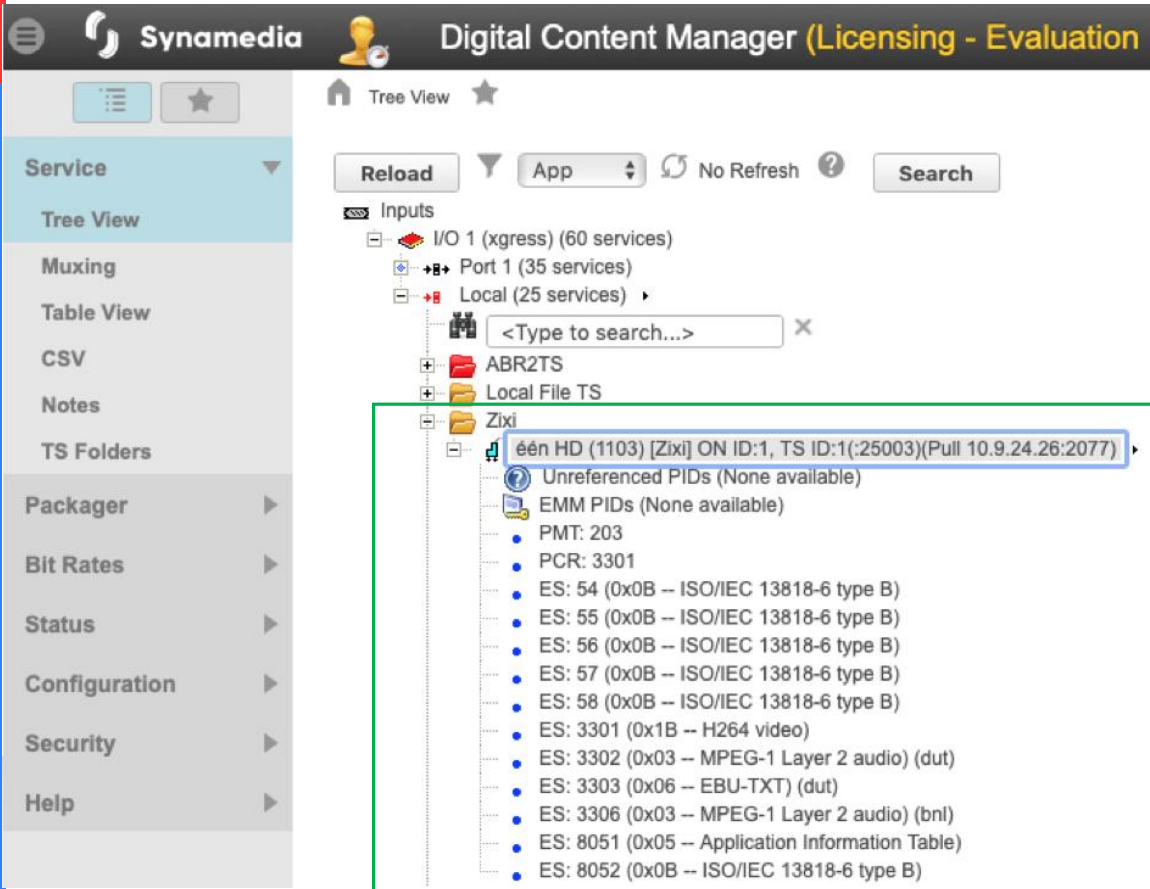
NOTE: Zixi supports both SPTS and MPTS. The combined bitrate in the case of MPTS should be below the suggested max rate above.



Synamedia and Zixi offering SW Digital Content Manager (vDCM)

| | |
|--------------------|---|
| xCode | <ul style="list-style-type: none">• HEVC/AVC/MPEG2 encoding• AVS+/HEVC/AVC/MPEG2 transcoding to AVC/MPEG2• SDI, IP, SMPTE 2022-6, SMPTE 2110 input support• ABR encoding and transcoding |
| Packaging/ Origin | <ul style="list-style-type: none">• Full Packaging support (HLS, DASH)• Origin support. |
| Content Protection | <ul style="list-style-type: none">• DVB CSA Scrambling support• DRM support• Headend-Watermarking |
| Ad Insertion | <ul style="list-style-type: none">• MPEG2/AVC/HEVC Live Linear Splicing• Manifest Manipulation |
| Processing | <ul style="list-style-type: none">• Reliable Transport of Internet support with Zixi input and output• Full TS processing and Monitoring |
| Management | <ul style="list-style-type: none">• VSM: Single Platform for both Streaming and Broadcast delivery• E2E workflow management for Streaming (incl DRM)• Rich API, integrating with other Systems |

Synamedia and Zixi offering SW Digital Content Manager (vDCM)



| | |
|------------------------------|-------------------------|
| Transport mode | Pull/ Push(from AWS MC) |
| Zixi FEC | Supported |
| Zixi Encryption | AES128/196/256 |
| Zixi DTLS | Not Supported |
| Zixi input Stream Redundancy | Supported |
| Zixi number of inputs | No restrictions |
| Zixi BW limit per input | No limit |



D9800 / PowerVu Insight / Zixi ZEN Master

Demo

Demo with D9800 Zixi configuration: D9800/PowerVu Insight/Zixi ZEN Master

Input Setup

RF ASI IP ABR **ZIXI**

ZIXI Settings

| Inpu... | Type | Enable | Interface | Source | Stream Id | Port |
|-----------------------------|------|--------|-----------|--------------------------|-----------------|------|
| <input type="radio"/> ZIXI1 | Push | No | Data4 | cccc | 1 | 9012 |
| <input type="radio"/> ZIXI2 | Push | Yes | Data1 | tor02lab-s-002.cisco.com | D9800-stability | 2089 |
| <input type="radio"/> ZIXI3 | Pull | No | Mgmt | zixi://10.85.162.9 | | 2077 |
| <input type="radio"/> ZIXI4 | Pull | Yes | Data4 | zixi://52.36.201.118 | MtnBike | 2077 |

ZIXI Status

| | Signal ... | DR Sta... | Rate (...) | Acquisiti... | Last Error | Curren... | Current Source | ARQ R... |
|-------|------------|--------------|------------|--------------|------------|-----------|-----------------------------|----------|
| ZIXI1 | No Lock | N/A | 0.0 | None | None | Mgmt | | |
| ZIXI2 | Lock+Sig | ZIXI2:Nee... | 31.968628 | Full | None | Data1 | zixi://10.85.162.9/new-name | 264555 |

ZEN MASTER

REMOTE ACCESS

| # | Status | Name | IP |
|---|--------|-----------------|-----------------|
| 1 | OK | Arrowhead | 208.116.162.170 |
| 2 | OK | CS-Lab-Internet | 99.226.192.24 |

ARROWHEAD

Name Arrowhead
Host synamedia.io.zixi.com
Access Tags default
Username Arrowhead-5pwj
SSH Key Arrowhead
Tunnel Port 4175

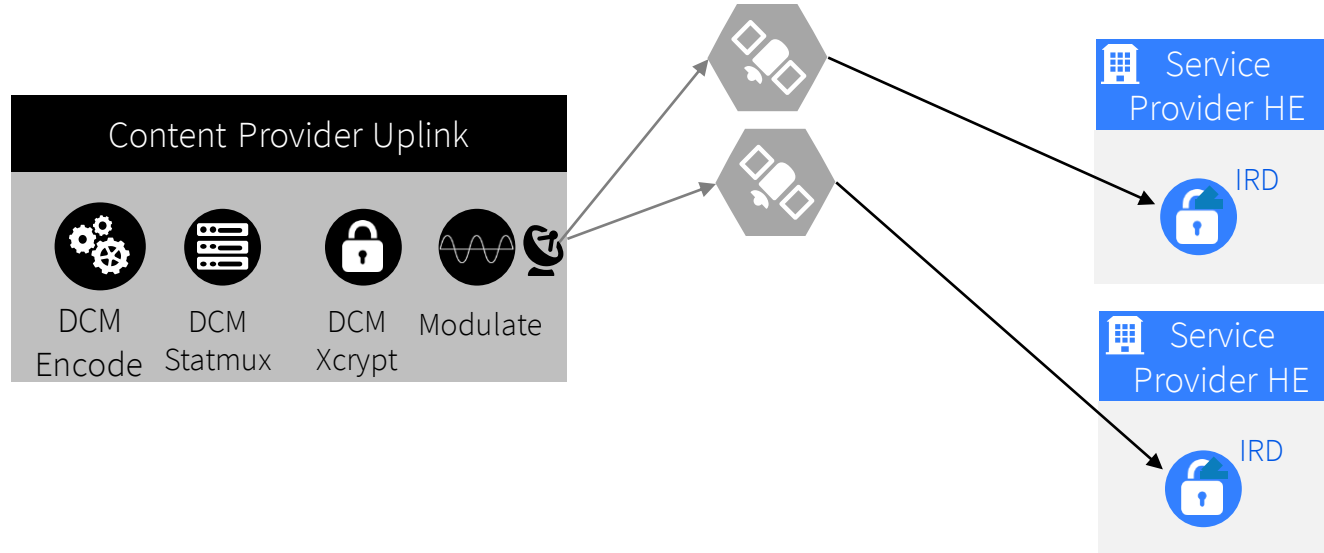


Use Case

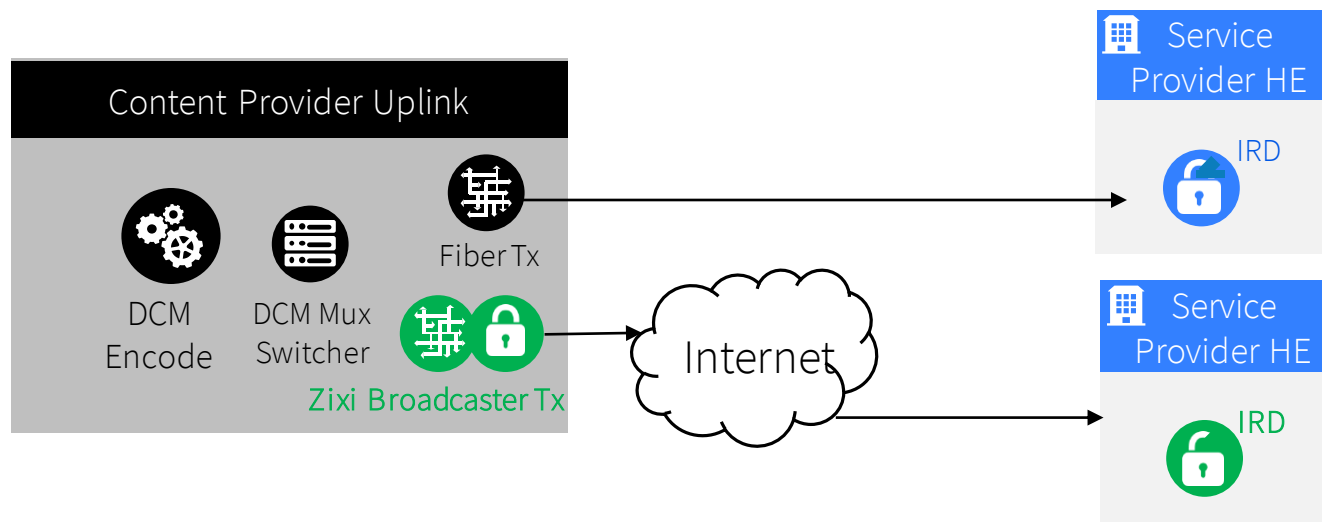
Service Provider Distribution

Migration from Satellite to IP distribution

Use-case CP to SP distribution: Regional Sports



2 transponders
12 channels
100 SP locations



- D9800 ProIRD with Zixi Pull
- Zixi Broadcaster
- Zixi AES128

Key Takeaways

- Synamedia and Zixi's joint delivery solution will allow programmers to gracefully migrate any programming from satellite to terrestrial distribution methods by providing secure, reliable, error-free video transport over IP
- Synamedia's devices integrated with Zixi:
 - Virtual digital Content Manager (vDCM)
 - PowerVu Professional Receiver (D9800)
- Integrated monitoring and reporting with Zixi's ZEN Master control plane
- Zixi functionality is enabled on Synamedia devices through a license

Any Questions?

John Wastcoat

Moderator and SVP
Marketing and Alliances



Tim Baldwin

Head of Product



Jordi Sander

Senior Product Manager



Synamedia



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Thank you!