Who was I?

- 9 years as a military communicator in the Royal Signals, British Army.

- 5 years as a defence contractor (civilian).

  - Skynet 5 & Reacher / SCOT.

  - Design, Test and Integration of the CMS.

- 1 year as an engineering contractor for M&E company.

Who am I?

- Chris Clarke, CEO, Cerberus Tech Ltd.
- https://www.linkedin.com/in/chrisclarkeuk/

  - Started out as Cerberus Satellite Services Ltd.

  - KA Band IP Satellite Services for Film and TV Productions.

  - Established as a managed service provider for live video over IP in 2015.

Chris Clarke
Founder, IP in Broadcast Evangelist

What does Cerberus Tech do?

- **24/7 linear service distribution**

- **Occasional Use**

  - **Broadcast**

  - **Sport**

- **IP based toolkits**

Livelink Service Network

Livelink Satellite
Teleport Connections

Scotland
Ireland
England
Canada
USA
India
Singapore
South Africa
Australia

Livelink™
BY CERBERUS TECH

Context

The technical and logistical challenges of moving broadcast-grade, low-latency feeds, around the world are certainly a reality.

While IP has proven to be a cost-effective and flexible option, the familiar workflows of satellite and fibre remain the default setting for many content owners.

Context (2)

Content owners are under pressure to deliver more live content than ever before, whilst keeping costs to rights takers, in an expanding market of territories, competitively low.

However, there is scope for hybrid workflows to come to the fore, leveraging the benefits of both delivery methods.

What do we mean by IP?

Uncompressed	Compressed	OTT
ST 2022-6	TSoIP 'wrapped' as RIST, SRT or Zixi	RTMP
ST 2110	Mezzanine format with multiple audio channels	HLS
		MPEG-DASH
		CMAF

Satellite Workflow

Established primary
contribution path

SD / HD / UHD
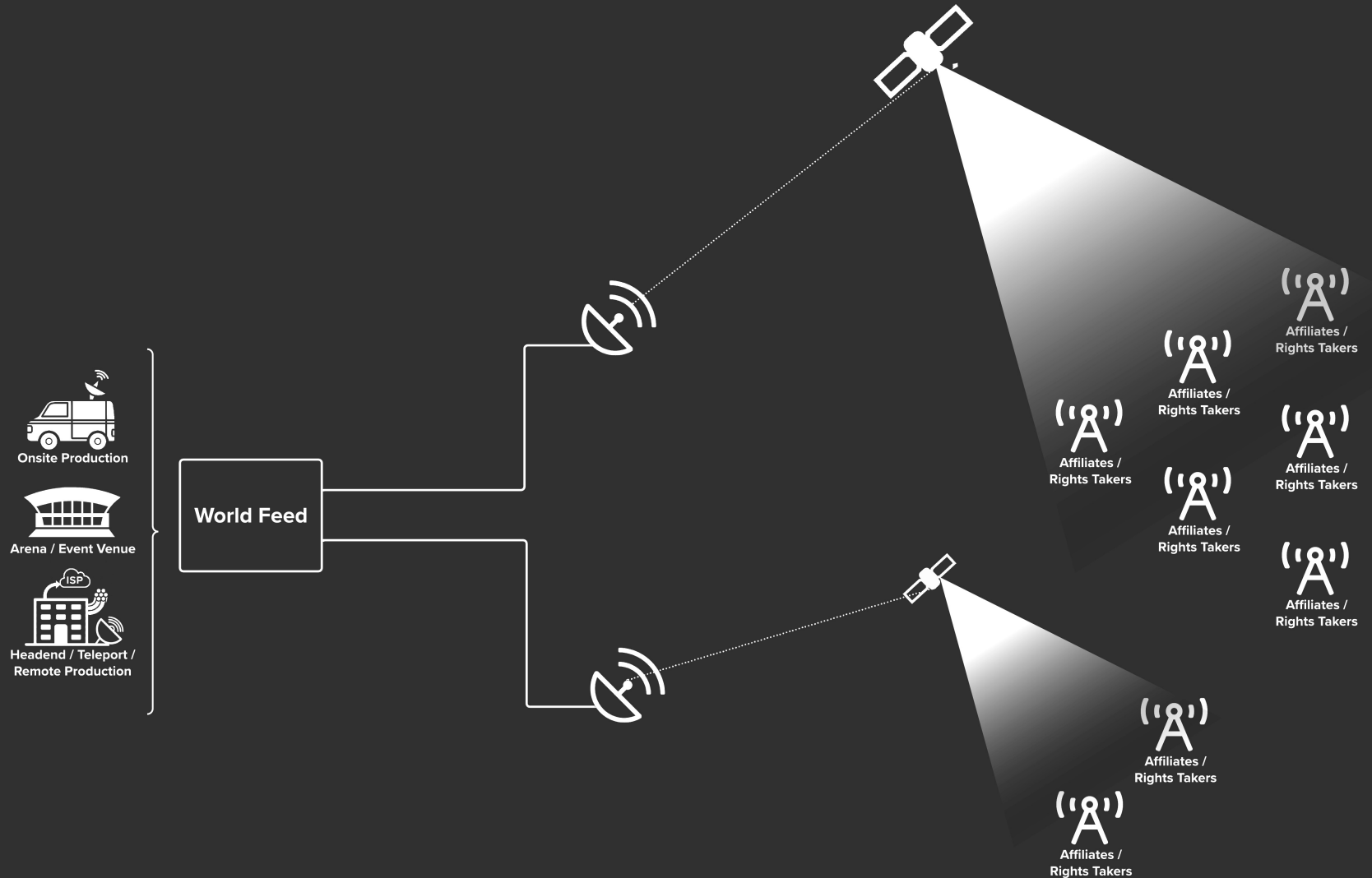
One to many?

Primary vs secondary

Receivers are technically
decoupled from the source

Low operational complexity

High resource cost

Onsite Production

Arena / Event Venue

Headend / Teleport /
Remote Production

World Feed

Affiliates /
Rights Takers

Affiliates /
Rights Takers

Affiliates /
Rights Takers

Affiliates /
Rights Takers

Affiliates /
Rights Takers

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Rights Takers

Affiliates /
Rights Takers

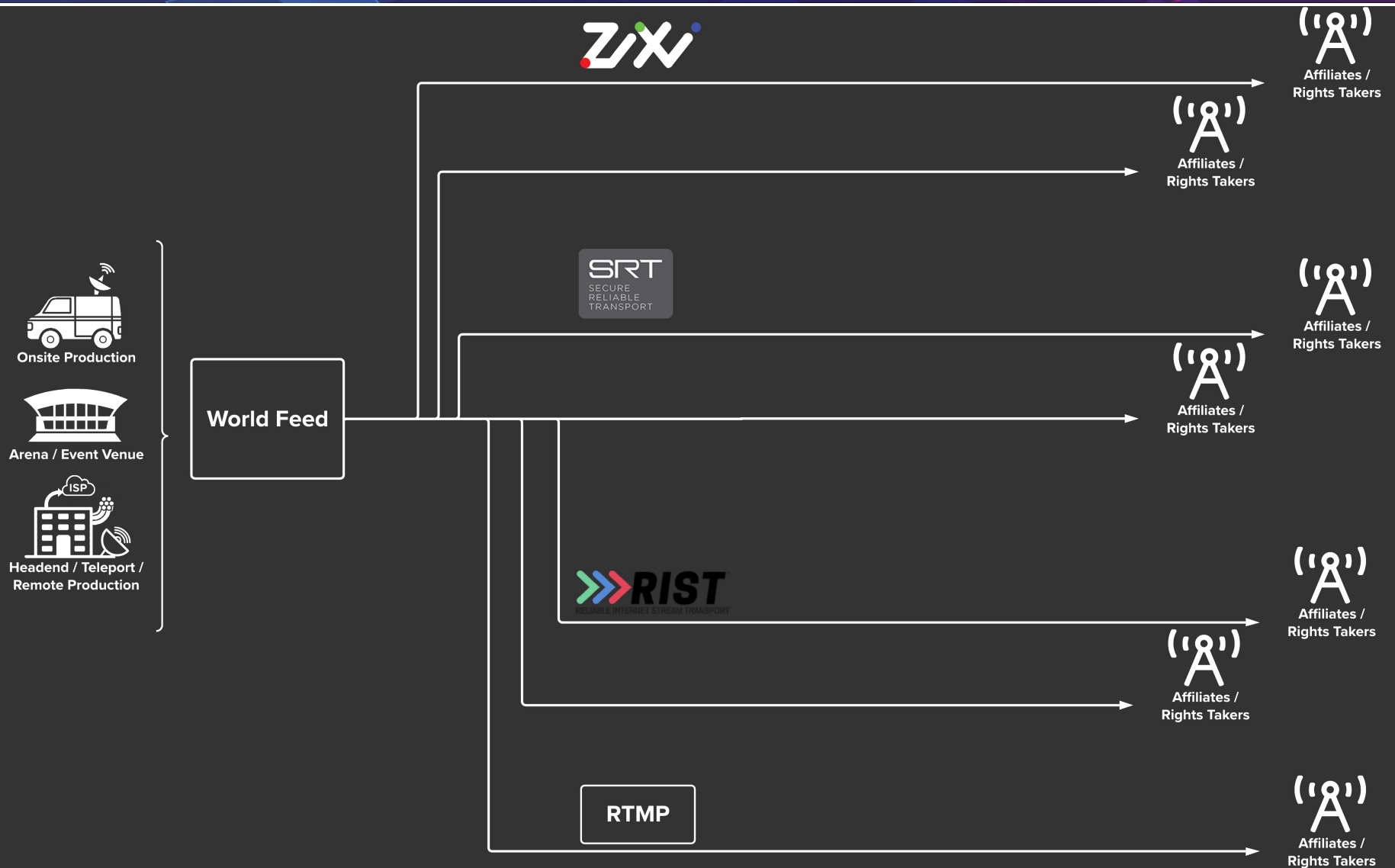# IP Workflow

Established primary contribution path (backup)

SD / HD / UHD

One to many?

Primary vs secondary

Technically coupled to the source

High operational complexity

Low resource cost

Onsite Production

Arena / Event Venue

Headend / Teleport / Remote Production

World Feed

ZIXI

SRT SECURE RELIABLE TRANSPORT

RIST RELIABLE INTERNET STREAM TRANSPORT

RTMP

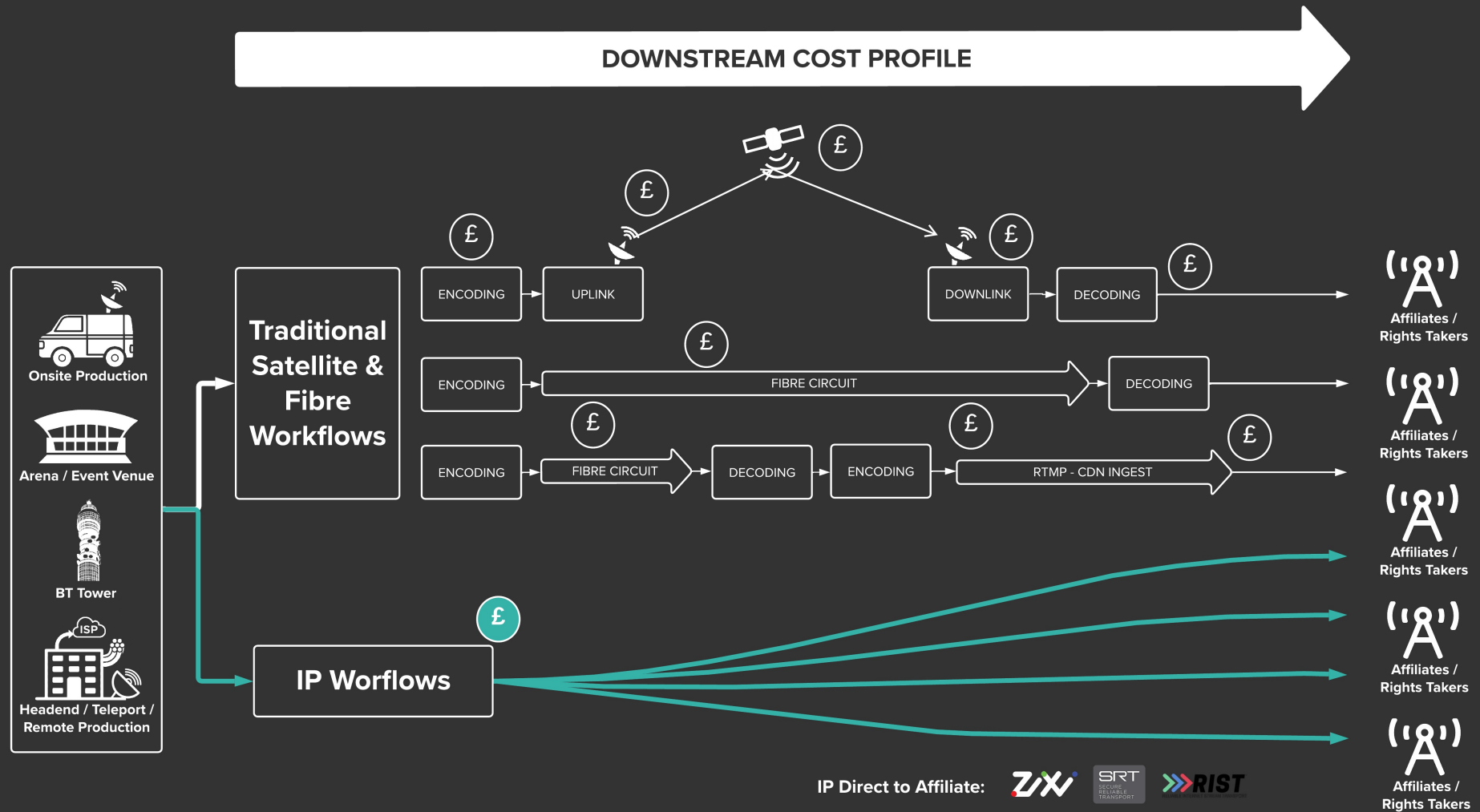Affiliates / Rights Takers

Downstream Cost Profile

We have coined the term '**downstream cost profile**' to highlight what it costs content takers to acquire feeds in a format that is helpful to them and their ongoing content delivery or distribution chain.

By highlighting the downstream cost profile, it helps to demonstrate to all stakeholders involved in a broadcast workflow where the costs are and how they can be reduced to achieve efficiencies.

Many modern content rights holders are not traditional broadcasters and require their feeds delivered into IP head ends, data centre facilities and more often cloud ingest infrastructure. They do not have their own satellite reception infrastructure and so utilise service companies to achieve this for them.

Downstream Cost Profile

Satellite Limitations (against the context)

Content owners are under pressure to deliver more live content than ever before, whilst keeping costs to rights takers, in an expanding market of territories, competitively low.

For the last 60 years, satellite has done everything it has been asked to do, within the domain it has been asked to do it.

However consumer demand has pushed broadcasters to make more live content available to satisfy their viewers and satellite has some limitations to deliver this content.

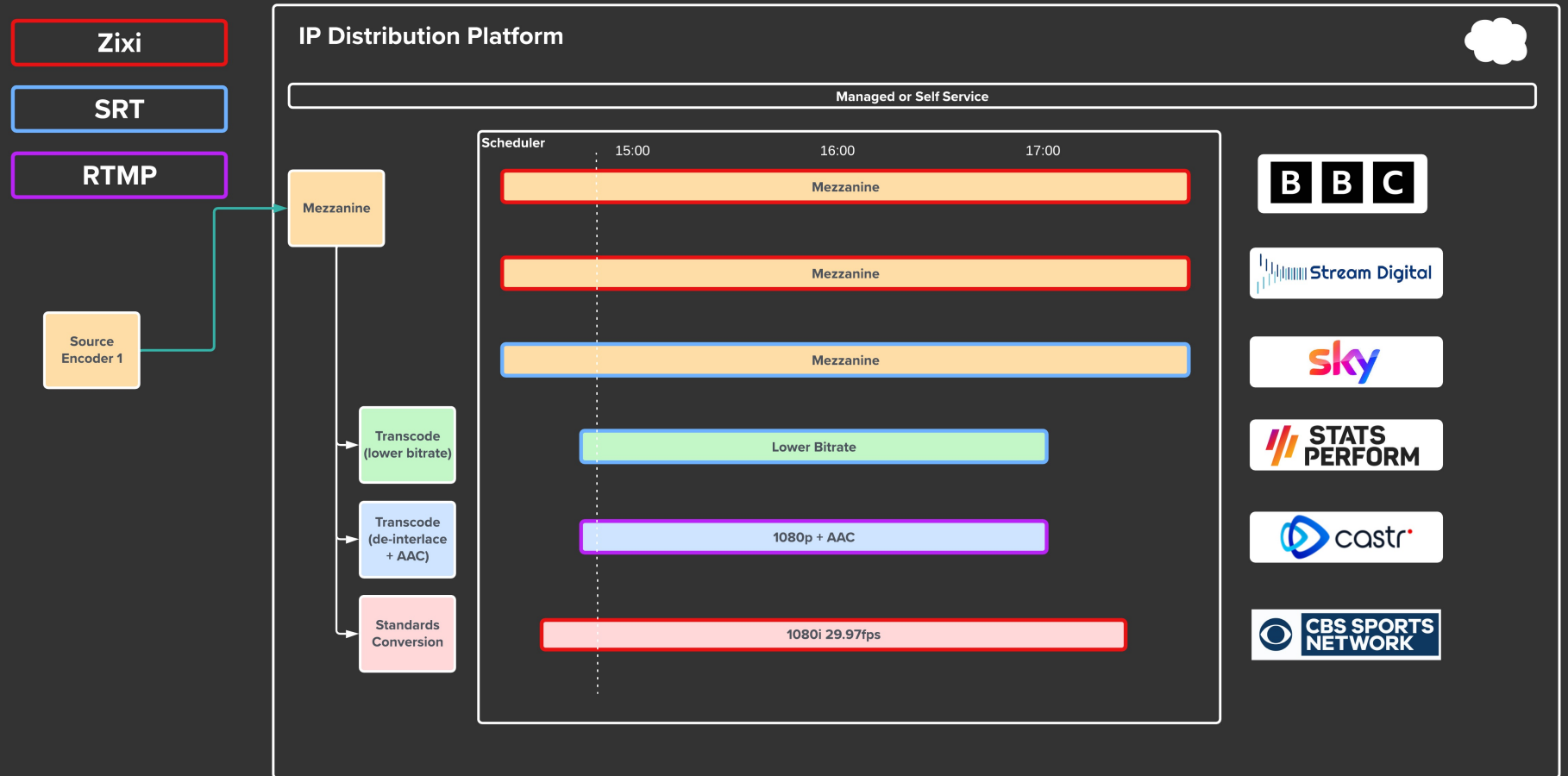Namely concurrency, geographic Footprint and format.

IP Distribution in a Hybrid World

x6 concurrent channels

Entire environment can be stopped when not required, retaining:

- All IP addresses
- Source config
- Destination config
- Transcoder and standards conversion profiles
- All future schedules

Hybrid Workflows

We believe the opportunity exists for a hybrid Satellite & IP workflow, offered to the customer, to allow tier 1 content to be distributed to broadcasters and for alternative feeds and/or additional content to be 'made available' via IP.

However, the end customer needs consistency around the presentation of the content.

For satellite that normally means that the content is available on the same satellite/transponder each time, regardless of where the uplink is. Even if the frequency and encryption may change.

For IP, that means that the content is available at a given IP address with protocol options in a repeatable workflow, as last minute network changes can render the workflow unusable due to firewalls etc
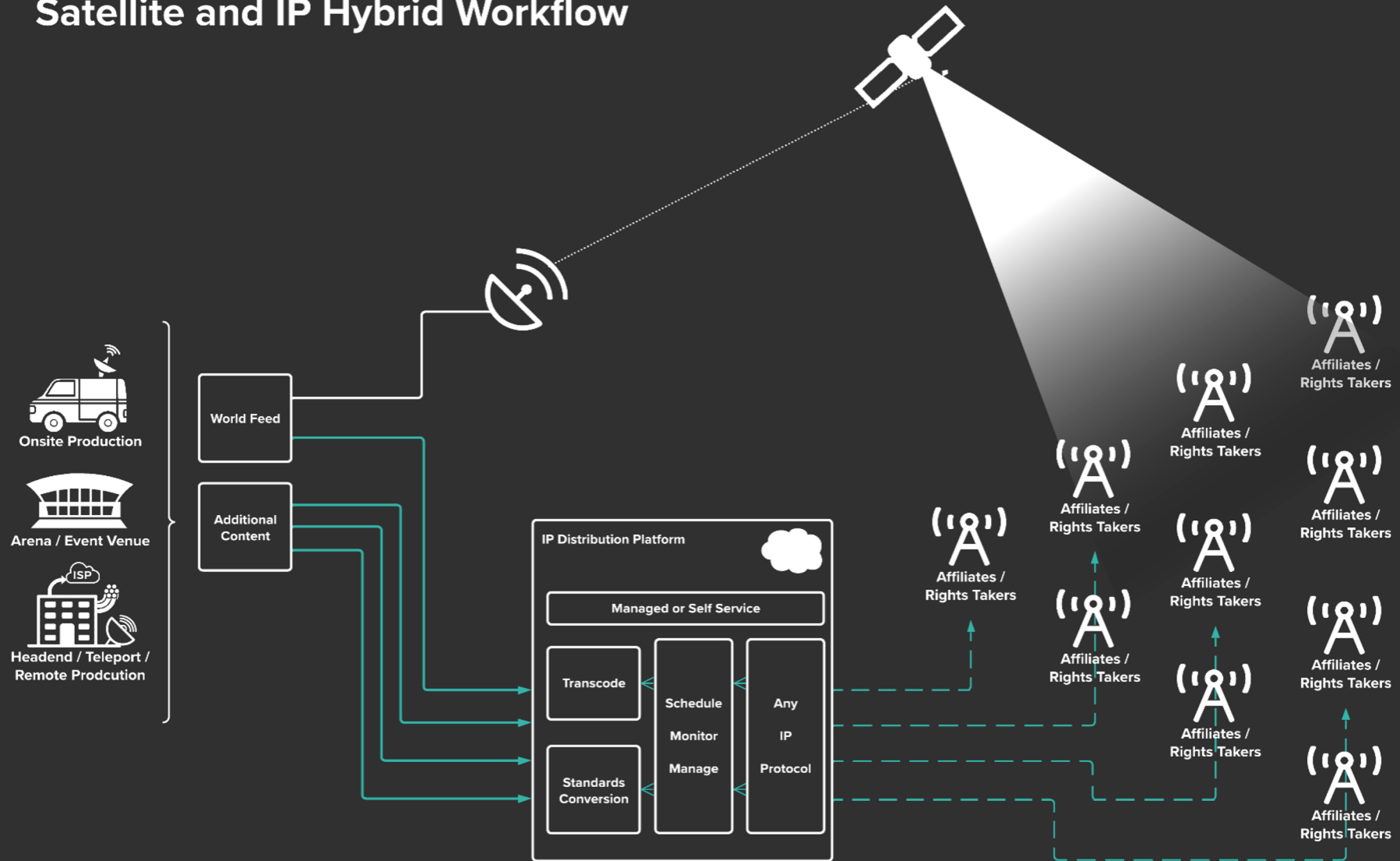
Hybrid Workflow

World Feed is made available on satellite and also as an IP feed for backup or geographic diversity.

Additional content feeds are made available on the IP platform allowing the customer choice of protocol.

Possible to syndicate feeds so the customer can configure their own IP output to their infrastructure.

Feeds are scheduled and PAYG.

Entire infrastructure doesn't exist outside of usage.

Satellite and IP Hybrid Workflow

Onsite Production

Arena / Event Venue

Headend / Teleport / Remote Prodcution

World Feed

Additional Content

IP Distribution Platform

Managed or Self Service

Transcode

Standards Conversion

Schedule

Monitor

Manage

Any IP Protocol

Affiliates / Rights Takers

Thank you

Chris Clarke, Cerberus Tech Ltd