

cimm

Coalition for Innovative
Media Measurement



Counting What Counts

The Future of TV Advertising Measurement

March 2026



About CIMM

The Coalition for Innovative Media Measurement (CIMM) is a non-partisan, pan-industry association of companies from across the media and advertising ecosystem, focused on cultivating and supporting improvements, innovations and best practices in measurement and currency development, the use and application of new metrics, and data collaboration. CIMM's role is to convene stakeholders, illuminate emerging issues, and help the marketplace make informed decisions. CIMM embraces the entire media and advertising ecosystem and prioritizes effective collaboration to deliver meaningful change.

About CTV1 Media Services

CTV1 Media Services is an independent specialized team that plans, executes, and optimizes connected TV (CTV) media campaigns and measurement to drive business outcomes.

The leadership team of CTV1 Media Services includes:

- **Tom Morgan:** CTV1 co-founder, CEO. A 40-year veteran in interactive services and digital media. Specializes in addressable advertising models for linear TV and streaming services.
- **Daniel Brackett:** CTV1 co-founder, CTO. Technology executive, co-founder of Extreme Reach, helping transform ad management and distribution across TV and digital media.
- **Tom Sly:** Managing partner of Media Inno, expert in CTV and multi-platform monetization. Former VP Enterprise Strategy at The E.W. Scripps Company.

Organizations looking to learn more about watermarking for cross-device ad delivery verification or continued progress on watermarking can contact info@ctv1.tv.

About Deloitte

This report was developed by Deloitte, a member of CIMM, and details a proof of concept (POC) executed by CTV1 Media Services. Informed by Deloitte-led industry interviews and input from key stakeholders, it reflects perspective on the future of TV advertising counting. This report and the CTV1 proof of concept test were commissioned by the CIMM.

The lead consultants from Deloitte on this project were Nicole Berggreen Looney, Senior Consultant for Deloitte Consulting LLP and Rohith Nandagiri, Managing Director for Deloitte Digital.

Research Objectives and Approach

This paper was commissioned by CIMM to investigate the thesis that broadcast television can evolve from a ratings-based medium to a uniform, impression-based medium by enabling the aggregation of broadcast, multicast, and streaming into a single deterministic data pool that provides more accurate, cross-platform ad delivery data at scale across CTV, linear, and apps. The paper analyzes the results of an in-market watermarking proof of concept (POC) test in order to explore the technical feasibility and practical scalability of a watermark-based measurement framework across the US.

The watermarking POC explored in this paper builds on more than a decade of prior industry work initiated by CIMM, dating back to its 2013 TAXI (Trackable Asset Cross-Platform Identification) initiative, which sought to establish a standardized approach to content and ad identification across platforms. This earlier ‘Phase 1’ effort to create interoperable identifiers laid the conceptual foundation for today’s watermarking approach, which extends those principles into a modern, cross-platform environment spanning linear TV, CTV, and streaming. Phase 2 of CIMM’s watermarking initiatives was driven by CIMM’s CTV Working Group, whose original mandate was to develop a conceptual approach and architecture for an industry-standard open watermarking solution, an effort that culminated in CIMM’s 2025 study [The Case for an Industry Action Plan: Supporting an Open, Industry-standard Watermarking Solution](#) (June 2025). The POC review in this current report represents Phase 3 of CIMM’s continued efforts to support the industry’s evaluation and development of watermarking-based measurement solutions.

The current POC is led and operationalized by CTV1, which has designed a standards-based watermarking and ad-counting framework and coordinated execution across a broad ecosystem of OEMs, broadcasters, agencies, and technology partners. The initiative leverages established standards (ATSC A/334 and ACIF) to validate both the technical feasibility and business value of scalable, cross-platform ad counting. CIMM and Deloitte’s role has been to document the POC, synthesize learnings, and help translate results into actionable guidance for industry adoption and future deployment.

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Executive Summary

TV advertising has outgrown the measurement model it inherited. Fragmented distribution, siloed datasets, and mismatched currencies make it harder to validate delivery with confidence, deduplicate exposure, and manage reach and frequency across linear and streaming. The result is a structural gap; ads can be delivered across an expanding set of paths, but not all those deliveries can be counted, creating a gap between what ran and what can be verified.

This report is the proof point intended to begin to close that credibility gap. Building on CIMM's 2025 *The Case for an Industry Action Plan: Supporting an Open, Industry-standard Watermarking Solution*, the proof of concept (POC) delivered by CTV1 Media Services moves the conversation from theory to practice by testing whether an open, interoperable approach can produce trustworthy, scalable ad-count signals in everyday environments.

The premise is straightforward: embed a common ad identifier into the ad creative once, then detect it wherever it plays. The framework pairs ATSC, the Broadcast Standards Association A/334 watermarking with IAB Tech Lab's Ad Creative ID Framework (ACIF) and Universal Ad IDs to produce discrete, impression-level signals that can feed into, and help validate, existing measurement workflows without creating another closed system. This counting technique links campaigns together across varying platforms, sellers, and devices to produce deterministic data in real-time.

Rather than a single headline metric, the POC produced several practical proof points, especially in the local advertising market.

1 Confirmed watermark integrity; watermarks embedded in ads were detected and counted.

2 Extended detection coverage through a dual reader approach (device- and cloud-based watermark detections) and demonstrated a path to reporting at scale with ZIP code level aggregation, rather than DMA level reporting.

3 Validated precision through independent checks, where station reported airings were independently verified with confirmed watermark detections.

4 Demonstrated multi-party integration by aggregating ad-count signals across multiple major TV OEMs into a unified view of delivery.

Stakeholders consistently described the upsides as: a verifiable count that buyers and sellers can reconcile; stronger cross-platform coverage and optimization; interoperability enabled by open standards; more deterministic inputs to reach and frequency management; and cleaner, impression-level ad counting data that can support the production of better measurement. They were equally clear that the biggest barriers will likely be commercial and organizational, Universal Ad ID adoption friction, industry coordination, and the technical and operational integration into current tools and workflows.

The POC also reinforced that technical feasibility is only part of the adoption equation. Industry stakeholders emphasized that adoption will hinge on aligned incentives, a transparent value exchange, and an operating model that is incremental to current workflows, low friction to adopt, and designed to avoid proprietary constraints. That is why the proposed commercial structure centers on cooperative, revenue-sharing economics and costs and value shared across advertisers, registries, watermark vendors, broadcasters, and OEMs, with growth tied to the share of impressions that become measurable via watermarking.

However, moving from early validation to scalable adoption requires broad, coordinated industry participation, specifically through targeted pilots and partner alignment. Organizations that see a fit for the approach described in this paper should participate in a pilot for their organizations' specific needs to demonstrate value and build internal buy-in to help drive broader momentum for an open, interoperable counting framework.

Chapter 1. Why the Measurement Conversation Needs to Change

For decades, the television industry relied on a measurement system built for a far simpler media environment. The old model was fundamentally panel-centric, siloed, and multi-currency — a patchwork of measurement systems developed for different constituent needs rather than a unified understanding of campaign performance. While this approach was sufficient in an era defined by limited distribution paths and predictable viewing habits, it is increasingly incompatible with today’s converged linear-digital landscape. As viewing stretches across devices and platforms that legacy systems were never designed to accommodate, industry solutions built to capture these different metrics have likewise been developed for disparate use cases, producing siloed datasets and varying measurement currencies. Fragmentation is no longer an occasional complication; it’s an everyday reality of the contemporary media ecosystem, and industry voices agree these siloed solutions are no longer manageable. Inconsistent measurement is costing not only money, but also momentum.

The shift toward streaming and the emergence of AI-generated content has only widened the gap between what old models can capture and what modern advertisers need. Today’s viewers chart their own courses, switching among a mix of pay TV, connected TV (CTV), streaming apps, Free Ad-supported Streaming Television (FAST) channels, and social media — “TV is no longer a single screen or even a platform.”¹ In this environment, smart TV OEM ecosystems, and the ACR signals they generate, have become increasingly central to understanding what actually plays on screen at scale. The 2025 CIMM report preceding this POC notes that “Samsung, LG, and Vizio collectively account for approximately 60% of Smart TVs in the US and likely a higher percentage of the total media viewing time, since higher end Smart TVs tend to be the dominant viewing device in the household.”²

For a national brand, reaching audiences “everywhere” now means understanding performance across shifting endpoints, delivery standards, and privacy requirements. As TV advertising fragments across linear, streaming, and social video environments, current reach and frequency models increasingly struggle to capture true exposure. The rise of AI-generated content only adds complexity, increasing the number of asset variations and making legacy ID systems even less equipped to track and validate exposures across devices.

Fragmentation across platforms, compounded by walled gardens that restrict data access, has created structural blind spots in audience measurement where signals aren’t publicly available. The result is declining confidence in reporting: advertisers can’t reliably deduplicate exposures, manage frequency, or quantify true incremental reach across environments.

These challenges are intensifying as viewing shifts to streaming and social video. A Deloitte study notes that social video advertising is poised for another year of “~20% growth...followed by CTV,” reflecting platform maturity in targeted impressions and conversions.³ At the same time, “streaming continues to grow...and disrupt” traditional TV, while social video pulls audiences away from both linear and streaming services.⁴ Yet many streaming environments still lack transparent measurement signals, limiting direct comparisons with linear. In an increasingly impression-based marketplace, advertisers need impression-level, deduplicated, granular data, but continue to navigate contradictory metrics and incomplete views of audience delivery.

¹ Deloitte Center for Technology, Media and Telecommunications, [Deloitte Digital Media Trends: Changing TV-watching mindset](#) (October 2025)

² CIMM, [The Case for an Industry Action Plan: Supporting an Open, Industry-Standard Watermarking Solution](#) (June 2025)

³ Deloitte Center for Technology, Media and Telecommunications, [Deloitte 2025 Media & Entertainment Outlook](#) (April 2025)

⁴ Deloitte Center for Technology, Media and Telecommunications, [Deloitte TMT Predictions 2026](#) (November 2025)

Chapter 1. Why the Measurement Conversation Needs to Change

These measurement challenges are amplified in the local TV marketplace. Traditional panel-based systems may lack the scale to measure long-tail networks, niche programming, and smaller Designated Market Area (DMA) audiences with precision. Many industry participants believe that measurement in the local TV marketplace is uneven and incomplete, given the complexity of viewing, with a significant number of exposures simply going unmeasured. A 2025 CIMM study examining local TV measurement gaps found that approximately 20-30% of total viewing for an early-morning local news program was not reflected in syndicated measurement datasets.⁵ These blind spots are especially pronounced in digital and streaming environments, where inclusion often depends on specific technical implementations and data-integration configurations.

These measurement issues create important challenges for local broadcasters, including:

- Undercounted ad views due to missing tags, incomplete feed mapping, and poor system integration, mostly within digital, mobile, and streaming.
- Fragmented distribution across a variety of platforms, accompanied by inconsistent ad identification and different technical requirements for being counted in measurement.
- Lack of visibility into what is or is not credited by vendors and how ACR data is calibrated.
- No market-level, cross-platform deduplication, limiting true reach and frequency reporting.

These challenges are already costing broadcast television as buyers shift dollars to digital TV environments where data is more transparent and trusted. A new, industry-aligned approach can address a longstanding blind spot by enabling reliable ad viewership measurement, while expanding a more deterministic footprint of measured households to strengthen cross-channel delivery assessment, shorten reconciliation cycles, and improve decision-making in the local linear market. Without these fixes, advertisers will likely continue operating with incomplete visibility into true campaign performance and incremental reach, and the industry's value may remain capped unless measurement evolves beyond incremental, walled-garden workarounds.

⁵ CIMM, [Plugging the Gaps: Diagnostic Analysis of Local TV and Video Measurement](#) (November 2025)

Chapter 2. Reconnecting the Marketplace – The Case for Open Standards Watermarking

As the industry confronts the limits of today’s measurement infrastructure, open, standards-based watermarking is emerging as one of the most practical paths to reconnecting cross-platform TV measurement. In a survey of senior CIMM members in Q4 2024⁶, stakeholders cited five main factors supporting adoption of watermarking-based impressions counting:

1. Unified cross platform measurement.
2. Improved reporting accuracy.
3. Ease of use.
4. Uniform metadata.
5. Better control of reach and frequency.

Historically, watermarking has been implemented through a mix of standards and proprietary approaches, often requiring multiple tags to identify ads across environments. While watermarks can be audio or video based, the most common implementations have relied on proprietary audio watermarking controlled by measurement vendors, OEMs, or distributors. These approaches can work well within a given ecosystem, but at an industry level they reinforce fragmentation and limit interoperability.

Lessons from the Taxi Initiative

CIMM’s TAXI (Trackable Asset Cross-Platform Identification) initiative offers guidance on how to design this system. TAXI was introduced to promote universal coding standards for video content (EIDR) and advertising creative (Ad-ID Registry). The initiative recommended embedding the identifiers directing into the content/ads using audio watermarking so that asset exposure could be reliably tracked across all screens and platforms.

The standard was too flexible, creating limited interoperability, and it relied on another new proprietary watermarking system, decreasing the industries’ excitement around the potential solution. While it contained strong ideas — unifying asset identifiers for cross-platform coordination — it struggled to gain adoption because it lacked a long-term champion, durable funding, and aligned business incentives.⁷

Momentum is building toward a more unified model. Efforts from organizations such as ASTC and the IAB Tech Lab are helping advance open approaches to ad counting and asset verification, creating an opportunity to anchor watermarking in shared standards rather than closed systems. To succeed, the next watermarking framework must be open and interoperable, define consistent rules for payload structure, metadata capture, and identifier (ID) assignment, and be designed to coexist with current measurement methods. It needs to enable cross-platform compatibility without creating another siloed measurement solution.

⁶ CIMM, [The Case for an Industry Action Plan: Supporting an Open, Industry-Standard Watermarking Solution](#) (June 2025)

⁷ CIMM, [The Case for an Industry Action Plan: Supporting an Open, Industry-Standard Watermarking Solution](#) (June 2025); CIMM, [Executive Summary Slides — The Case for an Open, Industry-Standard Watermarking Solution](#) (June 2025)

Chapter 2. Reconnecting the Marketplace — The Case for Open Standards Watermarking



Something I think is positive is that watermarking is well known, well documented, and has been done before. It's not like people are trying to reinvent or invent something new to achieve this solution.

— Executive at Standards Organization

Over time, a widely adopted, standards-based watermarking and reporting system can reduce today's redundant collection infrastructure and help the market converge on a more consistent currency — accelerating the shift from average commercial ratings to commercial impression measurement. Adoption will be incremental, and panel-based reporting and fingerprinting will coexist with watermarking for several years. However, watermarking offers clear advantages at scale: it does not change the viewing experience, can align with existing automatic content recognition (ACR) and watermarking ecosystems, and is well-suited to persistent gaps such as measuring linear ad delivery across national and local feeds and capturing long-tail network viewing where panels may lack sufficient scale. As ad-supported streaming expands and advertisers demand comparable, impression-level signals across linear and digital, watermarking provides a scalable foundation for more consistent cross-media reporting.

The benefits accrue across the ecosystem:



Advertisers: Stronger cross-platform optimization, improved reach and frequency management, better brand controls and ad effectiveness, increased access to addressable inventory, and deterministic data to leverage for targeting efforts.



Agencies: Simplified workflows and more efficient planning, activation, and optimization.



Content providers: Richer, impression-level reporting across distributors and platforms.



Distributors: Improved ad fill, reduced fraud exposure, and more granular ratings signals.



OEMs: New measurement and ad-insertion monetization opportunities, lower fingerprinting-related costs, and improved metadata accuracy.



Measurement companies: Cleaner, more interoperable metadata and incremental data sources that enable more comprehensive cross-media measurement.

Chapter 2. Reconnecting the Marketplace — The Case for Open Standards Watermarking

Ultimately, shifting to open, non-proprietary, standards-based watermarking offers a path to unify impression-level measurement across linear, connected TV, and streaming without introducing new closed systems. In this way, watermarking becomes the connective tissue of the marketplace — an interoperable foundation that improves consistency, transparency, and comparability across the modern TV ecosystem.



Watermarking has the potential to bring more transparency, accountability, and unified measurement across digital and linear platforms.

— Megan Halscheid, VP Global Data Intelligence, Publicis Media



Chapter 3. Proof of Concept Overview and Solution Benefits

This study examines a new model for counting advertising impressions to support improved reporting and management of reach and frequency, across any combination of TV and video service.

CTV1 Media services proposes a cross-ecosystem approach built by aligning existing components, standards, and incentives not by introducing another standalone measurement system, but by providing a framework that helps connect the dots across the ecosystem. Informed by prior industry initiatives and collaboration with partners and stakeholders, the framework is designed to complement current ad counting solutions while improving the consistency and trustworthiness of ad counting across channels.

At the core, the framework leverages ATSC, the Broadcast Standards Association watermarking standards together with IAB Tech Lab's Ad Creative ID Framework (ACIF) promoting Universal Ad ID tags to consistently detect, count, and verify when and where an ad ran, whether the viewer is watching live television or streaming. This produces discrete, impression-level signals that can feed into and validate existing data and ad counting solutions. It is designed to enrich ACR data for OEMs, while keeping data distribution within a closed-loop model. While it is not intended to solve every measurement challenge, it targets several of the largest barriers to accurate, trusted ad counting.



Combining two open standards, ATSC A/334 watermarking and IAB ACIF, is exactly the kind of progress the industry needs as it pursues reliable cross-platform ad delivery data.

— Madeleine Noland, President, ATSC

This proof of concept is also a test of ecosystem execution, not just technology. It brings together industry partners, deploys the approach in real operating environments, and evaluates whether commercial incentives can support sustainable adoption. The proposed watermarking framework can operate across OTA, NextGen TV, cable, satellite, and streaming, enhancing ACR signals to deliver cross-platform proof of play and campaign-level counts that support better measurement and activation, in line with the recommended approach in CIMM's earlier research on a industry-standard watermarking architecture.⁸

Success will be measured by validating:

1. The accuracy and scale of watermark detection and ad counting.
2. The functional and operational viability of the framework in-market.
3. The incremental value of the resulting data relative to what is already available.
4. The practicality of a cooperative commercial model for participating partners.

This POC demonstrates that a transparent, interoperable approach to TV ad counting is achievable; one that works alongside current systems, improves confidence in campaign delivery across the modern advertising ecosystem, and creates a stronger foundation for more transparent, impression-based buying and enables better measurement.

⁸ CIMM, [The Case for an Industry Action Plan: Supporting an Open, Industry-Standard Watermarking Solution](#) (June 2025)

Chapter 3. Proof of Concept Overview and Solution Benefits

Proof of Concept Objectives

The primary objectives are tested throughout the three phrases of the process.



1. Create ad counting framework using ATSC watermarking standards and IAB Tech Lab Ad Creative ID Framework (ACIF) and demonstrate watermark detection and identification.
2. Evaluate technical feasibility and accuracy of full-spectrum watermarking associated with ACIF Universal Ad ID identifiers across:
 - a. Existing ATSC A/334 readers in commercially available Smart TV devices.
 - b. Cloud-based watermark detection operating in broadcast monitoring infrastructure.
3. Validate ads detected using watermarks with corresponding ads detected through ACR fingerprinting methods.
4. Determine operational viability and implementation at scale.
5. Identify stakeholder benefits and cooperative revenue-share business model.

Key Benefits for the Ecosystem

Economic incentives are a primary driver for industry participants, but adoption also depends on addressing persistent gaps in trust and transparency within today's measurement and reporting environment. This new framework is designed to deliver stakeholder-specific value while supporting a sustainable path forward. Based on Deloitte-conducted interviews with executives across TV OEMs, advertisers, measurement companies, standards bodies, broadcasters, and publishers, the following benefits emerged:

Enhanced Accountability & Transparency

- A single, verifiable count of ad impressions across linear and CTV, eliminating duplication & undercounting.
- An independent counting mechanism/group increases transparency and accountability across the ecosystem.
- Immediate value comes in proving to clients exactly where and when their ads ran.

Expanded Coverage and Accuracy

- Open standards watermarking improves identification across linear, CTV, and streaming — expanding coverage and improving accuracy.
- Enables cross-platform tracking that hasn't been feasible in the past. Helps close gaps created by today's fragmented measurement ecosystem, especially in local markets.

Interoperability via Open Standards

- Credibility and interoperability enabled by open-source watermarks and ad identifiers.
- Improves consistency across partners and reduces reliance on proprietary approaches.

Control Over Ad Reach and Frequency

- Improved transparency and real-time reporting drives visibility into and control over delivery so teams can adjust campaigns instantaneously.
- Oversaturation can be avoided through frequency controls.

Chapter 3. Proof of Concept Overview and Solution Benefits

Enriched, Standardized Impression Level Data

- Universal Ad Identifiers plus standards-based watermarking improve data structure, matching, and completeness.
- Enables more deterministic, impression-level data to drive more accurate counts and reporting.

Support for Dynamic Ad Insertion

- Provides a unified mechanism for device-based linear dynamic ad insertion (DAI).
- Can simplify billing and settlement for ad replacement and improve operational efficiency.

Cost Savings

- Better planning and optimization with impression-level data reduces waste and improves ROAS.
- OEMs can reduce effort tied to ACR fingerprint reference library maintenance.

The POC lays the groundwork for a more transparent, reliable, and future-ready measurement marketplace. One that can provide more accurate and deterministic ad counting data that will feed into better measurement outcomes. This thoughtfully coordinated model aligns incentives across the value chain and sets the stage for continued innovation, transparency, and efficiency in the modern advertising ecosystem.



True industry progress depends on aligning these incentives so that advertisers drive measurement innovation and adoption.

— Michael Vinson, Chief Research Officer, Comscore



Chapter 4. The TV Registered Ad Counting Framework

Technical Framework

The technical framework combines ATSC A/334 audio watermarking with ACIF Universal Ad ID tags to deliver uniform, scalable, interoperable TV ad view counting telemetry using open standards. At the center is the TV Registered Ad Counting (TRAC) framework, which supports ad registration, watermark detection and reading, and aggregation of detected events into a centralized TRAC registry.

While the watermark technology originated in the ATSC 3.0 standards program, it is not dependent on ATSC 3.0 deployment. Watermarks can be detected across ATSC 1.0, ATSC 3.0, and all streaming environments, which has driven stakeholder interest in testing, particularly given the fit with internet-connected devices and alignment with ATSC standards.

A common ad identifier on every advertising creative is a foundational requirement for deterministic counting and deduplication. Today, there is no widely adopted identifier that works consistently across delivery and playout paths; as a creative moves across platforms, it often accumulates multiple tags. Without a common ad identifier, the same ad can be counted as different ads across sellers, contributing to duplicated delivery, inflated frequency, and unreliable reach and frequency deduplication across the supply chain. CTV1's goal is to replace fragmented tags with a single, universal ad identifier to improve counting accuracy.

The framework can also support Seller ID tags as an extension. A standardized Seller ID would enable more consistent attribution of ad playout to unique direct sellers (e.g., broadcasters, stations, distributors, streaming platforms) and help trace how an ad moves through the supply chain. Over time, CTV1 plans to leverage existing Seller ID standards alongside Seller ID watermarking to improve transparency, counting accuracy, and attribution.

To enable multiple watermark types, ATSC A/335 video watermarking would be incorporated into the counting process. The TRAC framework is designed to accommodate this, but Seller ID watermarking has not yet been fully tested and validated. CTV1 has demonstrated single-seller tracking per ad but has not yet shown end-to-end examples of the same ad being delivered through multiple seller paths. Research and development on the video watermarking capability is underway and is expected to be incorporated as a future enhancement.

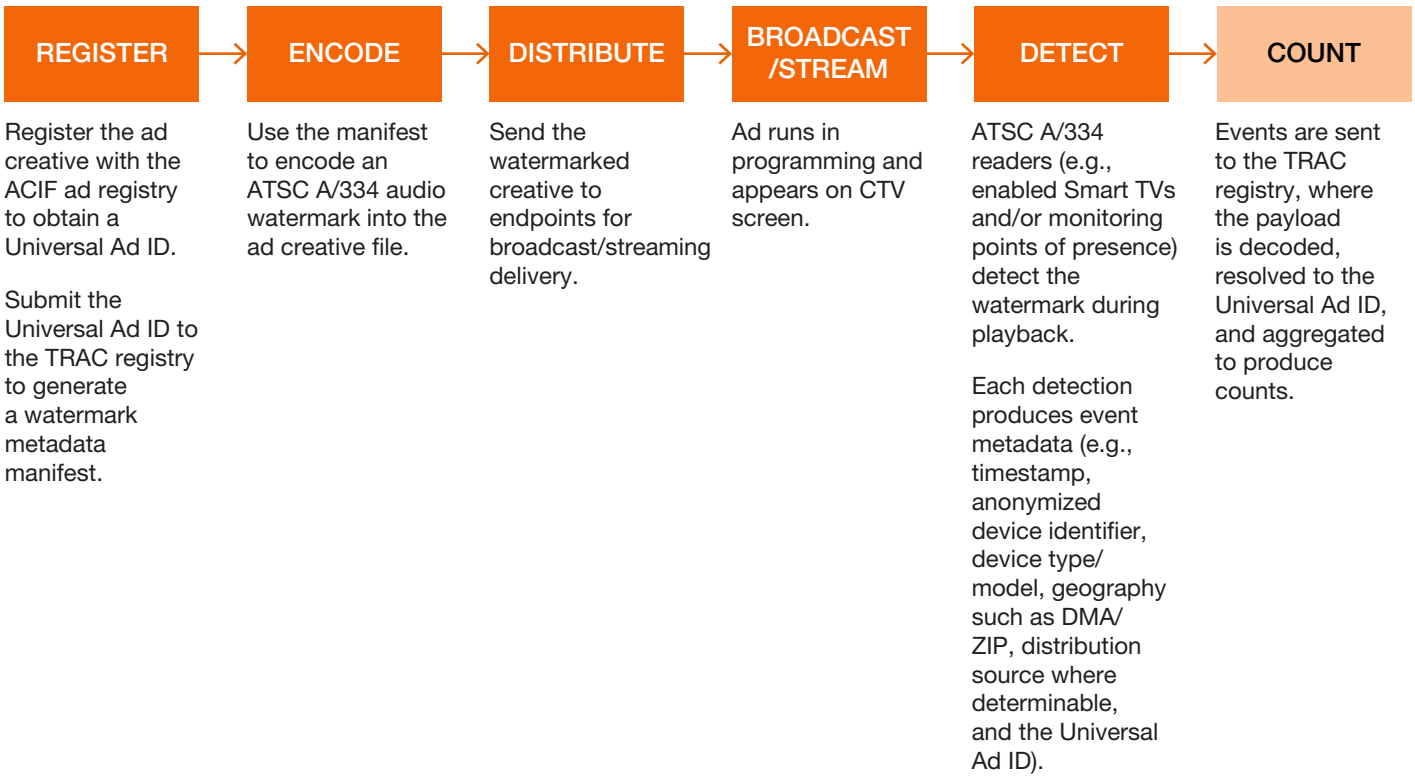
By focusing on ad counting (Universal Ad ID, and eventually Seller ID) rather than measurement, the approach avoids collecting viewership data by design and supports stricter privacy constraints. As a result, the proof of concept does not capture viewer identity or program/content identifiers, which are typically associated with measurement rather than counting.

Chapter 4. The TV Registered Ad Counting Framework

Process Overview

The watermarking approach is designed for ad counting and integrity verification. The advertising creative is watermarked once and can then be read and counted each time it is delivered.

Figure 1: Process Overview



Source: CTV1 Media Services

Chapter 4. The TV Registered Ad Counting Framework

Data Collection and Distribution

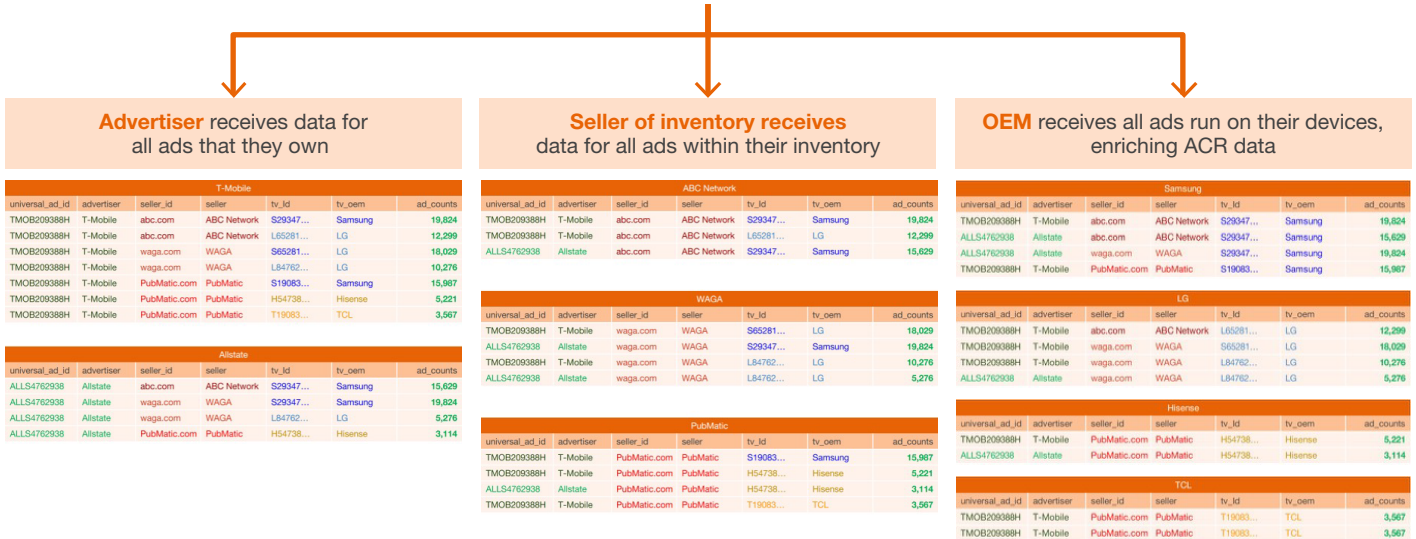
In today's data collection and distribution landscape, data is often provisioned with inconsistent governance — varying definitions, limited provenance, and uneven access controls. CTV1 aims to raise the bar by designing a more structured, access-controlled framework that provisions data only to parties involved in the distribution and supply chain for a specific ad creative.

Figure 2: Data Publishing Model Process

RAW DATA COLLECTED BY TRAC CENTRAL REGISTRY
Raw data counting the total number of times an ad appeared

Overall Raw Count Data			
universal_ad_id	seller_id	tv_id	ad_views
TMOB209388H	abc.com	S29347...	19,824
TMOB209388H	abc.com	L65281...	12,299
ALLS4762938	abc.com	S29347...	15,629
TMOB209388H	waga.com	S65281...	18,029
ALLS4762938	waga.com	S29347...	19,824
TMOB209388H	waga.com	L84762...	10,276
ALLS4762938	waga.com	L84762...	5,276
TMOB209388H	PubMatic.com	S19083...	15,987
TMOB209388H	PubMatic.com	H54738...	5,221
ALLS4762938	PubMatic.com	H54738...	3,114
TMOB209388H	PubMatic.com	T19083...	3,567

DATA DISTRIBUTED TO ADVERTISERS, PUBLISHERS AND OEMs IN SEGMENT-SPECIFIC PACKAGES



Source: CTV1 Media Services

Chapter 4. The TV Registered Ad Counting Framework

A neutral, third-party TRAC registry serves as a data clean room, capturing raw detection events and provisioning permitted outputs to authorized parties (e.g., advertisers, sellers, and OEMs) based on role and access rules. This design supports privacy and compliance objectives by avoiding exposure to personally identifiable information (PII) and keeping sensitive data centralized rather than broadly distributed.

Universal Ad IDs, Seller IDs, and anonymized OEM device IDs replace fragmented tagging with a uniform, deterministic way to report discrete ad view counts at scale. After a watermark event is detected, the TRAC registry uses these three keys to provision access back to the appropriate parties — advertisers (Universal Ad ID), media sellers (Seller ID), and OEMs (Device ID) — so each participant sees only the data tied to the IDs they control, supporting privacy and limiting unnecessary exposure.

Even with technical success, adoption will depend on these components working together and integrating into participants' existing measurement and planning environments. The framework is intended to complement, not replace, current ad counting offerings and plug into existing systems with participant-specific configuration.

Enriched ACR Data

To drive adoption, the ecosystem needs a clear business case for the data — and confidence that it will be governed and shared appropriately. In the TRAC framework, that value comes from more consistent, interoperable datasets and a controlled distribution model.

Using standardized identifier keys improves consistency across participants and makes outputs easier to reconcile. For example, measurement from different OEMs can align to the same Universal Ad ID, which simplifies cross-OEM comparison and matching to other first-party data sources. With more complete linkages and fewer mismatches, OEMs can deliver measurement products that are more complete, more accurate, and easier for buyers to use — raising the utility and commercial value of their data.



Chapter 4. The TV Registered Ad Counting Framework

Figure 3: Future State Data Enrichment

	Tv_id	Market	Channel	Length	Creative_id	Brand_Name
Current State (Raw ACR Ad Records)	29347...	Boston	GSN	30	8293746	Chase
	65281...	Chicago	WLS	15	5629183	Ford
	84762...	Raleigh	MSNBC	15	1047652	Pfizer
	19083...	Atlanta	WAGA	30	7385291	T-Mobile
	54738...	Miami	WFOR	30	4762938	Allstate

	Tv_id	Market	Channel	Length	Universal_ad_id	advertiser	Brand	Product	Seller_id
Future State (ACIF-Enriched ACR Ad Records)	29347...	Boston	GSN	30	CHMB029938H	Chase	Chase	Chase Sapphire	TTD
	65281...	Chicago	WLS	15	FMCX991277H	Ford	Lincoln	Navigator	ABC Network
	84762...	Raleigh	MSNBC	15	PFIZ995100X	Pfizer	Paxlovid		Magnite
	19083...	Atlanta	WAGA	30	TMOB209388H	T-Mobile	Mint Mobile		WAGA
	54738...	Miami	WFOR	30	ALLS4762938	Allstate	Auto insurance		NBC Network

Source: CTV1 Media Services

Governance

To drive scale, interoperability, and sustained adoption across a complex ecosystem, the TRAC framework would benefit from a neutral stewardship body that sets direction, aligns stakeholders, and governs execution. Responsibilities could include:

- Establish governance (decision rights, roles and responsibilities, goals, meeting cadence).
- Align on rollout and adoption (phasing, incentives, success measures, issue resolution).
- Set and maintain industry expectations through associations and education channels.
- Define registry rules and accountability, including oversight of the independent registry operator.
- Operationalize registry functions (registry upkeep, validation of ad counts, and reporting of agreed metrics).

The stewardship body should include representation from advertisers, agencies, publishers, OEMs, standards bodies, and measurement companies. It would oversee compliance, manage technical evolution, and govern the central registry as the approach scales.

Chapter 5. Test Methodology

Scope

This proof of concept tested full spectrum counting — the ability to accurately and consistently count every TV ad that appears on screen, regardless of source, platform, or distribution path. The intent is to ensure ads viewed on a given device are counted uniformly, increasing confidence in counts for both buyers and sellers.

For testing, watermarked ads were distributed across 17 TV stations in seven U.S. DMAs. Each market included two affiliate stations, except Salt Lake City, where all five major affiliates were monitored. Markets were selected based on their rank among top U.S. broadcast markets and to reflect diverse ownership. Analysis focused on local markets with the highest watermark detection activity — Salt Lake City, Washington DC, Nashville, and Baltimore.

Figure 4: Watermark Detection Geographic Distribution

Market	Station	Affiliate
1. Portland/Bellview	KPTV	FOX
	KGW	NBC
2. Salt Lake City	KSTU	FOX
	KJZZ	Independent
	KTVX	ABC
	KUTV	CBS
	KSL	NBC
3. Denver	KMGH	ABC
	KUSA	NBC
4. Nashville	WZTV	FOX
	WSMV	NBC
5. Phoenix	KNXV	NBC
	KPHO	CBS
6. Washington, DC (Hagerstown)	WJLA	ABC
	WUSA	CBS
7. Baltimore	WBFF	FOX
	WBAL	NBC

Source: CTV1 Media Services

Chapter 5. Test Methodology

Test Inputs and Scheduling

The POC tested a mix of local ad spots, station and national promos, and PSAs, ranging from 7 to 60 seconds. Ads were distributed across broadcast TV, cable networks, and streaming platforms to reflect local delivery conditions. Ad schedules varied across dayparts during the testing period to capture a range of viewing contexts. Key factors assessed included ad frequency, program context, and daypart.

For analysis, watermark detection events were reconciled to broadcaster campaign post-reports using a ± 3 -minute matching tolerance relative to the post-report timestamp. Advertiser post-reports included estimated impressions per occurrence where available; promo post-reports included occurrence timestamps only, with no impression estimates.

Metrics Captured

The data captured through the proof of concept included:

- Total number of ads/promos watermarked.
- Average time needed to register and watermark each ad.
- Total watermark detections collected, total detections for each ad watermarked.
- Number of States, DMAs, ZIP codes where device detections were seen.
- Number of States, DMAs, ZIP codes where cloud/ACR detections were seen.
- Match rate of device detections vs. station logs.
- Match rate of cloud/ACR detections vs. station logs.
- Total device reached, by Universal Ad ID.
- Data collection for this proof of concept was scheduled from September 1, 2025, to December 31, 2025. Although collection has continued beyond this period, analysis for the POC is confined to this timeframe.

Validation, Limitations, Controls

Validation

Broadcast station logs were used as a reference dataset to validate the framework's watermark detection accuracy at the airing/occurrence level. For each logged airing (date/time), CTV1 compared the expected occurrence to watermark detections captured via device- and cloud-based methods using an agreed timestamp tolerance. When a logged airing and a watermark detection aligned within the tolerance window, it was treated as a matched occurrence, indicating the ad was detected when it was expected to run.

Station logs are not sufficient on their own to measure true views, because they reflect what was scheduled and played at the station, not what was ultimately received and displayed on a given household TV. Accordingly, this validation approach is intended to confirm timing alignment and detection completeness for known ad airings, not to claim station logs as a definitive measure of ad viewing.

Because CTV1 only captured a portion of the market, both geographically and through partnerships with specific TV OEMs and broadcasters, an exact one-to-one match between station log impressions and watermark detections was not the objective. A portion of the station log data reported was broken down to reflect the portion CTV1 was capturing, and the audience associated with each logged ad (via impressions or ratings, where available) was compared against the ad counts recorded from watermark detections. The key was consistency in what was measured from one ad to the next, rather than an exact count match. Through this method, CTV1 demonstrated correlation between station log impressions and watermark-based ad counts.

Chapter 5. Test Methodology

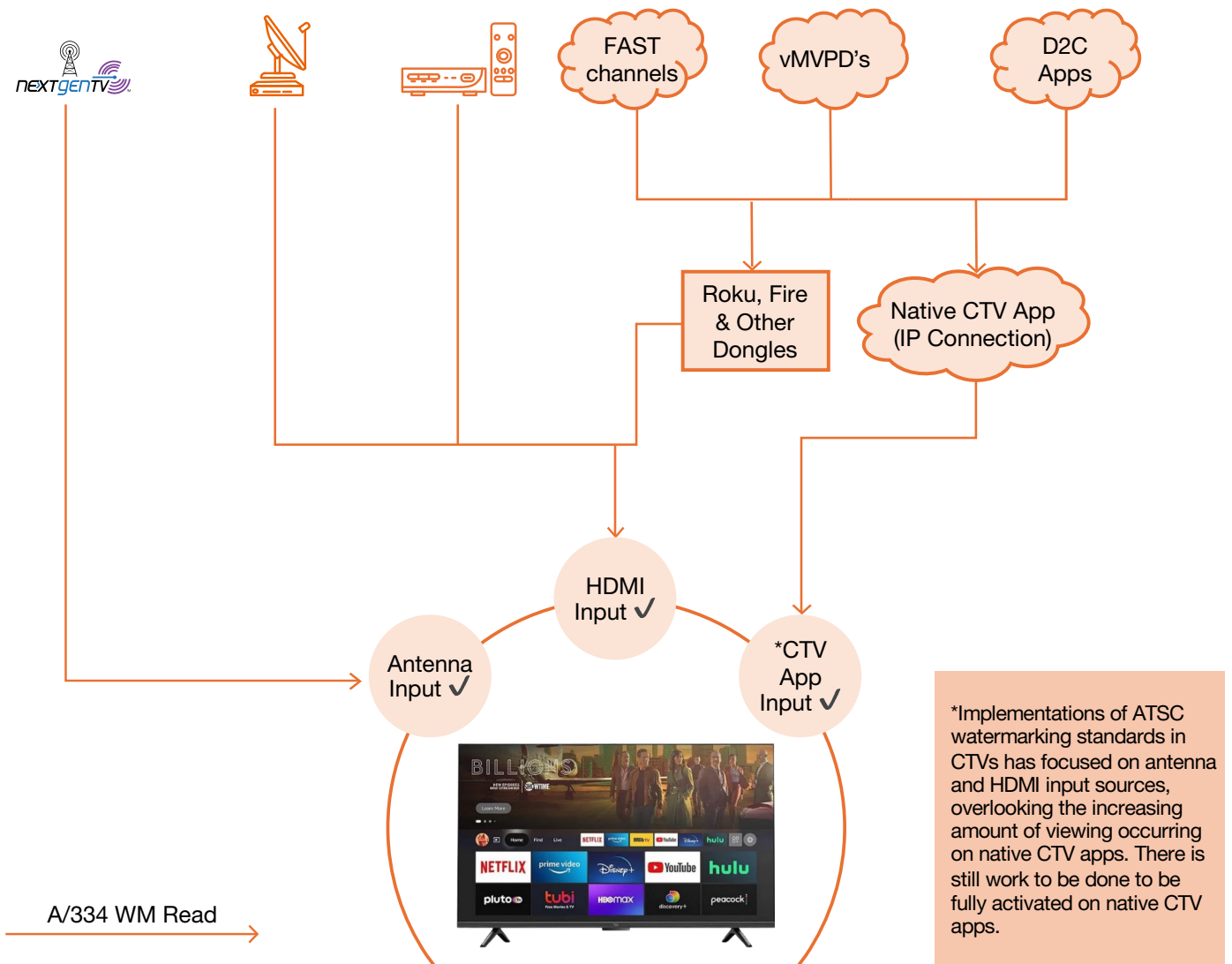
Limitations

There are some limitations impacting how and where data was captured due to the design of the POC. The test population for device-level reads is limited to ATSC A/334-capable devices and TVs must be connected to the internet (Smart TV or via an external dongle) to have a return path for the data. Additionally, this framework enhances ACR matching for ad counting, but audience modeling remains the responsibility of measurement providers.

Current State of Watermark Technology

TV ads reach viewers through multiple pathways, including over-the-air antennas, HDMI-connected devices (e.g., satellite receivers, set-top boxes, external dongles), and CTV apps. Watermark-based detections of ad exposures are currently being recorded across both linear and streaming sources, particularly via antenna and HDMI input signals. Streaming exposures are also being captured, but the share not captured cannot be reliably quantified due to current limitations of reading watermarks in native CTV app environments. Even with these coverage constraints, CTV1 has demonstrated that Universal Ad IDs can be tracked deterministically across linear and streaming using watermarks, indicating the approach is technically viable, with known gaps primarily driven by native-app instrumentation limits.

Figure 5: TV Ad Pathways to the Viewer



Source: CTV1 Media Services

Chapter 5. Test Methodology

Controls and Privacy

- All data collected is fully anonymous at the device and household levels; no personally identifiable information (PII) is distributed.
- Data is collected only from households that have not opted out of watermark detection or ACR data sharing.
- The framework adheres strictly to all applicable privacy regulations, with TV manufacturers providing explicit assurances of compliance with existing privacy policies.
- Statistical controls are in place to address sampling bias and measurement noise, ensuring data reliability and integrity.

Industry Partnerships

For this proof of concept, CTV1 engaged with various groups across the media ecosystem to develop the framework, confirm the feasibility of the technical and operational components of this solution, validate the data, and understand benefits and challenges for adoption.

PARTNERS IN THE DEVELOPMENT OF THIS SOLUTION

- TV OEMs.
- ACR data partners.
- Technology partners.
- Ad distribution partners.

INDUSTRY PARTNERS

- Local broadcast station groups.
- Measurement providers.
- Standards bodies.
- Industry groups.
- Deloitte conducted stakeholder interviews with broadcasters, measurement organizations, advertisers, and standards bodies.

Industry partnerships and collaboration are critical to the development and long-term success of this framework. CTV1 expects the value of an open, standards-based approach to incentivize broad participation, particularly given the absence of a widely adopted market solution that leverages open-source standards to help advertisers measure true cross-platform reach and frequency.



Chapter 6. Dual Reader Approach: Device- and Cloud-Based Watermarking

The TRAC framework enables ads to be watermarked and tracked across television stations, with household-level ad counting supported by a device-embedded watermark reader. To accelerate scale given the limited current availability of device-based ATSC watermark readers, CTV1 developed a dual-reader approach that combines (1) device-based reads in participating TVs and (2) cloud-based A/334 reads at local broadcast monitoring sites, with cloud detections matched to ACR tune-in data to determine household reach. Together, these two counting pathways provide a practical route to broader coverage — pairing deterministic, device-level counting, where available, with modeled scaling where device readers are not yet widely deployed.

Pathway 1: Device-Based Reads

What it is: Watermark detection performed by a detector embedded in TV firmware, enabling ads to be counted at the device regardless of how the ad content reaches the screen (e.g., antenna, HDMI-connected devices).

What it produces: Deterministic, one-to-one occurrence counts on a given device, supporting validation that an ad appeared at the expected time/location and enabling granular measurement (e.g., ZIP code level where supported).

Key benefits

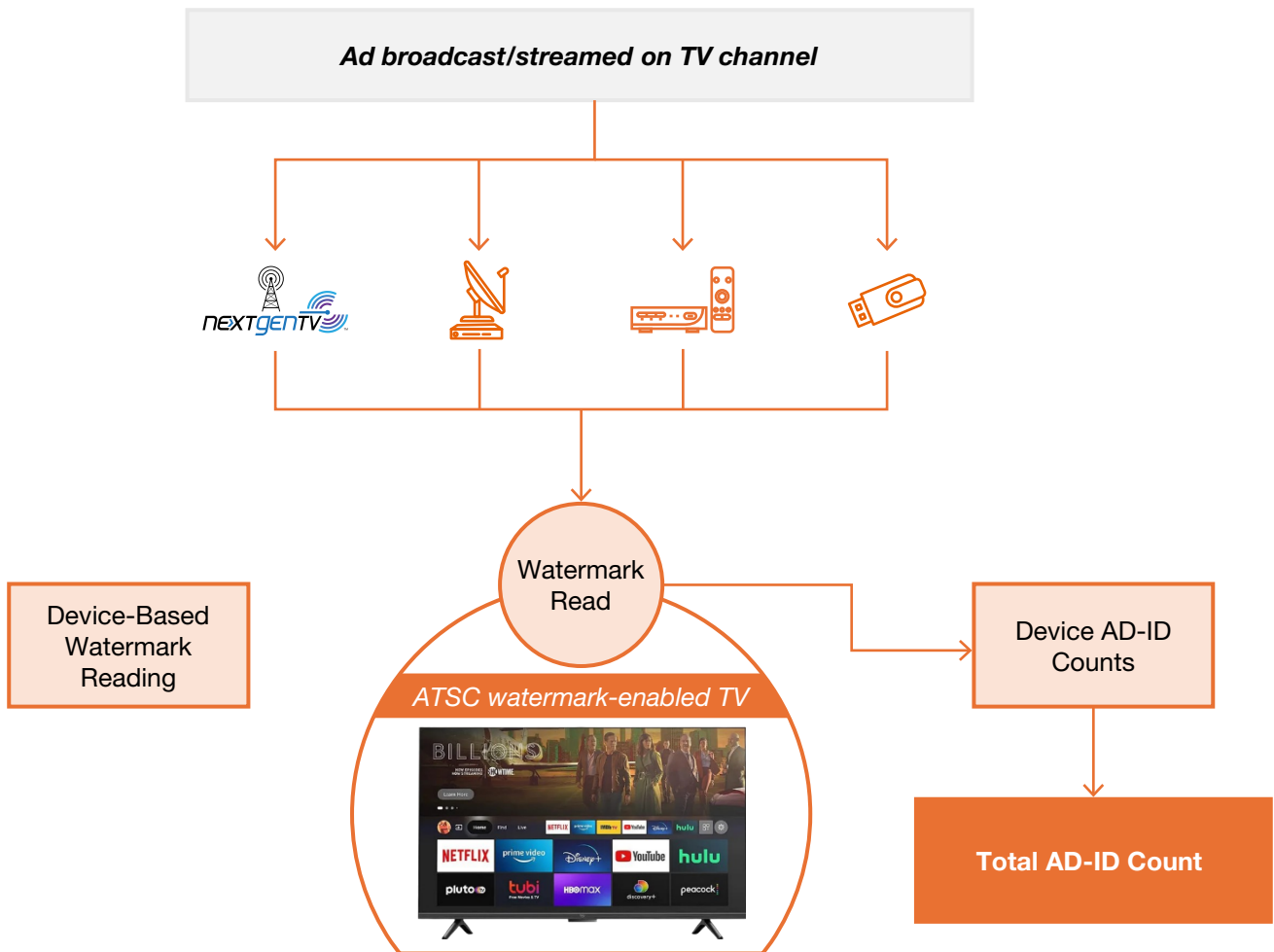
- Precise, deterministic ad occurrence counts at the device level.
- Real-time localized reporting (e.g., ZIP code level).
- Operational efficiency through reduced downstream processing and ad library maintenance.
- Fewer ingest constraints relative to “do not monitor” limitations.

Key constraint

- Limited current scale, dependent on OEM participation and firmware deployment of ATSC watermark reader capability.

Chapter 6. Dual Reader Approach: Device- and Cloud-Based Watermarking

Figure 6: Device-Based Watermark Reading



Source: CTV1 Media Services

Pathway 2: Cloud-Based Reads

What it is: A/334 watermark readers deployed in the cloud at local broadcast monitoring sites to detect watermarked ads on monitored channels.

How it scales to households: Cloud detections are correlated with ACR channel tune-in data to validate the number of TVs likely exposed to the ad during the detected airing.

Key benefits

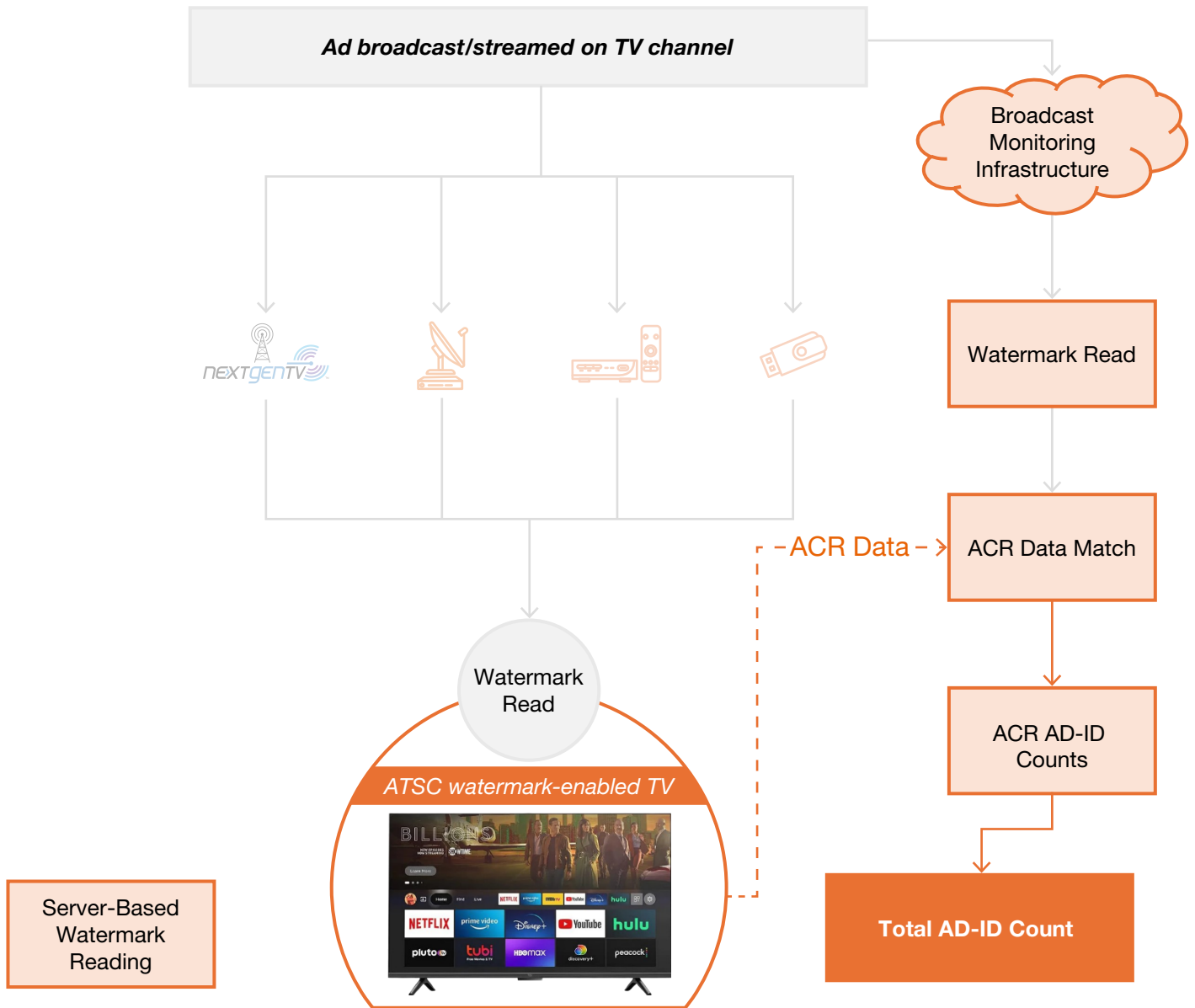
- Faster scale across OEM footprint without waiting for firmware updates.
- No device firmware dependency for detection at the monitoring layer.
- Next-day local reporting (e.g., ZIP code level).

Key challenges

- ACR matching latency (~24 hours), varying by OEM processing timelines.
- ACR accessibility constraints (privacy, compliance, data ownership, partnership terms).
- Market coverage gaps, since OEM ACR footprints may not cover all markets uniformly.
- Potential "do not monitor" restrictions that can limit measurable inventory.

Chapter 6. Dual Reader Approach: Device- and Cloud-Based Watermarking

Figure 7: Cloud-Based Watermark Reading



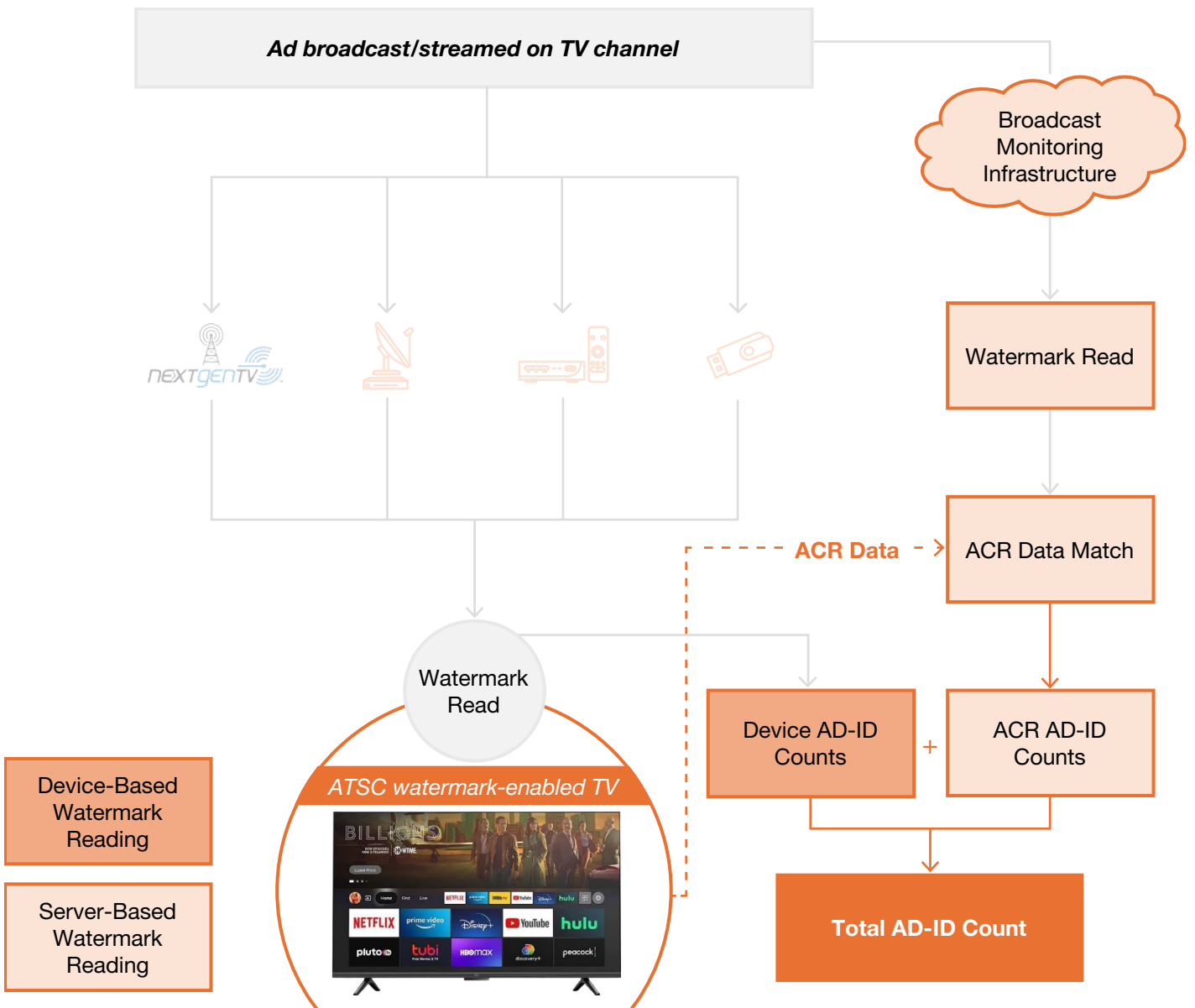
Source: CTV1 Media Services

Chapter 6. Dual Reader Approach: Device- and Cloud-Based Watermarking

Combining the Two Pathways: Aggregate Universal Ad ID Count

By combining device-based Ad ID counts (deterministic device occurrences) with cloud/ACR-derived Ad ID counts (estimated household exposure tied to monitored detections), CTV1 can derive an aggregated total Ad ID count to represent a larger share of campaign delivery. This aggregation improves scale and continuity across markets, while reflecting that the two inputs are generated through different ad counting mechanics.

Figure 8: Device- and Cloud-Based Watermark Reading



Source: CTV1 Media Services

Chapter 7. Technical and Business Outcomes

Technical Results

CTV1 set out to prove the technical feasibility and accuracy of the watermarking framework, demonstrate scale through this approach, and show that there is an impact on the marketplace from this solution.

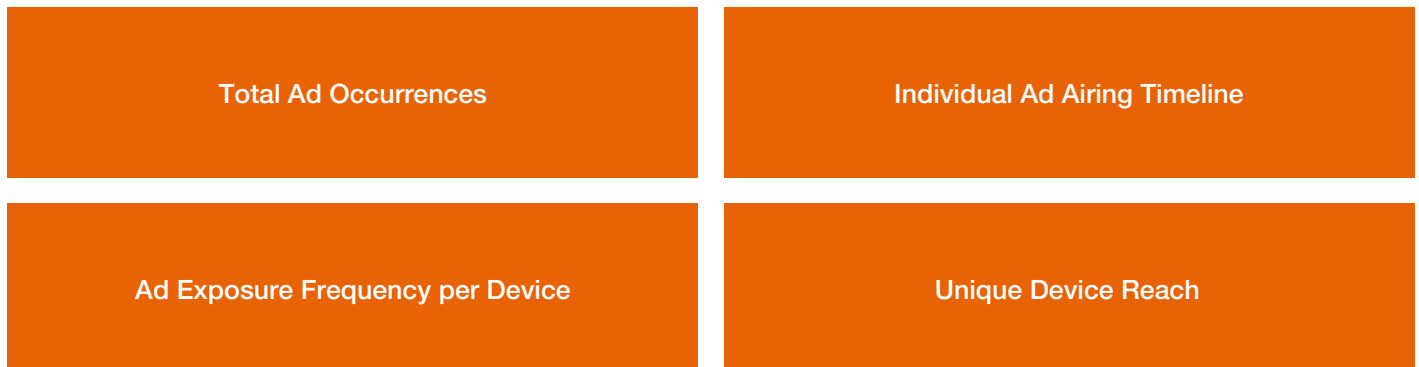
CTV1 used a dual reader approach to demonstrate how an open standards watermarking framework can help provide a better understanding of unduplicated reach and frequency metrics across linear TV and streaming, and their findings focused on three key areas.

Outcome #1: Watermark Integrity

Watermarks placed in ads were detected and counted.

Through the TRAC framework and dual-reader approach, CTV1 has demonstrated that this technique for achieving traditional metrics more deterministically is successful. This approach can report on ad views and reach and frequency metrics much more accurately than any existing method, providing more deterministic data that allows for improved reach and frequency metrics across linear TV and streaming.

To validate the framework, a variety of metrics were evaluated across several dimensions, such as DMA, ZIP code, and channel.



The combination of ATSC watermarks and ACIF Universal Ad IDs provides an effective, open standards model for achieving scale and accuracy in ad reporting.

Outcome #2: Geographic Scale

Reach was achieved through the dual reader approach and ZIP code level reporting.

Several components enable scale in this approach. To validate it, CTV1 partnered with two OEMs and one ACR partner. Each OEM evaluated a different detection method; one using device-based readers and the other testing a cloud-based detection approach.

Chapter 7. Technical and Business Outcomes

Device Reach – ATSC watermarks can be efficiently applied to TV ad creatives during the distribution process, and those watermarks can be detected reliably to provide accurate, deterministic ad counts using:

- Existing ATSC A/334 readers in commercially available Smart TV devices.
- Cloud-based watermark detection operating in broadcast monitoring infrastructure.

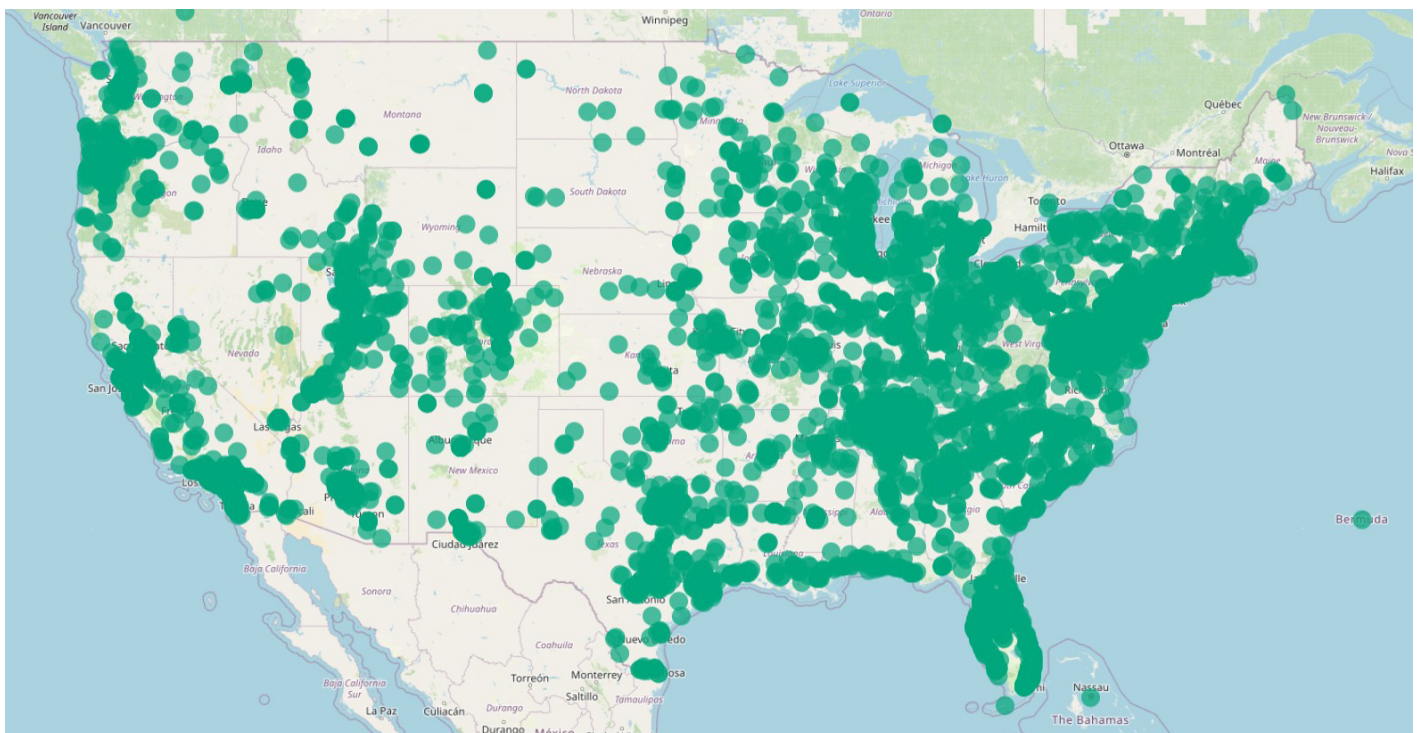
Watermark detection is no longer limited to devices with compatible ATSC A/334 readers. The cloud-based watermark detection method allows for a significant increase in the number of screens captured through watermarking.

Geographic Spread – TV Ad exposures can now be captured at the device and/or ZIP code level, not just at the DMA level.

Previously, local TV media reported at the DMA level, but through this approach, CTV1 can report down to the ZIP code level. This presents the opportunity for advertisers to more specifically understand their audience size and distribution to inform campaign execution and optimization.

- Through device level reads, CTV1 can capture discrete ad views on individual devices.
 - To avoid PII concerns, CTV1 aggregates watermark detections at the ZIP code level and distributes only aggregated results, enabling a faster go-to-market by avoiding device-level data and its associated privacy risks.
- Through cloud-based reads, CTV1 derives the geographic distribution of ACR activity by aggregating detections at the ZIP code level. A single ZIP code may contain hundreds to thousands of ACR matches.

Figure 9: Nationwide Watermark Detections

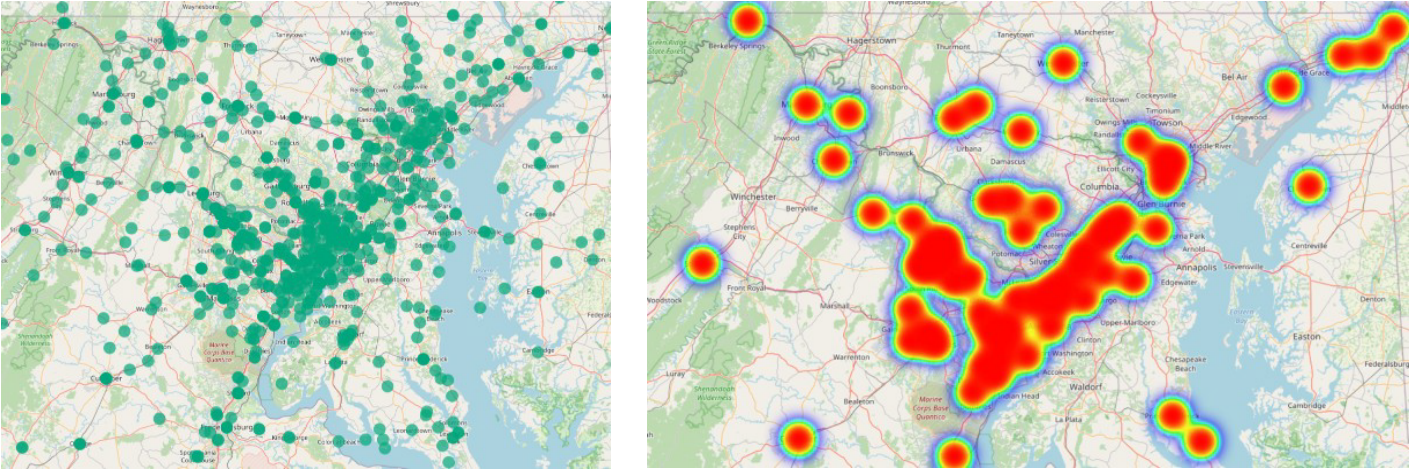


Green markers indicate individual device level watermarks detected across the US.

Source: CTV1 Media Services

Chapter 7. Technical and Business Outcomes

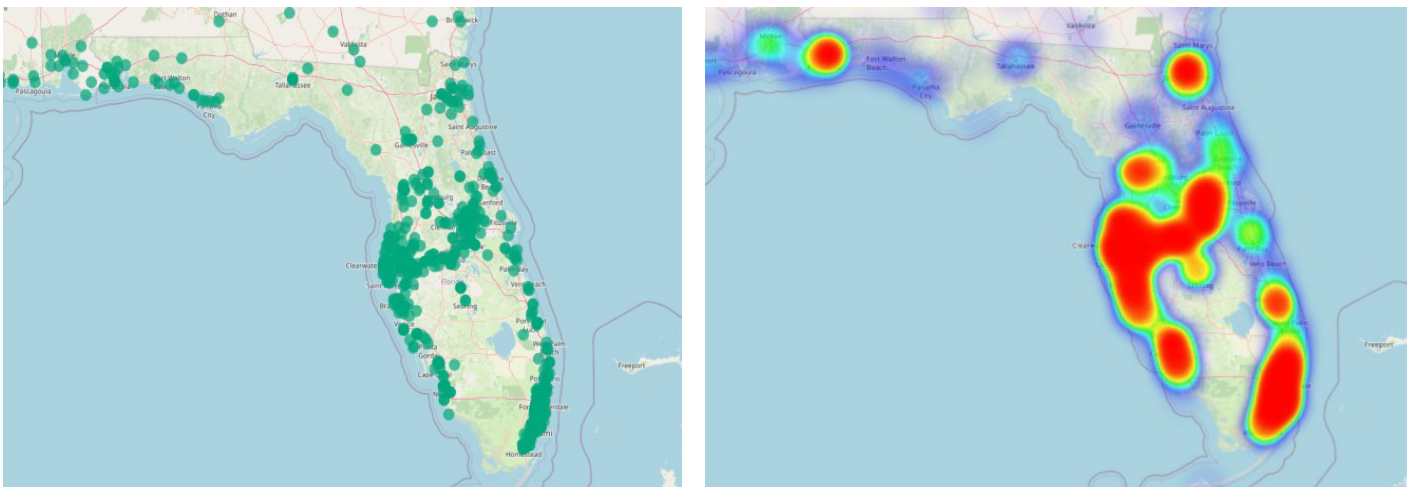
Figure 10: Watermark Detections across the DC Metro Area



Green markers show watermark detections at the individual device level, and the heat map shows the density of detections across the DC Metro Area.

Source: CTV1 Media Services

Figure 11: Watermark Detections across the South Florida



Green markers show watermark detections at the individual device level, and the heat map shows the density of detections across South Florida.

Source: CTV1 Media Services

For the first time, ad count data is being aggregated across five major TV OEMs to deliver a unified view of ad delivery. Both linear and streaming TV broadcast ads are being captured at the device level and aggregated together to provide a better understanding of cross platform ad counting. Bringing these signals into one place unlocks scale across geographies and methodologies and demonstrates the power of industry coordination.

Chapter 7. Technical and Business Outcomes

Outcome #3: Accuracy & Precision for Local Markets

Each station-reported airing was independently verified with confirmed dual reader watermark detections.

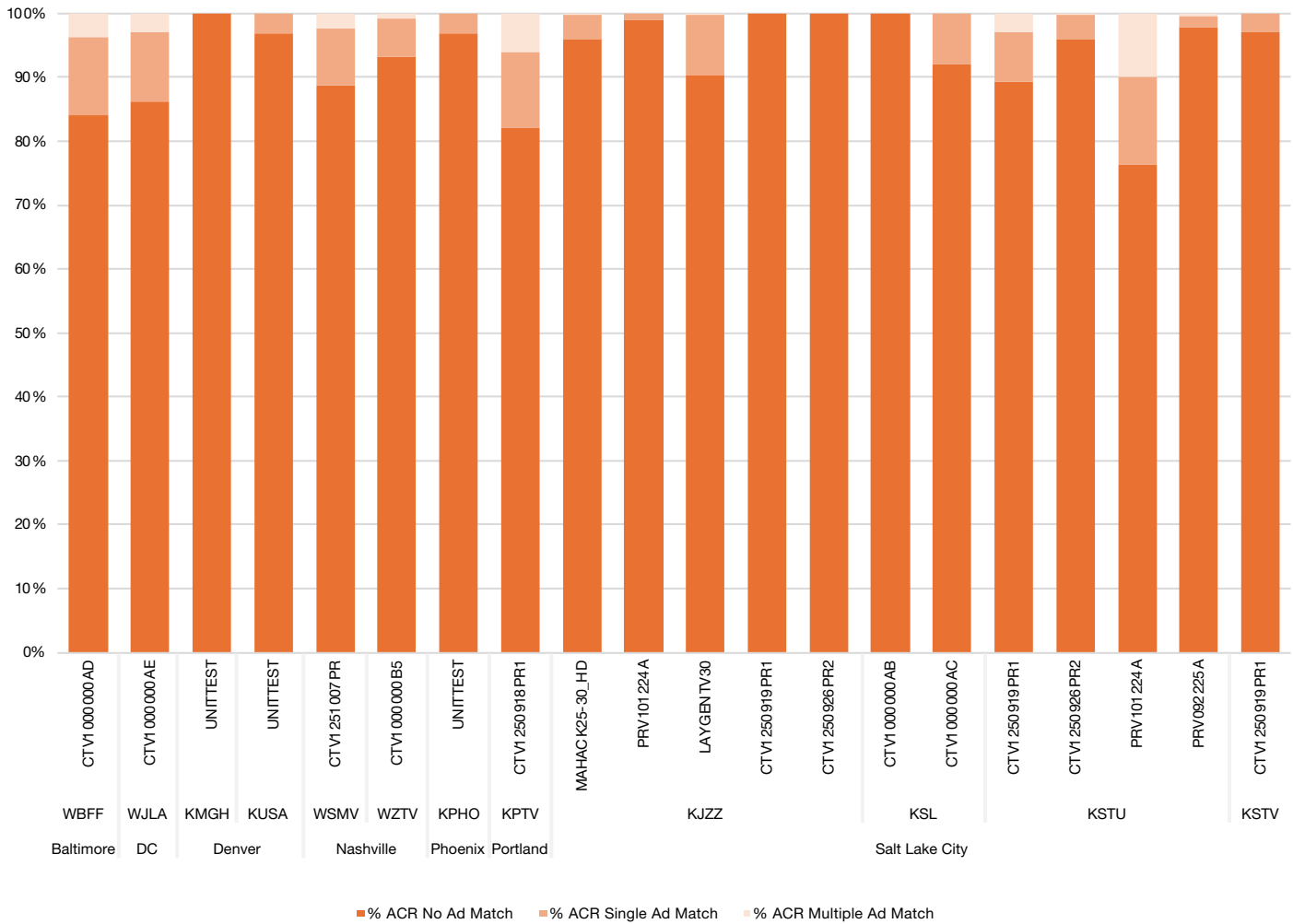
A specific example of how watermark-based counting addresses an industry gap emerged in CTV1's local-market observations.

A core proof of concept hypothesis was that ACR-based ad datasets underrepresent local small-business advertising because many local ad creatives are not consistently fingerprinted into ACR ad reference libraries. This is driven by the long tail nature of local ads (high creative churn and fragmentation across buyers and stations) and limited incentives, organization, and standardized processes to keep local fingerprint libraries complete and current. Watermarking helps close this gap by enabling ad counting without relying on bespoke fingerprint reference libraries that require continuous maintenance. This lowers operational overhead and improves coverage for local inventory, and the resulting gains in accuracy and precision will drive incremental value to local market advertising.

In the test markets, CTV1 observed that only a small portion of watermark-detected local ads were also present in ACR fingerprint detections, indicating that many local ad exposures may be missing from typical ACR ad datasets. The gap was notably smaller for national campaigns, where fingerprint coverage is generally stronger. To validate this, CTV1 compared ACR outputs from participating TV OEMs with TRAC registry watermark detection logs and correlated reported occurrences. While channel tune-in had high match rates across sources, ad-level match rates were materially lower. This supports the conclusion that local ads often do not make it into ACR ad reference libraries and, as a result, can be underrepresented in ACR-based measurement.

Chapter 7. Technical and Business Outcomes

Figure 12: ACR Ad Matching



Local stations have ~85-90% no ACR ad match, despite capturing hundreds or thousands of occurrences.

Source: CTV1 Media Services

Watermarking provides a pathway to a more complete picture of the local market ad occurrences, with significant potential to enrich and improve OEM ACR data.

Chapter 7. Technical and Business Outcomes

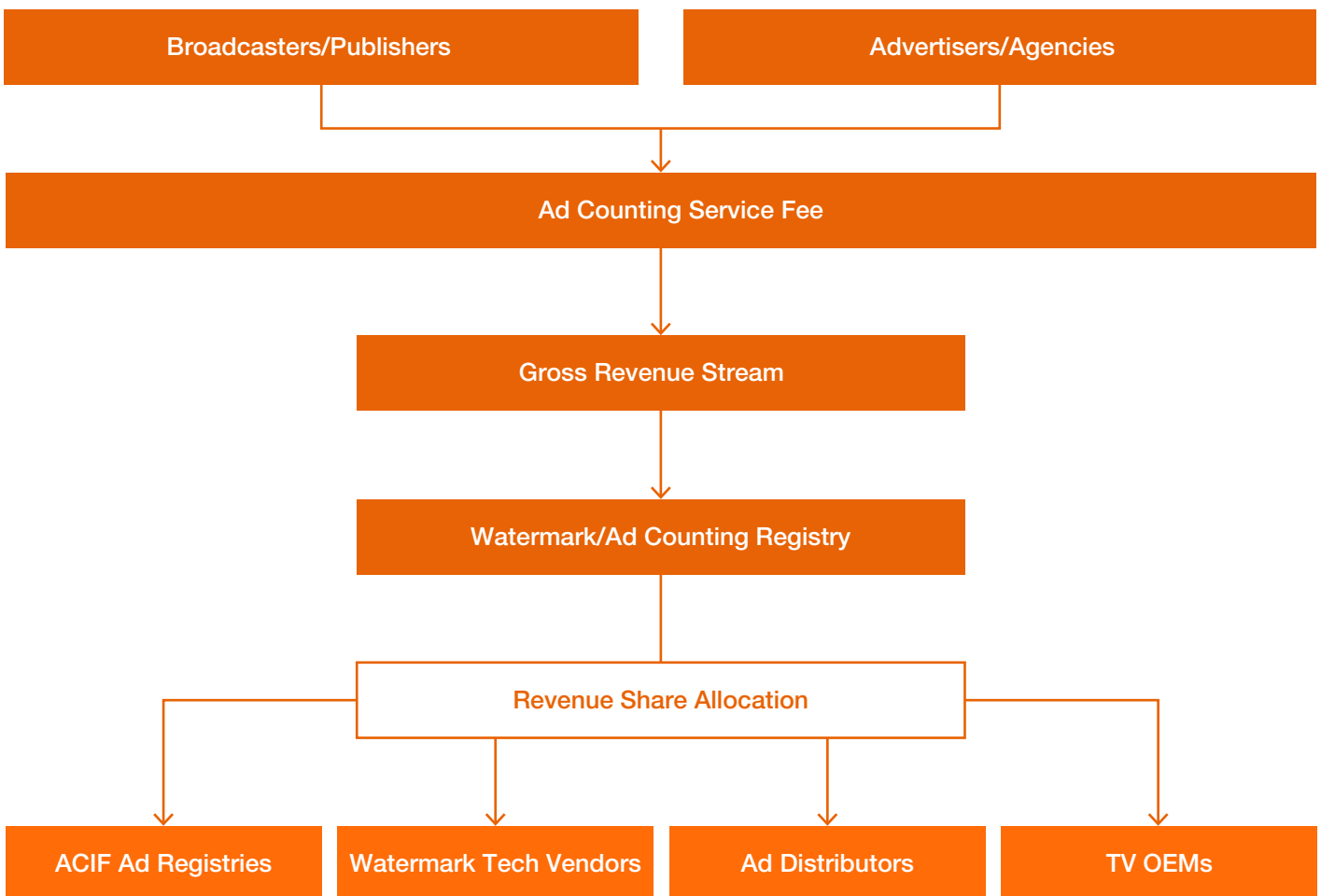
Business Outcomes

A viable commercial model for this solution must be aligned across stakeholders, incremental to existing workflows, low friction to adopt, and structured to avoid proprietary chokepoints. Deloitte-facilitated interviews with industry stakeholders reinforced that clear ROI and a transparent value exchange are the primary drivers of adoption and scale. Participants need to understand both the benefits delivered and how value, and revenue, accrue to each contributor.

CTV1 has outlined a revenue-sharing commercial model as an initial hypothesis, with an upcoming pilot intended to test and refine key economic assumptions and inform the go-to-market financial structure.

The proposed model distributes costs broadly across the advertising ecosystem, including advertisers, registries, watermark vendors, broadcasters, and OEMs, without enabling a single party to dominate the market. Compensation is driven by a nominal CPM-based fee applied at scale; as a larger share of TV ad impressions becomes measurable via watermarking, total revenue expands. Participants pay in proportion to usage and realized benefit (based on measured volume and engagement), avoiding steep up-front technology or licensing costs that could inhibit participation.

Figure 13: Commercial Model Framework



Source: CTV1 Media Services

- Revenue generated from agencies, broadcasters, etc. via modest ad counting service fee.
- Gross revenue shared across supply chain enabling end-to-end solutions.
- Gross revenue grows as the % of TV ad impressions counted via watermarks increases.
- Each segment's share scales with the % of counted watermarks that partner enable.

Chapter 7. Technical and Business Outcomes

“

If you can see everything holistically, then you know it's going to pay for itself anyway.

— Shawn Farrington, Sr. Director, Ad Technology, The E.W. Scripps Company

The model is designed to avoid exclusive walled garden arrangements, prioritizing open participation to support adoption, innovation, and interoperability. If executed effectively, this collaborative structure can help modernize TV advertising measurement by aligning incentives across the supply chain, reducing fragmentation, and improving transparency into ad exposure and inventory value for the appropriate constituents.



Chapter 8. Moving Forward

Challenges Impacting Adoption

Several practical hurdles remain — most notably stakeholder adoption, and the operational lift required to implement a new cross-industry framework. Sustained participation will depend on demonstrating clear, incremental value at each stage of rollout. If stakeholders do not see benefits early and consistently, they are likely to delay adoption or disengage.



The harder operational problem is commercial enablement; without that, we can't get internal support to commit resources.

— Executive at TV OEM

These challenges were consistently surfaced through industry interviews. The most significant barriers are less technical than commercial; they stem from ecosystem dynamics — what motivates each participant, how costs and benefits are distributed, and which near-term use cases are compelling enough to justify investment. While these are typical obstacles for industry-led initiatives, stakeholders also identified practical mitigation strategies that can reduce friction and improve adoption prospects.

Issue	Challenge	Affected Stakeholders	Potential Solution
1. ACIF Ad ID Adoption	There is a perceived time and cost burden for including Universal Ad IDs on ad creatives.	Advertisers Measurement Organizations Standards Bodies	Educate participants to demonstrate the ease of use and benefits of an ad identifier that crosses between digital and linear for both buyers and sellers.
2. Governance & Stewardship	Requires coordination across the ecosystem and an industry steward(s) to drive adoption of a new framework.	Entire Ecosystem	Create a stewardship group to develop uniform procedures and enforce adherence to standards. Secure an industry champion to endorse this initiative.
3. Incremental Costs	Concern for incremental costs related to development, integration, or adoption.	Advertisers Broadcasters OEMs	Provide a clear financial breakdown and further validation of revenue-share commercial model through use cases.
4. Industry Coordination	The primary challenges are organizational, and incentives are often misaligned.	Entire Ecosystem	Get early buy-in from key players, demonstrate value clearly, and provide ongoing assurance of benefits to drive consensus.
5. Operational Complexity	There is complexity in watermarking at scale without upstream support for watermark insertion.	Advertisers Broadcasters	Drive awareness that set up for advertisers, agencies, broadcasters, and publishers is low friction and easy. Automation will help speed up workflows.
6. Technical Integration	Concern whether data will integrate with current planning and measurement systems.	Advertisers Broadcasters OEMs	Inform participants that data gathered by leveraging TRAC framework integrates seamlessly with current tools like MMMs.

Chapter 8. Moving Forward

Driving Momentum

To accelerate adoption, the industry needs near-term actions that reduce friction, prove value quickly, and make participation the path of least resistance. As the authors of the CIMM 2025 study noted, “without a unified approach, measurement of digital and linear video will remain incomplete and incompatible.”⁹

There are four immediate priorities to progress deployment:

1. Prove the economics: Validate ROI with a clear financial narrative and financially grounded case studies that quantify incremental value versus current-state measurement.
2. Create adoption anchors: Secure (1) buyer champions to drive enterprise-wide watermarking and/or Universal Ad ID adoption, and (2) platform and workflow partners to embed those standards into core planning, trafficking, and distribution systems, backed by public endorsement, so the standard path is the easiest path.
3. Generate success stories: Establish credible early wins through OEM participation and local POCs, then publicize the results to build confidence and adoption as stakeholders realize greater transparency and value from more granular campaign data.
4. Leverage industry bodies: Engage groups such as the IAB (Tech Lab), ANA (Association of National Advertisers), and 4As (American Association of Advertising Agencies) to socialize the approach, convene stakeholders, and help drive consistent adoption.

CIMM plans to mobilize industry stakeholders to determine how best to address these issues. As ever, delivering real change will require effective industry collaboration.

Looking Ahead

While the initial focus is linear TV, continued growth in CTV viewership and ad spend increases the urgency for solutions that bridge linear and streaming ad counting and measurement. The long-term vision is end-to-end transparency across TV platforms and ad formats, enabling impression-level data with digital-like reliability.

Establishing ATSC watermarking as a foundational capability can unlock additional benefits over time, including:

- Ad enhancements triggered by watermark detection (e.g., overlays, squeeze-back formats, QR codes, calls-to-action) consistently across linear and CTV.
- Enabling DAI in linear TV via device-based watermark deployment to support frame-accurate insertion and accurate debit/credit tracking for ad replacement.
- Greater supply-path visibility using ATSC A/335 video watermarking to apply secondary Seller IDs during distribution, clarifying not only what ad ran, but also which seller facilitated delivery.
- Reduced ad fraud risk by leveraging deterministic device signals that are less susceptible to spoofing and by provisioning ad-count data only to authorized parties.
- Standards (ATSC/ACIF) evolution opportunities to improve operational efficiency and adoption at scale.

⁹ CIMM, [The Case for an Industry Action Plan: Supporting an Open, Industry-Standard Watermarking Solution](#) (June 2025)

Chapter 8. Moving Forward

Conclusion

Moving from small-scale pilots to an operational, market-wide framework is the critical next step to take this solution from early validation to mainstream adoption. While initial tests focused on local advertising, where Universal Ad IDs and ACR data are less consistently available, this framework is designed to scale across all campaign types and buying/selling models.

This proof of concept demonstrated clear value by:



Surfacing marketplace gaps.



Validating the core technology and counting methodology.



Proving an open standards approach that can scale.



Quantifying the incremental value of accurate, deterministic signals.



Outlining a viable commercial model for participating partners.

Working with TV device manufacturers, broadcasters, and technology partners, CTV1 aims to drive broad adoption of ACIF Universal Ad IDs and ATSC watermarks and expand device- and cloud-based watermark ad counting to **100M+ TV screens by mid-2026**. Reaching that goal requires industry participation now, not just endorsement, but hands-on pilots that validate value in real operating conditions and create the internal buy-in needed to scale.

Throughout 2026, CTV1 is partnering with additional local broadcast groups to run targeted pilots that further validate operational viability and business value. Participation from advertisers, agencies, broadcasters, OEMs, and measurement/technology partners is required to move from early validation to scalable adoption, through targeted pilots, implementation commitments, and partner alignment. Organizations that see a fit for the approach described in this paper should participate in a pilot scoped to an organization specific use case to generate measurable outcomes, build internal buy-in, and help CTV1 foster broader momentum for an open, interoperable counting framework.

Appendix: Related Resources

CIMM Research

- [Plugging the Gaps: A Diagnostic Analysis of Local TV and Video Measurement](#) (November 2025)
- [The Case for an Industry Action Plan: Supporting an Open, Industry-standard Watermarking Solution](#) (June 2025)
- [Executive Summary Slides — The Case for an Open, Industry-standard Watermarking Solution — June 2025](#)

Deloitte Research

- [Digital Media Trends, Fall 2025: Changing TV-watching mindset](#) (October 2025)
- [2025 Media & Entertainment Outlook](#) (April 2025)
- [TMT Predictions 2026: The AI gap narrows but persists](#) (November 2025)



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