



The Future of TV Data Is Commingled. Is Yours?



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Executive Summary

In today's world, as the lines between linear and digital continue to blur, consumers have a myriad of access points to view content, at any time, across all devices. This presents significant challenges for advertisers trying to reach the right consumers, at the right frequency. Those who rely on a single data source will find themselves at a great disadvantage in today's marketplace. However, by combining multiple linear viewership data sources into a single, currency-grade dataset, advertisers gain access to a new lens of unified viewership information needed to activate against granular, core audiences. The method of integrating these linear viewership sources such as ACR, STB, and schedule data is an intricate process we've come to know as **commingling**.

As the great Aristotle once said, "The whole is greater than the sum of its parts." In other words, when individual parts are connected to form a single entity, the value as a whole is greater than the silos themselves. While new linear viewership data sources continue to

become available, these sources individually are not an accurate representation of the demographics and viewership habits of the entire US population. It is only once these datasets are cleansed of inaccuracies, skew-corrected, and integrated via the commingling process, that they provide advertisers with a new standard of measurement that delivers actionable insights to drive performance.

The marketplace for linear measurement services is rife with "dump-pipe" technology partners who prioritize quantity over quality, and simply funnel raw, purchased datasets with minimal to no corrections directly to their customers. These raw datasets hold opportunities to reach the *wrong audience*, on the *wrong screen* at the *worst time*, yielding countless missed opportunities and poorly allocated media dollars. To right all of these wrongs, advertisers should seek out technology partners capable of commingling to provide the accuracy needed to optimize against the right audience, and ultimately, increase the value of their media investment.



Cheat Sheet:

TV Data Terminology

The linear-first and digital-native cohorts of the advertising technology industry make frequent mention of specialty jargon and acronyms in their marketing materials and technology stacks. To help us speak the same language as we learn about the process and function of commingling in this paper, we've put together a brief glossary of how we use these not-so-common terms.

ACR	Automated Content Recognition - Identification technology leveraged by TV manufacturers that recognizes video or audio content displayed on the screen.
Audience	A group of households and/or users as defined by a common set of demographic or psychographic attributes, and catalogued into a set of actionable household IDs.
Commingling	Combining multiple sources into a single comprehensive dataset, from which the clarity of information is improved when compared to any of the individual original data sources.
DMA	Designated Market Area™ - A proprietary Nielsen geographic designation used for purchasing media.
Exposure	The event of a household TV being on while an ad or show airs on-screen, and it is assumed that one or more users are present.
Footprint	The total number of devices counted as part of a raw TV viewership data source, often inclusive of inactive or duplicative devices, and incorrectly used as a validation of quality data.
Household	One or more users who live in the same dwelling. It is important to know if performance calculations are based on a household or user, as not all users in a household may be watching a particular screen or device.
MVPD	Multichannel Video Programming Distributor - A distributor of multiple channels of video programming for customers or subscribers, including cable and satellite companies.
OEM	Original Equipment Manufacturer - The brand name of a Smart TV's collect viewership data through technology such as ACR.
Panel	A TV dataset comprised of the survey results of a group of individuals, designed to be statistically representative of a larger population.
PGD	Program Guide Data - TV programming schedule that is used in the commingling process to cross-check for time-shifted viewing and program identification.
Rating	A single numerical value used to define the size of an advertising campaign by expressing the volume of impressions as a percentage of the target audience size.
STB	Set-Top-Box - A hardware box used by some MVPDs to distribute multichannel video programming. This hardware can record and output specific viewership pattern data.
User	A single person identified by a matchable identity source, such as a device ID. This is the most granular unit of a target audience, and is generally only measurable in digital advertising, where an action on a screen is acceptably attributable to a single person.
Viewership	The act of identifying and measuring the audience that follows specific patterns when watching TV, including heavy / light viewership, or commonly watches a specific show or genre.



Why We Care:

Our Commitment to Quality

VideoAmp has a deep-rooted passion for data science, transparency, and privacy because we believe that these are the keys to a healthy advertising ecosystem for buyers, sellers, and, most importantly, consumers. By optimizing advertisers' traditional and digital media to reach the right audience at the ideal frequency, VideoAmp enables brands to give consumers the best possible experience, and ensures they get the most from their media investment. Our dedication to privacy-compliant data processing, and ultimately, commingling, was cemented following our acquisition of IronGrid, an

industry leader in cleansing and correcting cable and satellite company viewership data. Now working to spearhead new accreditation systems that will validate the advertising currencies of the future, VideoAmp is working to demonstrate that data science doesn't have to be a black box, and neither does your advertising ROI. Measurement is the foundation of all other advertising activities; from planning, to activating, to negotiating, you need quality, insightful, actionable data that enables you to make the right decisions for your business.



Introduction:

THE MEDIUMS ~~IS~~ ARE THE MESSAGE

Every advertising medium requires special consideration in regards to how it will affect the way the consumer experiences its content. This theory, expressed in depth in the iconic 1964 book “The Medium is the Message” by media theory pioneer Marshall McLuhan, has without question stood the test of time. From newspaper print, to TV, to Twitter, the characteristics and constraints of each medium have and will continue to influence both the way advertisers craft their messages as well as the way audiences experience them. It was this very realization about the experiential element of the TV medium, combined with TV’s growing prevalence in the homes of Americans, and the media industry’s adoption of a new ratings currency enabling measurement of those messages, that brought consumers the glamorous, visceral, and experiential “Golden Age” of advertising we’ve now come to appreciate through shows such as AMC’s Mad Men.

The advertiser’s journey is complex and full of decisions from planning, to negotiation, to activation. Each of these decisions can be made with informed confidence when high caliber insights are available. This is especially true for linear TV advertising, which has been slow to adopt new measurement solutions for the quickly evolving landscape. This paper will provide the advertisers, planners, buyers, and investment teams of tomorrow with a holistic understanding of the revolutionary data processing technique known as commingling. This process improves measurement accuracy by integrating discrete TV viewership data from various linear sources into a single, comprehensive dataset. When executed with meticulous and prescriptive data science, commingled datasets can provide advertisers with campaign viewership insights of a quality never before realized. To grow or maintain their advantage in this competitive, fragmented marketplace, discerning advertisers will seek out technology partners who can provide commingled TV data for measurement purposes. By understanding both why commingling is important and how it works, advertisers can more effectively evaluate their data providers, and select a reliable partner whose data they can trust.



The Challenges of a Fragmented TV Landscape

"We can no longer accept billions of dollars of brand marketing investment every year transacting towards metrics like number of impressions or age/gender cohorts on legacy measurement methodologies. The days of zero accountability are over and it's time to make the necessary changes to measure, transact and optimize these investments towards tangible business outcomes that create real corporate value."

- Ross McCray, Co-Founder & CEO, VideoAmp



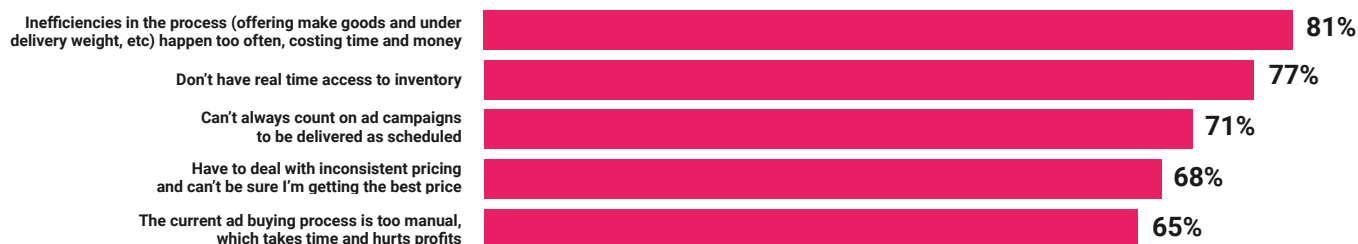
A Panel Problem:

Ratings Are Inadequate

The panel-based TV ratings system used by the industry is antiquated and unfit to fulfill the needs of today's advertisers. First launched over 60 years ago and designed to estimate the volume of viewers who watched one of four existing broadcast TV networks, ABC, NBC, CBS, and DMN, this ratings system relies on a survey conducted in a number of sample homes, that is then scaled to reflect the audience size relative to the US census. The key challenges with this panel-based system are that it cannot provide measurement insights that capture the fragmenting viewership habits across new sources of content, including broadcast, cable, OTT, and CTV. Additionally, the cadence of returned viewership data is too slow to provide the reporting speed required for advertisers to optimize TV campaigns in-flight, resulting in underperforming advertising and undesirable make goods. Lastly, and most importantly, the panel-based ratings system of yesteryear does not provide the audience attribute-level detail required for the advanced advertising tactics of today, and is limited to defining audiences by their age and gender.

These ratings challenges are compounded by the fact that not all viewers watch TV with the same consistency they did 60 years ago. As an illustration, if *Mad Men* had aired on a major network in 2020, there might be a host of different viewership possibilities. While a traditional ratings system might identify households who watched live on network primetime, what about users who streamed it from that network's OTT service? And of those streaming users, those who watched on their Smart TV's native app ecosystem would need to be measured differently than those who streamed it from an OTT device, such as an Apple TV onto their Smart TV. Commingling, while not yet fully solving for all use cases, is starting to help us make sense of this type of fragmentation.

Challenges of TV Ad Buying According to US Media Agencies, March 2018 (% of respondents)¹



1. "Average CPM for US Primetime TV Upfront Ads, Broadcast vs. Cable, 2008-2020." eMarketer, 8 August 2019.

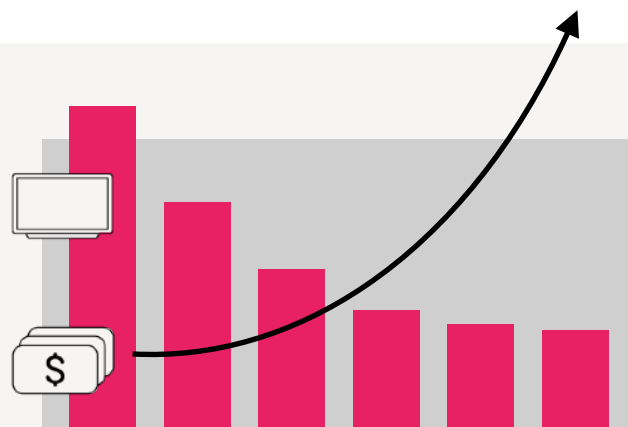


Traditional TV Is Scarce and Expensive...

And You're on the Hook

Another symptom of users diversifying their viewing habits to new channels and screens is that traditional linear TV inventory is continuing to increase in both scarcity and cost. Primetime advertisements have more than doubled in price for both Broadcast and Cable over the past decade, while the total volume of 18-49 year olds has decreased by nearly 59% over the last decade.² As such, planning and investment teams are continuing to be held to a higher burden of proof to defend their large TV ad budgets.

In VideoAmp's State of the Industry: Media Buyers and Sellers Convergence of TV and Digital report, 19% of executives (encompassing brands and agencies) listed this as their single largest focus, trailing shortly behind "solving issues leveraging data in better, smarter ways (22%) and identifying and engaging audiences more quickly, effectively, and accurately (30%). The traditional TV ratings and Gross Ratings Point-based currency systems of today do not accurately account for true reach and frequency of individual households or users, instead calculating these numbers as a value based on the entire audience. This significantly impairs the advertiser's ability to tactically address users within the optimal ranges of reach and frequency that are best suited for their products and services.



Looking at the average cost of primetime TV since the "Mad Men" era, it's clear the costs have continued to soar year after year, while the inventory has become increasingly scarce over the past decade. It is essential that advertisers work to derive the most value possible from every campaign choice. The ability to do so is formed firstly from quality, comprehensive measurement. Neither traditional gross ratings point systems nor single source Smart TV datasets provide the coverage required by advertisers to make truly informed and tactical decisions, campaign after campaign.

2. As Linear Ratings Continue to Slide, Buyers Say Those Viewers Will 'Never' Return to TV." Adweek, 27 September 2019.

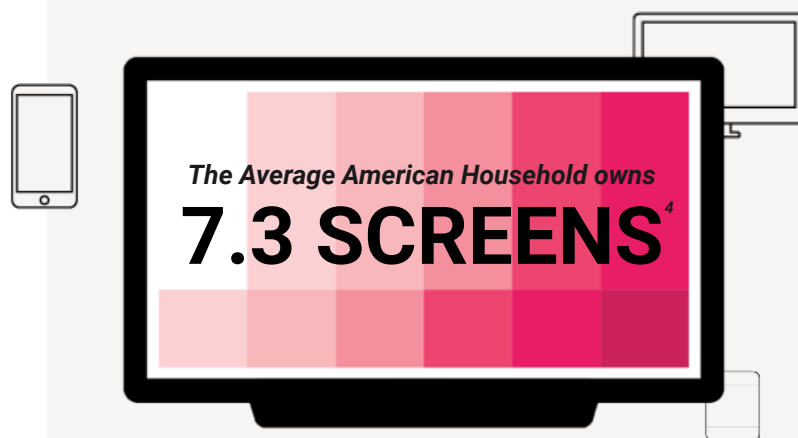


Audiences On all Screens

Advertisers of the past had the luxury of aligning their media efforts to a single screen; from planning, to creative development, to measurement, the consumer experience was optimized to the TV. In the present-day, nearly 15 years following the first video posted to YouTube, and the beginning of multi-screen viewing, advertisers are still grappling with the challenges posed by the growing number of distribution channels and viewing opportunities. The average US home today has more than 7 screens.³ With a plethora of available options for consumers including streaming services, cable boxes, satellite systems, traditional broadcast, and time-shifting recorder viewing systems, the methodology required to accurately measure TV viewership must not only grow in coverage, but in sophistication. Simply knowing “what” is playing on any given screen is no longer adequate, advertisers must also know “who” is sitting in front of that screen, and whether that user is using other screens as well.

Advertisers utilizing a single source or panel to measure the performance of their media will likely find they are missing key insights, trends, and details required to make confident decisions. Any single data source will have its own inherent blind spots and weak areas in specific content channels, which can result in an inaccurate representation of the entire content field. As advertisers continue to inform their media decisions with skewed data from a single source, the effect can be compounded each campaign, resulting in significant over-spending or potential ROI loss in a specific channel or demographic.

The consumer’s diversification of viewing habits has also created additional problems for advertisers in the form of cross-screen user identification. If advertisers are using multiple sources of data across various channels, but are not effectively combining and deduplicating them through a privacy-compliant identity-match system, then they will likely be measuring multiple instances of exposure for any given user or household, resulting in messages that reach the wrong people, and overall increases in wasteful spending.



3. “Average U.S. Household Now Has 7 Screens, Report Finds.” *ReportLinker*, 31 May 2017.

4. “Portable Devices: When You Give a Kid a Tablet, He’ll Ask For More Time.” *Reportlinker Insight*, 11 May 2017.



The Fallacy Of Device Numbers

One of the most frequently asked questions by advertisers who are shopping for TV viewership data is “How big is the footprint?” or, “How many devices / households/users are included?” Unfortunately, the answer to this question does not truly demonstrate the validity or accuracy of a particular measurement source. Consider the incumbent industry-standard ratings system that relies upon a person panel several magnitudes smaller than the device count of the leading STB or ACR data sources. Following this thread that “bigger is better” would be suggesting that the past 70 years of measurement has been wildly inaccurate. This is simply not the case, and reminds us that datasets must be evaluated with more scrutiny than simply considering their size.

It is without question that the in-home person panels of yesteryear provide a tremendous value to advertisers looking to measure broad demographics of viewership such as age and gender, but when today’s advertisers seek a deeper understanding of their audiences with new data sources, they need to be wary of how the quality of these data sets are touted.

The actual numbers provided by any particular data source typically come with several different values, each with their own caveats, that must be examined in detail by the buyer. Advertisers can use the following table to better evaluate the footprint size of TV viewership data sources.

How To Read ACR and STB TV Data Supplier Numbers

Top-Line Devices Number

The device numbers touted by data suppliers and measurement partners. Typically, they are the best case scenario that includes every device that has ever been built and deployed regardless of whether the device is currently active. As a result, these numbers are not relevant to assessing the size of a panel.

Monthly Active Devices

All active, identifiable devices with viewership detected in the last 30 days. This is a more accurate representation of the panel size, although typically there are still more devices to be filtered due to a lack of match against the identity data.

Usable Households

The number of 30-day TVs with an accurate household-level matched, rendering these TVs capable of being modeled into a national panel. This stage drops the number of usable households with viewership data significantly, and is in fact the actual number brought into the commingling process.



Better Together: The Power of Commingled Data

"With commingled viewership data, our customers get a more complete and comprehensive view of their campaign delivery and performance; If every individual TV data source were a paint color, the commingled dataset is a complete painting with enhanced color correction."

- Hari Sankar, EVP Product, VideoAmp



All Data Is Not Equal, but...

We Can Pick Favorites

Advertisers using a single source of TV viewership data may be leaving money on the table by nature of not having access to a complete picture of their media performance. Each dataset will inherently contain its own benefits and drawbacks. This presents several issues for advertisers who are using this data to make tactical decisions about their TV campaigns, most of which can be inferred by simply examining the characteristics of the data sources themselves.

ACR and Set-Top-Box Data Comparison

ACR

STB

PROS

- Fast delivery. Data is delivered hourly for the past 2-4 hours of viewing.
- Wide geographic reach. All 210 DMAs.
- Supports fingerprinted ads for fast detection.

- Complete household viewership.
- Better identity match rates.
- More accurate program and channel identification than ACR.
- SD and HD viewership captured.

CONS

- Incomplete household viewership.
- Demographic skews.
- Some ACR suppliers can only detect HD viewership.
- Lower identity match rates than MVPD.

- Longer lead time to deliver data. Full viewership footprint can take up to 8 days.
- Does not support fingerprinted ads.
- Phantom viewership due to leaving Set-Top-Boxes on after people stop viewing.

Commingling enables advertisers to account for the pitfalls of any individual data source through cross-validation with other available data sources.



Raw Data Brings

Real Problems

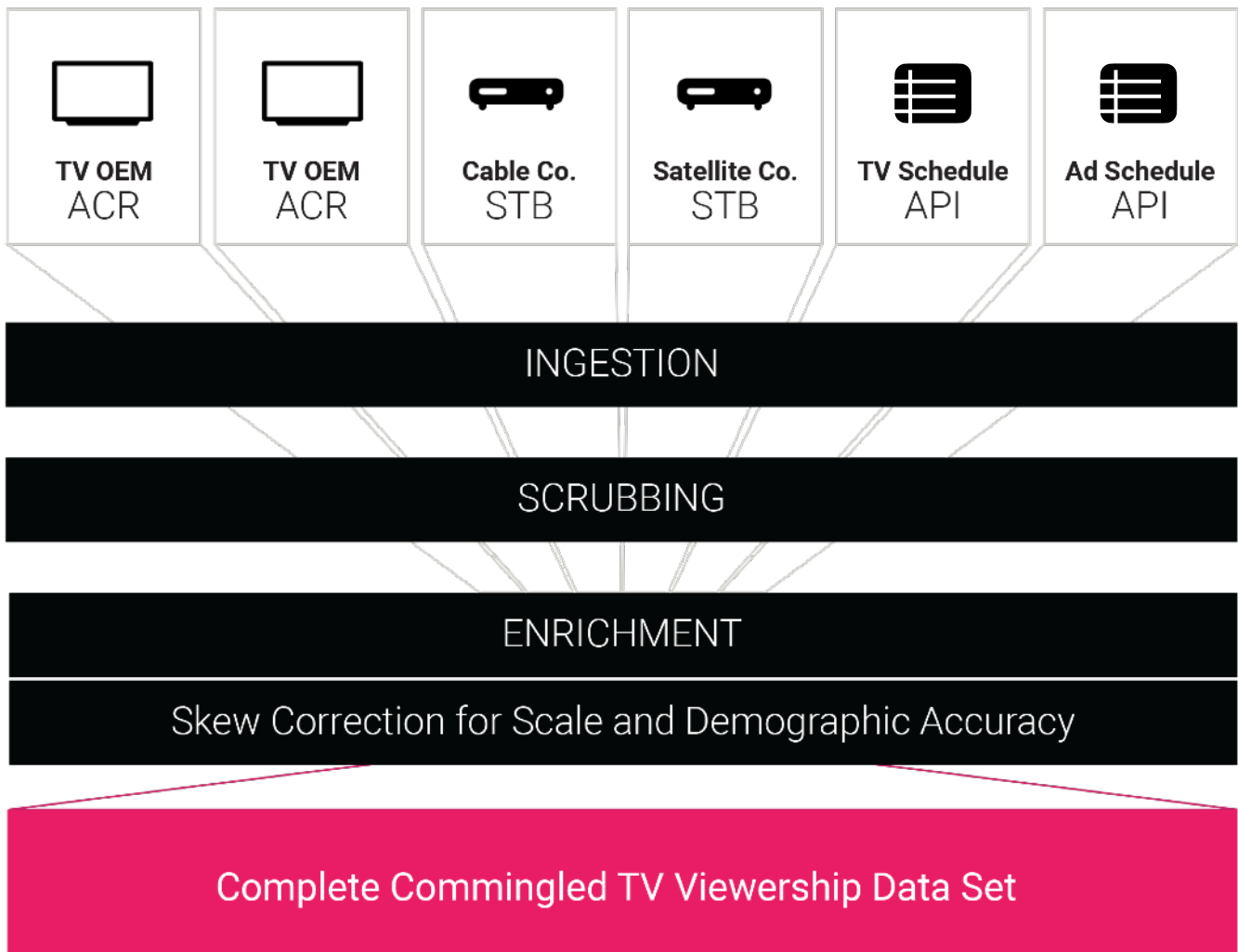
Acquiring access to a particular TV data supplier may be time consuming and expensive, but access alone does not make a measurement system great. All TV viewership data sets require extensive cleansing and cleaning, and advertisers should always confirm that their measurement technology partners are taking the following issues into account in their processing to ensure accurate viewership data. The following table demonstrates just a handful of some of the issues presented by raw ACR and STB viewership data sources that often go uncorrected.

Demographic Scale Issues	Every raw data source, whether a Smart TV manufacturer's ACR dataset, or a cable company's Set-Top-Box dataset, will have natural demographic skews that must be corrected. Some TV manufacturers may skew to men or women of a certain age, while some cable companies may serve higher-income areas of the US. As such, it is essential that every data source receives its own weighted modeling process for correction.
Call Sign Issues	Certain ACR providers may, by default, incorrectly attribute broadcast affiliate viewership that falls outside of the top 50 geographic markets to New York.
Dual-Feed Channels	Some cable channels support dual feed distribution for the East and West Coast, and some ACR providers will incorrectly report all viewership from both as from the main East Coast feed.
Invalid IDs	There are many issues that can cause invalid tv_ids in the viewership data. Some examples include manufacturer issues, or unstable device geographic information that disqualifies them from the reporting.
Simulcast Problems	This issue occurs when programs are simulcast on multiple channels at the same time. In this case, the ACR technology will recognize the video file, but cannot assign it to a specific channel. This most commonly affects sports which are broadcasted on affiliate networks, and the results must be properly filtered.
Fingerprint Retention by Time Slot	Positive ACR recognitions are only stored in the partner's database for a limited time. The window can actually vary depending on the channel, program, and the time of day. These windows can vastly alter the accuracy of the data for DVR session reporting, as well as look-back windows for specific content.
Monitored Channels	Among data suppliers, there can be wide ranging coverage of channels, many of which are/are not covered in both Standard and High Definition, resulting in incomplete collection, which must be accounted for.
Content Recognitions	Typically Cable and Broadcast content is recognized at a higher rate than OTT or DVR content, partially due to some legal restrictions regarding fingerprinting.
Null Sessions	Null sessions caused by unmonitored content, obstruction of the screen content by the program guide, or by the user playing video games, must be investigated and analyzed for possible use or scrubbing.
Low Match Rates	As ACR data is matched to identity via IP address, the match rates tend to be lower than comparable MVPD match rates based on the name and address. This lower match rate reduces the number of usable ACR households in the commingled panel.
Phantom Viewing	MVPD providers report viewership any time the set-top-box is turned on, even if the TV is turned off. These sessions are called phantom viewing, and other data sources in the commingling panel must be used to correct this issue.
User Churn	User churn is the process by which old devices drop from a panel and new devices are added to a panel. Churn is an essential number to correct for as a part of the user identity matching process.



Commingle: How It Works

The goal of the commingling process is to take multiple raw, disparate sets of viewership, schedule, and metadata, some of which may contain conflicting or overlapping information, and combine them to make one concise, accurate, holistic view that answers “who is watching what, and when and where are they watching it?” While the process itself seems simple enough, each step involves complex data science algorithms, processes, and programs, in order to execute these tasks at the scale and accuracy required. The commingling process can be summarized in three phases: **Ingestion, Scrubbing, and Enrichment.**



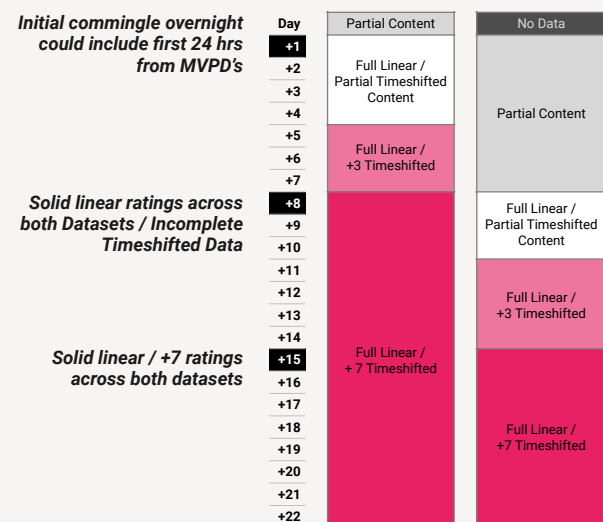


Commingling: How It Works

Ingestion

Properly receiving and storing TV viewership data is an essential first step of commingling to ensure both data and privacy integrity. Any raw data that includes PII (personally identifiable information) is first directed into an intermediary cleanroom environment for hashing. All files and included viewing sessions are assembled into daily records tables. Then, most importantly, the first round of deduplication needs to be completed, checking for uniqueness in each record for Device ID, Call Sign, Session Start and Sessions End.

Corrections are then made to account for variable delay times in each individual data source -- some Smart TV data is delayed by 24 hours, but some schedule or cost data may come at a 14-day delay. Additionally, any overlapping sessions, in which two viewership sessions overlap in time on a single device across one or more channels, are also accounted for and corrected during the ingestion phase.



An example of the data delays from various raw data sources. These must be corrected in order to start cross-referencing the data.

Cleansing

Once the data has been ingested, it is essential to the commingling process that the data is properly scrubbed and cleansed of additional inaccuracies. This process will continue to reduce the number of total viewership sessions, but will increase the overall accuracy of the information. These steps include:

- **Generation of a Multi-Supplier Station Map.** This resolves the challenge presented when individual data suppliers reference TV stations and networks with inconsistent names and acronyms.
- **Removing Unstable Device IDs.** Some devices in the raw datasets are listed with multiple geographic locations, and this must be corrected.
- **Time-Shifted vs Live Viewership.** This correction is the process of recognizing the time frame in which households consumed specific content and updating the dataset for accuracy.
- **Duplicate TV_ID Removal.** Based on the TV Manufacturer's error. One of the key challenges with raw Smart TV datasets is that they frequently contain TV ID errors due to manufacturing inconsistencies. If these are not accounted for, the attribution of viewership will not be accurate.
- **Further Call Sign Repair.** Due to location inconsistencies. Normalize and then attribute it to the correct location.
- **Geographic Device Normalization.** The geographic markets assigned to particular device can sometimes conflict with its assigned zip code. Often times the reason for this is unclear, and these devices sometimes must be stripped from the data.
- **User Privacy Opt-Out Processing** (for post-data received opt-outs).

There are several other processes required to ensure only the cleanest data possible makes it to the next step. Each of these processes requires frequent updates and monitoring for improved accuracy.



Commingling: How It Works

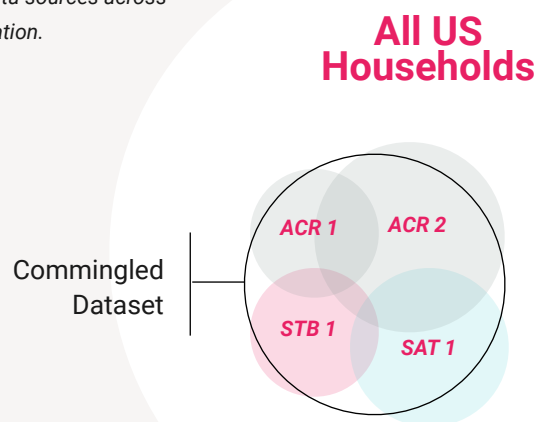
Enrichment

Following the ingestion and scrubbing processes, the real commingling can actually begin during the enrichment process. Enrichment is the process of utilizing individual datasets to enhance the accuracy and completeness of all the other datasets. This results in a more comprehensive viewership outlook of a specific content or creative set.

The core enrichment processes include the following:

- **Device to Household Conversion.** Map device-level data to household-level via privacy-compliant third-party identity matching services. This is especially important considering the high number of devices per household.
- **Enriching ACR Viewership** with Program Guide Data (PGD).
- **Enriching MVPD Viewership** with PGD.
- **Census-based modeling** for accurately scaling the viewership datasets to the size of the US population.
- **Demographic Skew Correction Using Continuously Updating Household Weights.** It is important to note that no single dataset comes from a pool of households that is exactly representative of the demographic makeup of the US. Any single manufacturer of Smart TVs may skew towards a specific demographic, income, age, or gender. As such, it is essential that these demographic models are updated and applied to the data every quarter at a minimum, but ideally more frequently.

Visualizing the complexity, availability, and overlap of viewership data sources across the US population.



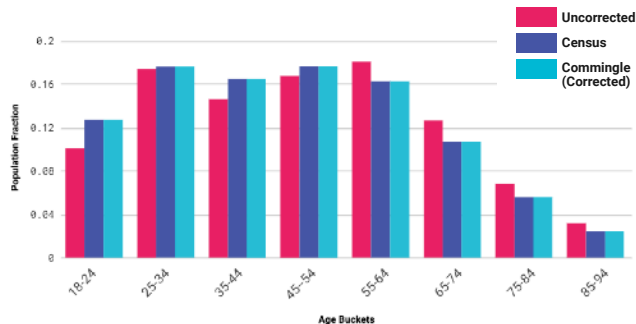


Commingling: How It Works

Raw vs. Skew Corrected Datasets

The graphs below provide a look at the disparities of age, income and viewership performance of the raw datasets, compared to the skew corrected datasets. Following these corrections, additional metadata sources may also be required to further enrich the viewership data for accuracy, including data from third party user identity matching services, TV schedules, and any auxiliary data sources from other MVPD or ACR providers that may not be included in the core data sources.

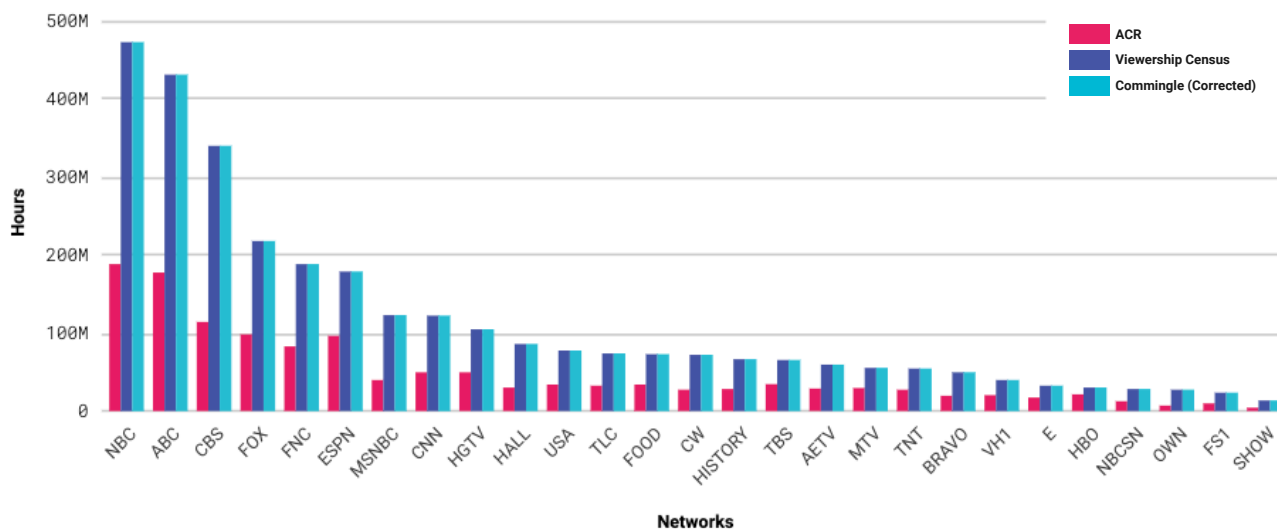
Age Distribution



Income Distribution



Viewership Skew Correction





Beyond Measurement

"Most brand advertising is optimized to deliver against broad based age and gender so there is a huge opportunity for greater media efficiency. You can't optimize to audiences or outcomes you can't measure. Our commingled TV data gives advertisers the granularity they need to go beyond age and gender with the quality and consistency of currency-grade data so they can trust they are making the right decisions."

- Michael Parkes, CRO VideoAmp



The Future Is Commingled

The Advertiser's Increasing Need for Currency-Grade Data

Today's advertisers are working harder than ever to transact linear media at a higher standard of excellence by planning against more granular, advanced audiences, buying them at scale, and then measuring their performance against specific business objectives. To achieve this level of precision, advertisers must leverage currency-grade data, processed for quality, at the core of which lies a tried and tested commingling methodology.

Commingling data is no small feat, and it requires a significant investment in both data processing energy and expertise. As such, it's imperative to examine what makes commingled data so valuable to advertisers both today and into the future. Advertisers leveraging resold, raw data sets from ACR and STB providers are not getting a comprehensive view of their audiences or the performance achievement of their media expenditures. When advertisers make decisions based on this incomplete data, the effect can be compounded and result in further inefficiencies and waste. Advertisers need increasingly reliable and trustworthy measurement solutions to form the foundations of their media investment activities. From planning, to activation, to negotiation, to attribution, advertisers who leverage commingled datasets will find themselves outpacing the competition in every area of business.

Commingling for Planning

Planning a high-performance cross-screen campaign requires the ability to identify the optimal inventory to reach your target audience with pinpoint accuracy and confidence. Your target audience is experiencing content across all screens fluidly and with less and less differentiation each day. Using a commingled TV dataset as the linear core of your cross-screen measurement solution as you plan your next campaign not only ensures that you are seeing the complete, deduplicated landscape of your target audience's viewership, but that you are able to target more granularly across all screens using advanced audience attributes.

Commingling for In-Flight TV Optimization

Linear TV remains a behemoth in the world of content advertising, but high costs and large budgets can also mean traditional TV has remained slow to evolve. One of the greatest challenges of buying linear TV is the lack of real-time advanced audience performance data. When advertisers cannot get fast-twitch insights into how their TV media is performing, they end up waiting for post-campaign reports to validate their purchases, ultimately resulting in utilizing make goods to correct for weak performance. Commingled data is the only way to solve both of these challenges, as speed can be achieved from data sources such as ACR, while additional performance accuracy can be provided by STB and schedule data.



The Future Is Commingled

Commingling for Negotiation

The growth of new walled-garden content providers in the OTT space has provided an entirely new set of challenges for content creators. The lack of transparent viewership reporting by streaming services continues to place networks and content owners at a great disadvantage when selling or renewing content streaming permissions to these services. While some walled-garden content cannot be measured via Smart TV OEM software systems due to legal restrictions, commingled ACR measurement of content displayed via HDMI or other connected STB systems can provide additional clarity to content owners who continuously find themselves negotiating blind.

Commingling for Attribution

Perhaps one of the most appropriate use cases for commingled data lies in its ability to streamline the multi-touch attribution process. Accurate attribution analysis requires large-scale joining of event-level viewership data; a significant limitation of traditional person-based measurement panels that do not have the scale required to achieve high match rates with other data sources. The act of commingling in and of itself links and cross-validates the viewership and exposure data of multiple sources, providing a large, high quality foundation layer for analyzing the various user touch-points. Attribution in the fragmented world of television is certainly not without its challenges, as advertisers are limited to attributing to the household level. This creates all the more reason for ensuring that the linear TV viewership is precise and highly mappable to conversion data. Many technology providers in the industry perform attribution at the spot-level, comparing incomplete datasets against each other. This is not a quality substitute for event-level attribution offered by technology vendors who can truly commingle linear TV data.



About VideoAmp

VideoAmp is a software and data company creating a more sophisticated data-driven advertising ecosystem that redefines how media is valued, bought and sold.

The VideoAmp platform provides measurement and optimization tools that unify audiences across the disparate systems of traditional TV, streaming video and digital media. Unlocking new value for those currently operating within a siloed view of their audiences, VideoAmp creates efficiencies for the entire industry.

VideoAmp is transforming a 100-year old industry by powering a more effective three-way value exchange that results in advertisers increasing their return on investment, publishers increasing their revenues and improving the viewing experience for consumers.

VideoAmp is headquartered in Los Angeles with offices across the United States. To learn more, visit [VideoAmp.com](https://www.VideoAmp.com)