The RampID Journey:
A Decade of Post-Cookie Data Connectivity

/LiveRamp

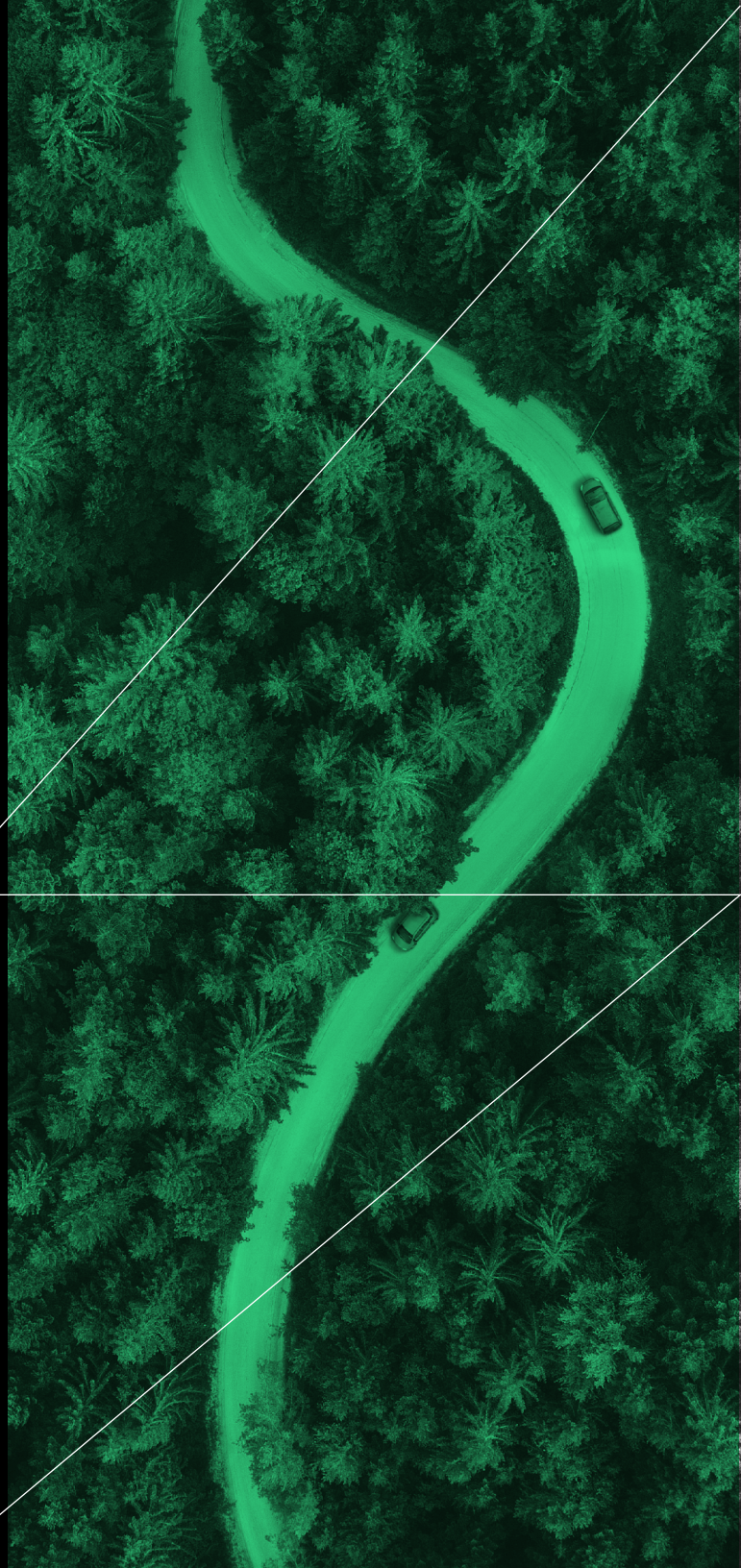


Table of Contents

Table of Contents

Table of Contents

Hindsight may not be 20/20 after all.

In the face of data deprecation and the stark reality that marketers will eventually (or finally) lose access to cookies, many have forgotten the myriad problems third-party cookies posed since becoming a dominant force on the internet decades ago. Cookies always raised a triumvirate of concerns: lack of consumer consent, device addressability, and poor durability.

Years before the browser changes, Apple's ATT, and Europe's GDPR regulations, a group of data engineers took it upon themselves to develop a new kind of online identifier—one that would remove PII associations, respect the privacy of individuals, and ensure that brands could prevent damaging hard-earned consumer trust because of a data breach.

This is the story of RampID.

Adopting privacy-by-design.

As a result of an acquisition in 2014, LiveRamp gained access to the same knowledge and teams who had pioneered privacy-by-design development practices, meaning that privacy was the essential core of every decision and process. In fact, Acxiom was the first corporation to establish the role of Chief Privacy Officer in the United States, and their heritage in safe and secure data management was critical to LiveRamp's evolution.

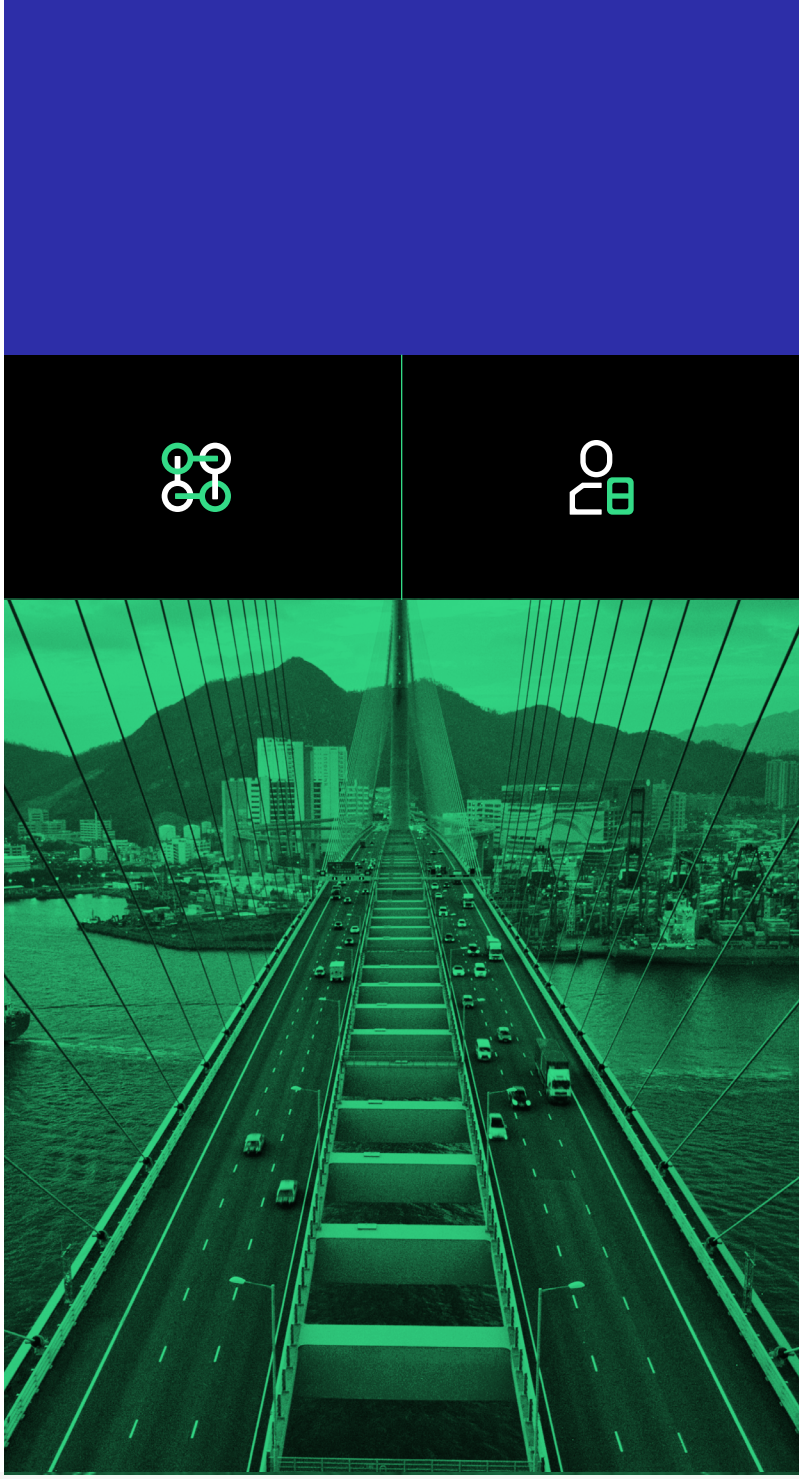
LiveRamp's engineering teams quickly evaluated different approaches to take the company's newly combined assets to a whole new level, with consumer privacy specialists involved in engineering and design reviews from the earliest stages to ensure that legal compliance with current and upcoming regulations was baked into our solutions.

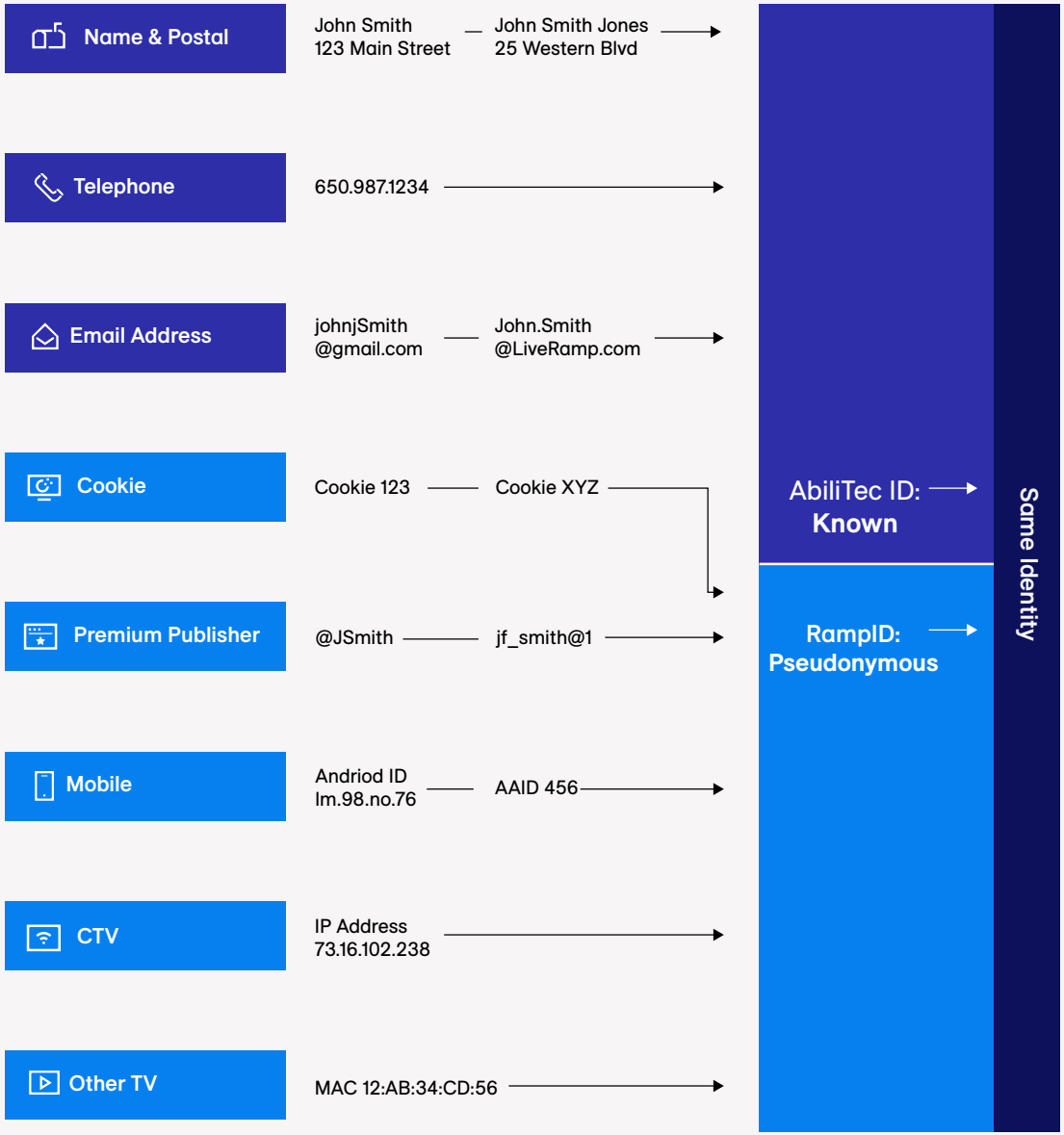
> It all began with Acxiom's offline consumer identity technology. AbiliTec had literally decades of success helping brands better communicate with their customers, and would provide strong lessons to build RampID upon.

AbiliTec: the offline identifier.

One of the key problems brands faced was how to personalize customer engagement while reducing wasted advertising expenses. Years before the dominance of digital channels, advertising optimization had a large focus on reducing the expense of unwanted or duplicated glossy printed product catalogs and mailers. The market was at a breaking point, and both brands and consumers were getting more and more frustrated due to the increase in junk mail.

The AbiliTec identifier solved this through the creation of an offline identity graph, or simply put, a large database of sourced, cleansed, and merged demographic information such as a person's name, address, and phone number. If you have fragmented data about a person, you can match what you have against that graph and know that the fragments that uniquely match any given row in the graph should be associated with a single person.





The next step was to complement AbiliTec with a new online-oriented data graph. While AbiliTec would remain focused on returning an offline identifier that could sit next to customer PII, RampID would process device identifiers such as cookies and mobile advertising IDs, along with available PII, to return a digitally appropriate online identity.

One key decision was to make sure our online identity respected the privacy of individuals by removing PII associations when returning RampIDs. This now-standard pseudonymized approach allowed data consolidation, enrichment, and targeting without exposing or sharing a customer's private information. This was a prescient decision that separated RampID from lax cookie handling and provided strong alignment with future consumer data regulations.

RampID: the online identifier.

Composed of RampIDs, our new digital online identity graph also had clear principles to guide its development and incorporated all the critical learnings from its offline predecessor created with AbiliTec.

Deterministic, person-based identity

Creating longitudinal identity graphs of device identifiers would be useless if we accidentally consolidated bots instead of people. RampID graph validation logic uses AbiliTec along with advanced signal processing to grade the likelihood of data associations being person-based.

Internal identity nodes within the RampID graph can be distinguished as being maintained if they are strongly proven to be associated with actual people—otherwise they are marked as derived if there is not sufficient confirmation. Brand clients can restrict themselves to using maintained RampIDs for the highest accuracy, or they can incorporate some level of derived IDs or lookalikes to increase reach.

This reliable person basis creates a strong foundation for cross-channel measurement and consistent omnichannel activation, and LiveRamp workflows are constantly evolving device processing to prevent errors from over- or under-consolidating these signals to maintain identifier stability over time. This stability applies not just at the individual level, but also at the household, location, and business levels of identity that RampID has grown to include.

Data protection through transcoding

To ensure RampIDs wouldn't be at risk if a brand suffered a data breach, we made sure that RampIDs were durable but brand isolated. Each client would receive RampIDs that were irreversibly salted with brand-specific keys. This provided the ability to regenerate a new set of RampIDs for an impacted brand, and also blocked risks of data loss that could occur if one brand recognized another brand's customers through collaborating in shared ID spaces.

With these privacy-driven brand domains, permitted brands and publishers could use LiveRamp-created mapping functions to reach shared consumers, but the RampIDs of non-shared consumers would be unintelligible as they would not be present across both domains. This approach for recognizing shared customers across brands more generally supports arbitrary partner-to-partner permissioned data collaborations, and is a core component for our clean room support today.

Durability

Our focus on a durable identifier that would be stable in the face of a changing set of device signals directly addressed the problem of cookie variability and time outs. Unlike cookies, RampIDs would be based on longitudinal multi-signal data analysis, and we realized one more additional benefit that would align RampID with future global data privacy requirements: consistent consumer preference tracking.

If a consumer wants to opt out of brand messaging, that must be respected and honored in a durable manner—even if a brand rebuilds their customer databases, new agencies are brought in, or there is turnover in their media team.

RampID's durable person-basis naturally supports consistent consumer opt-outs and preference choices, and brands are notified of changes in preference for those customers as we consistently make updates within the RampID graph itself. RampID durability directly supports brands' need to stay on top of consumer preferences and the choices they make.

The hashed email comparison.

Hashed emails (HEMs) are a popular approach for limited media activation, but we advise our customers to avoid them due to their many weaknesses:

Fragile matching:

HEMs require both parties to not only have the same individual email address, but that address must be stored in the same syntax for HEMs to join. For instance, JohnJones@google.com is the same address but will not match johnjones@google.com. This difference in storage format cannot be controlled by brand processes, nor can brands control which of a consumer's multiple email addresses have been shared.

HEMs also can't match against other common PII such as name and postal (NAP) information, or against digital device identifiers used to recognize visitors and prospects.

This match weakness is exacerbated in programmatic bid streams, where each call from brand to DSP to SSP to publisher will go through this same probabilistic match test and cause drop-off in audience reach.

RampIDs have no programmatic drop-off, can match against multiple email addresses regardless of storage format, and also match against NAP and digital identifiers, maximizing reach for both customers and prospects.

The hashed email comparison.

Poor privacy protection:

HEMs are directly derived from PII and cannot be changed to recover from a data breach as they are directly tied to a customer's email, risking brand data responsibility if reused. HEMs are also easily reversible through readily accessible web services, risking direct exposure of customer PII.

Risk of universal tracking:

HEMs are a universal identifier, as the same HEM is sent by brands to all activation endpoints. This allows tracking of individuals across the digital ecosystem, which is a regulatory concern.

Weakened measurement:

Analytic accuracy is strengthened by using durable, omnichannel person-based identifiers that are stable even when the consumer updates their PII. Unlike RampIDs, HEMs change when a customer's email changes, and HEMs don't resolve to single individuals across channels, harming long-term incrementality measurement for attribution or building training data for machine learning.

Hashed Email Matching (HEM)

To learn more about the differences between matching on hashed emails and pseudonymous IDs like RampID, watch this **brief video**:

Beyond match rates, RampIDs offer powerful capabilities.

Advertising		Utility		Privacy	
HEM	**RampID**	**HEM**	**RampID**	**HEM**	**RampID**
———	Lossless programmatic bid stream	———	Handles known customers and unknown visitors	———	Protects PII [HEMs easily cracked today at datazapp.com, hashes.com, ...]
———	Enables addressable TV	———	Supports person, household, and place	———	Supports consumer preferences [SARs, opt-outs]
———	Direct and private marketplace publisher buys	———	Consistent cross-channel identity for measurement	———	Avoids universal tracking risk for consumers
Walled garden activation and measurement	Walled garden activation and measurement	———	Stable and durable for measurement incrementality and machine learning	———	Compliant with GDPR+SOC2+HIPAA

RampID: Powering the Ecosystem

/LiveRamp

Connected identity online and offline.

Our offline identifier, AbiliTec, remains LiveRamp's core technology for directly consolidating first-party data, preserving PII, and enriching it with needed third-party audience attributes from leading data providers to complete the customer record.

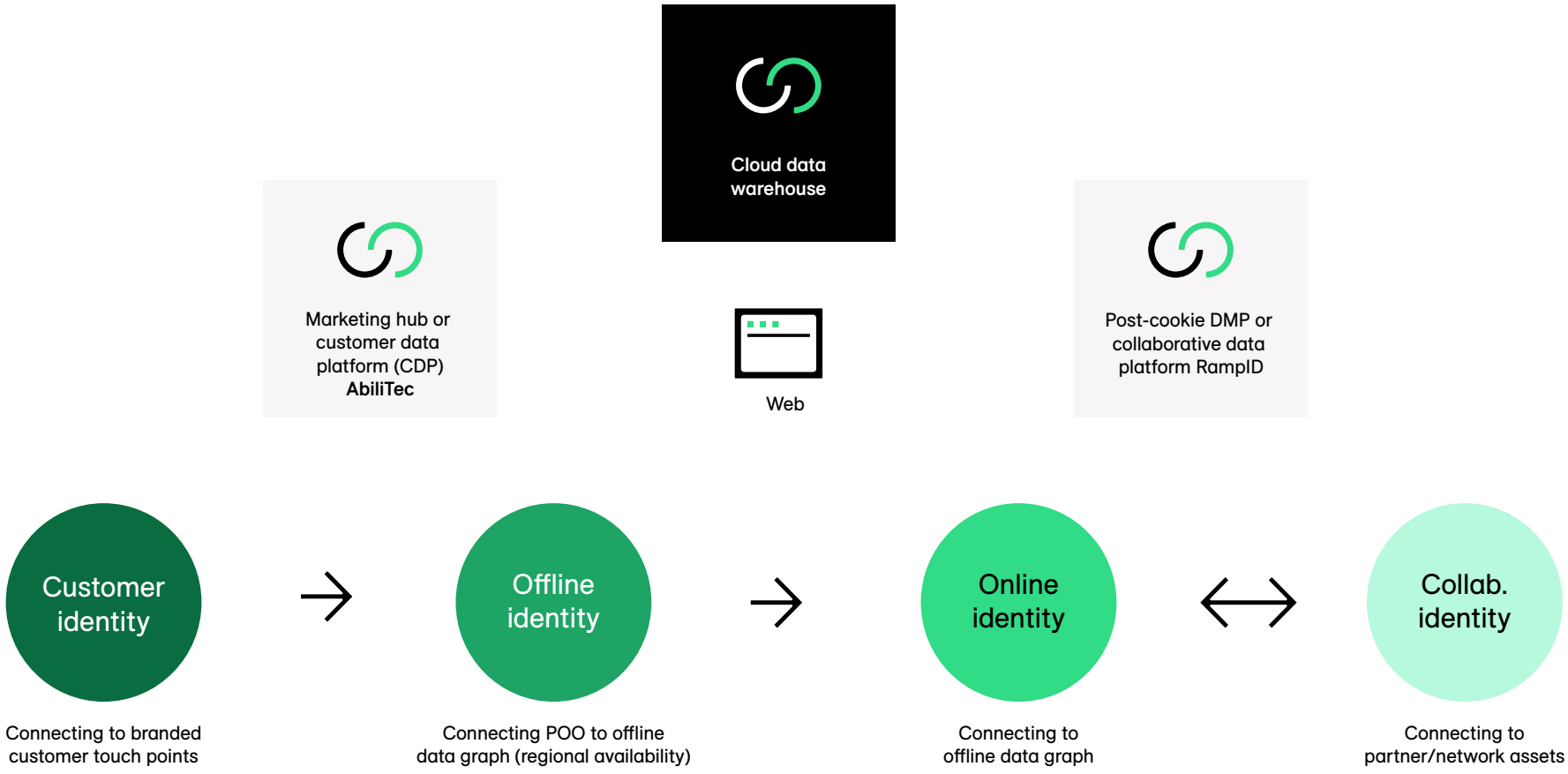
AbiliTec translates to online RampID identity with near lossless precision, providing a strong connection for online identity use cases. Today, RampID lies at the heart of an integrated identity framework connecting offline and online use cases.

RampID itself lives within a pseudonymized view of the customer, ideal for maximizing customer reach for online media. RampID can process online digital identifiers independently of AbiliTec, and is a powerful key for unifying media analytics due to deep publisher measurement support and with the benefit of removing risks of PII exposure during data ops and modeling activities.

RampID's partner activation network is unsurpassed in the industry, giving greater reach than cookies or hashed emails, and fully integrated with all the leading publishers, DSPs, SSPs, and tech platform and measurement providers. Throughout our network, RampID partner translations and transcoding are lossless and highly efficient, fully supporting real-time bid streams.

Connected identity framework.

LiveRamp has solutions to assist with many types of identity, including resolution at the individual, household,and business levels, and ecosystem transportability and interoperability.



Lessons (and challenges) of identity.

AbiliTec was built with the idea that identity was a process, not a snapshot.

Knowledge should also be longitudinal—AbiliTec did not just have demographic information, it incorporated changes to this demographic information over time, such as name changes from marriage, address updates from apartment moves, and phone additions as new lines were installed.

This provided a deep context for unifying brand customer data, as older data and newer data could still be correctly associated with the same individual, even if the data values were different.

AbiliTec was also expertly sourced from public records and data license holders. These sources are audited for ever-evolving regulatory compliance, accuracy, schema changes, and even changes in attribute semantics.

In other words, AbiliTec was never static, but rather a continuous growing artifact from an ongoing data management process that required oversight, correction, interpretation, and optimization. Automation was essential, but so too was the staffing of data analysts and pipeline builders who could update and maintain this knowledge base that is used today in so many new and different ways.

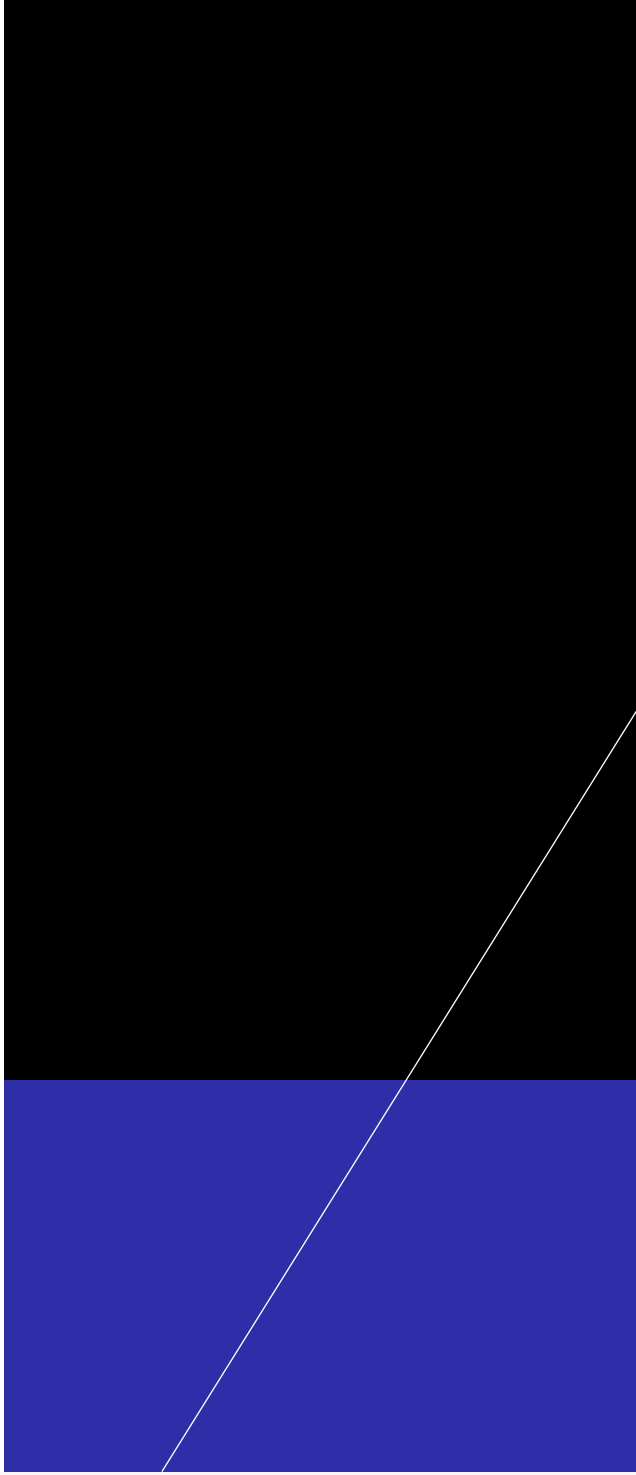
RampID: Enabling authenticated audiences, evolving TV currencies, and more.

RampID development also produced our **Authenticated Traffic Solution** (ATS) for publishers, tech platforms, and brands. By tying RampID creation to a brand's customer authentication, RampID is not just **deterministic** and durable, but also elevates consumer addressability with authenticated and permissioned access.

To serve the increasingly fragmented TV landscape, RampID can support individual, household, location, and business-level identity, alongside CTV ID resolution and other online identifiers. This flexibility and accuracy has been key for supporting TV and connected TV use cases, and is a foundation for Data Plus Math, ___, and for our solution partnerships with **Ampersand**, **VideoAmp**, **TruthSet**, and many more.

Finally, RampID domain transcoding is the basis for our data collaboration solutions that provide highly accurate partner matches without sharing or exposing customer PII. Our Safe Haven packaged solution powers **Carrefour's global retail media network rollout**, and many brands are building public and private collaborations to increase supply chain visibility and optimize customer journey experiences.

With added **HIPAA compliance** and financial services and insurance support (LiveRamp works with five out of the top six financial services providers and five out of the top eight insurers), there are few industries that don't benefit from RampID services and the insights that safe partner collaboration can bring.



Powering platforms and publishers.

LiveRamp's **vast ecosystem**, built over the last decade, is unparalleled in the industry. Since RampID was designed as the interoperable infrastructure for everyone, it is used to transact with all major digital platforms and almost every top publisher, and is available on more than 75% of the Comscore 50 and over 11,000 open web domains. This means that RampID offers more reach than any other addressability solution available today.

Authenticated Addressability

"In the first test alone, LiveRamp's Authenticated Traffic Solution delivered a 4% increase in video completion rate on top of 40% more efficient cost metrics when compared to the cookie. These results are invaluable as we continue growing our first-party relationship with consumers across more touchpoints, and reinvest the savings to increase our reach."

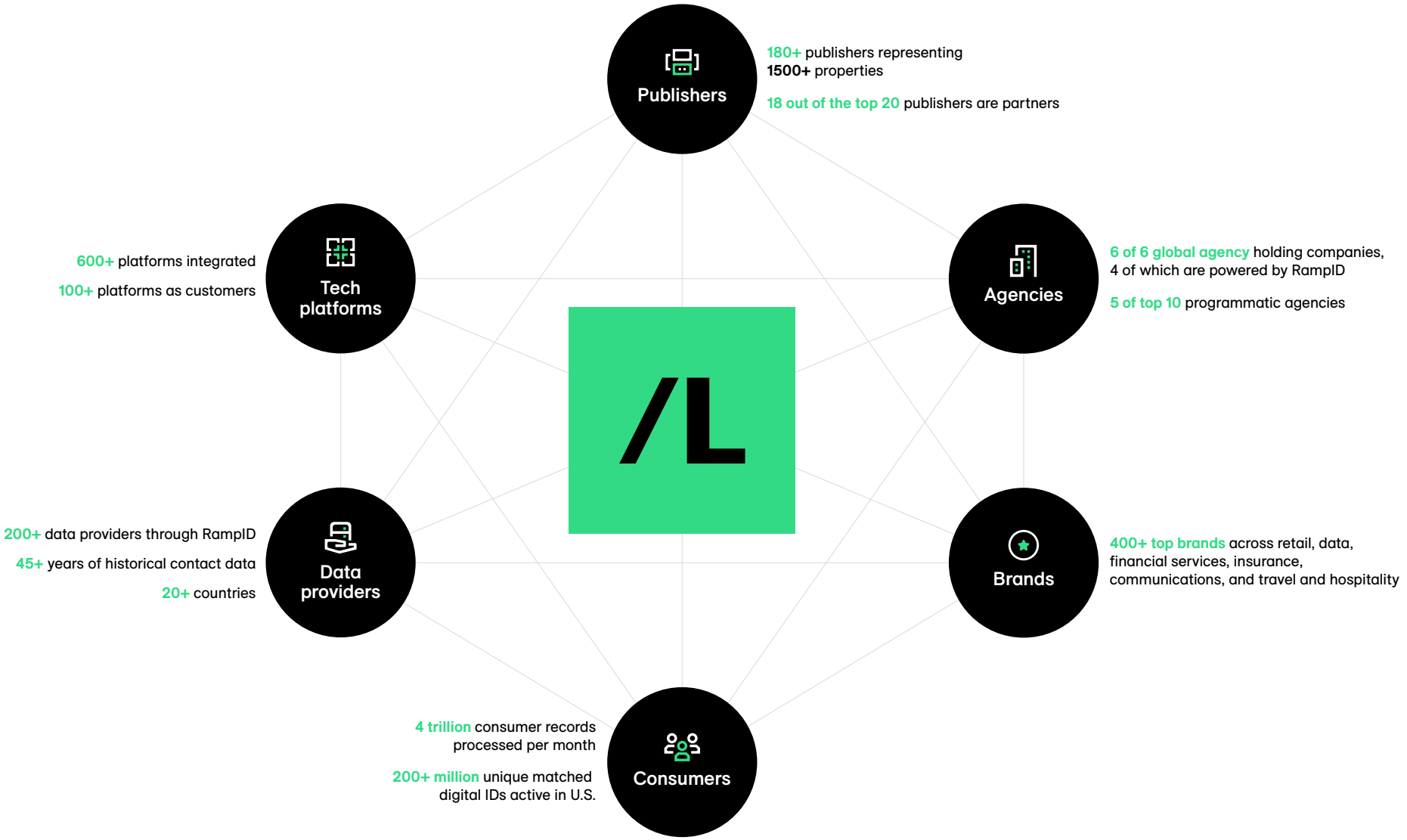
—Senior Executive at Danone

/LiveRamp | DANONE

4%
Increase in video completion rate

40%
More efficient cost metrics when compared to the cookie

LiveRamp's partner network is unrivaled.



Our global reach.

In regions where use of public demographic data is restricted, our internal AbiliTec data analysis and identity graph creation tools can be licensed to brands with large customer reach. These regional partners can then create and license locale-specific spines to serve as a basis for validating and managing offline identity.

With the strongest security and controls at its foundation, RampID is the only identifier that meets a truly global standard. Authenticated, consented, and encrypted, it allows addressable campaigns to run regionally across North America, the EU, UK, LATAM, and APAC, as well as globally.

RampID: Supporting Clouds, Clean Rooms and CDPs

/LiveRamp

Supporting best-of-breed technologies.

With the decline of third-party cookies and the rise of public cloud infrastructure, many clients are rethinking how to organize and unlock their customer knowledge.

More and more client conversations today are focused on how to best utilize cloud partners, clean rooms, or CDPs, and the question of how brands can use RampID to increase data safety and value within their new infrastructure projects.

Cloud embedded solutions.

While some clients prefer managed services and hands-off workflows, we are seeing many clients moving to incorporate LiveRamp's embedded self-serve solutions that are designed to be easily integrated and bring “identity-on-demand” capabilities to custom tech stacks.

Our foundational RampID services are connected to all public clouds today, including our services for offline identity resolution, online identity resolution, data transcoding for partner collaboration and analytics, data enrichment from our many leading data providers, and data activation.

A selection of cloud partnership news:

Google Cloud Platform	**Snowflake**
LiveRamp embedded and hosted solutions available on Google Cloud Marketplace	LiveRamp Identity technologies are available for Snowflake Media Cloud, including Snowflake appliances for identity resolution and transcoding
Amazon Web Services	**Microsoft Azure**
alongside API access, AWS users can now access an embedded identity transcoder to enable clean room-style use cases between AWS partners	Ramp ID activation support and CDP identity enhancements for Microsoft Dynamics

Customer Data Platforms

The rise of CDPs has been a heralded evolution for marketing data hubs, but in their rush to market, most CDPs have three Achilles heels: poor customer fragment consolidation due to weak, rule-based string matching processes, inability to enrich data assets without sharing PII, and an over-reliance on hashed emails (HEMs) for limited media activation.

For these clients, our connected identity infrastructure, protected data provider pipelines, and leading media activation ecosystem can quickly enhance the client's unique solution stack and increase data quality for better personalization and measurement.

A selection of CDP partnership news:

- **Adobe**
  Advertising cloud support for RampID across channels, unlocking people-based audience targeting, frequency capping, activation of first- and third-party data, and more; pilots are underway testing full RampID workflows from AEP into Adobe Advertising Cloud

- **Salesforce CRM and CDP**
  Integration with LiveRamp identity and HEM-free ecosystem activation

- **Acquia**
  RampID HEM-free audience activation

- **BlueConic**
  Embedded RampID identity and HEM-free activation

- **mParticle**
  Enhanced HEM-free media activation with RampID

- **Lyrtics**
  LiveRamp identity resolution and HEM-free audience activation

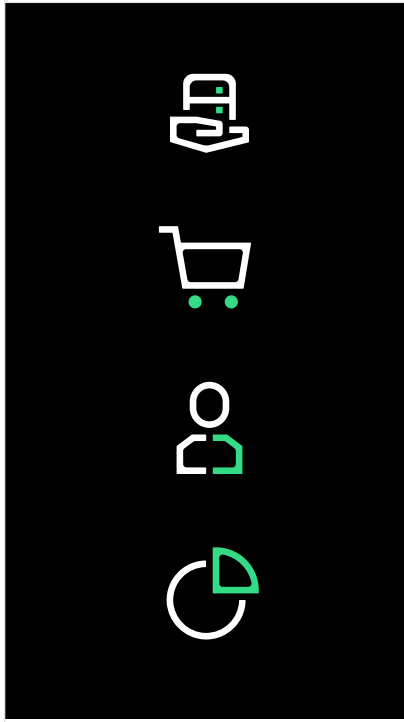
- **Treasure Data**
  Partnership support for identity, data enrichment and RampID HEM-free activation

Clean rooms

While our focus is on developing further use cases for Safe Haven and embedded transcoding solutions for cloud native shares, we continue to develop new analytic tools and partner with other ecosystem players to unlock the value of data without requiring it to be moved or copied.

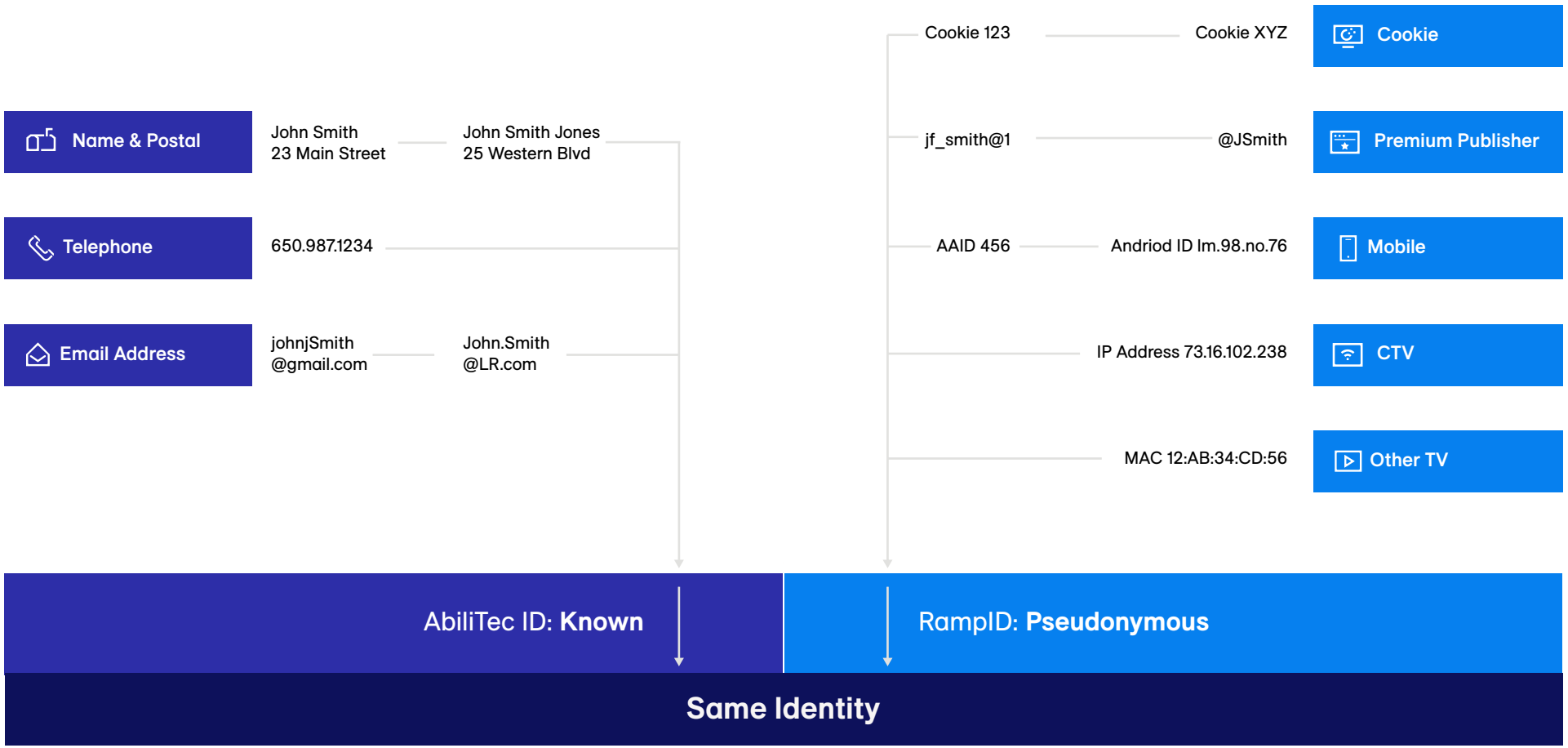
To that end, LiveRamp has been piloting new runtimes to support lightweight cloud data connectivity with embedded analytic protections and automated identity conversion across multi-party queries.

We believe this will be a crucial area for making data available for more powerful machine learning model construction, for many use cases involving distributed analytics, and to support more powerful partner collaboration across diverse hybrid cloud architectures and use cases.



Identity: the largest and most accurate graph(s) in the world

Reliable, consistent individual and household identification and unification



Powering data supply and demand with collaboration.

Monetize your data

License access to your data for a fee for analytics and insights.

Drive media investment

Allow access of owned data assets to increase media spend on your channels.

Deepen partnerships

Form strategic relationships with your most important partners by allowing them access to a unique data asset.

Customer acquisitions and insights

Leverage first- and second-party data to identify your target audiences and enhance with additional datasets.

Personalized outreach

Personalize and activate promotions to reach the right customers at the right time in order to optimize the customer experience.

RampID:
Identity in Practice

/LiveRamp

Now that RampID is a global standard, the next decade already presents exciting new possibilities for our clients. The following are two recent focus areas as we integrate RampID into more partner work streams and unlock new use cases for our customers.

Novel identity solutions

In our post-cookie world, many partners have experimented with the value of their own purpose-built identifiers and identity technologies, and our goal is to help support and connect them. Our partnerships with long-standing marketing identity providers such as Experian, Epsilon, and Merkle continue as we help brand teams attach new data elements from the best sources available.

A selection of recent identity news:

- **Comscore**: Predictive audiences activation and first-party data integration with RampID
- **Lotame**: interoperability between Lotame's Panorama ID and LiveRamp's RampID
- **Pubmatic**: LiveRamp's Authenticated Traffic Solution (founded on RampIDs) integrated with PubMatic Identity Hub
- **Innovid**: interoperability between RampID and Innovid Key for higher CTV audience addressability
- **The Trade Desk**: interoperability between EUID and RampID for European deployment

Brands are also leveraging RampID to connect disparate data sets and exponentially increase the value of their data by making it available across teams in a secure, permissioned manner. Carrefour was one of the earliest customers to use RampID across the enterprise in launching its retail media network, Carrefour-Links.

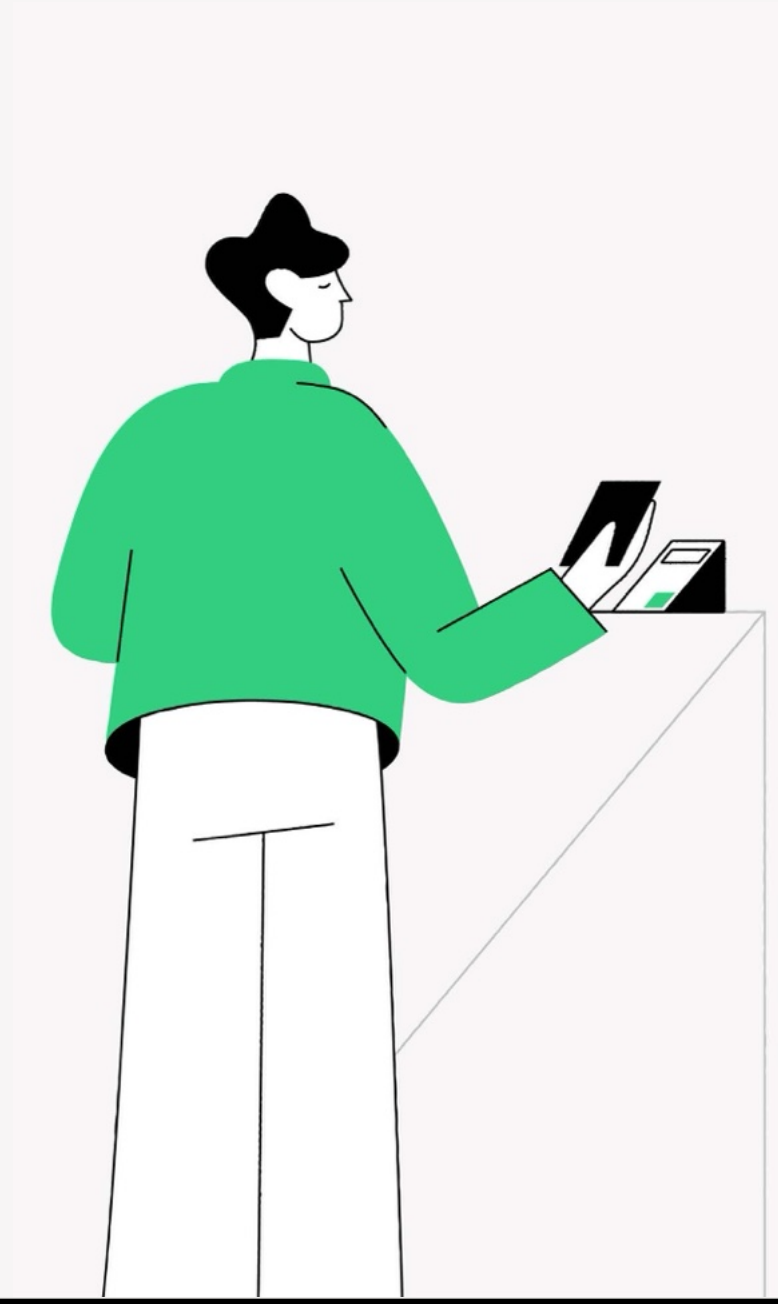
Carrefour | /LiveRamp

CASE STUDY

Carrefour | /LiveRamp

Carrefour-Links Retail Media Network

Data Collaboration Realigns Supply-Chain to Provide More Customer Value



Carrefour | /LiveRamp

Retail media network success

Carrefour is the eighth-largest retailer in the world, with 13,000 combined grocery/convenience stores in over 30 countries.

In 2018, Carrefour's e-commerce offering was split across many different websites, creating a complex customer experience. Customer data was hosted with on-premise servers, with limited capacity, which in turn limited opportunities for real-time analysis.

The Carrefour 2022 plan placed technology and data at the heart of its strategy, with €2.8 billion worth of investments in digital over five years. In 2018 and 2019, Carrefour built the largest data lake in Europe, recruited hundreds of data scientists who work across the Group's geographies, and migrated 25% of its applications over to the Cloud (as of late 2020). At the same time, it introduced a number of data analysis and safety tools.

With e-commerce developing at an unprecedented rate, 80% of Carrefour customers said that they want a customized offering. They also want customized attention at each stage of the purchase path.

In response, Carrefour has built the Carrefour-Links Retail Media Network.

Carrefour Links combines the Group's retail expertise with the very best technologies available for storing and processing data and keeping it secure.

Carrefour Links is structured around four types of solutions:

Capture

Finding new customers and prospective customers for a brand.

Convert

Making the experience more fluid so as to improve conversion throughout the customer journey (online, as well as omnichannel, with the right offering at the right time).

Converse

Developing a sustainable relationship with Carrefour customers.

Comprehend

Managing activity and performance with cutting-edge dashboards providing a complete overview of product performance and shopper journey.

Carrefour-Links is built with LiveRamp's Safe Haven platform, a pre-configured RampID solution with a Marketer workspace for customizing and deploying audiences, and a Data Science workspace centered on a RampID cloud data warehouse designed for cross-channel analytics, ML-segment creation, omni-channel activation and secure partner collaboration using transcoded RampIDs in a secured PII-protected environment.

Carrefour-Links is rolling out globally throughout 2021-2022, with current deployments in:

- → France
- → Belgium
- → Spain
- → Italy
- → Poland
- → Romania
- → Argentina
- → Brazil
- → Taiwan

Learn more about Carrefour-Links:

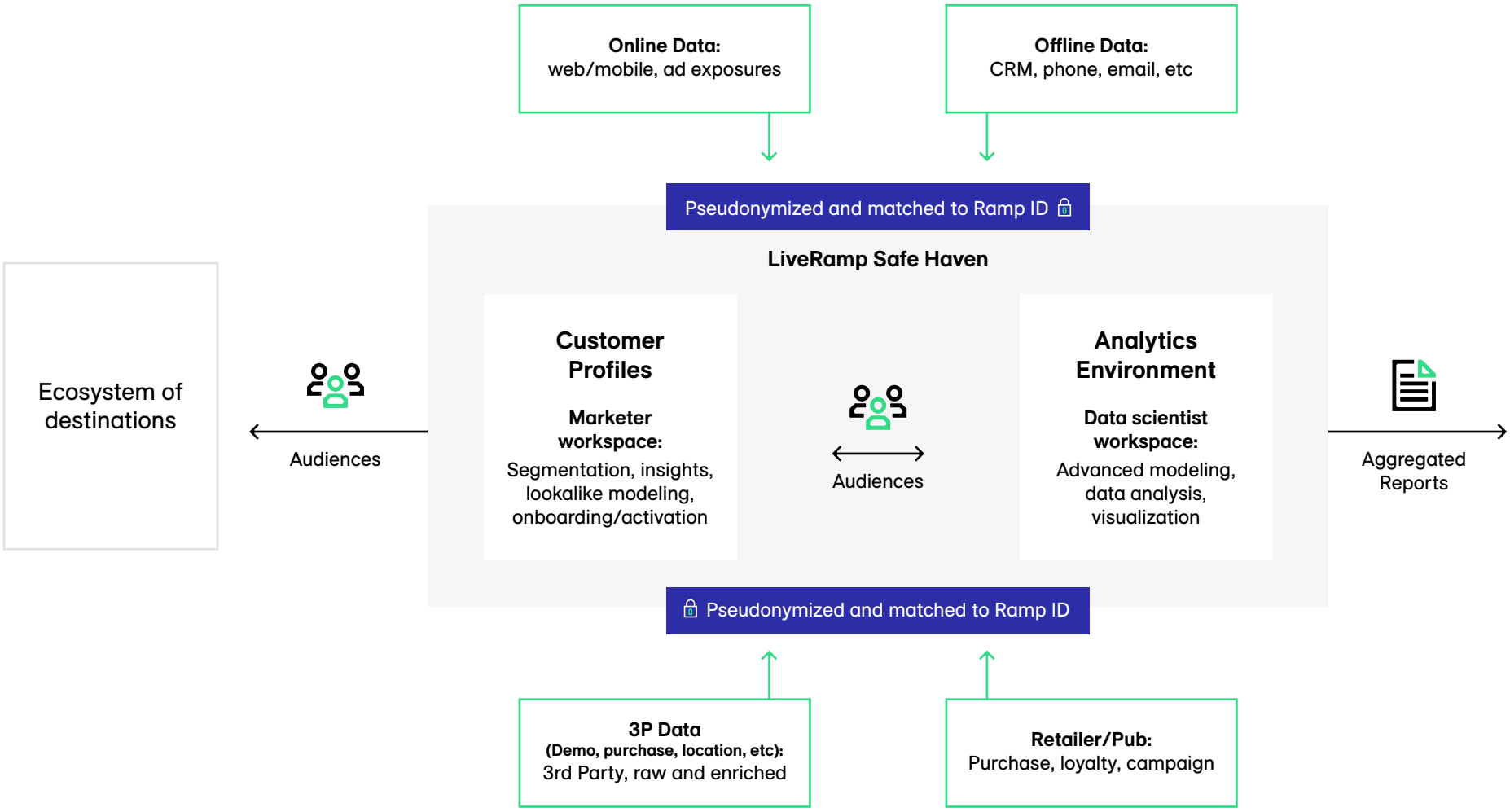
[Carrefour-Links PR]
[Retail Times]

> This is a significant way for Carrefour to completely transform the way we do business with our brand partners.

— **Alexis Marcombe,** Managing Director, Carrefour-Links

LiveRamp Safe Haven

Privacy-safe analytics and audience activation in one platform



The ongoing privacy evolution.

The growth of separate privacy regulations across the United States, especially in Colorado, West Virginia, and California, will continue to be studied by LiveRamp's privacy experts as they advise clients and legislators on how best to consolidate these new regulations to make them more tractable for the brands. We will aggressively look for opportunities where we can provide support for regulatory compliance while simplifying brand efforts and increasing consumer transparency, but the details of those approaches must wait for further legislative clarity.

LiveRamp has also taken an extended product interest in new mathematical approaches for protecting against the risks of consumer data reidentification, which can occur unexpectedly as a result of unrestricted analytics. Many implementations of these ideas, such as differential privacy query tools, are promising, but usability challenges remain from the inflexible one-size-fits-all-approach taken by many of these solutions.

We continue to evaluate these privacy-enhancing technologies so we can help clients balance the level of trust in a specific collaborative context with the operational power available from different types of analytic processes.

LiveRamp does not support user fingerprinting efforts, as we believe this is in clear violation of current regulatory intents. We have even implemented data protections for brands by analyzing RampID record reidentification risks due to unique attribute profiles. But we believe more can and should be done to secure both the consumer's rights to the data which describes them as well as the brand's right to own that data.

This is an important focus for data protection efforts, and we believe our RampID technologies will again lead the industry by clearly showing how to best balance power and privacy in consumer insight solutions.

LiveRamp is a leader in privacy and security

LiveRamp is approved by these industry bodies for privacy and security

Data ethics leadership

LiveRamp's privacy compliance is led by a team of privacy experts based in the EU under the supervision of LiveRamp's European Data Protection Officer.

Recurring compliance audits

LiveRamp has adopted security standards SOC 2 and ISO 27001. LiveRamp is reviewed initially, and then annually thereafter, to ensure compliance.

Trusted partner to publishers and consumers

In 2019, LiveRamp acquired Faktor, an industry-leading consent-management platform to help publishers and consumers navigate the complexities of compliance.

LiveRamp as a processor

Acting as a data processor, LiveRamp will only process data on documented instructions from its clients and enforce strict retention periods of directly identifiable personal data.

Compliance & active participation: industry & regulatory bodies

LiveRamp works closely with applicable industry self-regulatory bodies and monitors guidance and developments regularly to ensure our policies evolve.

Privacy by design

In-platform data protection concepts: Pseudonymisation; Purpose Limitation; Data Minimisation; SAR. Only pseudonymised data is retained and partners specify what data is shared for what purpose and for how long. Semi-automated processing of SARs.

About LiveRamp

At LiveRamp, we know that simplicity is always welcome—no matter where you are or what you're responsible for. We live in a complex ecosystem where it feels easy to become disconnected from core audiences, and we help our partners gain the connection and control they're seeking by enabling them to gain permissioned access to data, wherever it resides. If this sounds good to you, **we'd love to talk**.