

Identity Resolution

Summary

There are many business drivers for strong, accurate identity resolution and record linkage. Commonplace business requirements for identity resolution include building golden records, modeling customer behavior and lifecycles, managing communications, and fraud detection. An arising need is managing the anonymous-to-known lifecycle that links non-identified web browser sessions either to themselves or to underlying persons. Another compelling need is to link different identities together in support of an omnichannel experience, as identities may vary by touchpoint. Identity resolution is the key to delivering hyper-personalized customer engagement, with messages and offers that are highly relevant and contextually aware of the customer's needs and wants.

A **golden record** is a unified customer profile, which includes identifying information about the customer as well as the channels they use to interact with the organization, their most recent interaction with the organization, and which recent offer they reacted to positively. The golden record also encompasses how a customer transacts with the organization, including his or her most-recent purchase, lifetime value, and number of days since last purchase for instance. Identity resolution is key to pulling all this information from different data sources and blending it together into the golden record, which persists over time and is key to powering personalized interactions and customer journeys.

Common to these business requirements: correctly recognizing the underlying entity – whether a consumer, device, business, or household – and accurately linking associated data. While the need for identity resolution is growing, the challenges and complexity of identity resolution are growing, if anything, faster

still. Consumers engage in multi-stage customer journeys. Users expect real-time context-aware responsiveness throughout their discovery and purchase lifecycle while shifting between devices and between anonymous and known interactions.

RedPoint's identity resolution technologies address the robust requirements of these challenges, effectively enabling revenue growth through improved personalization, omnichannel orchestration, and real-time engagement.

Purpose – Why Engage in Identity Resolution?

For most business purposes, the goals of identity resolution are not to determine a name, contact details, or even to find a "person" as such. Rather, the goal of identity resolution is to gain a better understanding of customers by building an accurate and usable representation of them (anonymous or known), to predict and shape their behavior. In the case of customers: to improve retention, increase sales, reduce friction in the customer experience, and maximize customer profitability. In the case of known users and prospects: to move them along the sales funnel and activate them as customers. And in the case of anonymous web users: to move them either to known prospects through data gathering or to move them along the purchase path.

In each of these cases, the goal is to iteratively link the underlying entity to itself over time. This linkage can be based on long cycle events (e.g., discrete site visit, specific sales, executed marketing campaigns) where data and decision cycles are measured in minutes or hours, or in real time where data and decision cycles are measured in fractions of a second (e.g., online or in-app display and product recommendations). Often the entity reveals itself as a proxy identity that may be understood as a social handle, an e-commerce email, device ID, mobile ID, etc. In either case, recognizing the underlying user and being able to tie that recognition to defined preferences and strategies is key to driving the most successful outcome.

Definitions – What Are the Key Terms to Understand?

Golden Record – A multi-record aggregation of an individual entity that is more complete, accurate, and insightful with strong identity resolution

Contact Graph – A full set of identities used by an individual, linked to create the unique individual and connect fragmented data across many touchpoints

Identity – A set of identifiable characteristics that can distinguish one individual from another. This might be tied to personally identifiable information (PII) such as email, address, or other first-party IDs

MDM – Automatically match and manually curate data to make data as accurate as possible

Identity Resolution – Determine who an entity is, based on abstract and indicative signals presented as data

Abstract Signal – An abstraction of an entity in a given context, e.g., an e-commerce ID for example is not a person, but is one of potentially many direct abstractions of that person

Indicative Signal – Data that indicates a record refers to an entity, and not some other entity, with varying degrees of specificity, e.g., a mobile phone ID may be used by multiple individuals whereas a driver's license is more likely to only be used by one individual

Anonymous – A state in which behavioral data is not personally identifiable, though being in a truly anonymous state does not really exist – even without having a name, information about a consumer can still be ascertained

Semi-Anonymous – A state in which consumers are known only through their web presence

Known – A state in which consumers are more fully personalizable through being able to integrate CRM data, loyalty data, behavior data, and all other data into a unified view of an individual entity

Disambiguation – Removing uncertainty of meaning from data, e.g., removing uncertainty that a name and a nickname are referring to the same person, or that a postal address and a vanity address are the same location

Business Drivers – Why Is Identity Resolution Now Critical?

Consumers now spend a fair amount of their time being anonymous or semi-anonymous, whereas long ago they were identified early on, for example by providing a customer ID on a service center call. At the same time brands are compelled to compete on customer experience, meaning they need to know all that is knowable about a customer in order to deliver contextually relevant and highly personalized messages and offers. This contextual relevance requires tracking customers across journey stages and touchpoints. This context could include connections that are physical location only, virtual only, hybrid physical/virtual, and/or social persona based where one or more personas exist on a social network that may require a third-party intermediary to reach.

Process – How Does RedPoint Resolve Identities and Create a Golden Record?

There are different ways to incorporate recognition, e.g., digital on-boarders match consumers' web data to CRM data so they can market to consumers; their premise is to identify the person before taking action. RedPoint Global's premise is that action can be taken as long as there is an analytic basis to model behavior, which could be as simple as knowing the site a person came from.

Identity resolution is comprised of:

- What marketers know – identity data that brands have
- What marketers can go buy – on-boarding, messages, shared group attributes
- What marketers need to earn – push consumer to identify themselves

Identity resolution is key to building the **contact graph** for an individual or other entity, which is a full representation of an entity, including linking information that may have different associated identifiers. Non-personalized but unique web behavior data must be linked in creative ways; for example, if a consumer uses their email as the user ID to log into an e-commerce site, marketers will have overlapping data between e-commerce and email activity that can be further linked to cookie and device data.

RedPoint's differentiation – no matter what the data source, RedPoint persists the keys, resolves identities, and stitches all the data together over time.

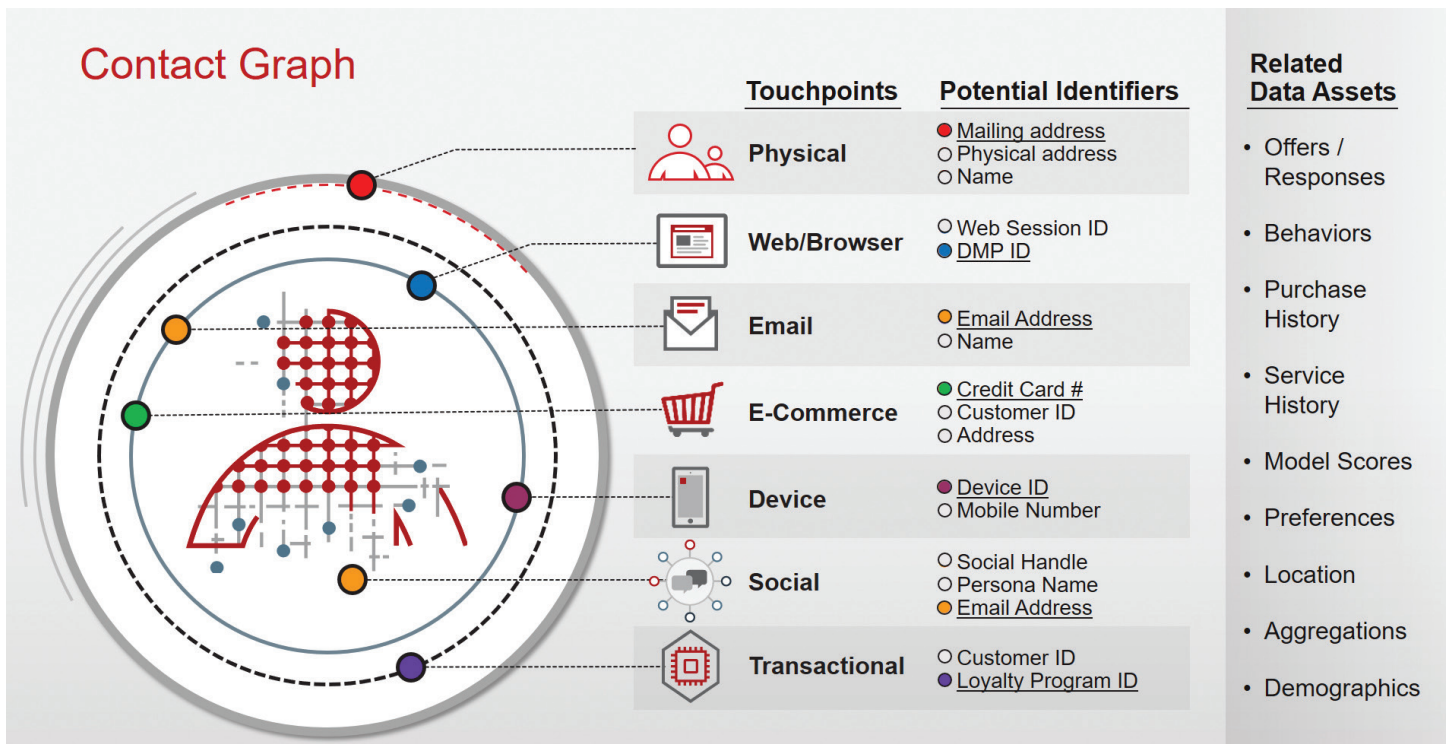
The RedPoint matching approach is differentiated along a number of dimensions:

- **Out-of-the-Box Matching Tools** – RedPoint provides a broad range of consumer, business-to-business, and user-definable matching tools in its core application. For consumers, this includes matching at the household, person, address, email, URL, and account levels without any need for coding or developing match algorithms. Business-to-business matching options include corporate hierarchies, definitions of roles and personal contact details, and customizable business name/word lists.
- **Probabilistic and Deterministic Matching** – RedPoint combines probabilistic or statistically based matching with extensive customer data integration business rules to create highly accurate match results. RedPoint provides out-of-the-box probabilistic and deterministic matching for consumers and businesses.
- **Data Completeness and Accuracy** – The accuracy of matching depends on the accuracy and completeness of the underlying data. RedPoint has an extensive tool set with underlying content libraries that can be leveraged to cleanse, standardize, and complete names, addresses, phone numbers, and email addresses. RedPoint offers data hygiene and record completion for North America and 240 other countries and territories.
- **Alias Resolution** – In addition to cleansing, correcting, and completing data, RedPoint has extensive corrections for aliased values. This includes extensive name-variance mapping. For example, Lewis, Louis, Lew, and Lou are near-equivalent first-

name variants and Street, St, Str, and Strt are all common variants of “Street” in addressing. Default lists are provided by RedPoint, but may be extended or overridden by user-provided values.

- **Iterative Cycles** – RedPoint’s matching is premised on an iterative processing approach. This both mirrors person/business natural changes and accounts for new data becoming available as new sources or events happen. This includes support for adding records or breaking apart existing person, household, or business groups.
- **High Performance and Scalability** – RedPoint’s match processing speed is a key factor in the depth of matching and number of iterative cycles used in our record linkage solutions. RedPoint has been benchmarked to process millions and billions of records 500 percent to 1,900 percent faster than leading alternatives.
- **Flexibility** – RedPoint’s approach allows users to create multiple levels or hierarchies of matching depending on requirements. It also allows users to define different levels of matching based on use. This could involve creating very tight matches with close to zero over-matching rates for regulatory or compliance uses while at the same time having looser matching for marketing and still looser matching for fraud detection. All these match passes can be maintained and correlated within the RedPoint matching tool set.

This depth in matching ultimately leads to robust contact graphs for customers that match behaviors, transactions, aggregations, and other data into a unified customer view. The contact graph combines fragmented data across many touchpoints to create the unique individual, as illustrated below:



The contact graph combines fragmented data across many touchpoints to create the unique individual.

Business Applications and Benefits

There are a number of applications of identity resolution, including delivery of relevant and contextual omnichannel experiences, real-time personalization across touchpoints, and improved digital marketing to drive revenue growth and lower interaction costs.

1. **Omnichannel Orchestration** – The golden record enables more relevant messages and offers for inbound and outbound marketing, orchestrating engagement across all touchpoints, and/or determining the best customer journey path. There are two ways to improve omnichannel engagement through improved identity resolution.
 - Build deeper customer understanding as they move from *completely unknown to partially known to completely known*
 - Build deeper customer understanding from the point of *establishing a golden record* to then *growing and strengthening that golden record*
2. **Real-Time Decisions** – An always-on, always-processing golden record is key to enabling real-time decisions, so the consumer is recognized in real time and a progressive profile is developed to ensure that any messages are contextually aware of that consumer in any moment.
3. **Digital Marketing** – Data service providers collect cookies, device IDs, and other identifiers, and then attach it to an expanded set of third-party data; this enriches the identity and when integrated with the golden record is a more complete view that is useful for digital marketing decisions.

Leading Brand – Case Study

A large consumer packaged goods (CPG) manufacturer started a web-based retail store for direct to consumer sales. Over time as the retail site grew in size and revenue, the company realized the data from their ERP supply chain and product master, their A/B testing solution, their content management solution, their voice of customer solution, their data management platform, and their campaign database were all so siloed that they really didn't know their customer and were wasting money on irrelevant messaging. As a result, effective omnichannel engagement was impossible to execute. An initiative was begun to build a customer data platform (CDP) that captured the wide circle of data input from all sources relevant to marketing and connected to these various sources bidirectionally. Identifying and matching these diverse data sources and making them available to marketers when and where needed provided the following benefits:

- Enhanced revenue, hitting stretch goals for new offers deployed in the holiday season
- Increased growth in net-new customers because of consistent messaging across channels
- Increased order frequency and number of products
- 144 percent lift in average order revenue over previous baseline
- Product recommendations combined with A/B/n testing delivered in context of customer engagement, for anonymous and known profiles
- Reduced volume of campaign messages while achieving these revenue lifts

Matching in a Digital World: Use Cases

There are a number of ways to match identities and devices used in digital engagement, which introduces more variables and adds a layer of complexity to resolving identities. There are a number of ways to do this, which will continue to evolve along with technology innovations and privacy policy changes. Below are some examples of current best practices in resolving digital identities.

Device Matching

Marketers can, through the collection of appropriate data elements from their mobile and web properties, do cross-device matching. But the key to that is the customer must “self-identify” by signing in, or otherwise revealing themselves. For occasional buyers who prefer not to log in, or for fully anonymous consumers, alternative solutions are needed. This is key when customer journeys are completed across multiple devices, e.g., moving from a tablet, to a mobile phone, to laptop before a transaction is completed. Third-party data providers do cross-device matching and provide a wide variety of other features.

A more enhanced and reliable method will include first-, second-, and third-party data within the marketing database that is actively captured and matched to the various silo outputs so that the marketing team can understand the full picture of their prospects and customers. This is then linked to IDs associated with devices, sessions, cookies, and third-party data. Blending web analytics data stream files, DMP exported data, and the marketing database is a key way to track devices and marry them together using persistent keys.

Device and Person Data Enrichment

The level of data enrichment is highly variable depending on the degree of identity resolution attained. Even when a first-time visitor arrives at a site with nothing matched to a third-party identifier, location data is available to provide basic demographics data such as DMA, city, state/province, country, and demographic data related to the location (e.g., wealth, housing type).

Once a device is identified to a personal address, email, or phone number and these attributes are re-used across multiple devices

on different sites and social platforms, RedPoint creates the device graph and applies it to a person. Having identified the person, third-party data providers can also provide a number of data enrichment options related to that person and to their current device graph.

One of the most effective ways to market to “unknown” devices is to monitor their behavior on your web properties. Common data points include capturing search terms used, and the product pages visited during a site visit. Though limited, this data is useful to make optimal offers that drive revenue, based on either pre-configured rules triggered by the data or machine learning algorithms.

Enriched Device and Person Information for Online Marketing

Online marketing through third-party channels such as DMP/DSPs, social media platforms, and email service providers pose additional challenges. Many marketers are unclear about the device process, mostly because of opaque methods used by third-party DMP/DSPs or other digital identification vendors. Matching first-party data by providing limited amounts of data elements (generally email and/or phone number) to vendors can often result in disappointing match results (25 percent to 40 percent), because the profiles are incomplete and a certain web presence must exist to get a usable match. Organizations must also have a structured and compliant process when combining third-party digital browsing data with first party PII, to account for privacy concerns of consumers based on their explicit preferences for personalization in direct marketing channels.

If the right 25 percent to 40 percent match rate happens, and it is used correctly, it can make a large revenue impact when on-boarding, or transferring offline data to an online environment for third-party marketing. The information and “keys” achieved through on-boarding then opens up your marketing to look-a-like models for acquisition, creating audiences to receive specific messages via social channels and display. When managed through a single identity-based data repository, the critical round-trip can be achieved. Marketers want to make offers and send targeted messages, but just as important – or maybe more importantly – they need to get the information back and in one place to inform them what happened. Robust identity-based systems directly support this closed-loop process as a function of their design.

Key Project Success Factors

Resolving customer identities across all devices, channels, and journey stages may seem like a daunting task, particularly when both internal and external data sources are highly fragmented. That is precisely why RedPoint architected its technology to provide rapid speed-to-value in bringing identity resolution to the parts of your business that will yield the biggest benefits, while enabling enterprises to scale identity resolution capabilities over time. The golden record is key to providing an always-on, always-processing identity that yields progressively deeper customer profiles as new data sources and journey stages are added.

Connecting all available data is the foundational element required to drive personalization, omnichannel marketing, and real-time engagement. It is also critical to connect and activate data that may be sitting in an analytic data lake, which is effectively unusable until identities are resolved and data is connected. RedPoint Global takes a structured approach to linking your business objectives and value drivers with the right methods and enabling technology to resolve identities in ways that best take advantage of your data assets. This includes defining which entities are important, what data is useful, where in the customer journey stages to apply this, and precisely how to resolve identities and build deeper recognition. As consumers are increasingly always-on, identity resolution is key to being able to address them with contextually aware and highly relevant messages and offers.

For more information, visit www.RedPointGlobal.com

Action Steps – What Are the Key Steps to a Successful Initiative:

There are a series of questions to ask when striving to achieve successful results from identity resolution initiatives:

- What goals are you trying to achieve?
- Which entities do you want to identify, and why do you want to identify them?
- What data do you have to identify them – what can you stitch together with overlapping identifiers?
- Where are you going to identify them – which touchpoints, channels, and customer journey stages?
- How are you going to identify them? For example, use iterative contact graphs, where the graphs change over time so that you will know more about an entity tomorrow than you do today.
- How will you use the identities to drive personalized engagement and dynamic customer journeys?
- How will you communicate the collection and use of data with customers?
- What are your targeted value drivers and business benefits?
- How will you tune the match rates to minimize errors and best realize your objectives?

About RedPoint Global Inc.

RedPoint Global's software solutions empower brands to transform how customer experience is delivered. RedPoint Global's solutions provide a single point of control to connect all customer data, determine next best actions in real time, and orchestrate interactions across all enterprise touchpoints. Leading companies of all sizes trust RedPoint Global to deliver highly personalized and contextually relevant experiences that optimize customer engagement. For more information, visit www.redpointglobal.com or email contact.us@redpointglobal.com.



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