

The Composable CDP

In the words of the legendary Netscape CEO, Jim Barksdale – “There are only two ways to make money in business – bundling and unbundling.”

From cable packages to Netflix streaming, from album-length CDs to Spotify, the history of business is one long story of bundling and unbundling; combining multiple features, components, or services into a single package, and then unbundling those packages into standalone components.

Bundling or unbundling can happen for several reasons.

It can be driven by market dynamics, where an incumbent bundles a set of products or services to drive market share in adjacent markets. Or, it can be a business strategy, where a new entrant unbundles a specific feature to drive a wedge in the market.

This concept of bundling and unbundling affects all industries from software to CPG, and it was only a matter of time before this inexorable process found its way to customer data technology, albeit under a different guise.

The rise of composable customer data technology

Composable, a term popularized by Gartner in 2020, is when a tech stack or architecture is built using open, interoperable, modular software. Put simply, it’s the process of creating an IT infrastructure composed of interchangeable building blocks.

Software vendors, meanwhile, are deemed “composable” when they open up access via APIs, offer pre-built connectors, and/or open up their platform architecture. This enables development/IT teams to choose the software and tools that meet their business needs, without fear of them working together effectively.

Having different tools and technology work alongside one another may appear table stakes in 2023, but this approach is something of a departure.

Software has long been dominated by the legacy “walled garden” approach typically seen from large suite vendors, whose products have limited interoperability outside their own ecosystem.

Recently, in the customer data platform space, composable has become a hot topic. While most if not all agree with the spirit of composability, they approach it from different angles.

Some reverse ETL vendors see interoperability as a product strategy. Their tools keep the feature set narrow, and rely on other solutions to fill in product gaps around identity resolution, profiles, audiences, activation, observability, and capturing behavioral event data.

Meanwhile, other vendors like Segment, the first open and interoperable CDP, take a “best of both worlds” approach, and deliver **all the advantages of composable with none of the downside** that comes with using a tool that has a limited solution set.

The components of a composable CDP

A composable CDP allows companies to choose the components of their data foundation. The four key components of a composable CDP include data collection, data compliance, data unification, and data activation. In the CDP space, companies are now empowered to choose their own stack, selecting different applications for each of these roles, if desired.

Data collection includes the collection of streaming event data, or ELT, which requires having many libraries, SDKs, and integrations for data gathering across sources like mobile, web, and applications.

Next, businesses need to trust their data, and trust that their data foundation can scale as their company grows. Compliance requires real-time enforcement of **data quality** with the scale to handle data spikes for peak events.

Data unification starts with customer profiles. Identity resolution is a huge challenge for many businesses and this necessitates a well thought out approach or experienced partner. Once profiles are created, businesses often need them available in cloud storage destinations, like a data warehouse, so that they can use them to create models for better targeting.

Finally, the real-time **data activation** component of a truly composable CDP includes both prebuilt connections to data destinations as well as the ability to build the custom integrations needed by the business. Data activation often also includes an application layer that allows marketing teams to self-serve.

The sections below take a closer look at each of these components.

Composable CDP in action - data collection and movement

Now that we understand the basics, let’s see how a composable approach to customer data is possible using the market leading CDP, Twilio Segment.

[Segment’s catalog](#) of 450+ pre-built, high-quality connectors accelerate implementation times and simplify on-going data collection and management, significantly lightening the load on your data and developer teams.

Connecting sources or destinations to the CDP takes literally **seconds** with Segment. These connectors are easy to implement, saving companies significant time and effort, eliminating the need for custom development for each new tool that is attached to the stack.

But Segment doesn’t just move data from place to place.

Segment offers a single, integrated solution containing all the elements of a true enterprise grade CDP; customer data infrastructure, data governance, identity resolution, profiles management, activation, and real-time orchestration.

With all of these features in one platform, companies benefit from the true promise of a composable ecosystem with **the flexibility to choose Segment's solutions as a package, or to build their own stack using the Segment platform to connect homegrown tools and software from other vendors.**

This “best of both worlds” approach has helped over 25,000 companies worldwide save time and resources by not having to cobble together immature tools and maintain what amounts to a bespoke CDP, enabling them to concentrate on more strategic initiatives for their business.

Another key trend in the CDP space is compatibility with the data warehouse.

Segment is a powerful complement to data warehouses. With [Reverse ETL](#) and [Profiles Sync](#), customers can opt to make their warehouse a source of truth while leveraging Segment to deliver accurate, rich profiles that can be activated in real time to hundreds of downstream channels/destinations.

- Profiles Sync allows businesses to easily send Segment's identity resolved customer profiles to the data warehouse where they can be further enriched with data from the CRM, ERP, or customer support systems.
- Reverse ETL helps companies activate data in the warehouse by sending it directly to downstream destinations like a company's marketing or analytics tools of choice.

Additionally, Segment complements existing investments in the data warehouse and associated infrastructure. All of the popular data storage destinations with pre-built Segment integrations include Amazon S3 and Red Shift, Google Big Query, Microsoft Azure, IBM Db2, Postgres, and Snowflake.

So what impact does this have on your bottom line? Forrester cited a [35% reduction in data engineers' time spent on data management activities](#) when using Segment, representing a significant cost savings and offering a boost to the happiness of engineers everywhere.

Achieve data clarity at enterprise scale - leverage a modern customer data foundation to strengthen your composable ecosystem

An organization cannot trust its data when it is scattered across business units, products, and internal teams. With data spread across a variety of systems, there are inherent risks associated with security, privacy, and scalability.

To make it more difficult, the standards and practices for privacy and security are ever changing. Across the globe, new regulations are being introduced every month. Meanwhile, internet giants like Google and Apple have signaled a move from third-party data in response to tightening regulation and consumer preference.

To ensure data security, privacy, and compliance in a fast-moving world, Segment offers [Protocols](#), for tracking plans, and [Privacy Portal](#) to automatically detect, classify, and block restricted data from being collected. This enables end-to-end compliance with both regulatory and third-party policy requirements such as General Data Protection Regulation (GDPR), Schrems II, California Consumer Privacy Act (CCPA), IDFA, HIPAA, and protection against additional future regulations.

In addition, Segment's [open source consent manager](#) automates the process of requesting consent for data usage, stores data on user privacy preferences, and updates these preferences when users request changes.

Businesses can always choose to use these Segment tools or connect their own solutions for privacy and consent management.

Scale is another challenge with open and interoperable systems, when each connection has the potential to make the whole stack more brittle. Businesses feel this pain when they cannot reliably collect, prepare, and activate customer data across all sources, touchpoints, and channels at scale to enable a variety of use cases.

Segment automatically scales to handle massive spikes in data volume with ease where other platforms might require advance notice and manual effort. Built-in deduplication and idempotency improves fidelity of data delivery, Segment's observability and alerting are best of breed for unrivaled visibility into data health and data validation, and **Segment's systems are set up to ensure delivery even when downstream tools experience failure or downtime via retries and replay.**

Let's take a real example.

When FOX wanted to broadcast the Super Bowl to digital consumers, it was Twilio Segment and AWS infrastructure, working together, that helped them deliver reliability and scale. [FOX used Segment](#) to monitor performance across 3.3M concurrent unique devices, with an intake rate of 350,000 records per second.

Get a complete view of your customer with Unify as a hub in your identity graph

With Segment's customer profiles as a component in their identity graph, data teams get several wins.

First is the simplicity of not having to build and maintain every aspect of the identity graph against an ever changing and expanding sea of inputs from business teams.

As data practitioners look to merge identifiers, detecting overlaps between two identifiers (like userID and anonymousID) might seem easy on paper, but gets considerably harder (n²) as more identifiers are added into the mix.

This increases the likelihood an identity graph will break down, with internal and external stakeholders losing trust in the solution. With [Segment Unify](#), **data teams can configure the list of IDs they want to rely on from their full set of customer experiences**, in addition to the rules they should follow, making it infinitely easier to maintain a clean identity graph over time.

The second win for Segment customers is the ability to enrich the identity graph with data from across the entire business.

This flexibility is only possible when you can share consistent versions of the identity graph to any downstream system that the business needs. You see, the role of an identity graph is to not only understand who the customer is, but to also enable how the business can build holistic customer records.

Rather than taking an exclusively DIY approach to identity resolution that relies heavily on thousands of lines of SQL (which requires constant monitoring and updating from data teams), solutions like Segment give data teams—and business users—**the freedom to build on resolved profiles**; by syncing them to a data warehouse where they can be enriched with other data to build a complete view of the customer.

This can include data from Segment events like web and app interactions as well as systems of record like CRM, databases, or customer support applications.

With the power to create “golden profiles” in the warehouse, data teams have observability into the identity graph and can easily answer questions for themselves, such as:

- “Can I monitor for potential instrumentation anomalies?”
- “How are my profiles stacking up vs. configured or system limits?”
- “Why did all these emails merge into the same profile?”

With the most complex parts of identity resolution handled, data teams can focus on solving the biggest challenges business teams face: like marketing attribution, churn analysis, and recommendations.

Unlock new data sources with Functions

A key element of Segment’s flexible approach is [Functions](#). **Functions allows Segment customers to collect and transform any stream of first-party customer data** from webhooks into Segment events. Using Functions, Segment customers can build their own proprietary integrations to transform and map events collected by Segment out to the APIs, tools, and services that connect business to their customers.

Functions are fast to implement. With just ten lines of code, you can capture new data points, enrich data in new ways, and run advanced campaigns across tools. This means developers spend more time building great customer experiences, not configuring networks, gateways, and IAM.

Crucially, Functions is highly scalable, with infrastructure that can handle 2.5M+ events per second at peak load and 1.2 trillion events per month, with best-in-class monitoring and alerting as standard.

Customizable solutions for developers with the Developer Toolkit

The [Segment Developer Toolkit](#) offers out of the box extensibility with libraries for data collection, plug-and-play recipes, and a set of open source tools unrivaled in the CDP space.

Segment’s data collection sources include Web, Server (for data collection from server side sources like Node, Python or Ruby) Cloud (for cloud tools like Twilio or Salesforce) and even mobile libraries for Swift iOS app data collection and Kotlin for data collection from Android apps.

Segments Recipe catalog includes dozens of suggestions for collecting and activating customer data from common, and even some unusual, sources and destinations. Some examples include:

- [How to run predictive analytics with SQL commands](#) by connecting Segment to the data warehouse
- [Instructions for tracking user behavior across all connected devices](#), including watchOS, tvOS, or iOS
- [How to build customized reports using multiple instances of Google Analytics](#)
- [How to build a hyper-personalized contact center with Twilio Engage and Twilio Flex](#)

Open source tools include Analytics Kotlin and Analytics Swift for adding Segment analytics to any iOS or Android app, and Analytics.js the hassle free way to integrate analytics into any web application - the first developer tool produced by Segment over ten years ago.

Twilio Segment - a flexible partner in a bundled and unbundled world

With an extensive catalog of pre-built connectors, SDKs, and dev tools all under one roof, **Segment enables teams to quickly configure and implement a CDP, delivering on the vision of a composable ecosystem while offering pre-built, production ready infrastructure.**

What this delivers to your business is operational maturity. You get a true customer data platform to bring everything together, you get consistent data, compliance, and privacy protection along with all the benefits of an open, flexible environment from a trusted partner that can support consumer scale applications.

Segment's open approach means companies retain full visibility, observability and control over their own data and the components that make up their data stack. Your team can still “get under the hood” to precisely configure how data is transported, stored, and processed, while at the same time leveraging a catalog of pre-built connectors and tools.

With this approach that data and dev teams spend much less time and effort building custom middleware from scratch and more time building applications and delivering critical insights that can propel business forward.

Twilio Segment is the only customer data platform that offers all the components of a composable CDP in one open and extensible package with [Connections](#) for data collection, [Protocols](#) for compliance, [Unify](#) for profiles and a catalog of destinations as well as [Functions](#) for out of the box and custom integrations with data activation tools. **Segment allows you to get started with what you need and grow from there, using our products or composing your own solutions.**

To learn more about composable CDP, and see Twilio Segment in action, [request a demo today](#).