

Adobe Experience Cloud

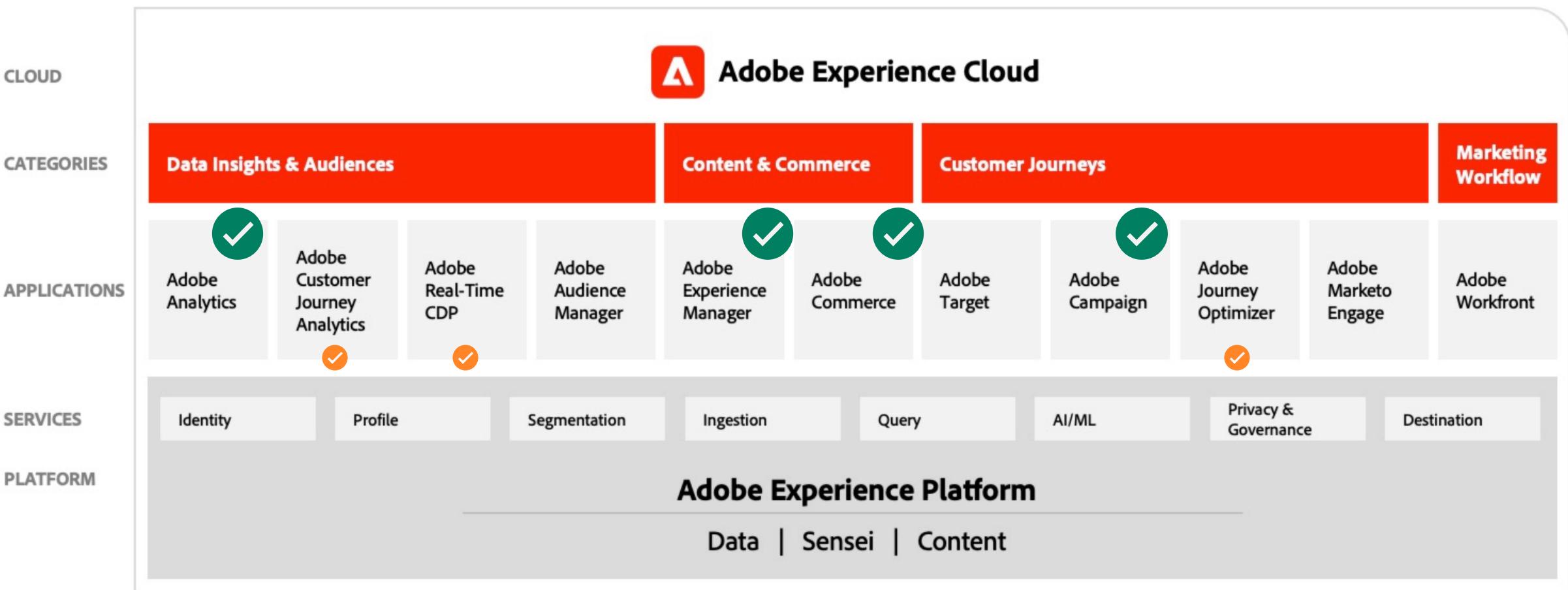
Disclaimer

The content in this presentation is based on publicly available information, industry frameworks, vendor documentation, and common practices across retail and convenience store sectors.

All insights and references are for general knowledge sharing and do not reflect or disclose specific business practices, systems, or strategies of any clients.

Adobe Experience Cloud Marketecture

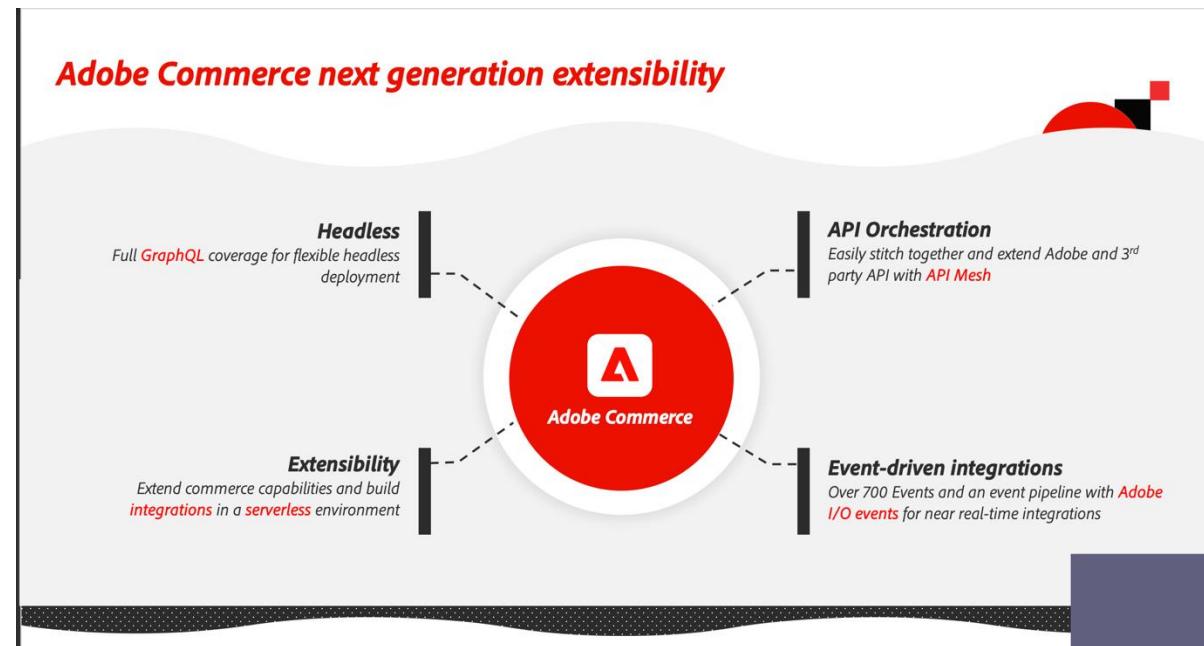
-  C-Store scope
-  Built-on AEP



source: [Adobe Experience Platform & Applications architecture diagrams | Adobe Experience Cloud](#)

Adobe Commerce Extensibility and Integration Strategy

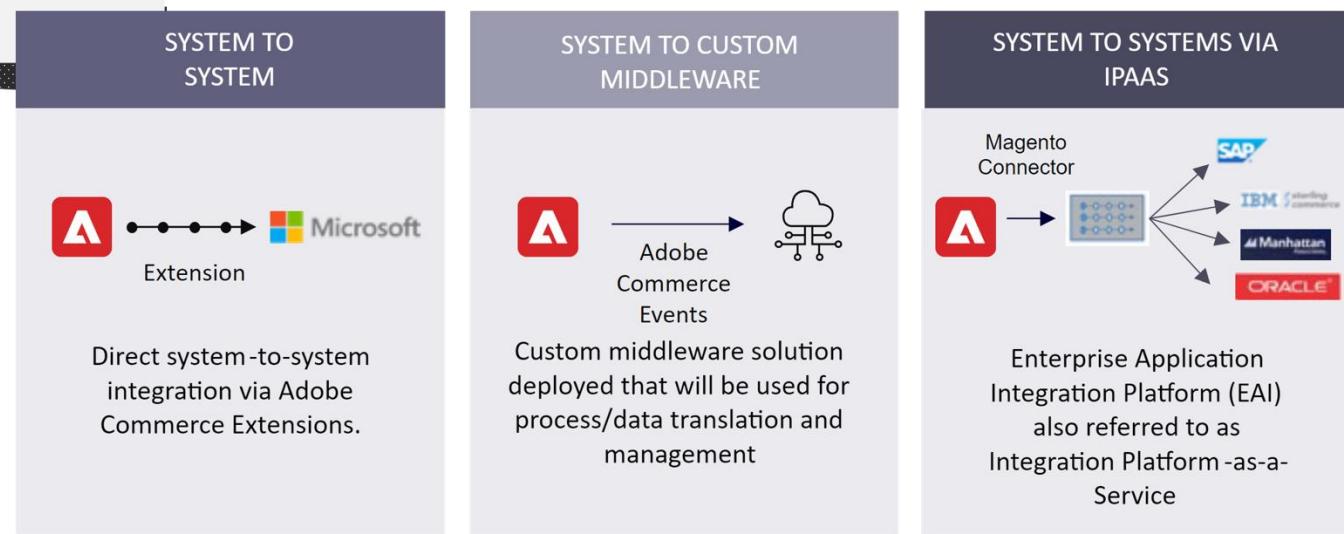
Adobe Commerce next generation extensibility



Direct system-to-system integration with pre-built connectors. Some systems may already have Adobe Commerce extensions on the Adobe Commerce Marketplace or their own website.

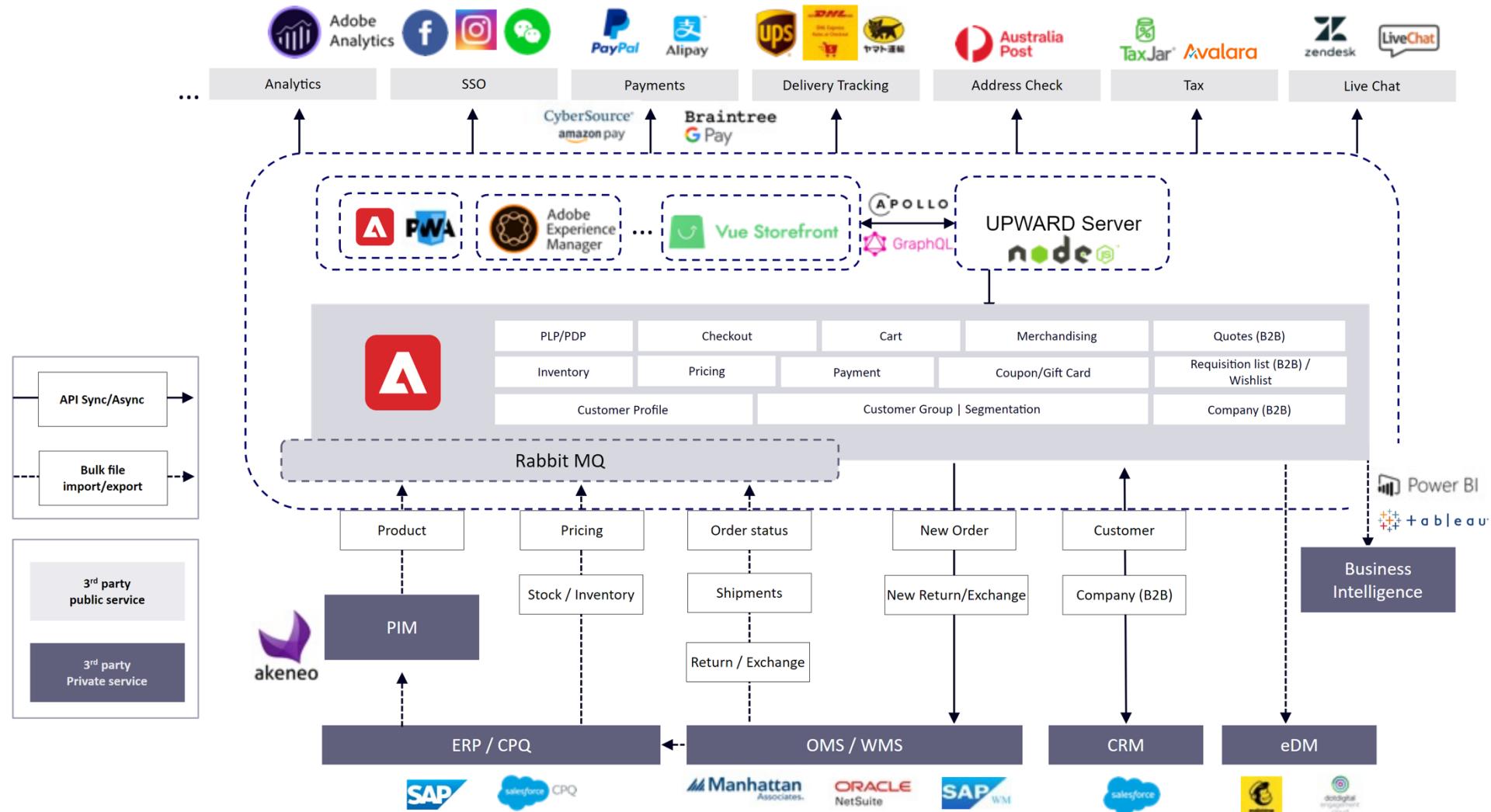
System-to-system integration through custom middleware. The custom middleware solution deployed will be used for process data mapping, translation, and management.

System-to-system integration through iPaaS (Integration Platform-as-a-Service), also referred to as EAI (Enterprise Application Integration Platform), such as Mulesoft, Boomi, and Software AG.



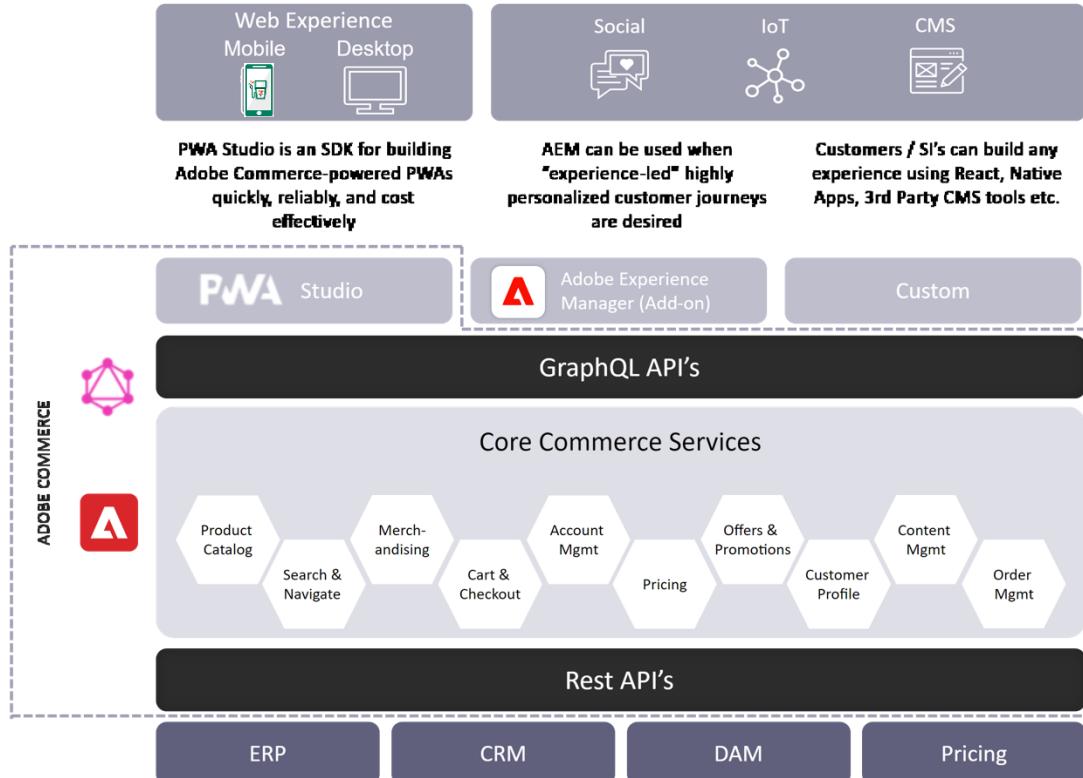
source: [Adobe Commerce Extensibility Strategy | Adobe Commerce](#)

Adobe Commerce (Headless)



source: [Adobe Commerce Integration Options | Adobe Commerce](#)

C-Store's Adobe Commerce (Headless)



Adobe Experience Manager (C-Store's website)

A powerhouse combination for your content and digital asset management needs, *Adobe Experience Manager helps merchants get personalized, content-led experiences into market faster, combining digital asset management with the power of machine learning, Adobe Sensei-powered content, and customer journey management.*

Adobe Commerce plus Adobe Experience Manager is a powerful story in that the commerce engine allows businesses to enable commerce through customer interfaces that are powered by Adobe Experience Manager.

Custom Heads (Mobile App)

The final option to discuss here is the option of building a custom frontend. This option is for businesses that have existing expertise and in-house developers skilled in a particular frontend stack, like React. If they don't have skills in Adobe Commerce's traditional frontend development, they can decide that it's more cost effective to build their own custom React frontend.

Naturally, this model requires strong customer or systems integration frontend development skills and resources, and you don't get the benefit of native compatibility with things like Page Builder that you get with PWA Studio. Any time a merchant is building something completely custom, they may lose time-to-market advantages.

Custom front ends also enable innovations and experimentation. There's a lot of talk about AR/VR or voice commerce, and an architecture like Adobe Commerce's allows merchants to explore these options without impacting their existing webstores.

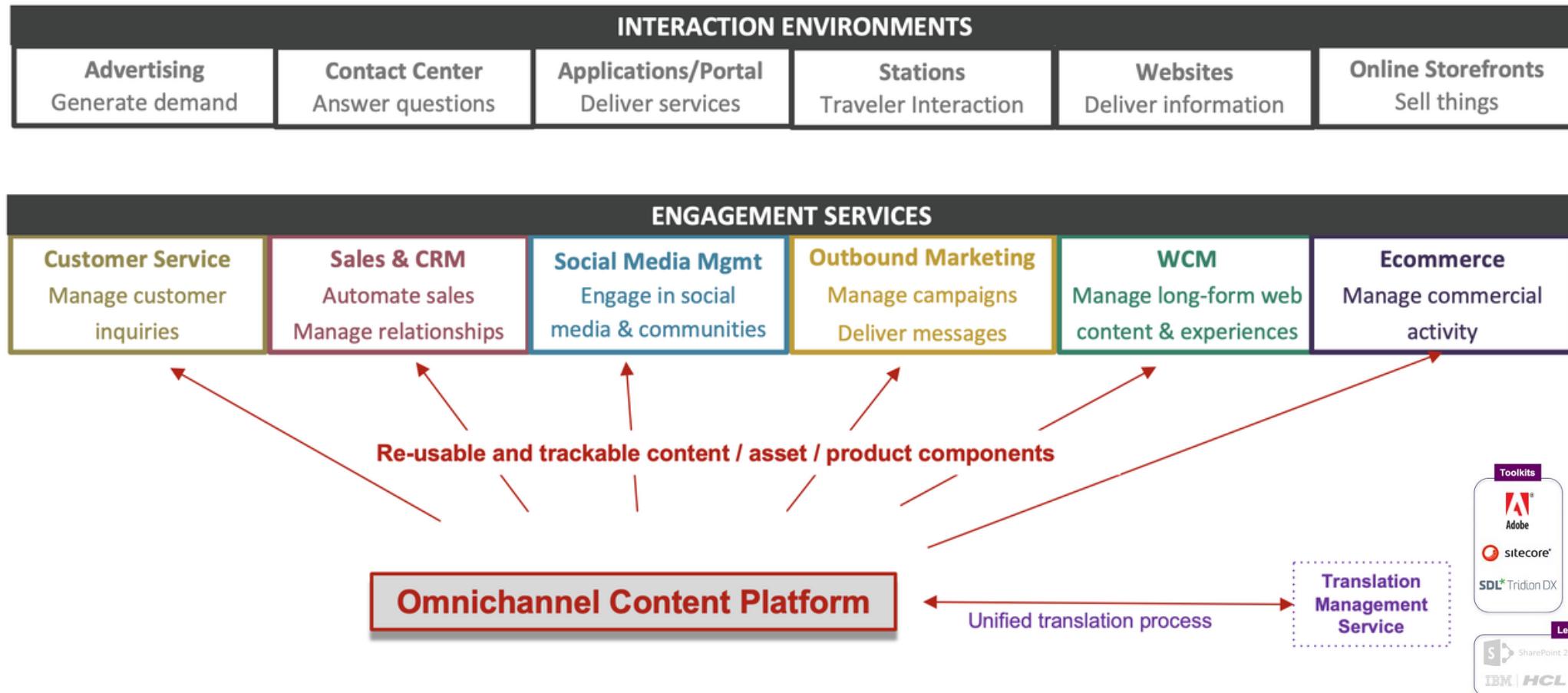
source: [Headless Adobe Commerce Architecture | Adobe Commerce](#)

C-Store's Adobe Experience Manager (WCM)

Omnichannel Content Platform (OCP)

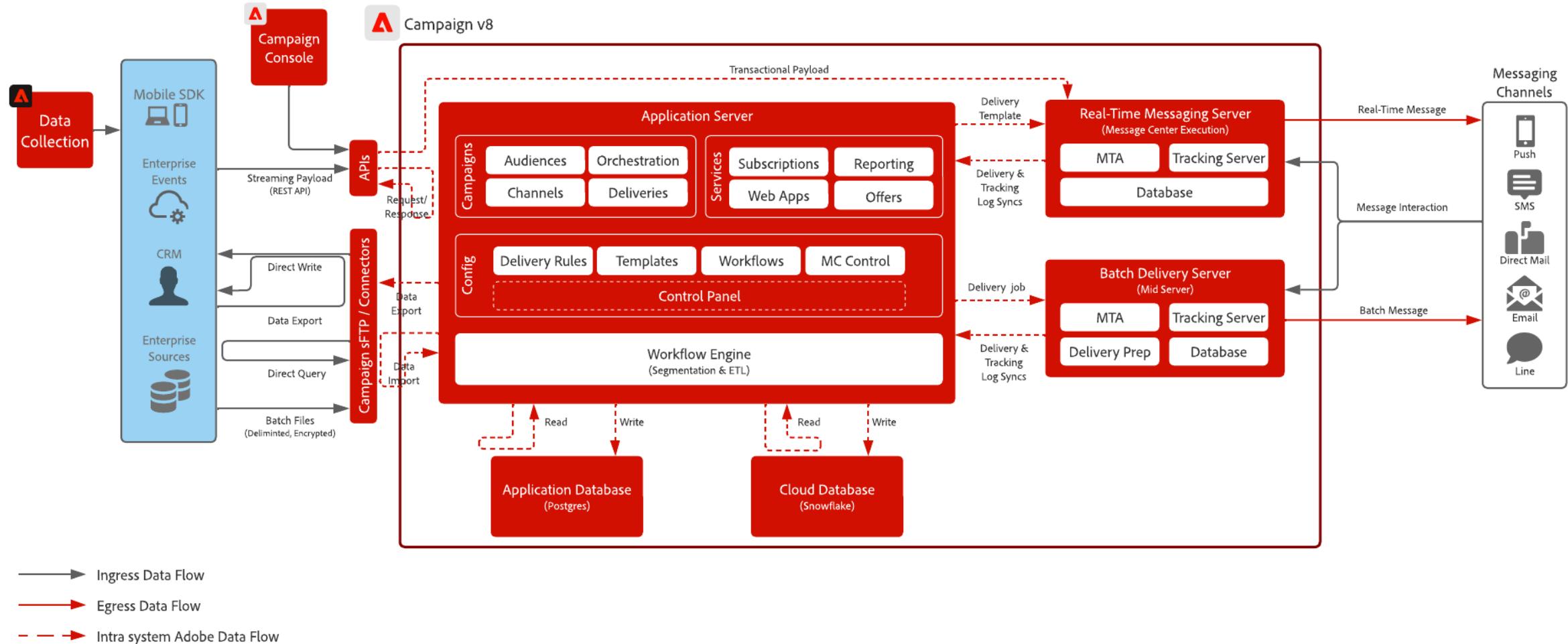
Component Asset Management: Future Vision

Real Story
GROUP
MAKE BETTER TECHNOLOGY DECISIONS

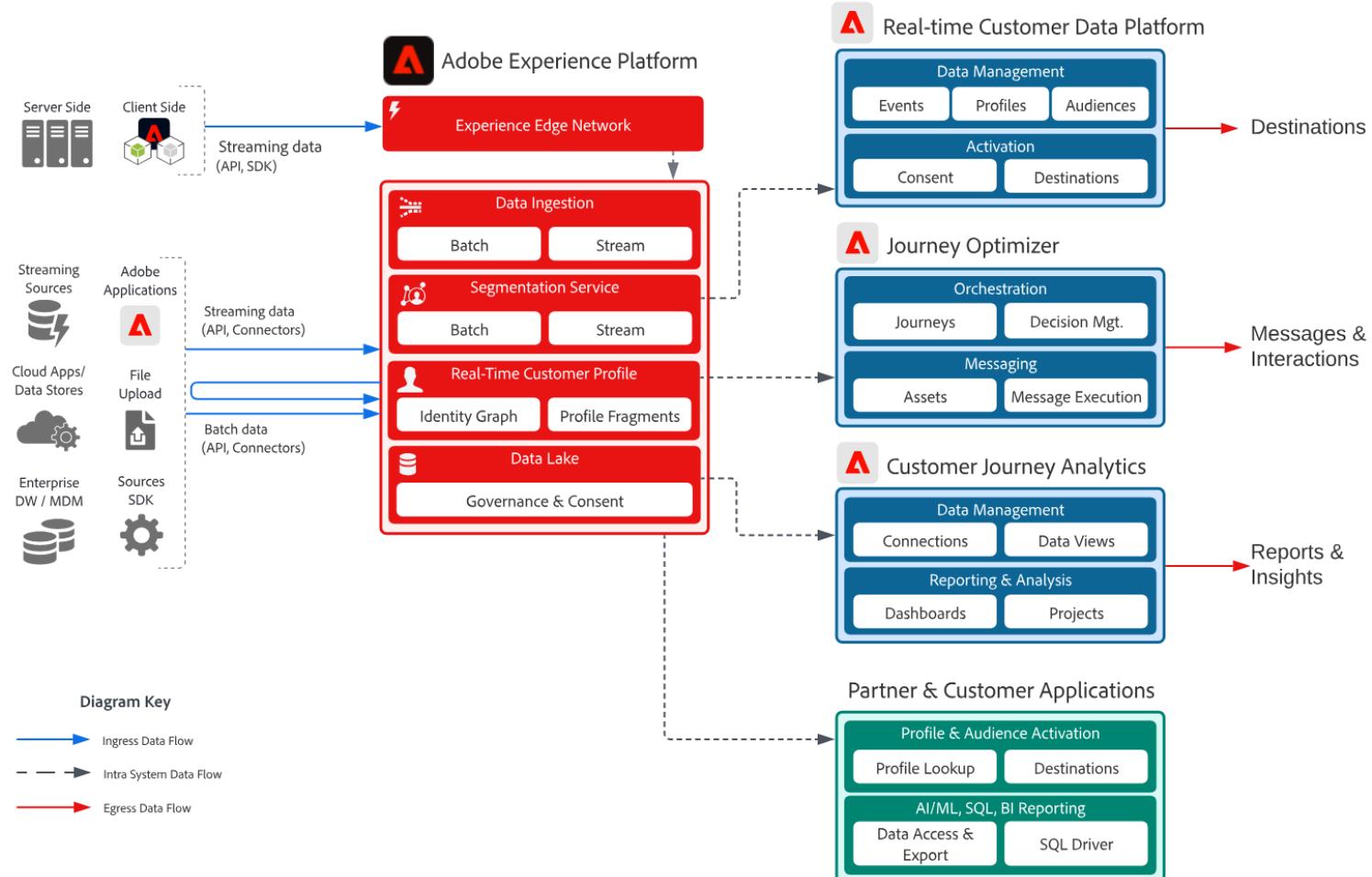


source: [There's an Omnichannel Content Platform in Your Future | LinkedIn](#)

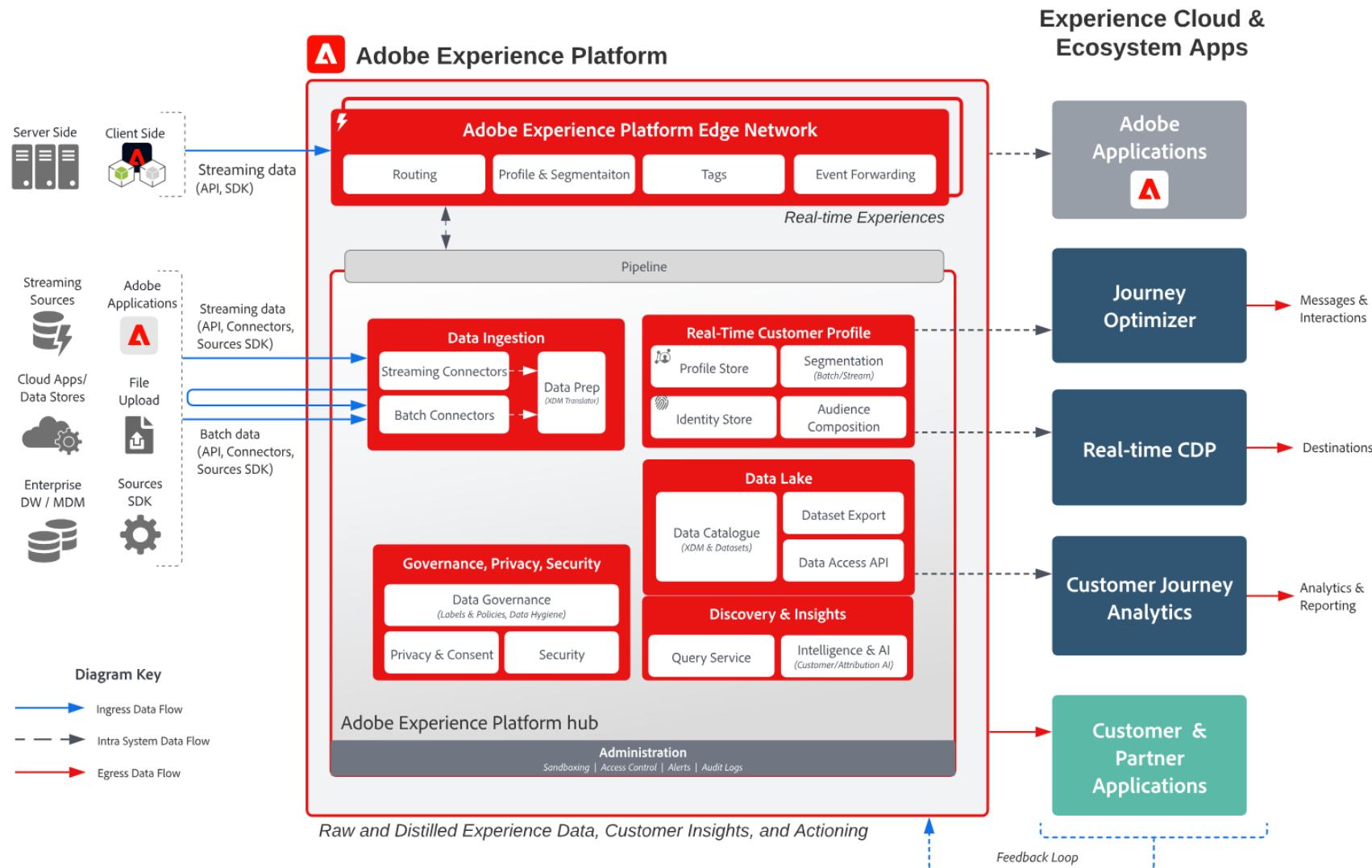
Adobe Campaign v8 FDA Deployment (Default, P1-P3)



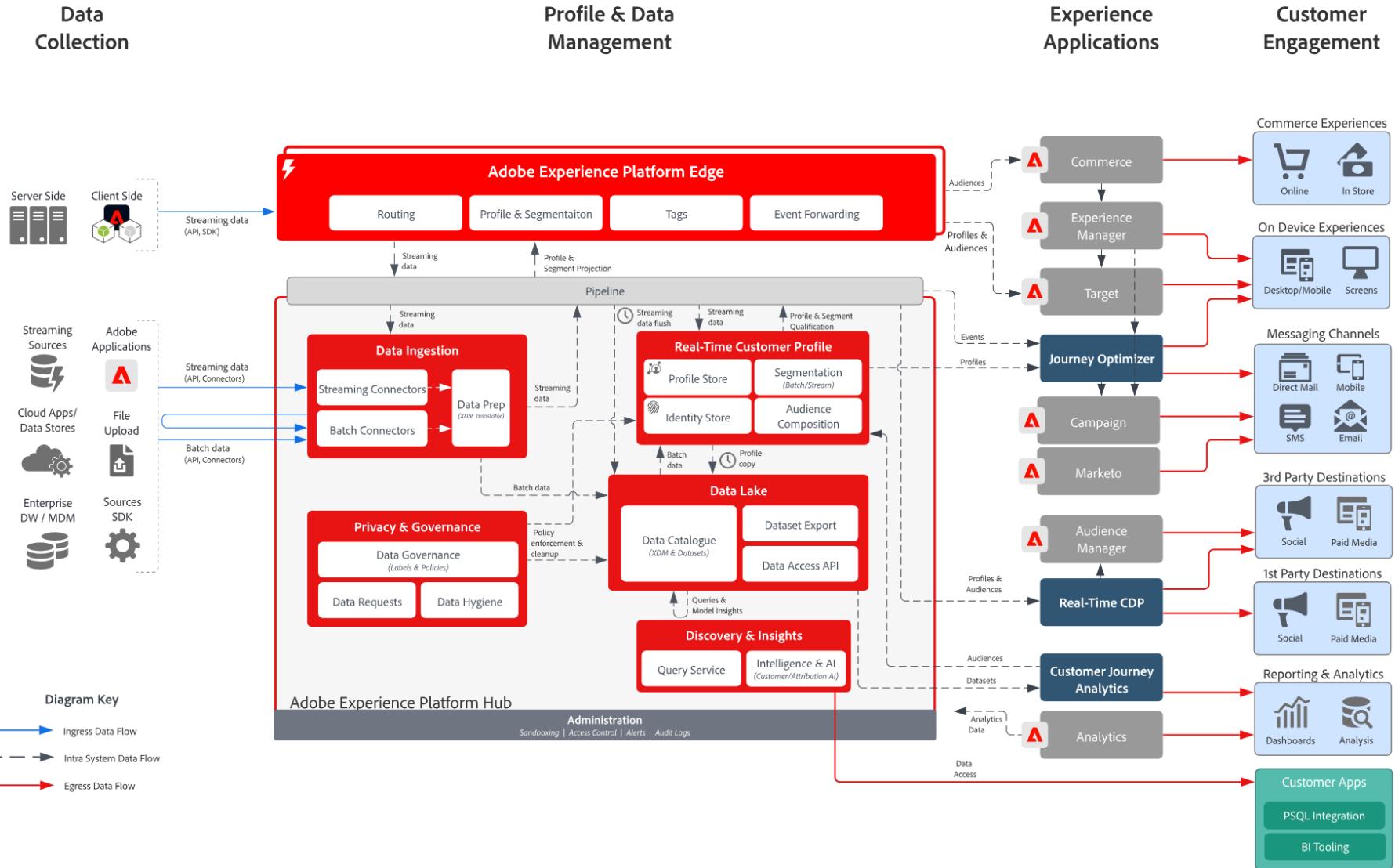
Adobe Experience Platform & Applications Architecture



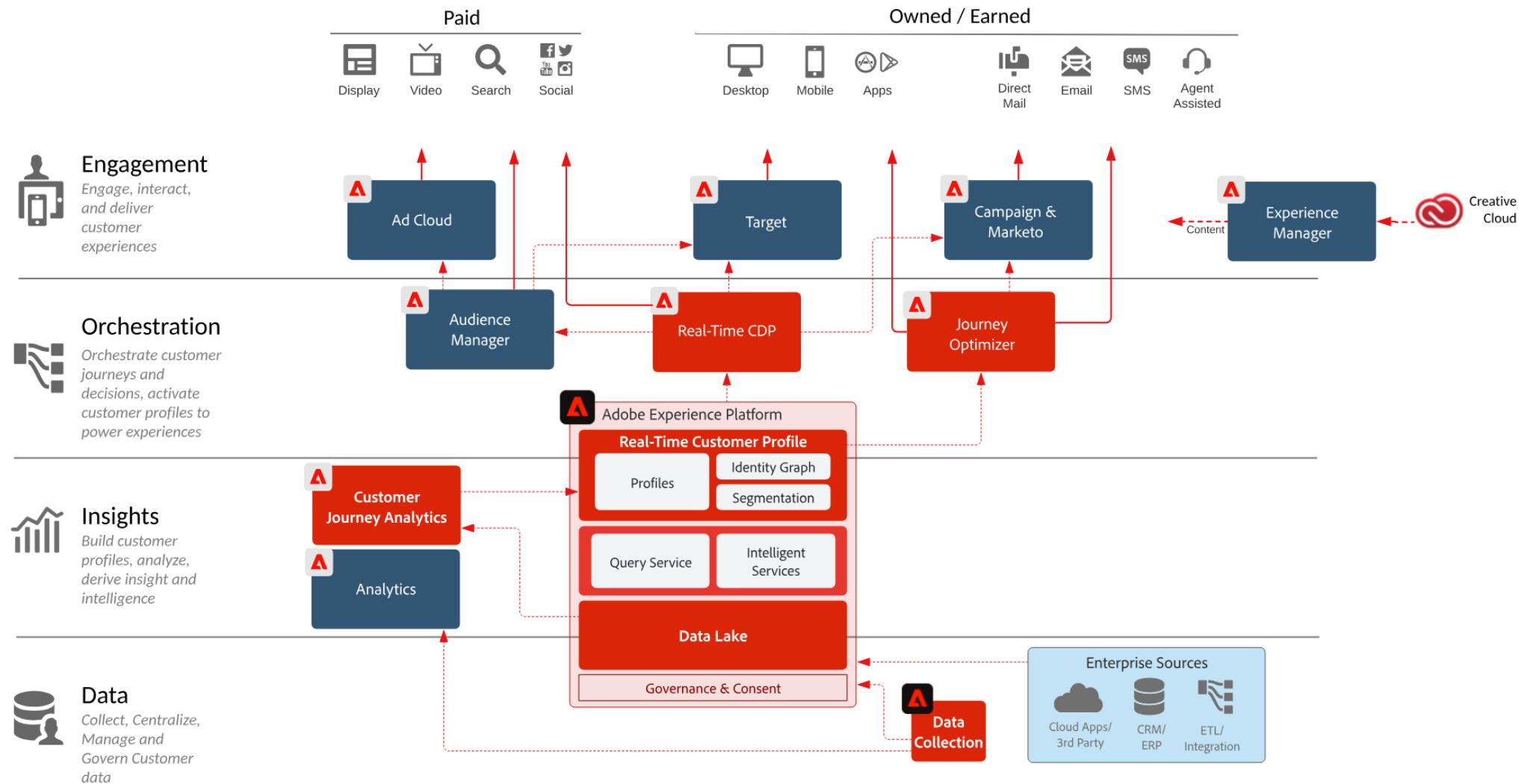
Adobe Experience Platform & Applications Overview



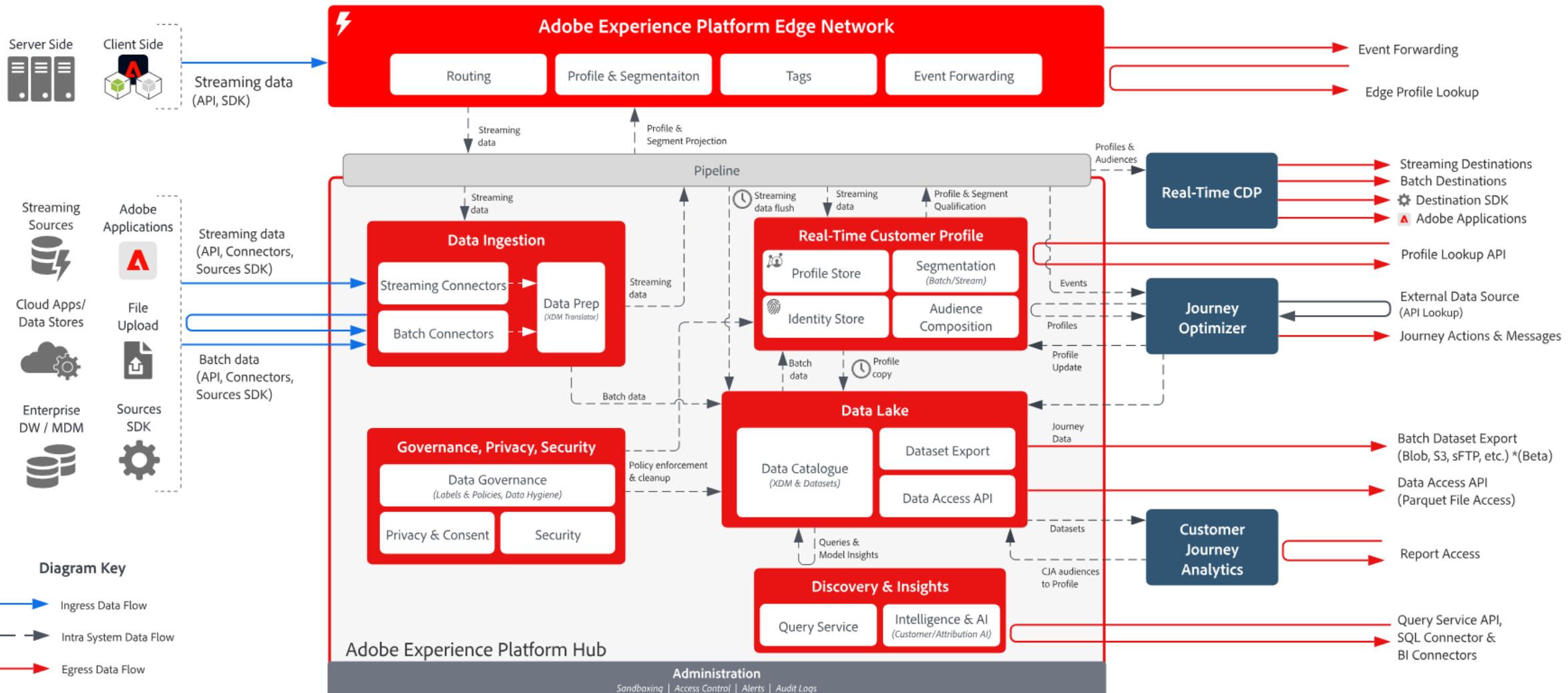
Adobe Experience Platform & Applications Detailed Architecture



Adobe Experience Cloud in the Enterprise Landscape

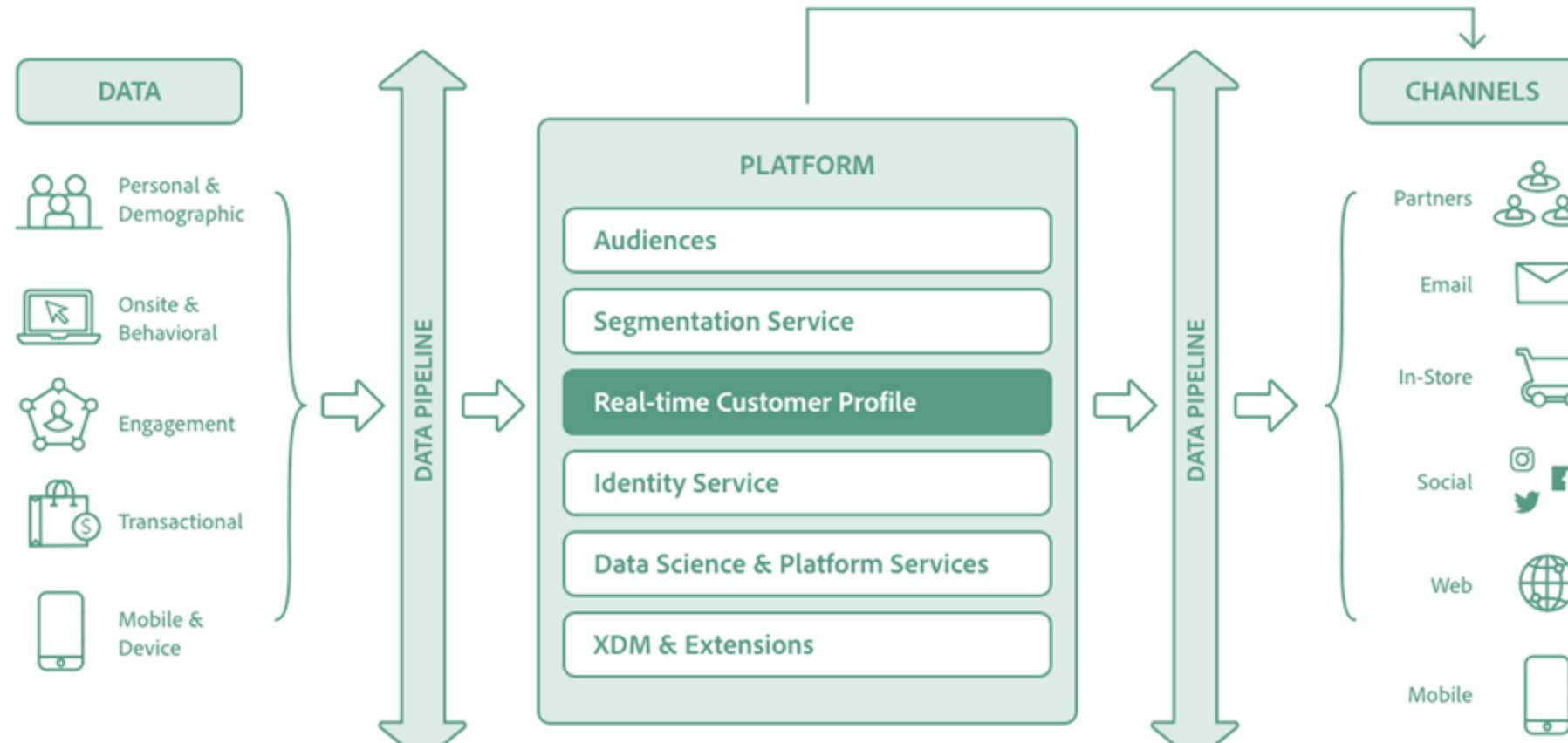


Adobe Experience Platform Data Flow



Adobe Experience Platform: Core Components

Real-time Customer Profile Overview



Real-time Customer Profile (RCP) provides unified, real-time view of individual customer by aggregating data from various sources. Segmentation Service uses Experience Data Model (XDM) to build audiences based on data from RCP.

Adobe Experience Platform: Core Components

Real-time Customer Profile Overview

Built on Adobe Experience Platform, Adobe Journey Optimizer is natively connected to Adobe Real-time Customer Profile. This built-in data source is pre-configured, and is designed to retrieve and use data from Real-time Customer Profile (for example, check if the person who entered a journey is a client or not). It allows you to use Profile data and Experience Events data.

Real-Time Customer Profile provides a centralized consumer profile for targeted and personalized experience management. Each profile contains data that is aggregated across all systems and include actionable timestamped accounts of events that involve the profile subject. These events may have taken place in any of the systems you use with Experience Platform.

Real-Time Customer Profile consumes schema-formatted data based on the XDM Individual Profile and XDM ExperienceEvent classes, and responds to queries based on that data.

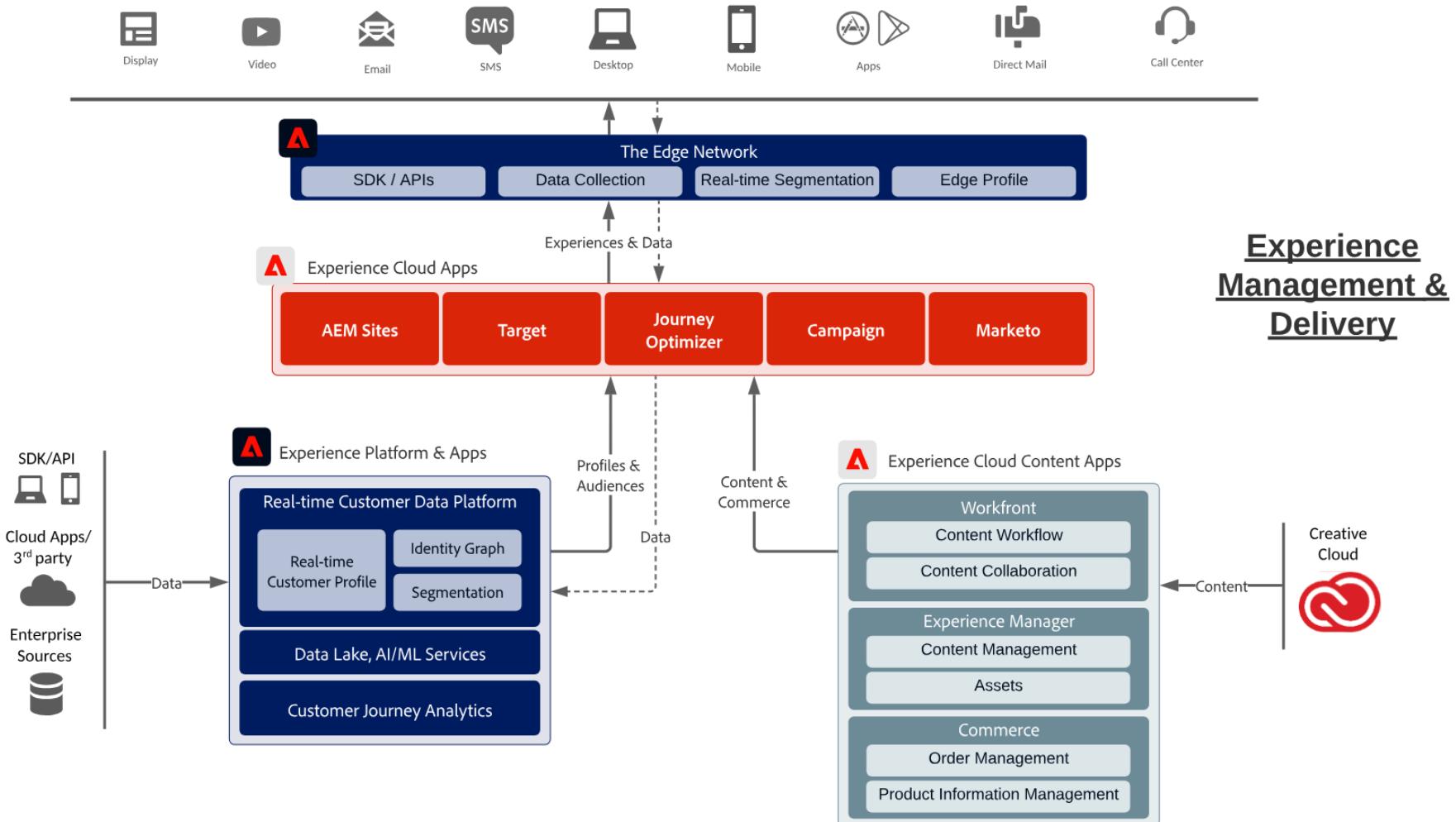
The system maintains an instance of each customer profile, merging data together to form a “single source of truth” for the individual. This unified data is represented using what is known as a “union schema” (sometimes referred to as a “union view”). A union schema aggregates the fields of all schemas that implement the same class into a single schema. When composing a schema using the UI or API, you can enable the schema for use with Real-Time Customer Profile and tag it for inclusion in the union. The tagged schema will then participate in the schema definition being fed to Profile.

As XDM Individual Profile and XDM ExperienceEvent data is ingested into the data lake, Real-Time Customer Profile ingests any data that has been enabled for its use. The more interactions and details that are ingested, the more robust individual profiles become.

XDM Individual Profile data helps inform and empower actions across any channel or Adobe product integration. When paired with a rich history of behavioral and interaction data, this data can be used to power machine learning. The Real-Time Customer Profile API can also be used to enrich the functionality of third-party solutions, CRMs, and proprietary solution

Adobe Integration Architecture (Personalisation at Scale)

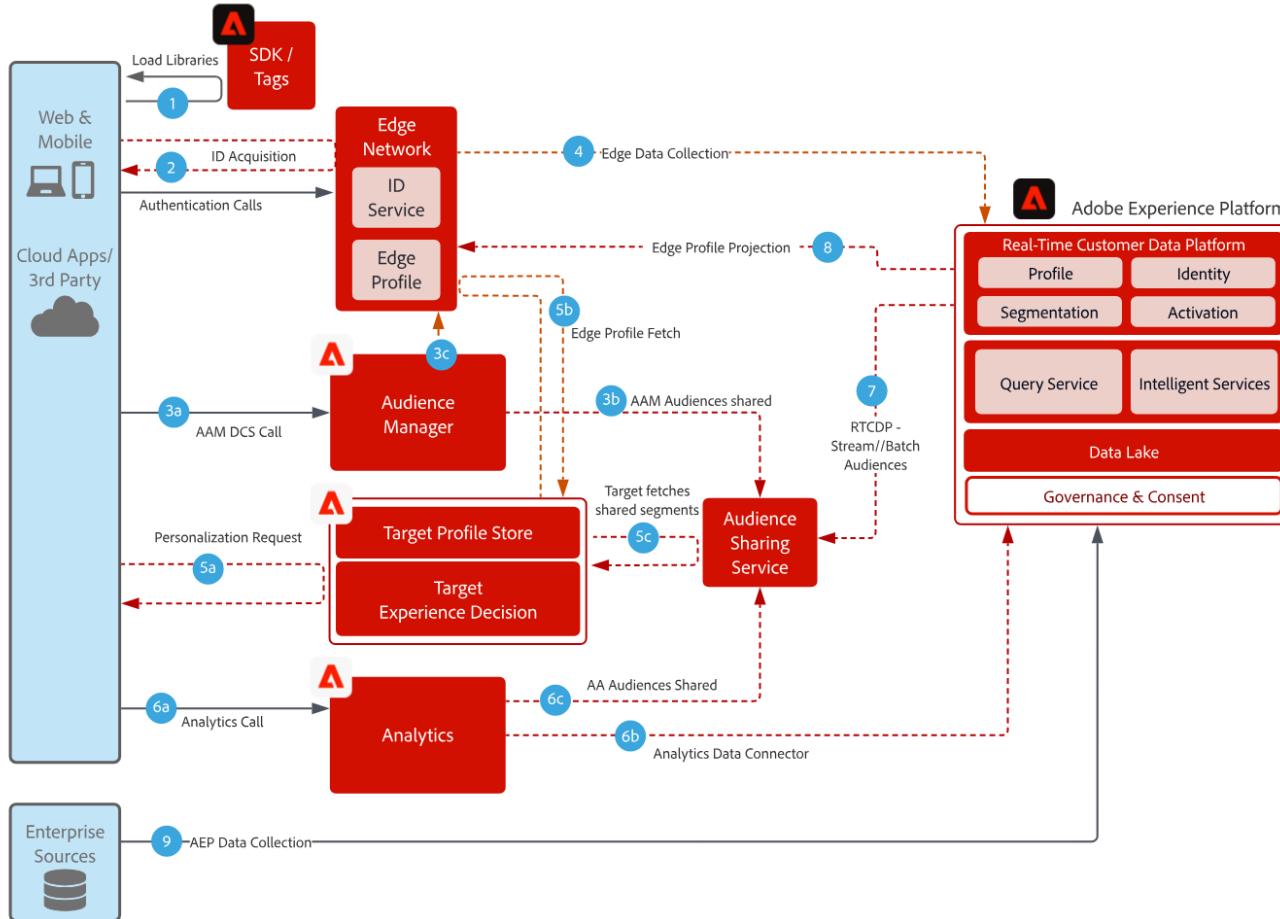
Data & Insights, Content & Commerce, and Experience Delivery



Adobe Application-specific SDK Implementation



Application Specific SDK Implementation



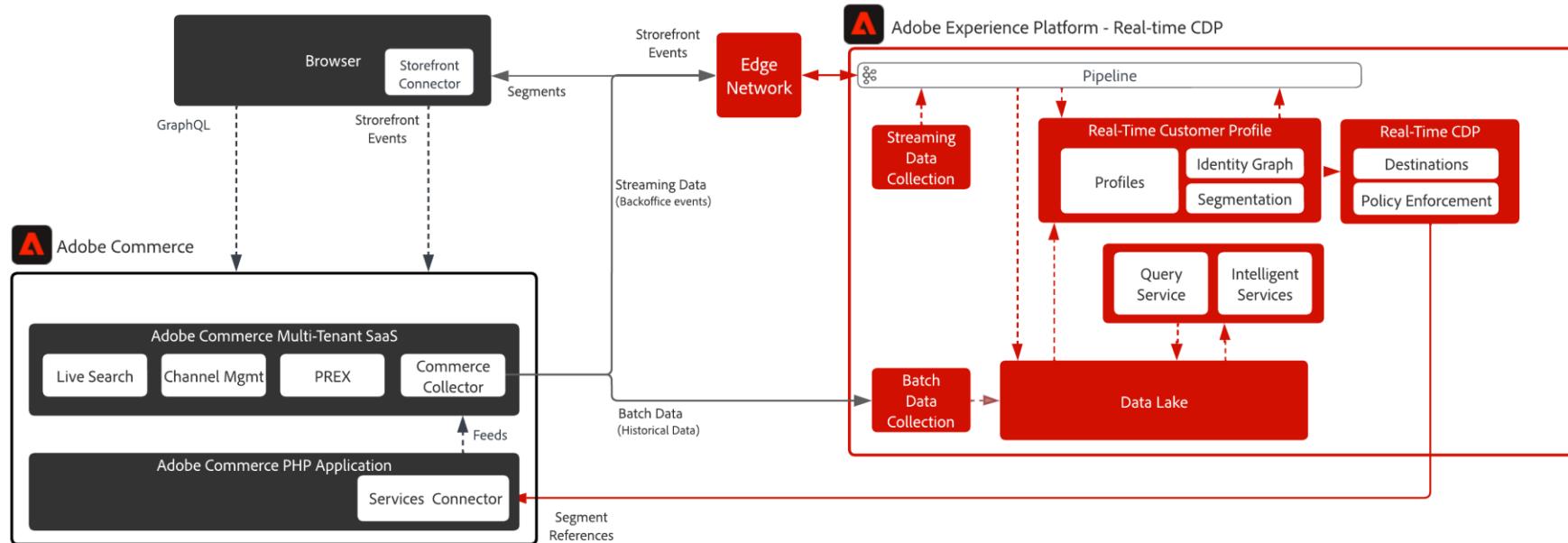
Details & Latency

Note: This diagram assumes a implementation approach using application specific SDKs.

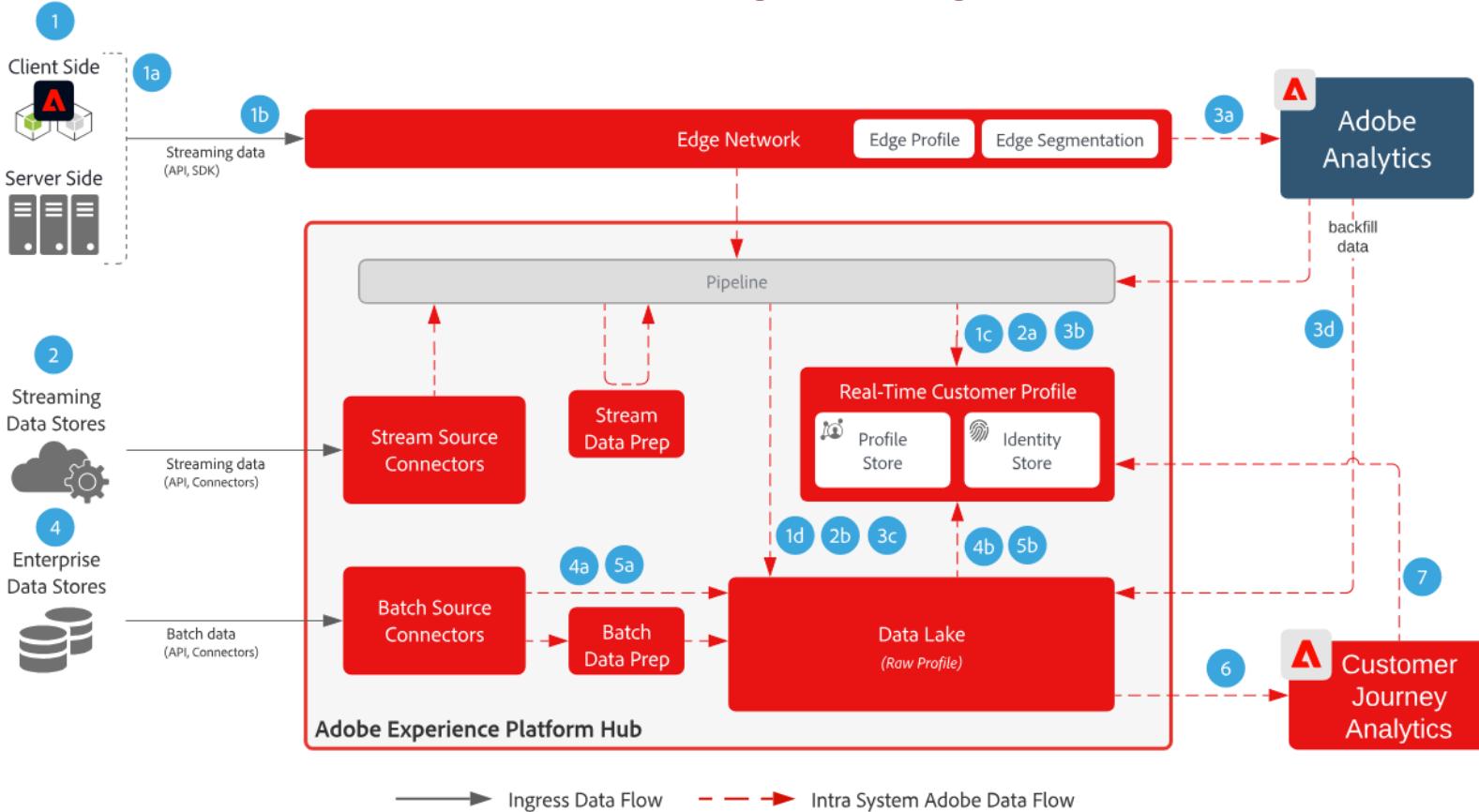
- Load Application Libraries <20ms - 100ms
- Assign/record identities for new visitors and identities. Cookie settings – ECID, UUID, Authenticated IDs, 3rd party syncs (optional), consent cookie, cookie check, AAM Destinations.
- a. Audience Manager data collection and real-time segmentation.
- b. Audience membership available to Audience Sharing Service after first page view.
- c. Audience membership available in the Edge Profile.
- d. Data Collected from the Edge can be processed to RTCDP.
 - Real-Time Customer Profile <1min
 - Data Lake <15min 5a.
- e. Personalization request and response from Target.
- f. Edge Profil is fetched for personalization response.
- g. Audience memberships shared to the Audience Sharing Service are fetched for personalization.
- h. Data collection to Analytics.
- i. (Optional) Analytics Data Connector
 - Real-Time Customer Profile <2mins or <15mins (A4T)
 - Data lake <45mins
- j. AA segment jobs are performed ~4hrs and shared to the Audience Sharing Service.
- k. Segment Sharing
 - Batch segmentation every 24hrs
 - Streaming segmentation <5mins
- l. Profile attributes and segment memberships are projected to the edge profile.
- m. Enterprise data can be ingested to Experience Platform asynchronously via API, SDK, or connectors.

- Ingress Data Flow
 → Intra system Adobe Data Flow
 # Implementation Step & Details

Adobe Commerce & Adobe RTCDP



Adobe Customer Journey Analytics Guardrails



The above diagram illustrates the average performance guardrails and latency for data ingestion into Adobe Experience Platform.

Details & Latency

Stream Ingestion

1. SDK / API
 - a. Load Library ~100ms
 - b. ~100ms avg. request time <1mb per record
 - c. Hub Profile upper limit ~15min <1mb per record. Identity Store - 10min batches.
 - d. Data Lake ~15mins

2. Source Connector

- a. Hub Profile upper limit ~15min <1mb per record. Identity Store - 10min batches.
- b. Data Lake ~15mins avg.

3. Analytics Data Connector

- a. Streaming Ingestion to Analytics up to 15 min w/A4T enabled.
- b. Analytics to Profile ~up to 15 min w/ A4T enabled. Ingestion to Identity Store - 10min batches.
- c. Up to 90 min for data to process to data lake.
- d. Backfill historical data is processed in batch. Is not enabled for profile, up to 4 weeks for 13 months or 10B records.

Batch Ingestion

4. API
 - a. Data Lake ~20gb per hour avg. Subject to network latency.
 - b. Profile ~1gb per 10min avg. Identity Store - 10min batches..

5. Source Connector

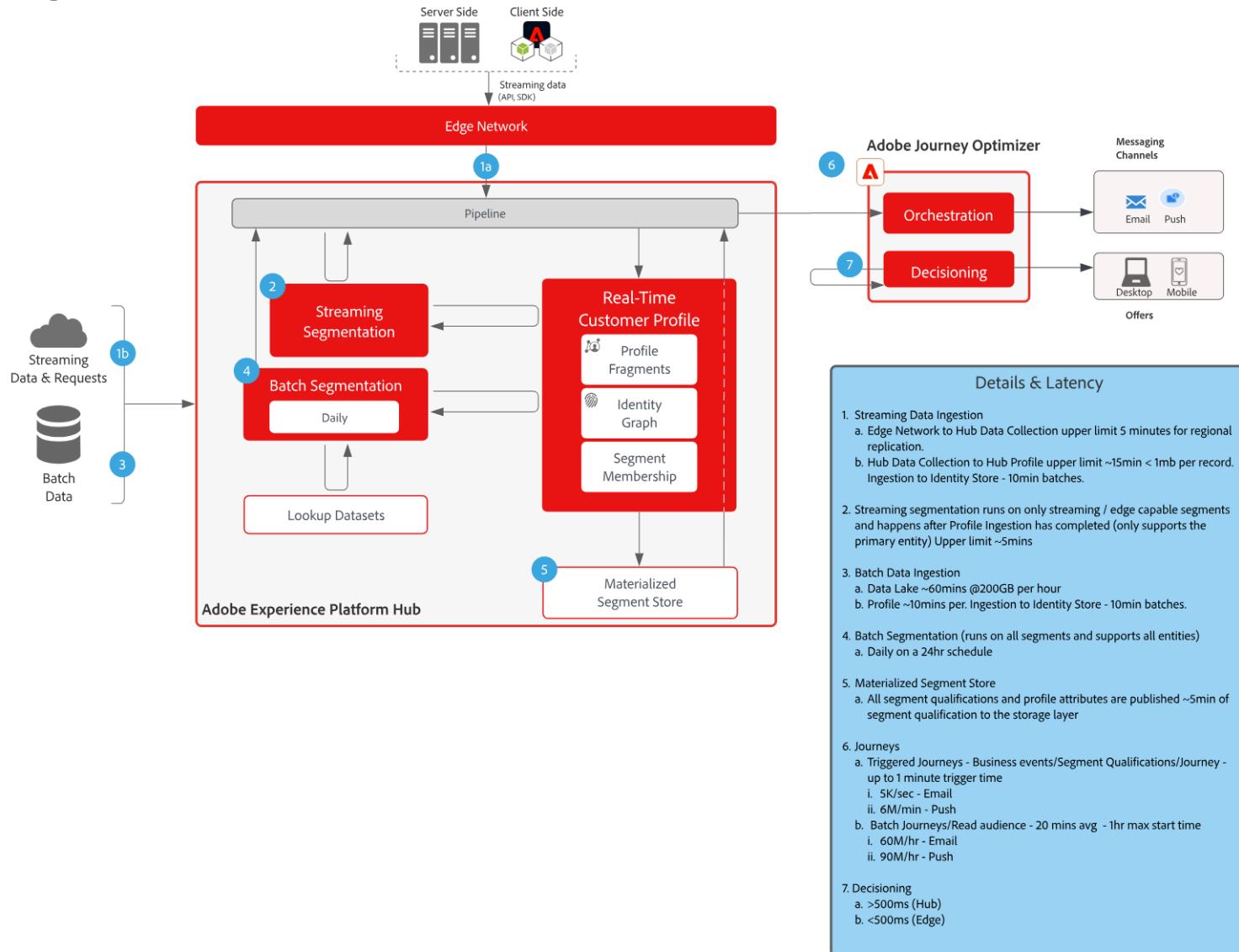
- a. Data Lake ~200gb per hour avg.
- b. Profile ~1gb per 10min avg. Identity Store - 10min batches.

Customer Journey Analytics

6. CJA Data Connection from data lake processed and ingested within 90 minutes, once data is available in AEP. (Batch size > 50 million rows: longer than 90 mins.)

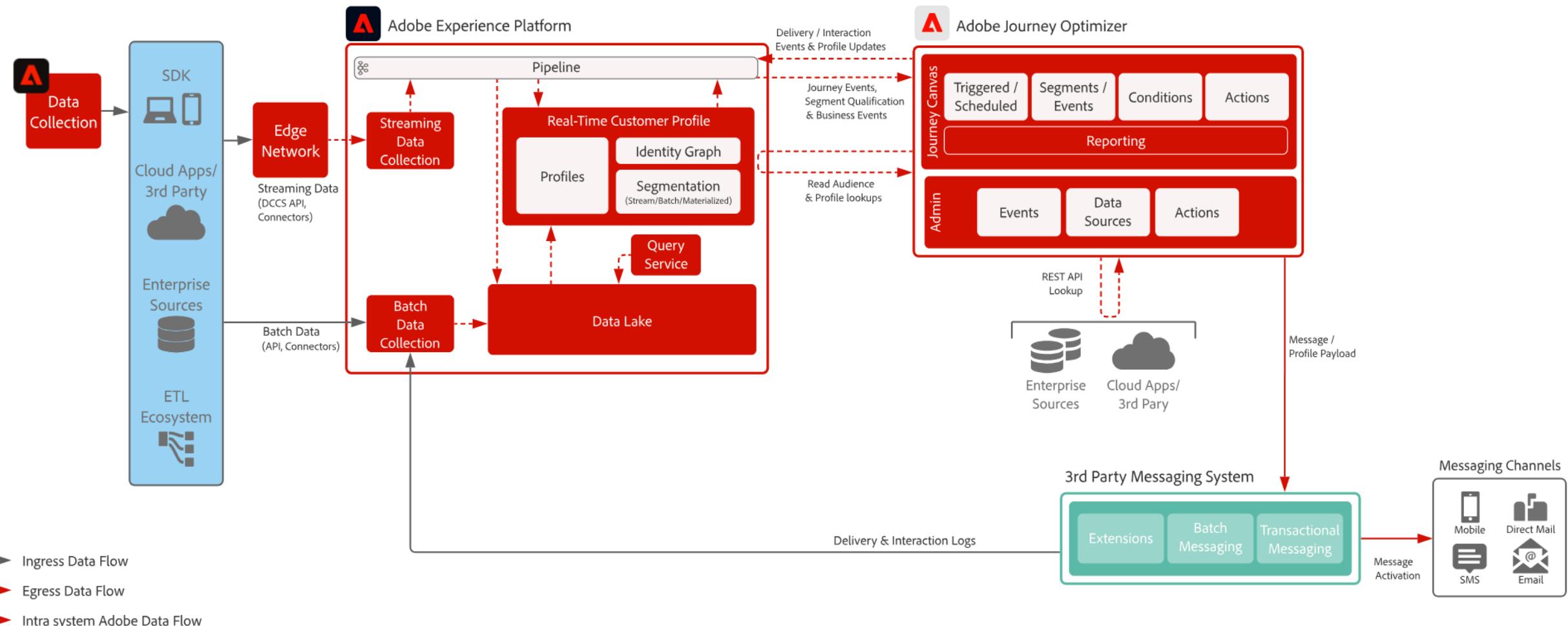
7. Audience Publishing from CJA to Real-time Customer profile ~up to 15 minutes after audience is created and for each evaluation. First time audience creation and sharing ~60 minutes.

Adobe Journey Optimizer Guardrails

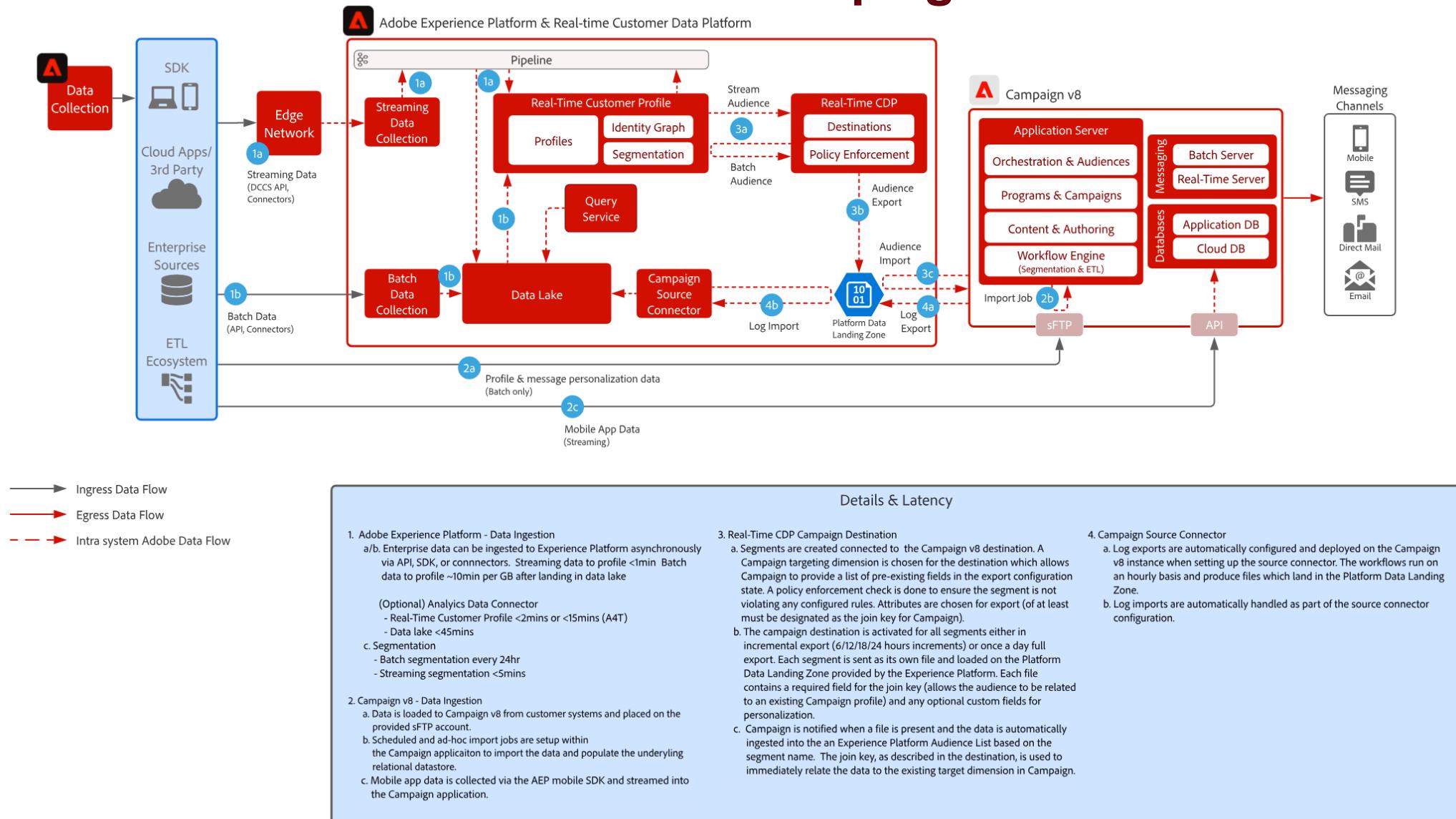


Adobe Journey Optimizer

Third-Party Messaging

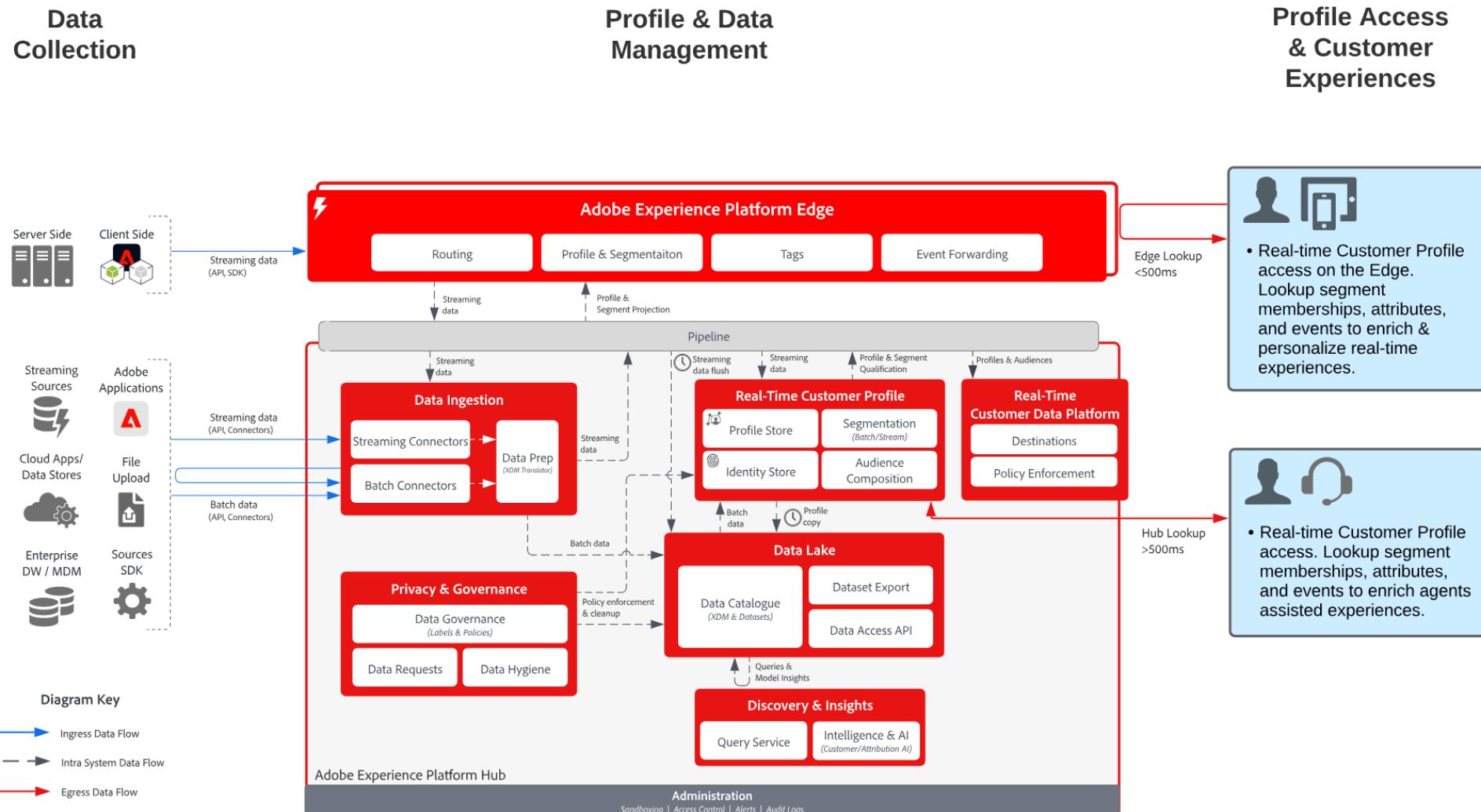


Adobe Real-Time CDP with Adobe Campaign v8



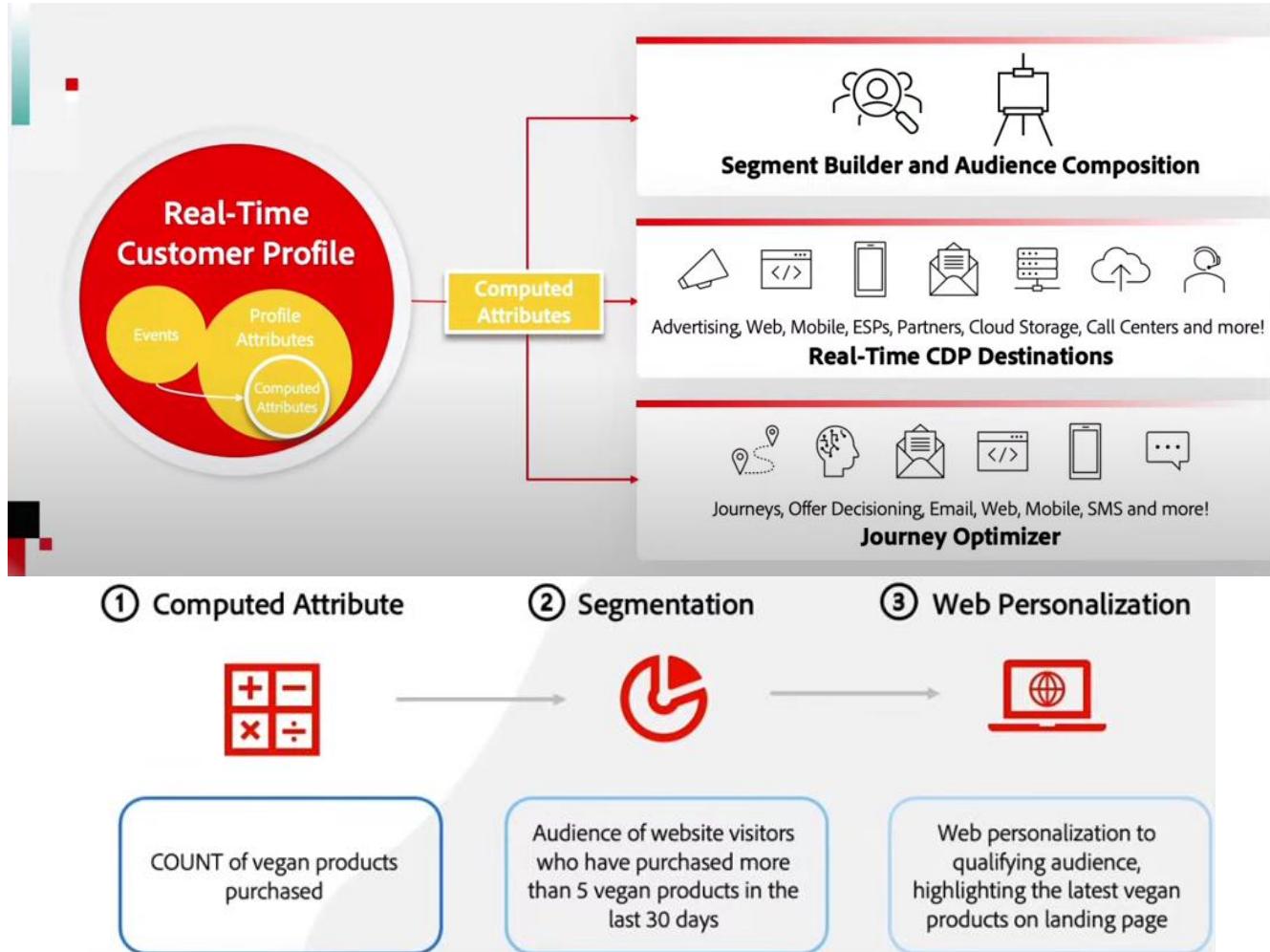
Adobe Experience Platform's Real-time Customer Profile

Customer Activity Hub - Profile Lookup



Behavioral Event Data In Real-time Customer Profile and AJO

Real-time Customer Profile's Computed Attributes value across Experience Platform

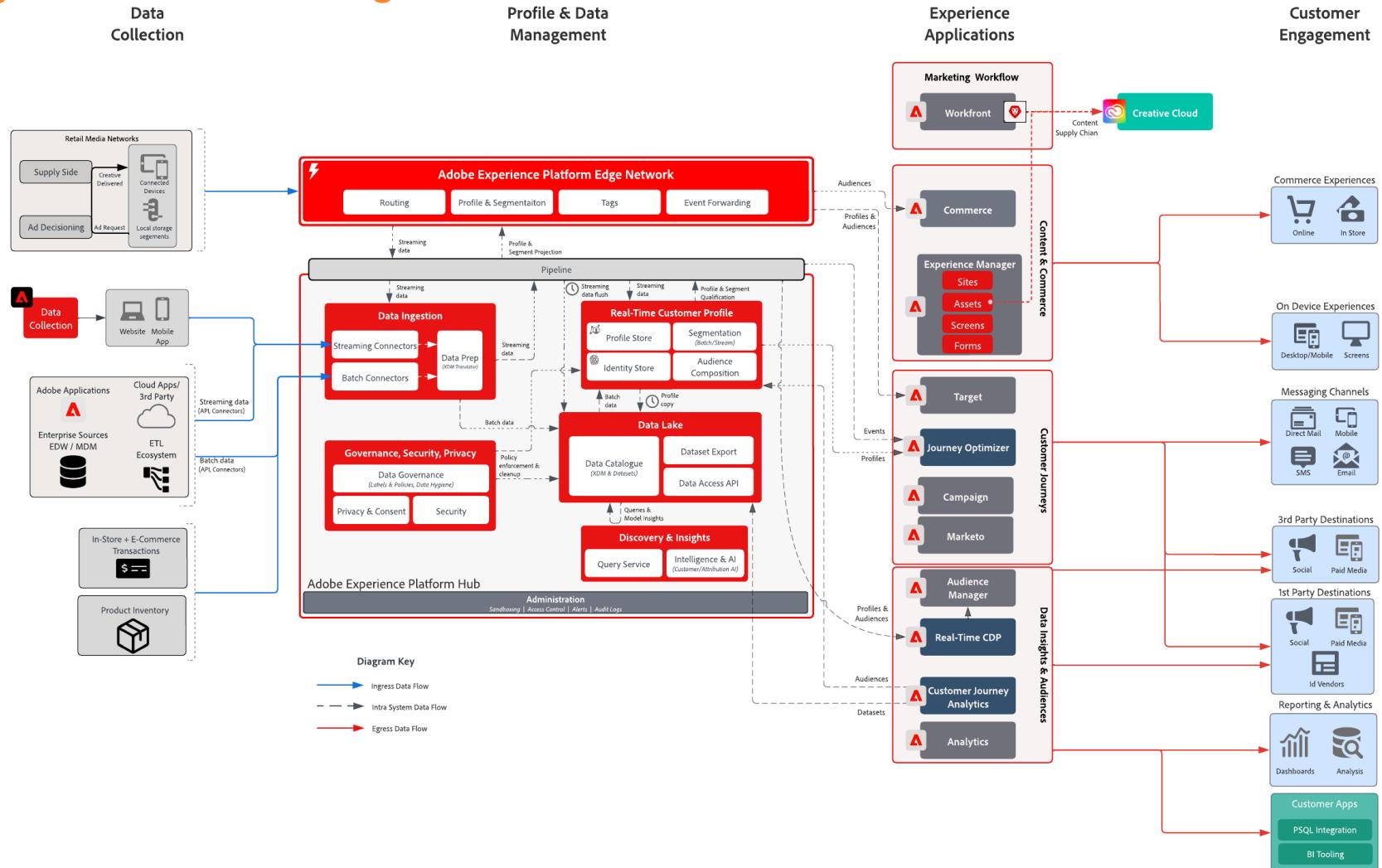


[Available Use Case Playbooks for Real-Time Customer Data Platform and Adobe Journey Optimizer | Adobe Experience Platform.](#)

source: [Get the most from your behavioral event data in Real-Time CDP and Journey Optimizer | Adobe Experience Cloud](#)

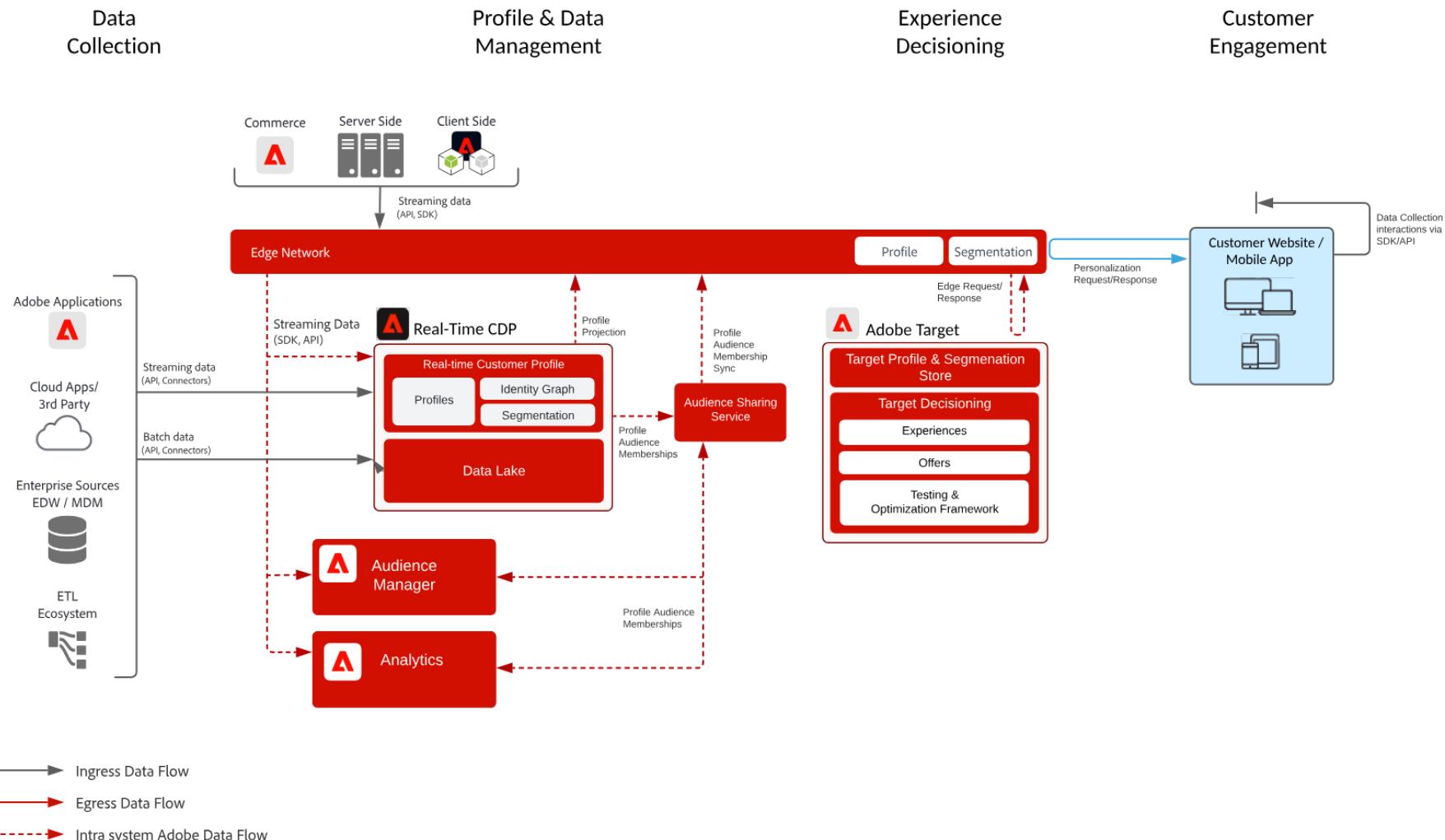
Adobe Journey Optimizer

Retail Industry Business Challenge

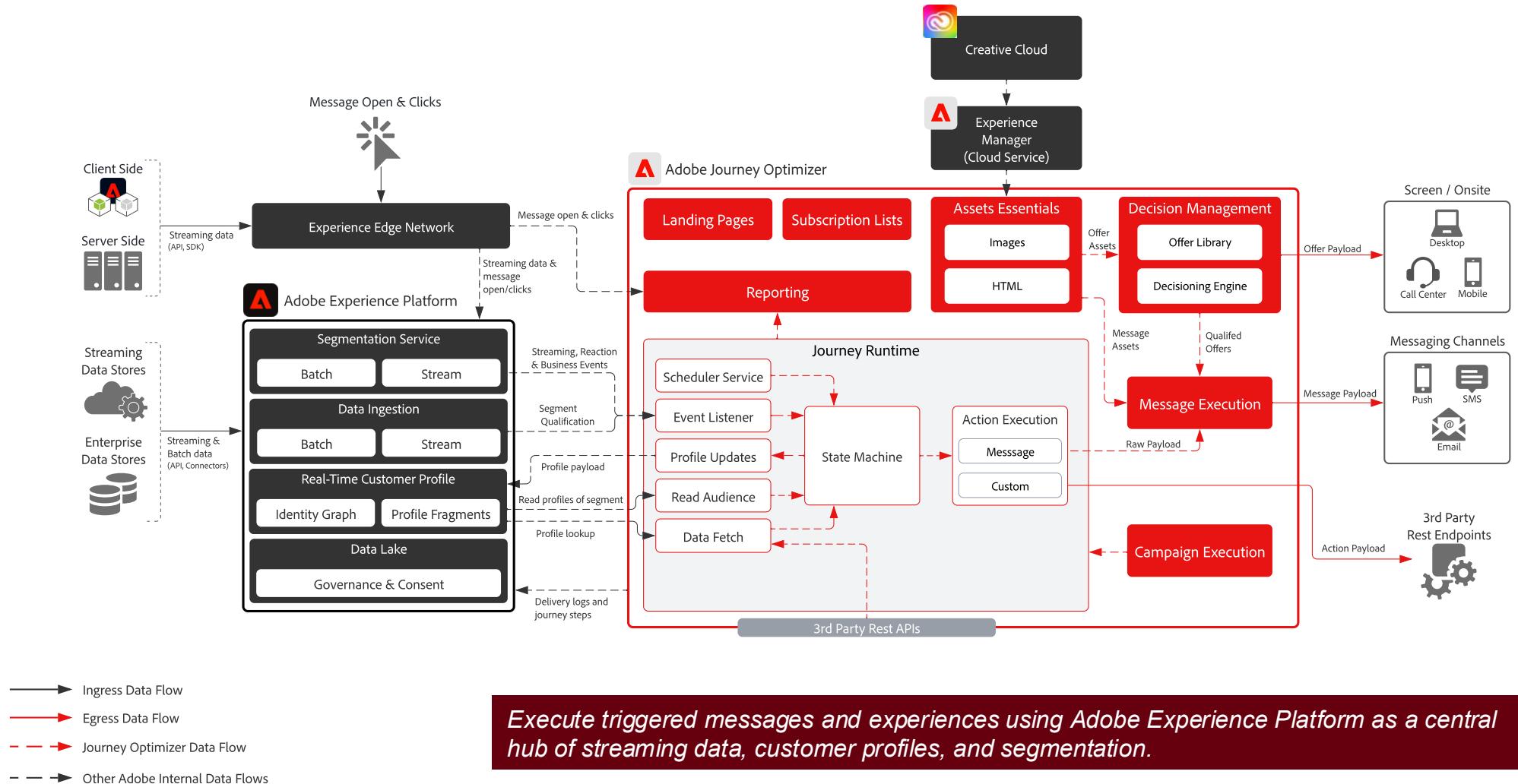


Adobe Journey Optimizer

Behavioural Web/Mobile Personalisation

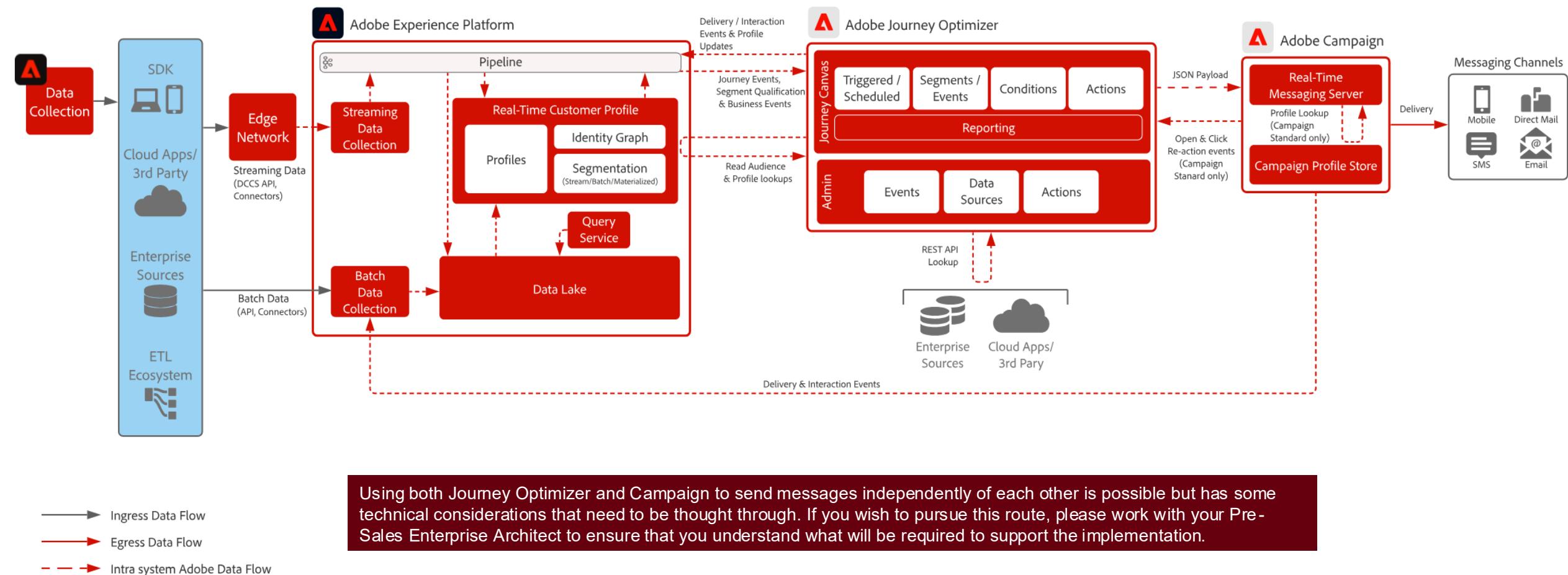


Adobe Journey Optimizer



source: [Journey Optimizer - Triggered Messaging and Adobe Experience Platform Blueprint | Adobe Journey Optimizer](#)

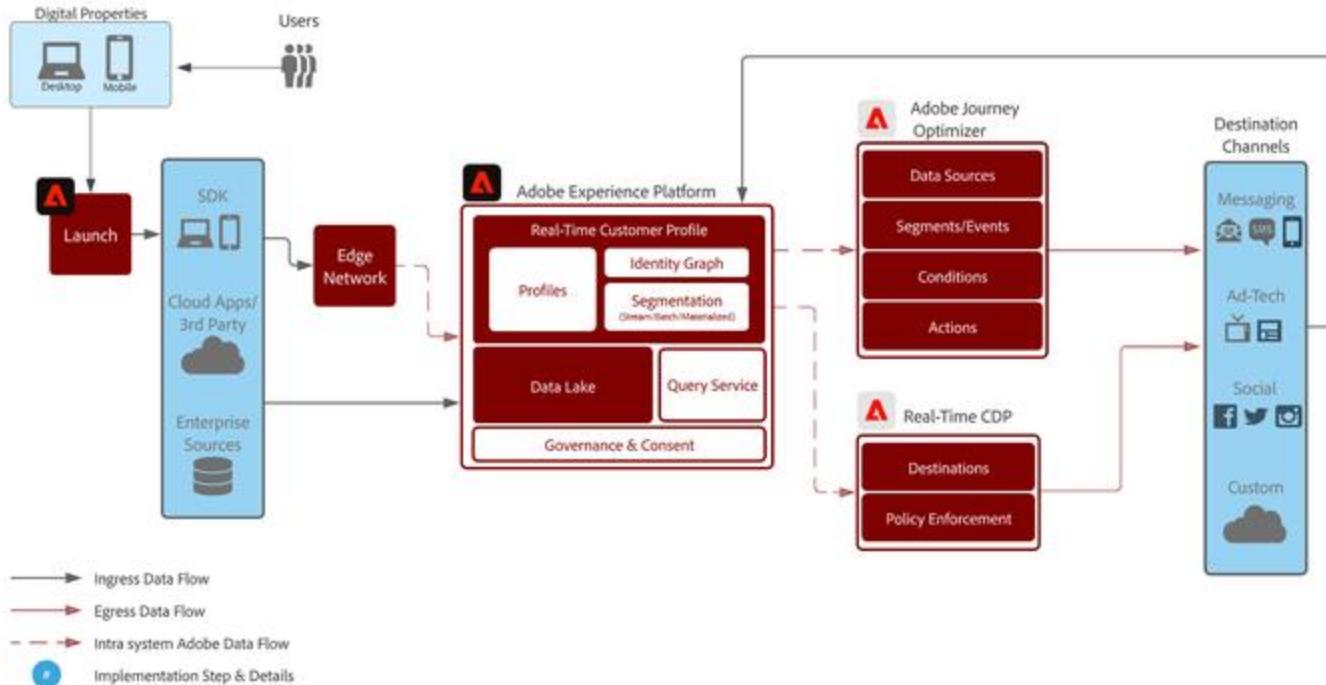
Adobe Journey Optimizer with Adobe Campaign v8



source: [Journey Optimizer with Adobe Campaign v8 blueprint | Adobe Experience Cloud](#)

Adobe Journey Optimizer with Adobe RTCDP

Intelligent re-engagement, personalisation, insights, engagement



- Abandoned Product Browse
- Abandoned Cart
- Order Confirmation

RTCDP is a data source for other applications, e.g., adtech, where AJO can trigger the actions and send messages through various channels.

source: [Sample use cases in Real-Time CDP | Adobe Real-Time Customer Data Platform](#)

Adobe Journey Optimizer with Adobe Campaign v8

Adobe Campaign Actions

The screenshot shows the Adobe Journey Optimizer interface. On the left, there's a navigation sidebar with sections like Home, JOURNEY MANAGEMENT (Campaigns, Journeys, Landing pages), DECISION MANAGEMENT (Offers, Components), CONTENT MANAGEMENT (Assets), DATA MANAGEMENT (Schemas, Datasets, Queries, Monitoring), and CONNECTIONS (Sources). The 'Journeys' section is currently selected. In the center, a journey named 'Journey667' is displayed, showing its draft status and version information. A modal window titled 'Actions: ActionCampaignv8' is open, allowing configuration of an action. The modal has fields for 'LABEL' (labeled 'Add a label') and 'DESCRIPTION' (labeled 'Add a description'). Below these are 'Action parameters' for 'EMAIL ADDRESS' (set to 'The address of personalEmail') and 'FIRST NAME' (set to 'The firstName of name'). Under 'Timeout and Error', there's an unchecked checkbox for 'Add an alternative path in case of a timeout or an error'. The 'Action parameters' section includes icons for Email, SMS, Push, Jump, and Update Profile, with 'ActionCampaignv8' highlighted by an orange border.

An integration is available if you have Adobe Campaign v7 or v8. It will allow you to send emails, push notifications and SMS using Adobe Campaign Transactional Messaging capabilities.

The connection between the Journey Optimizer and Campaign instances is setup by Adobe at provisioning time. Contact Adobe.

source: [Tips & Tricks to Unlock the Full Power of Journey Optimizer \(adobe.com\)](#)

source: [Adobe Campaign v7/v8 actions | Adobe Journey Optimizer](#)

Adobe Campaign Managed Cloud Services (ACC v8)

Service Level Agreement and Product Description

	Maximum Number of Active Profiles in Millions				
	<2	2 to <5	5 to <20	20 to <50	50 to 200
Static Limits					
Total Database Storage across Production and Staging Instance	500 GB	2 TB	4 TB	6 TB	8 TB
SFTP Storage in Gigabytes	100	100	200	300	500
Total Number of Domain Delegations	8	12	16	24	32
Number of IPv4 Addresses	4	8	8	16	32
Email Rendering	1,500	1,500	1,500	1,500	1,500
Performance Guardrails					
Peak Volume - Number of Emails per hour ^{[1][3]}	1,500,000	5,000,000	10,000,000	15,000,000	20,000,000
Peak Volume - Transactional Messaging (Email only) per hour	50,000	180,000	180,000	180,000	1,000,000
Peak Volume - Number of Push Notifications per hour ^{[1][3]}	1,500,000	5,000,000	10,000,000	15,000,000	20,000,000
Peak Volume - Transactional Messaging (Push only) per hour	50,000	180,000	180,000	180,000	1,000,000
Maximum batch and Transactional Email Size in Kilobytes	100	100	100	100	100
Maximum batch and Transactional Push Notification Size in Kilobytes	4	4	4	4	4
Maximum Inbound Interactions per second ^[2]	15	25	35	50	75
Scoping Parameters					
Image Serving-Bandwidth in TB per month	12 TB	3 TB	5 TB	10 TB	20 TB
Engine Calls per day ^[1]	250,000	500,000	700,000	1,000,000	1,500,000
Maximum Engine Calls per second ^[1]	20	25	50	75	100
Inbound Interactions per day ^[2]	200,000	300,000	400,000	500,000	500,000

source: [Adobe System Status](#)

source: [Adobe Campaign Managed Cloud Services | Product Description](#)

Adobe Journey Optimizer Prime (AJO)

Service Level Agreement and Product Description

	Maximum Number of Active Profiles in Millions				
	<2	2 to <5	5 to <20	20 to <50	50 to 200
Static Limits					
Peak Volume – Number of Messages per hour, with no Offers	1,000,000	5,000,000	10,000,000	50,000,000	60,000,000
Peak Volume – Number of Messages per hour, with Offers included	500,000	2,500,000	5,000,000	25,000,000	30,000,000
Peak Volume – Number of Journey Events per second	5,000	5,000	5,000	5,000	5,000
Peak Volume – Offer Decisions per second	5,000	5,000	5,000	5,000	5,000
Peak Volume – Transactional Messages per second in Journeys	500	1,000	2,500	5,000	5,000
Peak Volume – Transactional Messages per second in Campaigns	500	500	500	500	500
IPv4 Addresses	6	8	12	24	32

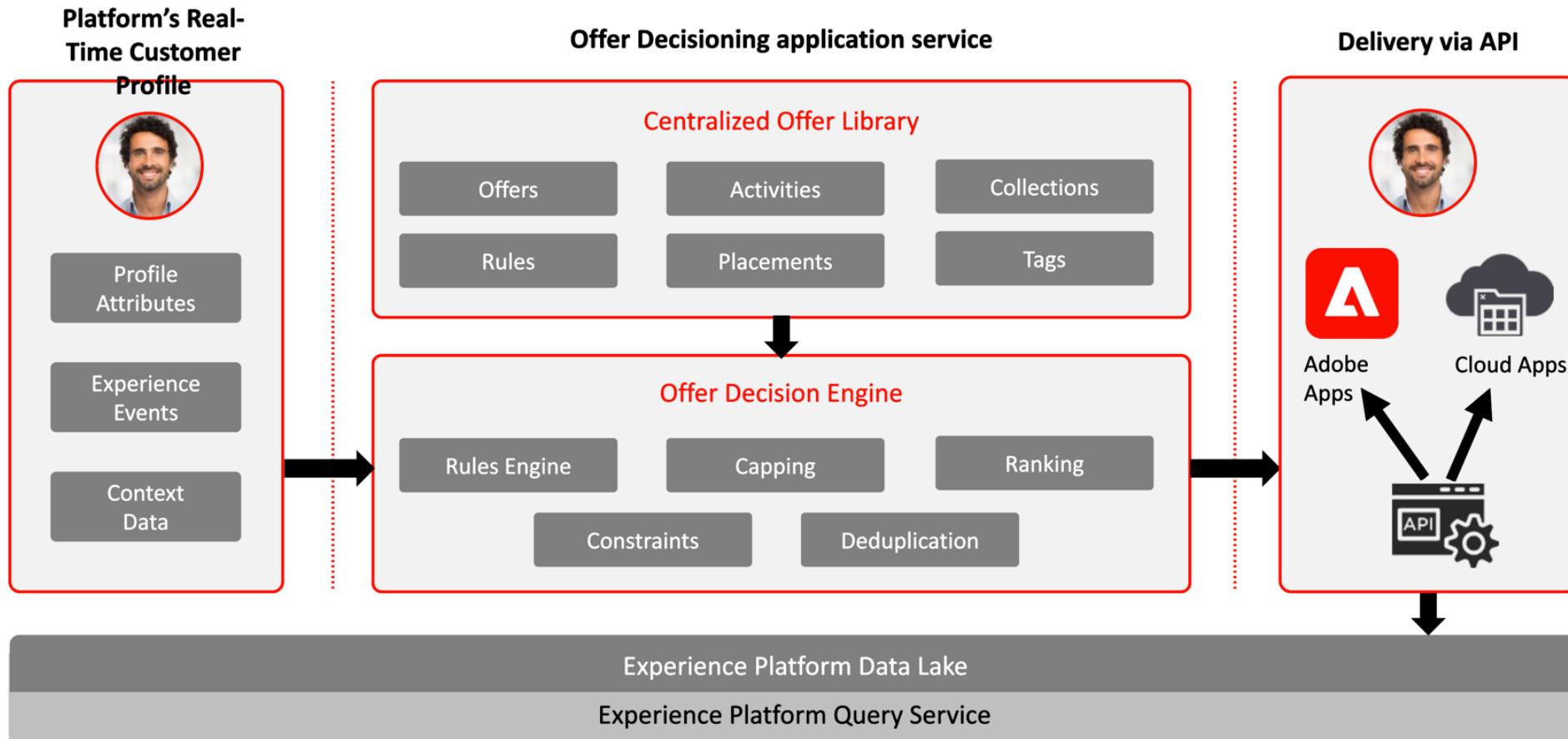
Journey Optimizer Package	Features
Select	Standard Features
Prime ^[1]	Standard Features plus: •Inbound Channels •Real-time Journey Orchestration •Streaming Segmentation
Ultimate ^[2]	Prime Features, plus: •Offer Decisioning
Ultimate ^[3]	Starter Features, plus: •Offer Decisioning

source: [Adobe System Status](#)

source: [Adobe Journey Optimizer | Product Description](#)

Adobe Journey Optimizer

Offer Decisioning Engine (ODE)



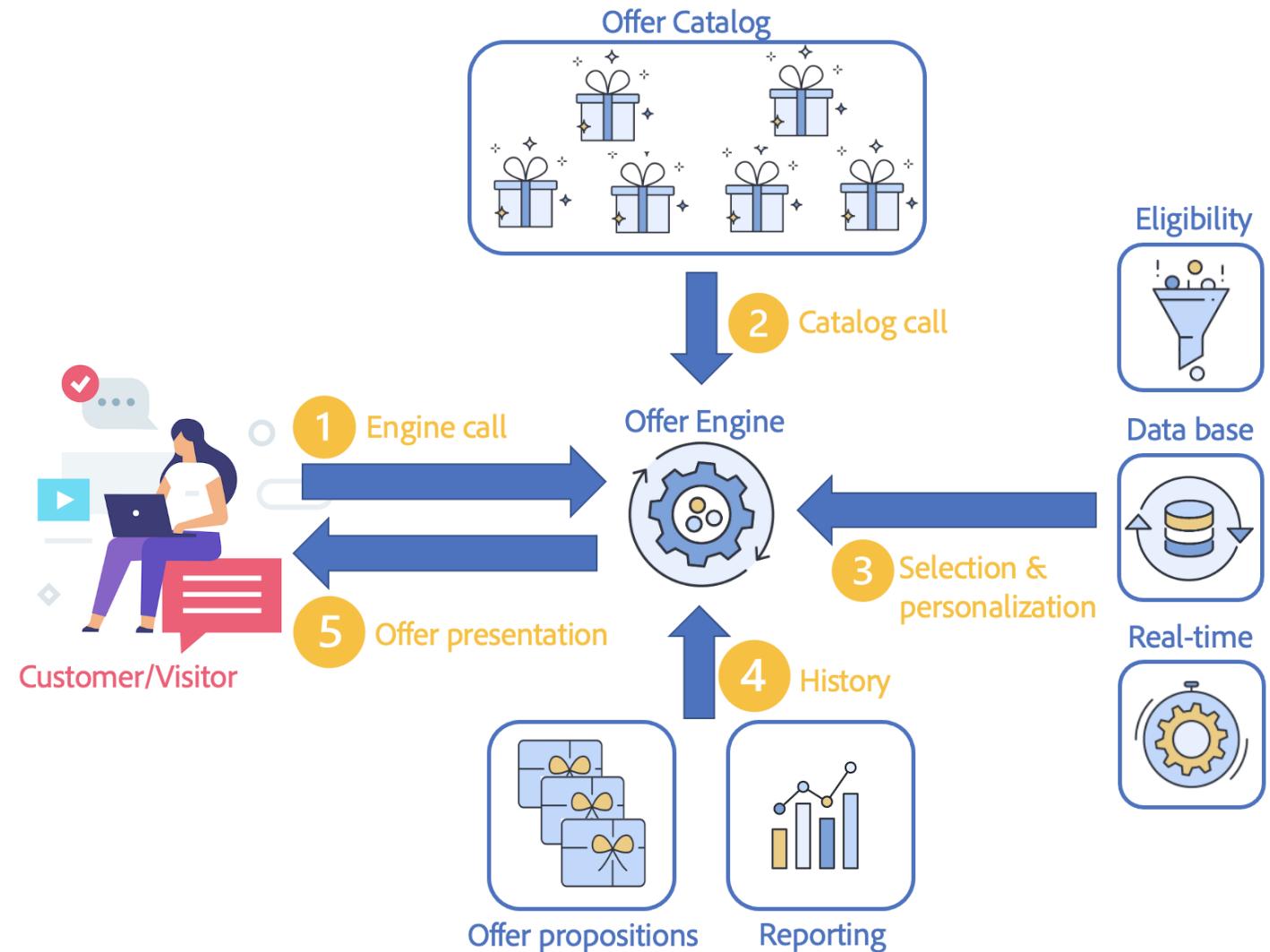
source: [Introduction to Offer Decisioning Engine - The Digital Marketing Architect \(pedromonjo.com\)](https://www.pedromonjo.com/introduction-to-offer-decisioning-engine-the-digital-marketing-architect/)

Adobe Campaign

Real-time Interaction

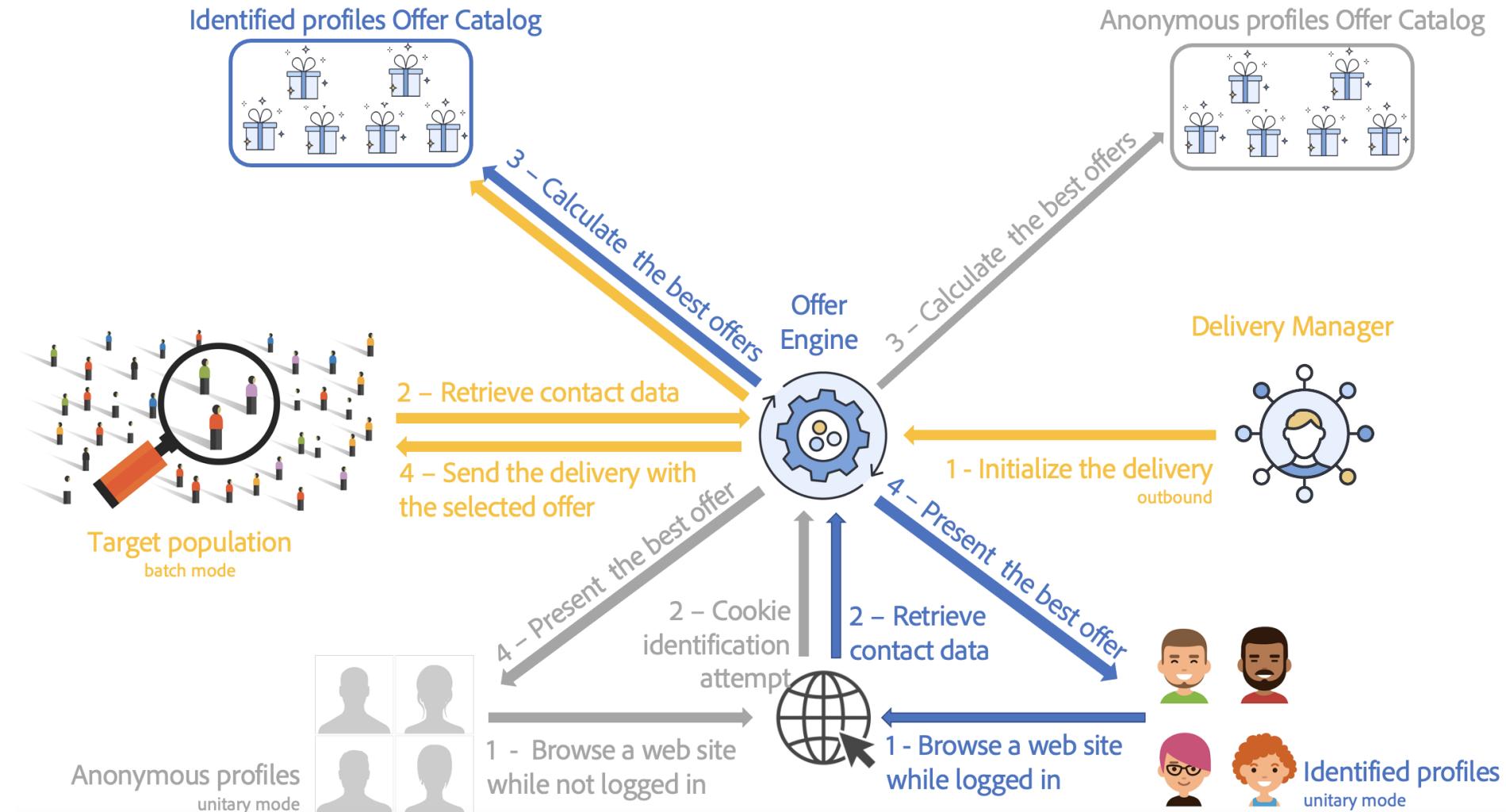
- There are two environments for each targeting dimension used when managing offers: design and live.
- The Adobe Campaign Interaction module proposes two types of interactions: inbound and outbound.
- These two types of interactions can be carried out either in unitary mode (offer is calculated for a single contact), or in batch mode (offer is calculated for a set of contacts).
- To be able to support scalability and provide 24/7 service on the inbound channel, the Interaction module is implemented in a distributed architecture.

source: [Campaign Interaction - Offer management | Adobe Campaign](#)



Adobe Campaign

Real-time Interaction



Adobe Journey Optimizer

Activation Trigger

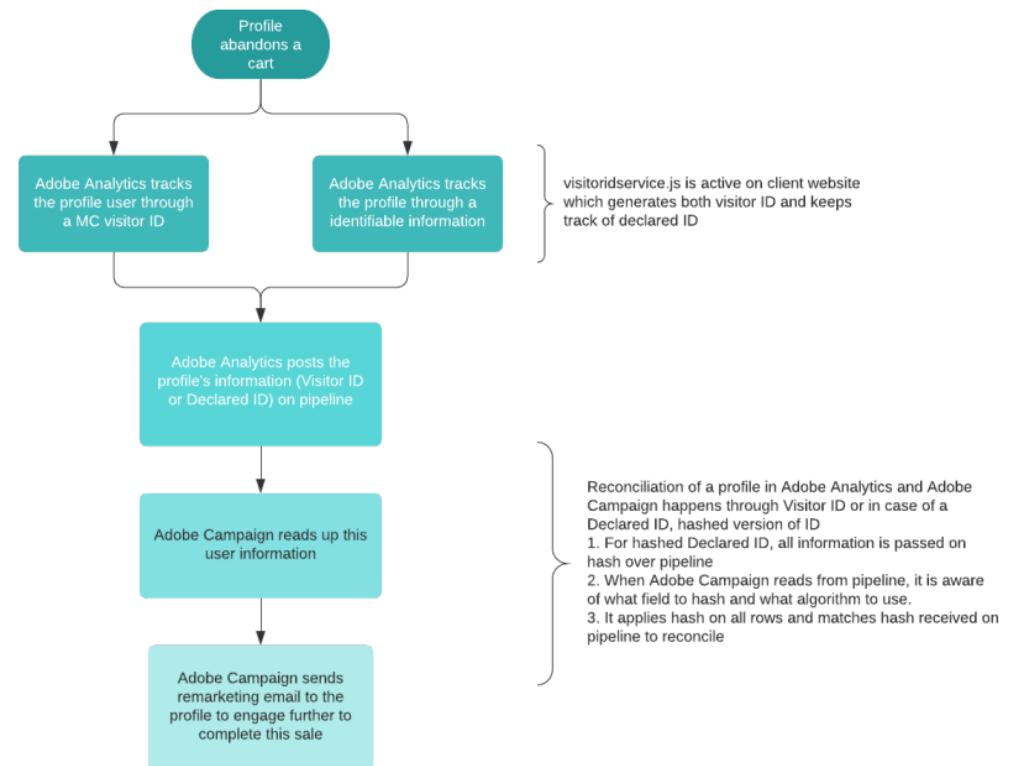
- **API triggered campaign:** for different AJO personas, payload does not store data, placeholder does not impact other campaigns, better latency, business can use it multiple times independently, need to communicate time-sensitive, and mission critical messages based on urgent signals and author messages to audiences without creating journeys. These messages could include password resets, one-time codes, or even post-game updates to subscriber base of sports fans.
- **Event triggered journey:** quicker go-to-market, dataset is set up by non-marketer persona, follow-up condition (feedback) to be actioned...



Event triggered campaign in Adobe Campaign is not really event-driven. It is just a scheduled batch process that checks the condition/query. If the condition, e.g., birthday, is true, then the workflow is triggered to deliver the campaign through the channel, e.g., anniversary reward.

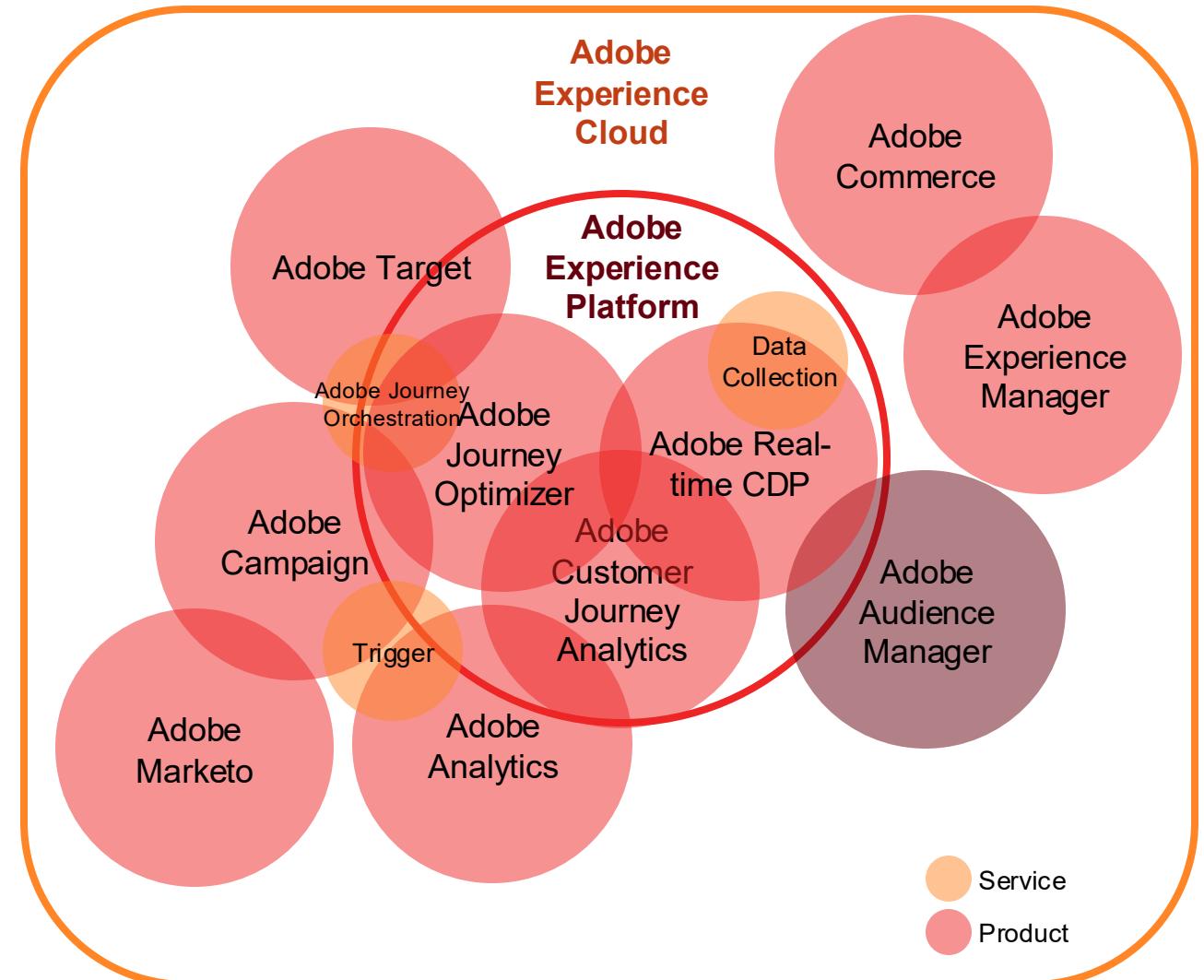
source: [About Adobe Experience Cloud Triggers | Adobe Campaign](#)

Integration between the Experience Cloud Activation core service **Triggers** and Adobe Campaign allows you to send personalized emails to your customers as a reaction to specific behaviors that are tracked on your website by Adobe Analytics (within 15 minutes).



Adobe Journey Optimizer and Adobe Journey Orchestration

- Adobe Journey Orchestration is a service in Adobe Experience Platform (AEP).
- Adobe Journey Optimizer (AJO) is a product on Adobe Experience Platform.
- Assumption: likely [Adobe Journey Orchestration](#) started in AEP and grew its scope, so AJO expanded as independent product.
- AJO has been expanding, and features overlap with Adobe Campaign (AC).
- Future enhancements in AJO might overlap with Adobe Target (AT). Confirmed with the [code-based experience channel](#).
- Currently, AJO/AEP enables experimentation already.
- AEP features overlaps Customer Data Platforms (CDP).
- Then, Adobe launched its own Real-time CDP (RTCDP) to complement its capabilities.
- Adobe Campaign (Classic and Standard) is a product that was acquired previously with focus on B2C.
- Adobe Marketo has focus on B2B.
- Adobe Audience Manager (Data Management Platform) would be replaced by Adobe RTCDP.
- Adobe Customer Journey Analytics (CJA) complements Adobe Analytics (AA) capabilities for AJO.



Adobe Campaign Classic Message Centre

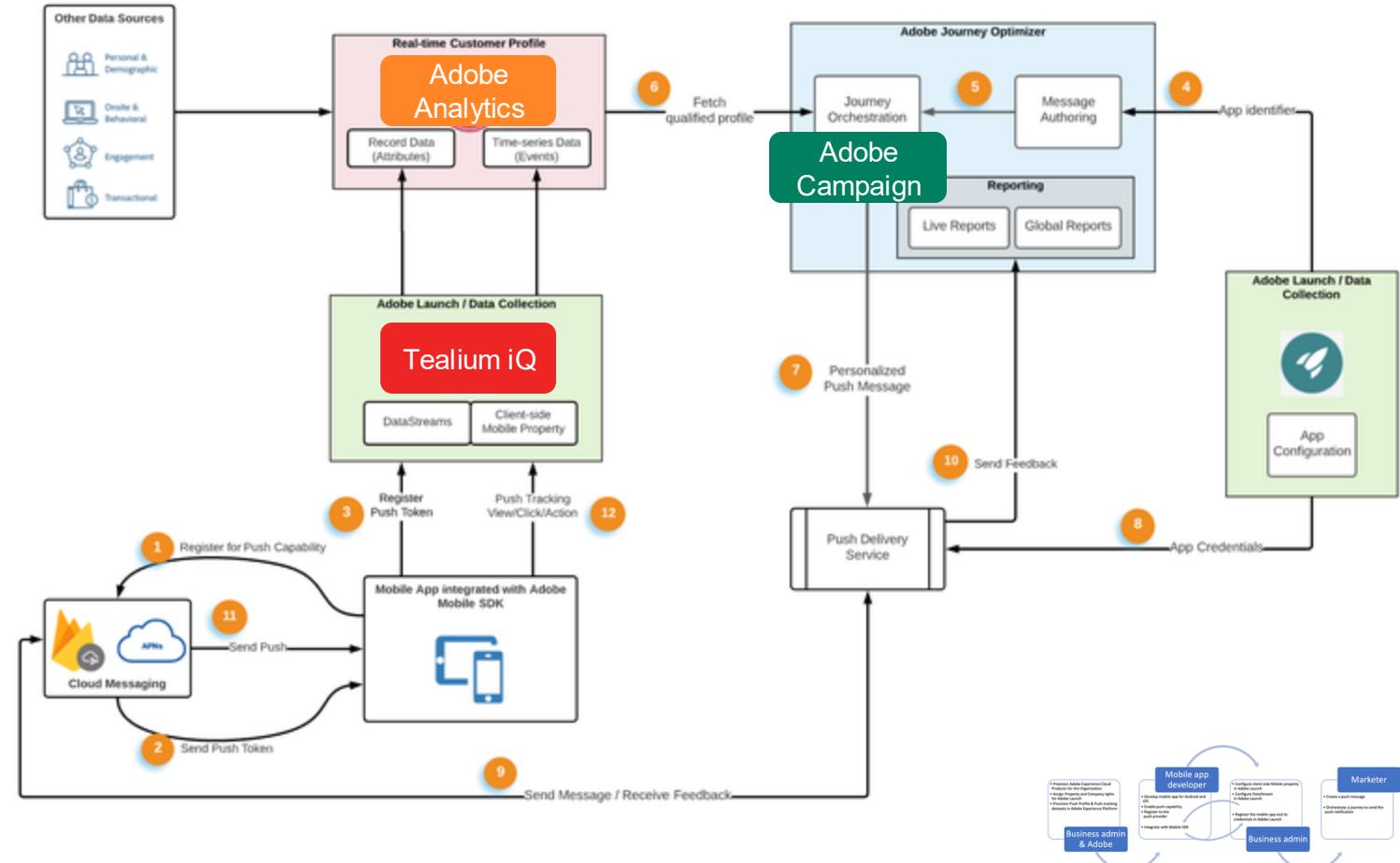
Transactional Messages Limitations and Best Practices for Email

- The number of published transactional messages can have some impact on your platform performance and it's a best practice that you unpublish or delete unused events and templates from the control instance.
- You cannot use the Unsubscription link blocks the transactional messages.
- To make sure each event can be changed into a personalized message, you need to create a message template to match each event type.
- Try not to add too much personalization or resources (images, etc) making delivery bulky which then increases the preparation and delivery time.
- Avoid too large of an HTML file. Stay under 100KB, but try to stay between 60 and 80KB to prevent slow delivery.
- Images included in the message must be publicly accessible. Adobe Campaign does not provide any image upload mechanism for transactional messages.
- Avoid too many images. Most ISPs now block images by default. You want to have a way to capture your audience without the images enabled so they then enable them.
- Use alt tags to your advantage. Alt tags live within the image code of the HTML and display text if the image isn't visible or loading. Rather than having a simple description like "product shot," you might want to say something more compelling like, "Buy now and get 30% off."
- Whenever you make any changes to a template, make sure you publish it again for these changes to be effective during transactional message delivery.
- If you replace an existing field of the transactional message template, such as the sender address, with an empty value, the corresponding field on the execution instance(s) will not be updated once the transactional message is published again. It will still contain the previous value. However, if you add a non-empty value, the corresponding field will be updated as usual after the next publication.
- Also, you cannot delete a transactional message template that has the Published status. You must unpublish it first.
- When receiving SOAP calls, Adobe Campaign verifies the email address format. If an email address is incorrectly formatted, an error is returned.
- On the execution instances, the Real-time events or Batch events folders must not be set as views, as this could lead to access rights issues.

Adobe Journey Optimizer

Push notification data flow and components

1. Registration of your branded mobile app (Android or iOS) with Apple's APNs and Google FCM push messaging services
2. Messaging services generate a push token, which, is an identifier that Adobe Journey Optimizer will use to target the specific device with a push notification.
3. The previously generated push token is passed to Adobe Experience Platform and synchronized with the Real-time Customer Profile; this is done OOTB with an easy to integrate client SDK
4. Push messages are authored in Adobe Journey Optimizer, push messages are created against a channel surface (i.e. message preset)
5. Push messages may be included on the orchestration canvas in Journeys
6. Upon Journey publication, customer profiles based on Journey conditions are qualified to receive push notifications, push messaging payloads are personalized at this step
7. Personalized push payloads are forwarded to an internal push messaging delivery service
8. This internal service then validates the credentials of the app associated with the message, and
9. Sends the message to Apple & Google messaging services for final delivery
10. Feedback from messaging services are noted, errors and successes are logged for reporting in Journey Live & Global reports
11. Push notifications are delivered to end-user devices
12. End-user push notification interactions are sent in as Experience Events from the end-user client via SDK integration



source: [Push Notification flow in Adobe Journey Optimizer | Adobe Journey Optimizer](#)

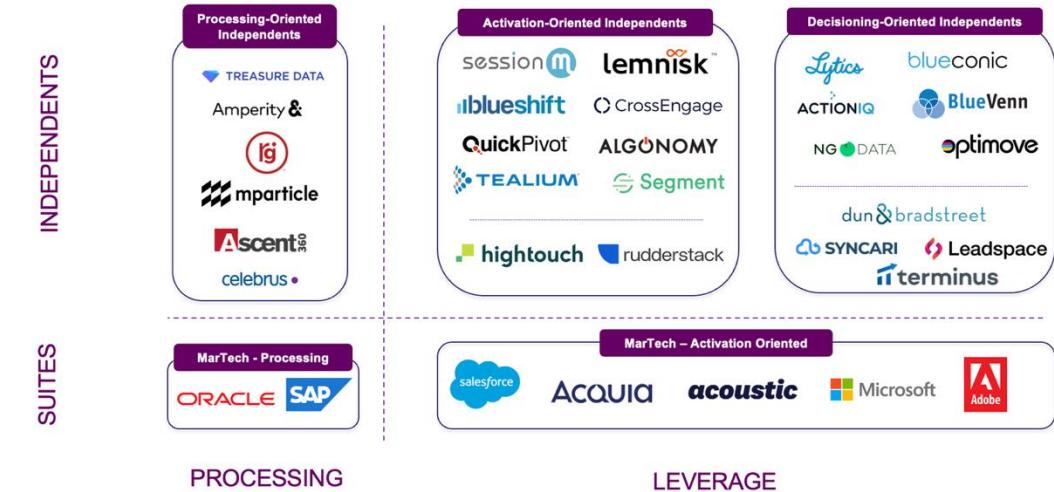
Do you need a Customer Data Platform?

CDP Marketplace (2024)

- ✓ C-Store state
- ✓ Fit-for-purpose?
- ✓ Desired state

1. Are you able to ingest the right volume of data in various formats (structured/unstructured/semi-structured/relational/binary) to develop a clear understanding of each individual customer? ✓
2. Do you have multiple engagement channels? If so, do you have an existing approach to combining data (including offline and online) from these systems? ✓
3. Is third-party anonymous data included in your data strategy? ✓
4. Can you easily clean, transform and standardize your data? ✓
5. Are you able to resolve identities and ensure privacy/compliance to deliver a great customer experience? ✓
6. Can you deliver a seamless experience to customers regardless of the channels through which they choose to interact? ✓
7. Are you able to segment and analyze customers in real-time to enable personalization and improve relevance in customer experience? ✓
8. Do you generate universal customer profiles and make these profiles accessible to the analytics solutions that you may need, in the required timeframe and format? ✓
9. Are you able to create look-alike audiences and identify new, additional customers likely to purchase products or identifying customers that are going to cross/up sell or even churn? ✓
10. Can you act instantly, based on the insights you get, by making the unified data directly available to other systems such as a CRM, a Marketing Automation system or an advertising platform? ✓

CDP 1.0 (2015 - 2019)	CDP 2.0 (2020 - 2025)
"Look at what this cool vendor can do!"	"What truly differentiates them from 35 other CDP vendors?"
"It will perform innovative AI/ML stuff"	"Is this the right data set?" "What about our other modeling services?"
"It can personalize my website"	"What about our other personalization services closer to our content and experience managers?"
"It generates nifty reports!"	"Does it have access to enough data to be relevant?"
"It can send automated messages"	"Do we really want yet another messaging platform?"
"Works for me as a marketer!"	"What about other touchpoints in our new customer-centric world?"
"It's easy to create basic segments"	"Why do we have to do advanced audience building outside the CDP?"
"Supports my pilot data model"	"What about emerging needs for households, products, channels, etc.?"
"Offers us an authoritative data source"	"Shouldn't systems of record reside lower in our data?"



source: [RealQuadrant Shortlist Generator | Real Story Group](#)
 source: [Who Really Leads the CDP Market? | LinkedIn](#)
 source: [Customer Data Platforms | Real Story Group](#)
 source: [Do I need a CDP? + 3 use cases to get started - CDP Institute](#)

Adobe Experience Platform Pipeline (Event Streaming)

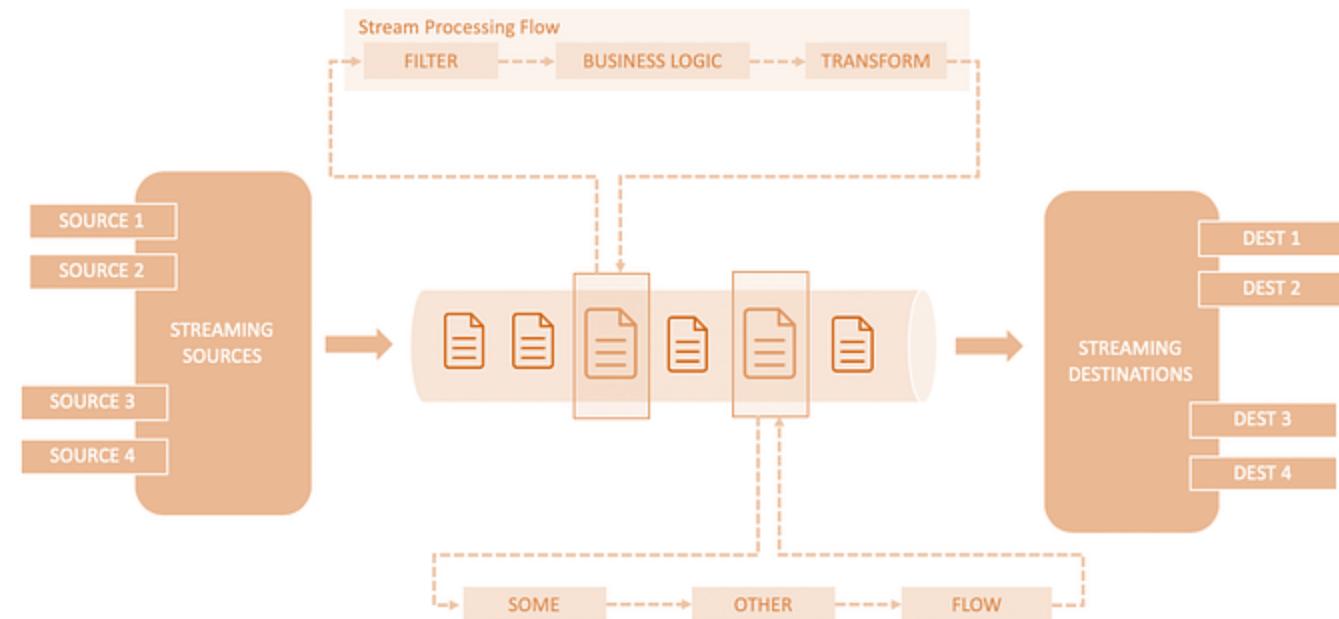
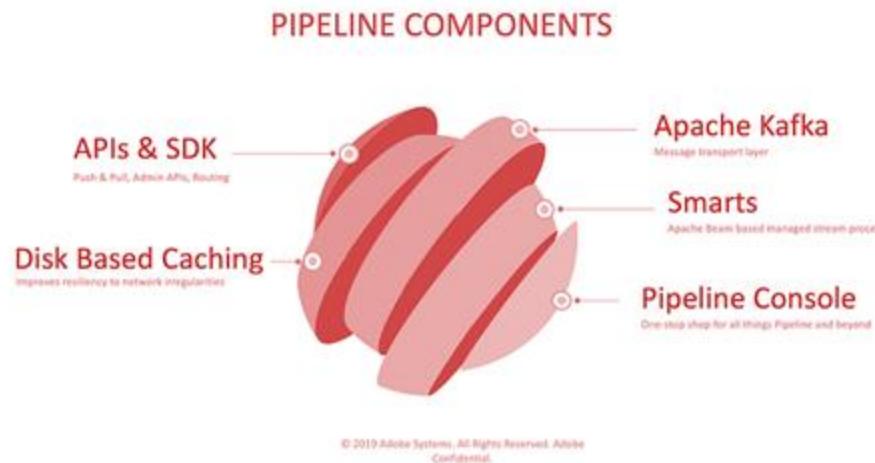
What is the expected latency for streaming ingestion on Platform?

Destination	Expected latency
Real-Time Customer Profile	< 15 minutes at the 95th percentile
Data lake	< 60 minutes

Adobe Experience Platform has a large Kafka infrastructure with multiple environments and data centers. We had already built Pipeline Smarts for stream processing. It made perfect sense for us to explore Kafka Connect for our Ingress/Egress story.

Based on **Apache Kafka**, Adobe's Experience Cloud Pipeline is a globally distributed, mission-critical messaging bus for asynchronous communication across Adobe solutions. Smarts is Adobe's Streaming Compute framework based on **Apache Beam**.

Each Smarts deployment is a set of **Apache Flink** task and job managers, running in job cluster mode.

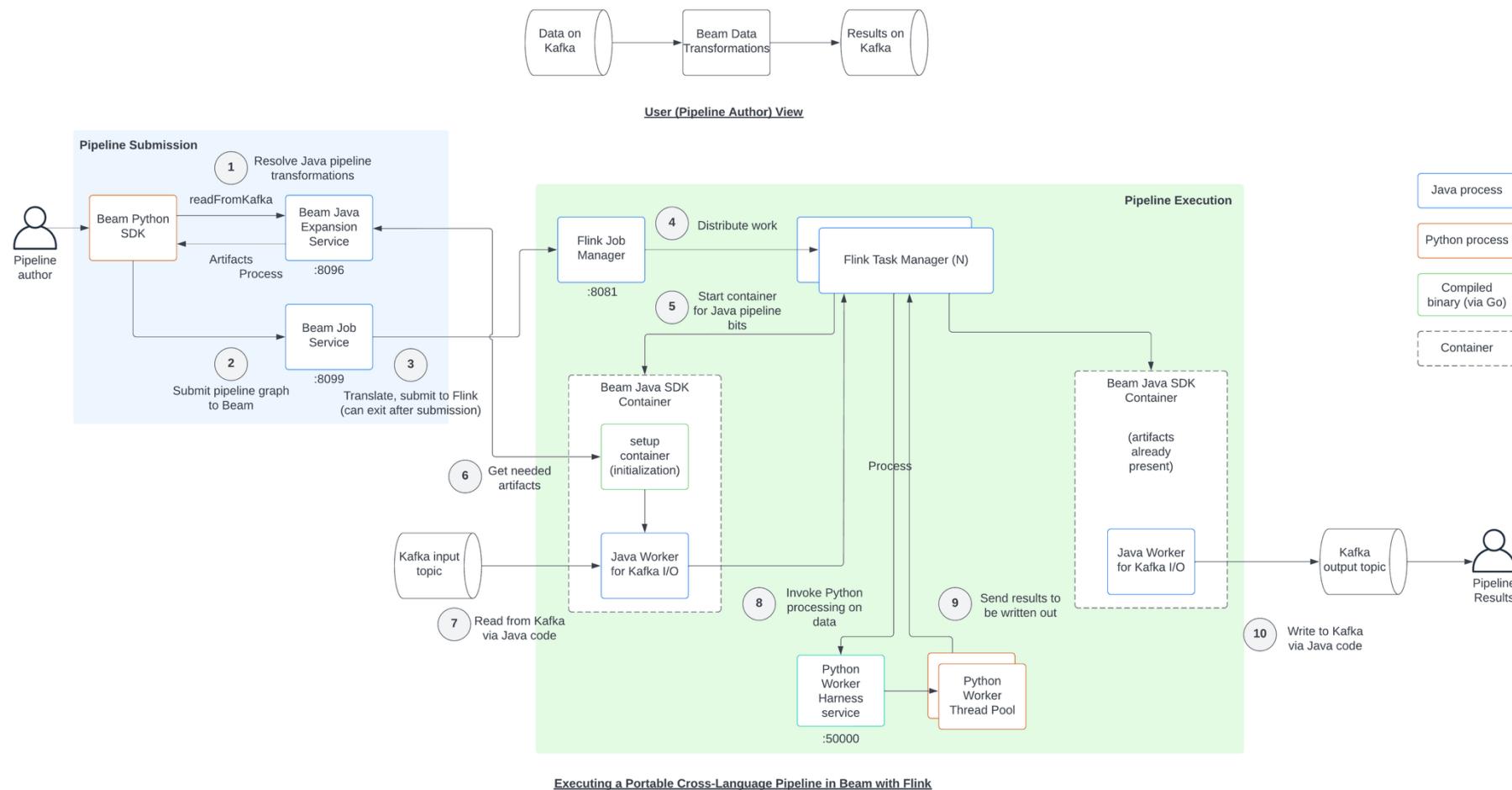


source: [Kafka Connector | Adobe Experience Platform](#)

source: [How Adobe Experience Platform Pipeline Became the ... - Adobe Experience League Community - 430569](#)

Adobe Event Streaming Frameworks

Understanding Beam with a Local Beam, Flink and Kafka Environment



source: [Tutorial: Understanding Beam with a Local Beam, Flink and Kafka Environment - Deepak Nagaraj \(nddeepak.com\)](http://Tutorial: Understanding Beam with a Local Beam, Flink and Kafka Environment - Deepak Nagaraj (nddeepak.com))

Grabango

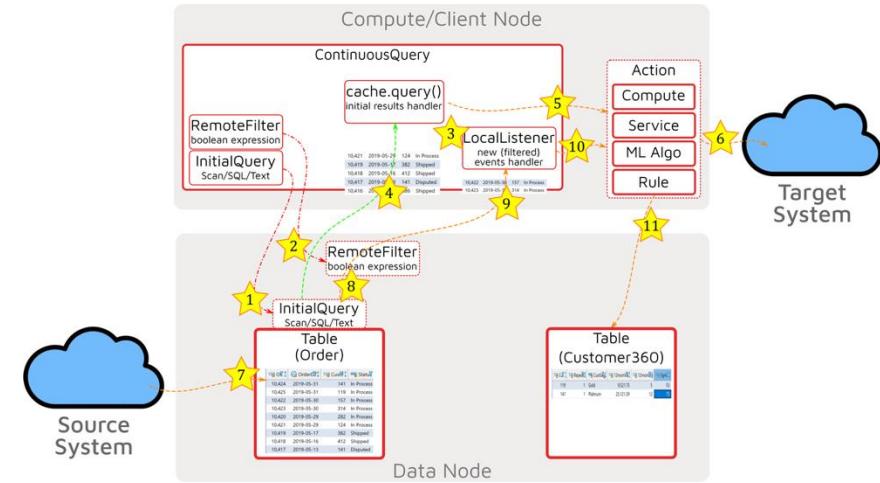
Architecture Principles

Grabango: have you evaluated competitors? Only AWS. Have we done research to get customer feedback: check-in/gates, no real time receipt, mandatory app installation...

- AWS Just Walk Out: it can be a competitor in retail, data privacy concerns, much higher cost.
- [GetZippin](#) - Zippin's proprietary approach combines vision cognition technology with machine learning to accurately account for shopper behaviour and product whereabouts in-store. We do this by combining inputs from overhead cameras with product tracking – using smart shelf sensors – for the highest level of accuracy, even in a crowded store.
- [GetSkip](#) - Skip is a developer of mobile-based checkout application designed to use phones for self-checkout from retail stores. Simply scan your stores assigned QR code and customers can instantly start checking out. Your Skip Kiosk is constantly being updated and monitored.
- [Standard AI](#) - Consisting primarily of ceiling-mounted cameras that can detect which items a person picks up, Standard's system uses no facial recognition and lets shoppers remain completely anonymous. It can be installed in existing stores without making any changes to layout, shelving, lighting or inventory management processes.
- [Keyo](#) - Leverage our identity infrastructure to build biometrically authenticated experiences for your customers. Keyo partners have built apps that let people pay for coffee in Africa, open office doors in Mexico, and check in at doctors' offices in the USA – all with a simple wave of the palm.
- [AiFi](#) - AiFi's camera-only frictionless checkout experience allows shoppers to anonymously purchase items in-store without having to wait in line, stop to scan or pay.
- [Trigo](#) - The computer vision technology behind EasyOut generates a digital twin of your store to capture shoppers' movements and product interactions. It also delivers real time data insights that unlocks efficiencies.

Do you need another Event Streaming Platform?

- ESP is important for real-time (RT) 1:few experience. How can AJO/AEP fulfil the requirements? Data source integrations configured to ACC, AA, Commerce, Microsoft Dynamics CRM connector, and single non-Adobe source (HTTP API).
- Leverage the AEP capabilities with AJO, or 'save' them to the ESP and CDP?
- Adobe Experience Platform Collection Enterprise (Event Forwarding) and Adobe Experience Platform Activation (Destinations) are licensed separately.
- Which source data streams they want us to listen to and the encoding of messages on those data streams (JSON or Protobuf, as an example)?
- What static filters and streaming joins need to be applied to those data streams to identify relevant messages?
- What business logic and/or transforms are needed to shape messages into specific output formats (this is optional)?
- Which destinations messages should be published to?



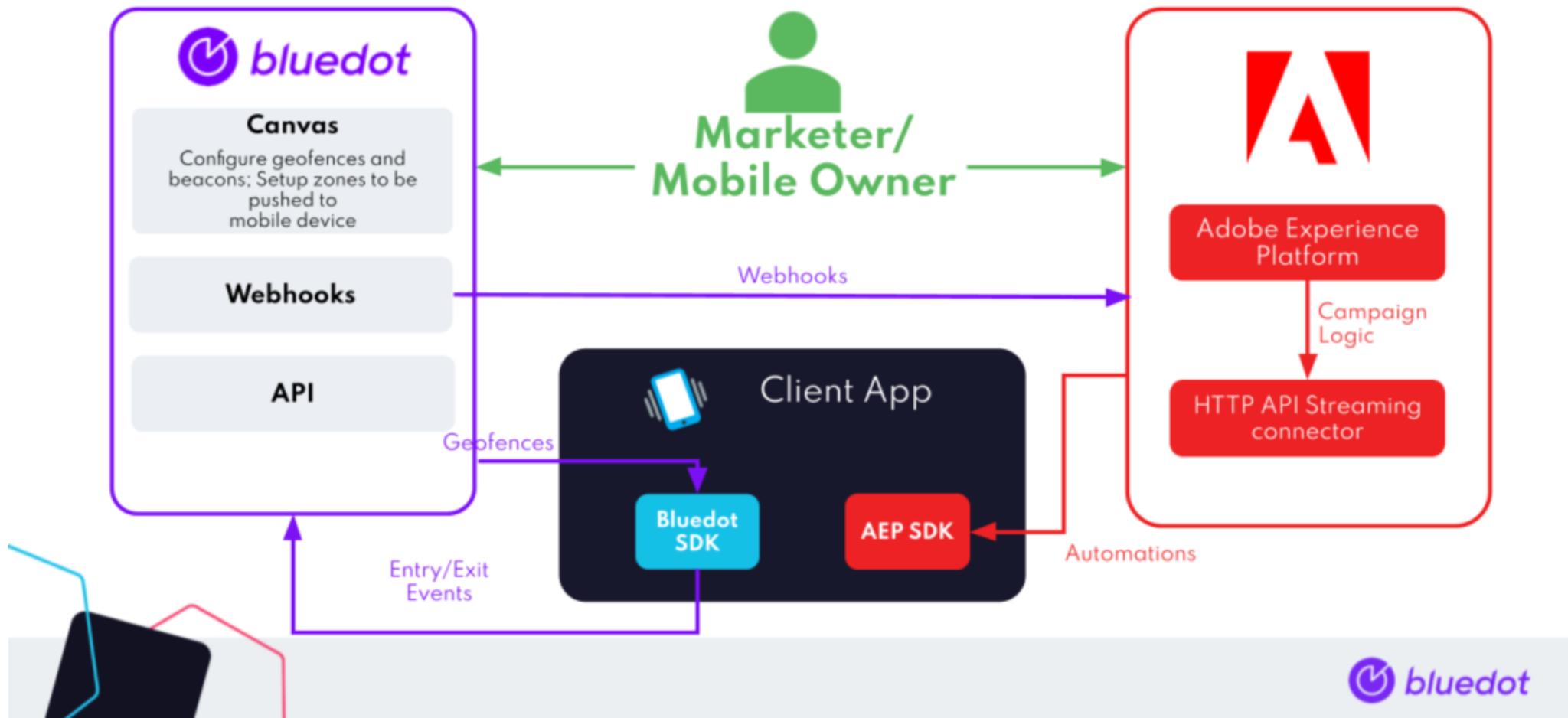
source: [Event Stream Processing with Apache Ignite - Part 3 \(gridgain.com\)](#)

source: [Evaluating Streaming Frameworks for Large-Scale Event Streaming | by Jaemi Bremner | Adobe Tech Blog](#)

source: [Integrate with other solutions | Adobe Journey Optimizer](#)

source: [Adobe Experience Platform Collection Enterprise | Product Description](#)

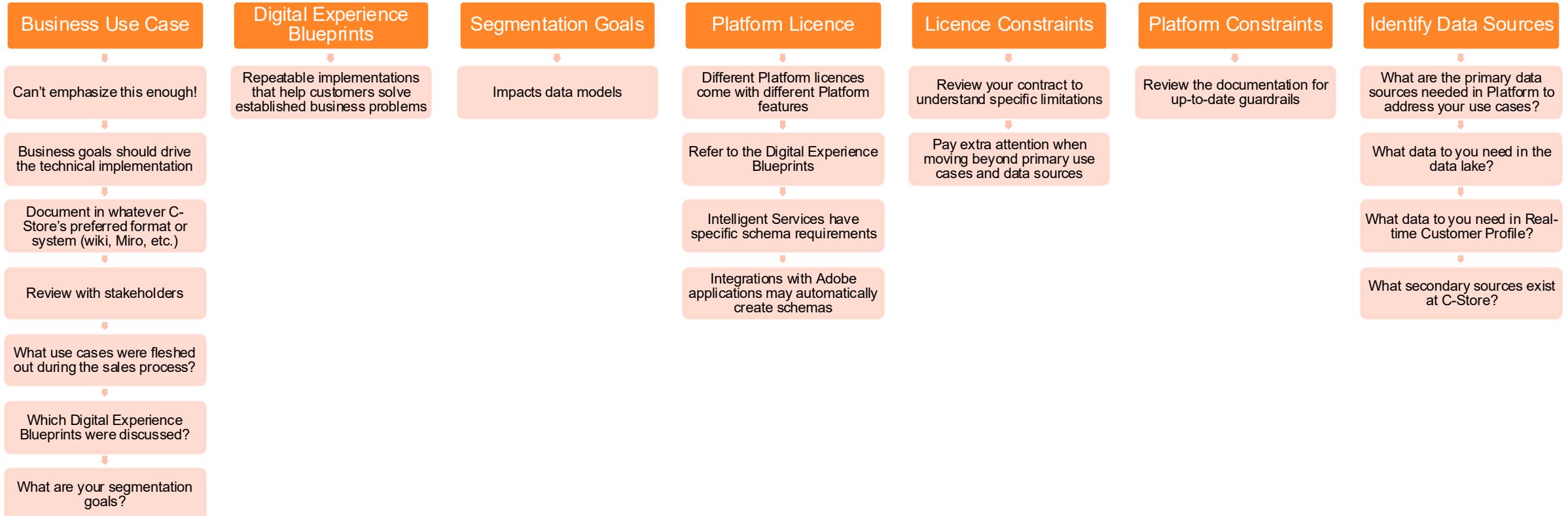
Bluedot Adobe Experience Platform Architecture



source: [Adobe Experience Platform integration | Bluedot Documentation](#)

Adobe Data Architecture

Plan The Data Model



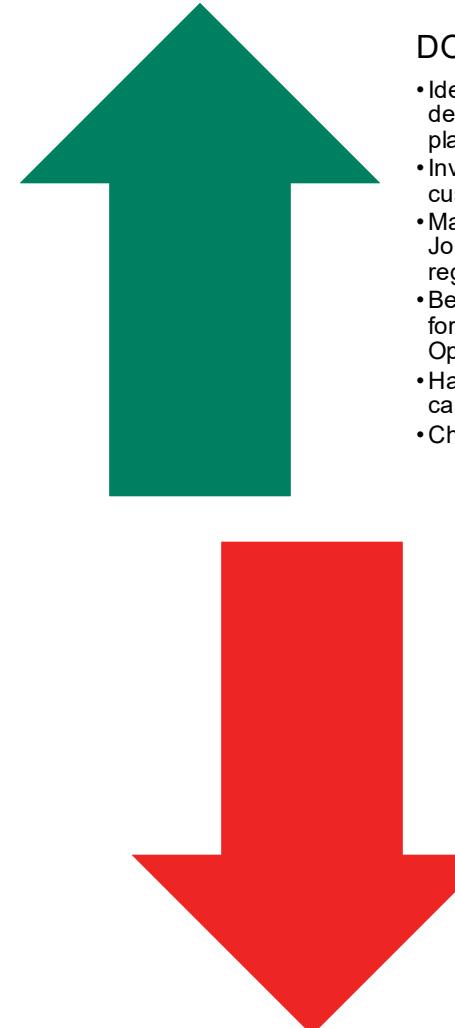
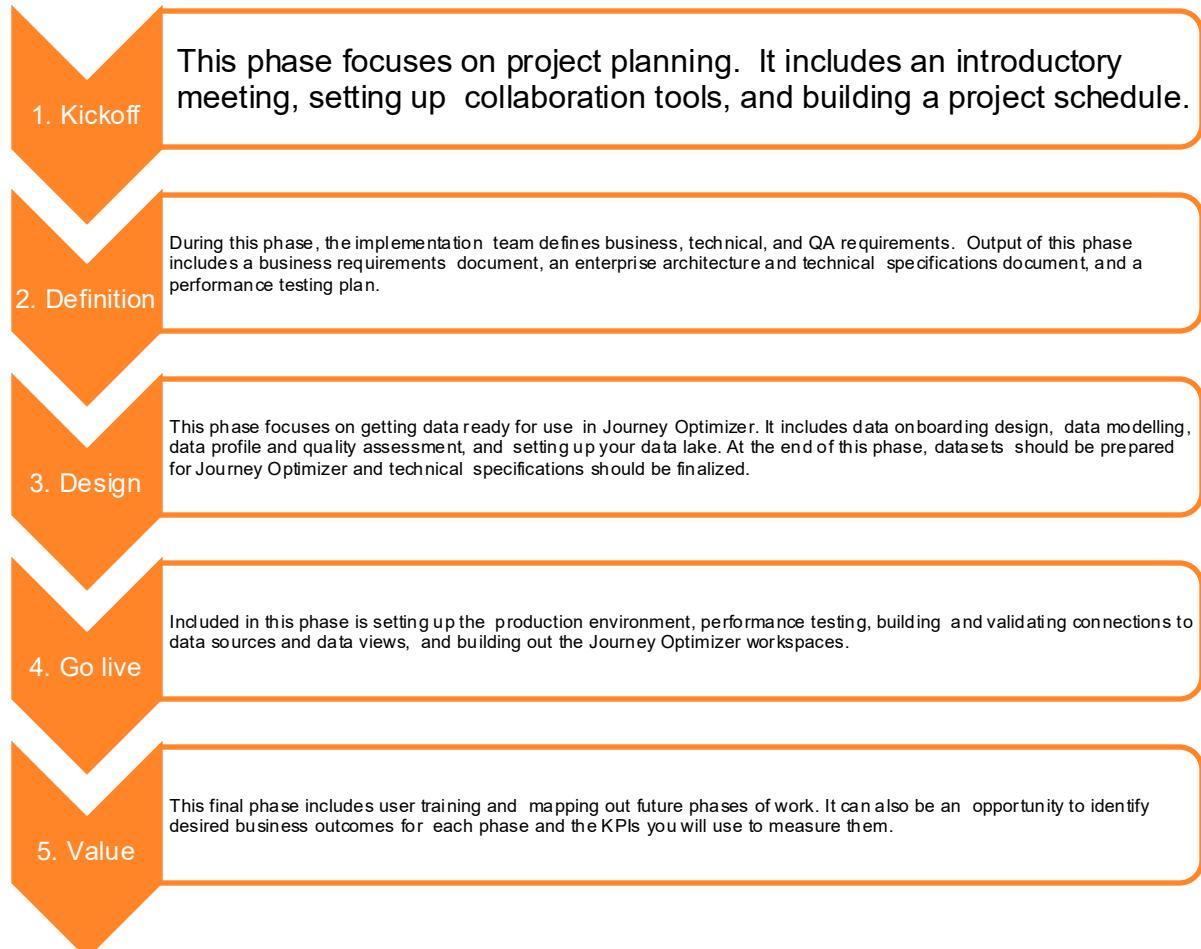
source: [Sample use cases in Real-Time CDP | Adobe Real-Time Customer Data Platform](#)

source: [Use case playbooks overview | Adobe Experience Platform](#)

source: [Plan your data model | Adobe Experience Platform](#)

Adobe Journey Optimizer

The best way to implement



source: [The Best Way to Implement Adobe Journey Optimizer](#)

Adobe Experience Data Model (XDM)

ExperienceEvents

Experience Data Model (XDM) is the core framework that standardizes customer experience data by providing common structures and definitions for use in downstream Adobe Experience Platform services.

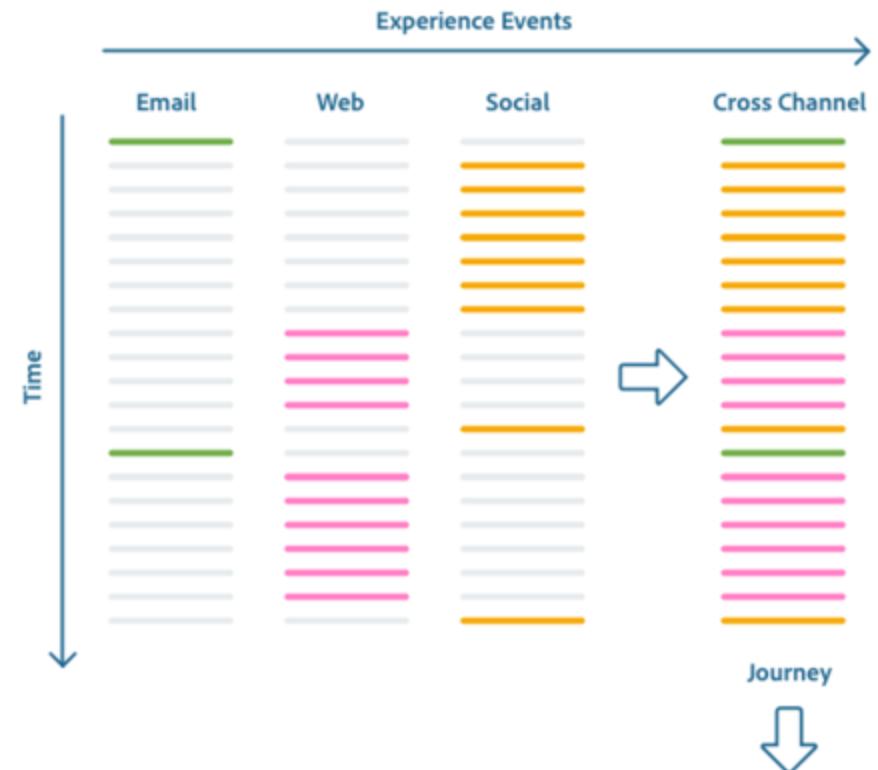
When you use XDM to build schemas and ingest data adhering to these schemas, you can begin to use XDM system. XDM System is the infrastructure that supports real-time customer profiles, machine learning, and Customer Journey Analytics in Adobe Experience Platform.

Experience Platform provides several out-of-the-box XDM schema field groups for capturing data related to the following Adobe applications:

- Adobe Analytics
- Adobe Audience Manager
- Adobe Campaign
- Adobe Target

XDM ExperienceEvent is a standard Experience Data Model (XDM) class. Use this class to create a timestamped snapshot of the system when a specific event occurs or a certain set of conditions have been reached.

Real-Time Customer Profile does not support schemas based on classes other than the XDM ExperienceEvent class.



source: [XDM System Overview | Adobe Experience Platform](#)

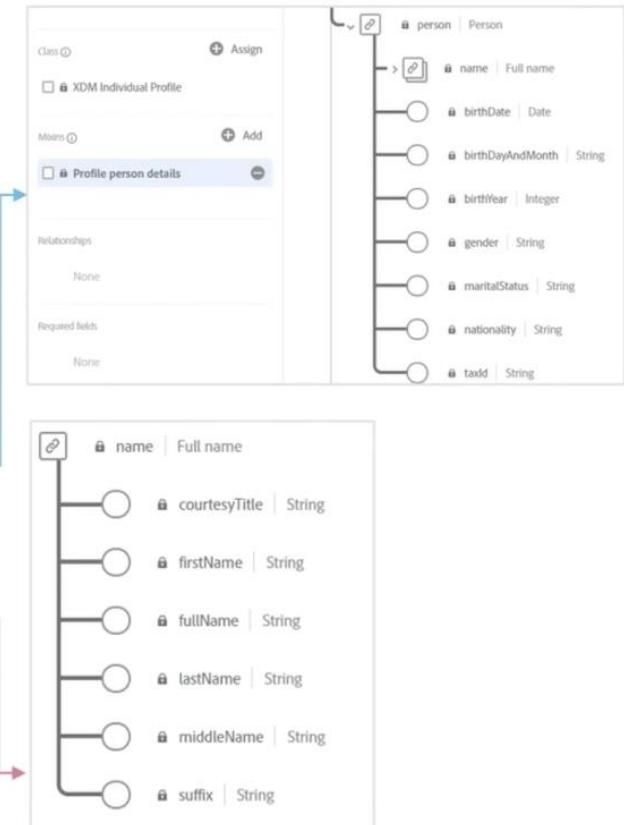
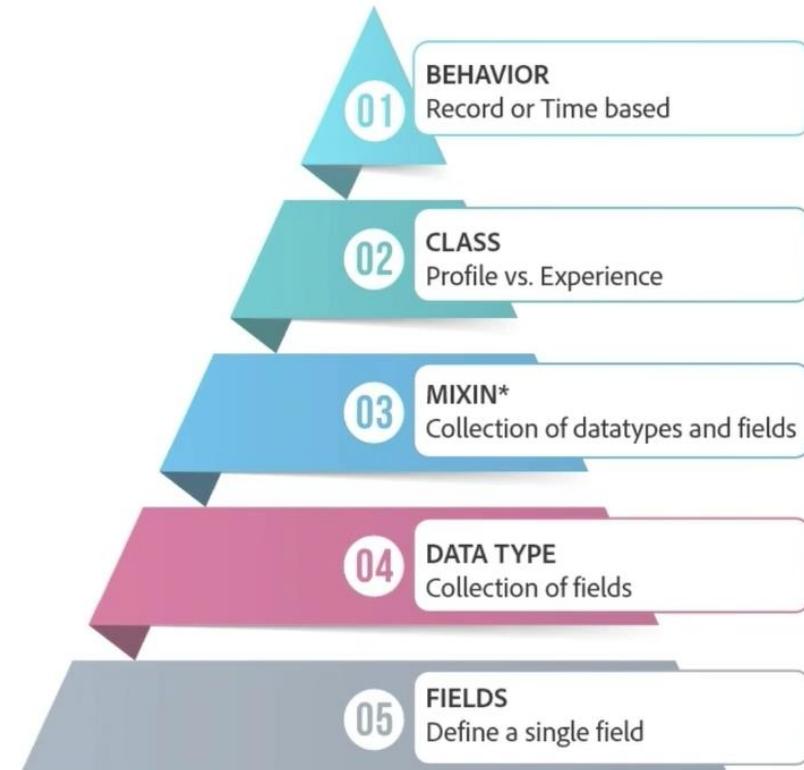
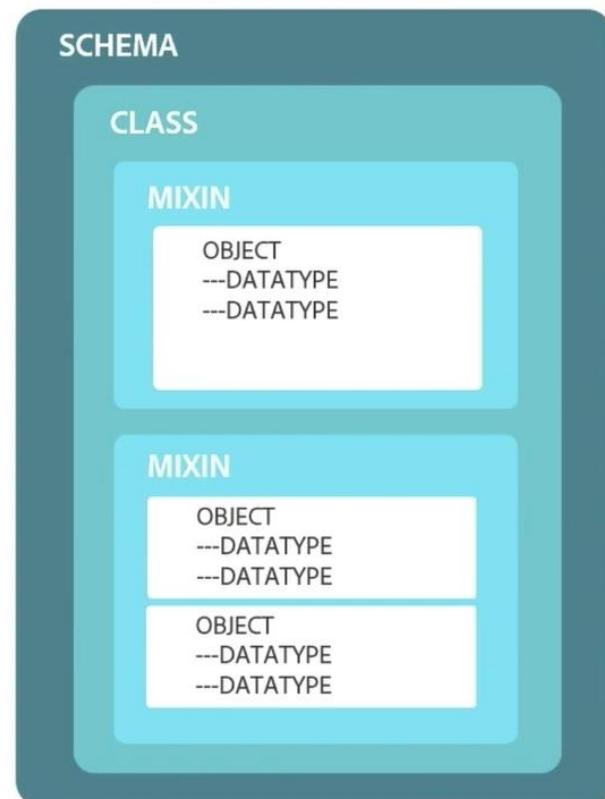
Adobe Experience Data Model (XDM)

XDM Schema

Schema: Set of rules that represent and validate the structure and format of data.

XDM Schema = Class + Mixin*

*A schema is composed of a class and zero or more mixins



source: [Data Ingestion Overview | Adobe Experience Platform](#)

Adobe Customer Journey Analytics (CJA)

Comparing Customer Journey Analytics to Traditional Adobe Analytics

Customer Journey Analytics expands the scope of Adobe Analytics by offering easy to use cross-channel capabilities and removing limitations in previous versions of Adobe Analytics. Some notable improvements are:

- **Unlimited variables and events:** The concepts of eVars, props, and events no longer exist. Data is primarily focused on dimensions and metrics. Datasets can have an unlimited number of unique dimensions and metrics.
- **Unlimited unique values:** Adobe Experience Platform is not constrained to any unique limitations.
- **Alter historical data:** Using Adobe Experience Platform, data can be removed or corrected.
- **Cross-report-suite data:** Existing implementations from multiple datasets can be combined in Platform.

Adobe Journey Optimizer (AJO) has reporting capabilities. However, there will be limitations or constraints compared to Adobe Customer Journey Analytics.

- Customer Journey Analytics differs from BI tools in how it integrates a highly optimized customer-journey-focused reporting engine seamlessly with user-friendly tools and components to perform analysis and build reports and advanced visualizations.

Only evaluate CJA if AA cannot meet new requirements coming from the CDP implementation.

Be cognizant that if in the future AEP + CJA is acquired, an additional migration effort may be needed.

Adobe Target Integrations (Testing and Personalisation)

- Adobe Target does not require Adobe Experience Platform.
- However, Tags in Adobe Experience Platform are the preferred method for implementing Target and the at.js library.
- There are advantages if you already have Adobe Analytics. And there will be additional OOTB integrations if you implement Adobe Journey Optimizer (and RTCDP) as Adobe Experience Platform is also required.
- Consider if you already use Tealium iQ as tag manager.

- Use Adobe Target with Adobe Journey Optimizer offer decisions to determine and deliver the next best offer for your visitors on web and mobile.
- Add offer decisions created in Adobe Journey Optimizer to Target activities (manual A/B Test or Experience Targeting) using either the Visual Experience Composer (VEC) or the Form-Based Composer to test and deliver personalized offers to your visitors on your inbound channels powered by Target.

- The Adobe Target/Adobe Experience Manager (AEM) integration currently lets you use Experience Fragments (XFs) and Content Fragments (CFs) created in AEM in Target activities to aid optimization and personalization.

- Use Target with Adobe Campaign to optimize email content.
- To optimize your email content, you can create a redirect offer in Target, then use Adobe Campaign to manage the email offers. For example, you can display different offers for male and female recipients.
- The integration takes place when the email is opened. When the customer opens the email, a call is made to Target and a dynamic version of the content appears. The content consists of a static image supported by all browsers. Target tracks the reaction to the offer at the audience or session level and that data is available in Target reports.

- Using audiences created in Adobe Experience Platform provide richer customer data that leads to more impactful personalization. The Real-Time Customer Data Platform (RTCDP), built on Adobe Experience Platform, helps companies bring together known and anonymous data from multiple enterprise sources. This process lets you create customer profiles that can be used to provide personalized customer experiences across all channels and devices in real time.
- By connecting Target to the Real-Time Customer Data Platform, customers can enrich their web personalization. This integration lets you unlock new segments that might have been previously inaccessible to Target to enable real-time millisecond personalization on the first page of a customer's web visit. Using audiences and profile attributes created in Adobe Experience Platform lets you expand the available data points for richer personalization.

source: [How Do I Implement Target using Adobe Experience Platform? | Adobe Target](#)

Forrester Wave for Cross-Channel Marketing Hubs



Adobe delivers on the promise of its next-generation CCMH offering. Adobe currently goes to market with both Adobe Campaign and its newer Adobe Journey Optimizer, powered by its Adobe Experience Platform. The combination enables it to implement CCMH via on-premises, managed service, SaaS, and hybrid deployment models. Adobe serves more than 1,400 CCMH customers globally — nearly half are large enterprises — with financial services, media, and retail topping its cross-vertical approach. Its superior CCMH vision centers on enabling brands to personalize at scale across the CX spectrum, backed by vast innovation investments across its portfolio, enterprise-scale services, and an extensive partner ecosystem. Its CCMH commitment and scale enable it to counter potential Experience Platform transition issues. Experience Platform provides a strong foundation for customer profiles and preferences, identity resolution and privacy, and digital intelligence, but many clients still rely on Adobe Campaign for federated data access. Adobe's roadmap promises to address functional disparity for CCMH users and provide them native integration with Adobe Experience Manager and Adobe Target for content, offers and promotions, and web personalization. Clients who embrace Experience Platform's next-generation architecture may face change management and complex implementation requirements. References are up for the challenge because, as one put it, "Adobe enables us to upgrade marketing to real-time, always-on, cross-channel experiences that solve customer problems versus bulky manual campaigns." But they expect it to simplify the pricing structure and improve education, training, and out-of-the box integration. Adobe suits enterprises looking to maximize CCMH value in a broader Adobe ecosystem.

Gartner Magic Quadrant for Multichannel Marketing Hubs



Adobe is a Leader in this Magic Quadrant. Its MMH solution optimizes digital experiences by leveraging Adobe Experience Platform services and applications to support profile management, analytics and journey orchestration. Its operations are global, with the majority in the Americas, and its clients tend to be enterprises across a wide range of industries. Adobe Journey Optimizer, its key product for multichannel marketing, is extended by its Adobe Real-Time Customer Data Platform and Adobe Customer Journey Analytics products. At the time of evaluation, Adobe's roadmap included new visual experimentation workflows and recently released audience composition tools as well as an initial set of Adobe Sensei AI features with text-based GenAI capabilities.

Strengths

- Modern platform, evolved packaging
- First-party profile hub
- Healthcare support

Cautions

- Generative AI follower
- Adobe Campaign ambiguity
- Limited prescriptions

Adobe's MMH investments are split between the cloud-native Journey Optimizer and legacy Adobe Campaign, creating a complicated upgrade story. Feature parity between Journey Optimizer and Campaign for advanced multidimensional segmentation and engagement approaches is due in 2024. Campaign customers should weigh their appetite to upgrade to Campaign v8 or Adobe Journey Optimizer against the availability of other providers' solutions.

Gartner Magic Quadrant for Personalisation Engines

👉 C-Store choice



Adobe is a Leader in this Magic Quadrant. Its operations are geographically diversified, with clients from midsize to large organizations across industries, including retail, telecommunications and financial services. Adobe Target focuses on real-time personalization and is part of the broader Adobe Experience Cloud, supporting customers via multiple software categories for marketing planning, data insights and activation, customer journeys, content, and commerce. It has developed real-time customer profiling with 1:1 targeting, blending personalization with privacy and consent safeguards. It's improving machine learning (ML) model management via API and creating a centralized hub for experimentation to manage and prioritize personalization.

Strengths

- Multichannel reach
- Testing
- Scale

Cautions

- Cross-product considerations
- Customer support feedback
- Customer maturity growth

Deloitte's recommendation for A/B Testing and Personalisation Engine is Adobe Target. Deloitte's alternative is [Optimizely](#).

Gartner Magic Quadrant for Digital Commerce



Adobe continues to be a Leader in this Magic Quadrant with its Adobe Commerce platform. The platform can be deployed on-premises or in public clouds (with or without Adobe-managed services). It is globally available on Amazon Web Services (AWS) or Microsoft Azure. While Adobe serves many industries, it has high concentrations of clients in manufacturing and retail, followed by telecom, tech and life sciences. While it has historically served companies with online sales less than \$50M, the last few years have seen a significant rise in Adobe serving companies with sales over \$250M. Adobe continues to increase the value of its bundled products, especially through its use of Adobe Sensei AI/ML across its product portfolio and in personalization — making Adobe Commerce a strong consideration for existing Adobe customers.

Strengths

- Core commerce (B2C) functionality
- Headless commerce frameworks
- Adobe product suite synergy

Cautions

- Missing some B2B functionality
- Potential hidden cost of managed services
- Upgrade challenges

Gartner Magic Quadrant for Digital Experience Platforms



Adobe is a Leader in this Magic Quadrant. Its DXP is Adobe Experience Cloud, which includes a plethora of capabilities such as content management, analytics, personalization, customer journey and customer data management. It is available both as a managed service PaaS and SaaS. Adobe is headquartered in San Jose, California, U.S., and has a presence worldwide. It has customers in a variety of industries and of varying sizes. Adobe Experience Cloud's primary use case is B2C, but some organizations also use it for certain B2B purposes, and occasionally for B2E.

Strengths

- Widely adopted
- Highly sophisticated
- Extensive ecosystem

Cautions

- Premium-priced product portfolio (higher TCO)
- Very complex suite requiring considerable technical resources
- Innovation tends to be ahead

Gartner Magic Quadrant for Customer Data Platform



Adobe is a Leader in this Magic Quadrant. Its Real-Time CDP is focused on collecting and rationalizing data against Adobe Experience Platform's (AEP) data model to activate into both the martech and, more recently, adtech ecosystems. Its operations are global, and its clients tend to be mostly B2C with some B2B and hybrid. Clients span a variety of industries, including financial services, IT services, consumer products, media, retail, and travel and hospitality. Its roadmap includes data federation capabilities to allow customers to leverage zero-copy data in the platform and expansion of Sensei GenAI for audience generation and discovery via natural language prompts.

Tealium is a Leader in this Magic Quadrant. Its Customer Data Hub platform focuses on collecting, automating and securing first-party data for use in real time by downstream applications. Its operations are mostly focused in North America, EMEA, APAC and Japan, and its clients tend to be large enterprises across a diverse range of business models and industries. Its longevity as a solution helping marketers manage complex data needs has also made it a contending vendor in regulated industries. Its roadmap includes deepening integrations with cloud data warehouses and adding capabilities to better serve householding and account-based groupings of profiles for B2B use cases.

COMPLETENESS OF VISION →

As of February 2024

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source: [Gartner Reprint](#)

Gartner Magic Quadrant for Customer Engagement Centre



Microsoft is a Leader in this year's Magic Quadrant. The company is based in Redmond, Washington, and is listed on the Nasdaq stock exchange. Microsoft Dynamics 365 Customer Service makes strong use of AI, including generative AI, to drive customer, agent, and administrator automation. The company has strong global and vertical market coverage and can support even the largest organizations' customer service needs. Its vision for generative AI-powered autonomous knowledge management and AI copilots that enable unified customer journeys is supported by the product roadmap investments.

Microsoft Dynamics 365 Customer Service can be a good fit for organizations of any size, and in particular but not limited to those with existing investments in other enterprise software from the company.

Strengths

- Vision and pace of innovation
- Market presence
- Expanding platform

Cautions

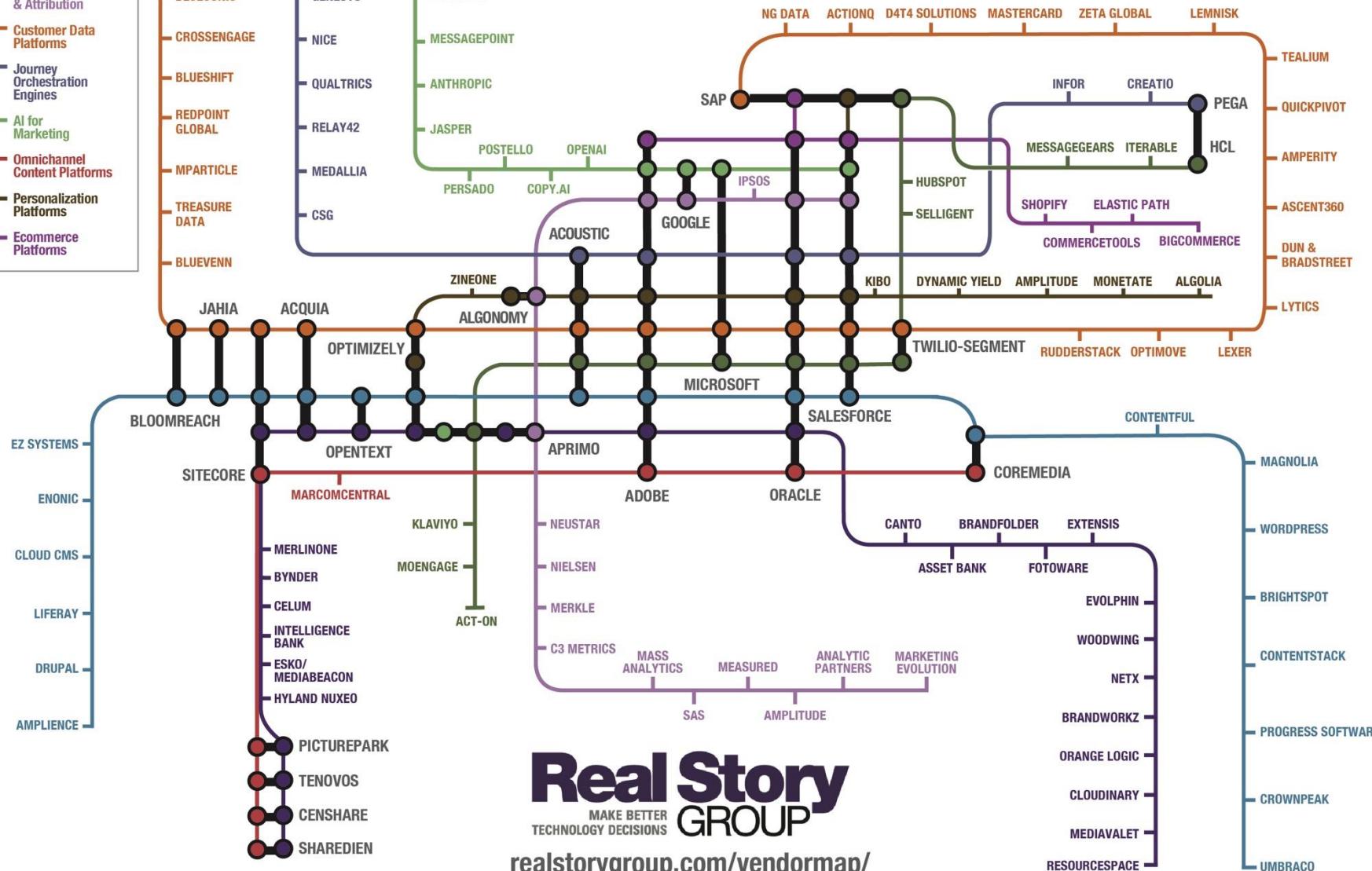
- Inconsistent customer experience
- Licensing complexity
- Fragmented product features



MARTECH STACK VENDOR MAP

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How does “scan to pay” work Like Grabango

To understand the process involved, we need to divide the “scan to pay” process into two sub-processes:

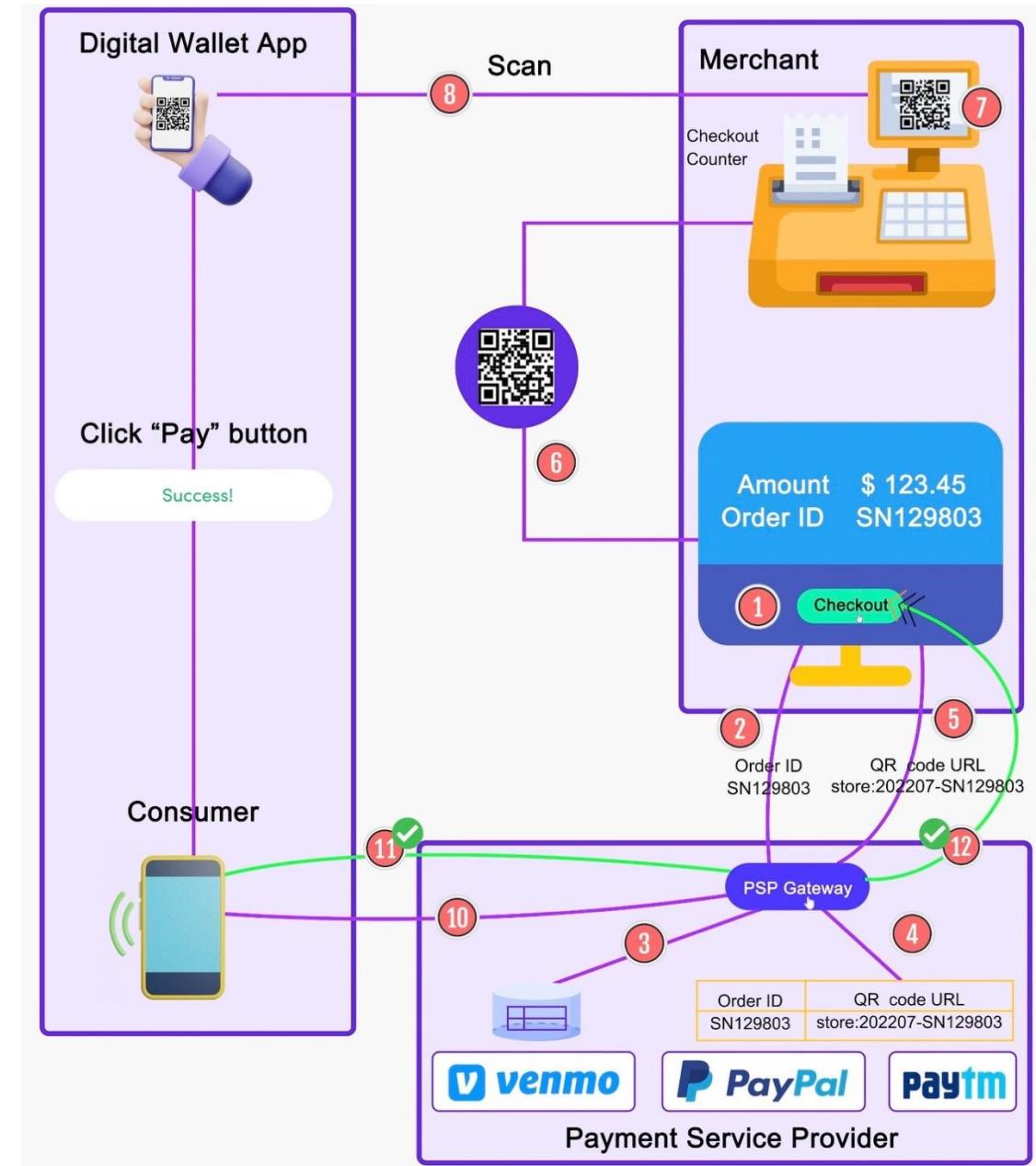
- A. Merchant generates a QR code and displays it on the screen
- B. Consumer scans the QR code and pays

Here are the steps for generating the QR code:

1. When you want to pay for your shopping, the cashier tallies up all the goods and calculates the total amount due, for example, \$123.45. The checkout has an order ID of SN129803. The cashier clicks the “checkout” button.
2. The cashier’s computer sends the order ID and the amount to PSP.
3. The PSP saves this information to the database and generates a QR code URL.
4. PSP’s Payment Gateway service reads the QR code URL.
5. The payment gateway returns the QR code URL to the merchant’s computer.
6. The merchant’s computer sends the QR code URL (or image) to the checkout counter.
7. The checkout counter displays the QR code.

These 7 steps complete in less than a second. Now it’s the consumer’s turn to pay from their digital wallet by scanning the QR code:

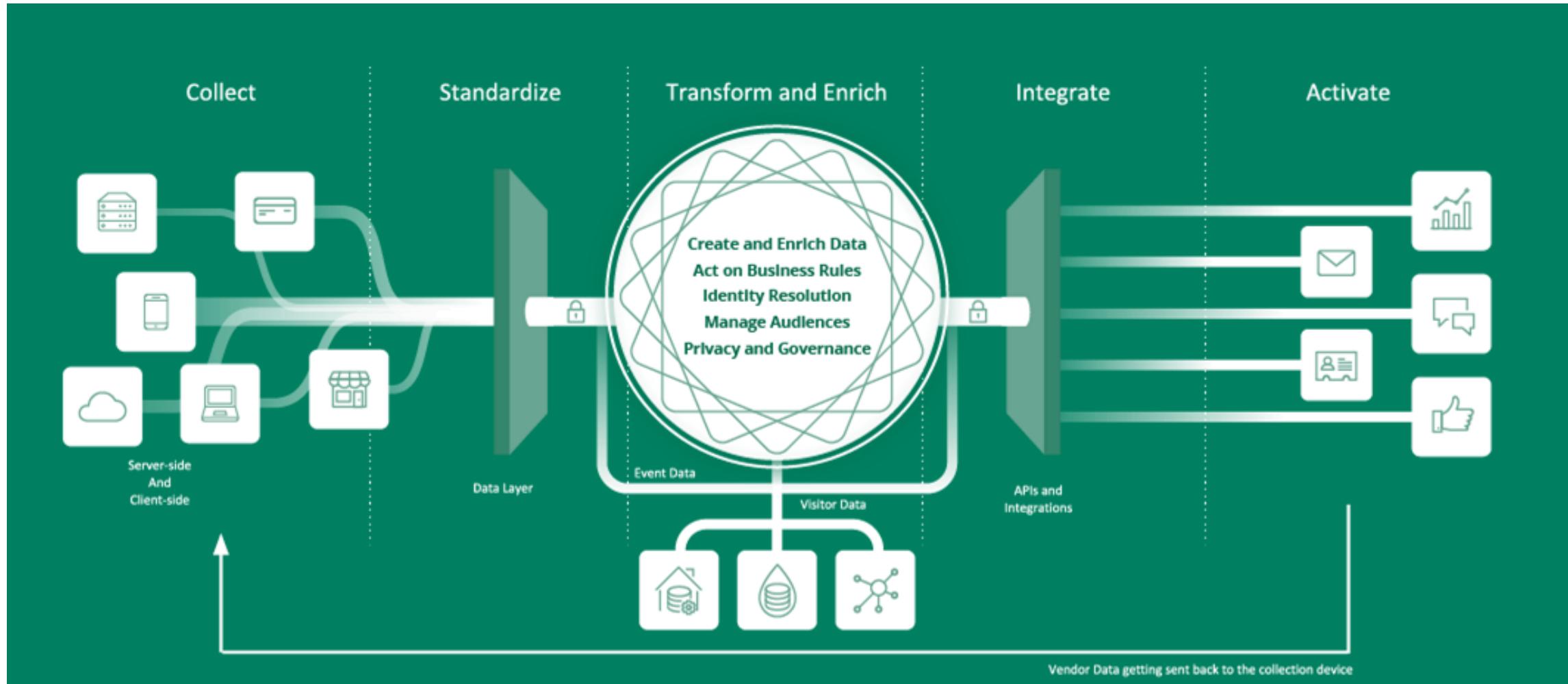
8. The consumer opens their digital wallet app to scan the QR code.
9. After confirming the amount is correct, the client clicks the “pay” button.
10. The digital wallet App notifies the PSP that the consumer has paid the given QR code.
11. The PSP payment gateway marks this QR code as paid and returns a success message to the consumer’s digital wallet App.
12. The PSP payment gateway notifies the merchant that the consumer has paid the given QR code.



source: [EP99: What is the best way to learn SQL? \(bytebytogo.com\)](http://EP99: What is the best way to learn SQL? (bytebytogo.com))

Customer Loyalty

Tealium Customer Data Hub (CDH)



source: [Take a Composable Approach with Tealium: An Architectural Discussion for Customer Data Management - Tealium](#)

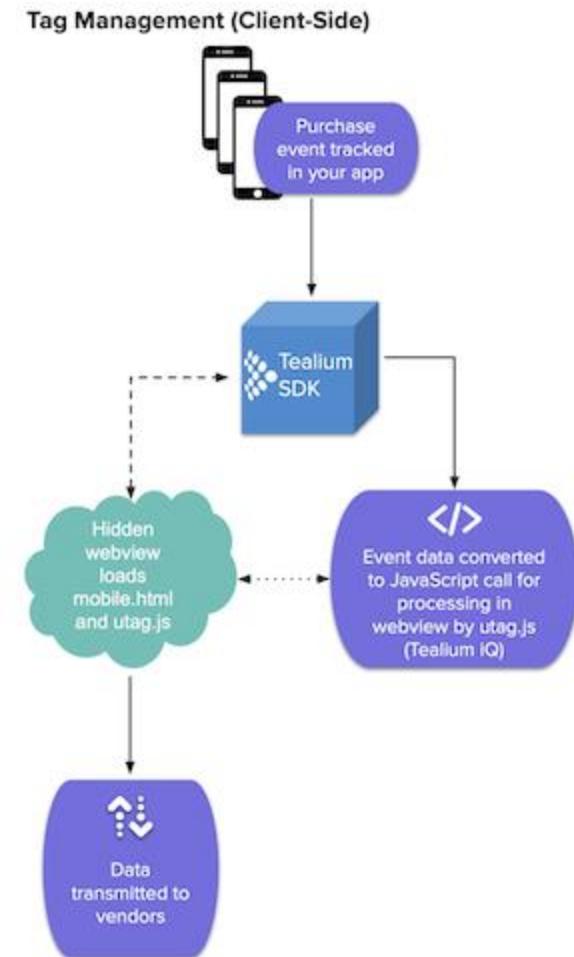
Tealium iQ Tag Management Data Flow

Tealium iQ Client-Side Tag SDK and Integration

Tealium iQ Tag Management distinguishes itself from other solutions as being a client-side solution. Most tag managers rely on an application server to facilitate the execution of tags in their system. An application server determines which tags to load and how to run them, then sends this configuration back to the browser on every page load. A more scalable and optimized approach is to bypass the application server and provide all the tag configuration logic from a static JavaScript file that can be processed solely by the browser.

In iQ Tag Management, your vendor tag configuration and business logic is represented in JavaScript code that resides inside the main client-side library called `utag.js`. As visitors browse your site, this file is loaded and, within the browser itself (the client-side), determines which additional vendor tags to load and how to send their data. Once these files have been retrieved by the browser, they are cached for subsequent page views to optimize network traffic and page performance.

- C-Store has not yet implemented the server-side connector which would require Tealium EventStream licence to be integrated to Adobe Experience Cloud products or Adobe Experience Platform.
- [Universal Tag \(utag.js\)](#) has been implemented. Therefore, [Adobe Analytics AppMeasurement for JS Tag](#) should have also been implemented to be integrated with AA. However, the same payload is sent from the web/app to AA and Tealium SDK which sends the tag/event directly to the vendor. There is no integration between Tealium and AA as C-Store uses client-side approach. There would be integration for server-side.



source: [How Digital Analytics works at C-Store - Overview \(azure.com\)](#)

source: [Adobe Journey Optimiser, Visual Workspace for Innovation \(miro.com\)](#)

source: [Client-Side | Getting Started for Mobile | Tealium Docs](#)

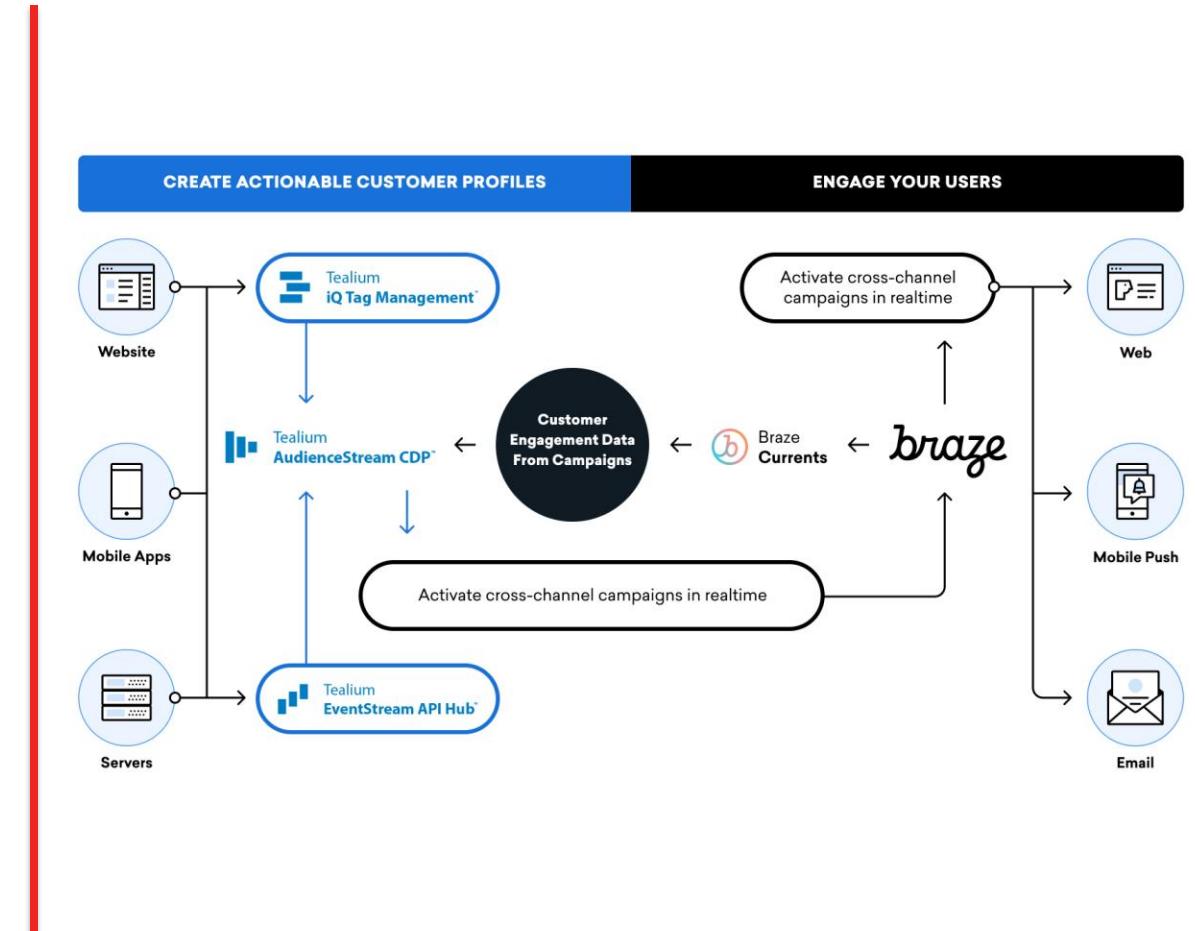
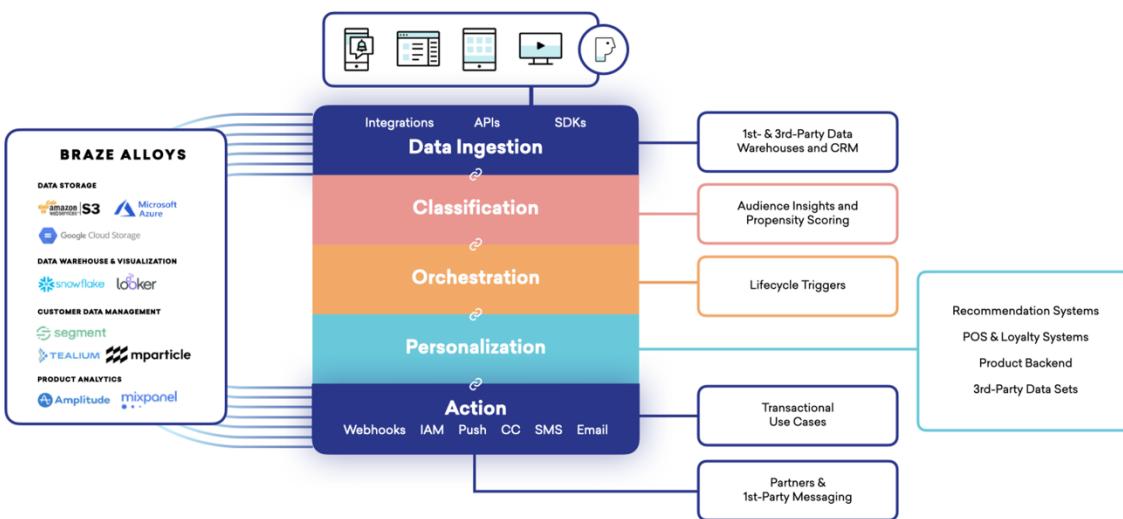
source: [Adobe Analytics AppMeasurement for JS Tag Setup Guide | Client-Side Tags | Tealium Docs](#)

Tealium and Braze Integration (ACC/AJO)

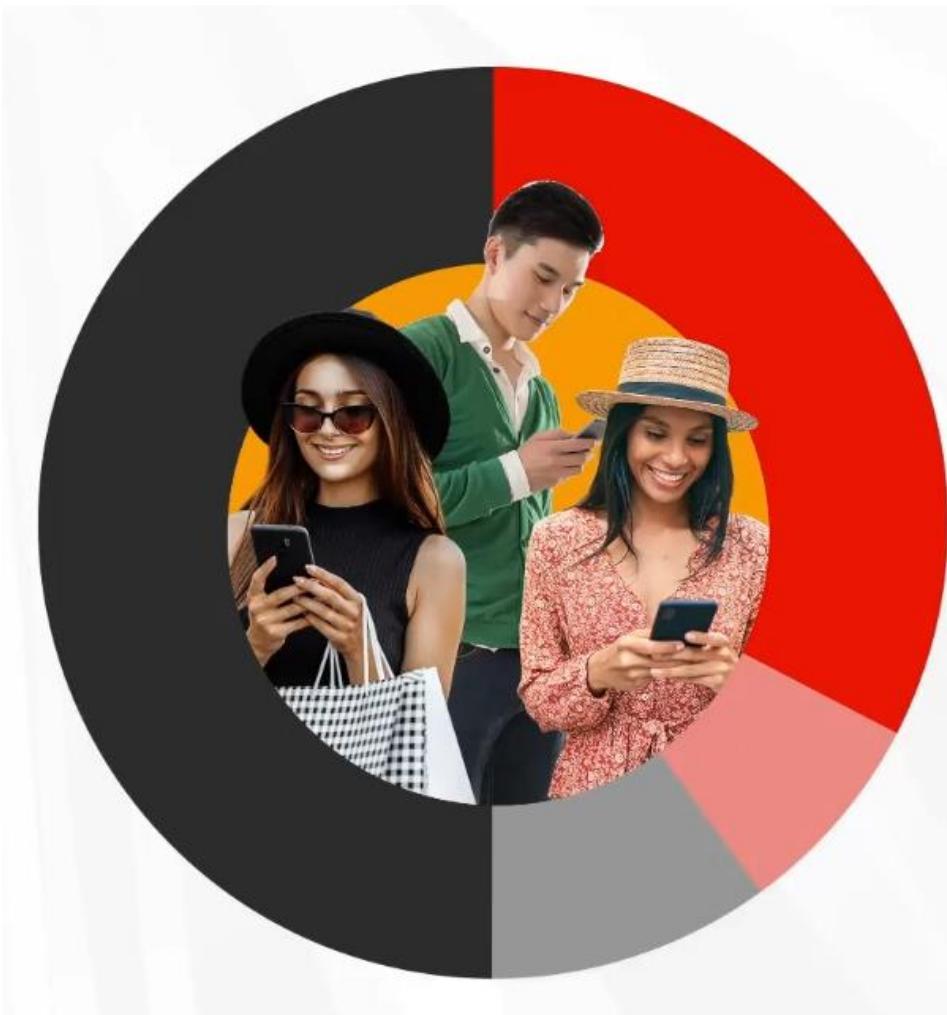
LISTEN

UNDERSTAND

ACT



Adobe Real-Time CDP Roadmap H1 2024



Person Attribute Data:

WHO ARE THEY?

- Name
- Gender
- Address
- Loyalty status
- Phone number
- Email address



Behavioral Data:

WHAT DO THEY DO?

- Search Ad clicked
- Website visit
- Call Center Interaction
- Opened email offer
- Click-thru to site on mobile
- In store activity



Preferences:

HOW DO YOU BUILD TRUST WITH THEM?

- Consent by use case
- Data sharing transparency
- Opt-in programs and offers
- Communication frequency

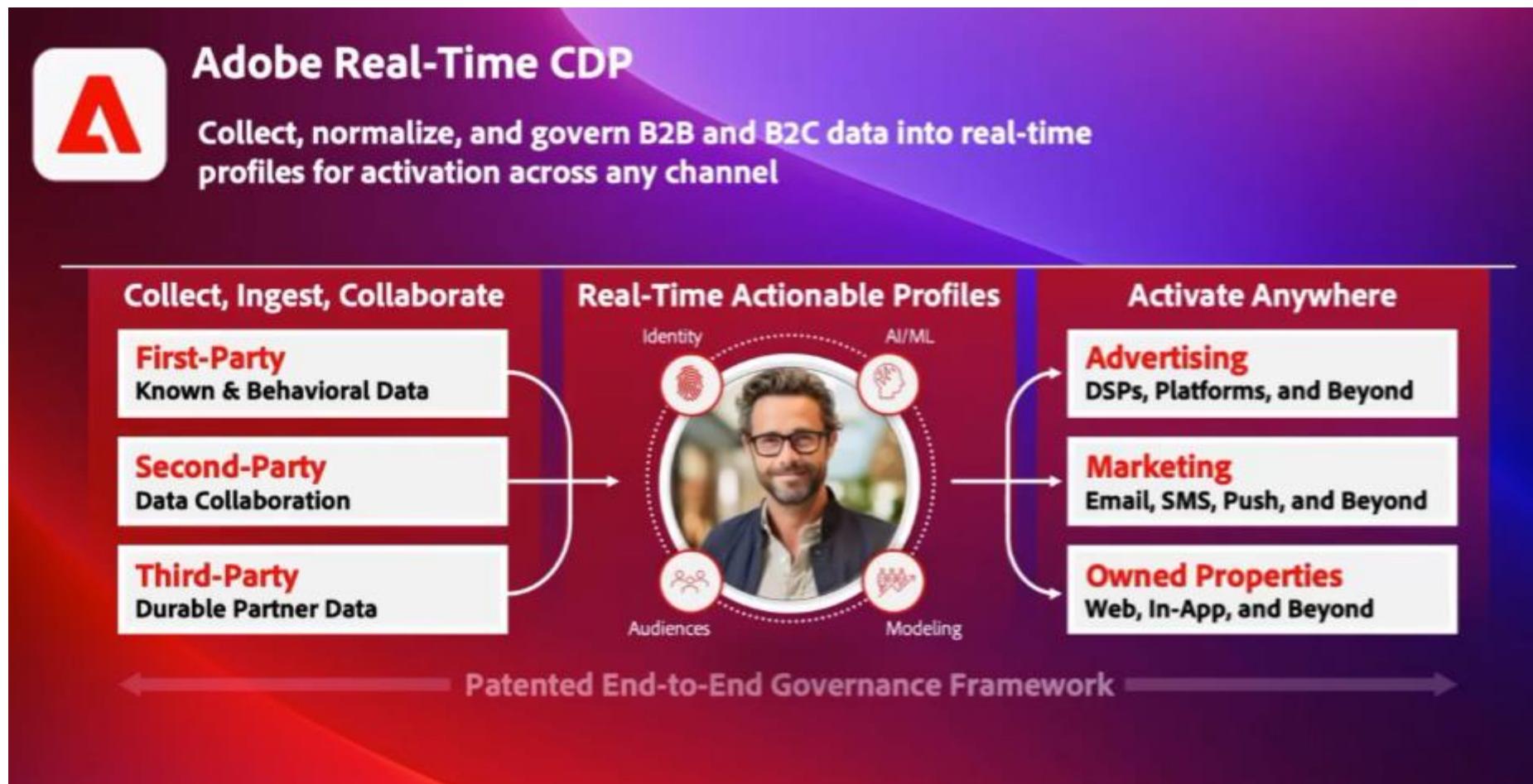


Audience

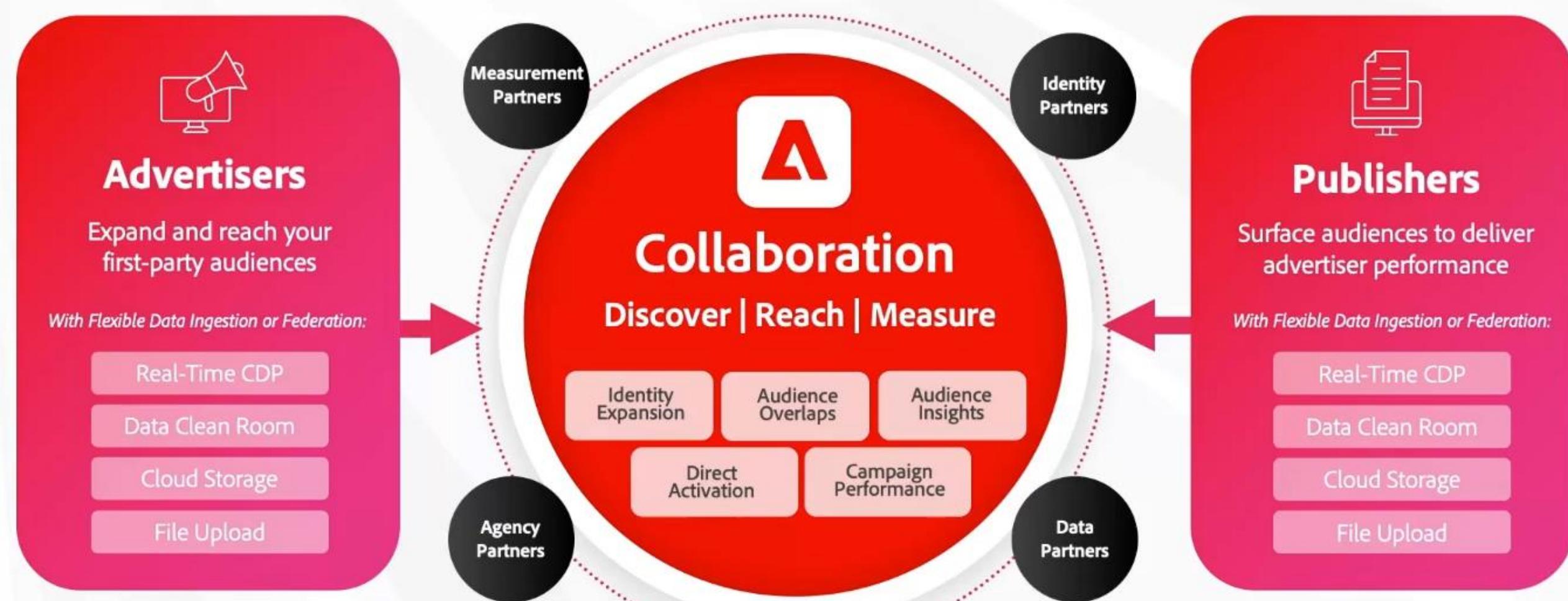
WHICH SEGMENT DO THEY QUALIFY FOR BASED ON WHAT THEY DO?

- Eligible for upgrades
- Cross channel shoppers
- New product prospects
- Propensity for churn
- Loyalty by genre (gold/silver/bronze)
- Suppression audience

Adobe Real-Time CDP Roadmap H1 2024



Adobe Real-Time CDP Roadmap H1 2024



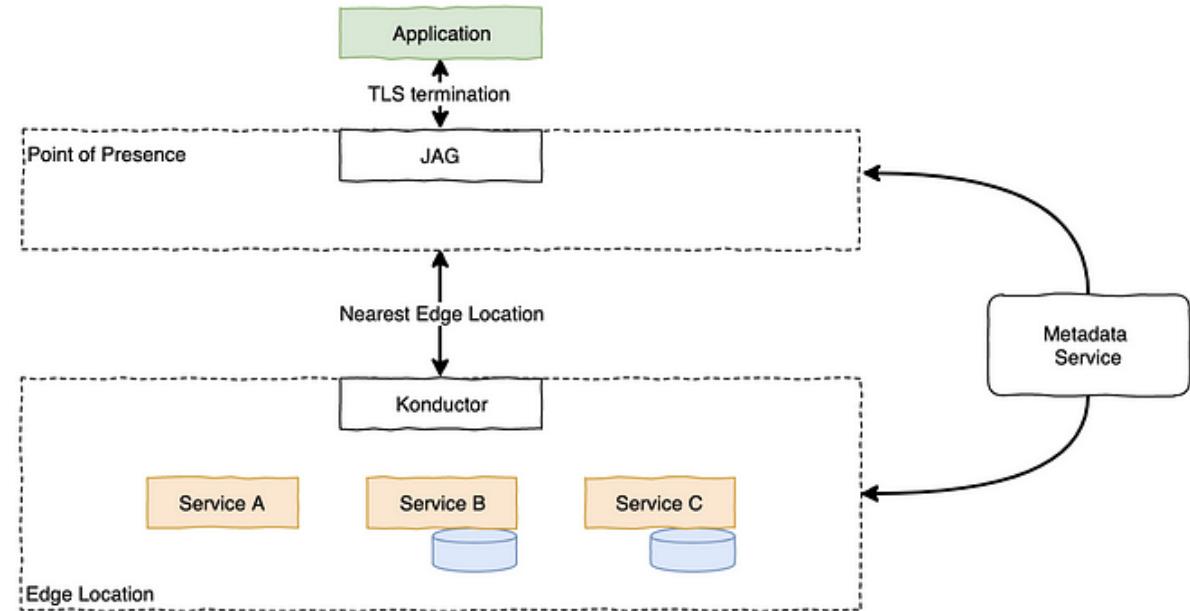
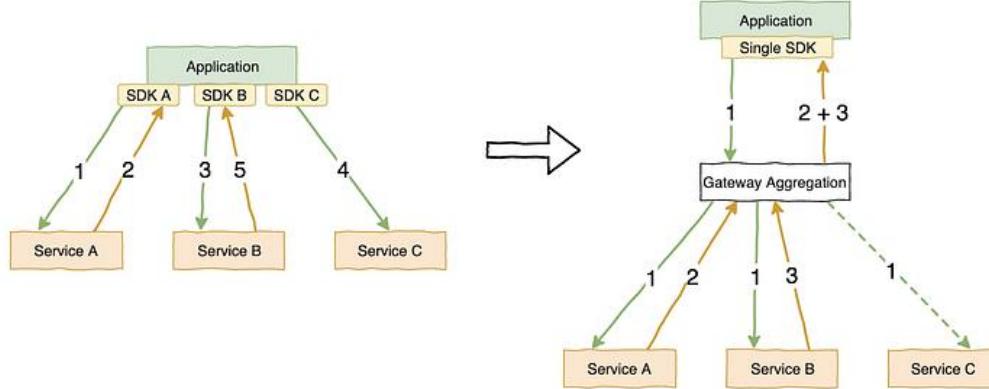
source: [Scale advertising reach, ROI, and growth with Real-Time CDP Collaboration](#)

Adobe Experience Platform Edge Network Gateway

Mobile App Can Be More Resilience with Single SDK

Edge Network is an Adobe Experience Platform initiative that provides a single, optimized gateway for requests that want to interact with other Adobe Experience Cloud edge services, such as Adobe Target, Adobe Audience Manager (CDP), and Adobe Analytics. As a result, customers will simply need to deploy one SDK on their website to leverage server-side services, greatly improve performance, and streamline their path to value.

- Minimising latency
- Asynchronous first
- Reliability

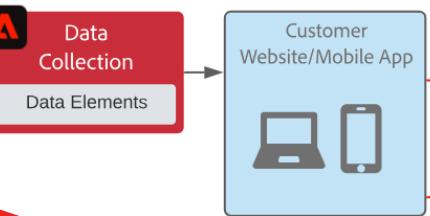


Adobe Server Side Enterprise Data Collection

Event Forwarding

Client Side Collection

Additional Licence Required



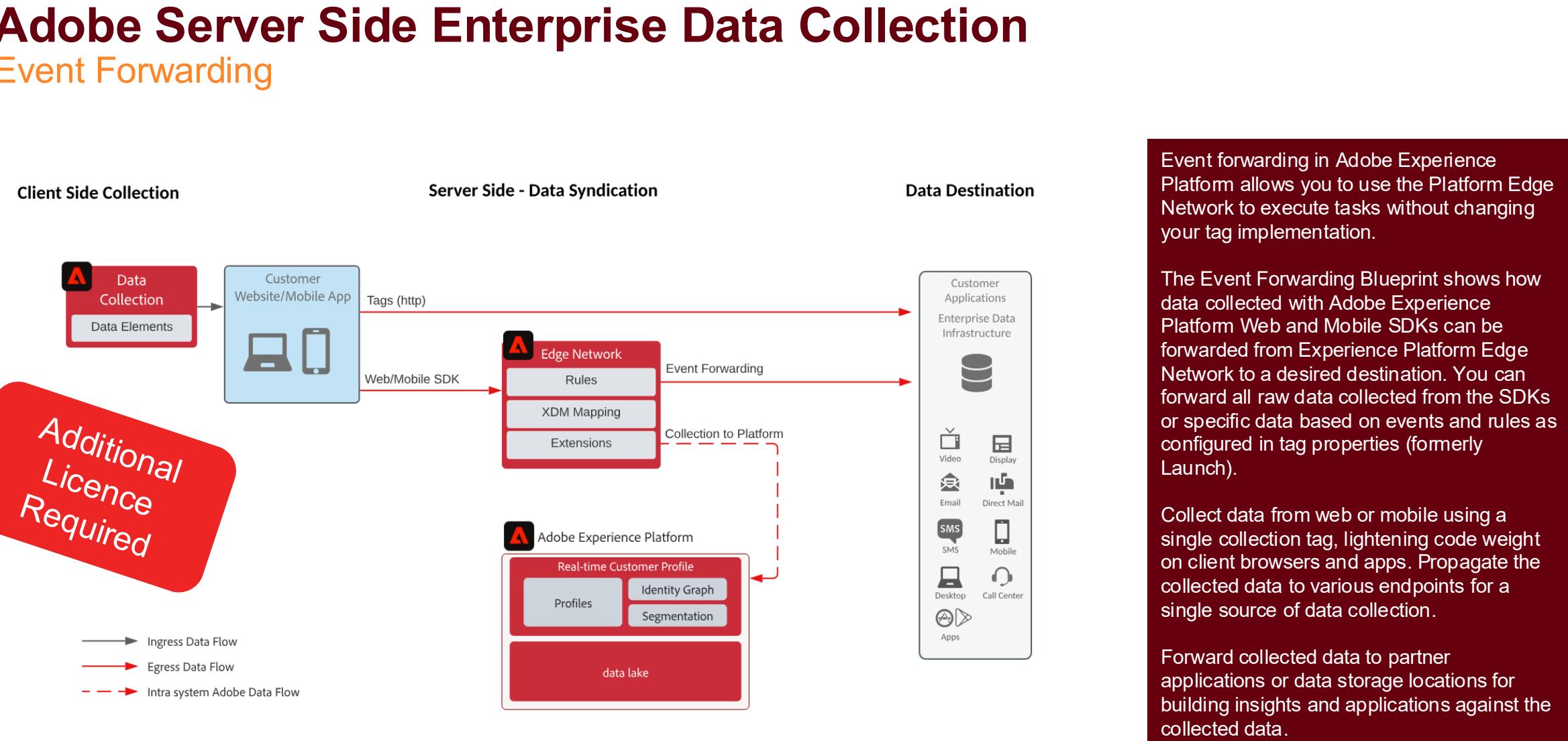
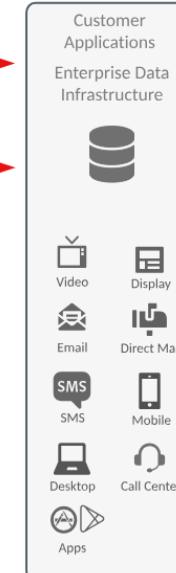
Server Side - Data Syndication

Tags (http)
Web/Mobile SDK



Event Forwarding
Collection to Platform

Data Destination



Event forwarding in Adobe Experience Platform allows you to use the Platform Edge Network to execute tasks without changing your tag implementation.

The Event Forwarding Blueprint shows how data collected with Adobe Experience Platform Web and Mobile SDKs can be forwarded from Experience Platform Edge Network to a desired destination. You can forward all raw data collected from the SDKs or specific data based on events and rules as configured in tag properties (formerly Launch).

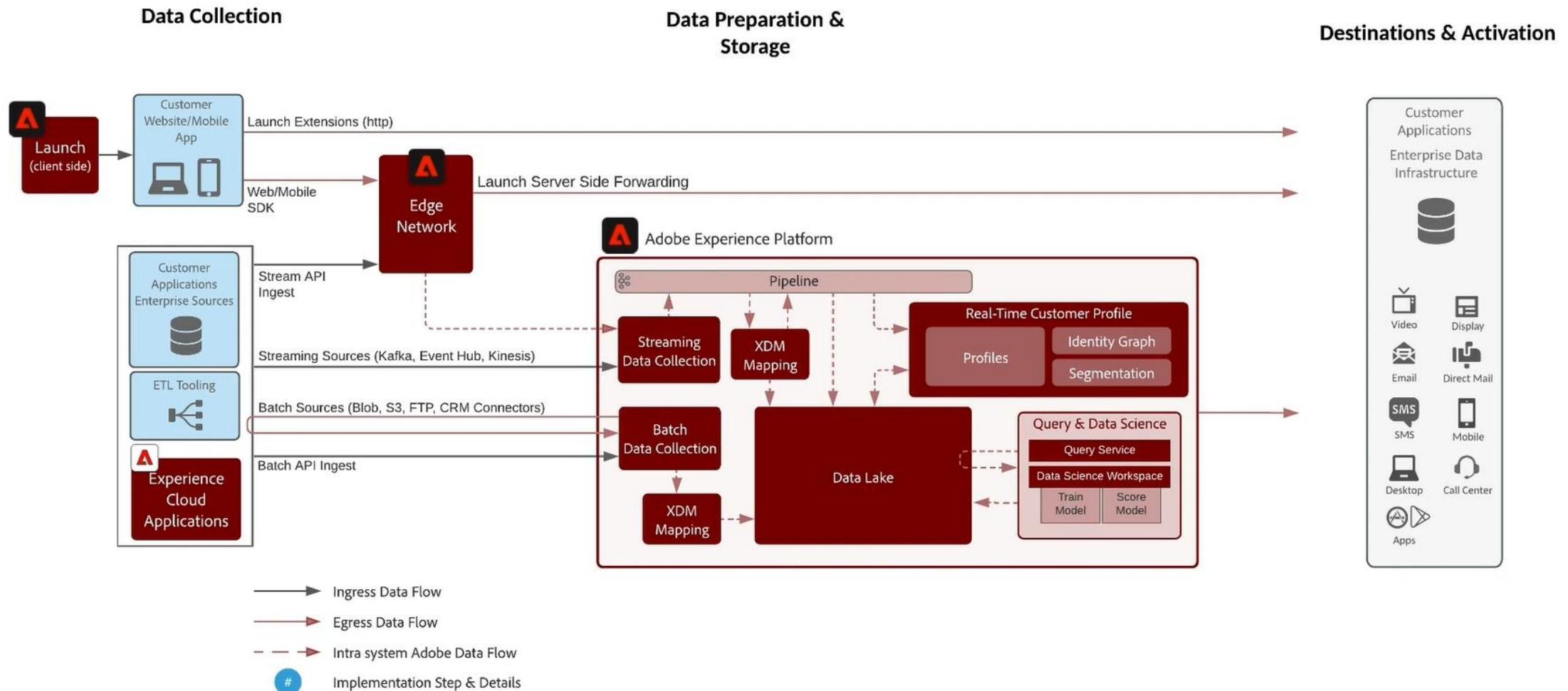
Collect data from web or mobile using a single collection tag, lightening code weight on client browsers and apps. Propagate the collected data to various endpoints for a single source of data collection.

Forward collected data to partner applications or data storage locations for building insights and applications against the collected data.

source: [Event Forwarding blueprint | Adobe Data Collection](#)

Adobe Experience Platform Data Collection

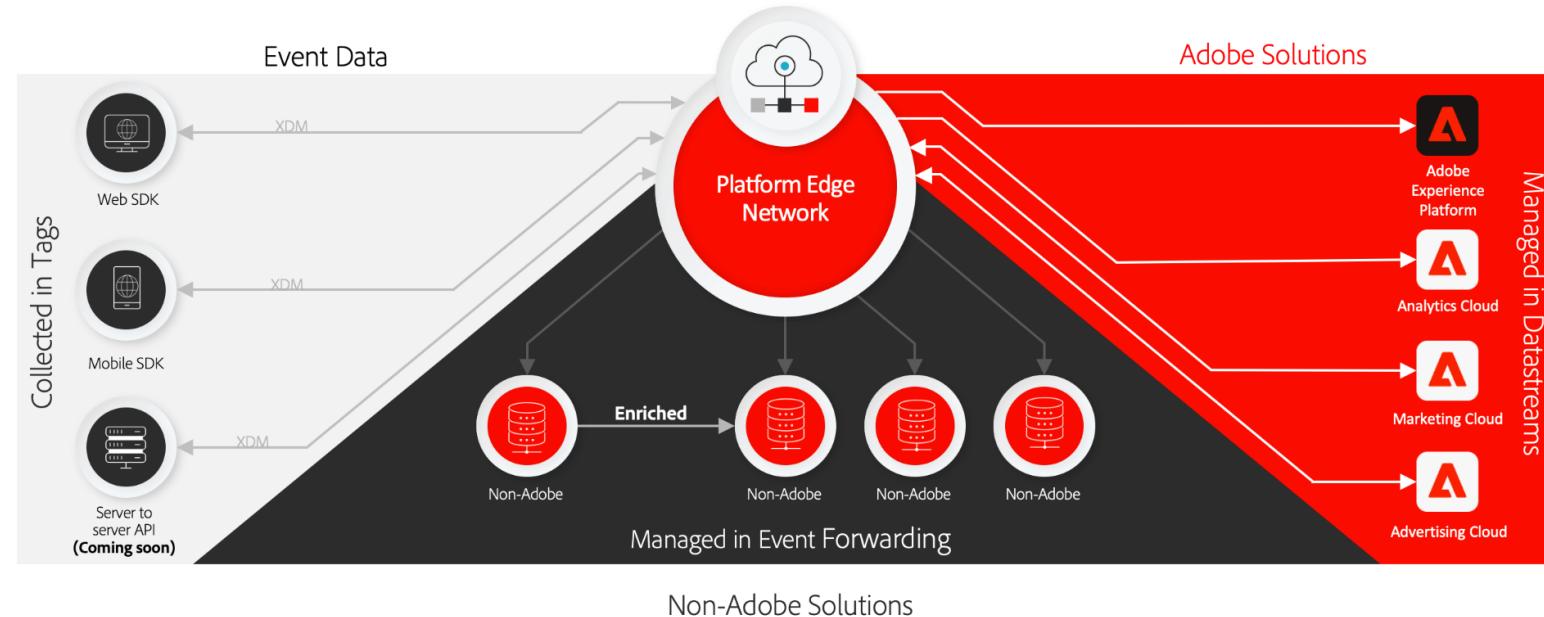
Data Ingestion | Streaming and Batch



source: [Data Ingestion Overview | Adobe Experience Platform](#)

Adobe Experience Platform Data Collection

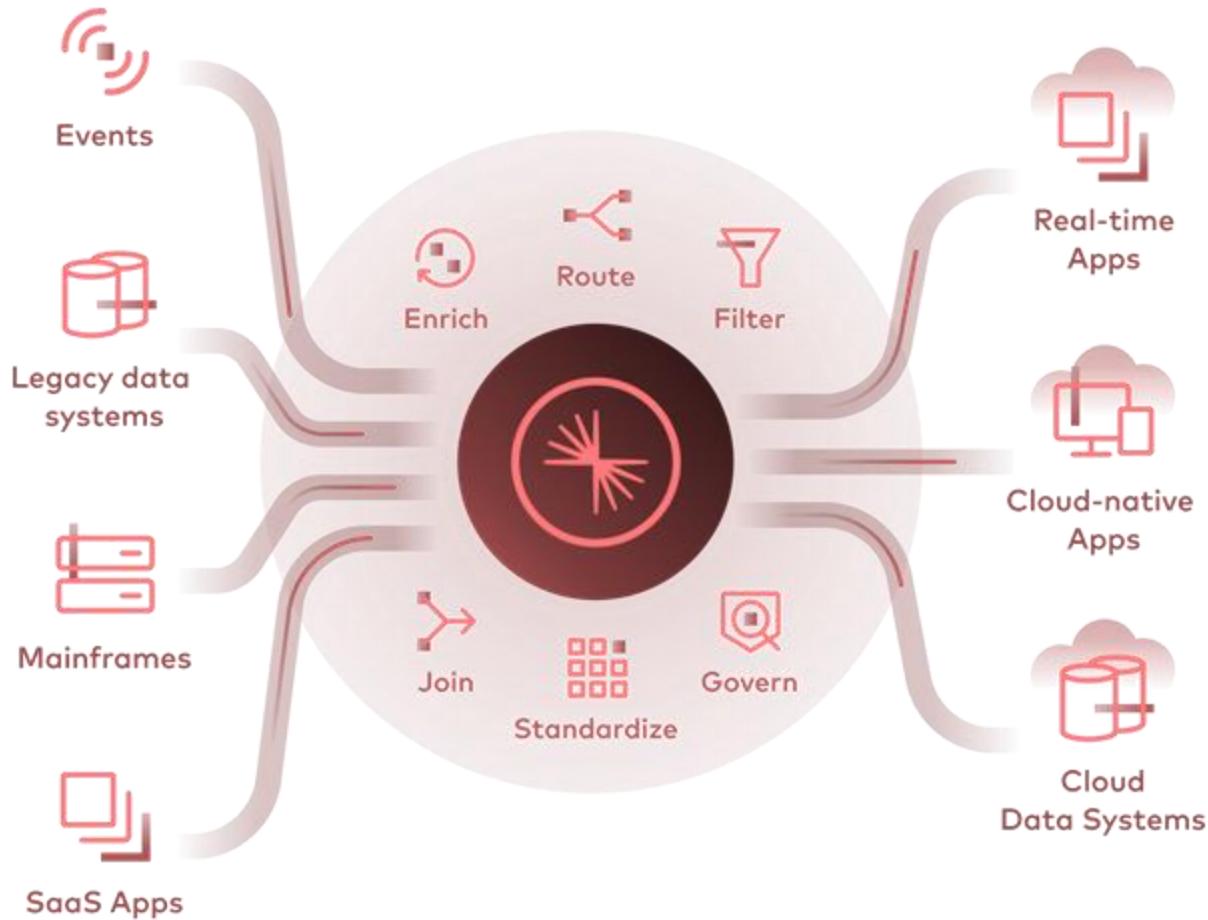
Event Streaming Processing (ESP) and Tag Management System (TMS)



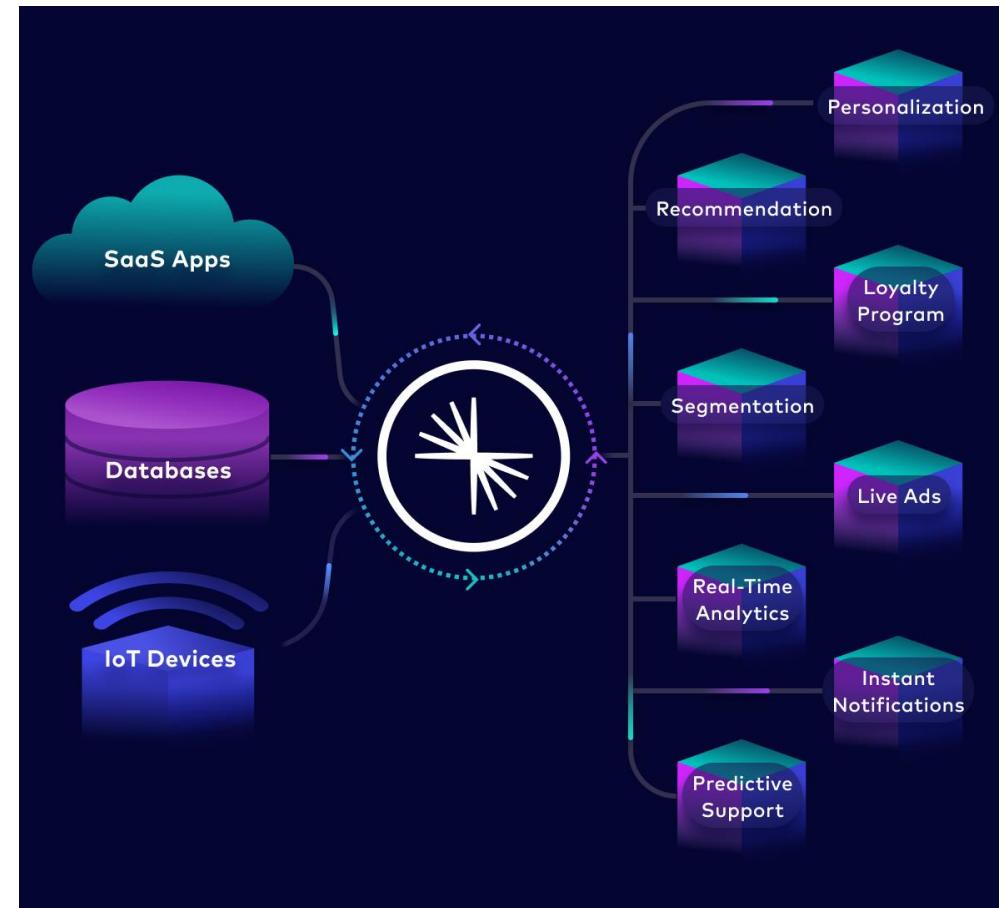
source: [Tealium Integration - Kochava Support](#)

source: [Data Collection Overview | Adobe Experience Platform](#)

Confluent Event Streaming Platform (ESP)



source: [Event Stream Processing, Streaming Data, and CEP Explained \(confluent.io\)](https://www.confluent.io/blog/event-stream-processing-streaming-data-and-cep-explained)

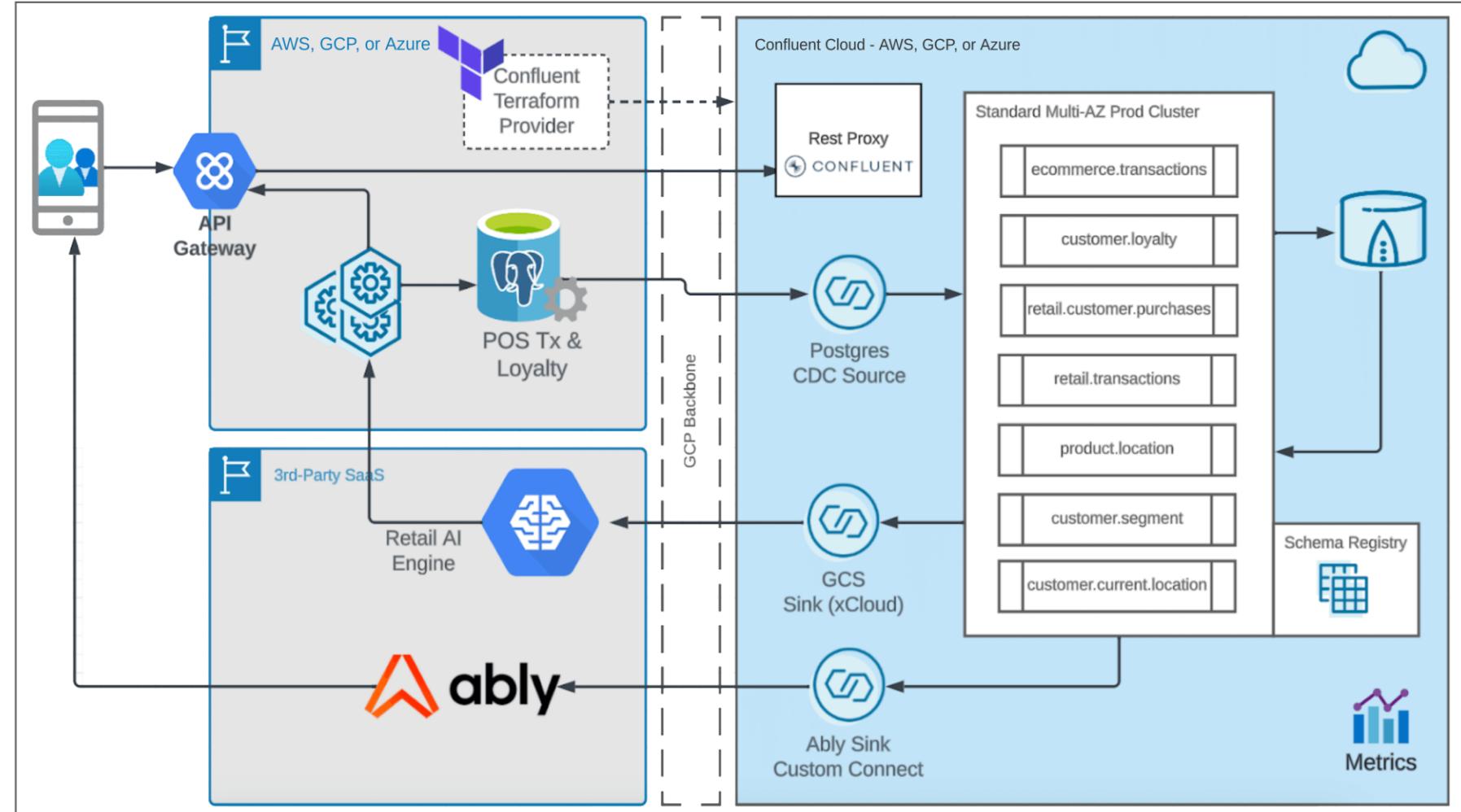


Confluent is built on Apache Kafka

Confluent In-Store Personalization

Reference Architecture

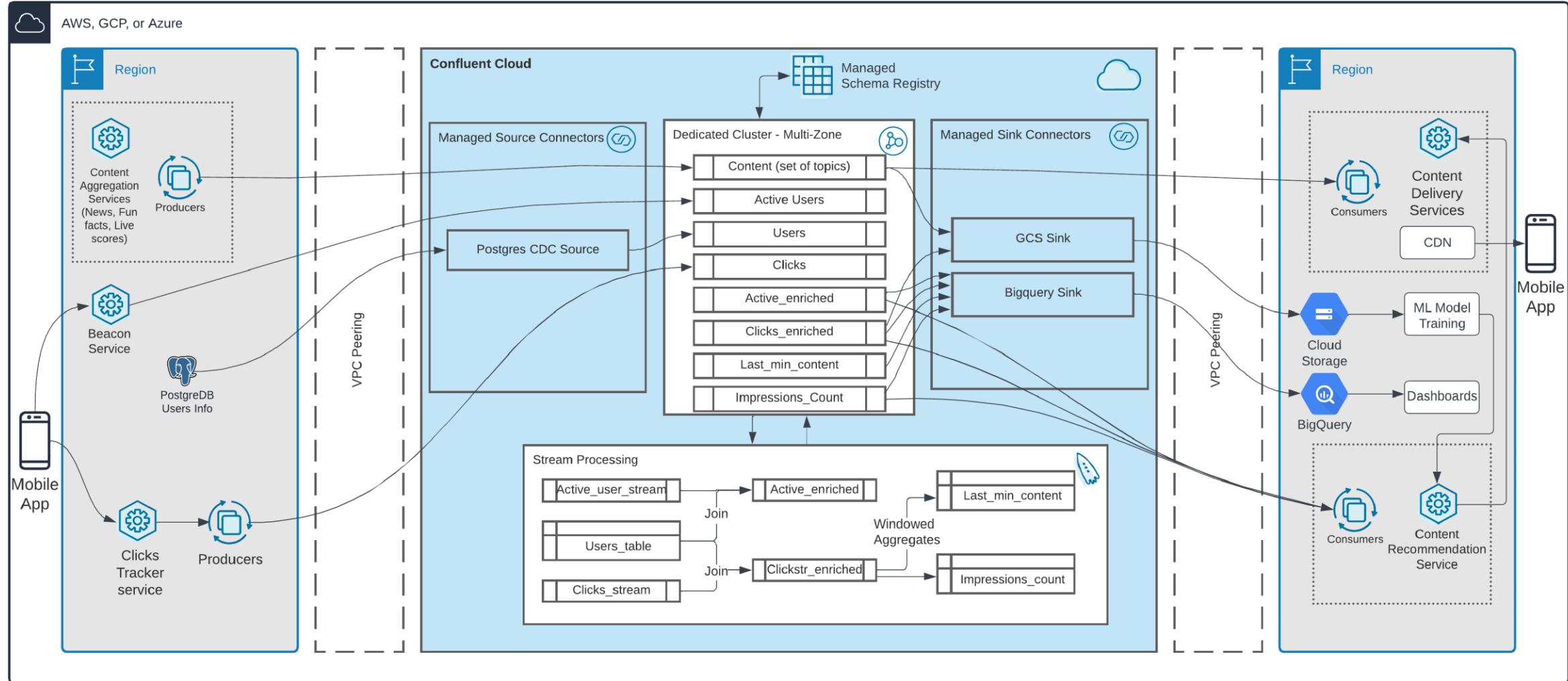
This diagram demonstrates a sample architecture of how to deliver in-store notifications to customers based on previous transactions, web behavior, and their current physical location. It involves the ingestion and processing of data from different sources (e.g., PostgreSQL and Google Cloud Storage bucket) and a custom Ably connector, which enables edge interaction with browsers, mobile devices, and IoT devices.



source: [Powering In-Store Personalization with Data Streaming | Confluent](#)

Confluent Real-Time Customer Personalization at Scale

Reference Architecture

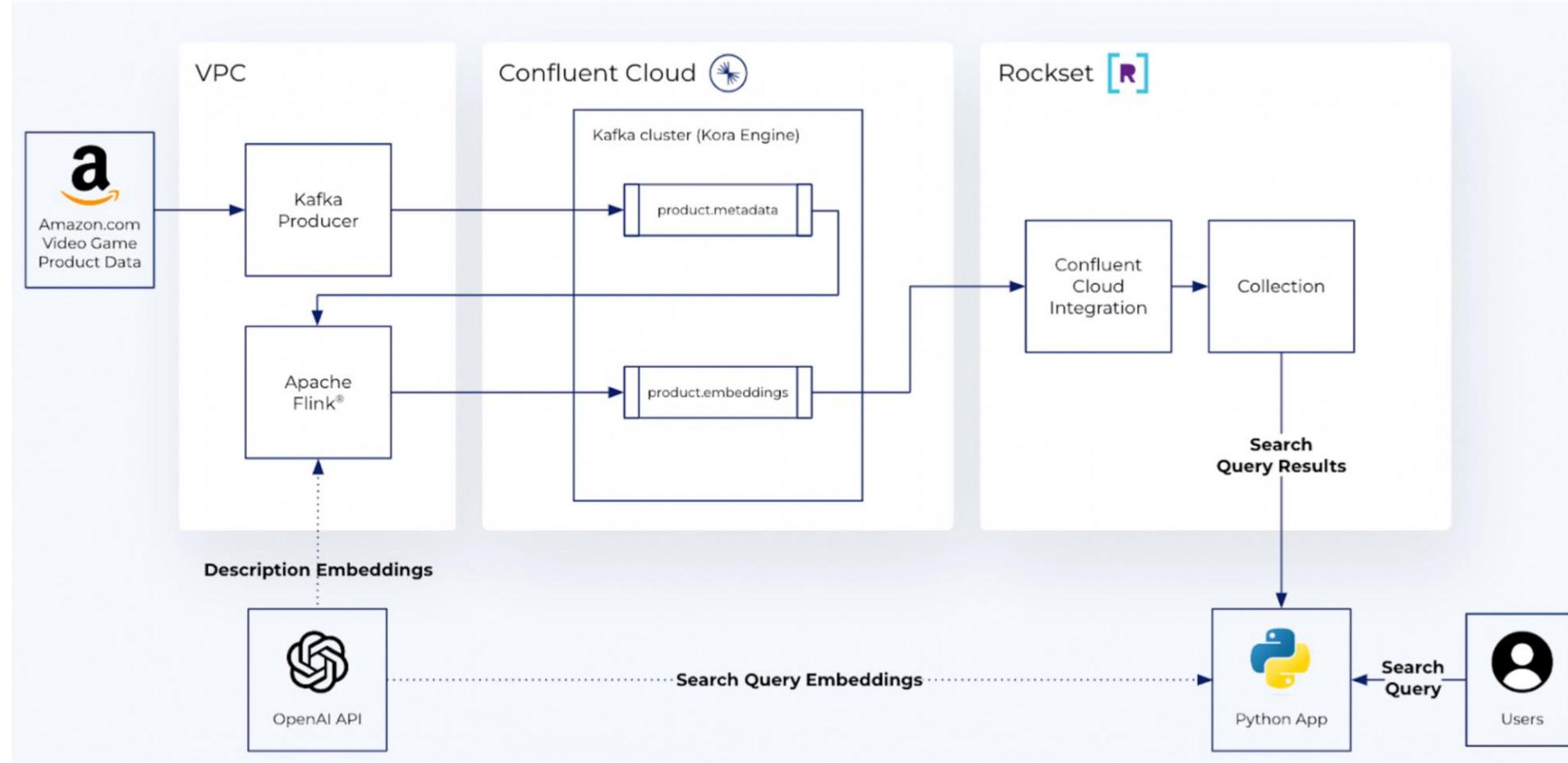


source: [Real-Time Customer Personalization at Scale \(confluent.io\)](https://www.confluent.io/resource/real-time-customer-personalization-at-scale)

Confluent Real-Time AI Recommendation Engine

Reference Architecture

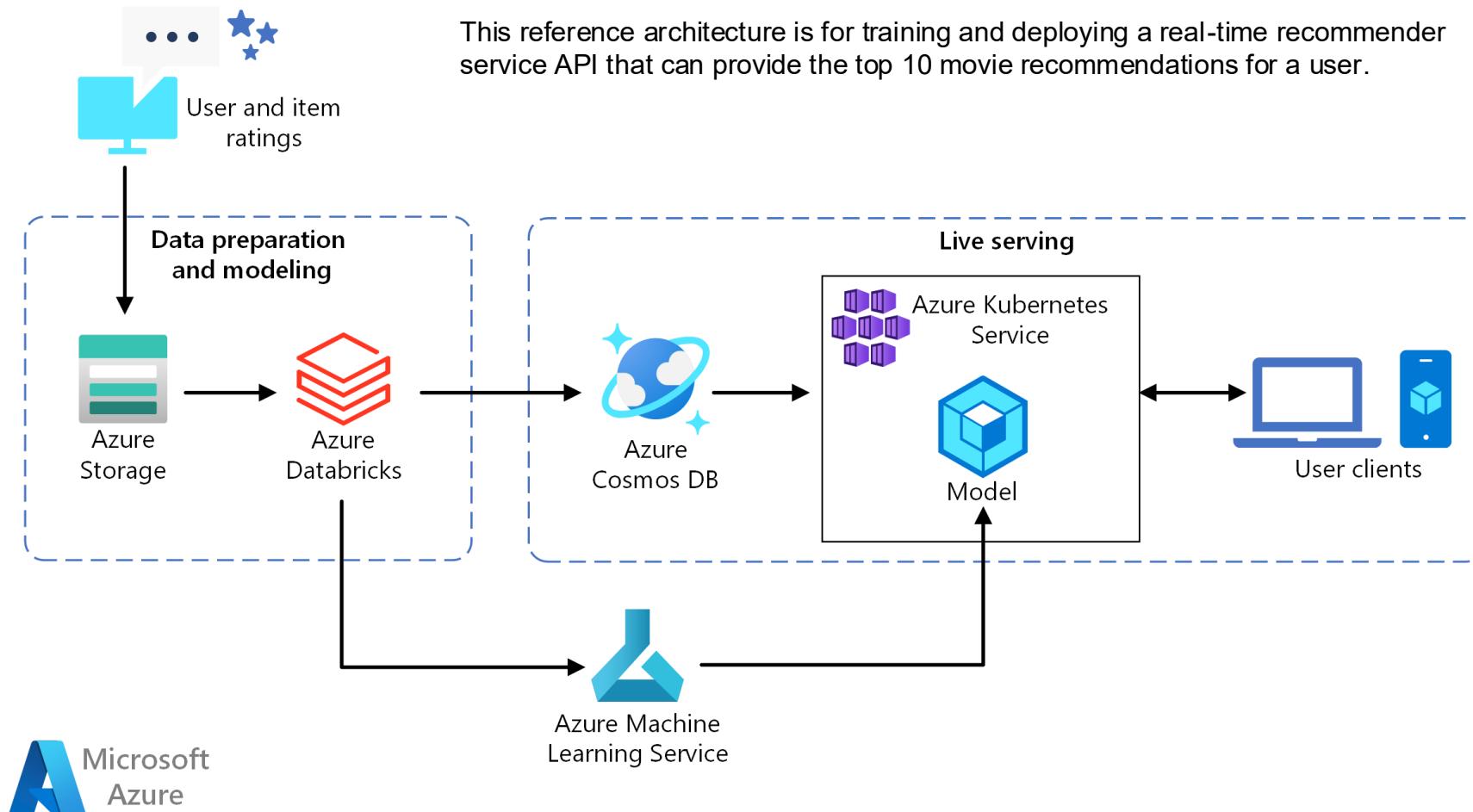
Confluent and Rockset power a critical architecture for efficiently developing and scaling AI applications built on real-time streaming data.



source: [Deliver Better Product Recommendations with Real-Time AI \(confluent.io\)](https://www.confluent.io/blog/deliver-better-product-recommendations-real-time-ai)

Real-time Recommendation on Microsoft Azure

Reference Architecture

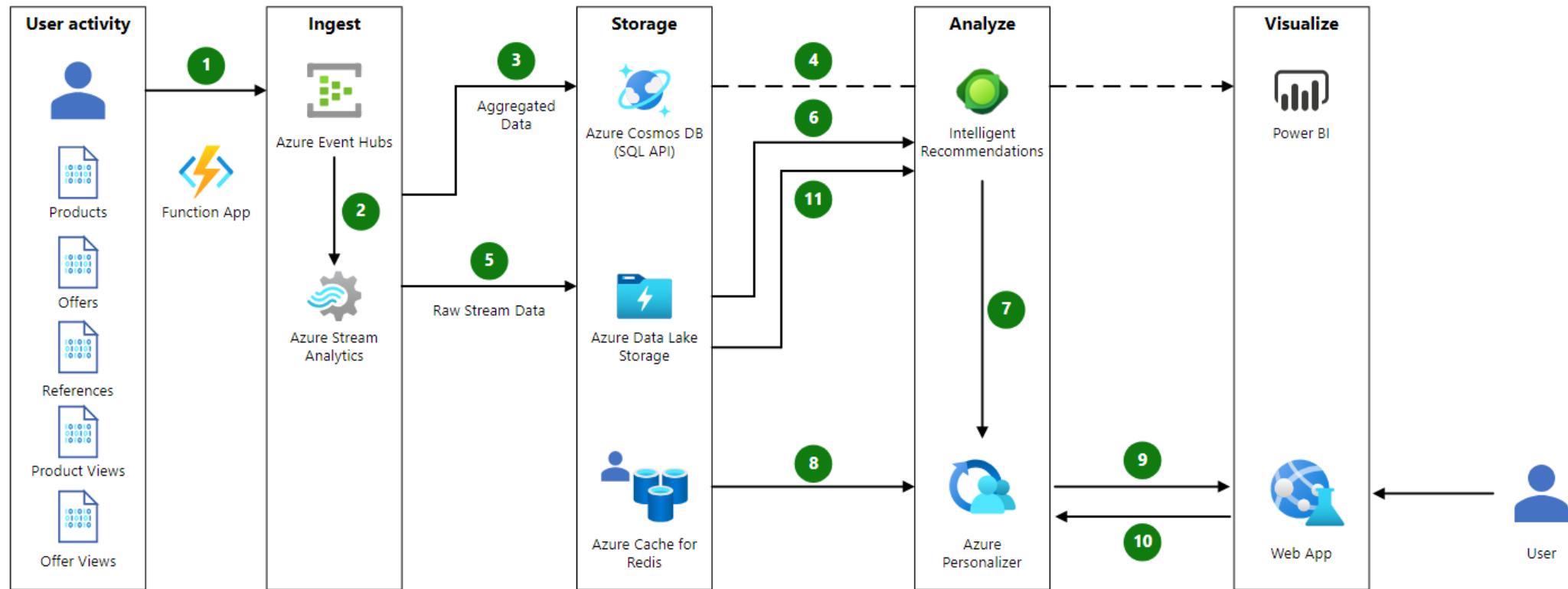


source: [Build a real-time recommendation API on Azure - Azure Architecture Center | Microsoft Learn](#)

Personalised Offers on Microsoft Azure

Reference Architecture

This solution builds intelligent marketing systems that provide customer-tailored content by using machine learning models that analyze data from multiple sources. Key technologies used include Intelligent Recommendations and Azure Personalizer.



source: [Personalized offers - Azure Solution Ideas | Microsoft Learn](#)

Personalised Offers in Near Real-time on Microsoft Azure

Reference Architecture

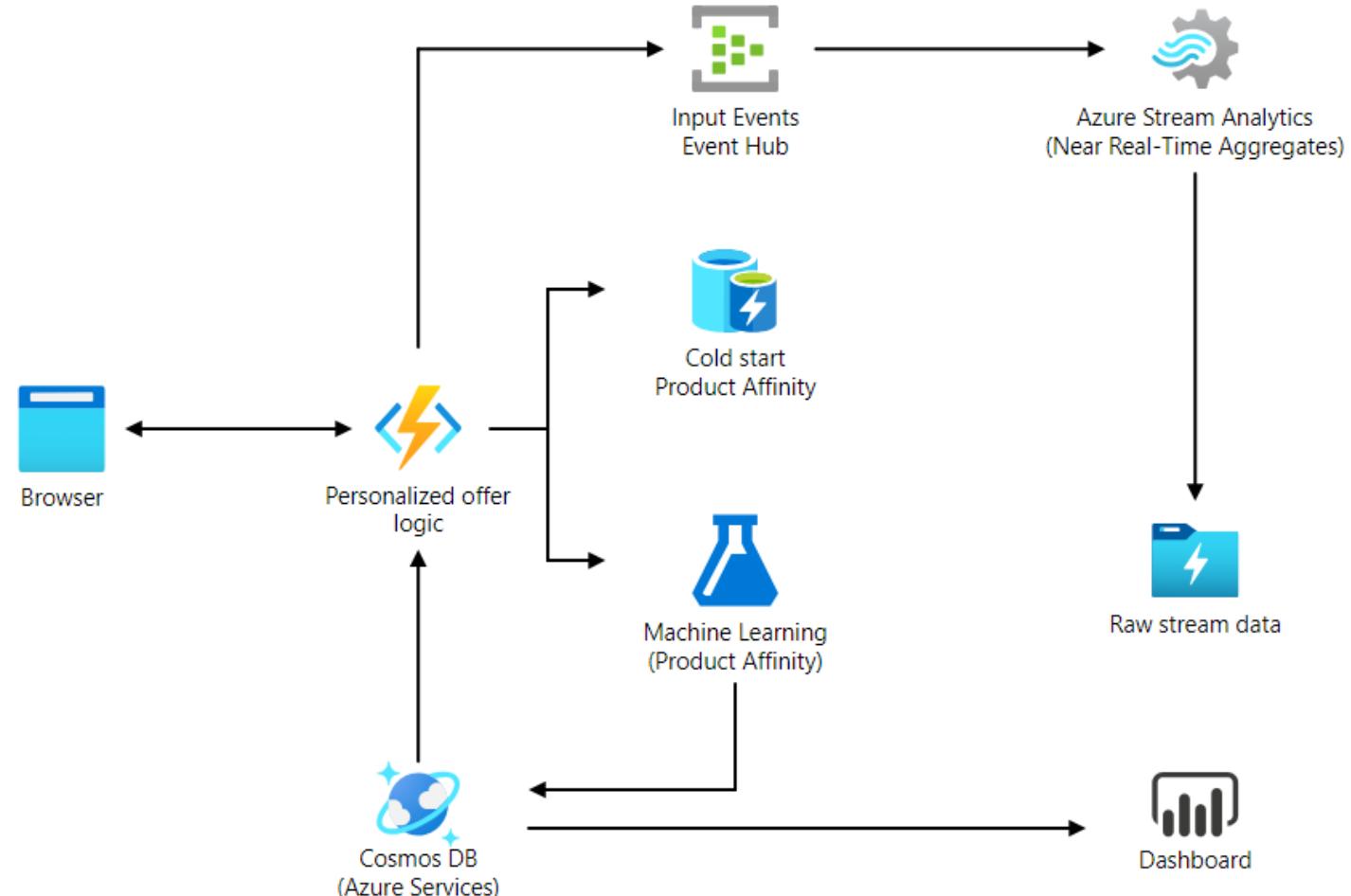
Personalized marketing is essential for building customer loyalty and remaining profitable. Reaching customers and getting them to engage is harder than ever, and generic offers are easily missed or ignored. Current marketing systems fail to take advantage of data that can help solve this problem.

Marketers using intelligent systems and analysing massive amounts of data can deliver highly relevant and personalized offers to each user, cutting through the clutter and driving engagement. For example, retailers can provide offers and content based on each customer's unique interests, preferences and product affinity, putting products in front of the people most likely to buy them.

This architecture shows how you can create a solution personalizing offers with Azure Functions, Azure Machine Learning, and Azure Stream Analytics.

By personalizing your offers, you'll deliver an individualized experience for current and prospective customers, boosting engagement and improving customer conversion, lifetime value, and retention.

This solution is ideal for the retail and marketing industries.

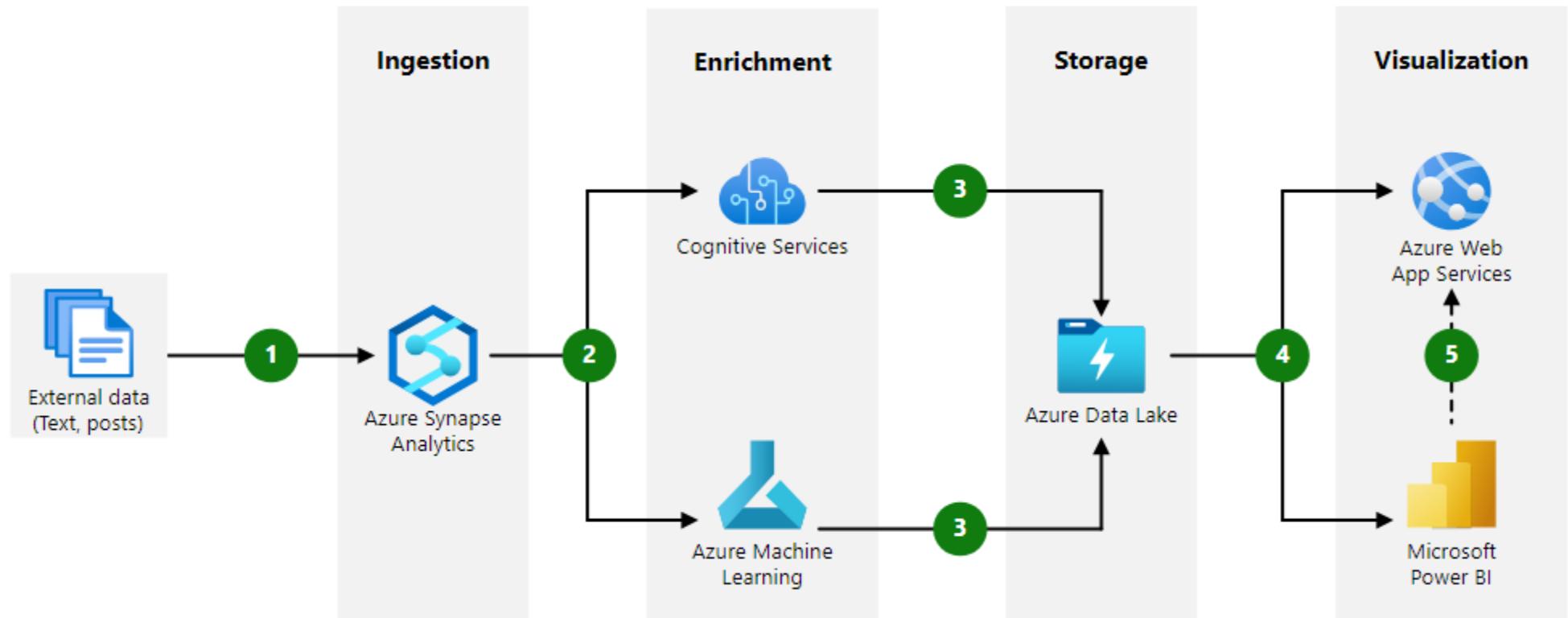


source: [Create personalized marketing solutions - Azure Architecture Center | Microsoft Learn](#)

Optimise Marketing With Machine Learning on Microsoft Azure

Reference Architecture

Azure services can extract insights from social media for you to use in big data marketing campaigns.



source: [Create personalized marketing solutions - Azure Architecture Center | Microsoft Learn](#)

Real-time Fraud Detection on Microsoft Azure

Reference Architecture

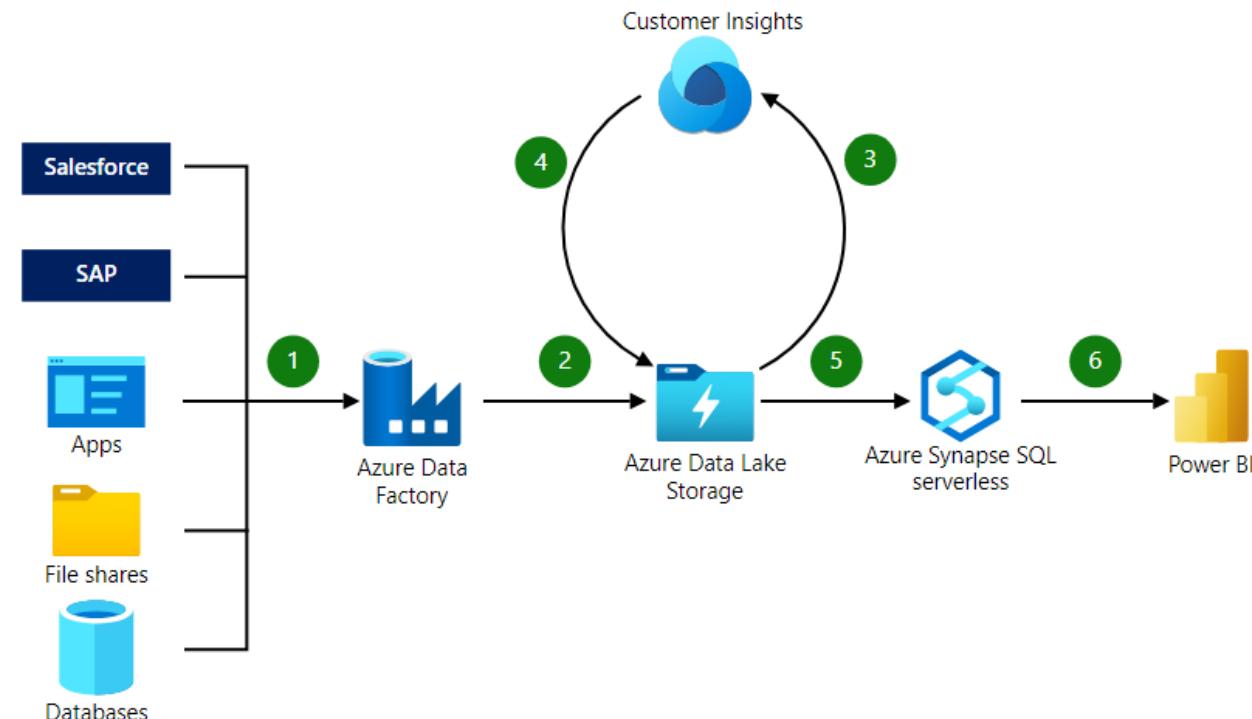
This example scenario is relevant to organizations that need to analyze data in real time to detect fraudulent transactions or other anomalous activity. Also, see Detect mobile bank fraud.



source: [Real-time fraud detection - Azure Example Scenarios | Microsoft Learn](#)

Enhanced Customer Dimension with Dynamics 365 and Azure Reference Architecture

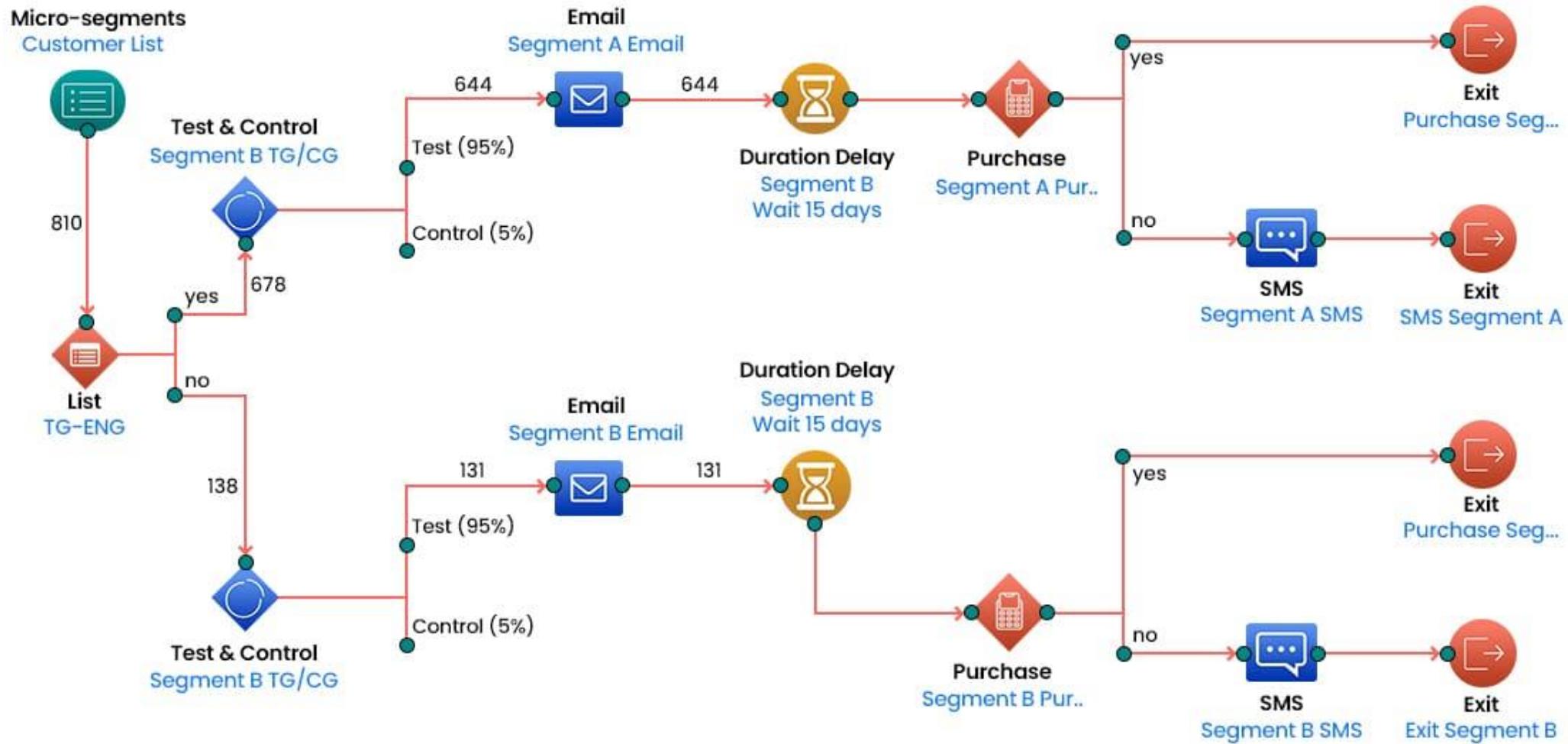
This high-level architecture shows the flow of data from an organization's source systems (ERP, CRM, POS, and so on) into a data lake on Azure. This same data lake can be configured as the back end for Dynamics 365 Customer Insights. When it has a data lake back end, Customer Insights can load clean enhanced customer data into the data lake for consumption as a dimension by downstream data warehouses and apps.



source: [Enhanced customer dimension with Dynamics 365 Customer Insights - Azure Architecture Center | Microsoft Learn](#)

Customer Journey Orchestration

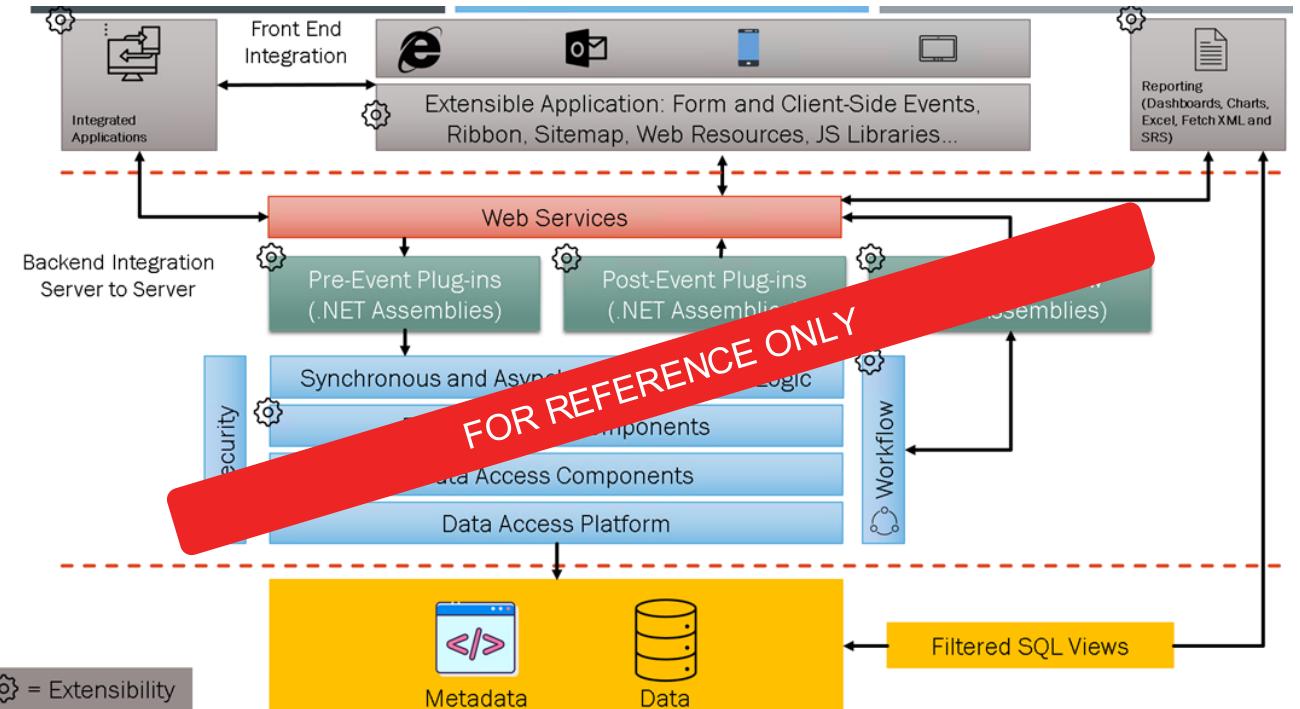
Omnichannel Engagement



source: [EP99: What is the best way to learn SQL? \(bytebytogo.com\)](http://EP99: What is the best way to learn SQL? (bytebytogo.com))

Microsoft Dynamics 365 CRM Architecture

- Using only synchronous integrations (custom services or OData calls) where no explicit requirement has been established for it.
 - Risk - Unable to scale
 - Risk - Unaccounted side issues (for example, timeouts or UI blocks)
 - Risk - Unwanted availability dependencies
- You can create custom services in X++ for all integrations (for example, writing X++ code to create an XML file when Data Management Framework could be a viable alternative).
 - Risk - Technical debt, high maintenance efforts
 - Risk - Moving away from the roadmap and standard improvements
- Avoiding the use of middleware because of a perceived increased complexity of maintaining an extra system in the landscape.
- Handling large volumes of data import with an Excel add-in.
- Reinventing the wheel or developing something that's already been done (for example, creating a custom event emission framework instead of using business events).



source: [High-risk scenarios - Training | Microsoft Learn](#)

source: [D365 – Architecture Overview – Tech-Quantum](#)

source: [Dynamics CRM 2016 \(Dynamics 365\) - Microsoft Lifecycle | Microsoft Learn](#)

Microsoft Dynamics 365 CRM (2016) Checklist

Dynamics 365 Solution Architecture Best Practices For Integration

- Make sure that integration strategy is available from an early stage of the implementation.
- Make sure that the program strategy addresses integration and ensures resource allocation.
- Approach the integration patterns choice by starting from their functional requirements and not the technical specifications.
- Choose integration patterns that are suited for the requirements and not because of the familiarity with the technology.
- Consider peak volumes when you're designing integrations.
- Test integration in a Tier2+ environment to validate that they're correctly set up for the Microsoft-managed infrastructure.
- Keep in mind that add-ins that are used for some integration scenarios are available only on sandboxes (Tier2+).
- Don't try to replace the integration flows 1:1 without getting a global vision when you're upgrading or migrating Dynamics AX 2012, or Dynamics AX 2009. Instead, replan your integration strategy according to the new capabilities that are available in Dynamics 365.
- Try to align the Dynamics 365 integration strategy with the company-wide integration strategy as much as reasonably possible.
- Prioritize standard and Microsoft integrations over custom integrations.

Microsoft Dynamics 365 CRM (2016) Checklist

Data Management

- Establish data governance principles to ensure data quality throughout the lifecycle of your business processes. Focus on the availability, usability, integrity, security, and compliance of your data.
- Appoint a data steward to apply and monitor the data governance principles.
- Define clear use cases and make the data available to support your business processes.
- Define the rules and select the applications for managing your master data.
- Define a data architecture that shows a holistic view of your data repositories, their relationships, and ownership. Identify the data owners, systems, and conceptual flow between systems during your design and analysis phases.
- Define, document, and update a data model that serves as a blueprint for your solution.
- Follow the Common Data Model standard without deviations to ensure compatibility and readiness for future updates across applications.
- Estimate and forecast your data storage needs across different environments and types of data stores in your solution.
- Create, maintain, update, and test a configuration plan throughout the project. The plan should include all the required configuration data that you import to support the go-live phase.
- Create a data migration plan that identifies the data sources, data mapping, environments, ETL, testing, and cutover planning. The key contributors are the data migration analyst, data migration architect, and data steward.
- Maximize the data throughput during migration by following best practices.
- Optimize for network latency by staging in the cloud and batching requests.
- Store only the necessary data in the app for the key processes that interact with it. Choose the right type of data store based on the usage.
- Assess your data quality realistically and estimate the efforts required to perform the cleanup.
- Ensure that the apps have the validations and controls to enforce data quality and that you have processes to measure and report on it.
- Maintain high-quality data by following the principles in this article and by having leadership drive the habit of managing data on an ongoing basis.

Log Capacity Issue: number of fields are active but unused; multiple copies of the records/rows: creation, redemption, capping, etc.

Adobe Experience Platform Connector

Microsoft Dynamics 365 CRM Integration

Adobe Experience Platform allows data to be ingested from external sources while providing you with the ability to structure, label, and enhance incoming data using Platform services. You can ingest data from a variety of sources such as Adobe applications, cloud-based storage, databases, and many others.

Experience Platform provides support for ingesting data from a third-party CRM system. Support for CRM providers include Microsoft Dynamics.

Adobe Campaign Classic 7 (ACC) and Adobe Campaign 8 data synchronization is carried out via a dedicated workflow activity.

Adobe Exchange Marketplace

Adobe Experience Cloud extensions

- Epsilon is in Gartner Market Guide
- Loyalty extensions only

 Agility Loyalty + Adobe Experience Cloud icon Epsilon	Improving customer experience increases spend, loyalty and acquisition in the buying cycle	Campaign	Platinum Technology Partner	 MMS Connector for Adobe Campaign Classic Sinch	Sinch MMS Connector enables the creation and delivery of mobile MMS messages from Adobe Campaign Classic.	Campaign	Platinum Technology Partner	 Nuvei Payments Plugin for Adobe Commerce Nuvei	Nuvei's future-proof technology allows businesses to accept cutting-edge payment options, optimize new revenue streams, and get the most out of their existing...	Commerce Cloud	Gold Technology Partner
 Infobip SMS Messaging Services Infobip	Infobip's SMS network lets you interact with customers in hundreds of countries worldwide. Send the right message at the right moment on Adobe Campaign.	Campaign	Gold Technology Partner	 Sinch Rich SMS connector for Adobe Campaign Sinch	This simple platform helps you easily integrate personalized mobile-first campaigns into your customer journey.	Campaign	Platinum Technology Partner	 Adyen payments plugin for Adobe Commerce (Formerly Magento) Adyen N.V.	Use Adyen's payments integration for Adobe Commerce (Formerly Magento)2 to offer frictionless payments online, in-app, and in-store.	Commerce Cloud	Gold Technology Partner
 MaxPoint for Adobe Marketing Cloud MaxPoint Interactive	Adobe Audience Manager customers use MaxPoint's neighborhood-level intelligence to connect the digital world with the physical world through a comprehensive...	Audience Manager		 Bolt Checkout Experience Platform Bolt	Bolt is the world's first Checkout Experience Platform, designed to give retailers the freedom to focus on their brand while Bolt perfects the purchase.	Commerce Cloud	Platinum Technology Partner	 Square Square/Block	Grow your business with Square and Adobe Commerce - sell online and in-person through one payments partner.	Commerce Cloud	Gold Technology Partner
 Klarna for Adobe Commerce Klarna	Klarna is one of Europe's largest banks, providing payment solutions for 150M consumers, 500K retail partners, 2M daily transactions across 20+ countries.			 Forter Forter QuickStart	Forter QuickStart: Conversion Optimization for Adobe Commerce (Formerly Magento)						

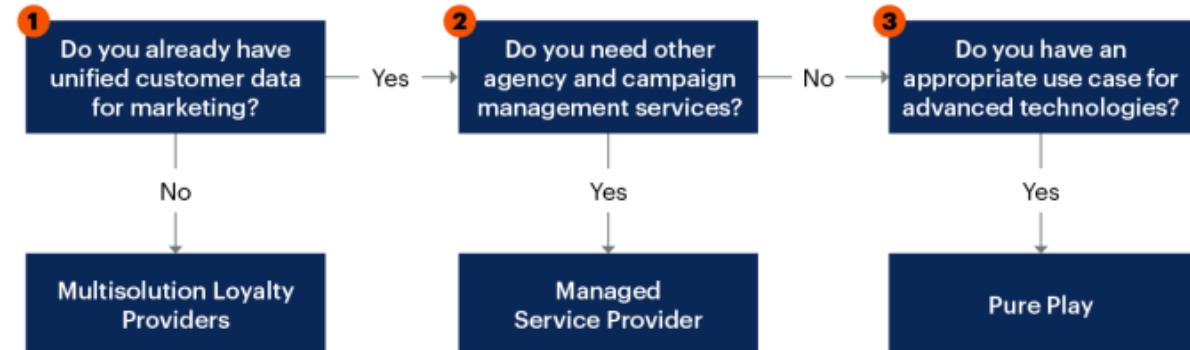
source: [Browse all EC apps | Adobe Exchange](#)

Eagle Eye AIR

Acquire. Interact. Retain.

- Pure Play (Mastercard SessionM, Talon.One) vs Multisolution (Microsoft, SAP Emarsys, Marigold/Cheetah, Oracle)
- API-based SaaS architecture

How to Select a Loyalty Management Vendor



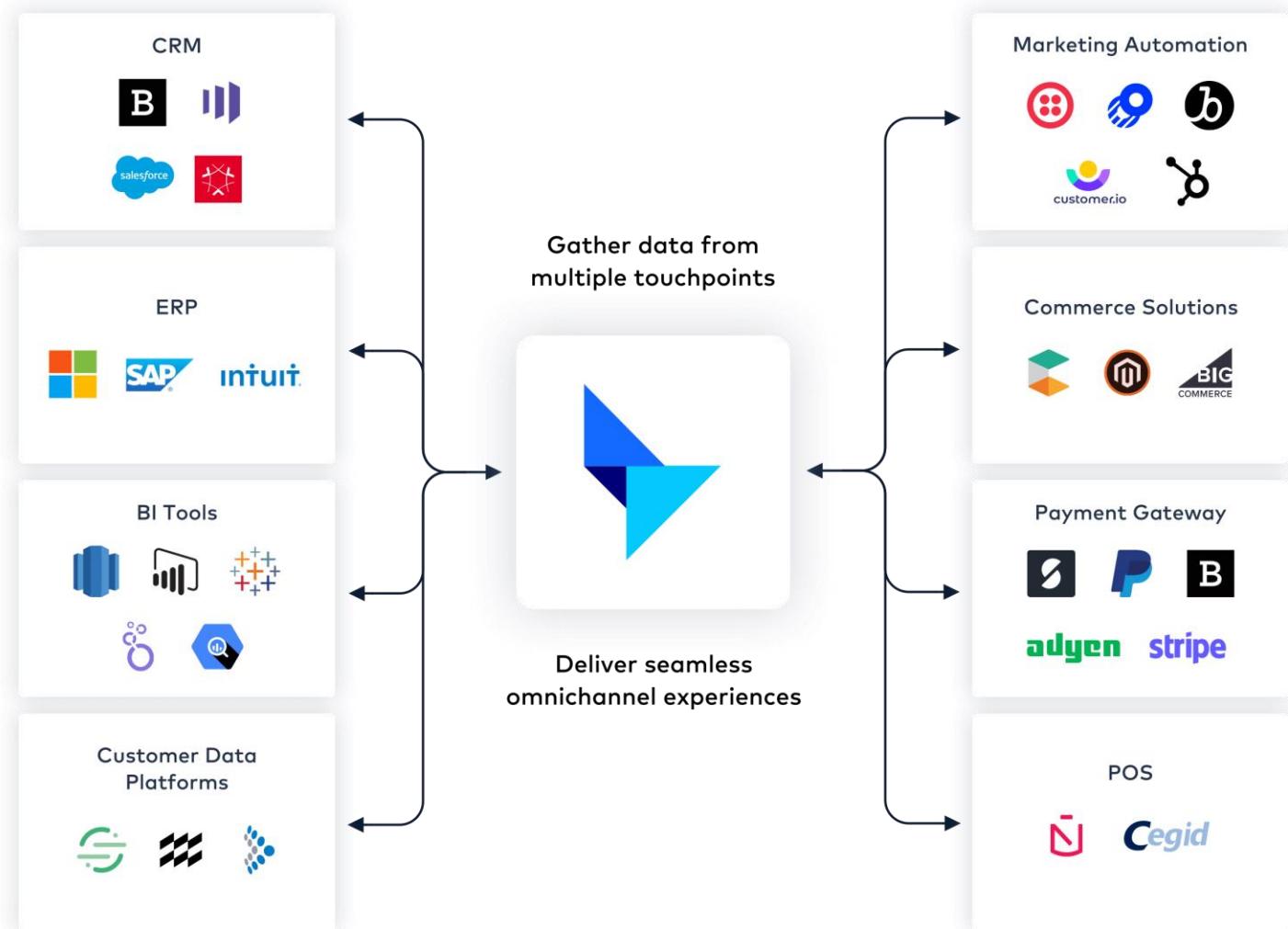
Offer
<ul style="list-style-type: none">▪ Customer Wallet▪ Promotions Master▪ Promotion Personalization▪ Omnichannel Issuance▪ Real-time Redemption▪ Customer Care▪ Promotion Reporting

Loyalty
<ul style="list-style-type: none">▪ Customer Wallet▪ Loyalty Ledger▪ Loyalty Earn▪ Loyalty Burn▪ Loyalty Personalization▪ Supplier Funding Ledger▪ Customer Care▪ Loyalty Reporting

Optional Add-ons
<ul style="list-style-type: none">▪ Cloud-based Basket Adjudication▪ Subscriptions▪ Message @ Till▪ Off POS Redemption▪ Customer Engagement Tools▪ Digital Gift Platform

Talon.One

LOYALTY FEATURES	PROMOTION FEATURES
Loyalty tiers	Coupons
Loyalty cards	Discounts
Loyalty points	Referrals
Loyalty insights	Geofencing
Omnichannel & POS	Digital wallets
Loyalty subledgers	Product bundling
Multi-brand loyalty	Store promotions
Gamified loyalty programs	Cart-level promotions



source: [The World's Most Powerful Promotion Software | Talon.One](#)

Mastercard SessionM

Mastercard Data & Services



DATA MANAGEMENT

Update customer profiles in real time and create dynamic segments with custom data types to provide you with flexibility.

[Learn more →](#)



REWARDS AND OFFERS

Create and manage discounts, promos and rewards that engage customers and incentivize behaviors at the point of sale (POS) and across channels.

[Learn more →](#)



POINTS AND TIERS

Create and manage tiers and points banks, using a flexible rules engine to increase loyalty outcomes.

[Learn more →](#)



CAMPAIGNS

Schedule and trigger omnichannel communications in a self-service campaign management hub.

[Learn more →](#)

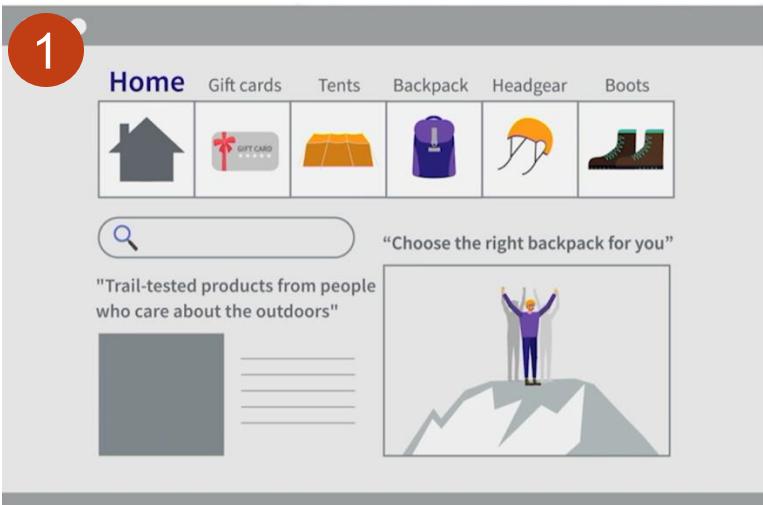


ANALYTICS AND INSIGHTS

Monitor program performance with expansive daily dashboards and reporting for optimization.

[Learn more →](#)

eCommerce Design Guidelines for Fashion Retail

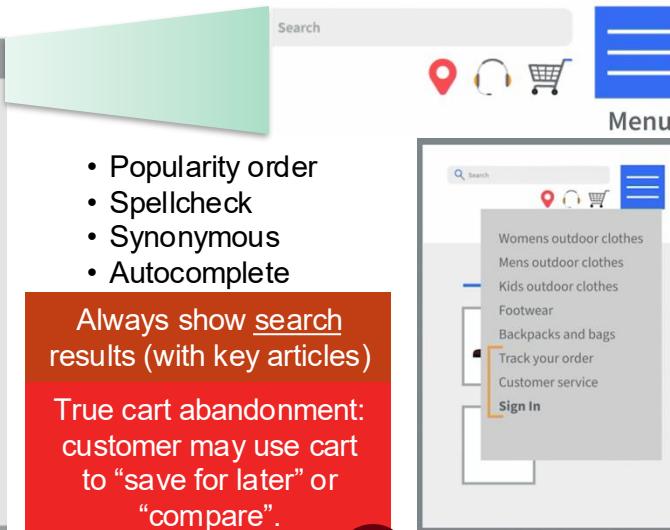


35% checkout abandonment:
do not require account
creation to check out.

Gift Options:

- Free messages
- Gift receipt
- Wrapping
- Ship to recipient's address
- Prefilled messages

Full name instead
of first name and
last name?



3

During checkout, **remove distractions and exit points:**

- Reduce number of fields
- Hide option fields by default
- Default billing address to shipping address
- Use an asterisk to denote required fields
- Explain why they are required
- Validate fields inline
- Use autofill/prefill fields where possible

Gift Card:

- eGift email safe (vs spam)
- Sender's name in subject line
- Clear redemption instructions



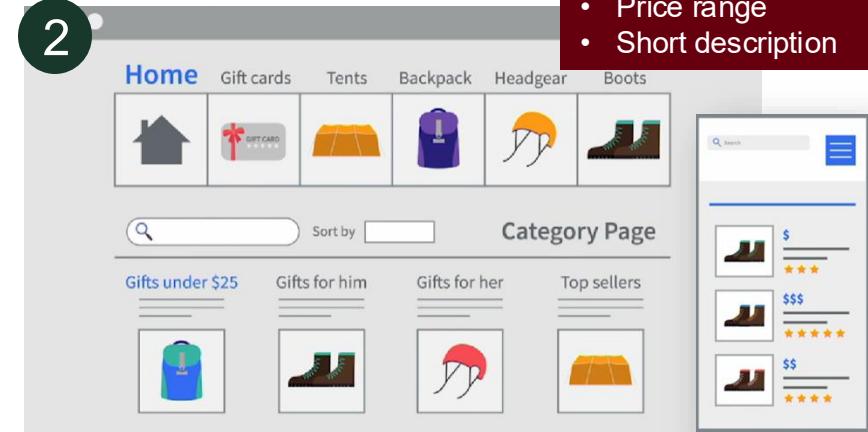
Product

- Title & description
- Zoom in, 360 view, video
- Price
- Long description
- Specification
- Certification
- Review
- Return policy
- Breadcrumbs navigation
- Product recommendation
- Wishlist, bookmark
- Share
- Stock – by store
- Less marketing

- Capacity
- Size
- Speed
- Colour

Category

- Image
- Price range
- Short description



Thank you!

Jacques Maeda