



Enhance the customer experience with Adobe Experience Platform

Exploring real-time use cases for today's world

Adobe Experience Platform (AEP) is a pivotal tool in the transformation services that our teams bring to clients across sectors such as retail, finance, and more to deliver significant value. We have found that when we combine our in-house expertise and strategy with the nearly unlimited technological potential that AEP offers, we excel in providing real-time experiences that enhance customer engagement and drive substantial growth.

AEP's effectiveness in delivering personalized customer experiences relies heavily on its ability to process **real-time data**. This differentiating capability allows today's brands to engage their customers precisely when they are most receptive, potentially improving revenue through timely communication and increasing customer loyalty as a result. In one example, a customer browsing Caribbean cruises can receive targeted offers instantly, boosting the likelihood of conversion. This scenario highlights the necessity of integrating various data processes—such as user identification and intent analysis to deliver a seamless and timely customer experience.

Real-time use cases

Different use cases require varying levels of real-time data processing to enhance customer experiences effectively. Below, you can explore a classification for data collection and decisioning in AEP that best map use cases to the desired customer experiences, as well as the operational considerations that are necessary to digest before adopting each. Understanding these use case requirements can guide your AEP investments and optimize customer interactions.



BATCH

Use cases that are dependent on data collected in bulk for processing periodically.



STREAMING

Use cases that are dependent on continuous data collection and processing sequentially as it is made available for a near-time response.



REAL-TIME

Use cases that are dependent on data collection and processing immediately.



EDGE

Use cases that rely on data collection locally and processed instantly for generating a rapid response.



Batch processing involves bulk data collection and periodic analysis, which is crucial for building a unified customer profile and creating a comprehensive 360 degree view of the customer. While the response time can take several hours, this enables detailed segmentation and customized messaging. This approach should be considered for scenarios where immediacy is not critical, such as scheduled birthday emails or direct mail campaigns based on past behaviors.

SELECTION CONSIDERATIONS

Out-of-the-box connectors

AEP supports batch data integration through connectors for various enterprise and marketing applications, simplifying the integration process.

Support for data ingestion

Efficient data formats like Parquet or JSON enhance batch data ingestion performance, shortening decision response times.

Decision logic

Supports utilizing up to 4,000 attributes for decisioning using batch data.

Even when implementing the above advancements, some clients using batch processing may struggle to move towards more real-time data processing solutions. This is often due to entrenched legacy systems and processes that favor batch data workflows.



Streaming processing

Streaming involves continuous data collection and processing, supporting quick decision-making with minimal delays. This method enriches a unified customer profile, allowing for immediate reactions based on live inputs. It is particularly effective for use cases that require a holistic analysis of data, such as real-time inventory updates or dynamic pricing adjustments.

SELECTION CONSIDERATIONS

Privacy and security

Centralized data management in one location mitigates governance, security, and privacy risks as the controls need to be applied centrally once. However, while the benefits of this integration are clear, the technical challenges of ensuring a seamless, lossless transfer of streaming data between systems remain a considerable hurdle.

Out-of-the-box connectors

AEP integrates with popular event streaming technologies like Kafka and Kinesis, facilitating efficient data collection.

Stream processing

Streaming segmentation needs careful management to ensure compliance with AEP's streaming guardrails, particularly concerning payload volumes and rate limits (e.g., Kafka's 60 operations/min limit). Configuration needs for streaming include filtering and routing rules, especially when integrating multiple data sources.

Decision logic

Supports utilizing up to 500 attributes for decisioning using streaming data.



Real-time decisioning captures user interactions directly from web and mobile channels, enabling immediate responses. This method is crucial for use cases demanding quick and accurate decisions, such as personalizing content on websites and mobile apps or triggering onboarding emails upon user signup.

SELECTION CONSIDERATIONS

Web and mobile SDKs

Implementing Web SDK enhances real-time data capture and processing, allowing for personalized experiences across owned and paid channels.

Data management

Configuring the tag/data management layer requires significant effort but is essential for capturing a wide array of attributes.

Decision logic

Supports custom attributes configured as part of data collections for interactions through web and mobile.

Edge processing

Edge decisioning addresses latency challenges by processing data locally, enabling lightning-fast responses. The AEP Edge Network acts as a robust backbone, improving data latency through the use of the Edge Network Server API that facilitates streamlined communications. These APIs are not dependent on loading any libraries, enabling them to perform various functions from data collection to delivering personalized responses efficiently, making them ideal for server-to-server communication, IoT, and other applications.

SELECTION CONSIDERATIONS

Security

The Edge infrastructure incorporates its Edge Network Server APIs that enhance security, particularly when sensitive information is exchanged. These APIs furnish secure endpoints for data transmission, ensuring that interactions between AEP and related services are protected. While distributed processing at multiple Edge devices aids in minimizing data and localizing processing, it can complicate security management.

Resource constraints

Edge segmentation processes data directly at the source, making it effective in environments with limited network and bandwidth resources.

Local decisioning

Processing data locally facilitates faster decision-making, which is essential for user identification and segmentation.

Decision logic

Supports utilizing up to 200 attributes for decisioning using data available on the Edge.

Looking ahead

When today's leaders are evaluating real-time capabilities for specific use cases, response time is a critical piece of the puzzle. However, it should not be the sole consideration. The availability of in-house technical expertise, the number and availability of attributes, and the complexity of decisions are also vital factors. Understanding these elements helps ensure that the selected method meets immediate needs for speed and efficiency and aligns with broader organizational objectives.

Our teams have developed this framework to streamline AEP implementations and identify real-time requirements for various use cases. This approach can help ensures that operational needs and technical capacities are aligned, facilitating a tailored, incremental development of real-time capabilities that deliver ROI and provide flexibility to adjust dynamically as use case requirements evolve.

By leveraging AEP's real-time capabilities with the right guidance, your organization can significantly enhance customer experience, ensuring timely, and personalized interactions that drive engagement and loyalty. If you are interested in continuing the conversation, reach out to our professionals to take the next step.

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APPENDIX

Summary of Impact of Real-time Decisioning Capability in AEP with Example Use cases

TYPE	DATA IDENTIFICATION & CLASSIFICATION	DATA PROCESSING & ANALYSIS	LATENCY	ATTRIBUTES FOR DECISIONING	USE CASE CHARACTERISTICS	USE CASE EXAMPLES
Batch [Periodic]	Data is collected over a period and processed in large, periodic chunks. Typical sources include databases, transaction records, and historical data archives.	Scheduled processing and historical trend analysis	Hours	Up to 4000	 Historical Multi- channel 	 Loyalty tier members promo Saving account holders
Streaming [Rapid]	Data that is continuously generated by sources such as sensors, logs, or online transactions and processed sequentially and incrementally on a record-by- record basis.	Continuous processing on stream of data for dynamic decision-making using stream processing technologies.	< Mins	Up to 500	 Reasonably time sensitive Contextual Audience focused Multi- channel 	 Account Opening Membership upgrade
Real-time [Immediate]	Data that is generated and processed immediately to enable imme- diate insights and actions. Sources often include user interactions on websites or applications.	Triggered by user action for analytics or data enrichment	< 1 min	Custom	 Time sensitive Contextual Individually personalized Digital chan- nels focused 	 Cart Abandon Retargeting App download
Edge [Instant]	Data that is generated and processed at the edge of the network, close to the source of data. This includes IoT devices and local edge servers.	Localized decision-mak- ing to reduce latency and bandwidth use leveraging technologies like AWS Greengrass or Azure IoT Edge.	< 30 sec	Up to 200	 Time sensitive Situational and contextual Location- based triggers 	• Geofencing