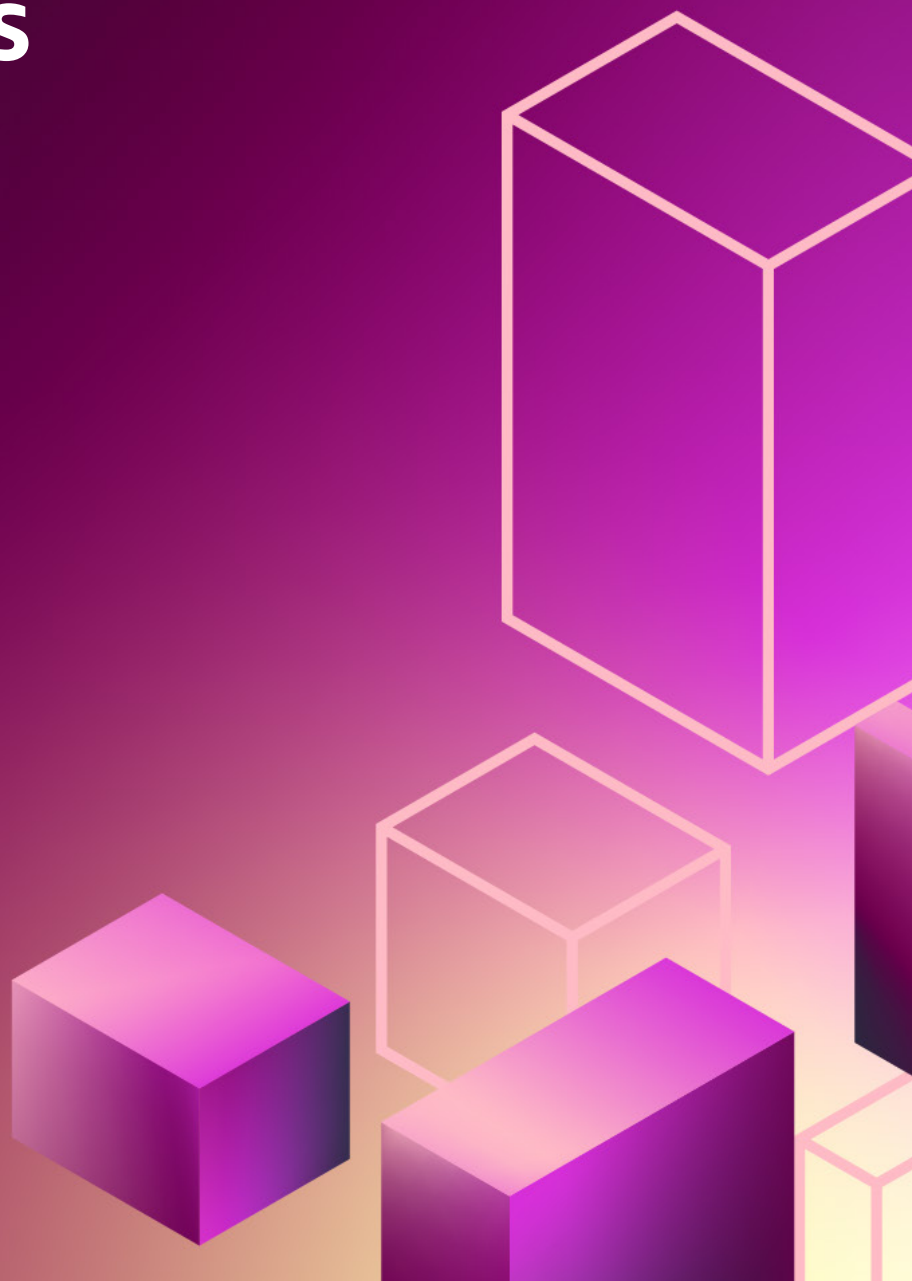




An introduction to event-driven architectures



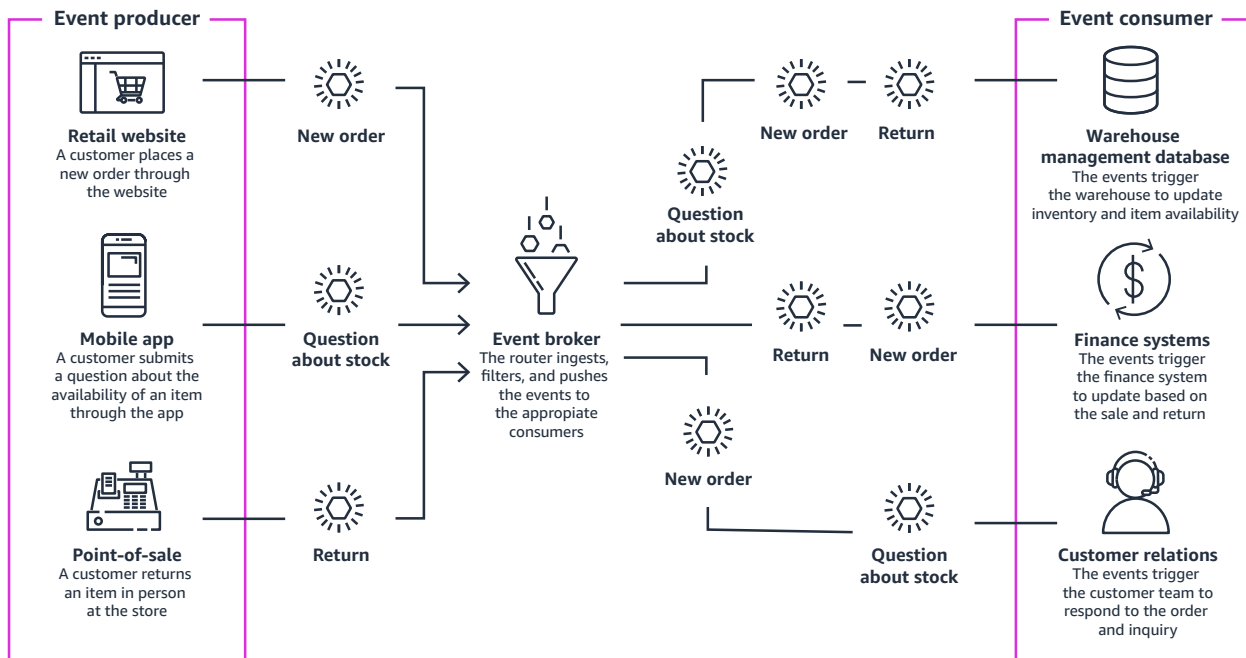


INTRODUCTION

Events are everywhere: A customer places an item in a shopping cart. A financial document is submitted. A new user creates an account. A healthcare dataset is uploaded. In an event-driven architecture (EDA), events are the center of an application, powering communication between integrated systems. Building event-driven architectures is driving innovation across industries, with organizations like **Taco Bell**, **Bosch Thermotechnology**, and **Nationwide Children's Hospital**. Event-driven architectures can help you accelerate modernization, reduce total cost of ownership (TCO), and build better products faster.

The diagram on the next page depicts a typical event-driven architecture, which comprises **event producers**, **event brokers**, and **event consumers**. Business events like placing an order or submitting a return are created by event producers. An event broker receives those events and sends them on to the event consumers. Event consumers need to take action on the events. They include backend systems, warehouse management, finance, and customer relations.

Figure 1: Example of an event-driven architecture

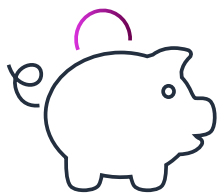


With events, customers can create loosely coupled, fault-tolerant integrations between microservices, software-as-a-service (SaaS) applications, and applications running on premises and in the cloud. Building with asynchronous events gives development teams the ability to build and deploy independently, enabling them to launch features faster and deliver better customer experiences. Event-driven architectures enable businesses to unlock agility, extensibility, and real-time business insights.

Why organizations are adopting EDAs to build modern applications

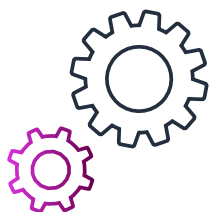


An event-driven architecture enables you to provide richer customer experiences in a scalable and reliable manner. Increasingly, organizations are using EDAs to build modern applications for several reasons:



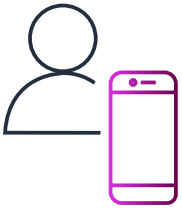
1. Event-driven architectures accelerate your path to modernization, while reducing the overall cost to modernize.

Organizations building event-driven applications are able to add onto their applications without a significant refactoring effort. With event-driven architectures, the new and old systems can coexist without adding integration complexity. Organizations can consume events from legacy applications while migrating to a modern cloud architecture, making their path to modernization much faster.



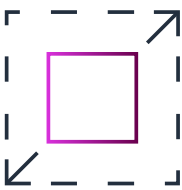
2. Event-driven architectures give customers the agility to respond to change, avoid disruption, and accelerate innovation.

Organizations are under pressure to respond to ever-increasing customer demands, market dynamics, and industry competition. When they build event-driven architectures, new services can subscribe to events already being published without impacting existing applications. And development teams do not have to rebuild existing application components. This enables businesses to build new features and products at a faster pace with less risk of disruption.



3. Event-driven architectures provide real-time, actionable insights, creating better experiences for your customers.

Organizations are looking for ways to unlock the value of events and data in their applications. They want to build dynamic, high-quality experiences and use artificial intelligence (AI)- and machine learning (ML)-powered personalization to better engage their end users. They also want to extract valuable insights from their events that are actionable today rather than waiting for a weekly or monthly report cycle. Event-driven architectures allow customers to ingest, process, and react to events in real time.



4. Event-driven architectures enhance fault tolerance and scalability.

With asynchronous events, upstream systems can buffer the volume of events they are sending to downstream systems. This allows applications to scale for peaks without overwhelming any part of the application. In an event-driven architecture, producers are unaware of any activity of downstream event consumers, which means they are unaware of any failures.

[Watch the video: Getting Started with Event-Driven Architecture ›](#)

Increase agility, avoid disruption,
and accelerate innovation with
event-driven architectures on AWS.



Building event-driven architectures on AWS

Amazon Web Services (AWS) makes it easier to build event-driven architectures by offering a comprehensive set of serverless services that gives organizations the ability to select the right tool to fit their business requirements and reduce the amount of integration code needed.

Using AWS serverless services accelerates the building of event-driven architectures. Serverless services have native integrations with event services, only run when there are events to process, and can scale up and down automatically as event volume changes—all of which makes serverless highly compatible with event-driven architectures. AWS serverless services are built around events and have broad adoption by customers across industries, with over one million customers using [AWS Lambda](#) for over 10 trillion requests per month.

Reduce costs by paying only for what you use

When customers build event-driven architectures on AWS, they can supercharge their pace of development and lower their operational costs by reducing the amount of continuous polling infrastructure and always-on capacity they are paying for. Instead, they can push asynchronous events and allow resources to scale up and down with event volume.

With serverless and managed integration services, customers can take advantage of built-in functionality and infrastructure management, allowing them to build faster and maintain less.

Organizations can integrate across a portfolio of over 200 AWS services and more than 45 natively integrated SaaS partners. Where organizations building event-driven architectures would previously need to do the heavy lifting of writing code for emitting, ingesting, and processing events themselves, on AWS, over 80 services emit events by default, making EDAs a natural fit. One example is [Amazon Simple Storage Service](#) (Amazon S3), which sends over 125 billion event notifications to serverless applications each day.

AWS continues to invest and innovate in services that help organizations build event-driven architectures, transform application development, and accelerate their innovation.

Over 1 million customers use AWS serverless for over 10 trillion requests per month.



CONCLUSION

Better outcomes for your business and your customers with AWS

Event-driven architectures offer business and operational benefits across many use cases, helping accelerate application modernization at a lower cost. Loosely coupled applications increase developers' agility, enabling them to build scalable, fault-tolerant applications quickly and delight customers.

AWS makes it easier for organizations to build event-driven architectures with the most comprehensive set of serverless services, pre-built integrations, and continuous innovation. Transform your application development, accelerate innovation, and save costs with an event-driven architecture built on AWS.

[Learn more about AWS services for event-driven architecture ›](#)

[Read the technical guide *Building Event-Driven Architectures on AWS* to learn more about event-driven architecture patterns ›](#)