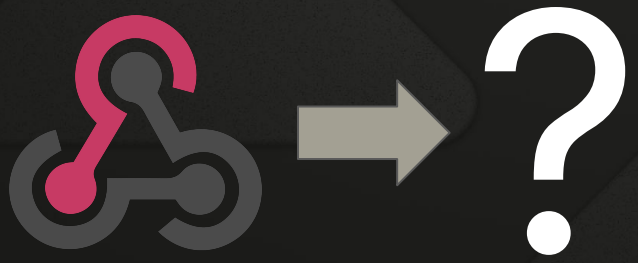
Beyond Webhooks: The Future of Scalable API Event Delivery



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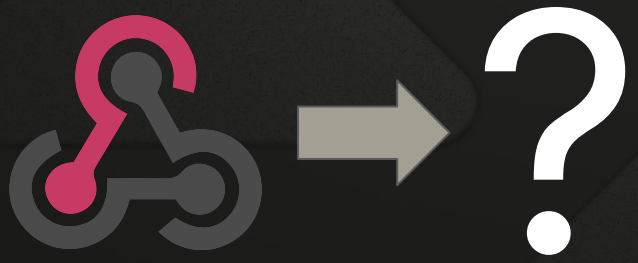

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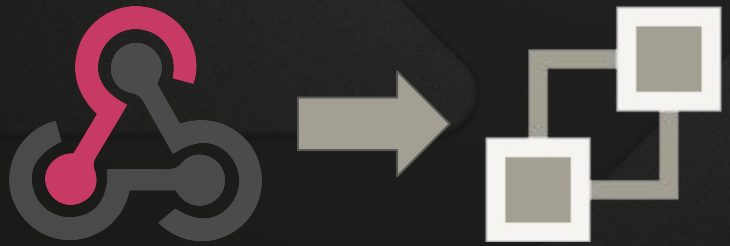
What are Event Destinations and Why It's Time to Move Beyond Webhooks



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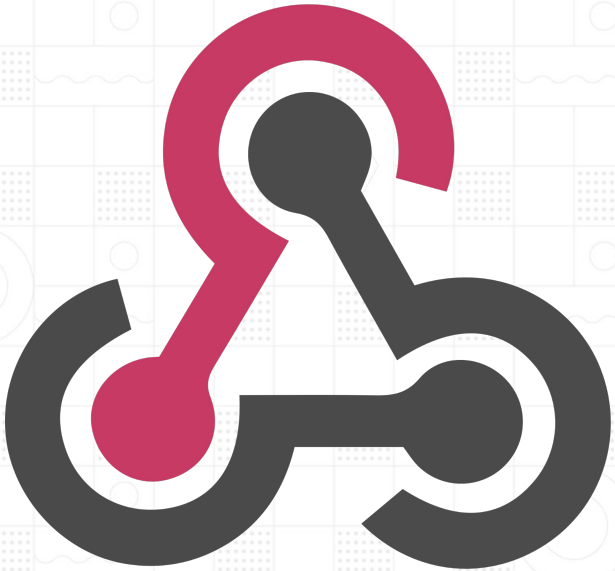
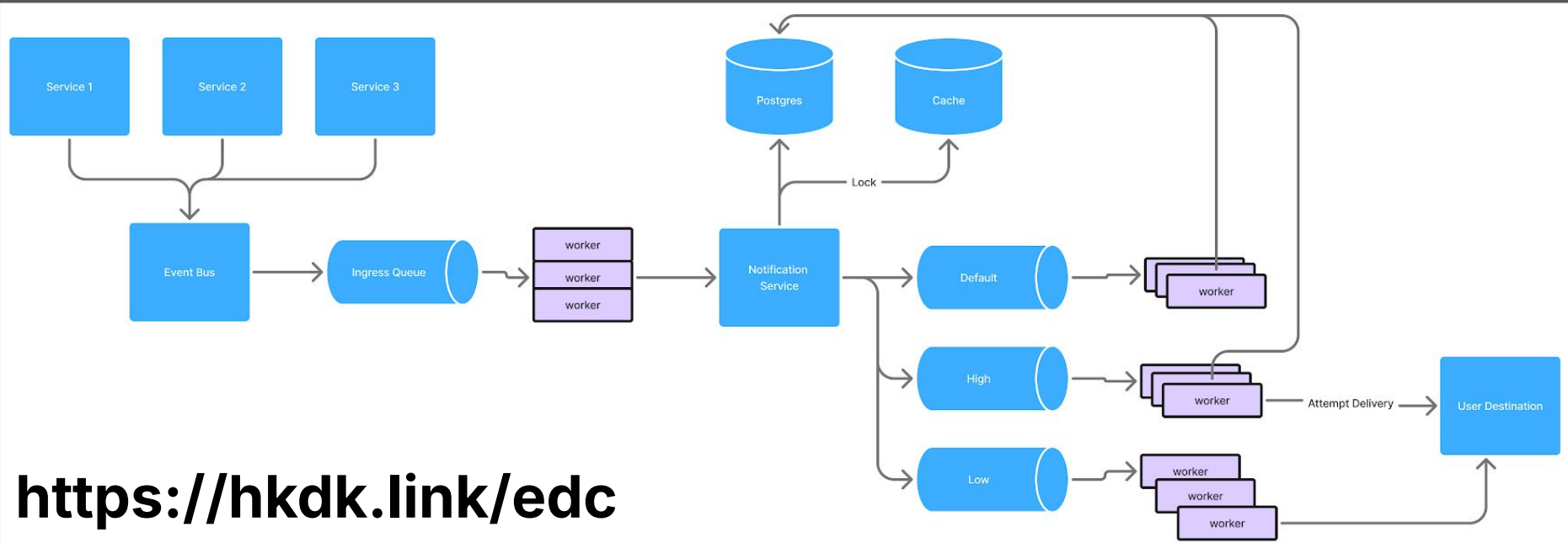
Brief History of Webhooks



- 2007: Jeff Lindsay creates "web hooks"
- Simple HTTP callbacks for real-time notifications
- Examples: GitHub, Stripe, Shopify, Twilio

Webhook Producer Challenges

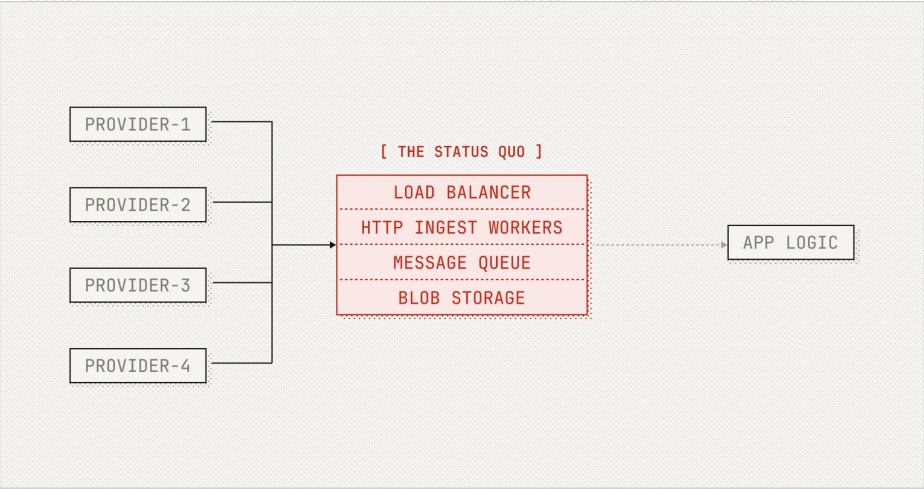
- Scalability of Delivery
- Reliability & Retry Complexity
- Monitoring & Observability
- Customer Support Load
- Risk to Customer Infrastructure



https://hkdk.link/edc

Webhook Consumer Challenges

- Reliable Inbound Infrastructure
- Opt-In and varied Webhook Endpoint Security
- Inbound Processing Logic: Handling Retries & Idempotency
- Debugging & Observability
- Testing & Development Workflow



Event-Driven Architectures - Internal & External

- EDA = microservices = AWS, Azure, or GCP.
- Critical events also come from external services (e.g. Stripe, Shopify, Twilio) via inbound webhooks.
- Your architecture must account for both internal and external events.
- Why haven’t we applied the same rigor, tools, and patterns to external event delivery?

How Leading Platforms Are Rethinking Event Delivery

On this page

`sinkType` enum<string> Not PII

The Sink type. Can only be "kinesis" or "webhook" currently.

Possible values: `kinesis` `webhook` `segment` `email`

`status` enum<string> Not PII

The Status of this Sink. One of `initialized`, `validating`, `active` or `failed`.

Possible values: `initialized` `validating` `active` `failed`

`url` string<uri> Not PII

The URL of this resource.

`links` object<uri-map> Not PII

Contains a dictionary of URL links to nested resources of this Sink.

Create a Sink resource

`POST https://events.twilio.com/v1/Sinks`

Twilio Sink

Subscribe to a webhook topic

Subscribe your app to Shopify webhook topics so that it will be alerted when an event occurs on a merchant store.

Suppose you are building a warranty pricing app that determines which warranty options a customer can add to their cart, based on the cost of an order.

When a customer is checking out, the total order cost is used to determine which warranty options a customer can select from.

In this tutorial, you'll subscribe your app to a webhook topic to be alerted whenever a new order is created.

What you'll learn

In this tutorial, you'll learn how to do the following tasks:

- Use your app configuration file to set up a webhook subscription.
- Use cloud-based delivery methods like Google Cloud's Pub/Sub event bus to receive webhooks.
- Test your subscription is configured correctly and you are receiving webhooks.

Info

Shopify recommends using Google Pub/Sub as a cloud-based solution for delivering webhooks. You can also use Amazon EventBridge.

In instances where you want to hand-roll your own webhooks infrastructure, you may prefer your webhooks be delivered through HTTPS.

During development, you may choose to use your app's URL or external mock server sites like webhook.site and Beeceptor. These are not recommended for production.

Requirements

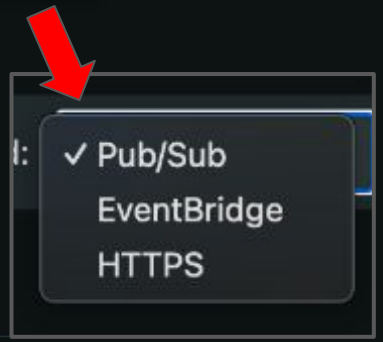
Use the latest version of Shopify CLI
You must use Shopify CLI version 3.63.0 or higher to configure app-specific webhook subscriptions.

Scaffold an app
Scaffold an app that uses the Remix template.

Set up a Google Cloud console project
Set up your Google Cloud account to use Pub/Sub.

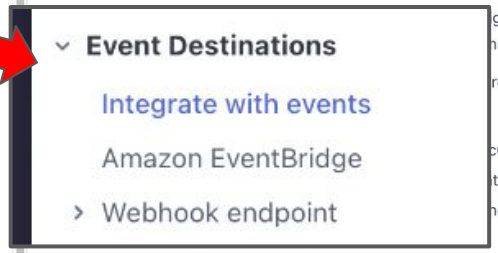
Project

Framework: Remix Delivery method: ✓ Pub/Sub EventBridge HTTPS View on GitHub



1 Set your app up to receive webhooks from Google

Shopify "Webhooks"



Integrate with events

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Send events from Stripe to webhook endpoints and cloud services.

Set up an event destination to receive events from Stripe across multiple destination types, including webhook endpoints, and Amazon EventBridge.

Additionally, you can use thin events created by API v2 endpoints. The SDKs for API v2 includes helpers that allow your application to fetch the latest object state from Stripe.

Use cases

ght want your applications to receive events in real-time from your Stripe
ns to respond and perform actions accordingly.

real-time event data from your account, enabling you to run back-end

customer confirms a payment
tion process when a customer disputes a charge
ney make successful recurring subscription payments

Supported destination types

Send events to an AWS account using Amazon EventBridge, or deliver them to an HTTPS endpoint through webhook endpoints.

Events overview

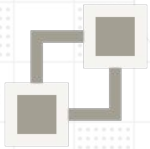
Stripe generates event data to keep you informed about the activity in your account.

When an event occurs, Stripe generates a new `Event` object. After your destination receives the `Event`, your app can run back-end actions (for example, calling your shipping provider's APIs to schedule a shipment after you receive a `payment_intent.succeeded` event). We provide two different types of `Event` objects:

Stripe Event Destinations

Introducing Event Destinations

- A modern event delivery model, inspired by Stripe, Shopify, and Twilio
- Supports delivery to many destination types — HTTP, queues, streams, and event buses
- Focused on reliability, scalability, and developer experience
- We've created a set of open-source guidelines have a conversation and assist adoption



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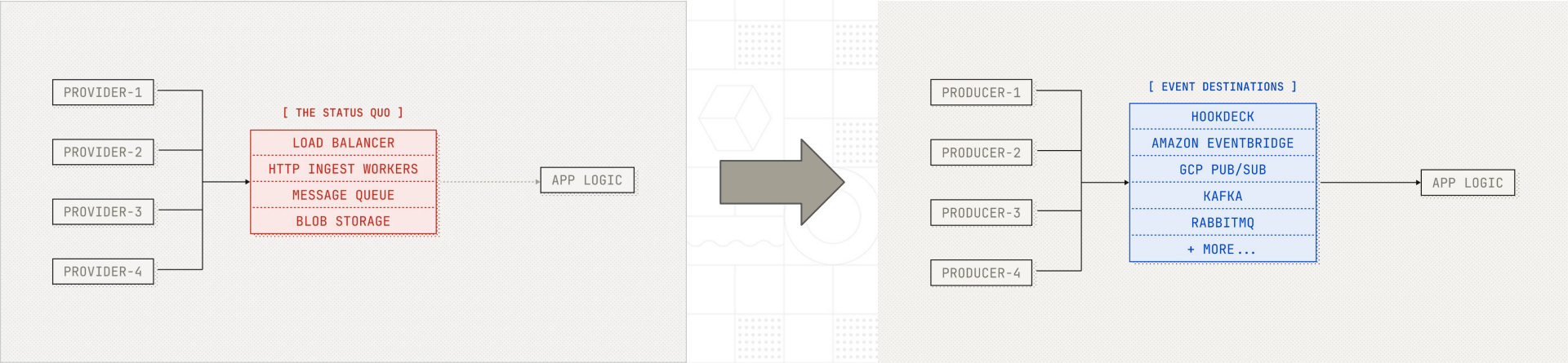
Event Destinations: For API Platforms (producers)

- **Improved reliability**: Delivery to durable, fault-tolerant services (e.g., EventBridge, Hookdeck, Pub/Sub, Kinesis)
- **Increased efficiency**: Offloading retries, buffering, and failure handling to destination infrastructure
- **Required security**: Event destination types that require auth are an improvement on webhooks

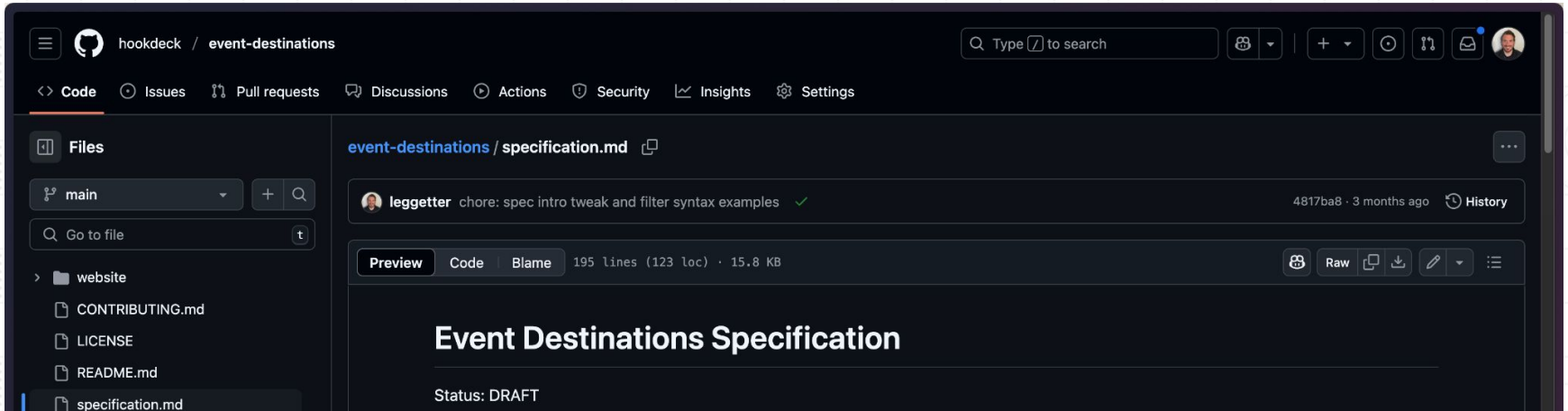
Event Destinations: For Developers (consumers)

- **Integration flexibility:** Choose how and where to consume events — webhooks, queues, or event buses
- **Simplified infrastructure:** Remove the HTTP ingestion layer
- **Improved DX:** Better observability, fewer ingestion issues, and improved integration with existing tools



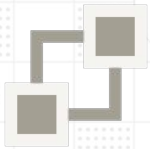
Event Destinations: A Model Inspired by Practice

- Real-world patterns from Stripe, Shopify, and Twilio
- Delivery to Amazon EventBridge, GCP Pub/Sub, AWS Kinesis, and more
- Community-led effort to formalize and share modern event delivery guidance
- eventdestinations.org / github.com/hookdeck/event-destinations



Event Destinations Guidelines: Required

- At least two event destination types, including webhooks
- Automatic delivery retries with exponential backoff
- APIs to create, update, and delete destinations
- Alerts for destination failures



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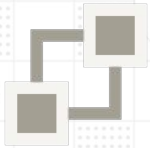
Event Destinations Guidelines: Recommended

- At-least-once event delivery guarantee
- Event topics and topics-based subscriptions
- Auto-disabling of failing destinations after too many failures
- Developer UI to configure destinations & inspect events
- Manual retries via UI or API
- Filtering based on payload content



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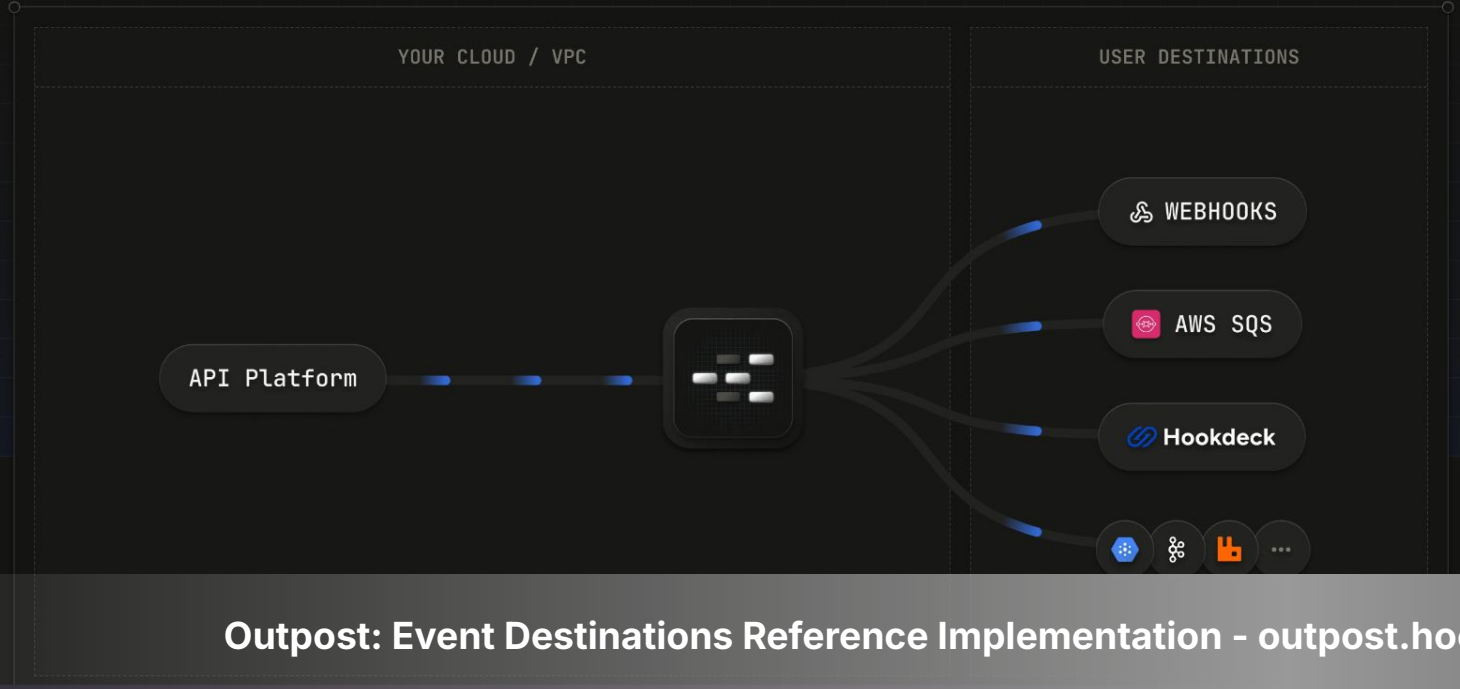
When to Consider Event Destinations

- Handling increasing scale and subscriber volume
- Experiencing frequent webhook failures or retries
- Reducing operational burden from delivery management
- Supporting customer integration needs

Open source outbound webhooks infrastructure

Manage and deliver platform events directly to your users' preferred **event destinations**: Webhooks, Hookdeck, AWS SQS, RabbitMQ, GCP Pub/Sub, Amazon EventBridge, and Kafka.

DOCS → GITHUB →



Outpost: Event Destinations Reference Implementation - outpost.hookdeck.com

The Future of API Event Delivery

- Event Destinations are shaping the future of API event delivery
- Move beyond webhooks to scalable, resilient infrastructure
- Supports modern architectures and developer expectations
- Join the Event Destinations Initiative and help define what comes next
- Outpost: open-source Event Destinations implementation

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Thanks & Questions

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