Service Name

Amazon EventBridge

Service Overview

Amazon EventBridge is a serverless event bus service that connects application components through events, enabling scalable event-driven architectures. It provides simple and consistent ways to ingest, filter, transform, and deliver events between applications, AWS services, and third-party software. EventBridge includes event buses for routing events from many sources to many targets, EventBridge Pipes for point-to-point integrations with advanced transformations, and EventBridge Scheduler for serverless task scheduling using cron and rate expressions.

Key Use Cases

- Application Integration: Decoupling microservices and distributed systems by routing events between various application components and services
- IT Automation: Automating operational tasks and workflows by responding to infrastructure changes and system events in real-time
- SaaS Integration: Connecting over 45 SaaS partner applications to AWS services without custom connection code for seamless data flow
- Real-time Stream Processing: Processing and routing streaming data from various sources to multiple targets with content-based filtering

Features

- **Event Buses**: Serverless routers that receive events from multiple sources and deliver them to multiple targets with optional transformations
- **EventBridge Pipes**: Point-to-point integrations for processing events from single source to single target with advanced transformations and enrichment
- **EventBridge Scheduler**: Serverless scheduler for creating, running, and managing tasks using cron and rate expressions with flexible time windows
- **Schema Registry**: Fully managed service for defining, discovering, and sharing event schemas with code generation capabilities
- **API Destinations**: Low-code integrations for sending events to external HTTP endpoints and SaaS applications via REST API calls
- **Event Replay**: Archive and replay past events for debugging, error recovery, and reprocessing scenarios
- **Global Endpoints**: Improve application availability by replicating events across multiple AWS regions for disaster recovery

Value Proposition

EventBridge provides a fully managed, serverless event routing solution that eliminates the need to write custom integration code. It offers superior developer agility through loosely coupled architectures, enhanced end-user experience via real-time event processing, and reduced operational overhead with automatic scaling. Unlike alternatives, EventBridge provides native integration with over 200 AWS services and 45+ SaaS partners, advanced content-based filtering, built-in retry mechanisms, and exactly-once processing guarantees, making it ideal for building reactive, event-driven systems at scale.

Service Integration

EventBridge integrates natively with over 200 AWS services as both event sources and targets. Key integrations include AWS Lambda for serverless compute processing, Amazon SNS and SQS for messaging, Amazon S3 for object storage events, Amazon DynamoDB for database change streams, AWS CloudTrail for API call monitoring, Amazon CloudWatch for system metrics and alarms, AWS Step Functions for workflow orchestration, Amazon Kinesis for data streaming, and AWS Systems Manager for operational tasks. EventBridge also supports cross-account event sharing and integrates with AWS PrivateLink for secure connectivity.

Onboarding and Offboarding

Customers can start using EventBridge immediately through the AWS Management Console, AWS CLI, or SDKs without provisioning infrastructure. Getting started involves creating an event bus, defining rules with event patterns to match incoming events, and specifying targets where matching events should be delivered:

- The service provides tutorials and sample applications to demonstrate common integration patterns
- Customers can leverage the Schema Registry to discover event structures and generate code bindings
- For SaaS integrations, customers simply enable partner event sources and associate them with custom event buses

Getting Started Guide: https://docs.aws.amazon.com/eventbridge/latest/userguide/eb-tutorial-get-started.html

Data Removal

EventBridge offboarding involves deleting event buses, rules, targets, and associated resources through the console, CLI, or APIs. Events are processed in real-time and not persisted by default, so no historical event data removal is required unless using Event Archive feature. Customers should delete archived events, remove IAM roles and policies, disconnect API destinations and connections, and clean up partner event sources.

Schema Registry schemas and discoverers should also be removed to complete the offboarding process.

Backup/Restore and Disaster Recovery

EventBridge provides limited backup capabilities as events are processed in real-time and not persisted by default. The Event Archive feature allows storing events for replay scenarios, serving as a form of backup for historical events. For disaster recovery, EventBridge supports Global Endpoints that automatically replicate events across multiple regions. The service itself is highly available within regions, but customers must implement cross-region replication strategies for comprehensive disaster recovery using multiple event buses and rules across regions.

Backup Capabilities

EventBridge does not have traditional backup capabilities as it processes events in real-time without persistence. However, the Event Archive feature allows capturing and storing events for replay purposes, which serves as a backup mechanism for event history. EventBridge does not integrate directly with AWS Backup service, as it is designed for real-time event processing rather than data storage requiring backup protection.

Disaster Recovery

EventBridge supports disaster recovery through Global Endpoints that automatically failover between regions during outages. The service does not directly integrate with AWS Elastic Disaster Recovery, which focuses on infrastructure replication. Instead, customers implement disaster recovery by deploying EventBridge resources across multiple regions and using Global Endpoints for automatic failover, ensuring continued event processing during regional disruptions.

Recovery Objectives

EventBridge helps achieve low RPO through Global Endpoints that replicate events across regions in near real-time, minimizing data loss during failures. For RTO objectives, the service provides automatic failover capabilities via Global Endpoints and high availability within regions. The Event Replay feature enables recovery from specific points in time when combined with Event Archive, allowing customers to reprocess events from archived history to meet recovery point requirements.

Service Constraints

Service Quotas: https://docs.aws.amazon.com/eventbridge/latest/userguide/eb-quota.html

FAQ: https://aws.amazon.com/eventbridge/faqs/

Technical Requirements

Service Documentation: https://docs.aws.amazon.com/eventbridge/latest/userguide/

User Guide: https://docs.aws.amazon.com/eventbridge/latest/userguide/

API Reference:
https://docs.aws.amazon.com/eventbridge/latest/APIReference/Welcome.html

Pricing Overview

Please see the AWS UK G Cloud 15 Pricing Document accompanying this service in the Digital Marketplace.

Public Pricing: https://aws.amazon.com/eventbridge/pricing/

Cost Optimization

EventBridge offers several cost optimization strategies including pay-per-use pricing with no upfront costs or minimum fees. The service provides a generous free tier with 5 million custom events monthly:

- Customers can optimize costs by using precise event filtering to reduce unnecessary event processing, leveraging the free AWS service events, and implementing efficient event patterns to minimize rule evaluations
- EventBridge Scheduler offers 14 million free invocations monthly
- Using event transformation at the source rather than targets can reduce data transfer costs

Savings Considerations

Key cost savings come from eliminating custom integration infrastructure and reducing operational overhead through serverless architecture. EventBridge's pay-per-event model scales costs with actual usage, avoiding over-provisioning expenses:

- The service reduces development time and maintenance costs by providing managed integrations with 200+ AWS services and 45+ SaaS partners
- Customers save on networking costs by using EventBridge as a central hub rather than point-to-point integrations
- The free tier and AWS service events provide significant cost advantages for many workloads, especially during development and testing phases