**Amazon Bedrock integrations**

Amazon Bedrock works with your existing AWS infrastructure to help you build complete generative AI solutions that connect your data, compute resources, and application logic with strong security and scalability.

**Amazon SageMaker AI**

SageMaker AI works alongside Amazon Bedrock to support the complete machine learning lifecycle. Although Amazon Bedrock provides foundation models through a simplified interface, SageMaker AI offers complementary capabilities for custom model development and deployment.

 The integration creates workflows where data scientists use SageMaker AI for data preparation and feature engineering before using Amazon Bedrock for generative tasks. This combination provides flexibility for organizations that need both foundation models and custom machine learning models in their AI strategy.

**Amazon Kendra**

Amazon Kendra enhances the Amazon Bedrock retrieval-augmented generation capabilities with enterprise search functionality. This integration connects foundation models to information stored across multiple repositories, including websites, file systems, and databases.

When combined with Amazon Bedrock, Amazon Kendra provides semantic search capabilities that understand the intent behind queries and retrieve relevant information. This powerful combination improves the accuracy and relevance of generative AI applications that need to incorporate enterprise knowledge.

**AWS Lambda**

AWS Lambda runs code that orchestrates interactions between Amazon Bedrock and other services. This serverless compute service handles tasks like preprocessing inputs, formatting responses, and implementing business logic.

 The integration with Amazon Bedrock provides event-driven architectures where Lambda functions call foundation models in response to triggers from other AWS services. This pattern supports complex workflows while maintaining a serverless operational model with automatic scaling.

**Amazon Simple Storage Service (Amazon S3)**

Amazon S3 provides scalable object storage for data used with Amazon Bedrock. This integration supports multiple workflows, including storing documents for retrieval-augmented generation and managing datasets for fine-tuning.

 Amazon Bedrock can directly access content stored in S3 buckets to streamline data workflows. This capability simplifies the process of connecting foundation models to your organization's information assets while using the durability and security features of Amazon S3.

**Amazon OpenSearch Service**

OpenSearch Service works with Amazon Bedrock to implement efficient retrieval-augmented generation systems. This integration indexes documents and other content to enable semantic search capabilities that complement foundation models.

When a user query arrives, the system can search OpenSearch indices to find relevant information before passing it to Amazon Bedrock. This approach enhances model responses with specific, accurate information from your organization's data sources.

**AWS Identity and Access Management (IAM)**

IAM controls access to Amazon Bedrock and related services. This integration implements fine-grained permissions that determine which users and applications can access specific foundation models and features.

IAM policies for Amazon Bedrock follow the principle of least privilege, ensuring that each entity has only the permissions required for its function. This security layer protects sensitive data and prevents unauthorized access to foundation models.

**Amazon CloudWatch**

CloudWatch monitors the performance and health of Amazon Bedrock applications. This integration collects metrics, logs, and events that provide visibility into key performance indicators like response times, error rates, and usage patterns.

CloudWatch dashboards for Amazon Bedrock help identify issues and optimize performance. The service also supports alerts that notify you when metrics exceed thresholds, to enable proactive management of generative AI applications.

**Amazon EventBridge**

EventBridge creates event-driven architectures that incorporate Amazon Bedrock capabilities. This integration enables systems where events from one service automatically trigger foundation model operations.

For example, a new document uploaded to Amazon S3 could trigger an EventBridge rule. That event invokes Amazon Bedrock APIs through a generative AI application to create a summary. This pattern supports automated workflows that process information as it enters your systems.

**Integration considerations**

When integrating Amazon Bedrock with your existing systems, consider factors such as data security, model selection, and performance requirements to ensure optimal implementation.

Security compliance

Your integrations should meet security requirements by implementing appropriate encryption, access controls, and compliance measures for data protection and governance.

Now that you have reviewed security compliance, move on to the next tab to learn about performance optimization.

Performance optimization

Balance model selection and configuration settings to achieve optimal performance while managing costs and meeting your application's specific needs.

Now that you have reviewed performance optimization, move on to the next tab to learn about scalability planning.

Scalability planning

Design your integration to handle varying workloads efficiently, considering factors such as concurrent requests, response times, and resource utilization.

Now that you have reviewed scalability planning, move on to the remaining content.