AWS Decision guide

Amazon Bedrock or Amazon SageMaker AI?

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Amazon Bedrock or Amazon SageMaker AI?

Understand the differences and pick the one that's right for you

Purpose	Understand the differences between Amazon Bedrock and Amazon SageMaker AI, and determine which service is the best fit for your needs.
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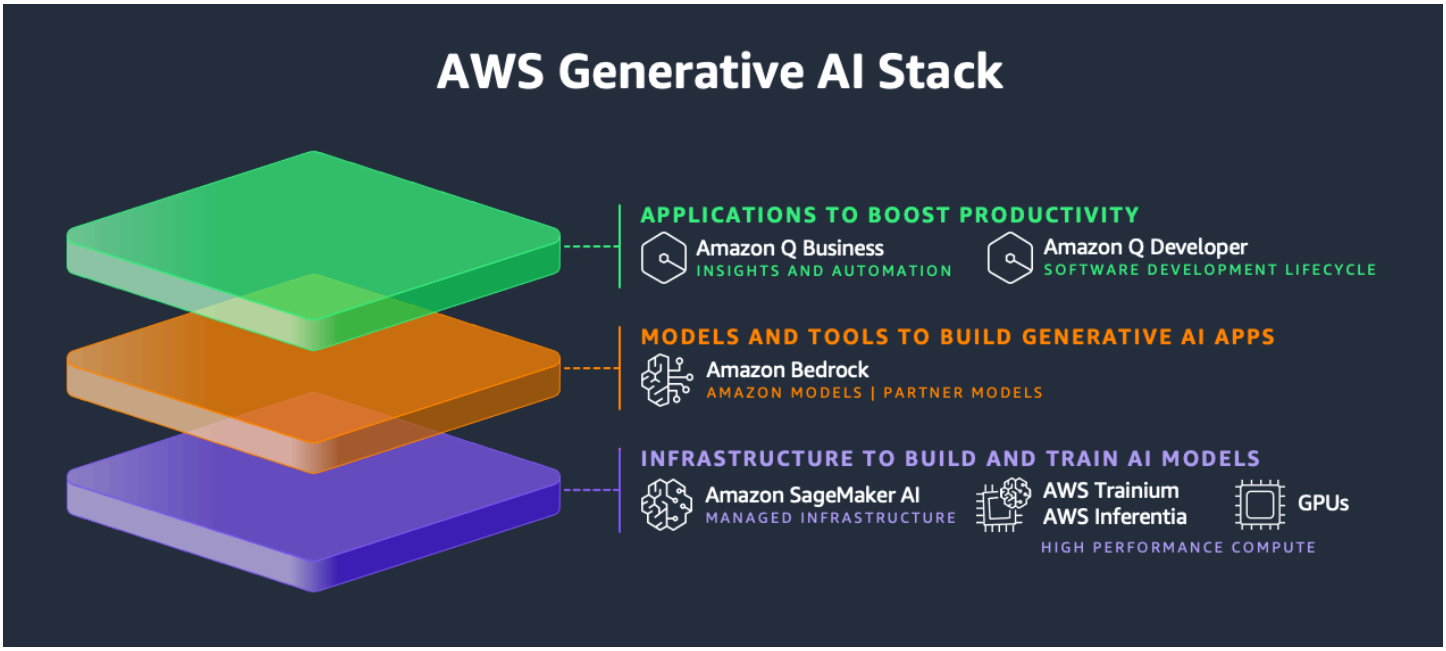
Covered services	• Amazon Bedrock • Amazon SageMaker AI

Introduction

Amazon Web Services (AWS) offers a suite of services to help you build machine learning (ML) and generative AI applications that use inference, defined as the process of generating an output from an input provided to a foundation model. It's helpful to understand how these services work together to form a generative AI stack, including:

- Generative AI-powered services such as Amazon Q Business and Amazon Q Developer, which leverage large language models (LLMs) and other foundation models (FMs) to boost productivity.
- Models and tools for building generative AI applications, including Amazon Bedrock.
- Infrastructure to build and train AI models, such as Amazon SageMaker AI and specialized hardware.



When considering which generative AI services you want to use, two services are often considered alongside one another:

Amazon Bedrock

- Choose Amazon Bedrock if you primarily need to use pre-trained foundation models for inference, and want to select the foundation model that best fits your use case. Amazon Bedrock is a fully managed service for building generative AI applications, with support for popular foundation models, including Amazon Nova, Amazon Titan, Anthropic Claude, DeepSeek-R1, Cohere Command & Embed, AI21 Labs Jurassic, Meta Llama, Mistral AI, and Stable Diffusion XL. Supported FMs are updated on a regular basis.
- Use Amazon Bedrock Marketplace to discover, test, and use over 100 popular, emerging, and specialized foundation models (FMs).
- Use Amazon Bedrock IDE, part of the new Amazon SageMaker Unified Studio, to discover Amazon Bedrock models and build generative AI apps that use Amazon Bedrock models and features.

Amazon SageMaker AI

- Amazon SageMaker AI (formerly Amazon SageMaker) is a fully managed service designed to help you build, train, and deploy machine learning models at scale. This includes building FMs from scratch, using tools like notebooks, debuggers, profilers, pipelines, and MLOps. Consider

SageMaker AI when you have use cases that can benefit from extensive training, fine-tuning, and customization of foundation models. It can also help you through the potentially challenging task of evaluating which FM is the best fit for your use case.

- Amazon SageMaker AI is part of the next generation of Amazon SageMaker, a unified platform for data, analytics, and AI. Amazon SageMaker includes Amazon SageMaker Unified Studio, a unified development experience that brings together AWS data, analytics, AI, and ML services.

This guide is focused on understanding the differences between Amazon SageMaker AI and Amazon Bedrock. For more information about how Amazon Bedrock and SageMaker AI fit into Amazon's generative AI services and solutions, see the generative AI decision guide.

While both Amazon Bedrock and Amazon SageMaker AI enable the development of ML and generative AI applications, they serve different purposes. This guide will help you understand which of these services is the best fit for your needs, including scenarios in which both services can be used together to build generative AI applications.

Here's a high-level view of the key differences between these services to get you started.

Category	 Amazon Bedrock	 Amazon SageMaker AI
Use Cases	Ideal for integration of AI capabilities into applications without investing heavily in custom model development	Optimized for unique or specialized AI/ML needs that may require custom models
Target Users	Optimized for developers and businesses without deep machine learning expertise	Optimized for data scientists, machine learning engineers, and developers
Customization	You'll primarily use pre-train ed models, but can fine-tune as needed	You have full control, and can customize or create models according to your needs

Category	 Amazon Bedrock	 Amazon SageMaker AI
Pricing	Pay-as-you-go pricing based on the number of API calls made to the service	Charges based on the usage of compute resources, storage, and other services
Integration	Integrate pre-trained models into applications through API calls	Integrate custom models into applications, with more customization options
Expertise Required	Basic level of machine learning expertise needed to use pre-trained models	Working knowledge of data science and machine learning skills are helpful for building and optimizing models
Management	Amazon Bedrock provides a simplified API-based approach with minimal infrastructure management.	SageMaker AI requires more infrastructure management, but offers extensive monitoring and control capabilities.
Deployment and Hosting	Amazon Bedrock is serverless, meaning you don't have to manage infrastructure.	SageMaker AI is primarily serverful, and provides granular control over computing resources and scaling.

Differences between Amazon Bedrock and SageMaker AI

Let's examine and compare the capabilities of Amazon Bedrock and Amazon SageMaker AI.

Use cases

Amazon Bedrock and Amazon SageMaker AI address different use cases based on your specific requirements and resources.

Amazon Bedrock

- Amazon Bedrock is designed for use cases where you want to build generative AI applications without investing heavily in custom model development. For example, a content moderation system for a social media platform could use Amazon Bedrock's pre-trained models to automatically identify and flag inappropriate text or images. Similarly, a customer support chatbot could use Amazon Bedrock's natural language processing capabilities to understand and respond to user inquiries. Amazon Bedrock is particularly useful if you have limited machine learning expertise or resources, as it helps you to benefit from AI without the need for extensive in-house development.

Amazon SageMaker AI

- SageMaker AI is a good choice for unique or specialized AI/ML needs that require custom-built models. It is ideal for scenarios where off-the-shelf solutions are not sufficient, and you have a need for fine-grained control over the model architecture, training process, and deployment. One example of a scenario that would benefit from using SageMaker AI would be a healthcare company developing a model to predict patient outcomes based on specific biomarkers. Another example would be a financial institution creating a fraud detection system tailored to their unique data and risk factors. Additionally, SageMaker AI is suitable for research and development purposes, where data scientists and machine learning engineers can experiment with different algorithms, hyperparameters, and model architectures.

Target users

Amazon Bedrock and Amazon SageMaker AI support different targeted users based on their level of expertise and knowledge of machine learning and artificial intelligence.

Amazon Bedrock

- Amazon Bedrock offers a more accessible and straightforward way to integrate AI functionality into your projects. It’s appropriate for a broad audience, which includes developers and businesses, that has limited experience in building and training machine learning models, but wants to use AI to enhance their applications or workflows.

Amazon SageMaker AI

- SageMaker AI is predominantly for data scientists, machine learning engineers, and developers who possess the necessary skills and knowledge to build, train, and deploy custom machine learning models. Use SageMaker AI if you are well-versed in data science and machine learning concepts, and require a platform that provides you with the tools and flexibility to create models tailored to your specific needs.

Choice of FMs

While both Amazon Bedrock and Amazon SageMaker AI offer a broad set of FMs for your applications, there are differences in the set of FMs that each service offers.

Amazon Bedrock

- Amazon Bedrock provides access to FMs such as Anthropic's Claude, Meta's Llama 3, Amazon's Nova and Titan models, Stability AI's models for image generation, and many others. See the list of available FMs, which is updated frequently.
- Use the Amazon Bedrock Marketplace to rapidly test and incorporate over 100 publicly available and proprietary FMs.
- Amazon Bedrock provides access to certain proprietary models, including Claude and Jurassic, that aren't available in Amazon SageMaker JumpStart.

Amazon SageMaker AI

- Amazon SageMaker JumpStart offers built-in publicly available and proprietary foundation models to customize and integrate into your generative AI workflows, with a wider selection of FMs than Amazon Bedrock, including models optimized for specific use cases.
- JumpStart offers publicly available FMs, including models from Hugging Face, StabilityAI, Meta, and Amazon, and proprietary FMs from AI21 Labs, Cohere, and LightOn. See the list of publicly available and proprietary FMs, which is updated frequently.

Customization

Amazon Bedrock and Amazon SageMaker AI offer different levels of customization capabilities that you can tailor to your specific needs and expertise.

Amazon Bedrock

- Amazon Bedrock offers a set of models from leading providers that you can use to build generative AI applications, with limited customization. You have access to a set of API calls that you use to enter data and receive predictions from these pre-trained models. While this approach drastically simplifies the process of incorporating AI capabilities into applications, it also means that you have less control over the underlying models, unless you customize a model, or import a custom model. Amazon Bedrock's pre-trained models are optimized for common AI tasks and are designed to work well for a wide range of use cases, but they may not be suitable for highly specialized or niche requirements.

  Amazon Bedrock supports fine-tuning for foundation models (FMs), such as Amazon Nova Micro, Lite, and Pro , Cohere Command R, Meta Llama 2, Anthropic Claude 3 Haiku, Amazon Titan Text Lite, Amazon Titan Text Express, Amazon Titan Multimodal Embeddings, and Amazon Titan Image Generator. The list of supported FMs is updated on an ongoing basis.
- Customize models for specific tasks and use cases, including FM fine-tuning and pre-training. Bring your own customized model with custom model import.

Amazon SageMaker AI

- Amazon SageMaker AI provides extensive customization options, giving you full control over the entire machine learning workflow. With SageMaker AI, you can fine-tune every aspect of your models, from data preprocessing and feature engineering to model architecture and hyperparameter optimization. By using this level of customization, you can create highly specialized models that are tailored to your unique business requirements. SageMaker AI supports a wide range of popular machine learning frameworks, such as TensorFlow, PyTorch, and Apache MXNet, allowing you to use your preferred tools and libraries for building and training models.
- Use Amazon SageMaker JumpStart to evaluate, compare, and select FMs based on pre-defined quality and responsibility.
- Choose which FM to use with Amazon SageMaker AI Clarify. Use SageMaker AI Clarify to create model evaluation jobs, that you use to evaluate and compare model quality and responsibility metrics for text-based foundation models from JumpStart.
- Generate predictions using Amazon SageMaker AI Canvas, without needing to write any code. Use SageMaker AI Canvas in collaboration with Amazon Bedrock to fine-tune and deploy language models. This blog post describes how you can use them to optimize customer interaction by working with your own datasets, such as your product FAQs, in Amazon Bedrock and Amazon SageMaker JumpStart.

Pricing

Amazon Bedrock and Amazon SageMaker AI have different pricing models that reflect their target users and the services they provide.

Amazon Bedrock

- Amazon Bedrock employs a simple pricing model based on the number of API calls made to the service. You pay a fixed price per API call, which includes the cost of running the pre-trained models and any associated data processing. This straightforward pricing structure makes it more efficient for you to estimate and control your costs, as you pay only for the actual usage of the service. Amazon Bedrock's pricing model is particularly well-suited for applications with predictable workloads, or for cases where you want more transparency in your AI-related expenses.

Amazon SageMaker AI

- SageMaker AI follows a pay-as-you-go pricing model based on the usage of compute resources, storage, and other services consumed during the machine learning process. You're charged for the instances that you use to build, train, and deploy you models, with prices varying depending on the instance type and size. Additionally, you incur costs for data storage, data transfer, and other associated services like data labeling and model monitoring. This pricing model provides flexibility and allows you to optimize costs based on your specific requirements. However, it also means that costs can vary and may require careful management, especially for resource-intensive projects.

Integration

Amazon Bedrock and Amazon SageMaker AI offer different approaches to integrating machine learning models into applications, catering to your specific needs and expertise.

Amazon Bedrock

- Amazon Bedrock simplifies the integration process by providing pre-trained models that you can access directly through API calls. Use the Amazon Bedrock SDK or REST API to send input data and receive predictions from the models without needing to manage the underlying infrastructure. This approach significantly reduces the complexity and time required to integrate AI capabilities into applications, making it more accessible to developers with limited machine learning expertise. However, this ease of integration comes at the cost

of limited customization options, as you're restricted to the pre-trained models and APIs provided by Amazon Bedrock.

Amazon SageMaker AI

- SageMaker AI provides a comprehensive platform for building, training, and deploying custom machine learning models. However, integrating these models into applications requires more effort and technical expertise compared to Amazon Bedrock. You need to use the SageMaker AI SDK or API to access the trained models and build the necessary infrastructure to expose them as endpoints. This process involves creating and configuring API Gateway, Lambda functions, and other AWS services to enable communication between the application and the deployed model. While SageMaker AI provides tools and templates to simplify this process, it still requires a deeper understanding of AWS services and machine learning model deployment.

Expertise required

Amazon Bedrock and Amazon SageMaker AI are optimized for different levels of machine learning expertise.

Amazon Bedrock

- Amazon Bedrock is more accessible to a broader range of users, including developers and businesses with limited machine learning expertise. By providing pre-trained models that can be easily integrated into applications through API calls, Amazon Bedrock abstracts away much of the complexity associated with building and deploying machine learning models. You don't need to worry about data preprocessing, model selection, or infrastructure management, as these aspects are handled by the Amazon Bedrock service. This allows you to focus on integrating AI capabilities into your applications without needing to invest significant time and resources in acquiring deep machine learning knowledge.

Amazon SageMaker AI

- If you have deeper expertise in data science and machine learning, SageMaker AI provides a powerful and flexible platform for building, training, and deploying custom models. While SageMaker AI aims to simplify the machine learning workflow, it still requires a significant level of technical expertise to take full advantage of its capabilities. You'll benefit from

being proficient in programming languages like Python, along with a deep understanding of machine learning concepts, such as data preprocessing, model selection, and hyperparameter tuning. Additionally, you should be comfortable working with various AWS services and managing the infrastructure required to deploy and integrate their models. As a result, SageMaker AI may have a steeper learning curve if you're new to machine learning or have limited experience with AWS.

Features

Amazon Bedrock and Amazon SageMaker AI are optimized for different levels of machine learning expertise.

Amazon Bedrock

- Amazon Bedrock offers a suite of features to help customers build and scale generative AI applications, including model choice features (evaluation), cost and latency optimization features (prompt caching, intelligent prompt routing), customization features (knowledge bases, model distillation), safeguards (guardrails), and agentic features (agents). Amazon Bedrock also offers custom model import, which allows you to import and use customized models with existing FMs through a single, serverless, unified API.

Amazon SageMaker AI

- With SageMaker AI, you can store and share your data without having to build and manage your own servers. This gives you more time to collaboratively build and develop your ML workflow, and do it sooner. SageMaker AI provides managed ML algorithms to run efficiently against extremely large data in a distributed environment. With built-in support for bring-your-own-algorithms and frameworks, SageMaker AI offers flexible distributed training options that adjust to your specific workflows. Within a few steps, you can deploy a model into a secure and scalable environment from the SageMaker AI console.

The choice between Amazon Bedrock and Amazon SageMaker AI is not always mutually exclusive. In some cases, you may benefit from using both services together. For example, you can use Amazon Bedrock to quickly prototype and deploy a foundation model, and then use SageMaker AI to further refine and optimize the model for better performance. This blog post describes how you can deploy models from Amazon SageMaker JumpStart and register them with Amazon Bedrock, allowing you to access them through Amazon Bedrock APIs.

Ultimately, the decision between Amazon Bedrock and Amazon SageMaker AI depends on your specific requirements. Evaluating these factors can help you make an informed decision and choose the service that is most suitable for your needs.

For more information about Amazon's generative AI services and solutions, see the generative AI decision guide.

Use

Now that you've read about the criteria for choosing between Amazon Bedrock and Amazon SageMaker AI, you can select the service that meets your needs, and use the following information to help you get started using each of them.

Amazon Bedrock

- **What is Amazon Bedrock?**

  Use this fully managed service to make foundation models (FMs) from Amazon and third parties available for your use through a unified API.

  Explore the guide

- **Frequently asked questions about Amazon Bedrock**

  Get answers to the most commonly-asked questions about Amazon Bedrock. These include how to use agents, security considerations, details about Amazon Bedrock software development kits (SDKs), retrieval augmented generation, how to use model evaluation, and billing.

  Read the FAQs

- **Guidance for generating product descriptions with Amazon Bedrock**

  Use Amazon Bedrock in your solution to automate your product review and approval process for an e-commerce marketplace or retail website.

  Explore the solution

Amazon Bedrock IDE

> **Note**
>
> Amazon Bedrock Studio, renamed to Amazon Bedrock IDE, is now available in Amazon SageMaker Unified Studio

- **What is Amazon Bedrock IDE?**

  Use Amazon Bedrock IDE to discover Amazon Bedrock models, and build generative AI apps that use Amazon Bedrock models and features.

  Explore the guide

- **Build generative AI applications with Amazon Bedrock IDE**

  This blog post describes how you can build applications using a wide array of top performing models. It then explains how to evaluate and share your generative AI apps with Amazon Bedrock IDE.

  Read the blog

- **Building a chat app with Amazon Bedrock IDE**

  Build an Amazon Bedrock IDE chat agent app that allows users to chat with an Amazon Bedrock model through a conversational interface.

  Explore the guide

Amazon SageMaker AI

- **What is Amazon SageMaker AI?**

  Use this fully managed machine learning (ML) service to build, train, and deploy ML models into a production-ready hosted environment.

  Explore the guide

- **Get started with Amazon SageMaker AI**

  Set up access to Amazon SageMaker AI, including quick or custom setup steps.

  Explore the guide

- **Get started with Amazon SageMaker JumpStart**

  Explore Amazon SageMaker JumpStart solution templates that set up infrastructure for common use cases, and executable example notebooks for machine learning with SageMaker AI.

  Explore the guide

Document history

The following table describes the important changes to this decision guide. For notifications about updates to this guide, you can subscribe to an RSS feed.

Change	Description	Date
Minor updates	Updates to compare management, deployment, and hosting differences between Amazon SageMaker AI and Amazon Bedrock, and information about how *inference* works.	June 27, 2025
Minor updates	Updates to Amazon SageMaker service name and features, as well as the latest Amazon Bedrock features.	February 14, 2025
Minor updates	Minor updates to improve readability.	August 21, 2024
Minor updates	Minor updates to reflect the latest Amazon Bedrock and Amazon SageMaker AI features.	July 22, 2024
Initial release	Initial release of the decision guide.	July 11, 2024