Top 5 considerations for your AI/ML platform

Use this checklist to implement MLOps processes that help teams create data-driven applications in a security-focused and collaborative way through the use of containers and a hybrid cloud strategy.

Artificial intelligence (AI) and machine learning (ML) are essential for today's organizations, and data is just as critical to applications as the code they are built on. But there is still a lack of collaboration between the different groups involved in the development of AI- and ML-driven applications. To effectively use AI, ML, and data science in deployable applications, companies must bring together developers, IT operations, data engineers, data scientists, and ML engineers to operationalize machine learning operations (MLOps).

1 Build a data strategy

Creating a strategy is a first step toward success when it comes to effectively managing data-based application development.

To begin, ask:

- How will this data be gathered and stored?
- How will it be used in the real world?
- What is my goal for this data?

Next, develop a plan for managing your data, including:

- **Cleansing** it to ensure its quality.
- **Storing** it until it is used.
- **Securing** it to prevent possible exposures.
- **Preparing** it for use in development.
- **Monitoring** it to prevent inaccurate predictions post-deployment.

Finally:

- Consider how data will be shared among the teams in the development pipeline, such as through a common platform or a hybrid cloud approach.
- Determine the tools you will need to manage your data, such as a data catalog and other types of software and hardware.

2 Provide self-service access to tools

Data scientists, software developers, and ML and data engineers must be able to access approved tools from independent software vendors (ISVs) or open source projects across on-premise, public cloud, and edge locations. You cannot impose overly restrictive access to data science tools or have users wait forever for a help ticket to get answered.

Embrace a self-service practice by:

- **Giving users choice.** Let them experiment with different tools and give them access to the latest advancements in open source AI technologies.
- **Empowering data scientists.** Allow access to approved tools —Jupyter notebooks, TensorFlow, PyTorch, more memory, and hardware accelerations like NVIDIA GPUs—to help them do their job without needing AI platform expertise.
- **Promoting scalability and flexibility.** Allow users to do as much as they need with these tools.

3 Create a collaborative environment

MLOps integrates data scientists into the DevOps continuous integration/continuous delivery (CI/CD) workflow for the entire AI/ML lifecycle, benefiting each member of the development team in different ways:

- Data scientists' work can be deployed and used for different purposes in various applications.

- Developers can learn more about how to integrate ML models into their applications.

- Operations can understand what data scientists need to do their jobs and have their work be used in deployable applications.

Use a common, modern hybrid cloud application development platform based on containers, Kubernetes-integrated DevOps capabilities, hardware acceleration, and a certified technology ecosystem—fostering choice and collaboration with agility, scalability, flexibility, and portability. Teams collaborating on such a platform can:

- Learn, fail fast, and adjust as necessary—together.

- Quickly deploy and scale solutions, create new applications, and scale out infrastructure.

- Accelerate development and time to deployment.

- Achieve better consistency and lower costs.

4 Use a hybrid cloud approach

A hybrid cloud approach lets you move from the edge, to the datacenter, to public cloud, as workloads and data locality demand. With a hybrid cloud model, teams can:

- Develop in a cloud environment for greater agility.

- Deploy on-premise for better data security.

- Infer at the edge to improve latency.

Choosing a hybrid cloud platform powered by containers, Kubernetes, and DevOps capabilities that provides consistency across all these footprints will allow you to develop, test, and manage AI and ML applications the same way over your entire infrastructure footprint, including datacenters, public clouds, and edge locations. You will have a unified software foundation that supports the efforts of your entire MLOps team.

5 Choose open source

An open source-based ML platform and a cloud service are ideal for helping teams collaborate across different environments and choose the right tools.

Open source was built by teams collaborating to produce some of the most innovative software in the world, resulting in a variety of tools that offer unparalleled technology and cloud platform choice for MLOps production.

Open source frees users from the restrictions of a single cloud provider and gives them access to a wide breadth of technologies such as containers and Kubernetes, as well as data science tooling available through open source communities like Open Data Hub, Kubeflow, and Linux® Foundation.

Open source ML tools are supported by the collaborative efforts of thousands of developers working to provide the software you need to research, build, and deploy.

With the advent of MLOps, data science is integral to the DevOps process, necessitating an environment that supports developers, operations, and data scientists.

Learn more

Read our e-book to learn more about how Red Hat can help you build a production-ready AI/ML environment.

About Red Hat
Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers integrate new and existing IT applications, develop cloud-native applications, standardize on our industry-leading operating system, and automate, secure, and manage complex environments. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500. As a strategic partner to cloud providers, system integrators, application vendors, customers, and open source communities, Red Hat can help organizations prepare for the digital future.

facebook.com/redhatinc
@redhat
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North America
1 888 REDHAT1
www.redhat.com

Europe, Middle East, and Africa
00800 7334 2835
europe@redhat.com

Asia Pacific
+65 6490 4200
apac@redhat.com

Latin America
+54 11 4329 7300
info-latam@redhat.com