



AWS Reference Architecture Diagram

# High Performance Computing on AWS



# High Performance Computing on AWS: AWS Reference Architecture Diagram

Copyright © 2024 Amazon Web Services, Inc. and/or its affiliates. All rights reserved.

Amazon's trademarks and trade dress may not be used in connection with any product or service that is not Amazon's, in any manner that is likely to cause confusion among customers, or in any manner that disparages or discredits Amazon. All other trademarks not owned by Amazon are the property of their respective owners, who may or may not be affiliated with, connected to, or sponsored by Amazon.

# Table of Contents

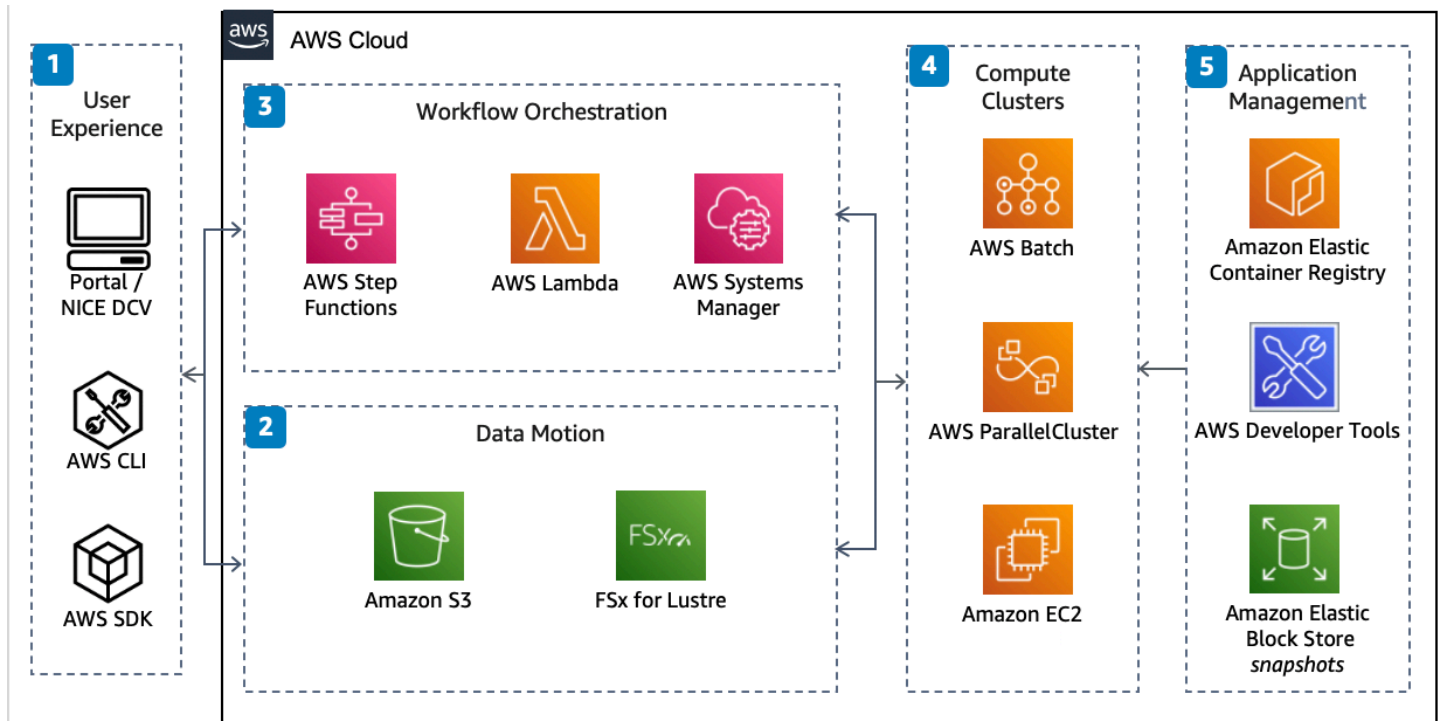
<b>Home</b> .....	<b>i</b>
High Performance Computing on AWS .....	1
Download editable diagram .....	2
Create a free AWS account .....	2
Further reading .....	2
Diagram history .....	2

# High Performance Computing on AWS

Publication date: **September 1, 2021** ([Diagram history](#))

This architecture enables you to deploy and burst a suite of high performance computing (HPC) cases to the cloud directly from the desktop.

## High Performance Computing on AWS



1. Users deploy HPC cases with one of the AWS SDKs or the **AWS Command Line Interface (AWS CLI)**. Users can interface directly with the cluster through NICE DCV.
2. Data is staged both to and from AWS with **Amazon Simple Storage Service (Amazon S3)**. **Amazon S3** offers low-cost, reliable storage while interfacing directly to **Amazon FSx for Lustre** for a fully managed, high-performance storage.
3. Serverless services manage case workflow. **AWS Step Functions** provides workflow management and orchestrates other services, such as serverless compute with **AWS Lambda**. **AWS Systems Manager** can be used for operational management of compute clusters.
4. **AWS ParallelCluster**, **AWS Batch**, and custom-made clusters lie at the core of the HPC infrastructure, each with access to high-performance **Amazon Elastic Compute Cloud (Amazon EC2)** instances connected by a high performance network with an optional Elastic Fabric

Adapter. Cost optimization with Amazon EC2 is achieved with payment-model choice and environment right sizing

5. Manage applications with a consistent, versioned, and repeatable framework. AWS Developer Tools accelerate software development. Installed software can be stored in containers or snapshots, depending on the compute cluster.

## Download editable diagram

To customize this reference architecture diagram based on your business needs, [download the ZIP file](#) which contains an editable PowerPoint.

## Create a free AWS account

[Sign up now](#)

Sign up for an AWS account. New accounts include 12 months of [AWS Free Tier](#) access, including the use of Amazon EC2, Amazon S3, and Amazon DynamoDB.

## Further reading

For additional information, refer to

- [AWS Architecture Icons](#)
- [AWS Architecture Center](#)
- [AWS Well-Architected](#)
- [High Performance Computing Lens — AWS Well-Architected Framework](#)

## Diagram history

To be notified about updates to this reference architecture diagram, subscribe to the RSS feed.

Change	Description	Date
<a href="#">Initial publication</a>	Reference architecture diagram first published.	September 1, 2021

**Note**

To subscribe to RSS updates, you must have an RSS plugin enabled for the browser you are using.