

AWS ECS

Topics : [AWS](#)

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Amazon Elastic Container Service (ECS) is a fully managed container orchestration service provided by Amazon Web Services (AWS). ECS makes it easy to run, stop, and manage Docker containers on a cluster of Amazon EC2 instances or using AWS Fargate, a serverless compute engine for containers. Here are key aspects of AWS ECS:

1. ECS Clusters:

- **Description:** An ECS cluster is a logical grouping of EC2 instances or Fargate tasks where you can deploy containerized applications.
- **Features:**
 - Allows you to organize and manage containers in a scalable and efficient manner.
 - EC2 instances in a cluster run the ECS Agent to facilitate communication with the ECS service.

2. Task Definitions:

- **Description:** A task definition is a JSON or YAML file that describes one or more containers, the resources they need, and how they interact. It serves as the blueprint for running containers in ECS.
- **Features:**
 - Specifies the Docker image, CPU, memory, networking, and other settings for a container.
 - Can define multiple containers that run together as a task.

3. Tasks and Services:

- **Description:** A task is the instantiation of a task definition and represents the running state of a set of containers. A service is a higher-level abstraction that allows you to define and run long-running tasks in your cluster.
- **Features:**
 - Services ensure that a specified number of tasks are running and automatically replace failed tasks.
 - Tasks and services can be used for deploying and scaling applications.

4. ECS Agents:

- **Description:** ECS Agents run on EC2 instances within a cluster and facilitate communication between the instances and the ECS service.
- **Features:**

- The agent is responsible for registering and deregistering instances from the cluster.
- Manages the containers on the instances according to the task definitions.

5. ECS Task Execution Role:

- **Description:** The ECS task execution role is an IAM (Identity and Access Management) role that provides containers in the task permission to use other AWS services.
- **Features:**
 - Allows tasks to interact with other AWS services such as S3, DynamoDB, or any other service that requires AWS permissions.

6. ECS Integration with Elastic Load Balancing (ELB):

- **Features:**
 - ECS integrates with Application Load Balancers (ALB) or Network Load Balancers (NLB) to distribute incoming traffic across tasks in a service.
 - Automatically registers and deregisters containers with the load balancer.

7. ECS Integration with AWS Fargate:

- **Description:** Fargate is a serverless compute engine for containers that allows you to run containers without managing the underlying infrastructure.
- **Features:**
 - No need to provision or manage EC2 instances; Fargate automatically handles the infrastructure.
 - Supports running tasks and services on Fargate.

8. ECS Capacity Providers:

- **Description:** ECS Capacity Providers allow you to define a set of resources to use with an ECS cluster. This can include both EC2 instances and Fargate capacity.
- **Features:**
 - Allows for seamless integration of EC2 and Fargate capacity within a cluster.
 - Supports automatic scaling based on resource utilization.

9. ECS Auto Scaling:

- **Features:**
 - ECS supports auto scaling of tasks and services based on CloudWatch Alarms or target tracking policies.
 - Enables dynamic scaling in and out of tasks to handle varying load.

10. ECS CLI and SDKs:

- **Description:** The ECS Command Line Interface (CLI) and SDKs allow you to interact with ECS using the command line or programmatically.
- **Features:**
 - Perform tasks such as creating clusters, running tasks, and managing services.

11. ECS Logging and Monitoring:

- **Description:** ECS integrates with AWS CloudWatch for monitoring and logging.

- **Features:**

- Monitor containerized applications, collect logs, and set up alarms for various metrics.

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