Amazon ECS

- 1 Definition — Amazon Elastic Container Service (Amazon ECS) is a highly scalable, fast, container management service that makes it easy to run, stop, and manage containers on a cluster.
- 2 There are two major models for how to run your containers on AWS
  - 1 EC2
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      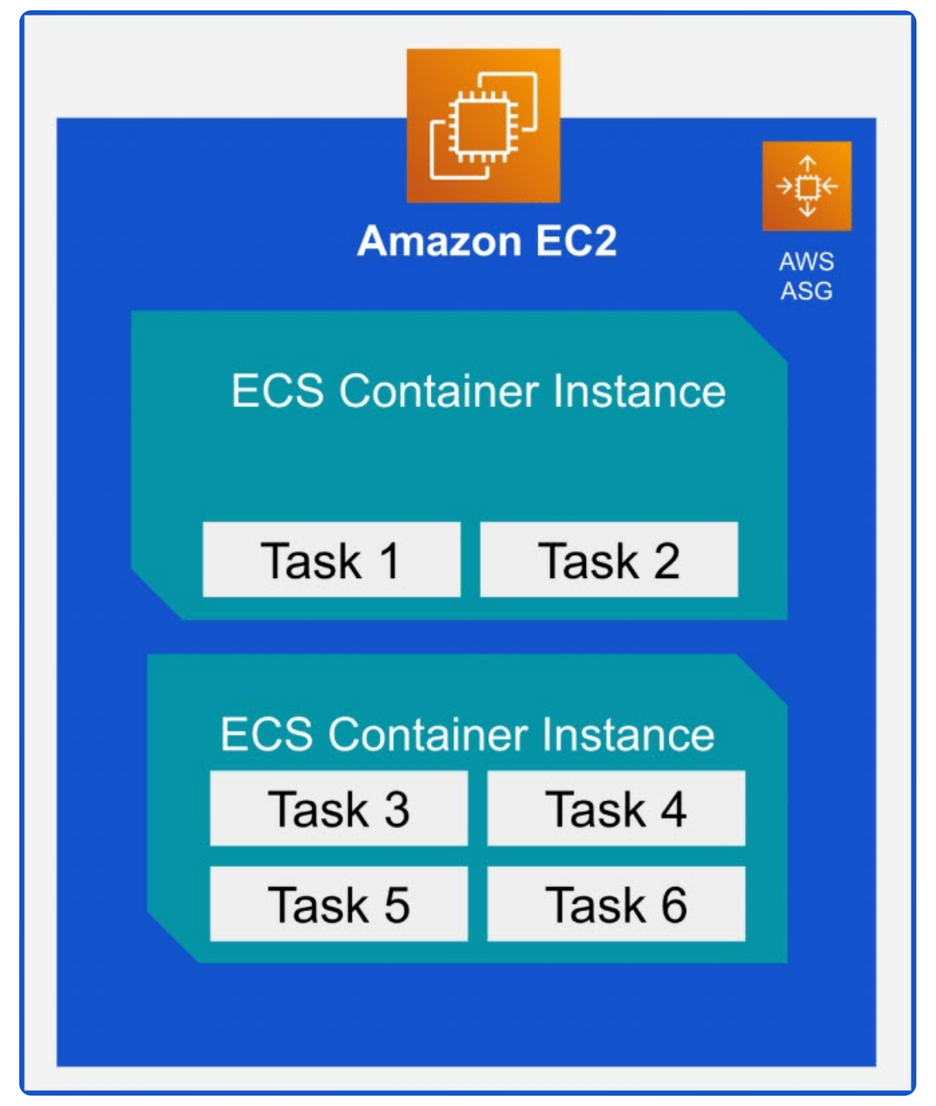

      Subtopic
    - 2 Deploy and manage your own cluster of EC2 instances for running the containers
    - 3 With the EC2 launch type billing is based on the cost of the underlying EC2 instances. This allows you to optimize price by taking advantage of billing models such as spot instances (bid a low price for an instance), or reserved instances (get a flat discount for committing to an instance for a certain time period).
    - 4 If your workload has a consistent demand for many CPU cores and many gigabytes of memory, and you want to optimize for price you should consider running a cluster of reserved EC2 instances, or spot instances. You will be responsible for maintaining this cluster and optimizing it, but you will be able to take advantage of EC2 instance saving strategies such as spot instances or reserved instances.
  - 2 AWS Fargate
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      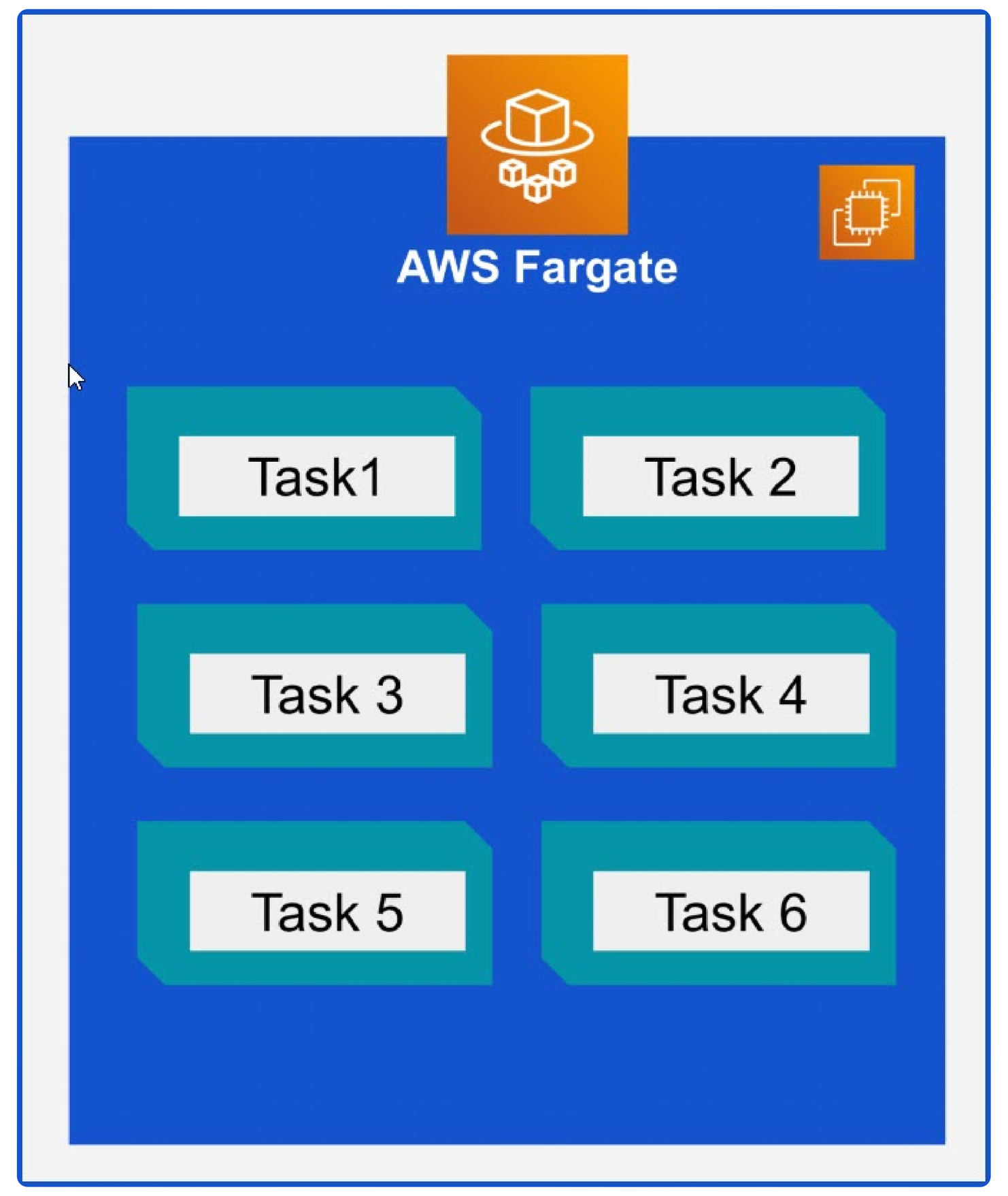

      Subtopic
    - 2 Run containers directly, without any EC2 instances
    - 3 With the AWS Fargate launch type billing is based on how many CPU cores, and gigabytes of memory your task requires, per second. You only ever pay for what your task uses, no more paying for EC2 capacity that goes unused.
    - 4 Managing a large cluster of EC2 instances can be somewhat hard. You need to make sure they are all patched, secure, and updated to the latest version of Docker and the ECS agent. If you don’t want to deal with any of this overhead AWS Fargate can be a great choice
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  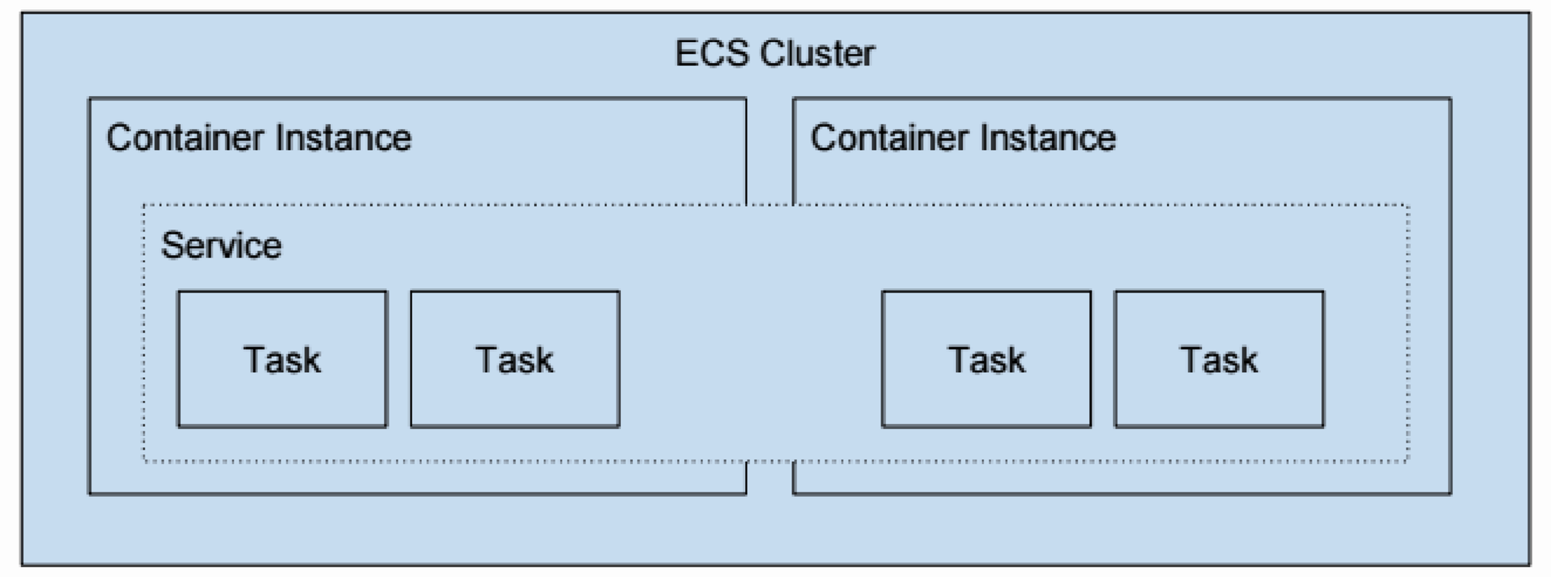

  Characteristics
  - 1 Cluster — An Amazon ECS cluster is a logical grouping of tasks or services. You can register one or more Amazon EC2 instances, also referred to as container instances with your cluster to run tasks on, or you can use the serverless infrastructure that Fargate provides. When your tasks are run on Fargate, your cluster resources are managed by Fargate.
  - 2 Container Instance — This is just an EC2 instance that is part of an ECS Cluster and has docker and the ecs-agent running on it.
  - 3 Container agent — The container agent runs on each container instance within an Amazon ECS cluster. It sends information about the resource's current running tasks and resource utilization to Amazon ECS, and starts and stops tasks whenever it receives a request from Amazon ECS.
  - 4 Task definitions
    - 1 To prepare your application to run on Amazon ECS, you create a task definition
    - 2 The task definition is a text file, in JSON format, that describes one or more containers, up to a maximum of ten
    - 3 Task definitions specify various parameters for your application. Examples of task definition parameters include which containers to use, which ports should be opened for your application, and what data volumes should be used with the containers in the task
  - 5 Task — This is a running container with the settings defined in the Task Definition. It can be thought of as an “instance” of a Task Definition.
  - 6 Service — Defines long running tasks of the same Task Definition. This can be 1 running container or multiple running containers all using the same Task Definition.
- 4 Features of Amazon ECS
  - 1 Amazon ECS is a regional service that simplifies running containers in a highly available manner across multiple Availability Zones within a Region.
  - 2 You can create Amazon ECS clusters within a new or existing VPC
  - 3 After a cluster is up and running, you can create task definitions that define which container images to run across your clusters.