Amazon EKS and AWS Fargate

Better together

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Worker node

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Traditional container data plane
EKS data plane options

**Mixed mode**

- Pods
- Amazon EKS
- NEW
- AWS Fargate
- Serverless container data plane

- Pods
- Worker node
- Auto Scaling group
- Worker node
- Amazon EC2
- Auto Scaling
- Worker node
- Worker node
- Worker node
- Worker node
- Traditional container data plane

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EKS data plane options

Fargate only

AWS Fargate

Amazon EKS

NEW

Serverless container data plane
The high level flow
The EC2 flow at 33,000 feet

You have to manage this capacity (e.g., with ASGs)

Run a container on **EC2** for me, please

Amazon EC2

Customer Account

AWS

Control Plane

VPC

ENI

Pod

Service
The Fargate flow at 33,000 feet

Run a container on **FARGATE** for me, please

You don’t have to manage capacity
The implementation details
Fargate profile templates

```json
{
    "status": "ACTIVE",
    "subnets": [
        "subnet-0de8355bc4ds45af3",
        "subnet-0d353b36b40767d3"
    ],
    "clusterName": "FargateCluster",
    "fargateProfileArn": "arn:aws:eks:us-west-2:123456789:fargateprofile/FargateCluster/FargateProfileCatchAll/4c3303c-539e-a202-5b75-bb1dd3dd059b",
    "selectors": [
        {
            "namespace": "default"
        },
        {
            "namespace": "Kube-system"
        },
        {
            "labels": {
                "foo": "bar"
            },
            "namespace": "mynamespace"
        }
    ],
    "fargateProfileName": "FargateProfileCatchAll",
    "podExecutionRole": "arn:aws:iam::123456789:role/FargateCluster-SERVICE-ROLE-AWSServiceRoleFargateCluster-1PLJY3220ID6I",
    "createdAt": "1573039680.227"
}
```

- **Subnets to pick for the Pod deployment**
- **Parameters to “catch” the pod deployment**
- **IAM Role to be associated to the kubelet**
Deploying pods to EC2

```
{
    "name": profile-a,
    "clusterName": mycluster,
    "podExecutionRole": iam-role-xyz,
    "subnets": subnet-0ad888345,
    "selectors": [
        {
            "namespace": prod,
            "labels": {
                "stack": blue
            }
        }
    ]
}
```
Deploying pods to Fargate

Fargate profile

```
{
  "name": "profile-a",
  "clusterName": "mycluster",
  "podExecutionRole": "iam-role-xyz",
  "subnets": ["subnet-0ad888345"],
  "selectors": [
    {
      "namespace": "prod",
      "labels": {
        "stack": "blue"
      }
    }
  ]
}
```

1. Pod
   - namespace: prod
   - labels:
     - stack: blue

2. Mutating/Validating Webhooks
   - Pod

3. Fargate Scheduler
   - Pod
   - namespace: prod
   - labels:
     - stack: blue
     - profile = profile-a
     - schedulerName = fargate-scheduler

4. AWS Fargate

Amazon EKS
   - Kubernetes
     - Fargate Scheduler
       - Pod

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Show me the thing
Resources and call to action

• Blog:

• 1 hour deep dive:
  • https://www.youtube.com/watch?v=m-3tMXmWWQw

• EKS/Fargate getting started guide:
  • https://docs.aws.amazon.com/eks/latest/userguide/fargate-getting-started.html