

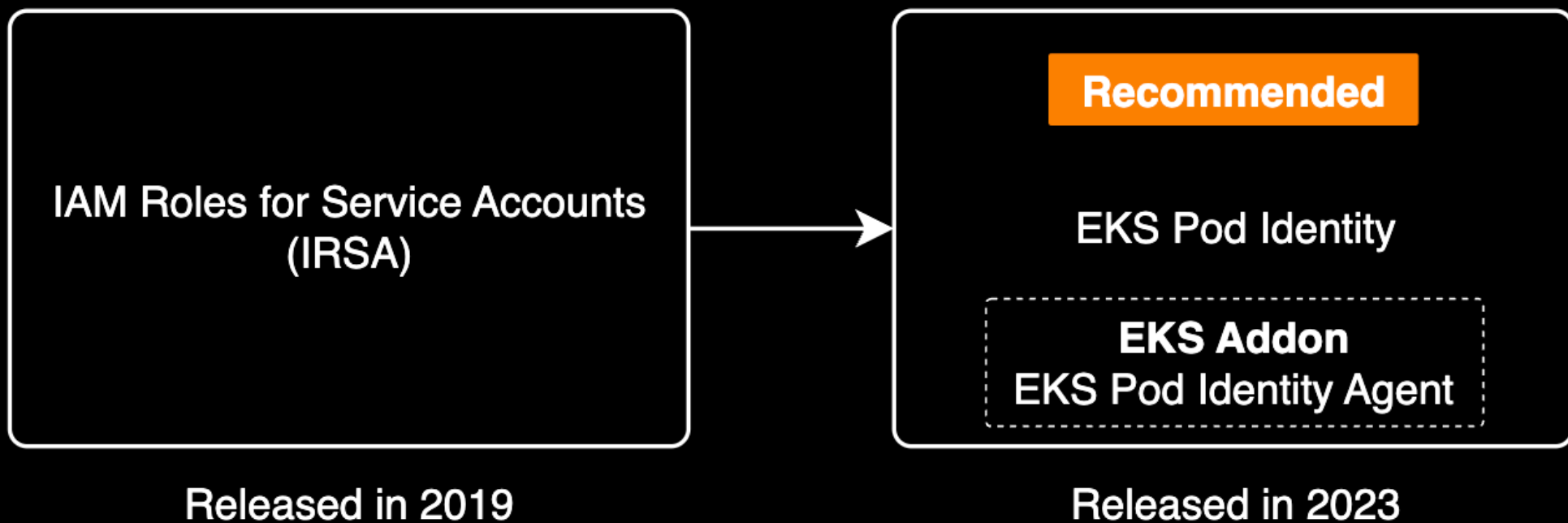
EKS Security Enhancements

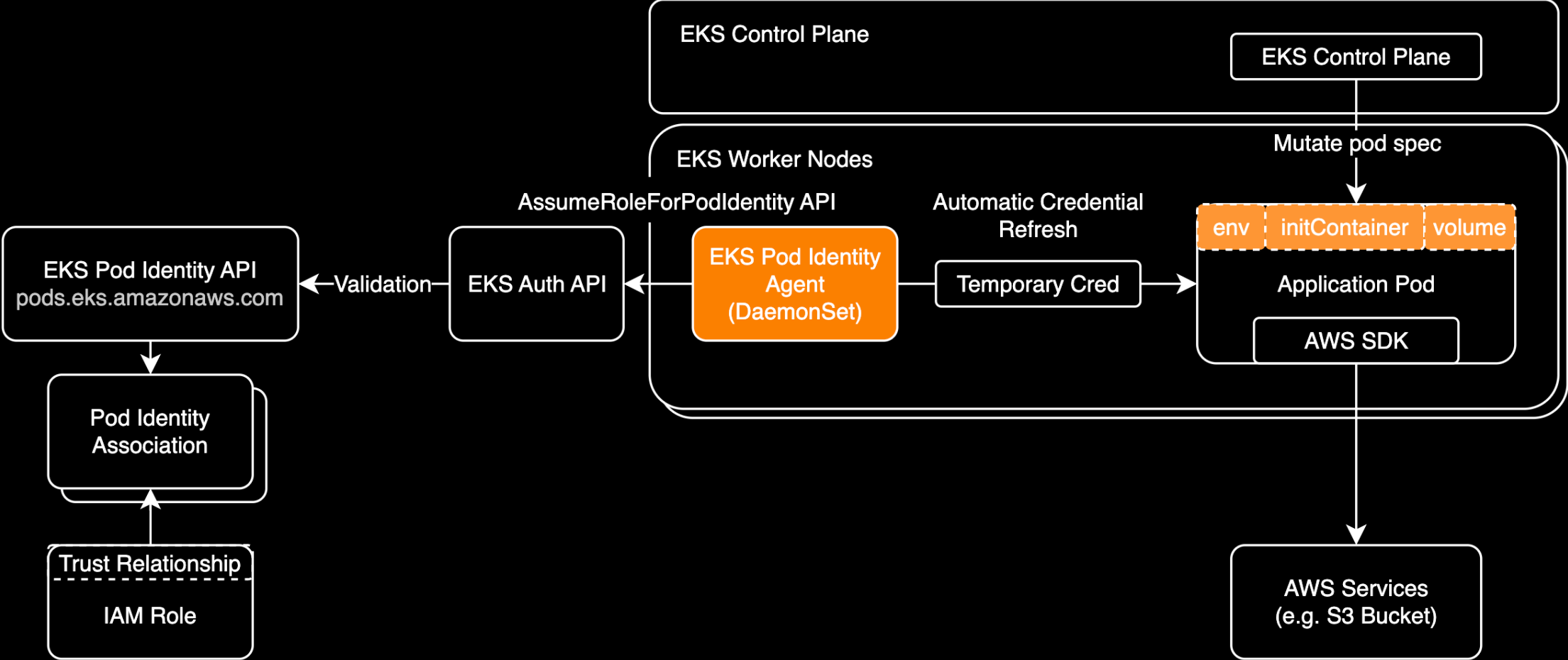
EKS Security 구성 개선 방법

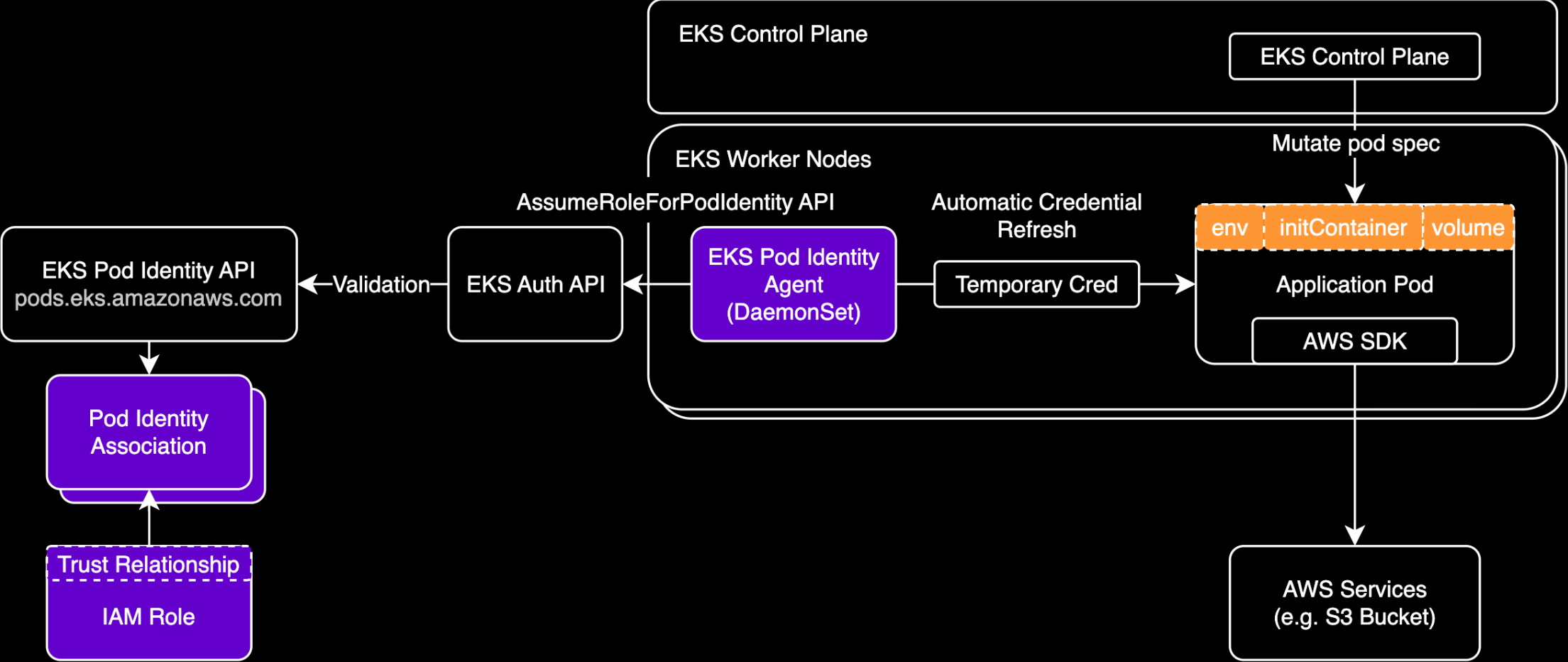
Topics

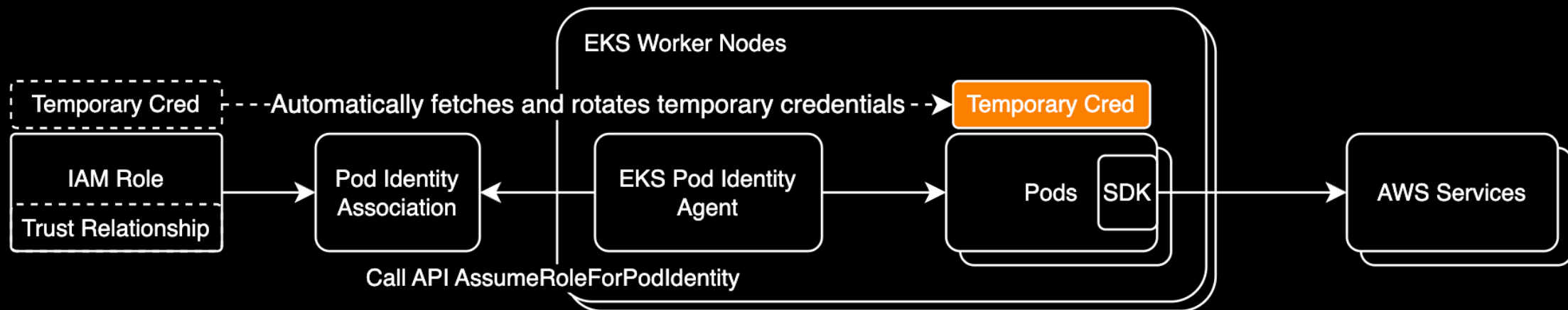
- EKS Pod Identity 아키텍처와 동작 원리 🏷️ EKS 🏷️ IAM
- Kyverno를 활용한 EKS RBAC 가드레일 구현 🏷️ EKS 🏷️ IAM

EKS Pod Identity









EKS Pod Identity is a credential management service that automatically fetches and rotates temporary AWS credentials for pods.

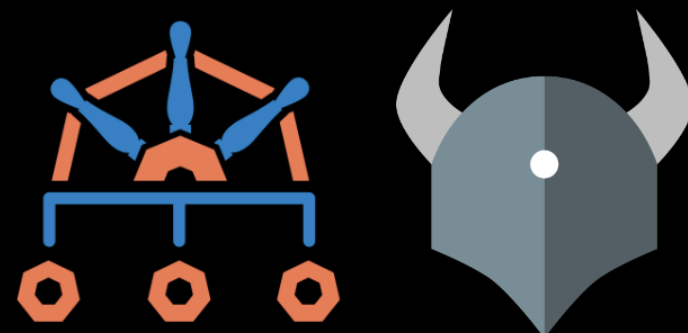
Pod Identity Association 테라폼 예시:

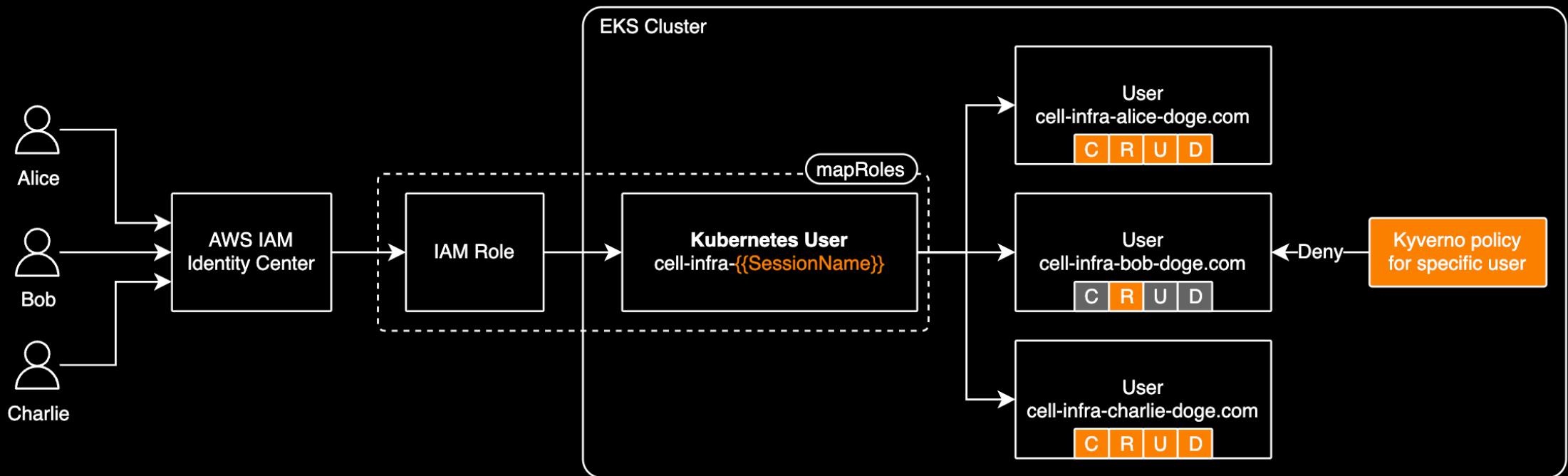
```
module "loki_pod_identity" {  
  source  = "terraform-aws-modules/eks-pod-identity/aws"  
  version = "1.10.0"  
  
  association_defaults = {  
    namespace      = "loki"  
    service_account = "loki"  
    tags = {  
      Environment = "dev"  
    }  
  }  
  
  associations = {  
    dev = {  
      cluster_name = module.eks.cluster_name  
    }  
  }  
}
```

쿠버네티스 RBAC 가드레일

쿠버네티스 RBAC은 허용 정책만 지원하고 거부 정책을 지원하지 않아 세밀한(Fine-grained) 접근 제어가 어려움

Kyverno와 OPA가 제공하는 거부 정책을 활용하면 세밀한 접근 제어가 가능합니다.





IAM Role에 K8s RBAC 권한을 할당할 때 사용자 이름에 `{{SessionName}}` 을 포함해서 구성하면 사용자별로 접근 제어를 세밀하게 제어할 수 있습니다. [Cluster Access 권장사항](#)입니다.

실제 적용 예시

```
$ kubectl auth whoami -o yaml
```

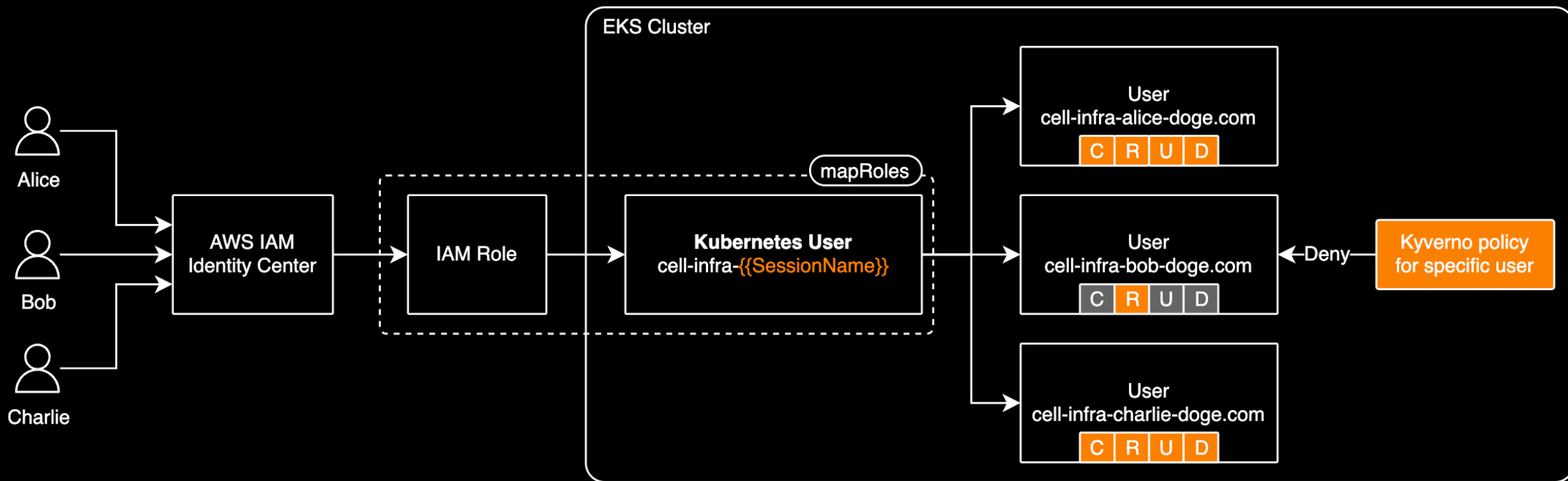
```
apiVersion: authentication.k8s.io/v1
kind: SelfSubjectReview
metadata:
  creationTimestamp: "2025-02-06T19:49:41Z"
status:
  userInfo:
    extra:
      accessKeyId:
        - ASIA1234567890EXAMPLE
      arn:
        - arn:aws:sts::123456789012:assumed-role/AWSReservedSSO_DevOps_Admin_1234abcd/john.doe@example.com
      canonicalArn:
        - arn:aws:iam::123456789012:role/AWSReservedSSO_DevOps_Admin_1234abcd
      principalId:
        - AROA1234567890EXAMPLE
      sessionName:
        - john.doe@example.com # <-- sessionName is the email address of the IAM Identity Center user by default
      sigs.k8s.io/aws-iam-authenticator/principalId:
        - AROA1234567890EXAMPLE
    groups:
      - system:masters
      - system:authenticated
    uid: aws-iam-authenticator:123456789012:AROA1234567890EXAMPLE
    username: devops-john.doe-example.com # <-- HERE
```

Kyverno 정책 설명

특정 유저의 모든 리소스에 대한 CREATE, UPDATE, DELETE 액션을 거부하는 **Cluster Policy**

```
spec:
  background: false
  rules:
    - name: block-cluster-admin-from-ns
      match:
        any:
          - resources:
              kinds:
                - "*"
              clusterRoles:
                - cluster-admin
            subjects:
              - kind: User
                # Username is registered as cell-infra-{{SessionName}} in aws-auth configmap's mapRoles section
                name: cell-infra-elon.musk-example.com
      validate:
        message: "The cluster-admin 'testuser' user cannot touch testnamespace Namespace."
        deny:
          conditions:
            any:
              - key: "{{ request.operation || 'BACKGROUND' }}"
                operator: AnyIn
                value:
                  - CREATE
                  - UPDATE
                  - DELETE
```

적용 시나리오



EOD.

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