

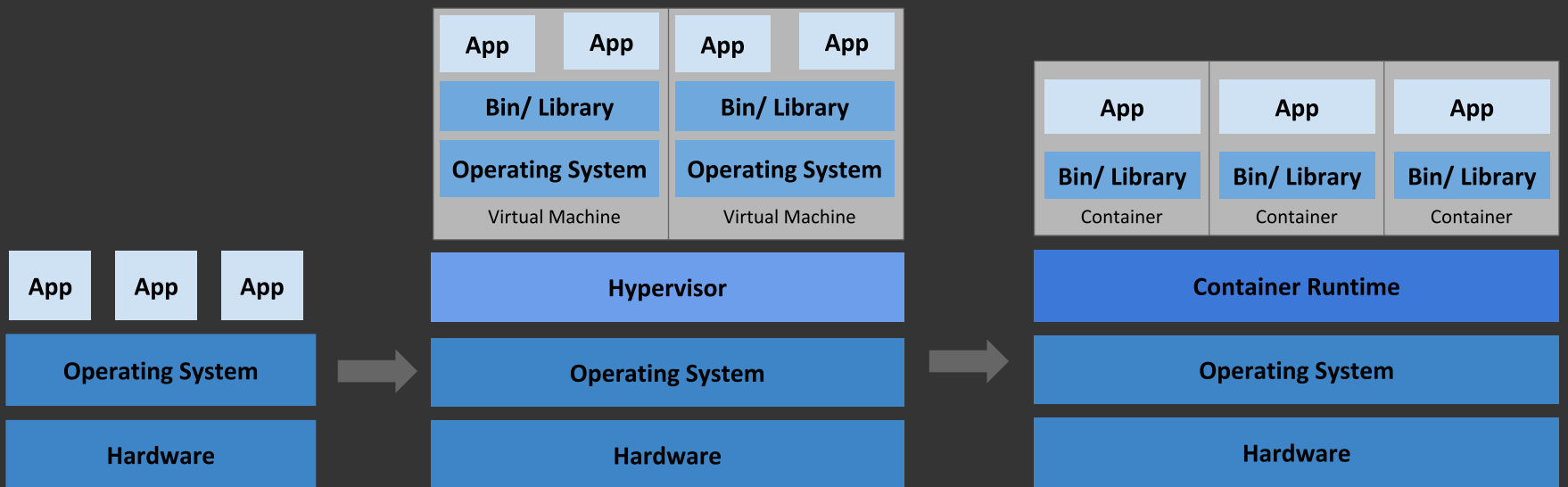
AWS EKS

WITH

TERRAFORM

KUBERNETES

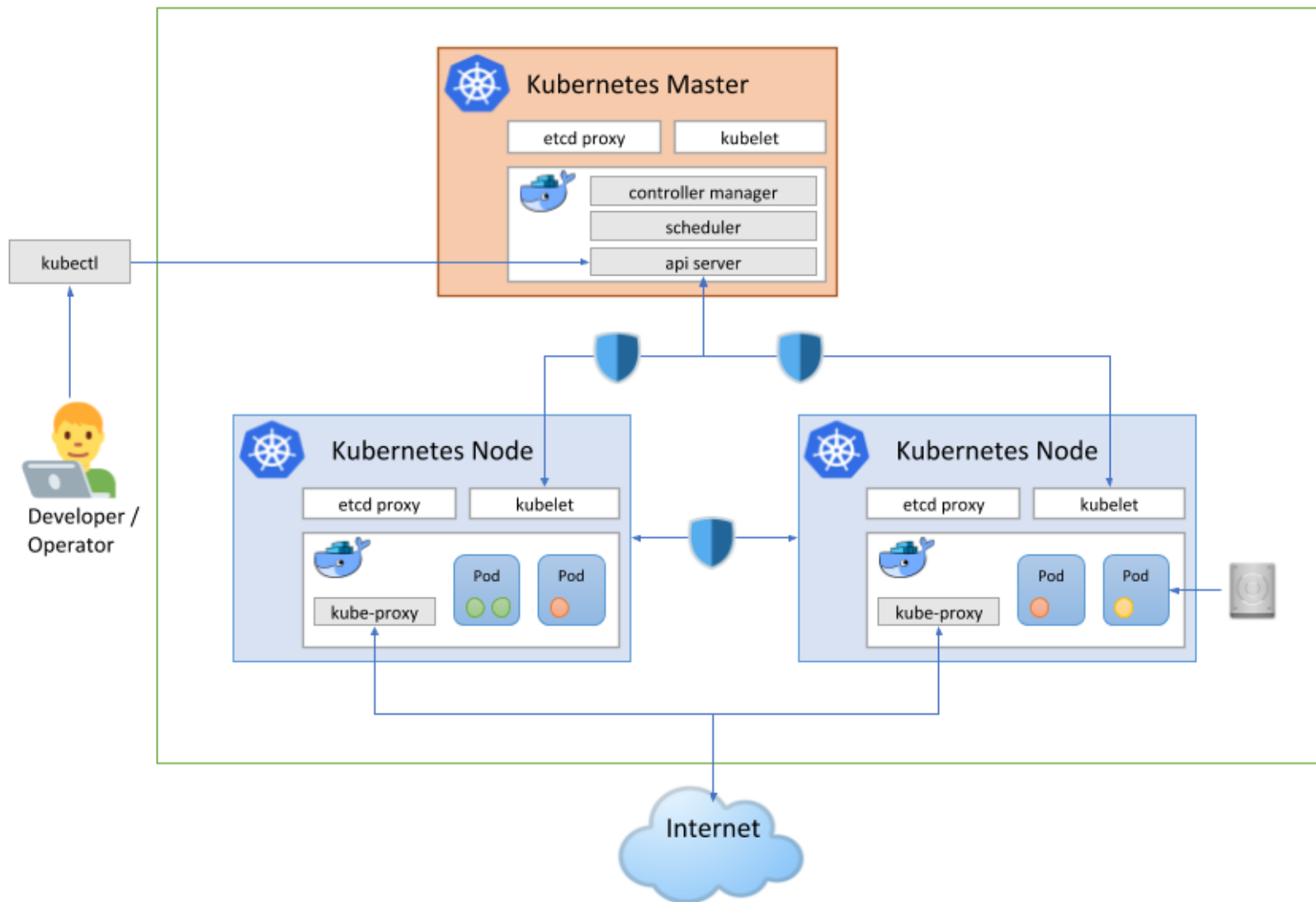
- 컨테이너 작업을 자동화하는 오픈소스 플랫폼
- Container Orchestration
- Cluster 는 Master 와 Nodes 로 구성



Traditional Deployment

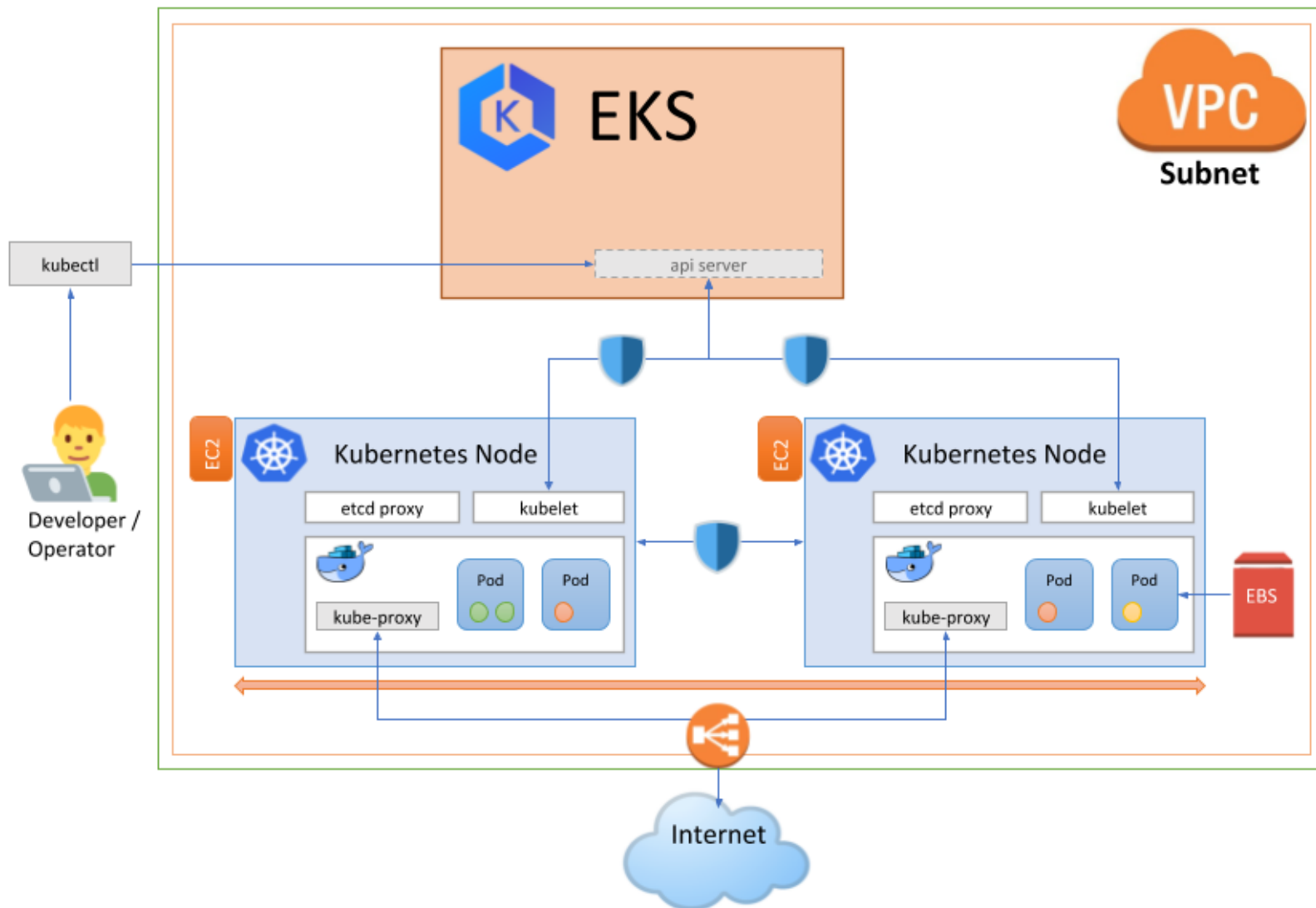
Virtualized Deployment

Container Deployment



EKS

- Amazon Elastic Container Service for Kubernetes
- AWS 의 Kubernetes 관리형 서비스



TERRAFORM

- 서비스 환경을 구축하는 프로비저닝 도구
- Infrastructure as Code

PREPARE

AWS Account

- Access Key, Secret Access Key

관리 리소스 메타 저장소

- AWS S3 Bucket
- terraform-nalbam-seoul

Install Tools

- awscli
- terraform
- kubectl
- helm

AWS VPC

- Amazon Virtual Private Cloud
- 사용자가 정의한 가상 네트워크
- VPC, Subnets, Route Tables


```
$ git clone https://github.com/nalbam/terraform-aws-vpc
```

- ▼ terraform-aws-vpc
 - > .circleci
 - > .github
 - ▼ env
 - ▼ dev-demo
 - main.tf
 - output.tf
 - variable.tf
 - > dev-mz-demo
 - > dev-mz-spot
 - ▼ modules
 - ▼ vpc
 - 10-variable.tf
 - 13-locals.tf
 - 20-vpc.tf
 - 21-subnet-public.tf
 - 23-subnet-private.tf
 - 99-output.tf
 - .gitignore
 - README.md
 - VERSION

```
terraform {  
  backend "s3" {  
    region = "ap-northeast-2"  
    bucket = "terraform-nalbam-seoul"  
    key     = "vpc-demo.tfstate"  
  }  
  required_version = ">= 0.12"  
}
```

```
variable "region" {  
    default = "ap-northeast-2"  
}
```

```
variable "name" {  
    default = "seoul-dev-demo"  
}
```

```
variable "vpc_id" {  
    default = ""  
}
```

```
variable "vpc_cidr" {  
    default = "10.10.0.0/16"  
}
```

```
variable "public_subnets" {  
  default = [  
    {  
      zone = "ap-northeast-2a"  
      cidr = "10.10.1.0/24"  
    },  
    {  
      zone = "ap-northeast-2b"  
      cidr = "10.10.2.0/24"  
    },  
    {  
      zone = "ap-northeast-2c"  
      cidr = "10.10.3.0/24"  
    },  
  ]  
}
```

```
variable "private_subnets" {  
  default = [  
    {  
      zone = "ap-northeast-2a"  
      cidr = "10.10.4.0/24"  
    },  
    {  
      zone = "ap-northeast-2b"  
      cidr = "10.10.5.0/24"  
    },  
    {  
      zone = "ap-northeast-2c"  
      cidr = "10.10.6.0/24"  
    },  
  ]  
}
```

```
variable "tags" {  
  default = {  
    "kubernetes.io/cluster/seoul-dev-demo-eks" = "shared"  
    "kubernetes.io/cluster/seoul-dev-spot-eks" = "shared"  
  }  
}
```

```
$ terraform apply
```



```
nat_ip = [ "52.78.138.128", ]
private_subnet_cidr = [
    "10.10.4.0/24", "10.10.5.0/24",
]
private_subnet_ids = [
    "subnet-034abbc6fc10634ad", "subnet-0944761ec8c2f8f93",
]
public_subnet_cidr = [
    "10.10.1.0/24", "10.10.2.0/24",
]
public_subnet_ids = [
    "subnet-092938d936610cbfe", "subnet-026b23acc4b257e42",
]
vpc_id = vpc-0f2b2037a6dc5b059
```

AWS EKS

```
$ git clone https://github.com/nalbam/terraform-aws-eks
```

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 - > .circleci
 - > .github
 - ▼ env
 - ▼ dev-demo
 - main.tf
 - output.tf
 - variable.tf
 - > dev-mz-demo
 - > dev-mz-spot
 - ▼ modules
 - ▼ eks
 - > template
 - 10-variables.tf
 - 13-locals.tf
 - 15-data.tf
 - 32-cluster-iam.tf
 - 33-cluster-sg.tf
 - 35-cluster.tf
 - 52-worker-iam-asg.tf
 - 52-worker-iam-route53.tf
 - 52-worker-iam.tf
 - 53-worker-sg.tf
 - 55-worker.tf
 - 63-efs.tf
 - 65-s3.tf
 - 90-local-file.tf
 - 93-local-exec.tf
 - 99-outputs.tf
 - .gitignore
 - README.md
 - VERSION

```
terraform {  
  backend "s3" {  
    region = "ap-northeast-2"  
    bucket = "terraform-nalbam-seoul"  
    key    = "eks-demo.tfstate"  
  }  
  required_version = ">= 0.12"  
}
```

```
variable "region" {  
    default = "ap-northeast-2"  
}
```

```
variable "name" {  
    default = "seoul-dev-demo-eks"  
}
```

```
variable "kubernetes_version" {  
    default = "1.14"  
}
```

```
variable "vpc_id" {  
    default = "vpc-075279b4e48b983ff"  
}
```

```
variable "subnet_ids" {  
    default = [  
        "subnet-08a5b599722126606",  
        "subnet-08d4e11f445bb207f",  
        "subnet-0706fbc7ebe262da7",  
    ]  
}
```

```
locals {  
  map_roles = [  
    {  
      rolearn = "arn:aws:iam::${data.aws_caller_identity.current.account_id}:role/seoul-dev-demo-bastion"  
      username = "iam-role-bastion"  
      group    = "system:masters"  
    },  
  ]  
  map_users = [  
    {  
      userarn = "arn:aws:iam::${data.aws_caller_identity.current.account_id}:user/jungyoul.yu"  
      username = "jungyoul.yu"  
      group    = "system:masters"  
    },  
    {  
      userarn = "arn:aws:iam::${data.aws_caller_identity.current.account_id}:user/developer"  
      username = "developer"  
      group    = ""  
    },  
  ]  
}
```



```
variable "launch_configuration_enable" {  
    default = false  
}
```

```
variable "launch_template_enable" {  
    default = true  
}
```

```
variable "launch_each_subnet" {  
    default = false  
}
```

```
variable "associate_public_ip_address" {  
    default = true  
}
```

```
variable "instance_type" {  
    default = "m5.large"  
}
```

```
variable "mixed_instances" {  
    default = ["c5.large", "r5.large"]  
}
```

```
variable "volume_type" {  
    default = "gp2"  
}
```

```
variable "volume_size" {  
    default = "32"  
}
```

```
variable "min" {  
  default = "2"  
}
```

```
variable "max" {  
  default = "5"  
}
```

```
variable "on_demand_base" {  
  default = "1"  
}
```

```
variable "on_demand_rate" {  
  default = "25"  
}
```

```
$ terraform apply
```

```
config = #  
  
# kube config  
aws eks update-kubeconfig \  
    --name seoul-dev-demo-eks \  
    --alias seoul-dev-demo-eks  
  
# or  
mkdir -p ~/.kube && \  
cp .output/kube_config.yaml ~/.kube/config  
  
#
```

```
$ aws eks update-kubeconfig \  
    --name seoul-dev-demo-eks \  
    --alias seoul-dev-demo-eks
```

```
$ kubectl get nodes
```

NAME	STATUS	ROLES	AGE	VERSION
ip-10-10-4-131	Ready	<none>	5d14h	v1.14.6-eks-5047ed
ip-10-10-6-48	Ready	<none>	5d14h	v1.14.6-eks-5047ed

HELM-CUI


```
$ git clone https://github.com/nalbam/helm-cui
```

```
$ ./helm-cui/run.sh
```

seoul

```
$ kubectl config use-context seoul-dev-demo-eks  
Switched to context "seoul-dev-demo-eks".
```

helm-cui

seoul-dev-demo-eks

0. helm init

1. devops

2. kube-ingress

3. kube-system

4. monitor

5. sample

i. istio..

d. remove

THANK YOU