



AWS Proton Hands on Workshop

AWS Proton Core Lab

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Amazon Web Services Japan G.K.

AWS Proton Hands-on Workshop

Sr.	Module	Level	予定
1	AWS Proton 概要及びHands on Labについて説明	200	5月13日(金) 15:00 - 16:00
2	Workshop準備 (AWS Account, Cloud9, GitHub Account)	200	(AWS側で準備)
3	AWS Proton Core Lab (Proton, ECS)	300	5月16日(月) 10:00 - 12:00
4	Observability and Networking (AppMesh, X-ray, Prometheus) [Stretch Goal]	300	5月16日(月) 資料提供・自由実施
5	予備/振り返り及びNext StepsについてDiscussion	200	5月17日(火) 14:00 - 15:00
6	Observability and Networking (Grafana) [Skip]	300	資料提供・自由実施
7	Multi-account Deployment [Skip]	300	資料提供・自由実施
8	Using Terraform for Deployment [Skip]	300	資料提供・自由実施

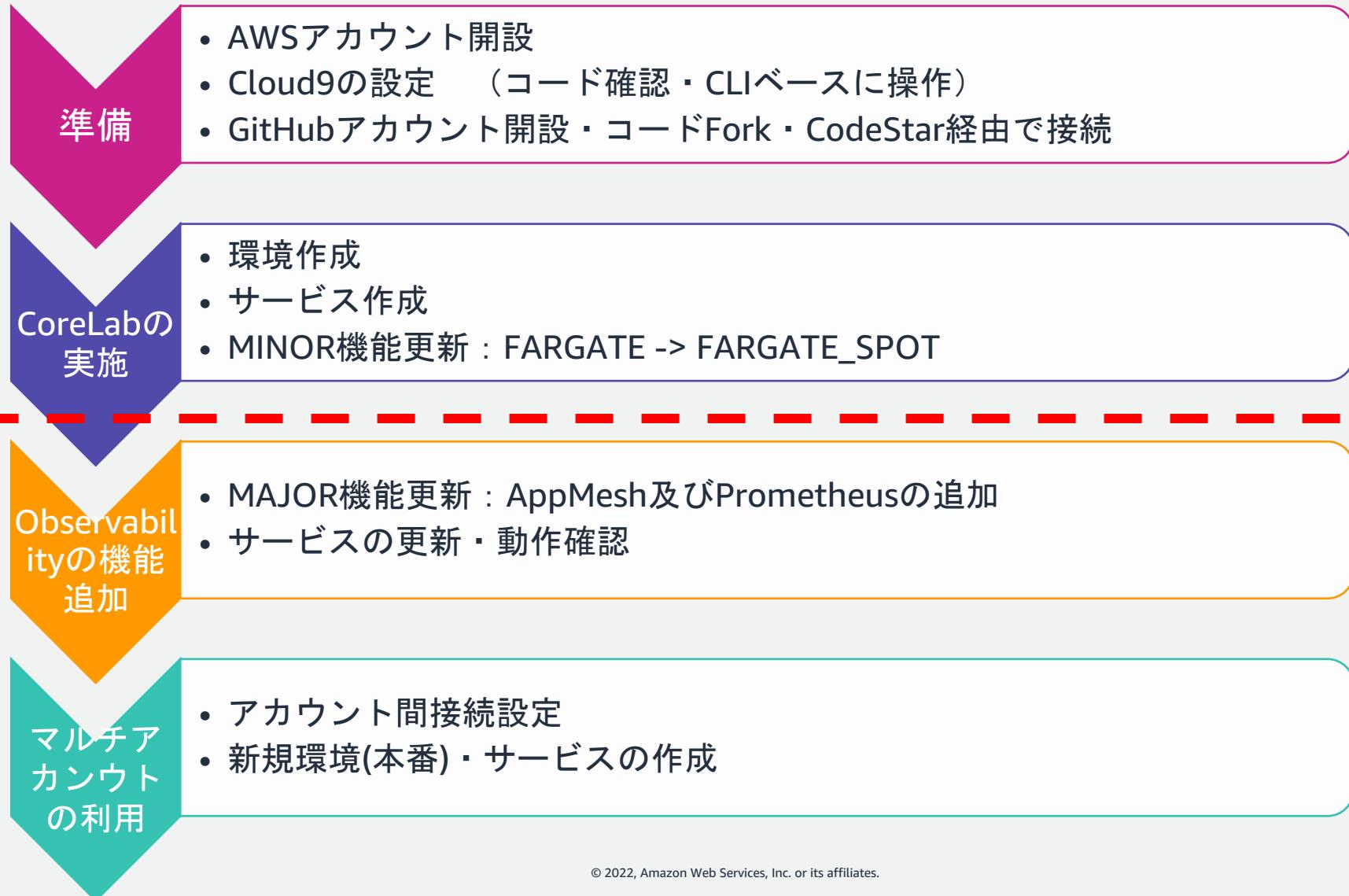
環境とアクセス方法

<https://proton05.awsapps.com/start/>

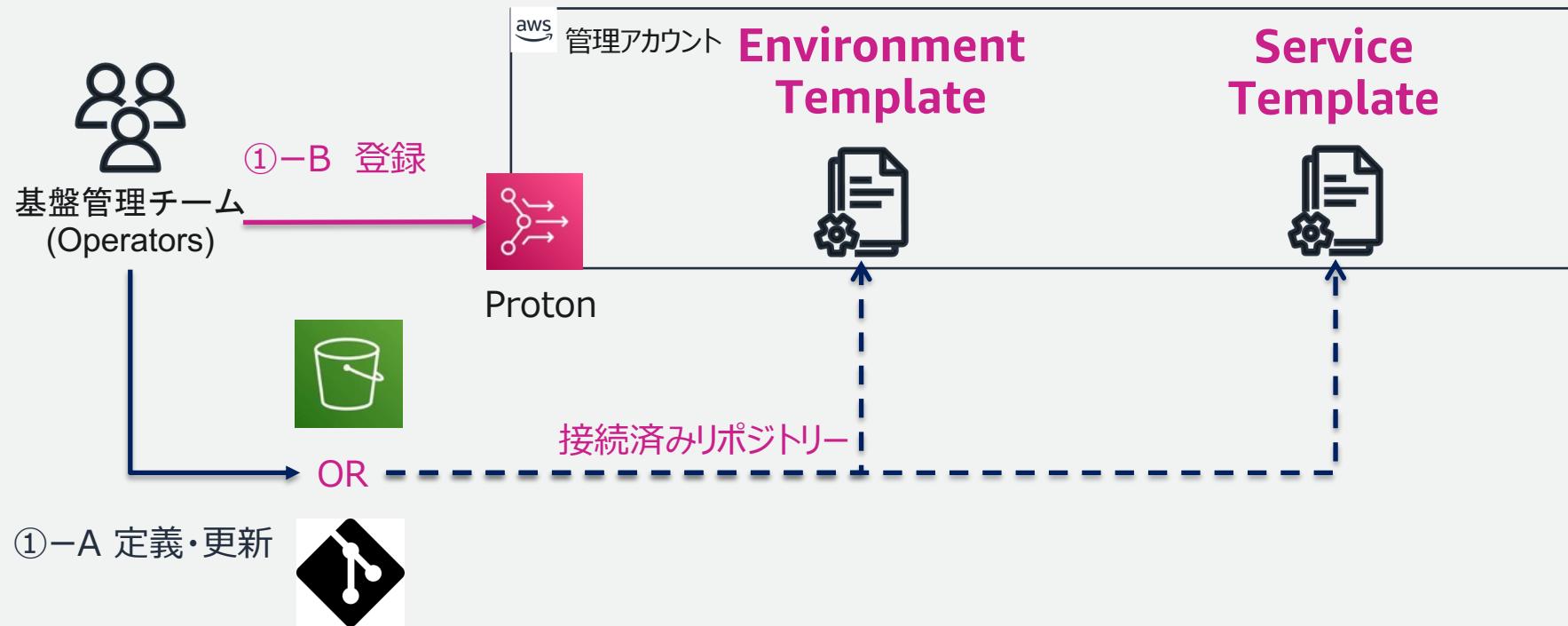
<https://github.com/login>

Sr.	User ID	ユーザ	Password	GitHub Passcode
1	nomura-user01	金谷さん		ghp_gXkAMhdj1ZBc9v0Nwjy5SGfgisNpE0LXa0d
2	nomura-user02	中島さん		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
3	nomura-user03	Liさん	共有済	ghp_l154dUCbSlgCirhyJaS1OoMaHKHGyl44y1U4
4	nomura-user04	Linさん		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
5	nomura-user05	酒井さん		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
6	nomura-user06	中拂さん		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
7	nomura-user07	山崎さん		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
8	nomura-user08	山田さん		

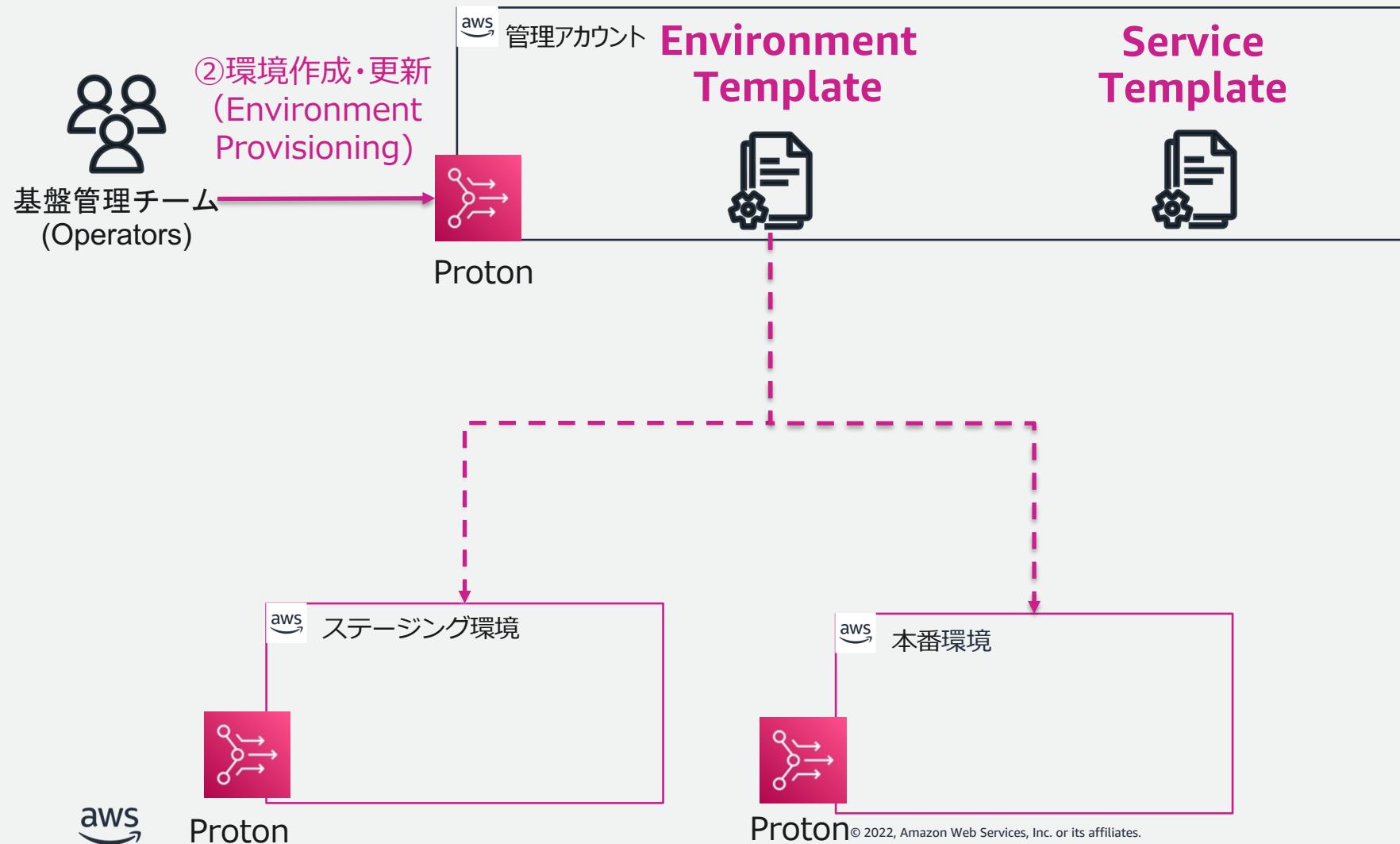
Hands on Labの流れ



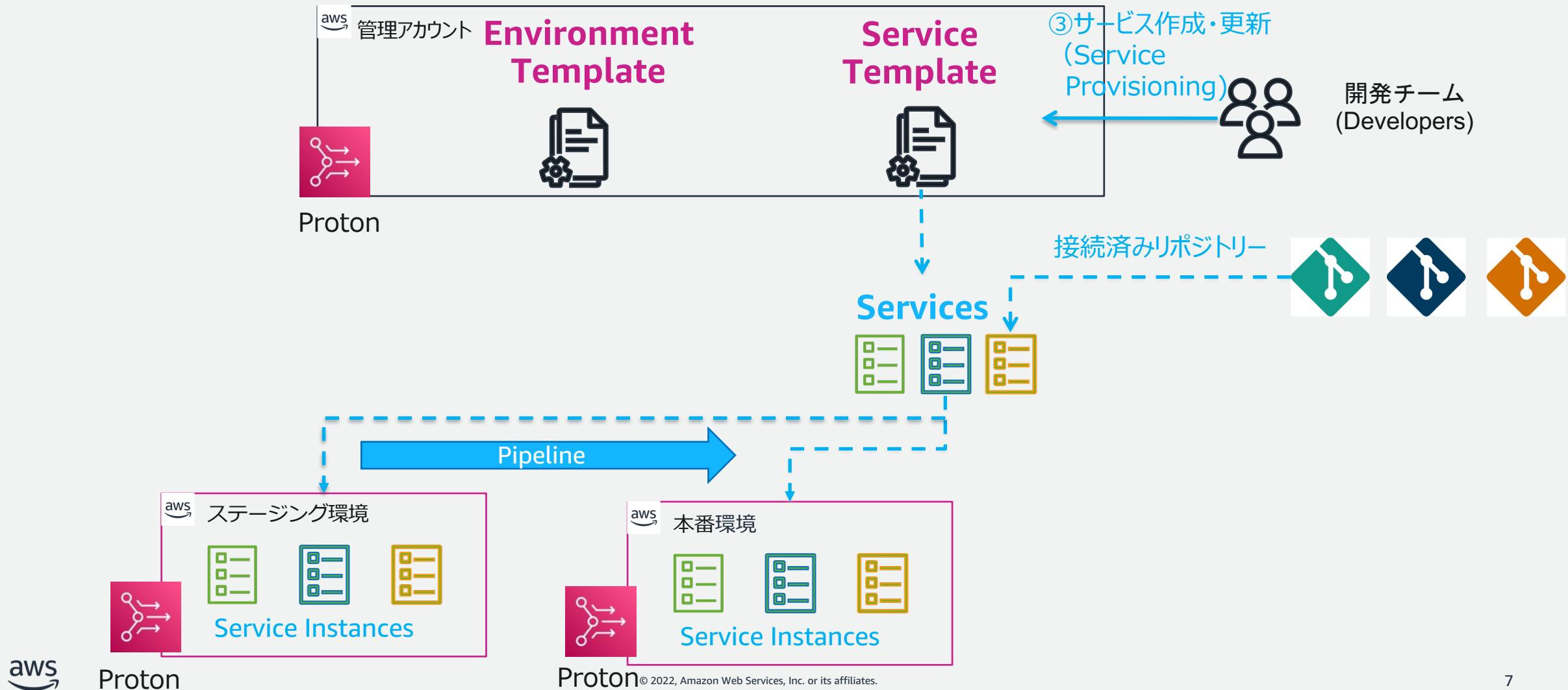
作業のイメージ



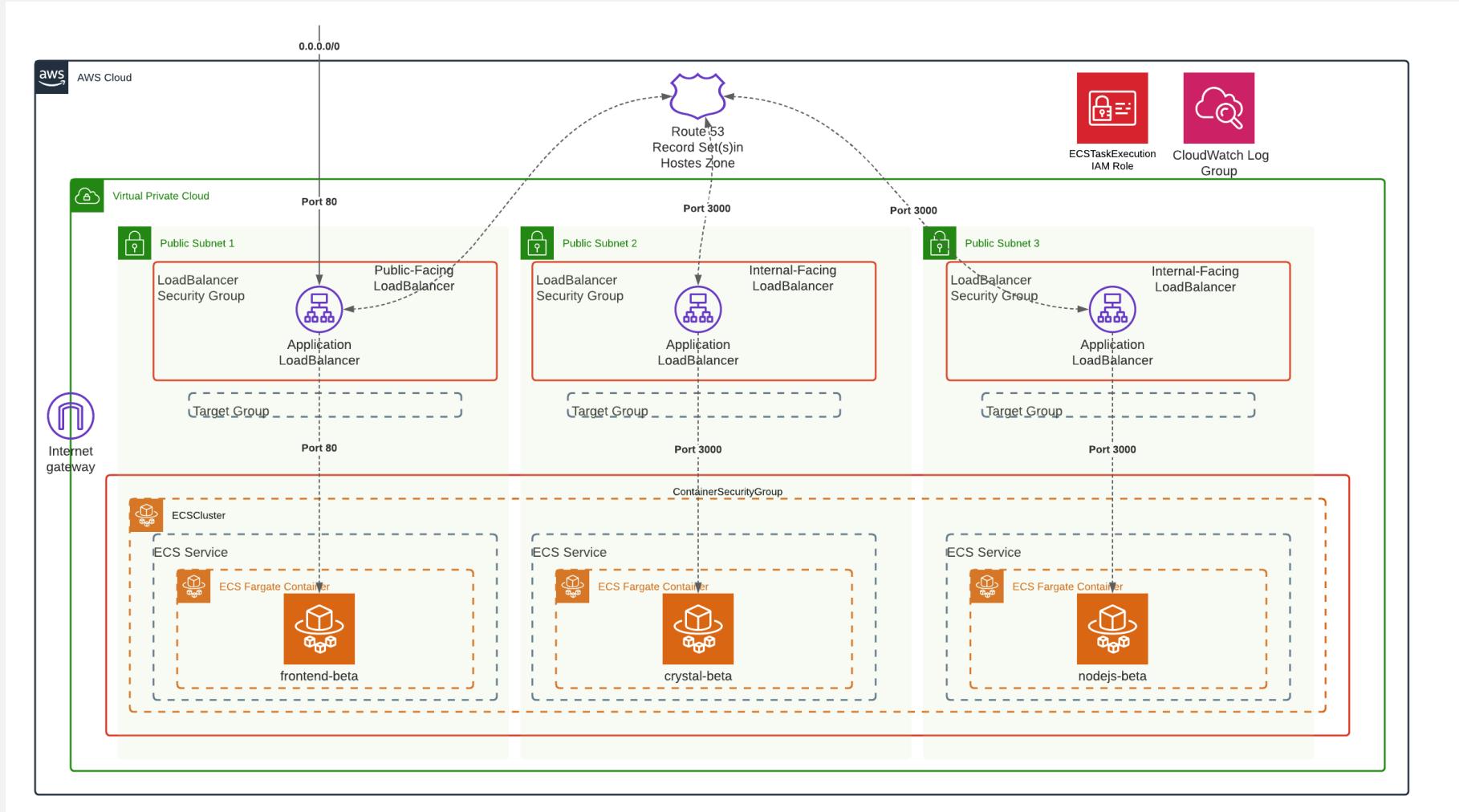
作業のイメージ



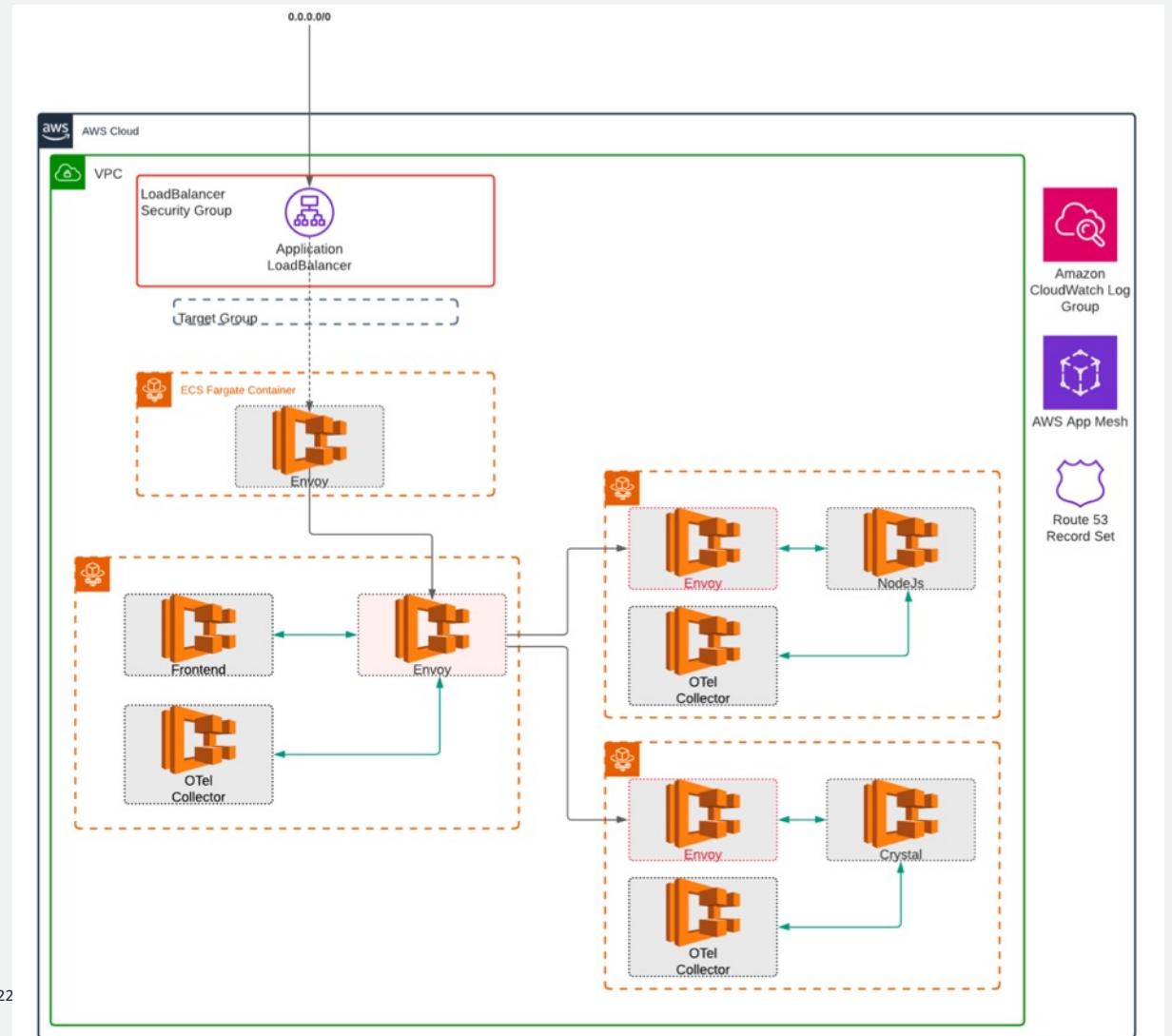
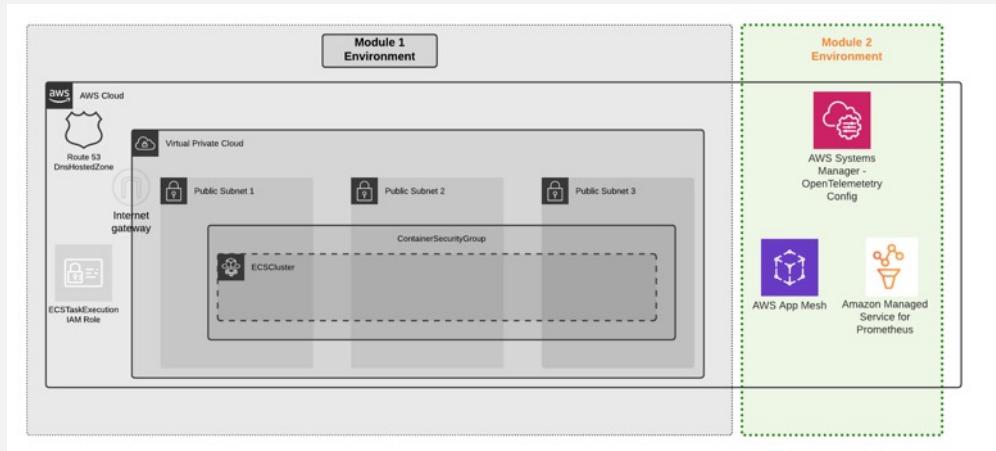
作業のイメージ



Core Workshop(Module1) Target Architecture



Standard Observability (Module2) Target Architecture



Conventionの説明

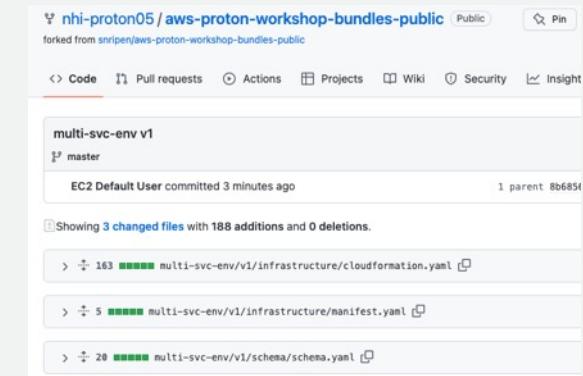
- 基本CLI操作でHands On実施
- 緑背景のBox内のコマンドをCloud9のTerminalへ入力して操作
 - 明記指定がないかぎり、全てのコマンドは **~/environment** フォルダから実行
 - 緑のコマンドは別途コマンド集ファイルでも提供
- コマンドの中身の重要な部分は画像で記載
- コマンドの実行結果はCLI及びGUIで確認

#3.1.4.2

```
cd ~/environment/aws-proton-workshop-bundles/
sh ~/environment/commands/commitV1EnvTemplate
```

```
1  # Add all changes to the staging area
2  git add *
3  # Capture a snapshot of the currently staged changes
4  git commit -m "multi-svc-env v1"
5  # Navigate to the master branch
6  git checkout -b master
7  # Integrate the changes in branch module-1-environment into master
8  git merge module-1-environment
9  # Transfer commits from the local repository to the remote repository
10 git push -u origin master
```

```
3 files changed, 188 insertions(+)
Switched to a new branch 'master'
Already up to date.
Enumerating objects: 17, done.
Counting objects: 100% (15/15), done.
Delta compression using up to 2 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (9/9), 2.38 KiB | 270.00 KiB/s, done.
Total 9 (delta 0), reused 0 (delta 0), pack-reused 0
remote: This repository moved. Please use the new location:
remote: https://github.com/nhi-proton05/aws-proton-workshop-bundles-public.git
remote:
remote: Create a pull request for 'master' on GitHub by visiting:
remote: https://github.com/nhi-proton05/aws-proton-workshop-bundles-public/pull/new/master
remote:
To https://github.com/nhi-proton05/aws-proton-workshop-bundles.git
 * [new branch]  master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.
```

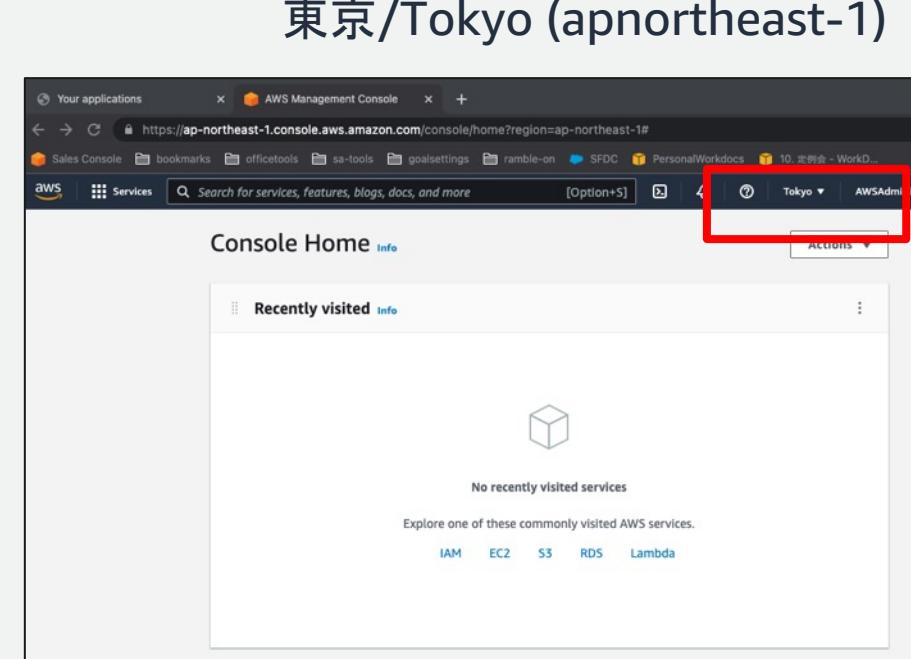
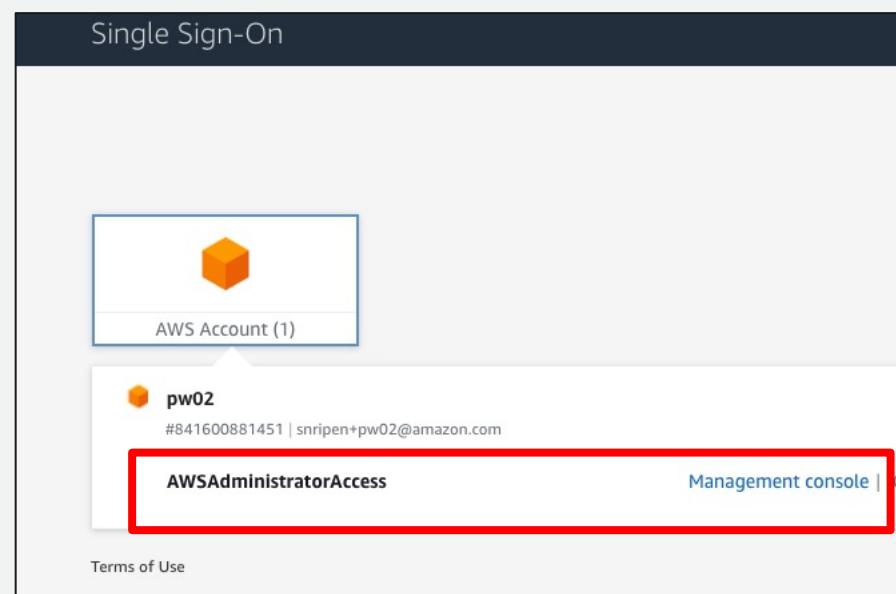
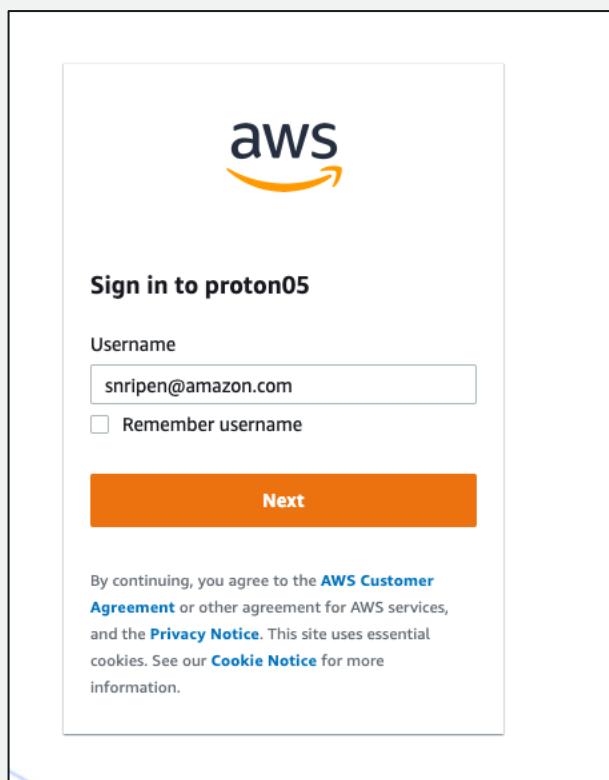


Part2 : Lab環境の確認

2.1 AWS Account の確認

Loginの確認 (Tokyo Region)

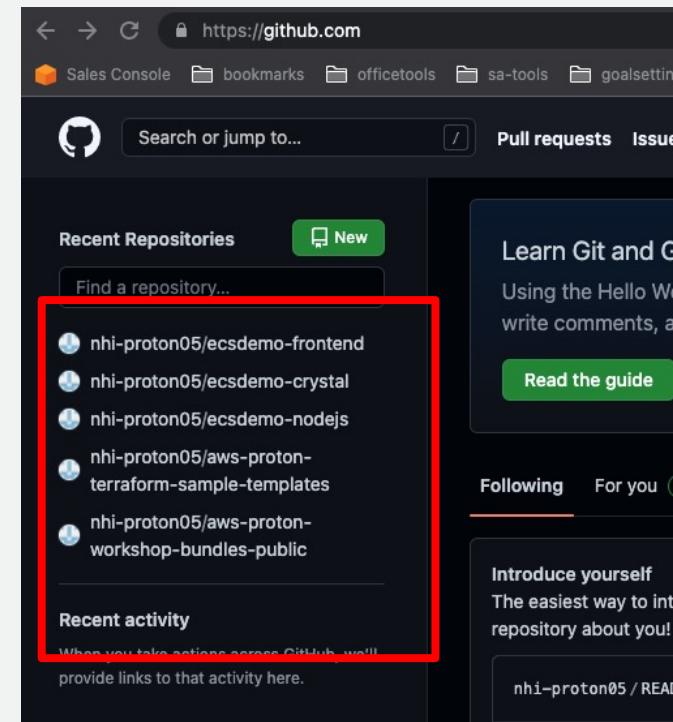
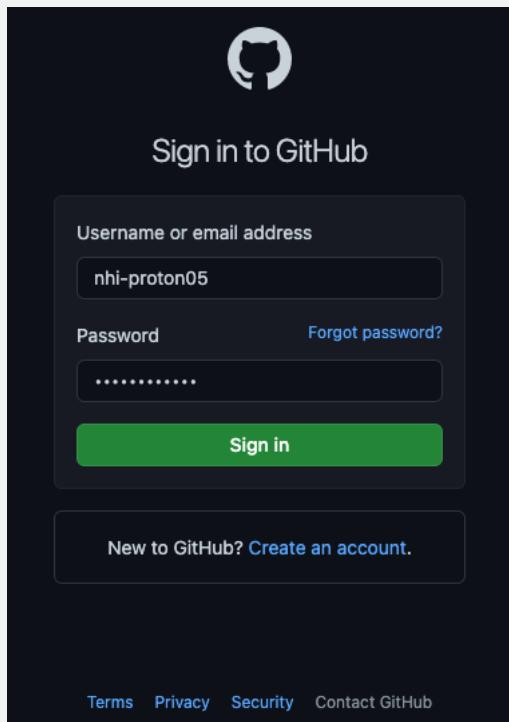
<https://proton05.awsapps.com/start>



2. 2 GitHub Account の確認

Login, Repository 及び Token と Scopes の確認

<https://github.com/login>



<https://github.com/settings/tokens>

The screenshot shows the GitHub developer settings page for personal access tokens. A token named 'workshoptoken' is listed under the 'Personal access tokens' section. The token details show it was created for 'repo' and expires on 'Fri, Jun 10 2022'. The 'Edit personal access token' section shows the token name is 'workshoptoken' and it has an expiration date of 'Fri, Jun 10 2022'. The 'Select scopes' section is highlighted with a red box, showing the following scopes are selected: 'repo', 'repo:status', 'repo_deployment', 'public_repo', 'repo:invite', and 'security_events'. The 'repo' scope is described as 'Full control of private repositories'.

2.3 Cloud 9の確認

IDEとIAM Roleの確認(CLI)

<https://ap-northeast-1.console.aws.amazon.com/cloud9/home?region=ap-northeast-1>

#2.3.1

```
aws sts get-caller-identity --query Arn | \
grep protonworkshop-admin -q && \
echo "IAM role valid" || \
echo "IAM role NOT valid"
```

Workshopに必要なコマンド集ファイルの確認

#2.3.2

```
ls commandList.txt
```

ProtonAccountへPermission設定

#2.3.3

```
sh setProtonAccountPermission
```

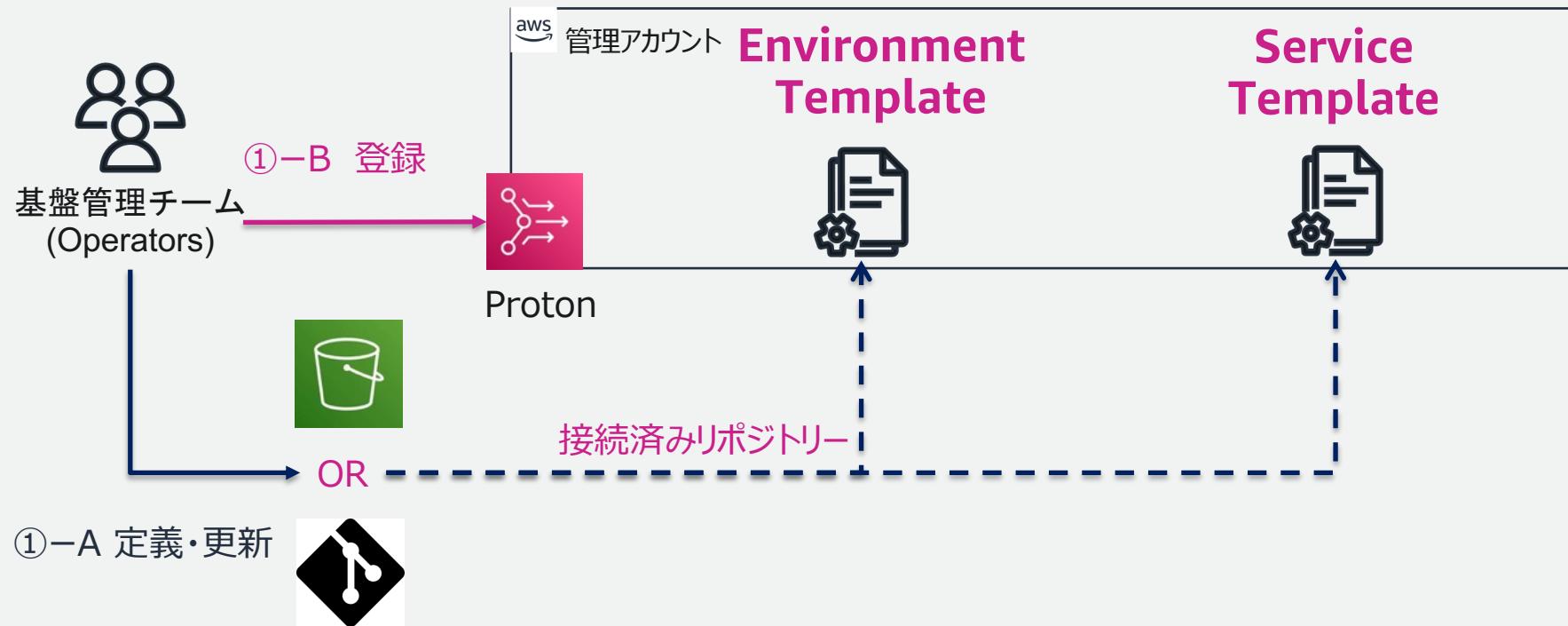


Inventory of Lab files

Part3 : Core Lab

Part3.1 : Create Environments

作業のイメージ



3.1.1 CodeStar connection

GitHubソースコードとの接続設定の確認

<https://ap-northeast-1.console.aws.amazon.com/proton/home?region=ap-northeast-1#/>

AWS Proton

Management & Governance

AWS Proton

Automate container and serverless deployments

AWS Proton enables platform teams to give developers an easy way to deploy their code using containers and serverless technologies, using the management tools, governance, and visibility needed to provide consistent standards and best practices.

Settings Repository connections

Create your first templates

Get started

<https://ap-northeast-1.console.aws.amazon.com/codesuite/settings/connections?region=ap-northeast-1>

Connection name	Provider	Status	ARN
MyConnection	GitHub	Available	arn:aws:codestar-connections:ap-northeast-1:841600881451:connection/0aa37f19-84e8-48f0-87a4-95abbaef5b5f

MyConnection

Connection settings

Name: MyConnection

Provider: GitHub

Status: Available

ARN: arn:aws:codestar-connections:ap-northeast-1:841600881451:connection/0aa37f19-84e8-48f0-87a4-95abbaef5b5f

3.1.2 Create Environment Template, Repository Link

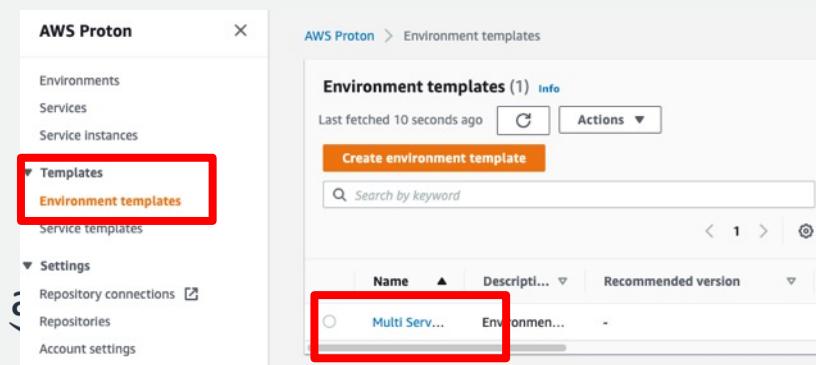
Create Environment Template

#3.1.2.1

sh commands/createEnvTemplate

```
1 aws proton create-environment-template \
2   --region ${AWS_REGION} \
3   --name "multi-svc-env" \
4   --display-name "Multi Service Environment" \
5   --description "Environment with VPC and public subnets"
```

```
AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ sh commands/createEnvTemplate {
  "environmentTemplate": {
    "arn": "arn:aws:proton:ap-northeast-1:841600881451:environment-template/multi-svc-env",
    "createdAt": "2022-05-12T01:16:18.669000+00:00",
    "description": "Environment with VPC and public subnets",
    "displayName": "Multi Service Environment",
    "lastModifiedAt": "2022-05-12T01:16:18.669000+00:00",
    "name": "multi-svc-env"
  }
}
```



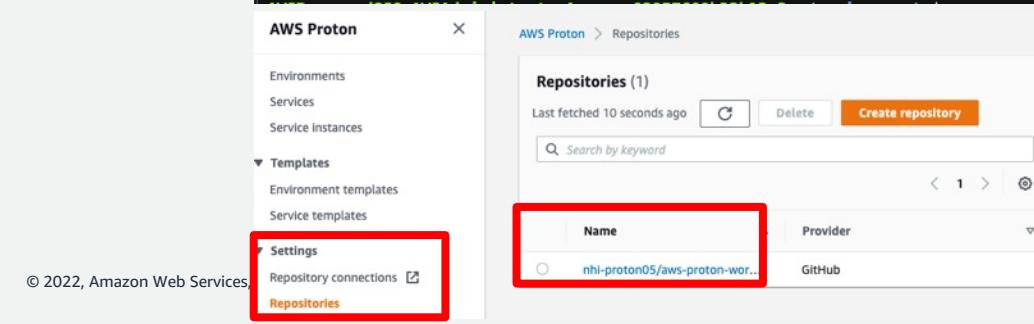
Create Proton Repository Link

#3.1.2.2

sh commands/createProtonRepositoryLink

```
1 CODESTAR_CONNECTION_ARN=$(aws codestar-connections list-connections \
2   --provider-type Github \
3   --region ${AWS_REGION} | \
4   jq -r '.Connections[] | select(.ConnectionName=="MyConnection")')
5 aws proton create-repository \
6   --region ${AWS_REGION} \
7   --connection-arm $CODESTAR_CONNECTION_ARN \
8   --name "${GITHUB_USERNAME}/aws-proton-workshop-bundles" \
9   --provider "GITHUB"
```

```
AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ sh commands/createProtonRepositoryLink{
  "repository": {
    "arn": "arn:aws:proton:ap-northeast-1:841600881451:repository/github:nhi-proton05/aws-proton-workshop-bundles-public",
    "connectionArn": "arn:aws:codestar-connections:ap-northeast-1:841600881451:connection/0aa37f19-84e8-48f0-87a4-95abae5b5f",
    "name": "nhi-proton05/aws-proton-workshop-bundles-public",
    "provider": "GITHUB"
  }
}
```



3.1.2 Verify Environment skeleton code

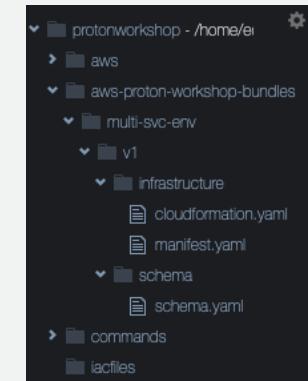
Check out Environment Template

#3.1.2.3 sh commands/checkOutEnvTempSkeletonCode

```
1 cd ~/environment
2 git clone https://github.com/${GITHUB_USERNAME}/aws-proton-workshop-bundle
3 cd aws-proton-workshop-bundles && git checkout module-1-environment
```

```
AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ sh commands/checkOutEnvTempSkeletonCode
Cloning into 'aws-proton-workshop-bundles'...
remote: Enumerating objects: 15, done.
remote: Counting objects: 100% (15/15), done.
remote: Compressing objects: 100% (6/6), done.
remote: Total 15 (delta 1), reused 15 (delta 1), pack-reused 0
Receiving objects: 100% (15/15), done.
Resolving deltas: 100% (1/1), done.
Already on 'module-1-environment'
Your branch is up to date with 'origin/module-1-environment'.
```

Confirm the base directory structure
for AWS-Managed Provisioning



```
multi-svc-env/v1
  └── schema
    └── schema.yaml
  └── infrastructure
    └── manifest.yaml
    └── cloudformation.yaml
```

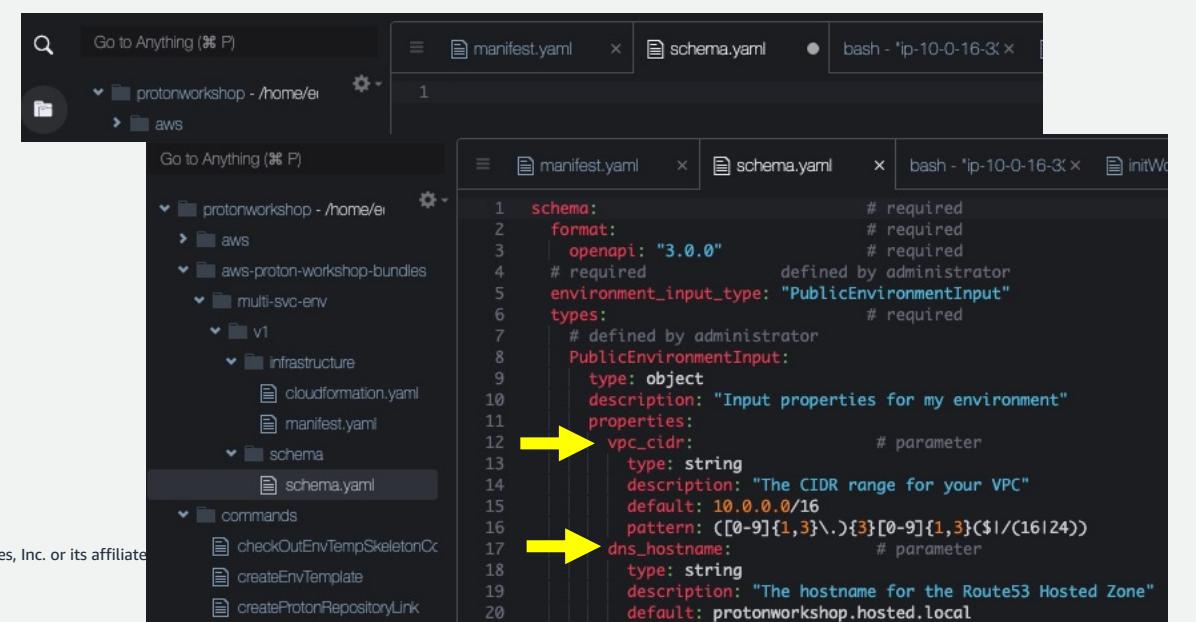
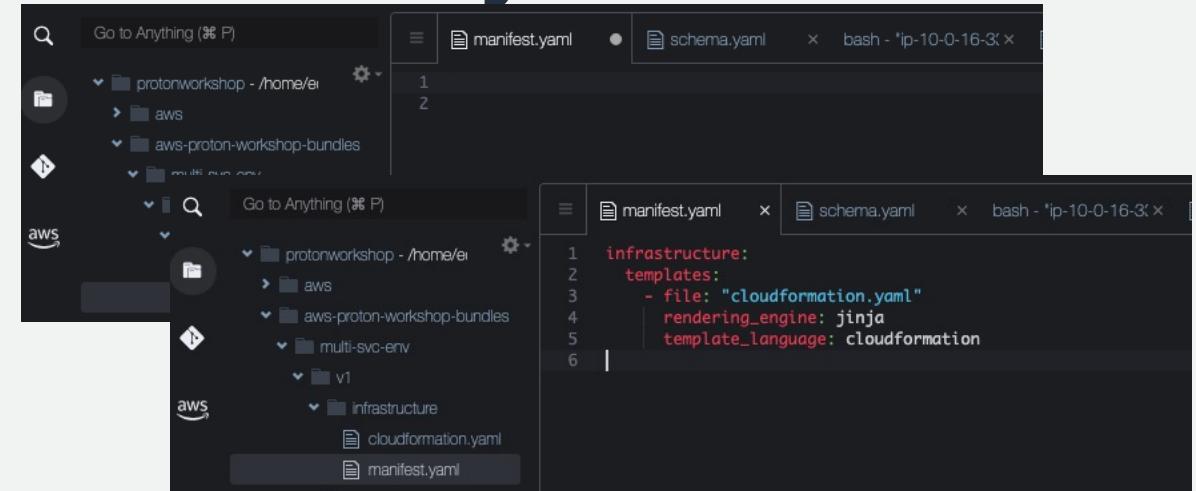
3.1.3 Define manifest.yaml and schema.yaml

Define manifest.yaml: ファイル構成情報

```
infrastructure:
  templates:
    - file: "cloudformation.yaml"
      rendering_engine: jinja
      template_language: cloudformation
```

Define schema.yaml: 入力パラメータ定義

```
schema:          # required
format:          # required
openapi: "3.0.0" # required
# required      defined by administrator
environment_input_type: "PublicEnvironmentInput"
types:           # required
# defined by administrator
PublicEnvironmentInput:
  type: object
  description: "Input properties for my environment"
  properties:
    vpc_cidr:      # parameter
    type: string
    description: "The CIDR range for your VPC"
    default: 10.0.0.0/16
    pattern: ([0-9]{1,3}.\{3}[0-9]{1,3}\$|/(16|24))
    dns_hostname: # parameter
    type: string
    description: "The hostname for the Route53 Hosted Zone"
    default: protonworkshop.hosted.local
```



3.1.4 Define environment infrastructure and commit

Code first env cloudformation.yaml

#3.1.4.1 sh commands/codeV1EnvCfn

```

1  AWSTemplateFormatVersion: '2010-09-09'
2  Transform: AWS::Serverless-2016-10-31
3  Description: Simple Lambda based HTTP service template
4
5  Mappings:
6    # The VPC and subnet configuration is passed in via the environment spec.
7  SubnetConfig:
8    VPC:
9      CIDR: '{{ environment.inputs.vpc_cidr}}'          # customization parameter
10  DNS:
11    Hostname: '{{ environment.inputs.dns_hostname}}' # customization parameter
12
13 Resources:

```

```

AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ sh commands/codeV1EnvCfn
AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ 

```

```

18  EnableDnsHostnames: true
19  CidrBlock: !FindInMap ['Subnet
20
21  PublicSubnetOne:
22    Type: AWS::EC2::Subnet
23    Properties:
24      AvailabilityZone:
25        Fn::Select:
26          - 0
aws

```

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Commit first env template bundle

#3.1.4.2 cd ~/environment/aws-proton-workshop-bundles/ sh ~/environment/commands/commitV1EnvTemplate

```

1  # Add all changes to the staging area
2  git add *
3  # Capture a snapshot of the currently staged changes
4  git commit -m "multi-svc-env v1"
5  # Navigate to the master branch
6  git checkout -b master
7  # Integrate the changes in branch module-1-environment into master
8  git merge module-1-environment
9  # Transfer commits from the local repository to the remote repository
10 git push -u origin master

```

```

3 files changed, 188 insertions(+)
Switched to a new branch 'master'.
Already up to date.
Enumerating objects: 17, done.
Counting objects: 1004 (15/15), done.
Delta compression using up to 2 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (9/9), 2.38 KiB / 270.00 KiB/s, done.
Total 9 (delta 0), reused 0 (delta 0), pack-reused 0
remote: This repository moved. Please use the new location:
remote: https://github.com/nhi-proton05/aws-proton-workshop-bundles-public.git
remote: Create a pull request for 'master' on GitHub by visiting:
remote: https://github.com/nhi-proton05/aws-proton-workshop-bundles-public/pull/new/master
remote:
To https://github.com/nhi-proton05/aws-proton-workshop-bundles.git
 * [new branch]  master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.

```

3.1.5 Publish environment template

Sync Proton Template with repository

#3.1.5.1

sh commands/syncEnvRepository2Proton

```

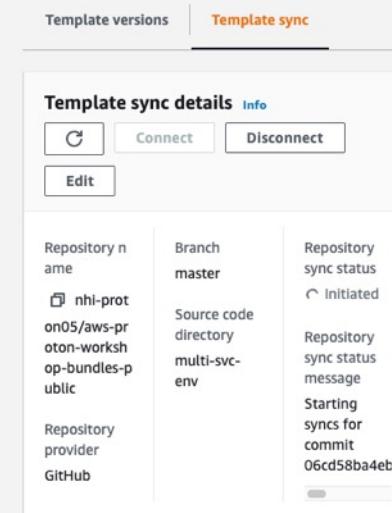
1 REPOSITORY_ARN=$(aws proton list-repositories | \
2     jq -r '.repositories[] | select(.name | endswith("aws-proton-workshop-")')
3 REPOSITORY_NAME=$(echo $REPOSITORY_ARN | cut -d':' -f7);
4 REPOSITORY_PROVIDER=$(echo $REPOSITORY_ARN | cut -d':' -f6 | tr a-z A-Z);
5 aws proton create-template-sync-config \
6     --region ${AWS_REGION} \
7     --repository-name $REPOSITORY_NAME \
8     --repository-provider ${REPOSITORY_PROVIDER#"REPOSITORY/"} \
9     --branch master \
10    --subdirectory "multi-svc-env" \
11    --template-name "multi-svc-env" \
12    --template-type "ENVIRONMENT"

```

```

AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment
{
  "templateSyncConfig": {
    "branch": "master",
    "repositoryName": "nhi-proton05/aws-proton-workshop-bur",
    "repositoryProvider": "GITHUB",
    "subdirectory": "multi-svc-env",
    "templateName": "multi-svc-env",
    "templateType": "ENVIRONMENT"
  }
}

```



Publish first version of env template

#3.1.5.2

sh commands/publishV1EnvTemplate

```

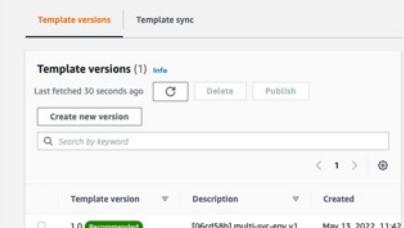
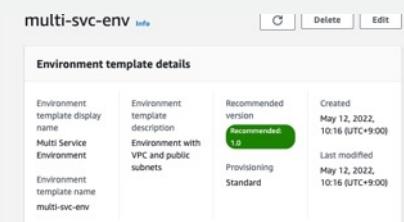
1 aws proton update-environment-template-version \
2     --region ${AWS_REGION} \
3     --template-name "multi-svc-env" \
4     --major-version "1" \
5     --minor-version "0" \
6     --status "PUBLISHED"

```

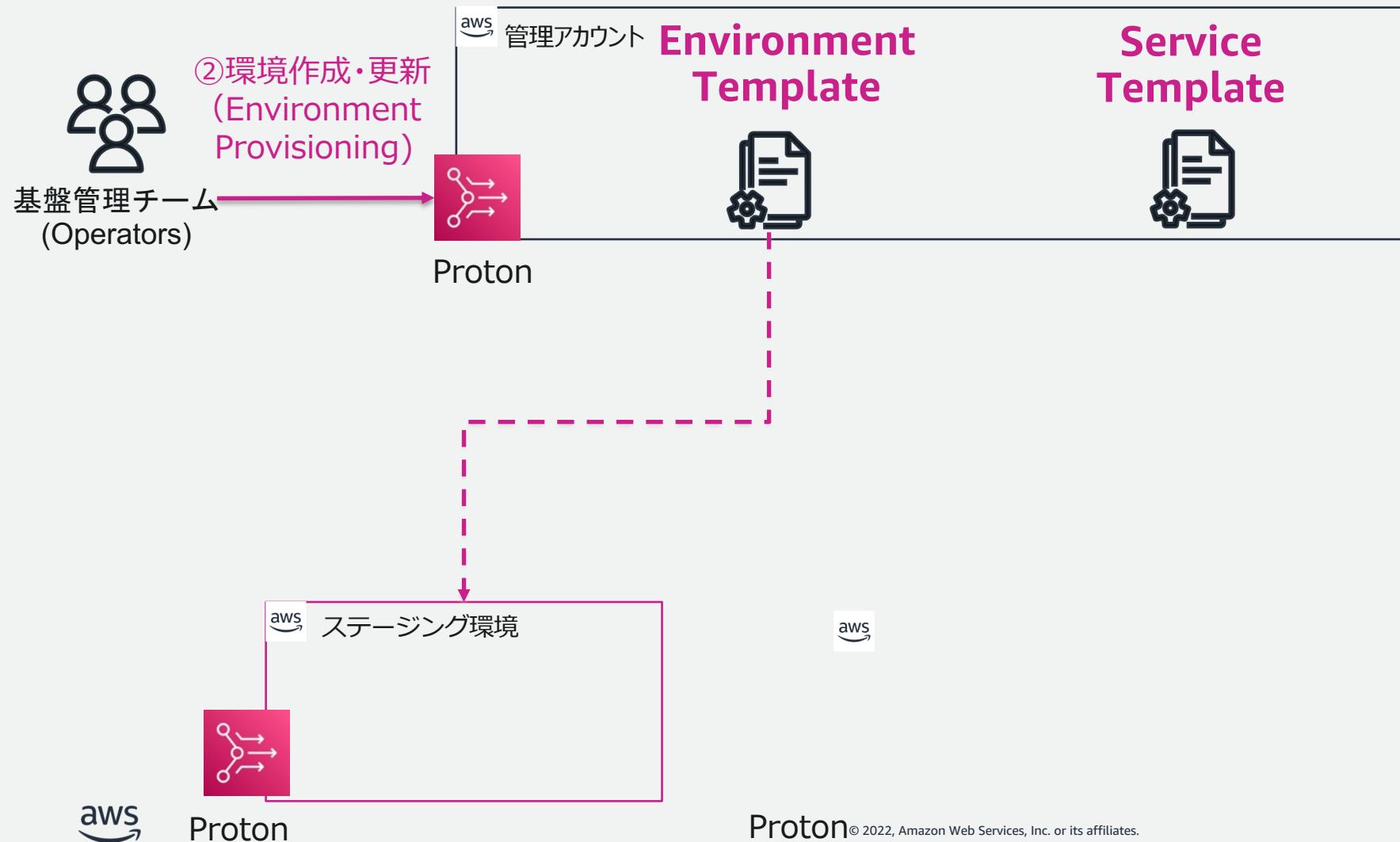
```

AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ sh commands/publishV1EnvTemplate
{
  "environmentTemplateVersion": {
    "arn": "arn:aws:proton:ap-northeast-1:84160000145i:environment-template/multi-svc-env:1.0",
    "createdAt": "2022-05-13T02:42:30.486000+00:00",
    "description": "[06cd58b] multi-svc-env v1",
    "lastModifiedAt": "2022-05-13T02:47:09.330000+00:00",
    "majorVersion": "1",
    "minorVersion": "0",
    "recommendedVersion": "0",
    "schema": "schema_v1"
  }
}

```



作業のイメージ



3.1.6 Create the environment

Specify input for env creation (schema.yaml)

```
#3.1.6.1
SPEC=$(cat <<-EOF
proton: EnvironmentSpec
spec:
  vpc_cidr: 10.0.0.0/16
  dns_hostname: protonworkshop.beta.local
EOF
);
echo $SPEC
```

```
AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ SPEC=$(cat <<-EOF
proton: EnvironmentSpec
spec:
  vpc_cidr: 10.0.0.0/16
  dns_hostname: protonworkshop.beta.local
EOF
);AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ echo $SPEC
proton: EnvironmentSpec spec: vpc_cidr: 10.0.0.0/16 dns_hostname: protonworkshop.beta.local
AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $
```

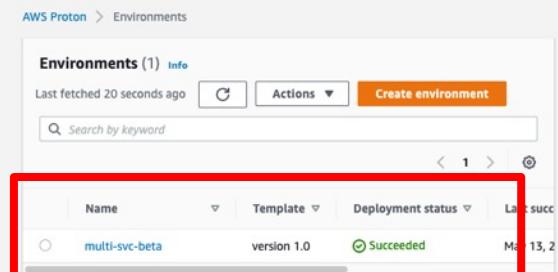


Create Environment Major Version V1

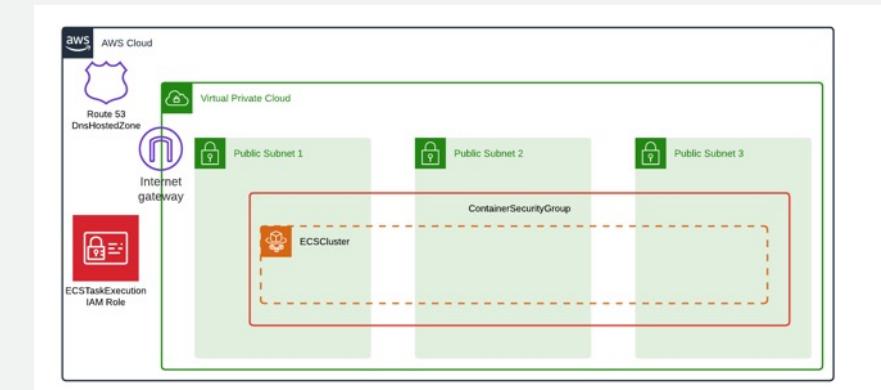
#3.1.6.2

```
aws proton create-environment \
--region ${AWS_REGION} \
--name "multi-svc-beta" \
--template-name "multi-svc-env" \
--template-major-version 1 \
--proton-service-role-arn
arn:aws:iam::${AWS_ACCOUNT_ID}:role/ProtonServiceRole \
--spec "$SPEC"
```

```
AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ aws proton create-environment \
--region ${AWS_REGION} \
--name "multi-svc-beta" \
--template-name "multi-svc-env" \
--template-major-version 1 \
--proton-service-role-arn arn:aws:iam::${AWS_ACCOUNT_ID}:role/ProtonServiceRole \
--spec "$SPEC"
{
  "environment": {
    "arn": "arn:aws:proton:ap-northeast-1:841600881451:environment/multi-svc-beta"
  },
  "createdAt": "2022-05-13T04:00:09.480000+00:00",
  "deploymentStatus": "IN_PROGRESS",
  "lastDeploymentAttemptedAt": "2022-05-13T04:00:09.480000+00:00",
  "name": "multi-svc-beta",
  "protonServiceRoleArn": "arn:aws:iam::841600881451:role/ProtonServiceRole",
  "templateName": "multi-svc-env"
}
```



Check Cloudformation



Part3.2 : Create Services

3.2.1 Create Service Template, skeleton codeの確認

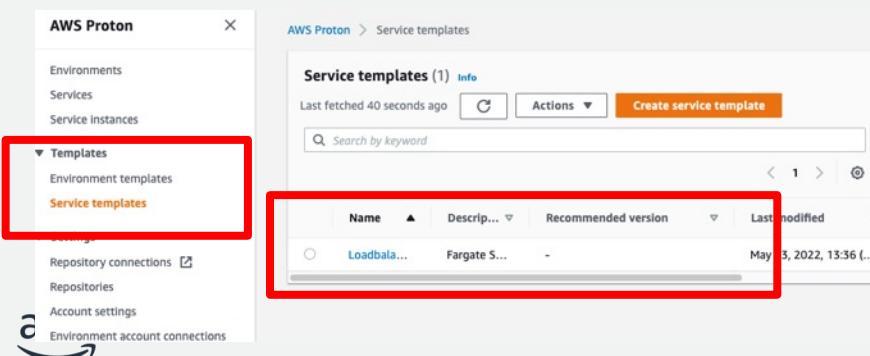
Create Service Template

#3.2.1.1

sh commands/createServiceTemplate

```
1 aws proton create-service-template \
2   --region ${AWS_REGION} \
3   --name "lb-fargate-service" \
4   --display-name "LoadbalancedFargateService" \
5   --description "Fargate Service with an Application Load Balancer"
```

```
AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ sh commands/createServiceTemplate
{
  "serviceTemplate": {
    "arn": "arn:aws:proton:ap-northeast-1:841600881451:service-template/lb-fargate-service",
    "createdAt": "2022-05-13T04:36:58.861000+00:00",
    "description": "Fargate Service with an Application Load Balancer",
    "displayName": "LoadbalancedFargateService",
    "lastModifiedAt": "2022-05-13T04:36:58.861000+00:00",
    "name": "lb-fargate-service"
  }
}
```



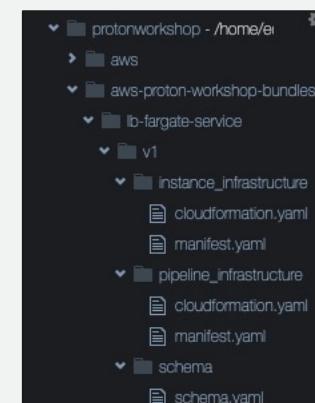
Check out Service Template Skeleton Code

#3.2.1.2

sh commands/checkOutServiceTempSkeletonCode

```
1 git checkout module-1-service
```

```
AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ sh commands/checkOutServiceTempSkeletonCode
Branch 'module-1-service' set up to track remote branch 'module-1-service' from 'origin'.
Switched to a new branch 'module-1-service'
```



```
lb-fargate-service/v1
├── schema
│   ├── schema.yaml
├── instance_infrastructure
│   ├── cloudformation.yaml
│   └── manifest.yaml
├── pipeline_infrastructure
│   ├── cloudformation.yaml
│   └── manifest.yaml
└── schema
    └── schema.yaml
```

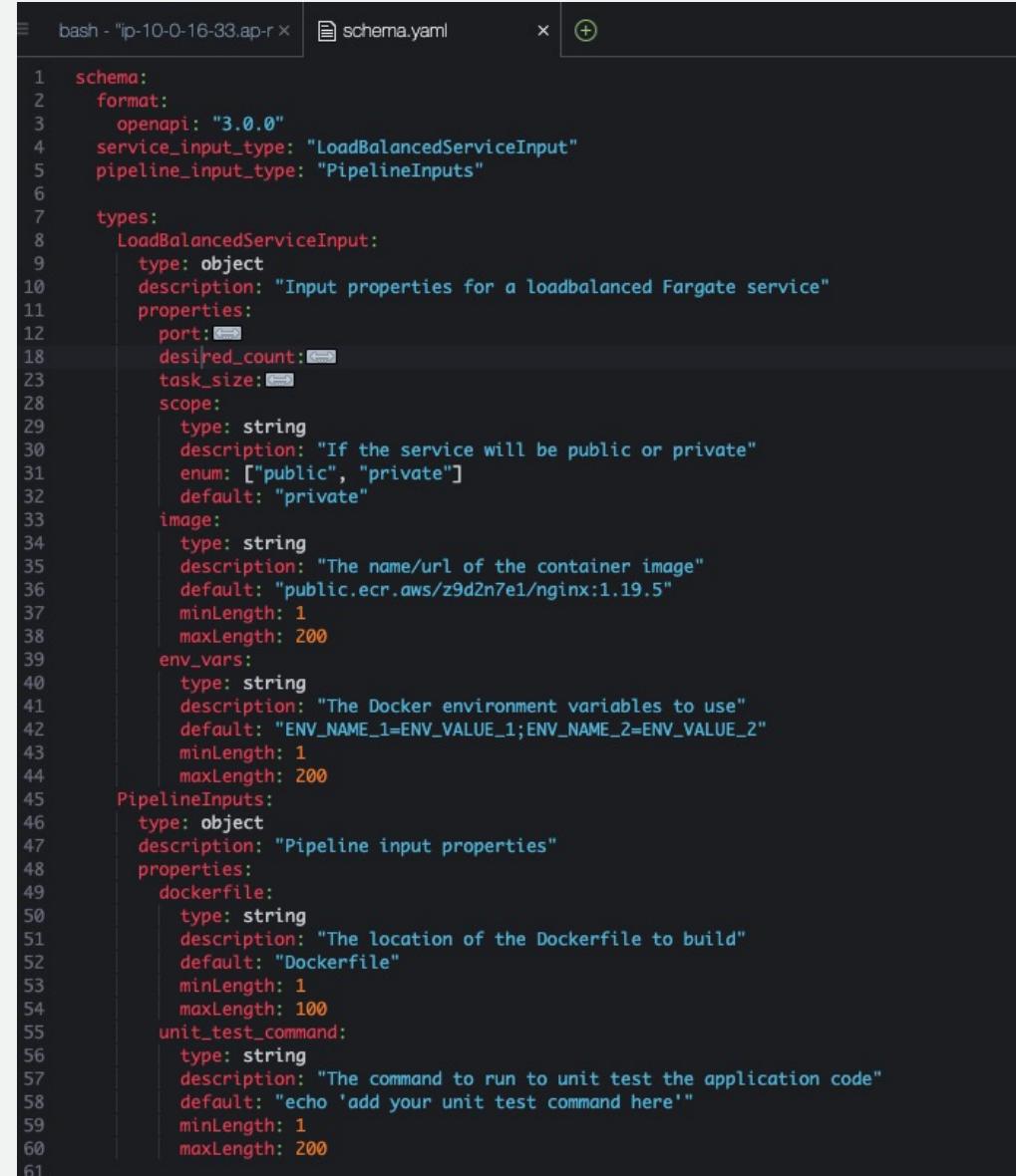
3.2.2 Define the service schema

Code and Explore Service Schema

#3.2.2.1

```
sh commands/codeV1ServiceSchema
```

- Open API schema model (line3)
- service_input_type (line 4)
- pipeline_input_type (line 5)
- Types to conform with Open API schema model (line7, 45)



```

1 schema:
2   format:
3     openapi: "3.0.0"
4   service_input_type: "LoadBalancedServiceInput"
5   pipeline_input_type: "PipelineInputs"
6
7 types:
8   LoadBalancedServiceInput:
9     type: object
10    description: "Input properties for a loadbalanced Fargate service"
11    properties:
12      port: integer
13      desired_count: integer
14      task_size: integer
15      scope:
16        type: string
17        description: "If the service will be public or private"
18        enum: ["public", "private"]
19        default: "private"
20      image:
21        type: string
22        description: "The name/url of the container image"
23        default: "public.ecr.aws/z9d2n7e1/nginx:1.19.5"
24        minLength: 1
25        maxLength: 200
26      env_vars:
27        type: string
28        description: "The Docker environment variables to use"
29        default: "ENV_NAME_1=ENV_VALUE_1;ENV_NAME_2=ENV_VALUE_2"
30        minLength: 1
31        maxLength: 200
32
33 PipelineInputs:
34   type: object
35   description: "Pipeline input properties"
36   properties:
37     dockerfile:
38       type: string
39       description: "The location of the Dockerfile to build"
40       default: "Dockerfile"
41       minLength: 1
42       maxLength: 100
43     unit_test_command:
44       type: string
45       description: "The command to run to unit test the application code"
46       default: "echo 'add your unit test command here!''"
47       minLength: 1
48       maxLength: 200
49
50
51
52
53
54
55
56
57
58
59
60
61

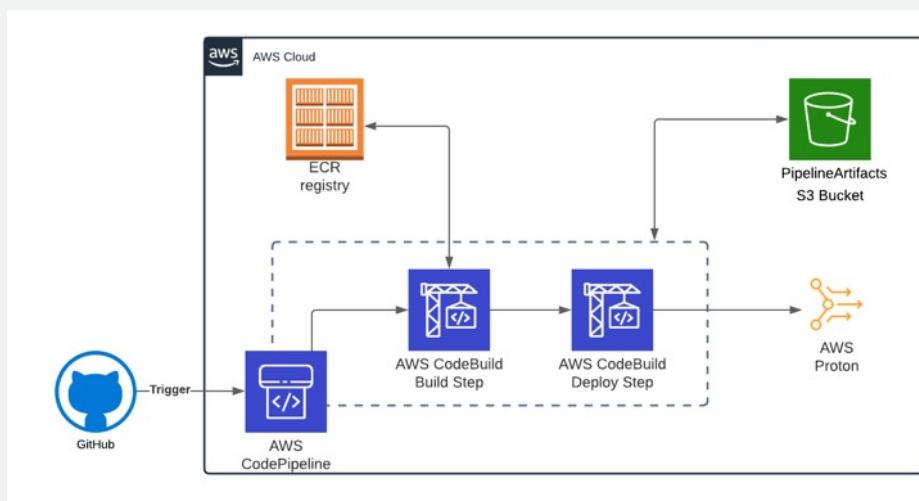
```

3.2.3 Define the service pipeline infrastructure

Code and Explore service pipeline

#3.2.3

sh commands/codeV1ServicePipeline



1. Source step -> CodeStar Connection (Line 546)
 2. Input dockerfile (line 51)

³aws pipeline_input_type (line 62)

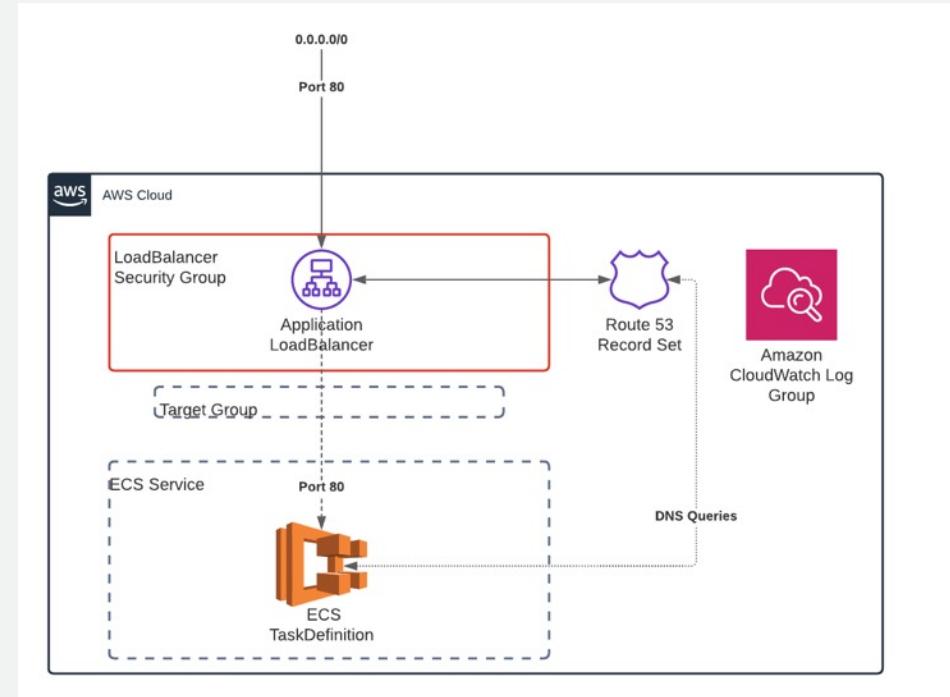
© 2022, Amazon Web Services, Inc. or its affiliates.

3.2.4 Define the service instance infrastructure

Code and Explore service instance Cfn

#3.2.4.1

sh commands/codeV1ServiceInstanceInfra



```

1 AWSTemplateFormatVersion: '2010-09-09'
2
3 Description: Deploy a service on AWS Fargate, hosted in a public subnet, and accessible via a load balancer.
4
5 Mappings:
6   TaskSize: \[ \]
7
8 Resources:
9   # A log group for storing the stdout logs from this service's containers
10  LogGroup: \[ \]
11
12  # The task definition. This is a simple metadata description of what
13  # container to run, and what resource requirements it has.
14  TaskDefinition:
15    Type: AWS::ECS::TaskDefinition
16    Properties: \[ \]
17
18  # The service_instance.inputs. The service is a resource which allows you to run multiple
19  # copies of a type of task, and gather up their logs and metrics, as well
20  # as monitor the number of running tasks and replace any that have crashed
21  Service:
22    Type: AWS::ECS::Service
23    DependsOn: LoadBalancerRule
24    Properties: \[ \]
25
26  # A target group. This is used for keeping track of all the tasks, and
27  # what IP addresses / port numbers they have. You can query it yourself,
28  # to use the addresses yourself, but most often this target group is just
29  # connected to an application load balancer, or network load balancer, so
30  # it can automatically distribute traffic across all the targets.
31  TargetGroup:
32    Type: AWS::ElasticLoadBalancingV2::TargetGroup
33    Properties: \[ \]
34
35  # Create a rule on the load balancer for routing traffic to the target group
36  LoadBalancerRule:
37    Type: AWS::ElasticLoadBalancingV2::ListenerRule
38    Properties: \[ \]
39
40 EcsSecurityGroupIngressFromALB: \[ \]
41
42  # Load balancer, hosted in public subnets that is accessible
43  # to the public or internally depending on the scope. It is
44  # intended to route traffic to one or more public/private
45  # facing services.
46  LoadBalancerSG: \[ \]
47
48  {% if 'public' == service_instance.inputs.scope %}
49  {% set scheme = 'internet-facing' %}
50  {% set port = '80' %}
51  {% else %}
52  {% set scheme = 'internal' %}
53  {% set port = service_instance.inputs.port %}
54  {% endif %}
55  LoadBalancer: \[ \]
56
57 LoadBalancerListener: \[ \]
58
59 RecordSet:
60   Type: AWS::Route53::RecordSet
61   DependsOn:
62     - LoadBalancer
63   Properties: \[ \]
64
65 Outputs:
66   ServiceEndpoint:
67     Description: The URL to access the service
68     Value: !Sub "http://${LoadBalancer.DNSName}"

```

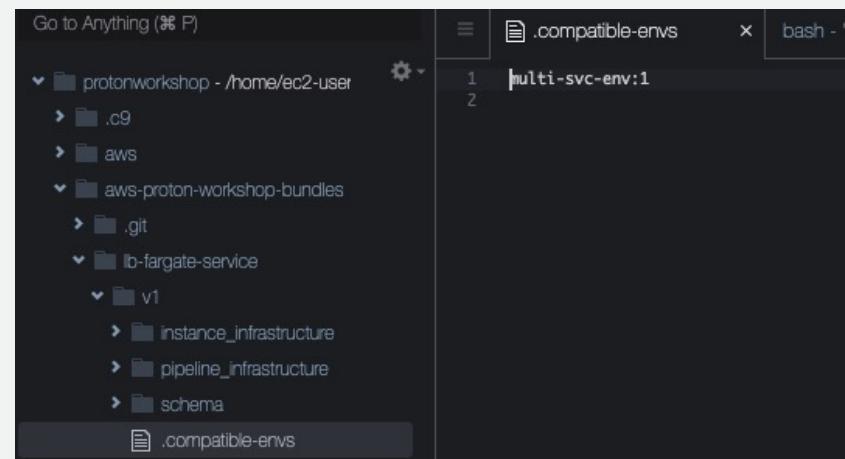
3.2.4 Define the service instance infrastructure

Set/update compatible environments

#3.2.4.2

```
sh commands/setServiceCompatibleEnv
```

```
echo "multi-svc-env:1" > lb-fargate-service/v1/.compatible-envs
```

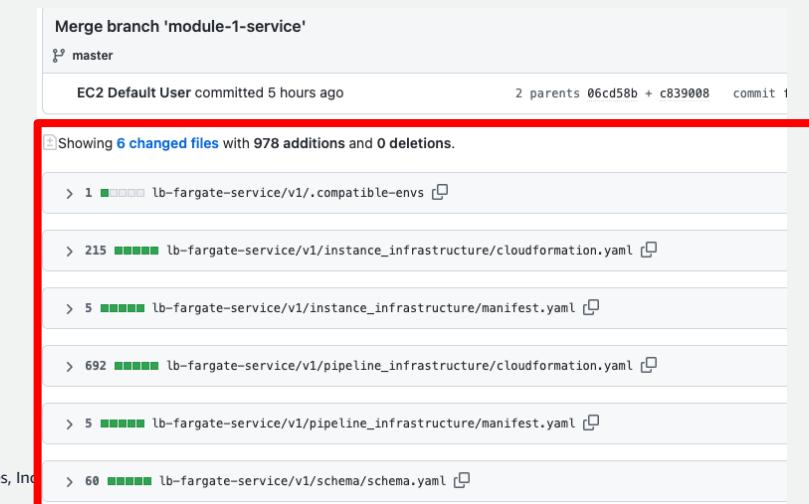


Commit/Merge service updates to GitHub

#3.2.4.3

```
sh commands/commitV1ServiceTemplate
```

```
# Add all changes to the staging area
git add *
# Capture a snapshot of the currently staged changes
git commit -m "lb-fargate-service v1"
# Navigate to the master branch
git checkout master
# Integrate the changes in branch module-1-service into master
git merge module-1-service --allow-unrelated-histories
# Transfer commits from the local repository to the remote repository
git push -u origin master
```



3.2.5 Publish the service template

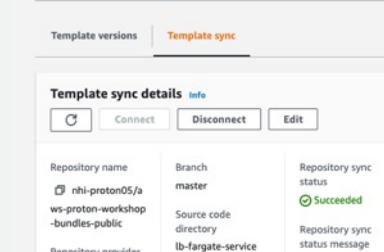
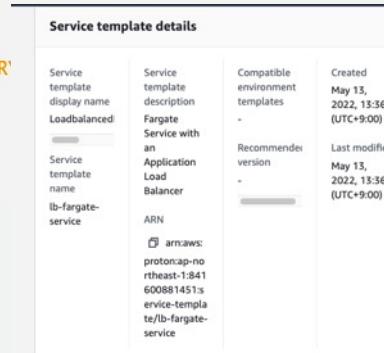
Sync Proton Service Template with repository

#3.2.5.1

sh commands/syncServiceRepository2Proton

```
1 REPOSITORY_ARN=$(aws proton list-repositories | \
2     jq -r '.repositories[] | select(.name | endswith("aws-proton-workshop-bundles-public")) | .arn')
3 REPOSITORY_NAME=$(echo $REPOSITORY_ARN | cut -d':' -f7);
4 REPOSITORY_PROVIDER=$(echo $REPOSITORY_ARN | cut -d':' -f6 | tr a-z A-Z);
5 aws proton create-template-sync-config \
6     --region ${AWS_REGION} \
7     --repository-name $REPOSITORY_NAME \
8     --repository-provider ${REPOSITORY_PROVIDER}"REPOSITORY_PROVIDER"
9     --branch master \
10    --subdirectory "lb-fargate-service" \
11    --template-name "lb-fargate-service" \
12    --template-type "SERVICE"
```

```
AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ sh commands/syncServiceRepository2Proton
{
  "templateSyncConfig": {
    "branch": "master",
    "repositoryName": "nhi-proton05/aws-proton-workshop-bundles-public",
    "repositoryProvider": "GITHUB",
    "subdirectory": "lb-fargate-service",
    "templateName": "lb-fargate-service",
    "templateType": "SERVICE"
  }
}
AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $
```



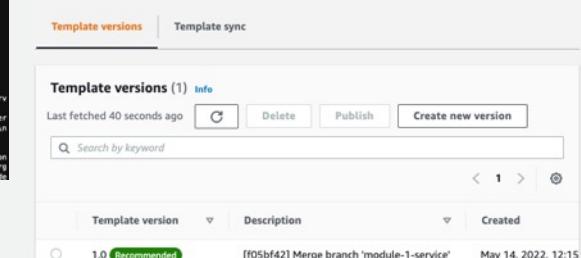
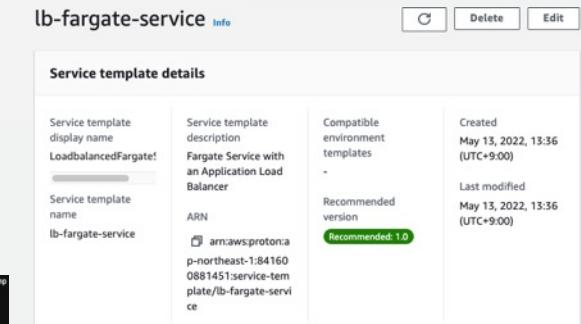
Publish service template

#3.2.5.2

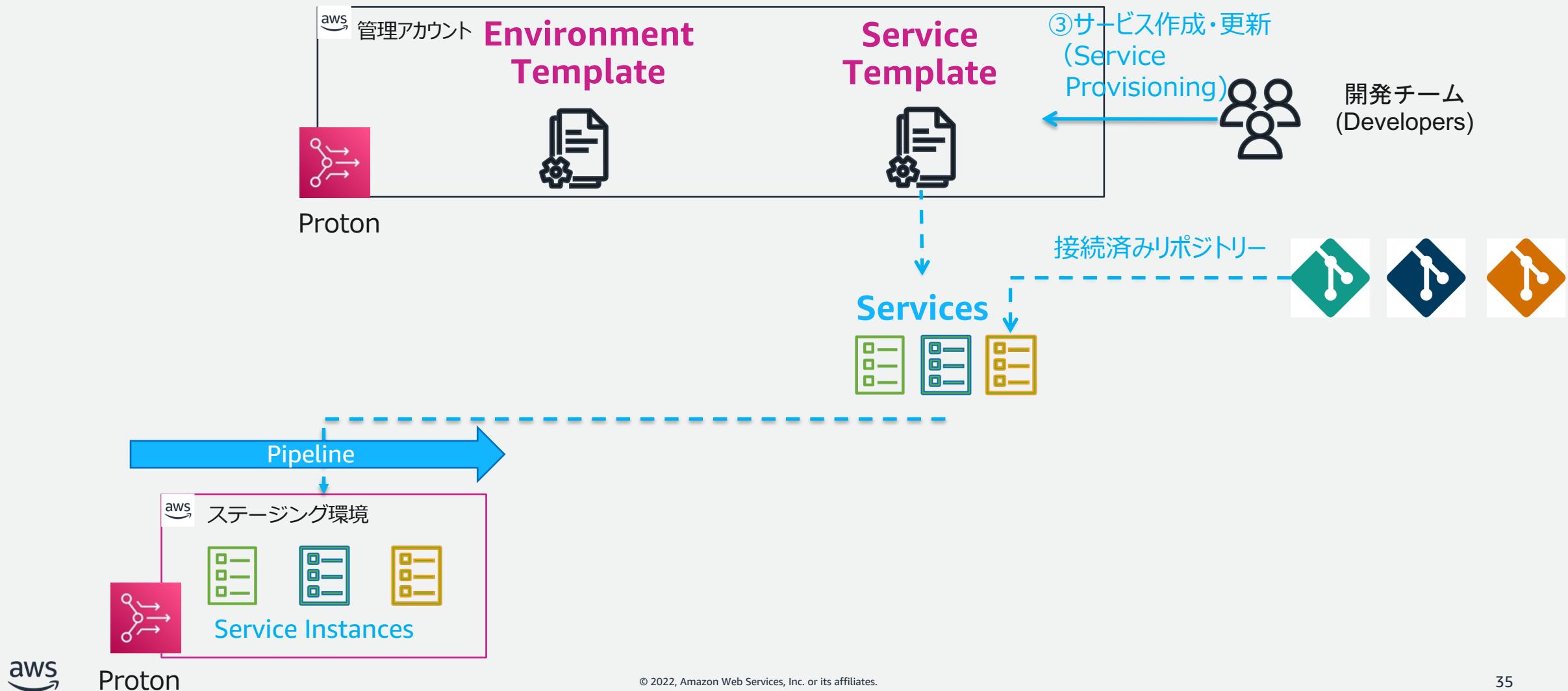
sh commands/publishV1ServiceTemplate

```
1 aws proton update-service-template-version \
2     --region ${AWS_REGION} \
3     --template-name "lb-fargate-service" \
4     --major-version "1" \
5     --minor-version "0" \
6     --status "PUBLISHED"
```

```
AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ sh commands/publishV1ServiceTemplate
{
  "serviceTemplateVersion": {
    "arn": "arn:aws:proton:ap-northeast-1:841600001451:service-template/lb-fargate-service:1.0",
    "compatibleEnvironmentTemplates": [
      "arn:aws:proton:ap-northeast-1:841600001451:service-template/lb-fargate-service:1.0"
    ],
    "majorVersion": "1",
    "templateName": "multi-svc-env"
  },
  "createdAt": "2022-05-15T03:15:46.092000+00:00",
  "description": "f05bf42 Merge branch 'module-1-service'",
  "lastModifiedAt": "2022-05-14T08:29:12.833000+00:00",
  "majorVersion": "1",
  "minorVersion": "0",
  "recommendedMinorVersion": "2"
}
```



作業のイメージ



3.2.6.1 Create the services

Environmentと同様、ServicesSpecを活用

Helper Script利用

```

1 aws proton create-service \
2   --region ${AWS_REGION} \
3   --name "frontend-beta" \
4   --template-major-version 1 \
5   --template-name lb-fargate-service \
6   --spec "proton: ServiceSpec
7     instances:
8       - name: 'frontend-beta'
9         environment: 'multi-svc-beta'
10        spec:
11          port: 3000
12          desired_count: 3
13          task_size: medium
14          scope: public
15          image: public.ecr.aws/z9d2n7e1/nginx:1.19.5
16          env_vars: >
17            CRYSTAL_URL=http://crystal.protonworkshop.hosted.local:3000/crystal;
18            NODEJS_URL=http://nodejs.protonworkshop.hosted.local:3000" \
19   --repository-connection-arn "<your_repository_connection_arn>" \
20   --repository-id "<your_github_username>/ecsdemo-frontend" \
21   --branch-name main

```

```

AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ sh -c "~/environment/helper-script/proton-workshop-helper cr
rvice_name frontend"

Enter your service instance name:
frontend-beta

Please select your template from the following options:
1) lb-fargate-service | 1.0

Pick a template: 1

Please select your environment from the following options:
1) multi-svc-env | multi-svc-beta

Pick an environment: 1

Creating service instance frontend-beta on environment multi-svc-beta

Please complete the following properties for your service instance:
Enter a value for port [80]: 3000
Enter a value for desired_count [1]: 3
Enter a value for task_size [x-small]: medium
Enter a value for scope [private]: public
Enter a value for image [public.ecr.aws/z9d2n7e1/nginx:1.19.5]:
Enter a value for env_vars [ENV_NAME_1=ENV_VALUE_1;ENV_NAME_2=ENV_VALUE_2]: CRYSTAL_URL=http://crystal.protonworkshop.beta.local:3000;NODEJS_URL=http://nodejs.protonworkshop.beta.local:3000
Generated spec is:
proton: ServiceSpec
instances:
  - name: "frontend-beta"
    environment: "multi-svc-beta"
    spec:
      port: 3000
      desired_count: 3
      task_size: medium
      scope: public
      image: public.ecr.aws/z9d2n7e1/nginx:1.19.5
      env_vars: CRYSTAL_URL=http://crystal.protonworkshop.beta.local:3000;NODEJS_URL=http://nodejs.protonworkshop.beta.local:3000
Do you want to continue? [Y/N] Y
{
  "service": {
    "arn": "arn:aws:proton:ap-northeast-1:841600881451:service/frontend",
    "branchName": "main",
    "createdAt": "2022-05-14T05:04:40.401000+00:00",
    "lastModifiedAt": "2022-05-14T05:04:40.401000+00:00",
    "name": "frontend",
    "repositoryConnectionArn": "arn:aws:codestar-connections:ap-northeast-1:841600881451:connection/0aa37f19-84e8-48f0-87a4-95a
",
    "repositoryId": "nhi-proton05/ecsdemo-frontend",
    "status": "CREATE_IN_PROGRESS",
    "templateName": "lb-fargate-service"
  }
}

```

3.2.6.2 Create the services

#3.2.6.1

```
sh -c "~/environment/helper-script/proton-workshop-helper create --service_name frontend"
```

Input	Value
Service Instance Name	frontend-beta
Template Name	lb-fargate-service
Environment Name	multi-svc-beta
Port	3000
Desired Count	3
Task Size	medium
Scope	public
Image	
Environment Variables	CRYSTAL_URL=http://crystal.protonworkshop.beta.local:3000/crystal NODEJS_URL=http://nodejs.protonworkshop.beta.local:3000
aws	

#3.2.6.2

```
sh -c "~/environment/helper-script/proton-workshop-helper create --service_name crystal"
```

Input	Value
Service Instance Name	crystal-beta
Template Name	lb-fargate-service
Environment Name	multi-svc-beta
Port	3000
Desired Count	3
Task Size	medium
Scope	private
Image	
Environment Variables	

#3.2.6.3

```
sh -c "~/environment/helper-script/proton-workshop-helper create --service_name nodejs"
```

Input	Value
Service Instance Name	nodejs-beta
Template Name	lb-fargate-service
Environment Name	multi-svc-beta
Port	3000
Desired Count	3
Task Size	medium
Scope	private
Image	
Environment Variables	

3.2.6.3 Create the services

Confirm services/service instances

AWS Proton Services

Services (3) Info

Search by keyword

Name	Status	Service template
nodejs	Create in pro...	LoadbalancedFargateService v.1.0
crystal	Create in pro...	LoadbalancedFargateService v.1.0
frontend	Active	LoadbalancedFargateService v.1.0

AWS Proton Service instances

Service instances (3) Info

Search by keyword

Name	Service na...	Template name	Template version	Deployment stat...	Last
nodejs-beta	nodejs	lb-fargate-service	-	In progress	May
crystal-beta	crystal	lb-fargate-service	-	In progress	May
frontend-...	frontend	lb-fargate-service	1.0 (Recommended)	Succeeded	May

AWS Proton Service instances

Service instance name: frontend-beta

Environment: multi-svc-beta

Deployment status: Succeeded

Created: May 14, 2022, 14:04 (UTC+9:00)

Deployment status message: Last successful deployment May 14, 2022, 14:17 (UTC+9:00)

ARN: arn:aws:proton:ap-northeast-1:841600881451:service/frontend-service-instance/frontend-beta

Template: lb-fargate-service

Template version: 1.0 (Recommended)

Outputs (1)

Key	Value
ServiceEndpoint	http://AWSPr-LoadB-1N1WGAKBSWBH-1626134937.ap-northeast-1.elb.amazonaws.com

Confirm CodePipeline staus

<https://ap-northeast-1.console.aws.amazon.com/codesuite/codepipeline/pipelines>

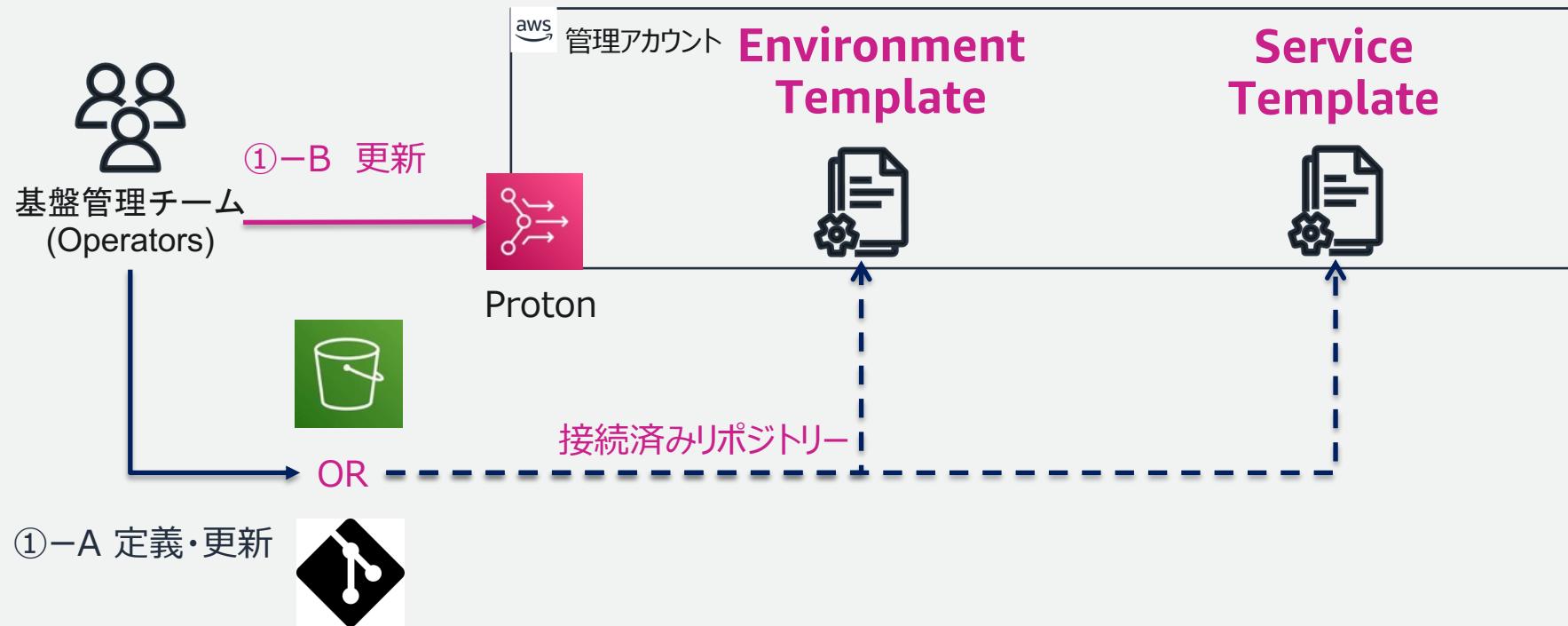
Pipelines

Name	Most recent execution	Latest source revisions	Last executed
AWSProton-nodejs-cloudformati...	Succeeded	Checkout - fba34b90 Merge pull request #4 from tsahiduek/add-helm-deploy	Just now
AWSProton-crystal-cloudformati...	Succeeded	Checkout - b6db623d Merge pull request #4 from tsahiduek/add-helm-deploy	2 minutes ago
AWSProton-frontend-cloudformati...	Succeeded	Checkout - e3559e49 Merge pull request #4 from tsahiduek/add-helm-deploy	11 minutes ago



Part3.3 : Minor version update

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3.3.1 Update templates

Patch the `cloudformation.yaml` files:
(environment and services)

```
# ECS Resources
ECSCluster:
  Type: AWS::ECS::Cluster
  Properties:
    CapacityProviders:
      - FARGATE_SPOT
    DefaultCapacityProviderStrategy:
      - CapacityProvider: FARGATE_SPOT
      Weight: 1
```

```
Type: AWS::ECS::Service
DependsOn: LoadBalancerRule
Properties:
  ServiceName: '{{service.name}}_{{service_instance.name}}_spot
  Cluster: '{{environment.outputs.ClusterName}}'
  CapacityProviderStrategy:
    - CapacityProvider: FARGATE_SPOT
    Weight: 1
```

#3.3.1.1

```
cd ~/environment/aws-proton-workshop-bundles/
sh ~/environment/commands/patchEnvCfnMinor
```

```
1 git checkout -b module-1-update-minor
2 wget -O environment-update-minor.patch "http://
3 git apply environment-update-minor.patch
```

```
AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ sh commands/patchEnvCfnMinor
Switched to a new branch 'module-1-update-minor'
environment-update-minor.patch:12: trailing whitespace.
  DefaultCapacityProviderStrategy:
warning: 1 line adds whitespace errors.
```

#3.3.1.2

```
cd ~/environment/aws-proton-workshop-bundles/
sh ~/environment/commands/patchServicesCfnMinor
```

```
1 wget -O service-update-minor.patch "https://
2 git apply service-update-minor.patch
```

Check Cloud9 git view to confirm
modification



3.3.2 Commit and publish changes to templates

Push changes to repository

#3.3.2.1
 cd ~/environment
 sh commands/commitV1TemplateMinorChanges

```
1 # Add all changes to the staging area
2 git add *.yaml
3 # Capture a snapshot of the currently staged changes
4 git commit -m "multi-svc-env & lb-fargate-service v1.1"
5 # Navigate to the master branch
6 git checkout master
7 # Integrate the changes in branch module-1-update-minor into master
8 git merge module-1-update-minor
9 # Transfer commits from the local repository to the remote repository
10 git push -u origin master
```

Switched to branch 'master'
 Your branch is up to date with 'origin/master'.
 Updating f05bf42..11e8b0d
 Fast-forward

```
lb-fargate-service/v1/instance_infrastructure/cloudformation.yaml | 6 ++++++
multi-svc-env/v1/instance_infrastructure/cloudformation.yaml | 6 ++++++
2 files changed, 10 insertions(+), 2 deletions(-)
```

Enumerating objects: 18, done.

Counting objects: 100% (18/18), done.

Delta compression using up to 2 threads

Compressing objects: 100% (8/8), done.

Writing objects: 100% (10/10), 2.30 KiB |

Total 10 (delta 0), reused 0 (delta 0), pack 0

remote: Resolving deltas: 100% (2/2), comp

remote: This repository moved. Please use

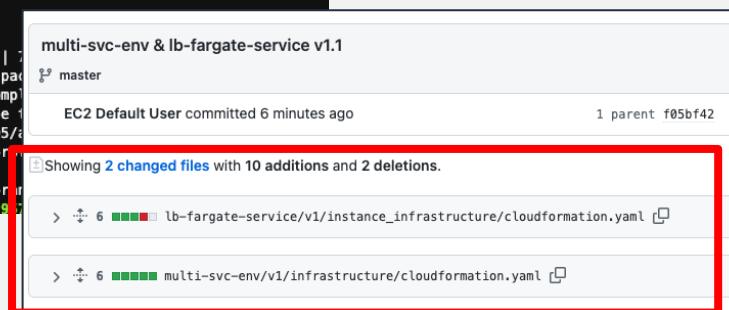
remote: https://github.com/nhi-proton05/a

To https://github.com/nhi-proton05/aws-pr

f05bf42..11e8b0d master -> master

Branch 'master' set up to track remote br

AWSReservedSSO AWSAdministratorAccess 829



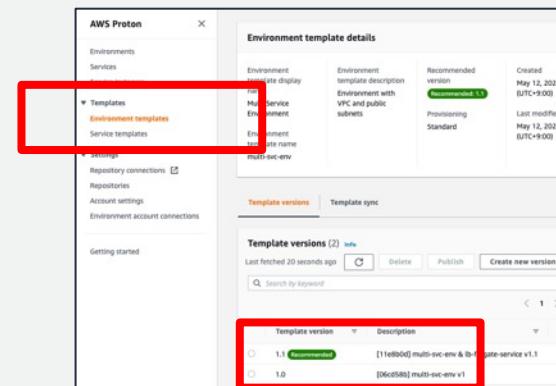
© 2022, Amazon Web Services, Inc. or its affiliates.

Publish changes to templates (user sets version)

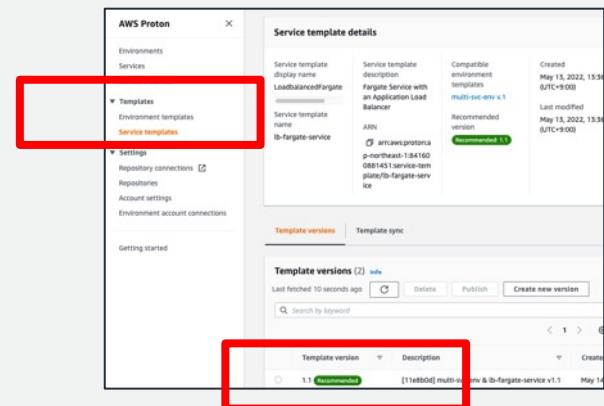
#3.3.2.2
 cd ~/environment
 sh commands/publishV1TemplateMinorChanges

Check Proton Before and After

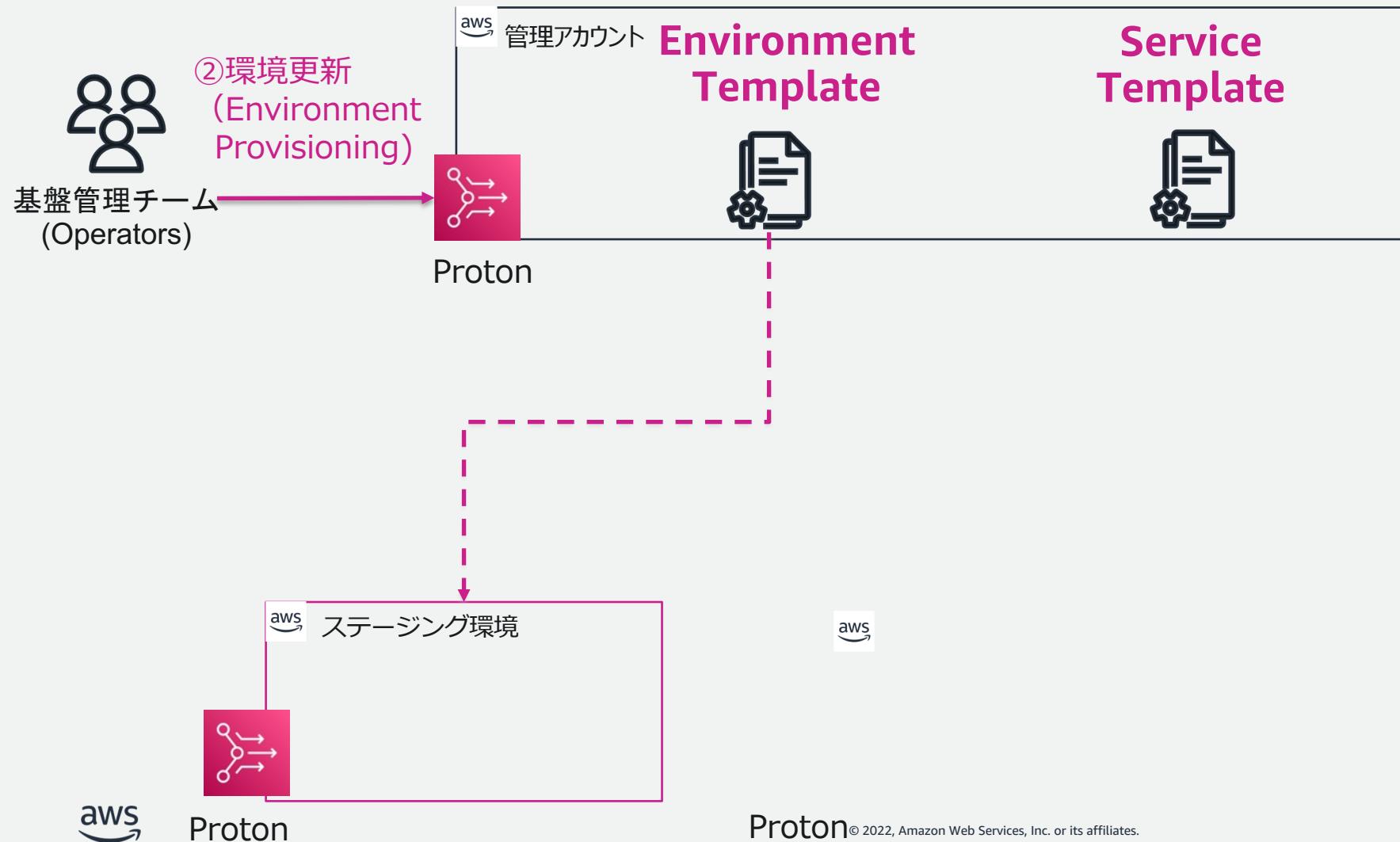
```
1 MAJOR_VERSION=$(aws proton list-service-template-versions \
2 --template-name "multi-svc-env" --region=${AWS_REGION} | \
3 jq -r '.templateVersions[] | select(.status=="DRAFT") | .majorVersion' | tail -1 \
4 ); \
5 aws proton update-environment-template-version \
6 --region ${AWS_REGION} \
7 --major-version "$MAJOR_VERSION" \
8 --minor-version "1" \
9 --status "PUBLISHED"
```



```
1 MAJOR_VERSION=$(aws proton list-service-template-versions --template-name "lb-fargate-service" \
2 --region=${AWS_REGION} | \
3 jq -r '.templateVersions[] | select(.status=="DRAFT") | .majorVersion' | tail -1 \
4 ); \
5 aws proton update-service-template-version \
6 --region ${AWS_REGION} \
7 --major-version "$MAJOR_VERSION" \
8 --minor-version "1" \
9 --status "PUBLISHED"
```



作業のイメージ



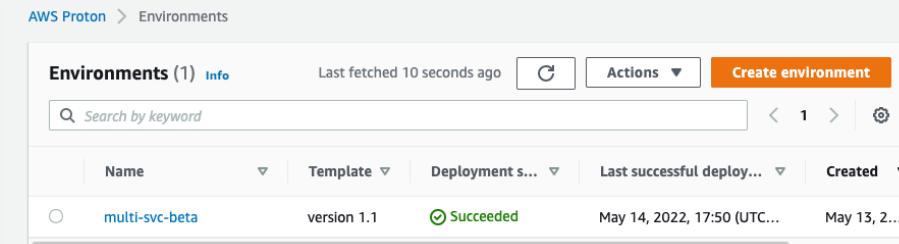
3.3.3.1 Update the environment

Update the environment

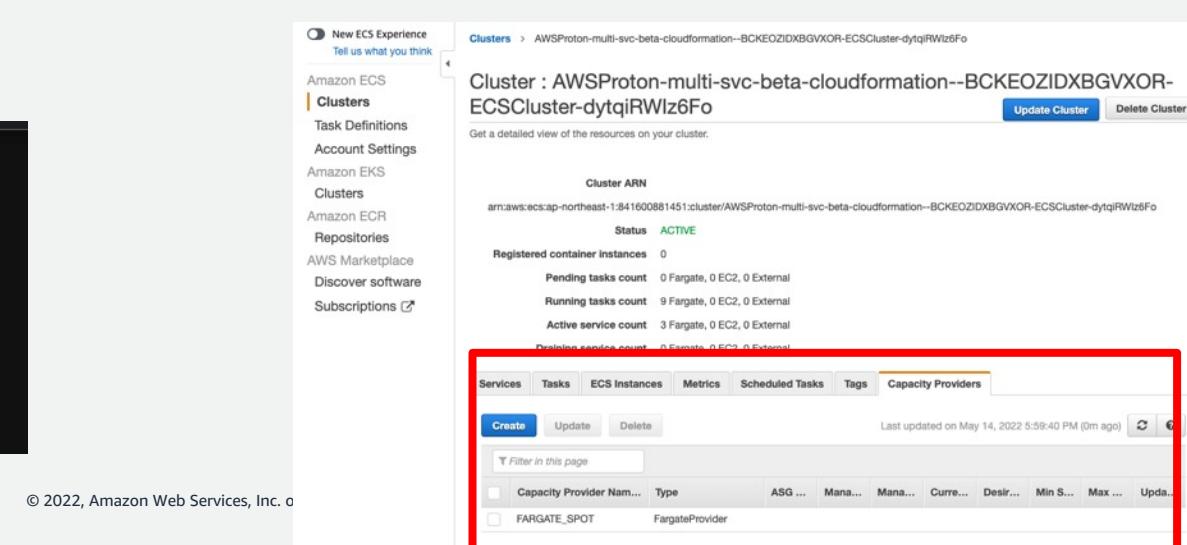
#3.3.3.1
 cd ~/environment
 sh commands/updateEnvToV1.1

```
1  SPEC=$(aws proton get-environment \
2      --region ${AWS_REGION} \
3      --name "multi-svc-beta" | \
4      jq -r '.environment.spec'
5  ); \
6  aws proton update-environment \
7      --region ${AWS_REGION} \
8      --deployment-type "MINOR_VERSION" \
9      --name "multi-svc-beta" \
10     --spec "$SPEC"
```

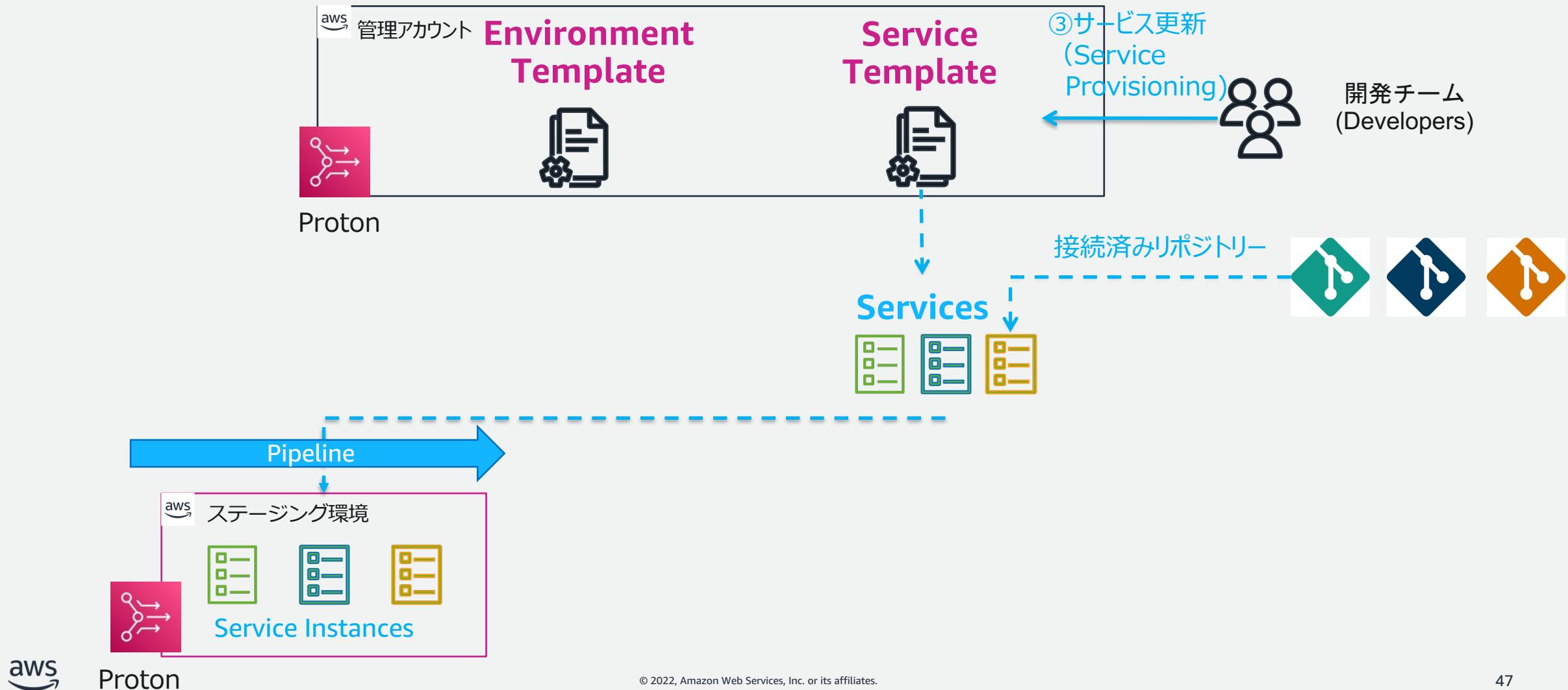
```
AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ sh commands/updateEnvToV1.1
{
  "environment": {
    "arn": "arn:aws:proton:ap-northeast-1:841600881451:environment/multi-svc-beta",
    "createdAt": "2022-05-13T04:00:09.480000+00:00",
    "deploymentStatus": "IN_PROGRESS",
    "lastDeploymentAttemptedAt": "2022-05-14T08:50:04.585000+00:00",
    "lastDeploymentSucceededAt": "2022-05-13T04:00:09.480000+00:00",
    "name": "multi-svc-beta",
    "protonServiceRoleArn": "arn:aws:iam::841600881451:role/ProtonServiceRole",
    "templateMajorVersion": "1",
    "templateMinorVersion": "0",
    "templateName": "multi-svc-env"
  }
}
```



<https://ap-northeast-1.console.aws.amazon.com/ecs/home?region=ap-northeast-1#/clusters>



作業のイメージ



3.3.3.2 Update the services

3.3.3.2.1

```
sh -c "~/environment/helper-script/proton-workshop-
helper update --service_name frontend --
deployment_type MINOR_VERSION"
```

#3.3.3.2.2

```
sh -c "~/environment/helper-script/proton-workshop-
helper update --service_name crystal --deployment_type
MINOR_VERSION"
```

3.3.3.2.3

```
sh -c "~/environment/helper-script/proton-workshop-
helper update --service_name nodejs --deployment_type
MINOR_VERSION"
```



```
AWSReservedSSO_AWSAdministratorAccess_82957608b23b12c3:~/environment $ sh -c "~/environment/helper-script/proton-workshop-
helper update --service_name frontend --deployment_type MINOR_VERSION"

Please select the instance you want to update from the following options:
1) frontend-beta

Pick an instance: 1

Please update the following properties for your service instance:
Enter a value for port [3000]:
Enter a value for desired_count [3]:
Enter a value for task_size [medium]:
Enter a value for scope [public]:
Enter a value for image [841600881451.dkr.ecr.ap-northeast-1.amazonaws.com/awsproton-frontend-cloudformation-tqscmylwanipb
oz-ecrrepo-7fwqmeotkjfx:1]:
Enter a value for env_vars [CRYSTAL_URL=http://crystal.protonworkshop.beta.local:3000/crystal;NODEJS_URL=http://nodejs.pro
tonworkshop.beta.local:3000]:

Updated spec is:
proton: ServiceSpec
  instances:
    - name: "frontend-beta"
      environment: "multi-svc-beta"
      spec:
        port: "${Proton::CURRENT_VAL}"
        desired_count: "${Proton::CURRENT_VAL}"
        task_size: "${Proton::CURRENT_VAL}"
        scope: "${Proton::CURRENT_VAL}"
        image: "${Proton::CURRENT_VAL}"
        env_vars: "${Proton::CURRENT_VAL}"

Do you want to continue? [Y/N] Y
{
  "serviceInstance": {
    "arn": "arn:aws:proton:ap-northeast-1:841600881451:service/frontend/service-instance/frontend-beta",
    "createdAt": "2022-05-14T05:04:48.401000+00:00",
    "deploymentStatus": "IN_PROGRESS",
    "environmentName": "multi-svc-beta",
    "lastDeploymentAttemptedAt": "2022-05-14T09:25:39.022000+00:00",
    "lastDeploymentSucceededAt": "2022-05-14T05:17:02.595000+00:00",
    "name": "frontend-beta",
    "serviceName": "frontend",
    "templateMajorVersion": "1",
    "templateMinorVersion": "0",
    "templateName": "lb-fargate-service"
  }
}
```

<https://ap-northeast-1.console.aws.amazon.com/proton/home?region=ap-northeast-1#/service-instances>

AWS Proton > Service Instances

Service instances (3) Info					Last fetched 30 seconds ago	C	Create service
Name	Service name	Template na...	Template versi...	Deployment status	Last updated	Actions	
crystal-beta	crystal	lb-fargate-service	1.0	In progress	2022-05-14T05:17:02.595000+00:00	Edit	
nodejs-beta	nodejs	lb-fargate-service	1.0	In progress	2022-05-14T05:17:02.595000+00:00	Edit	
frontend-beta	frontend	lb-fargate-service	1.1 Recommended	Succeeded	2022-05-14T09:25:39.022000+00:00	Edit	

3.3.3.3 Update the services

Confirm services/service instances

AWS Proton

AWS Proton > Services

Services (3) Info Last fetched 20 seconds ago

Name	Status	Service template	Created
nodejs	Active	LoadbalancedFargateService...	May 14, 2022, ...
crystal	Active	LoadbalancedFargateService...	May 14, 2022, ...
frontend	Active	LoadbalancedFargateService...	May 14, 2022, ...

AWS Proton

AWS Proton > Service instances

Service instances (3) Info Last fetched 10 seconds ago

Name	Service na...	Template name	Template version	Deployment stat...	Last
nodejs-beta	nodejs	lb-fargate-service	-	In progress	May
crystal-beta	crystal	lb-fargate-service	-	In progress	May
frontend-...	frontend	lb-fargate-service	1.0 (Recommended)	Succeeded	May

AWS Proton

AWS Proton > Service instances

Service instance name: frontend-beta Environment: multi-svc-beta Deployment status: Succeeded

Created: May 14, 2022, 14:04 (UTC+9:00)

Deployment status message: Last successful deployment May 14, 2022, 14:17 (UTC+9:00)

ARN: arn:aws:proton:ap-northeast-1:841600881451:service/frontend/service-instance/frontend-beta

Template: lb-fargate-service Template version: 1.0 (Recommended)

Outputs (1)

Key	Value
ServiceEndpoint	http://AWSPr-LoadB-1N1WGAKBSWBH-1626134937.ap-northeast-1.elb.amazonaws.com

Getting started

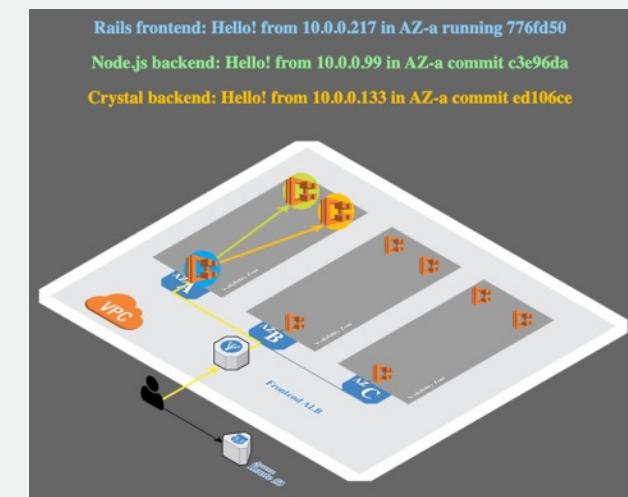
Confirm CodePipeline status

<https://ap-northeast-1.console.aws.amazon.com/codesuite/codepipeline/pipelines>

Developer Tools > CodePipeline > Pipelines

Pipelines Info

Name	Most recent execution	Latest source revisions	Last executed
AWSProton-nodejs-cloudformation-BIVGOAFEKASWAML-Pipeline-1107UOXJCTEG	Succeeded	Checkout - fba34b90 Merge pull request #4 from tsahiduek/add-helm-deploy	4 hours ago
AWSProton-crystal-cloudformation-ULGHQXHNJCLEFT-Pipeline-TM9TO9UVK3MH	Succeeded	Checkout - b6db623d Merge pull request #4 from tsahiduek/add-helm-deploy	4 hours ago
AWSProton-frontend-cloudformation-TQSCMYLWANIPBOZ-Pipeline-1N9ZJZJM5DLXQ	Succeeded	Checkout - e3559e49 Merge pull request #4 from tsahiduek/add-helm-deploy	4 hours ago





Thank you!

Appendices