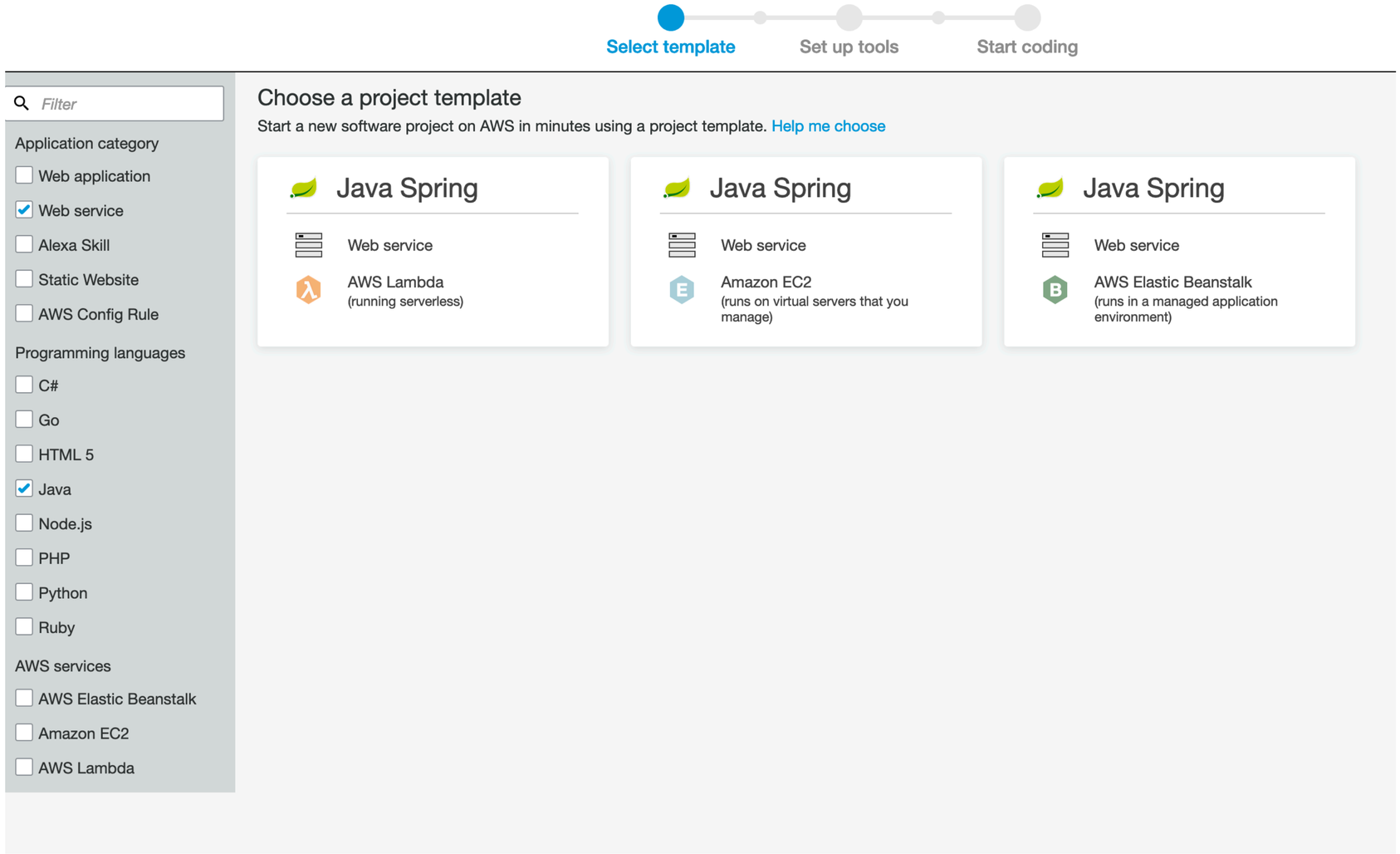
AWS CodeStar experiments

https://aws.amazon.com/codestar

Step 1: select a project template from a very small catalog (35 templates only)



Note: “asdf35” is the project name I chose (not a randomly generated name).

Step 2: run the whole wizard (git repo setup)

Project details

Project name

asdf35

Project ID Edit

asdf35

Which repository do you want to use?

AWS CodeStar will store the project's source code with the service you choose here.

AWS CodeCommit

Highly available Git source control from AWS. Includes encryption, IAM integration, and more.

GitHub

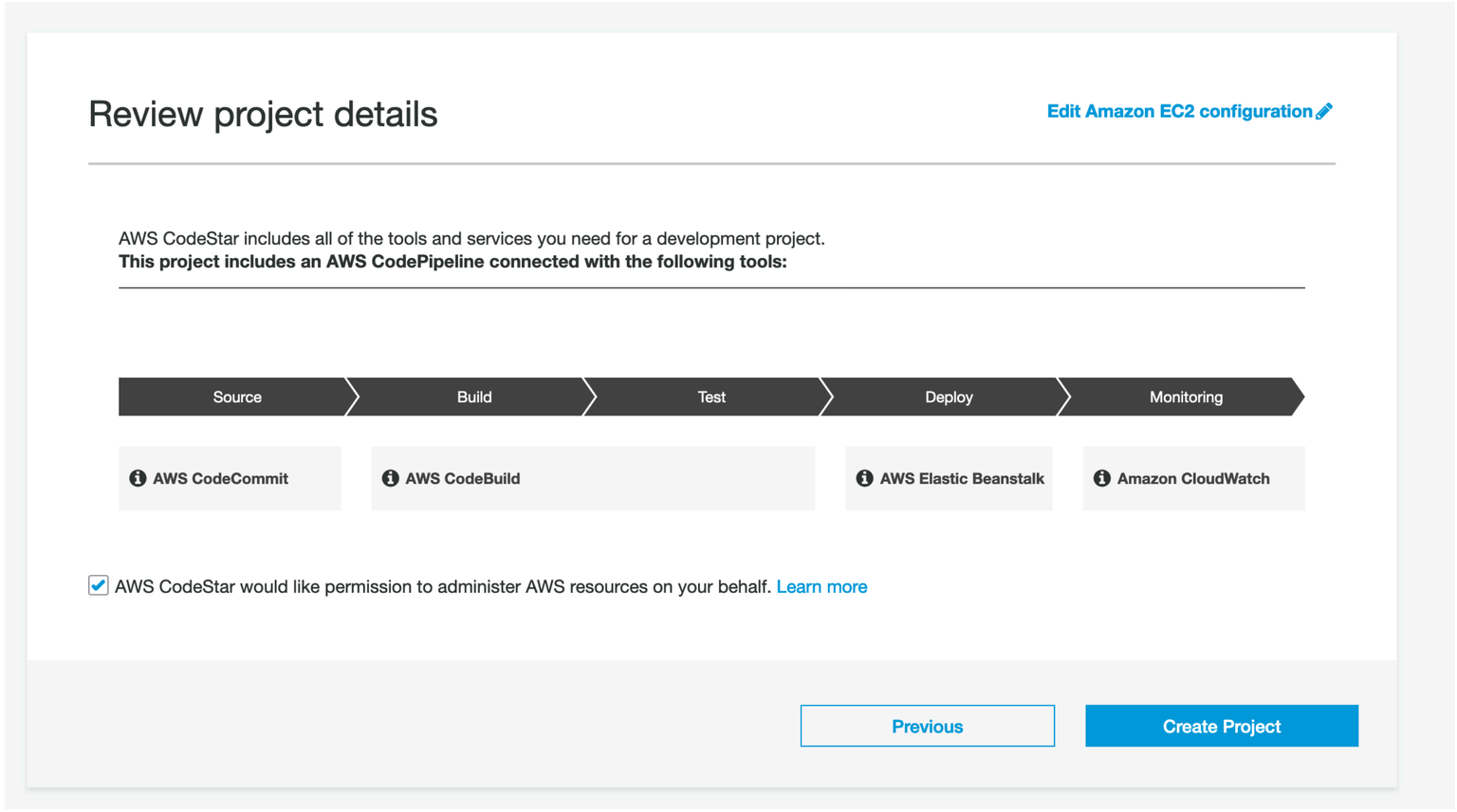
Creates a GitHub source repository for this project. Requires an existing GitHub account.

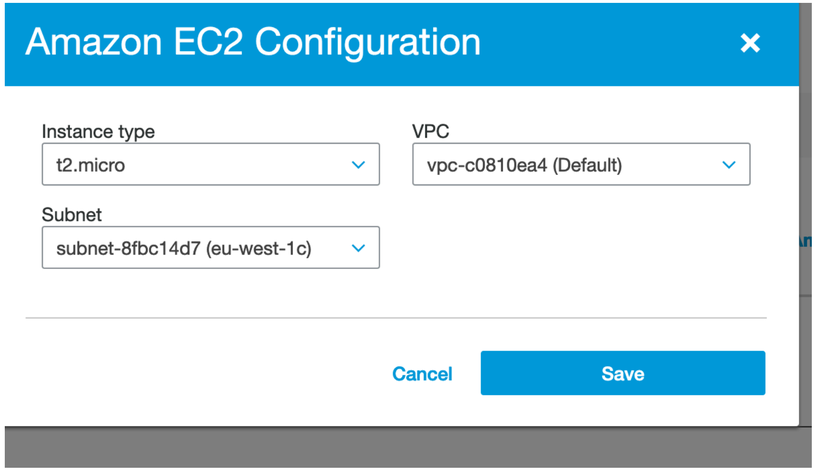
Repository name

asdf35

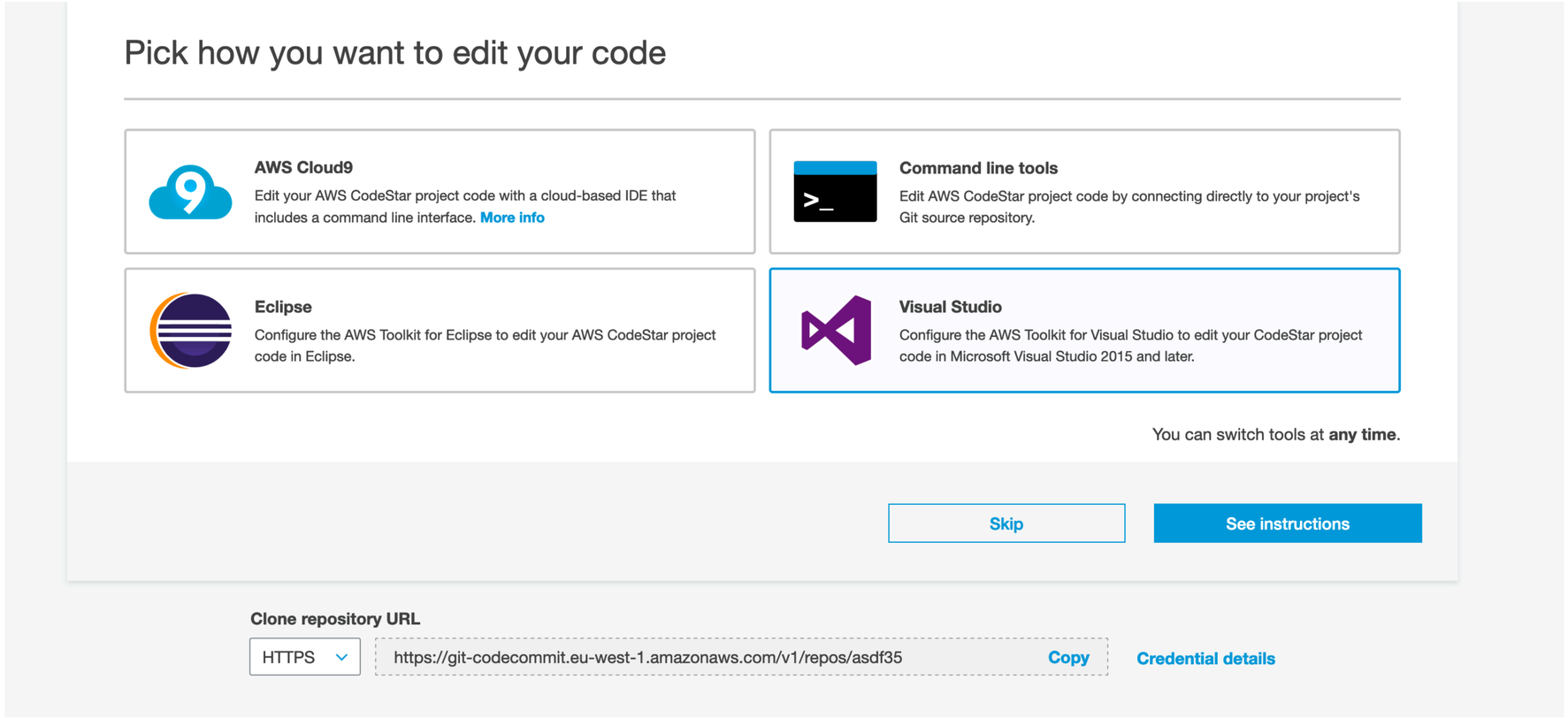
Previous Next

Step 2: run the whole wizard (deployment: EC2 vs Lambda vs Beanstalk)





Step 2: run the whole wizard (IDE integration)



Step 2: run the whole wizard (IAM, users, permissions,…)

Important: You must connect to your projects repository before you can start working on project code.

Connect tools

Set this up so you can commit code and work on your application

Connect tools

Project Details

Name	Stack name	ARN
asdf35	awscodestar-asdf35	arn:aws:codestar:eu-west-1:513518152034:project/asdf35

Project Resources

Type	Name	ARN
AWS CloudFormation	stack/awscodestar-asdf35/c262b9a0-c02…	arn:aws:cloudformation:eu-west-1:513518152034:stack/awscodestar-asdf35/c262b9a0-c02e-11ea-ae6a-02dbc193e…
AWS CloudFormation	stack/awscodestar-asdf35-infrastructure/5…	arn:aws:cloudformation:eu-west-1:513518152034:stack/awscodestar-asdf35-infrastructure/520ea9b0-c02f-11ea-8b…
AWS CodeBuild	project/asdf35	arn:aws:codebuild:eu-west-1:513518152034:project/asdf35
AWS CodeCommit	asdf35	arn:aws:codecommit:eu-west-1:513518152034:asdf35
AWS CodePipeline	asdf35-Pipeline	arn:aws:codepipeline:eu-west-1:513518152034:asdf35-Pipeline
AWS Elastic Beanstalk	application/asdf35app	arn:aws:elasticbeanstalk:eu-west-1:513518152034:application/asdf35app
AWS IAM	role/CodeStarWorker-asdf35-EB	arn:aws:iam::513518152034:role/CodeStarWorker-asdf35-EB
AWS IAM	role/CodeStarWorker-asdf35-EBService	arn:aws:iam::513518152034:role/CodeStarWorker-asdf35-EBService
AWS IAM	role/CodeStarWorker-asdf35-ToolChain	arn:aws:iam::513518152034:role/CodeStarWorker-asdf35-ToolChain
AWS IAM	role/CodeStarWorker-asdf35-CloudFormat…	arn:aws:iam::513518152034:role/CodeStarWorker-asdf35-CloudFormation
AWS IAM	policy/CodeStar_asdf35_PermissionsBoun…	arn:aws:iam::513518152034:policy/CodeStar_asdf35_PermissionsBoundary
Amazon S3	aws-codestar-eu-west-1-513518152034-a…	arn:aws:s3:::aws-codestar-eu-west-1-513518152034-asdf35-pipe
Amazon S3	elasticbeanstalk-eu-west-1-51351815203…	arn:aws:s3:::elasticbeanstalk-eu-west-1-513518152034/resources/environments/e-seachfh7qq

What you get (1/3):
*** bunch of AWS resources (S3 buckets, CodePipeline, CloudFormation, JIRA integration,…)**

WHAT'S NEW IN 5.2.0

- .ebextensions
  - set-instance-credit-unlimited.config
  - sshd.config
- src
  - main/java/com/aws/codestar/projecttemplates
    - controller
      - HelloWorldController.java
    - Application.java
  - test/java/com/aws/codestar/projecttemplates/...
    - HelloWorldControllerTest.java
- README.md
- buildspec.yml
- pom.xml
- template-configuration.json
- template.yml

src/main/java/com/aws/codestar/projecttemplates

Other files used by CodeStar or CloudFormation

ignasi35 / codestar-experiments

Code | Issues | Pull requests | Actions | Wiki | Security | Insights | Settings

buildspec.yml

Branch: master — codestar-experiments / buildspec.yml

AWS CodeCommit Initial commit by AWS CodeCommit — Latest c

0 contributors

26 lines (25 sloc) | 1011 Bytes

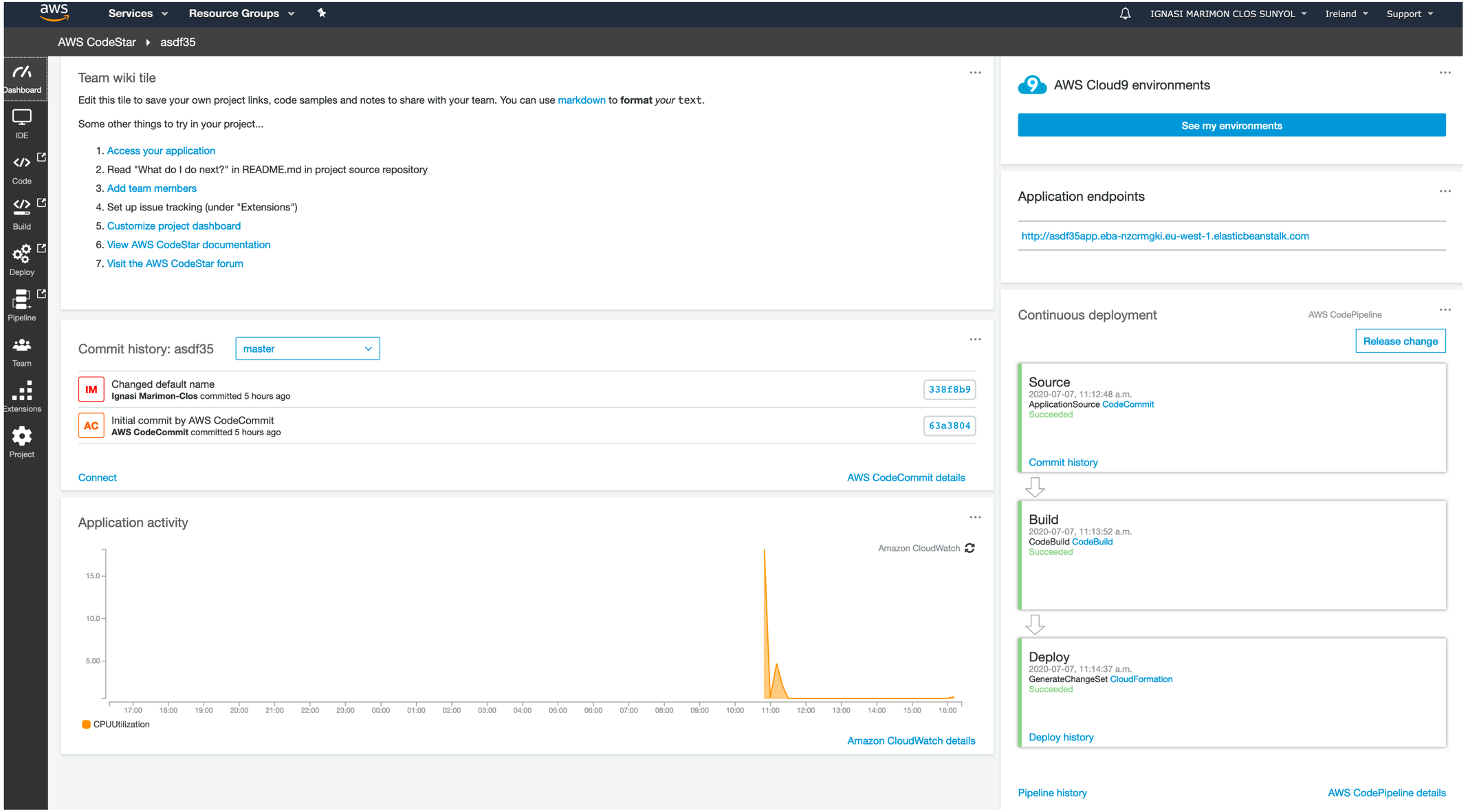
```
1  version: 0.2
2
3  phases:
4    install:
5      runtime-versions:
6        java: openjdk8
7      commands:
8        # Upgrade AWS CLI to the latest version
9        - pip install --upgrade awscli
10   pre_build:
11     commands:
12       - mvn clean compile test
13   build:
14     commands:
15       - mvn war:exploded
16   post_build:
17     commands:
18       - cp -r .ebextensions/ target/ROOT/
19       - aws cloudformation package --template template.yml --s3-bucket $S3_BUCKET --output-template-file template-export.yml
20       # Do not remove this statement. This command is required for AWS CodeStar projects.
21       # Update the AWS Partition, AWS Region, account ID and project ID in the project ARN on template-configuration.json file so AWS
22       - sed -i.bak 's/\$PARTITION\$/'${PARTITION}'/g;s/\$AWS_REGION\$/'${AWS_REGION}'/g;s/\$ACCOUNT_ID\$/'${ACCOUNT_ID}'/g;s/\$PROJECT
23 artifacts:
24   files:
25     - 'template-export.yml'
26     - 'template-configuration.json'
```

Build definition

What you get (2/3):
*** skeleton project with extras for CodeBuild, AWS Elastic Beanstalk, …**

https://github.com/ignasi35/codestar-experiments

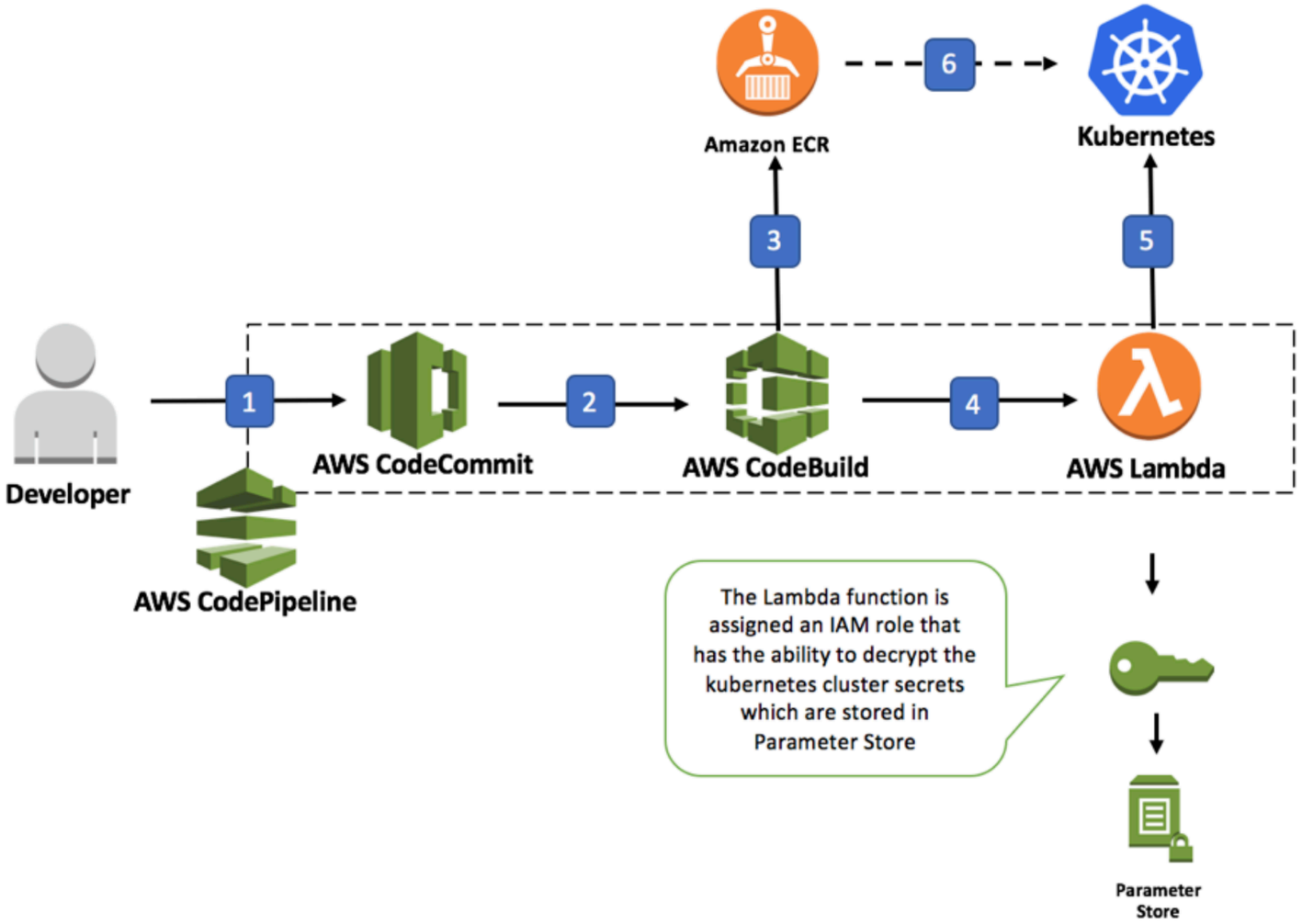
What you get (3/3):
* the usual (cloudwatch, vpc, etc...)



Post-publishing notes

After sharing the slides I also learnt:

- https://aws.amazon.com/blogs/devops/continuous-deployment-to-kubernetes-using-aws-codepipeline-aws-codecommit-aws-codebuild-amazon-ecr-and-aws-lambda/ —> CI/CD on AWS deploying to EKS:
  - codebuild produces a container and pushes it to ECR
  - a lambda function triggers the deployment on EKS (which fetches the images from ECR)


Amazon ECR
6
Kubernetes
3
5
Developer
1
AWS CodeCommit
2
AWS CodeBuild
4
AWS Lambda
AWS CodePipeline
The Lambda function is assigned an IAM role that has the ability to decrypt the kubernetes cluster secrets which are stored in Parameter Store
Parameter Store

- AWS Marketplace supports `Cloudformation` as `Delivery mechanism` which could be interesting to create keyspaces/secrets/mks/etc… for Akka Microservices on a single click.

https://aws.amazon.com/marketplace/search/results?page=1&filters=fulfillment_options&fulfillment_options=STACK&ref_=header_nav_dm_stack

- EKS is a valid resource on Cloudformation (but creating an EKS cluster for each services is overkill). I think one CloudFormation that spins EKS and installs some Akka goodies (ingresses for gRPC, operator,…) would be enough.
    - I mean, Amazon themselves have an EKS-optimized AMI in the marketplace:
        - https://aws.amazon.com/marketplace/pp/B07GRMYQR5?qid=1602066650055&sr=0-1&ref_=srh_res_product_title

Prefer codegen over CloudFormation

- https://aws.amazon.com/cdk/features/
- https://github.com/Sceptre/sceptre

Comparing to GCP

- Build pipelines (CI *and* CD) is **Cloud-Build** (https://cloud.google.com/cloud-build/docs/deploying-builds/deploy-gke)
  - they also promote jenkins and tekton in GKE on their intros to DevOps (https://cloud.google.com/devops/)
- SCM (git) is **Cloud Source Repositories**
- Hmm, maybe **Spinnaker** is used for the deployment bit
- etc…

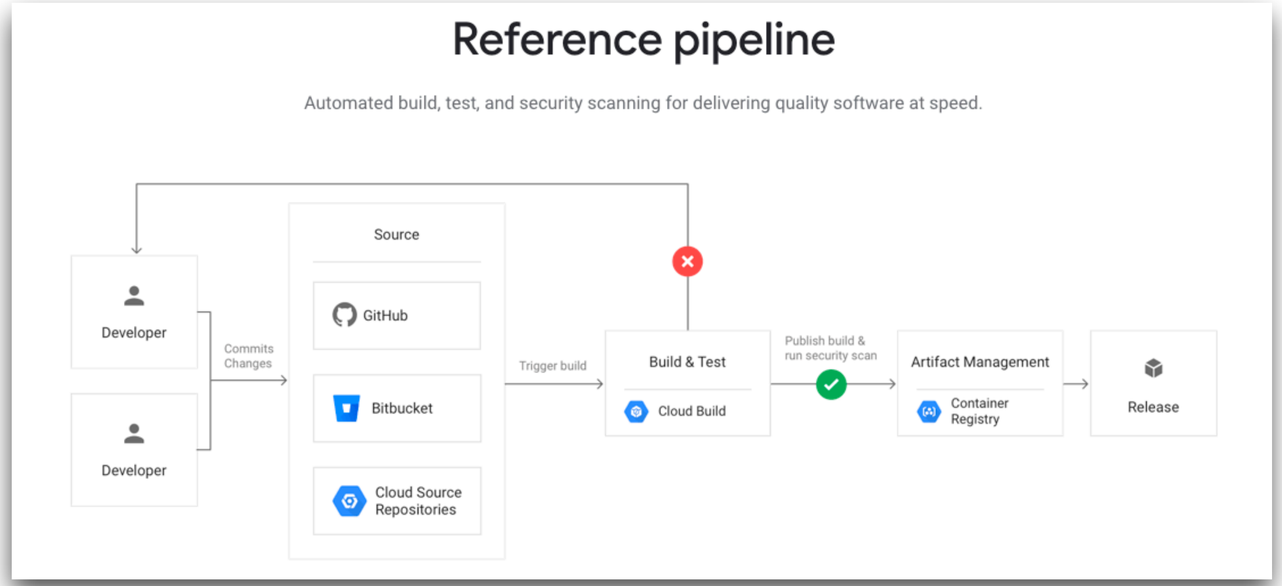


image: https://cloud.google.com/solutions/continuous-integration

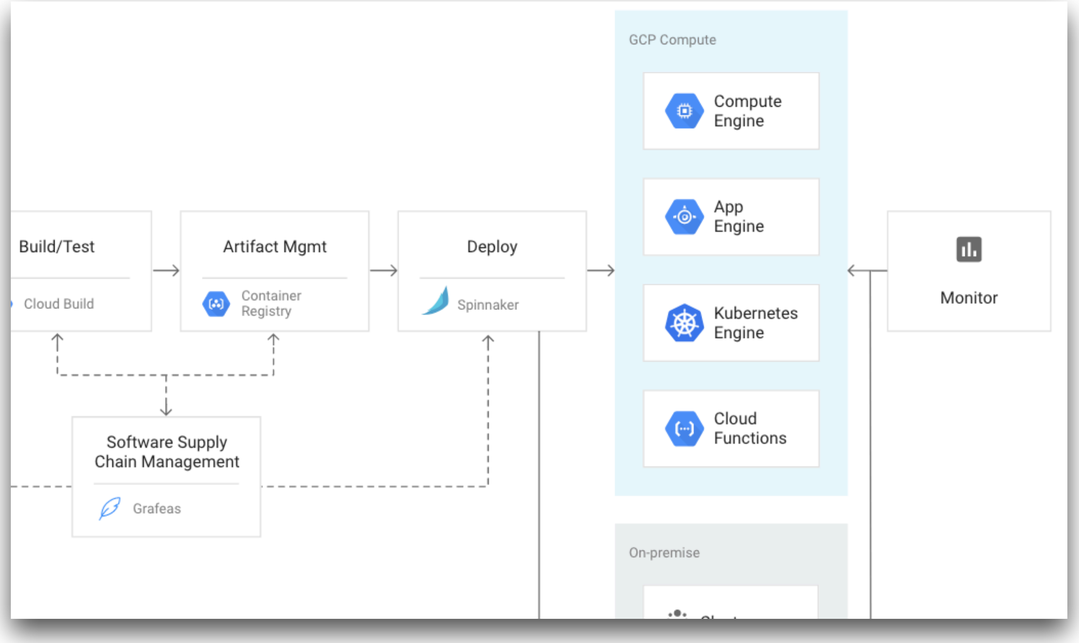


Image: https://cloud.google.com/solutions/continuous-delivery

Comparing to GCP

- Early on the Google docs for developers this appears:

Image: https://cloud.google.com/products/tools

TODO

- https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/using-cfn-nested-stacks.html
- https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/stacksets-concepts.html
- https://www.udemy.com/course/aws-cloudformation-step-by-step-beginner-to-intermediate