CI tools

Jenkins

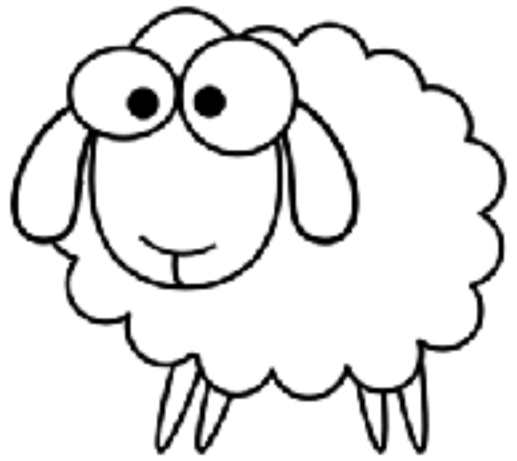
Travis

codeship

TeamCity

AppVeyor

Circle CI



LambCI

AWS CodePipeline

Concourse CI

design goals

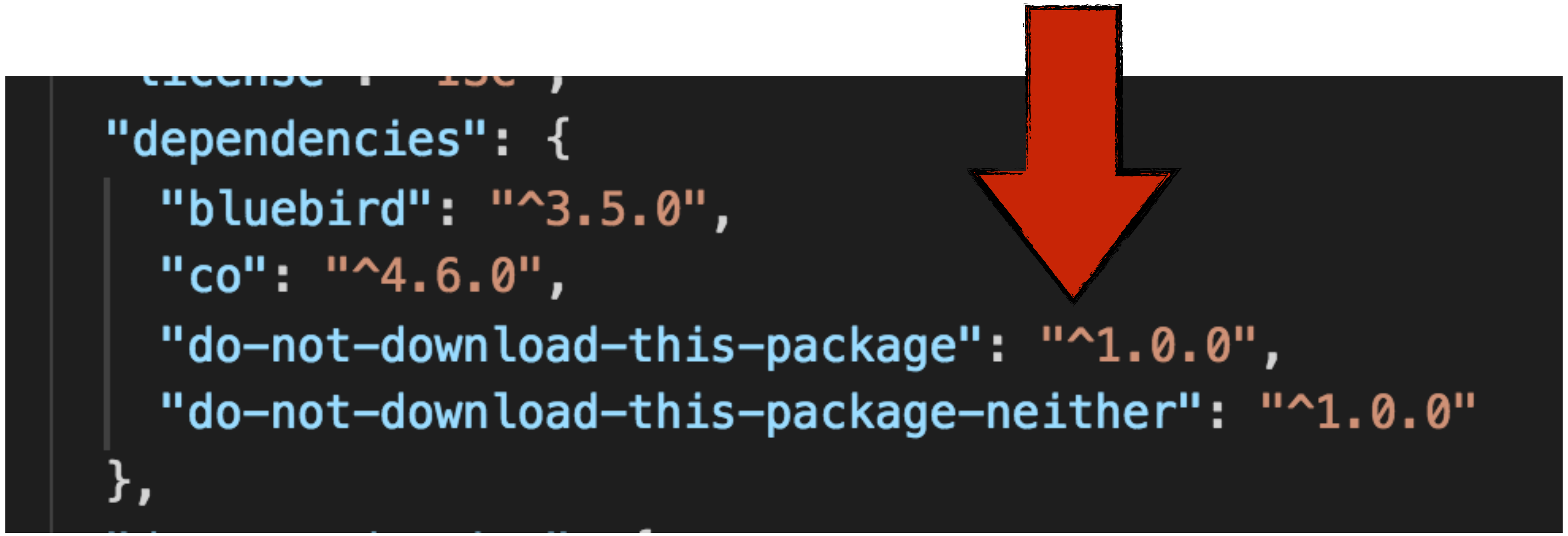
- “pipeline as code”

design goals

- “pipeline as code”
- reproducible builds

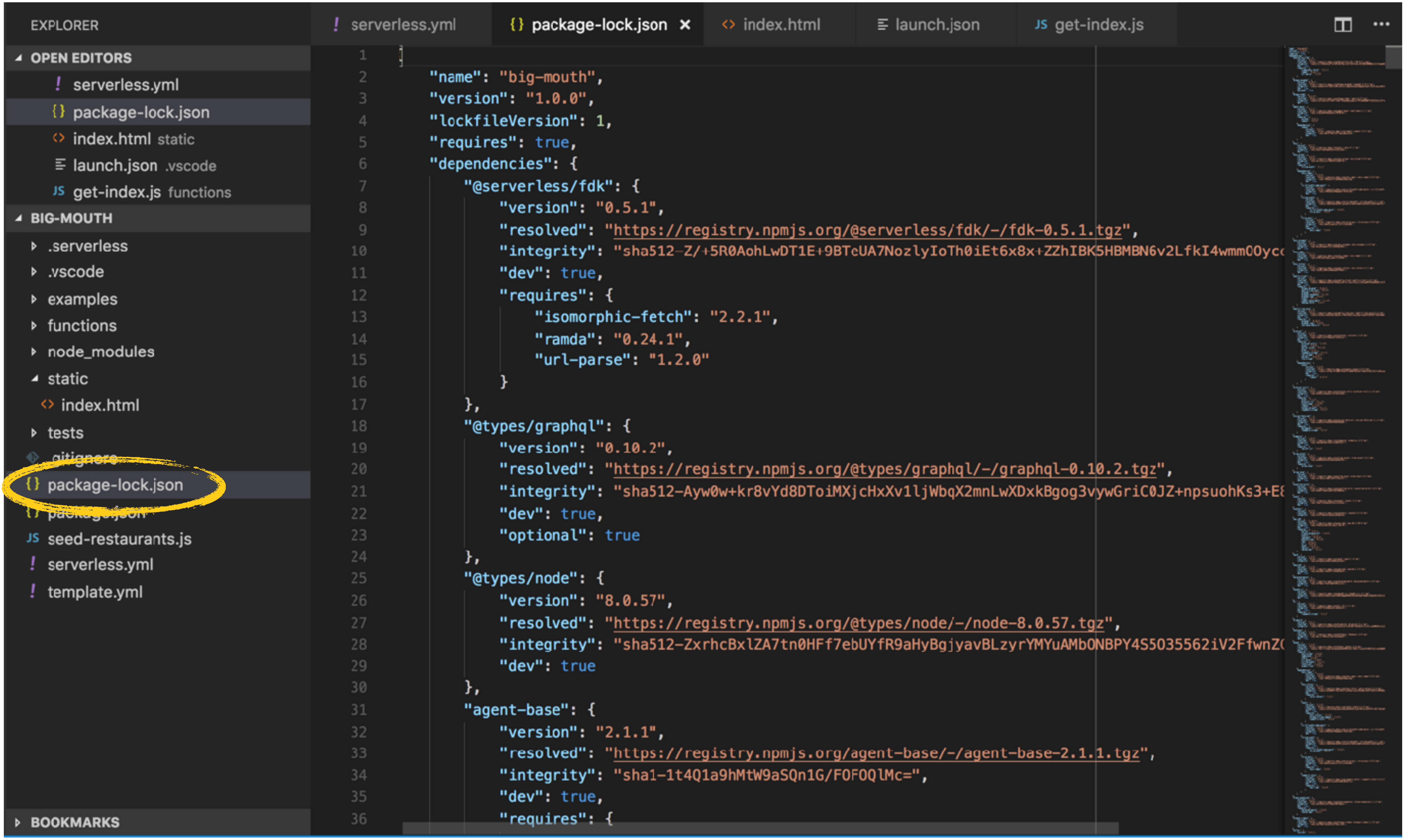
reproducible builds

NPM default - get latest
“compatible” version, ie. 1.X.X



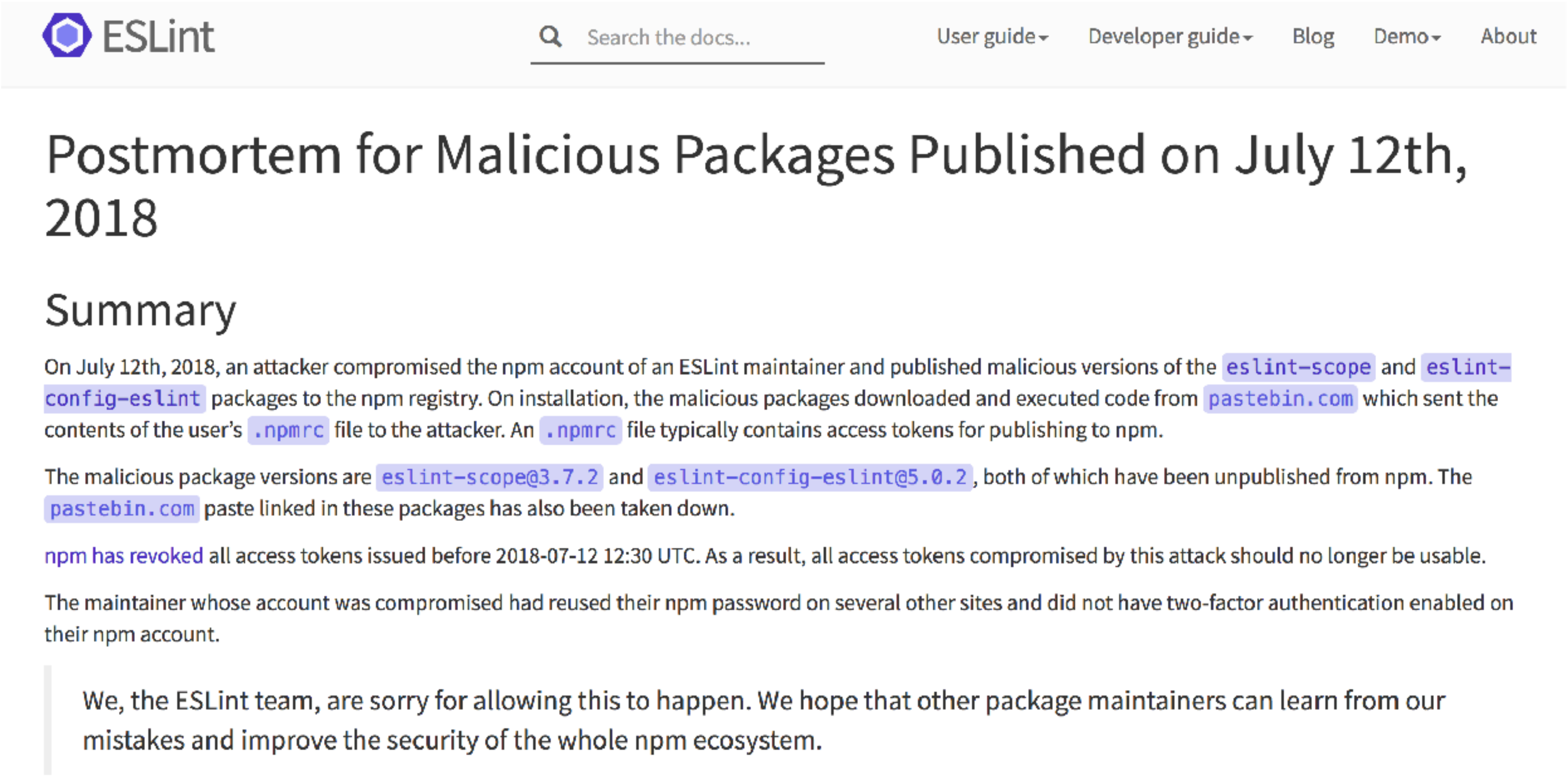
```
  "license": "ISC",
  "dependencies": {
    "bluebird": "^3.5.0",
    "co": "^4.6.0",
    "do-not-download-this-package": "^1.0.0",
    "do-not-download-this-package-neither": "^1.0.0"
  },
```

reproducible builds



```json
{
    "name": "big-mouth",
    "version": "1.0.0",
    "lockfileVersion": 1,
    "requires": true,
    "dependencies": {
        "@serverless/fdk": {
            "version": "0.5.1",
            "resolved": "https://registry.npmjs.org/@serverless/fdk/-/fdk-0.5.1.tgz",
            "integrity": "sha512-Z/+5R0AohLwDT1E+9BTcUA7NozlyIoTh0iEt6x8x+ZZhIBK5HBMBN6v2LfkI4wmm0Oyc
            "dev": true,
            "requires": {
                "isomorphic-fetch": "2.2.1",
                "ramda": "0.24.1",
                "url-parse": "1.2.0"
            }
        },
        "@types/graphql": {
            "version": "0.10.2",
            "resolved": "https://registry.npmjs.org/@types/graphql/-/graphql-0.10.2.tgz",
            "integrity": "sha512-Ayw0w+kr8vYd8DToiMXjcHxXv1ljWbqX2mnLwXDxkBgog3vywGriC0JZ+npsuohKs3+E
            "dev": true,
            "optional": true
        },
        "@types/node": {
            "version": "8.0.57",
            "resolved": "https://registry.npmjs.org/@types/node/-/node-8.0.57.tgz",
            "integrity": "sha512-ZxrhcBxlZA7tn0HFf7ebUYfR9aHyBgjyavBLzyrYMYuAMbONBPY4S5035562iV2FfwnZ
            "dev": true
        },
        "agent-base": {
            "version": "2.1.1",
            "resolved": "https://registry.npmjs.org/agent-base/-/agent-base-2.1.1.tgz",
            "integrity": "sha1-1t4Q1a9hMtW9aSQn1G/FOFOQlMc=",
            "dev": true,
            "requires": {
```

use `npm ci` during CI to restore exact version



Postmortem for Malicious Packages Published on July 12th, 2018

Summary

On July 12th, 2018, an attacker compromised the npm account of an ESLint maintainer and published malicious versions of the `eslint-scope` and `eslint-config-eslint` packages to the npm registry. On installation, the malicious packages downloaded and executed code from `pastebin.com` which sent the contents of the user's `.npmrc` file to the attacker. An `.npmrc` file typically contains access tokens for publishing to npm.

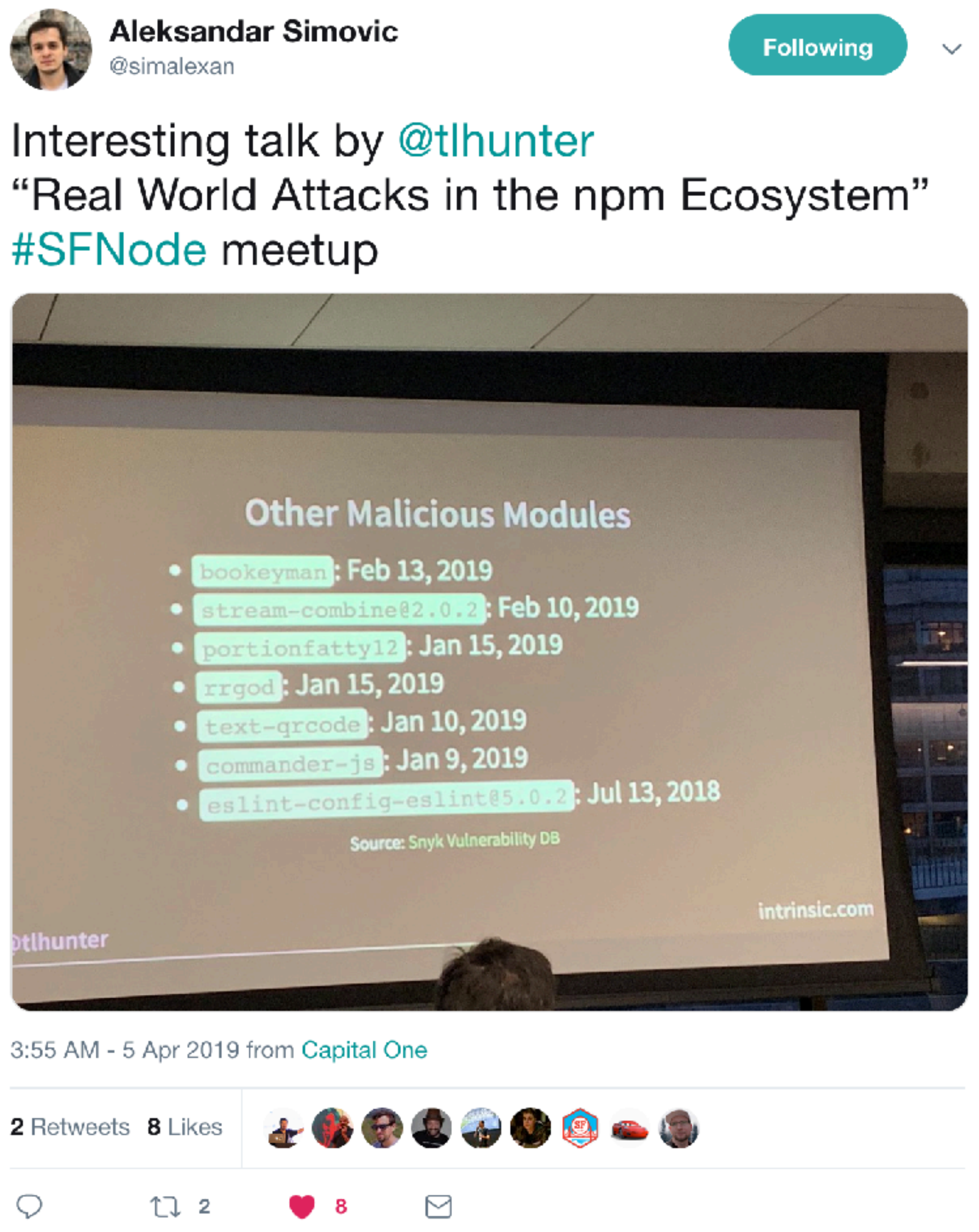
The malicious package versions are `eslint-scope@3.7.2` and `eslint-config-eslint@5.0.2`, both of which have been unpublished from npm. The `pastebin.com` paste linked in these packages has also been taken down.

npm has revoked all access tokens issued before 2018-07-12 12:30 UTC. As a result, all access tokens compromised by this attack should no longer be usable.

The maintainer whose account was compromised had reused their npm password on several other sites and did not have two-factor authentication enabled on their npm account.

> We, the ESLint team, are sorry for allowing this to happen. We hope that other package maintainers can learn from our mistakes and improve the security of the whole npm ecosystem.

https://eslint.org/blog/2018/07/postmortem-for-malicious-package-publishes



Aleksandar Simovic
@simalexan

Interesting talk by @tlhunter
“Real World Attacks in the npm Ecosystem”
#SFNode meetup

Other Malicious Modules

- `bookeyman`: Feb 13, 2019
- `stream-combine@2.0.2`: Feb 10, 2019
- `portionfatty12`: Jan 15, 2019
- `rrgod`: Jan 15, 2019
- `text-qrcode`: Jan 10, 2019
- `commander-js`: Jan 9, 2019
- `eslint-config-eslint@5.0.2`: Jul 13, 2018

Source: Snyk Vulnerability DB

@tlhunter

intrinsic.com

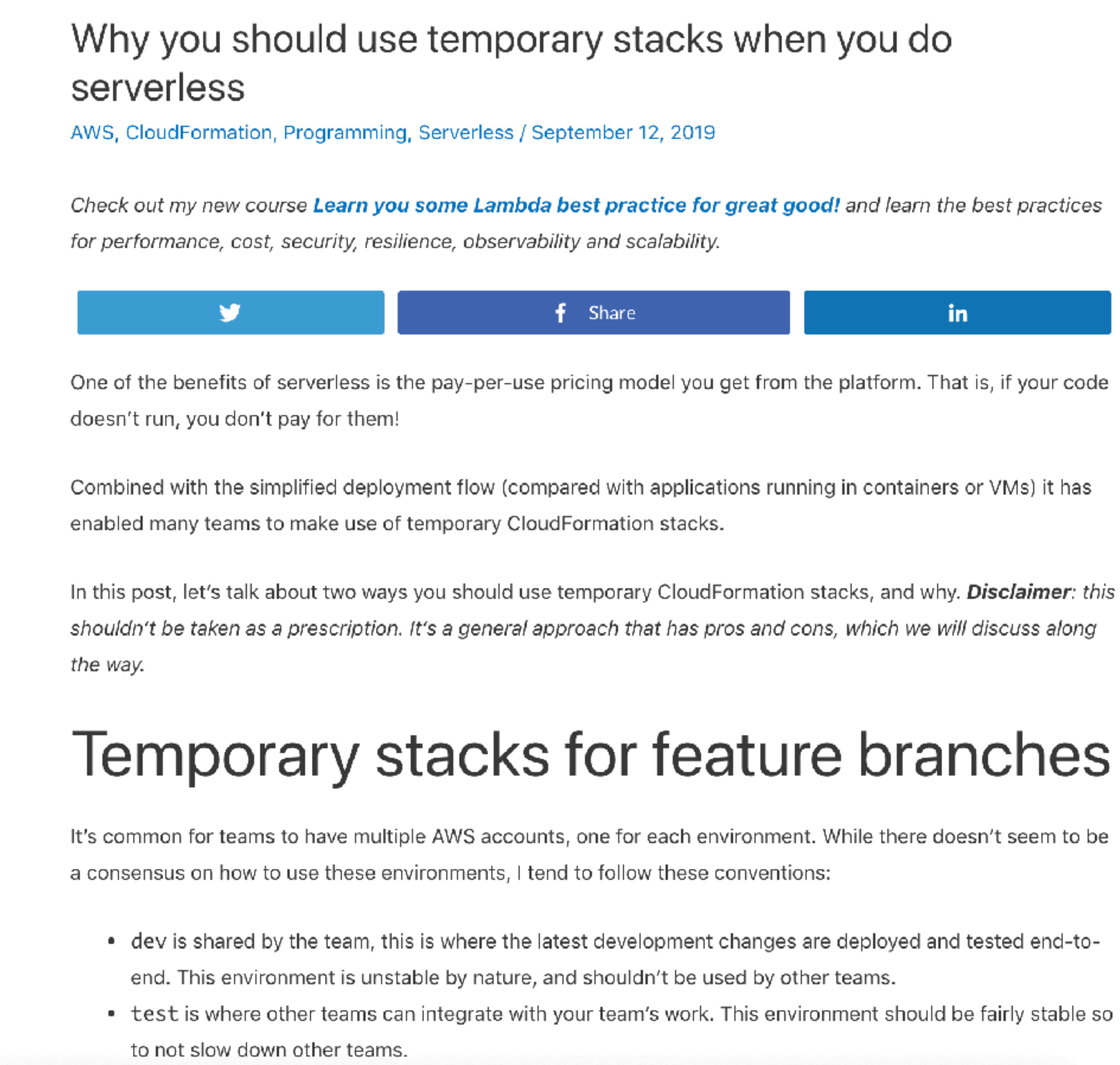
3:55 AM - 5 Apr 2019 from Capital One

2 Retweets 8 Likes

design goals

- “pipeline as code”
- reproducible builds
- fast!

prefer CI tools that lets you use containers to run each step



Why you should use temporary stacks when you do serverless

AWS, CloudFormation, Programming, Serverless / September 12, 2019

Check out my new course ***Learn you some Lambda best practice for great good!*** *and learn the best practices for performance, cost, security, resilience, observability and scalability.*

One of the benefits of serverless is the pay-per-use pricing model you get from the platform. That is, if your code doesn't run, you don't pay for them!

Combined with the simplified deployment flow (compared with applications running in containers or VMs) it has enabled many teams to make use of temporary CloudFormation stacks.

In this post, let's talk about two ways you should use temporary CloudFormation stacks, and why. ***Disclaimer****: this shouldn't be taken as a prescription. It's a general approach that has pros and cons, which we will discuss along the way.*

Temporary stacks for feature branches

It's common for teams to have multiple AWS accounts, one for each environment. While there doesn't seem to be a consensus on how to use these environments, I tend to follow these conventions:

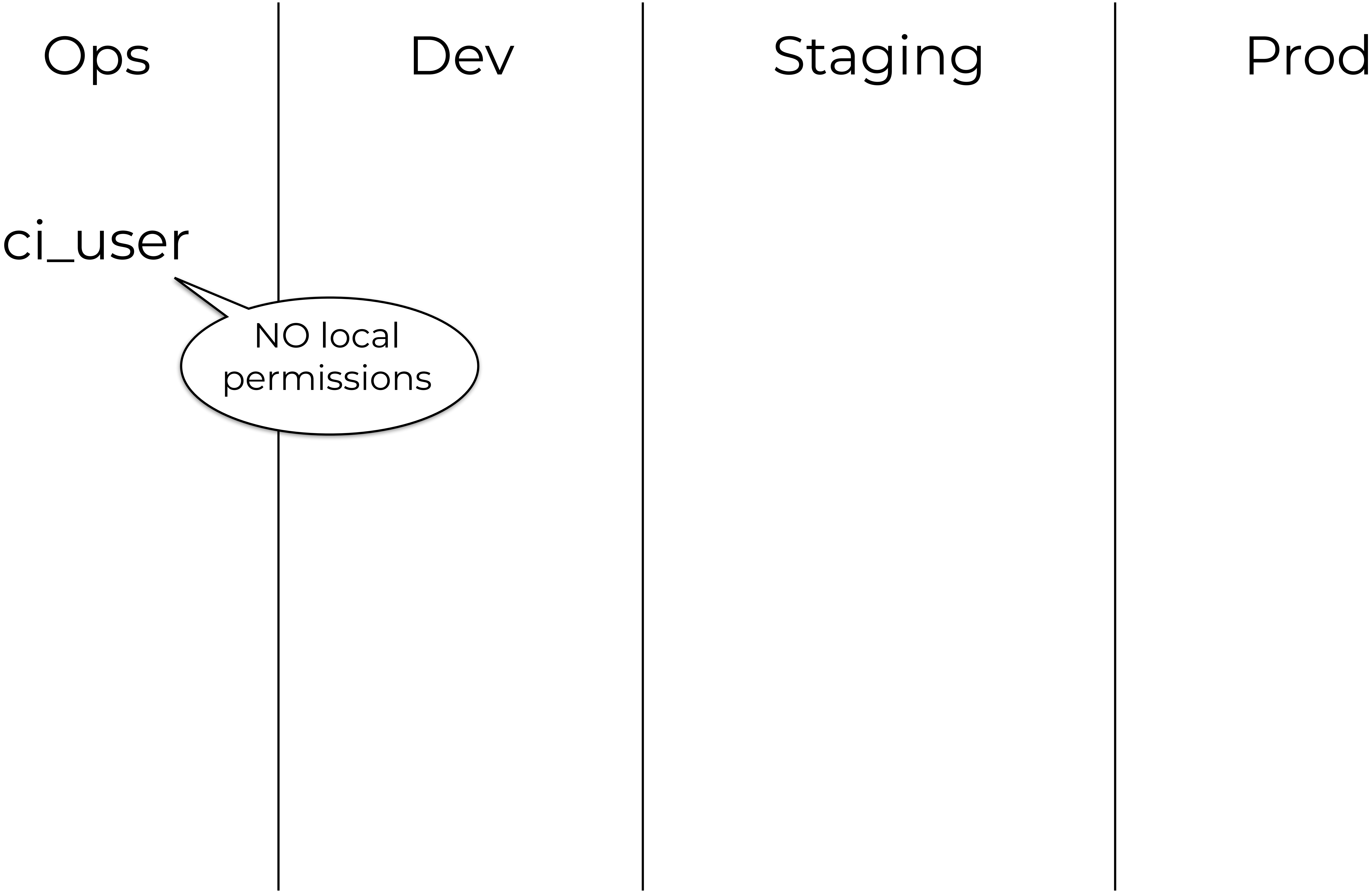
- `dev` is shared by the team, this is where the latest development changes are deployed and tested end-to-end. This environment is unstable by nature, and shouldn't be used by other teams.
- `test` is where other teams can integrate with your team's work. This environment should be fairly stable so to not slow down other teams.

https://theburningmonk.com/2019/09/why-you-should-use-temporary-stacks-when-you-do-serverless/

design goals

- “pipeline as code”
- reproducible builds
- fast!
- secure

Ops	Dev	Staging	Prod



Ops

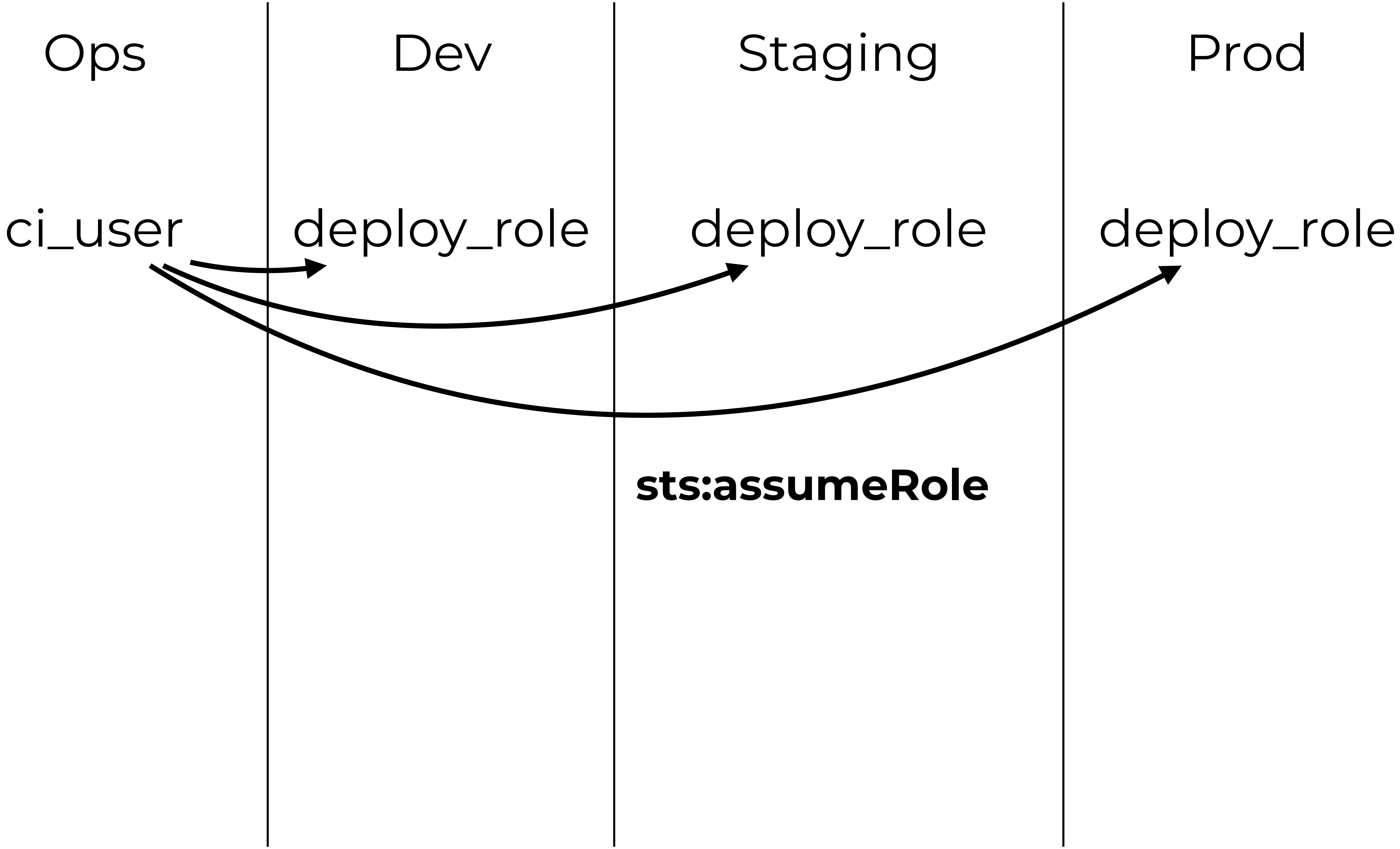
Dev

Staging

Prod

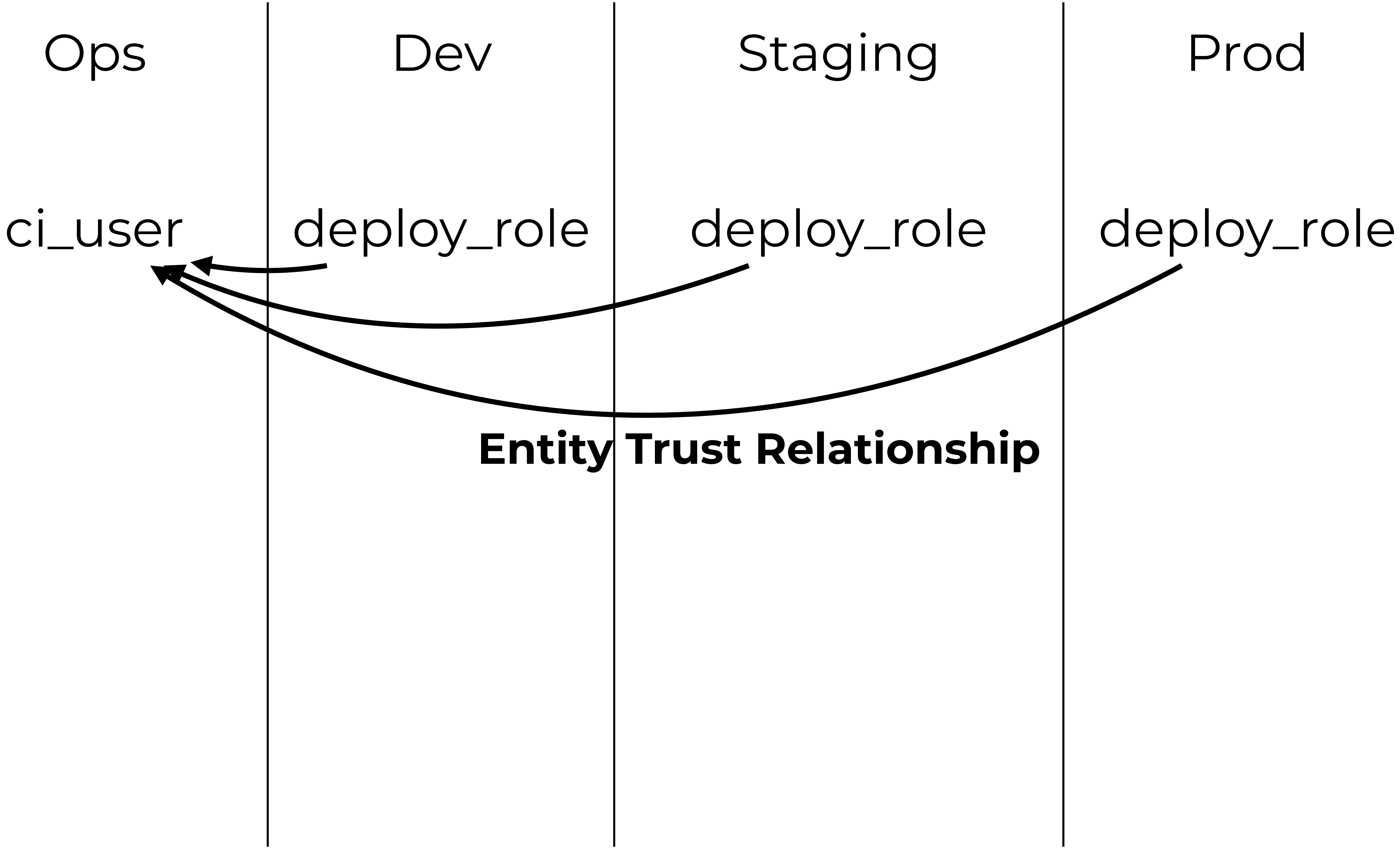
ci_user

NO local permissions



Ops	Dev	Staging	Prod
ci_user	deploy_role	deploy_role	deploy_role

sts:assumeRole



Ops

Dev

Staging

Prod

ci_user

deploy_role

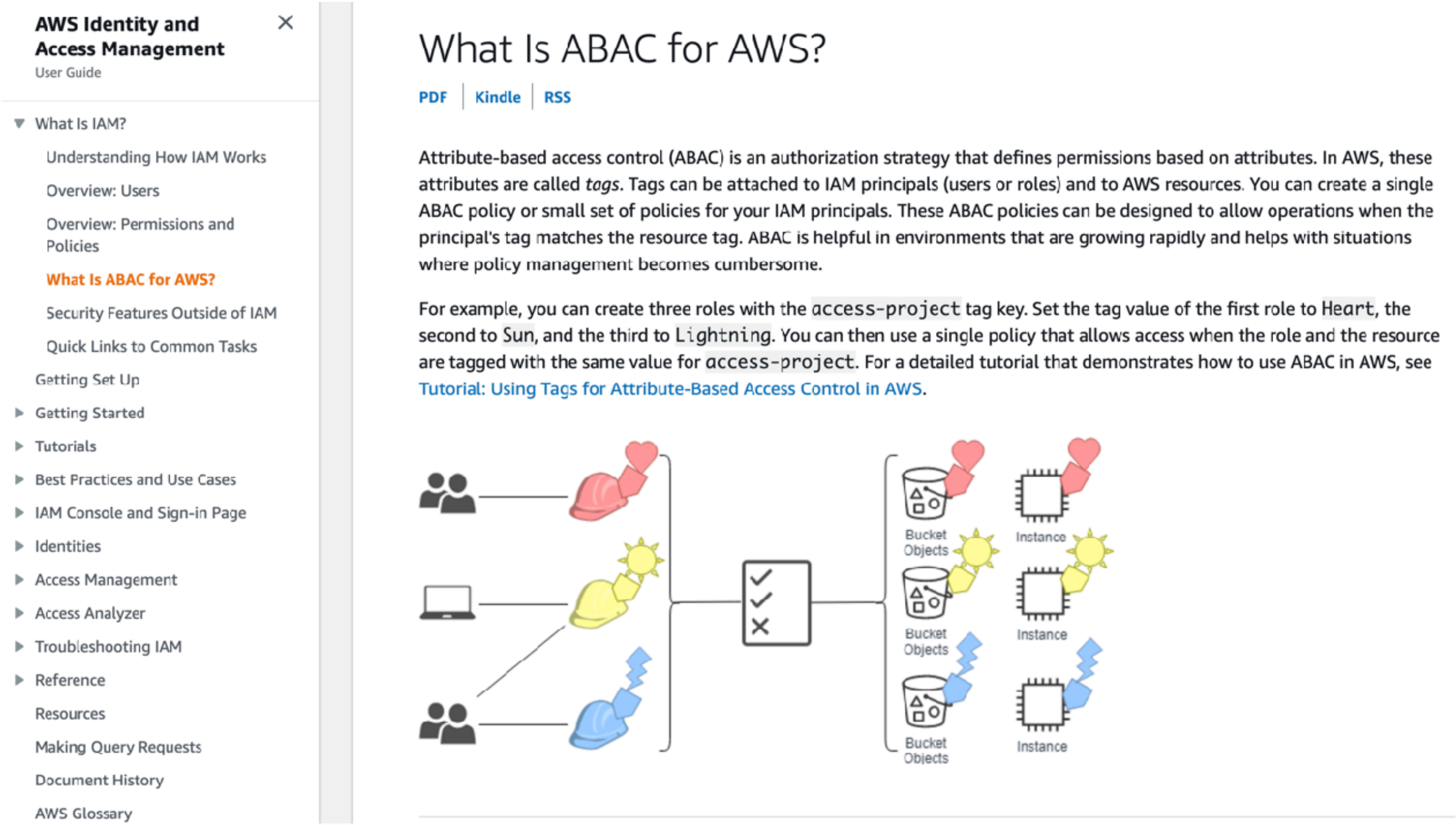
deploy_role

deploy_role

Entity Trust Relationship

Ops	Dev	Staging	Prod
ci_user	deploy_role	deploy_role	deploy_role

permissive - e.g. admin - roles that are only assumable by ci_user

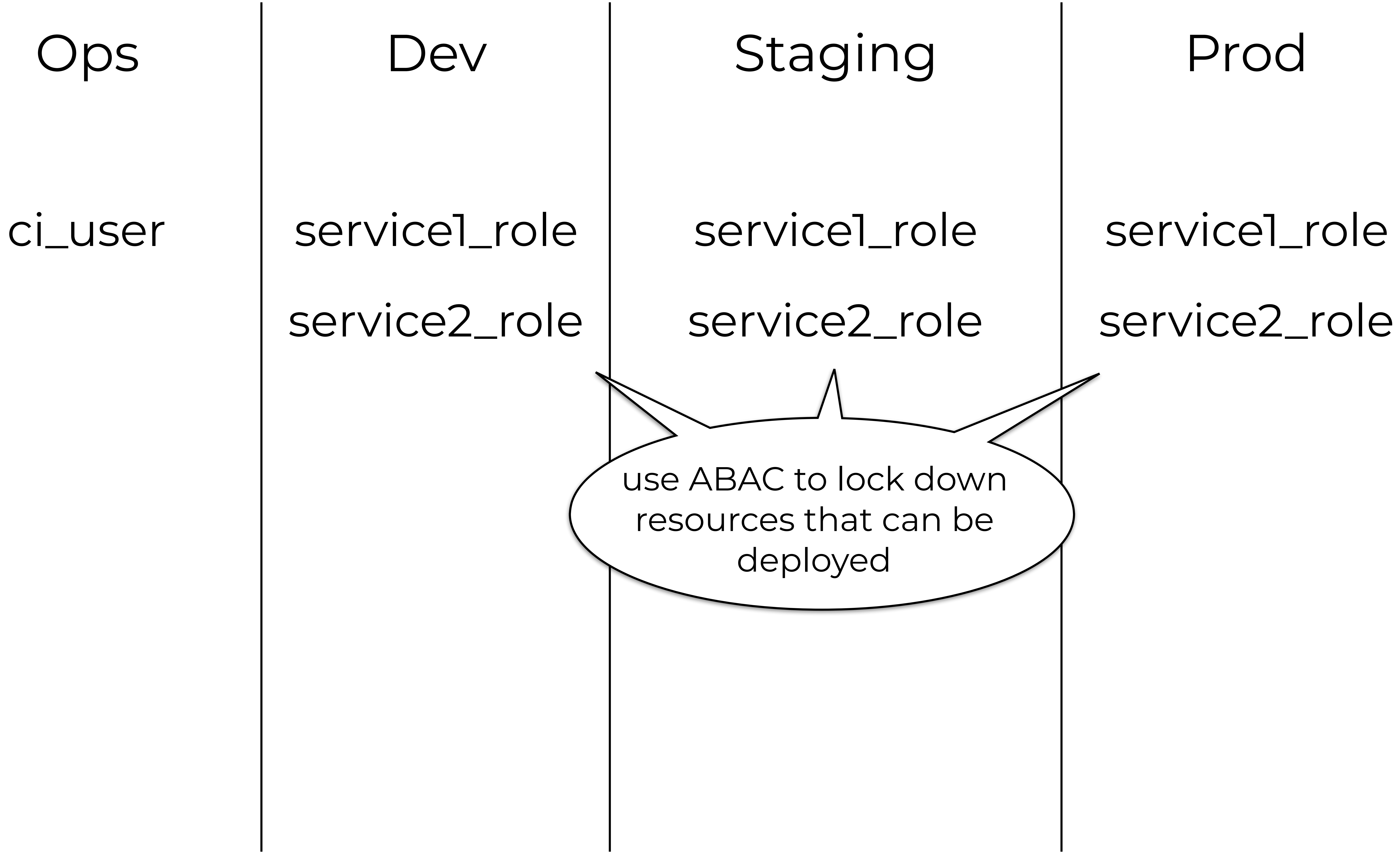


What Is ABAC for AWS?

Attribute-based access control (ABAC) is an authorization strategy that defines permissions based on attributes. In AWS, these attributes are called *tags*. Tags can be attached to IAM principals (users or roles) and to AWS resources. You can create a single ABAC policy or small set of policies for your IAM principals. These ABAC policies can be designed to allow operations when the principal's tag matches the resource tag. ABAC is helpful in environments that are growing rapidly and helps with situations where policy management becomes cumbersome.

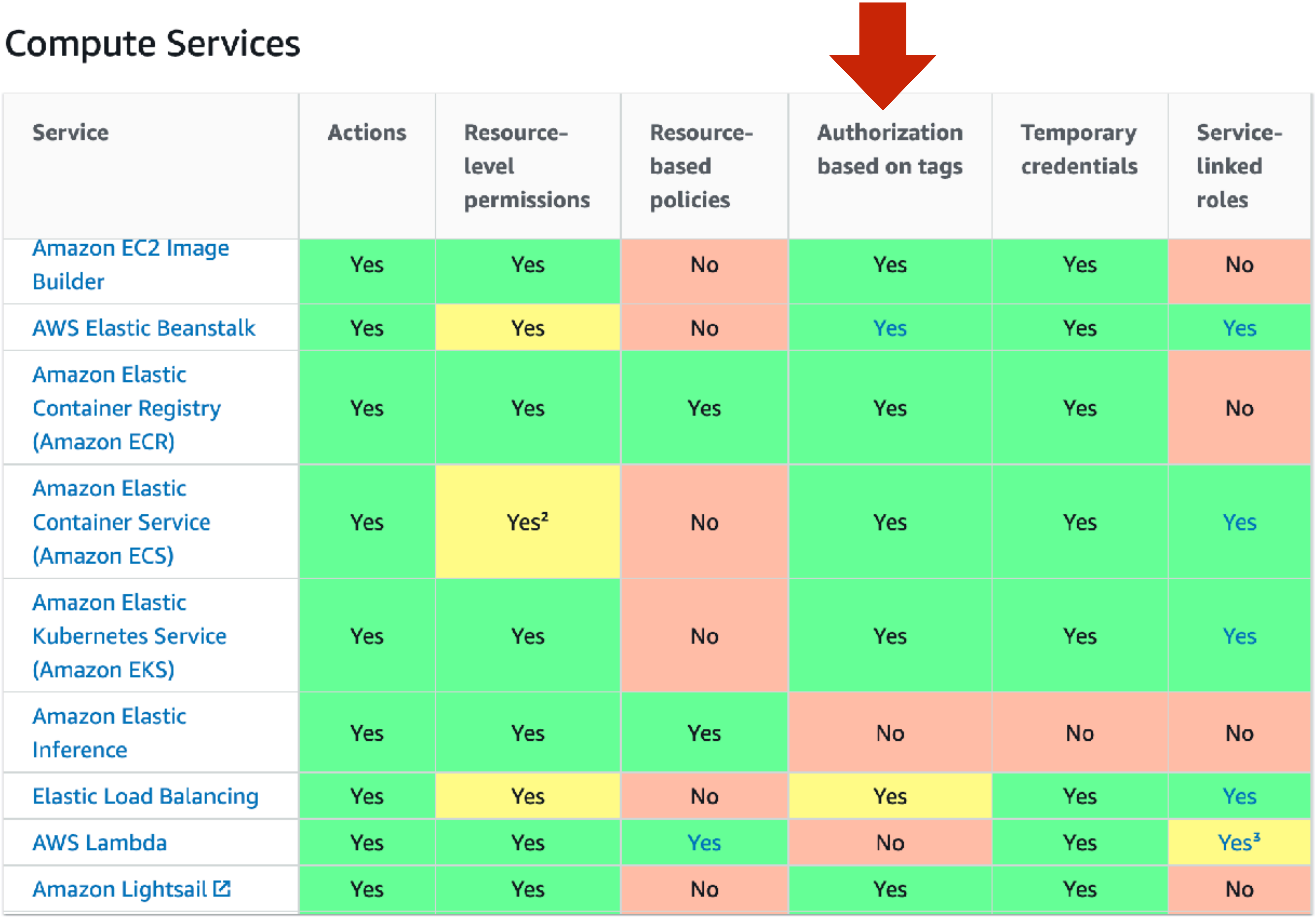
For example, you can create three roles with the `access-project` tag key. Set the tag value of the first role to `Heart`, the second to `Sun`, and the third to `Lightning`. You can then use a single policy that allows access when the role and the resource are tagged with the same value for `access-project`. For a detailed tutorial that demonstrates how to use ABAC in AWS, see Tutorial: Using Tags for Attribute-Based Access Control in AWS.

https://docs.aws.amazon.com/IAM/latest/UserGuide/introduction_attribute-based-access-control.html



Ops	Dev	Staging	Prod
ci_user	service1_role	service1_role	service1_role
	service2_role	service2_role	service2_role

use ABAC to lock down resources that can be deployed



Compute Services

Service	Actions	Resource-level permissions	Resource-based policies	Authorization based on tags	Temporary credentials	Service-linked roles
Amazon EC2 Image Builder	Yes	Yes	No	Yes	Yes	No
AWS Elastic Beanstalk	Yes	Yes	No	Yes	Yes	Yes
Amazon Elastic Container Registry (Amazon ECR)	Yes	Yes	Yes	Yes	Yes	No
Amazon Elastic Container Service (Amazon ECS)	Yes	Yes[2]	No	Yes	Yes	Yes
Amazon Elastic Kubernetes Service (Amazon EKS)	Yes	Yes	No	Yes	Yes	Yes
Amazon Elastic Inference	Yes	Yes	Yes	No	No	No
Elastic Load Balancing	Yes	Yes	No	Yes	Yes	Yes
AWS Lambda	Yes	Yes	Yes	No	Yes	Yes[3]
Amazon Lightsail	Yes	Yes	No	Yes	Yes	No

https://amzn.to/2yjwCzD