

# Infrastructure as Code with Terraform

Setting up a website with AWS S3

Nora Schöner



 **Intro: Hi I'm Nora**

 **Intro: The Story behind**

 **Infrastructure as Code**

 **Terraform**

 **Live Coding**

 **Let's sum it up!**



## 🔑 Aim & Takeaways

Understand Infrastructure as Code

Know benefits and challenges

Insights into Terraform

# Hi, I'm Nora

Cloud Engineer/ SW Architect @ CodeCamp:N



current 📁



meine-vorsorgedokumente.de



codecamp<sup>N</sup>

Come by and say Hi 🙋



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@norchen



<https://wolkencode.de>

**It's just a  
click in the  
console...**

A new  
cooperation is  
coming.

We need the new  
test set-up  
by next week...

Yeah, let me  
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through the  
console...



photo by CodeCamp:N GmbH

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Yeah, let me  
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console...

Argh!  
**WHICH CONFIG**  
did I used last  
time?

And **WHICH  
RESOURCES ?**  
I can't remember

...

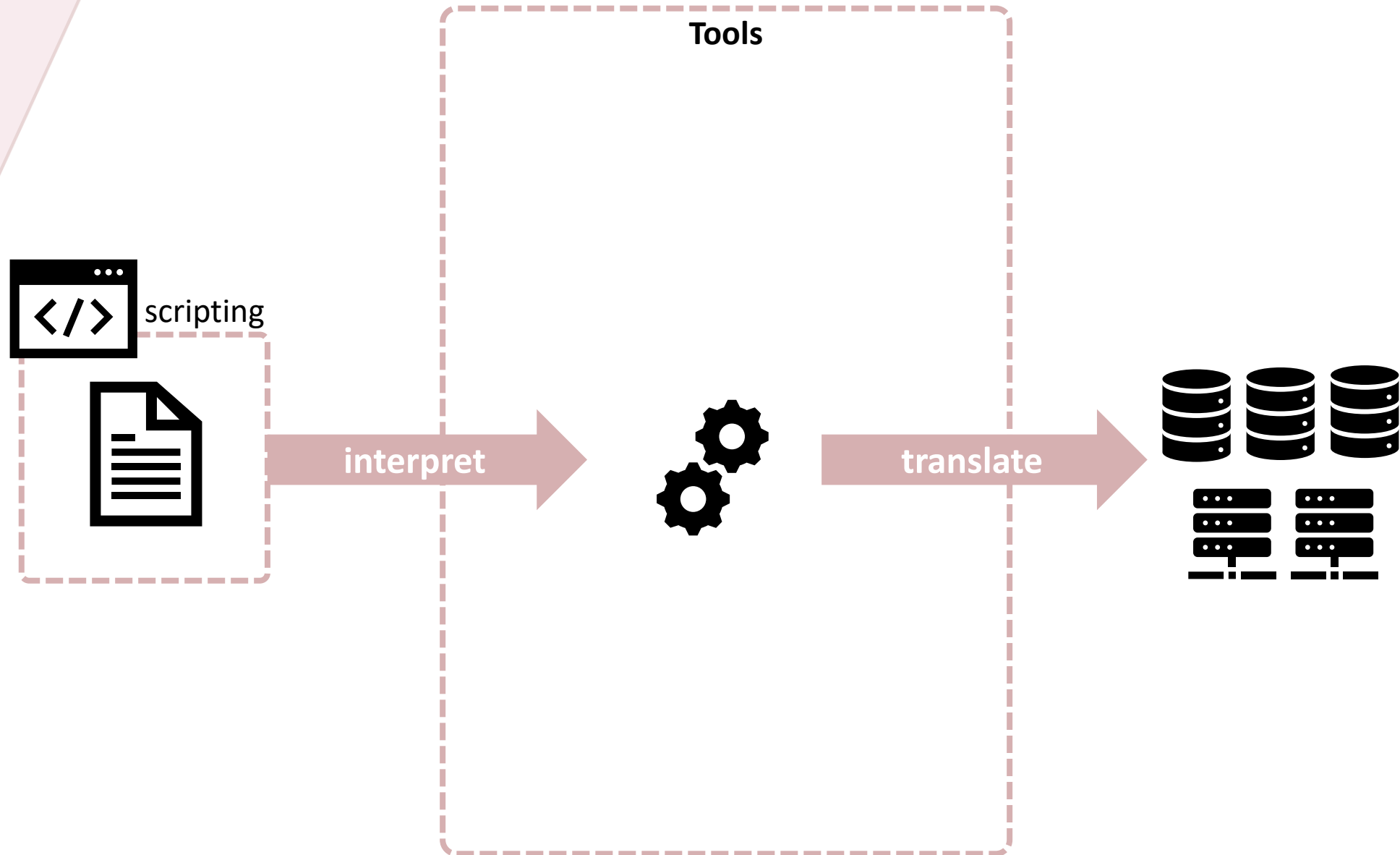
This should  
be working  
**AUTOMATICALLY**

...

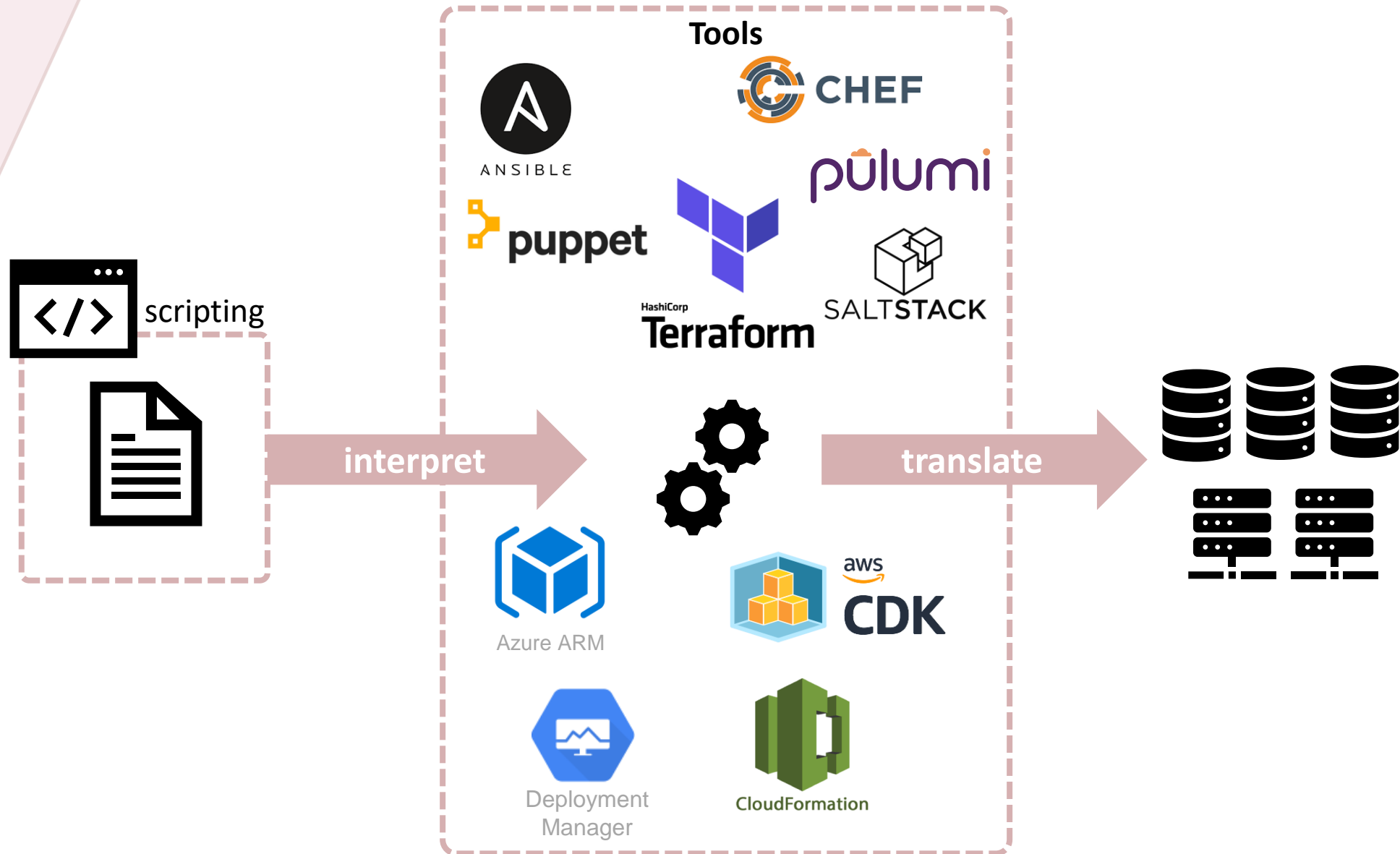


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## Infrastructure as Code

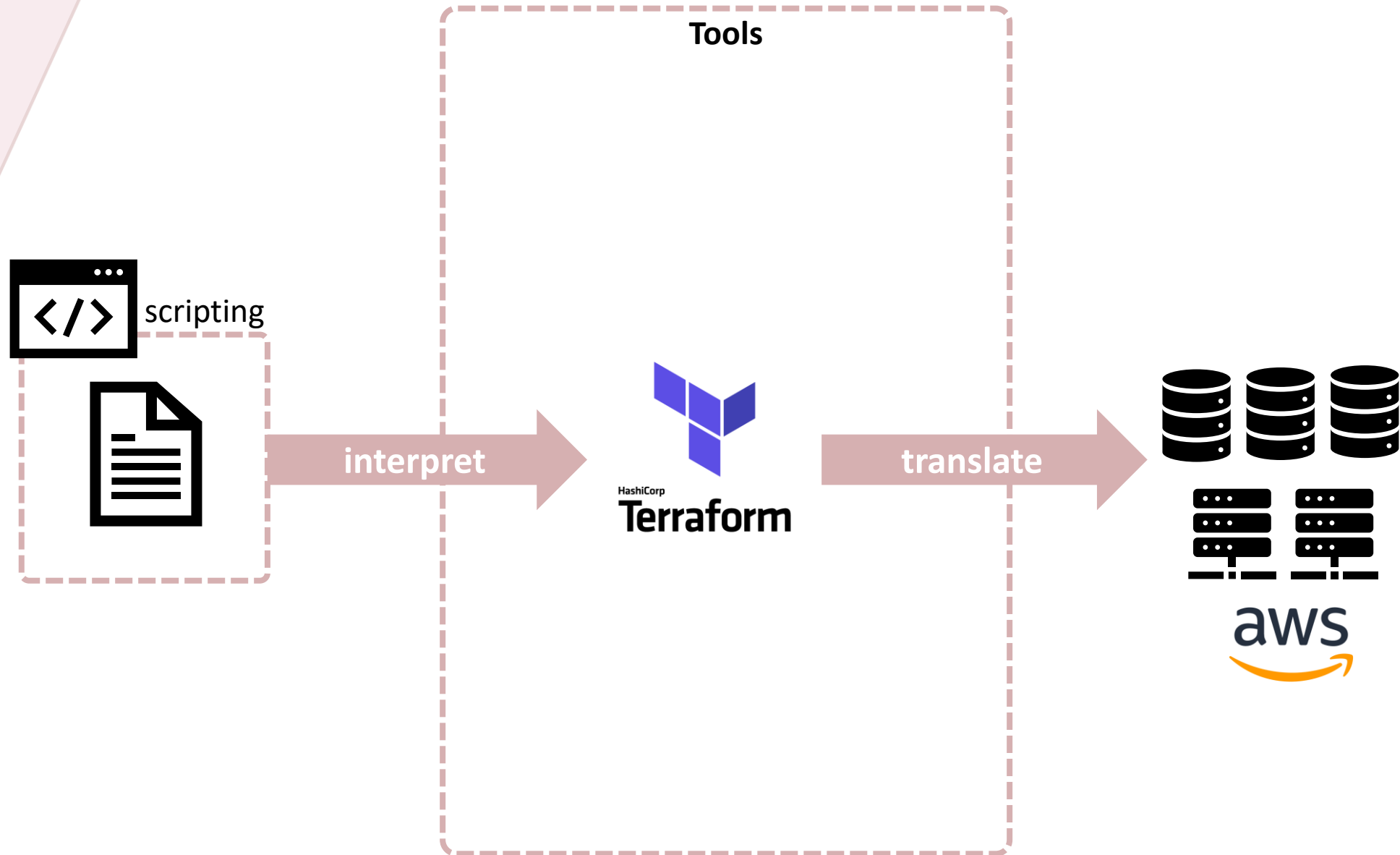


## Infrastructure as Code





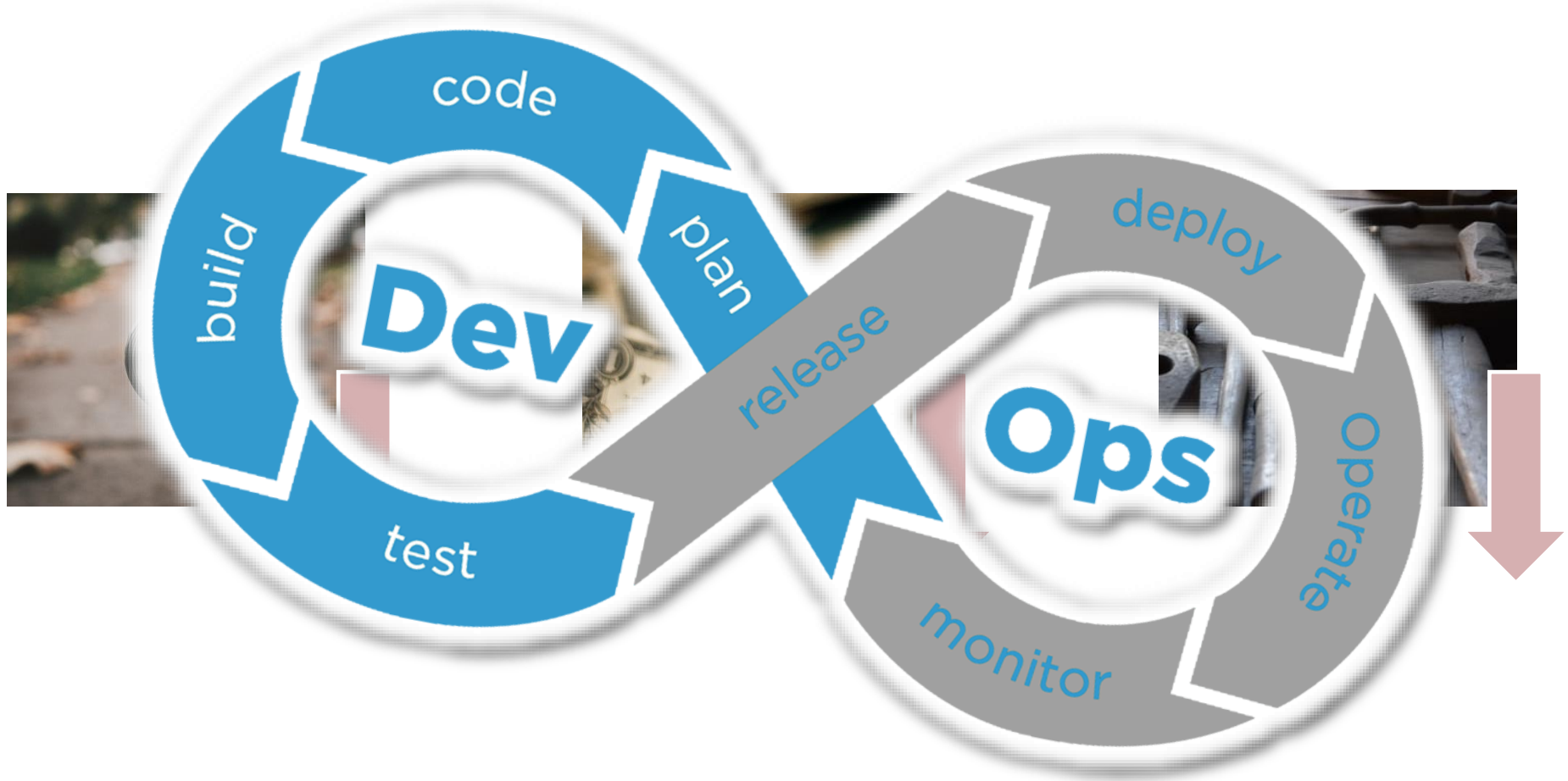
## Infrastructure as Code



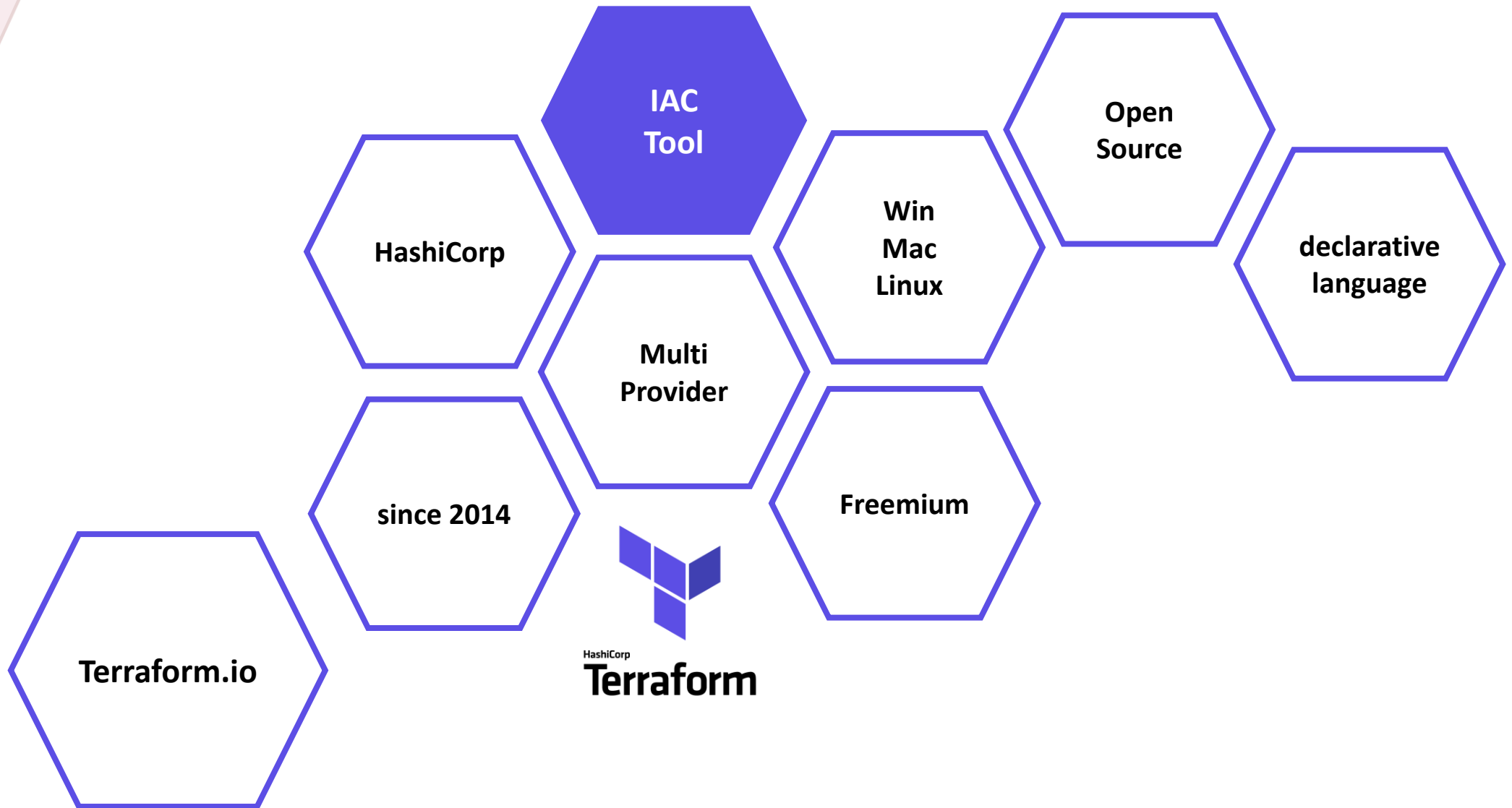
**The workload  
will benefit  
from it**



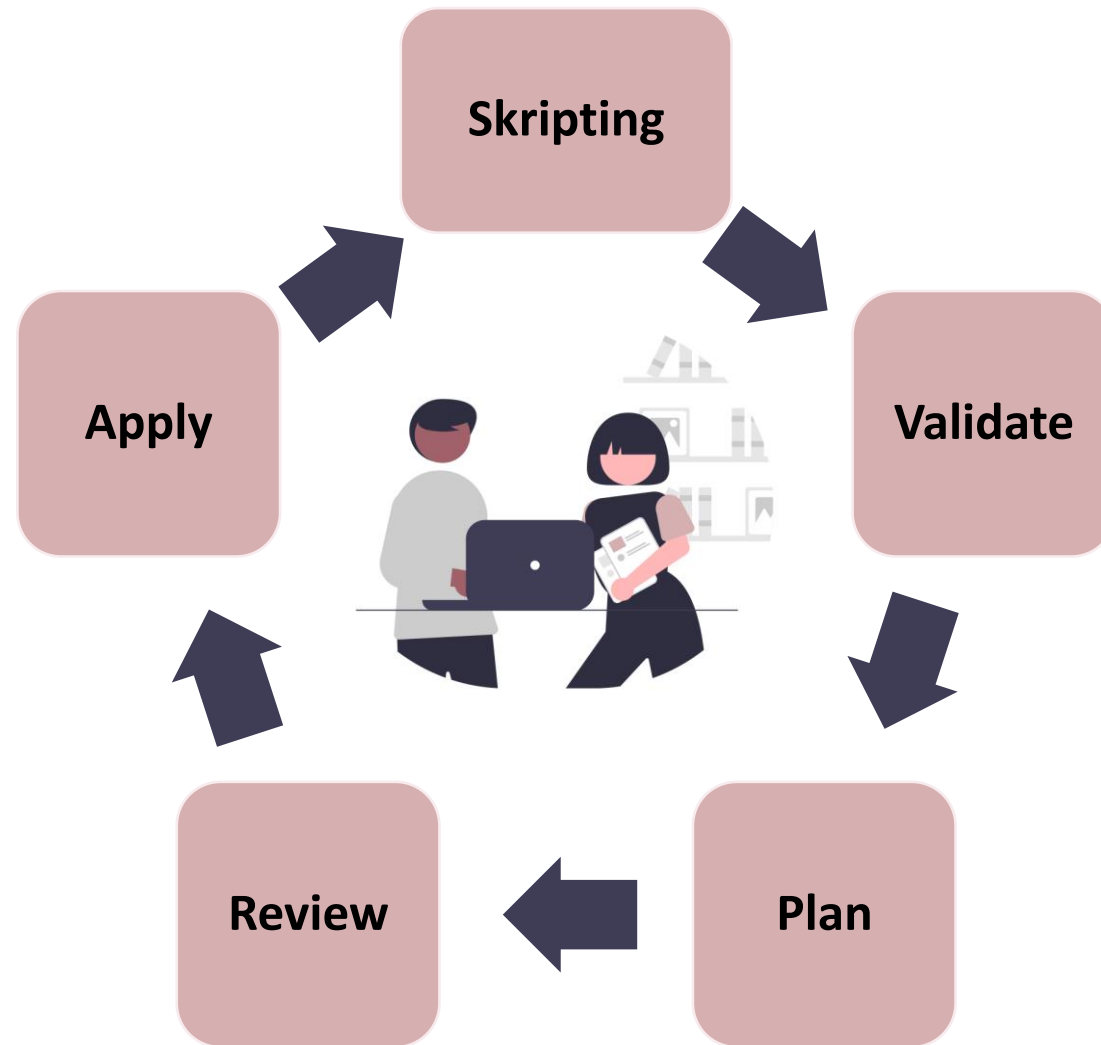
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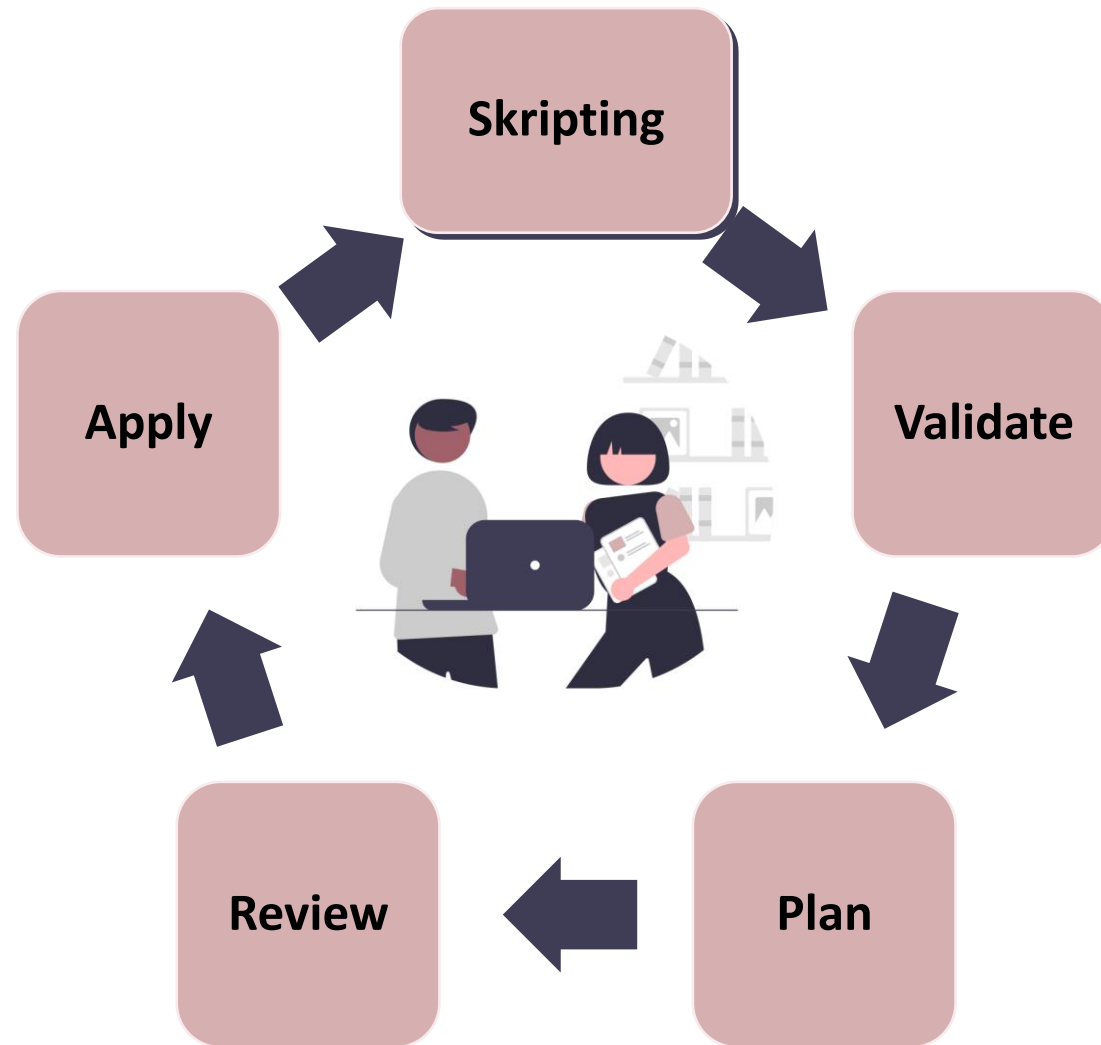
**Terraform is  
a great tool**



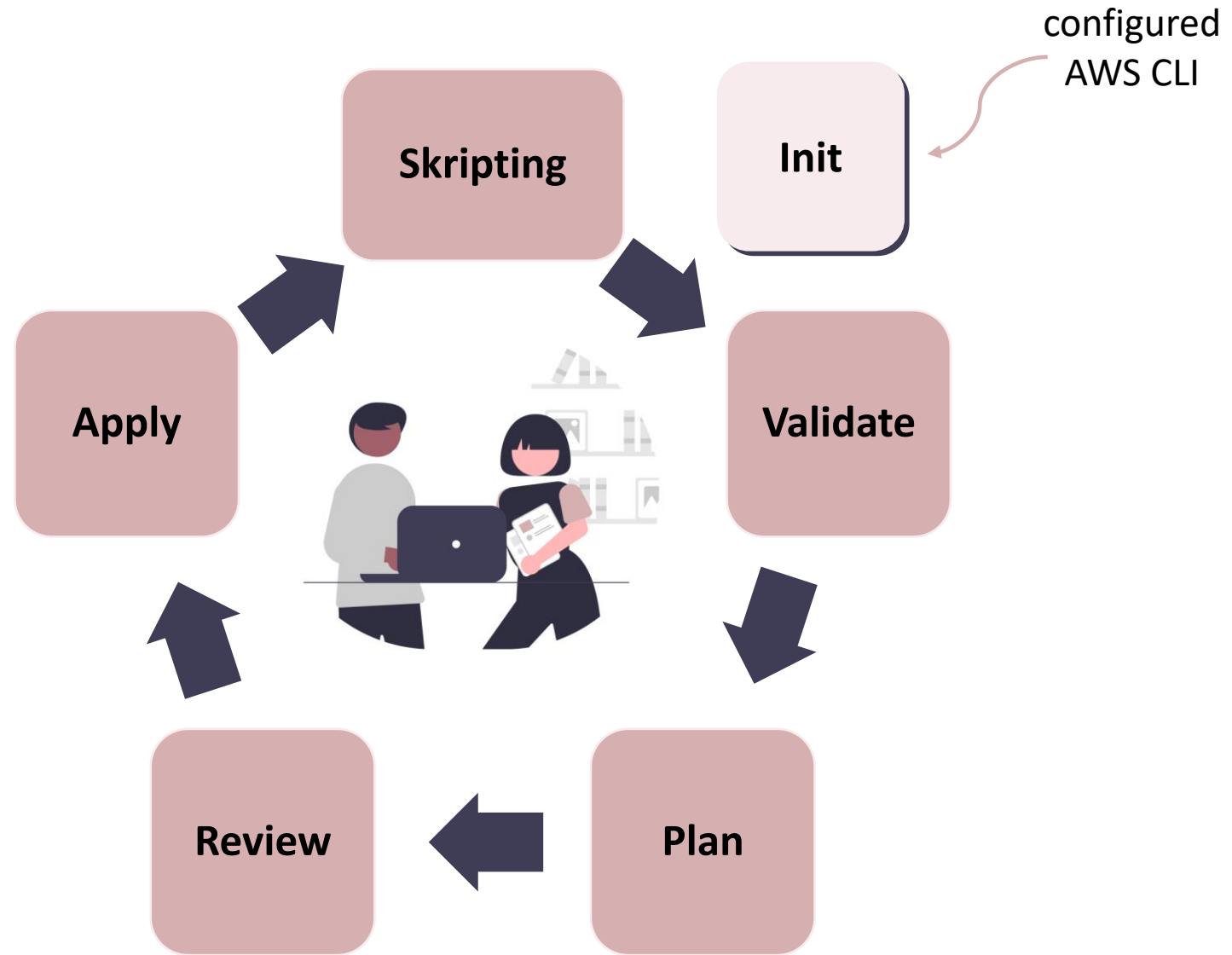
## Basic Workflow



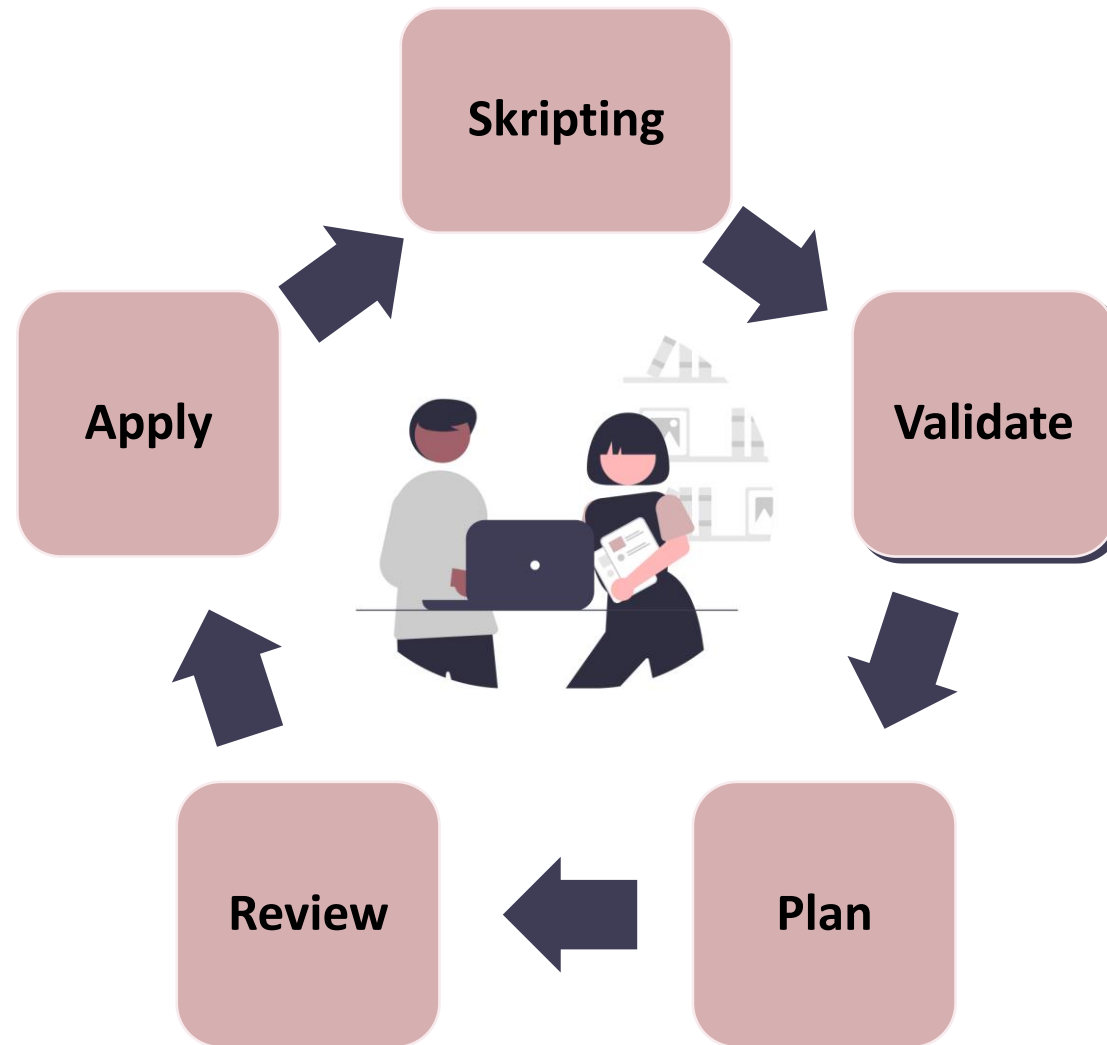
## Basic Workflow



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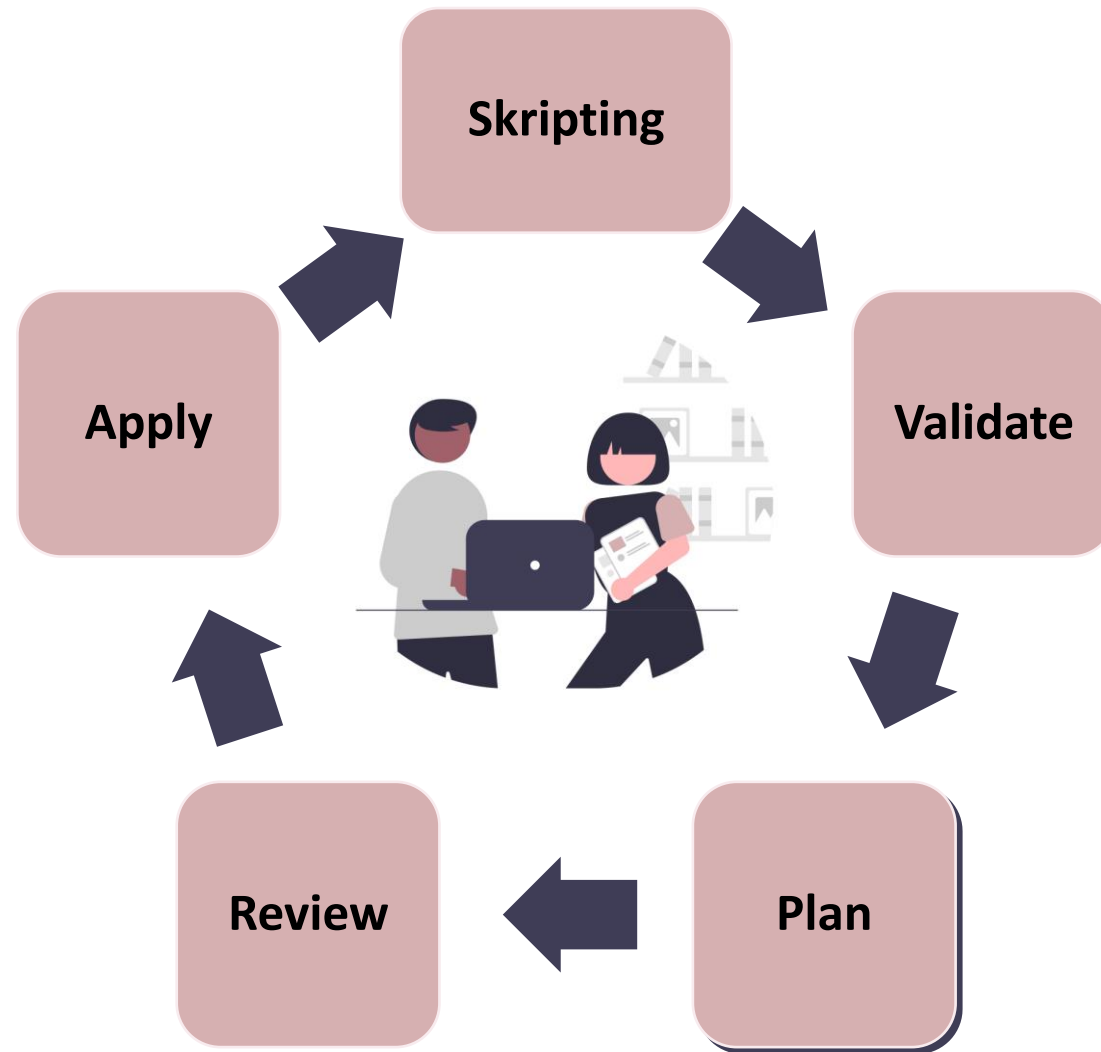


## Basic Workflow

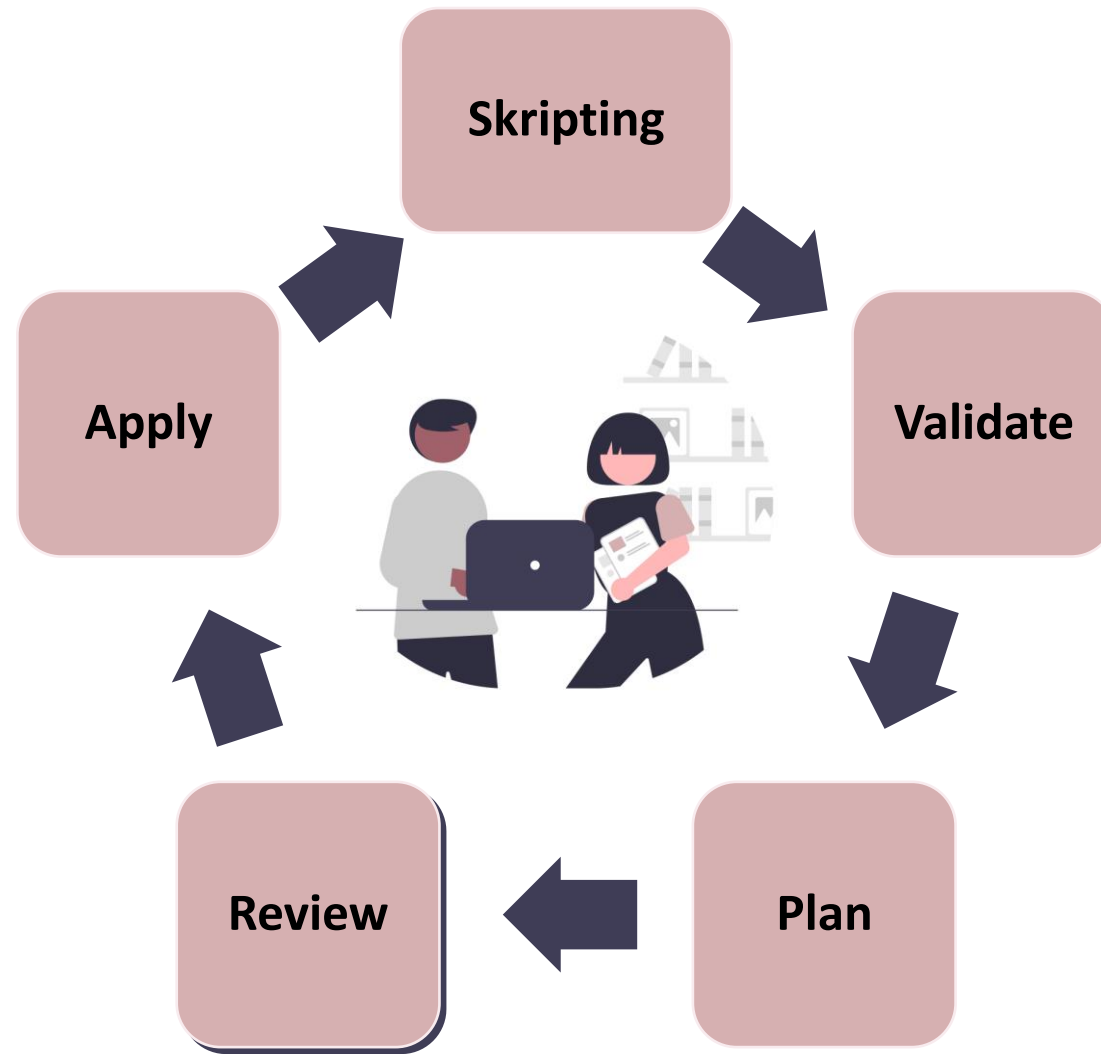




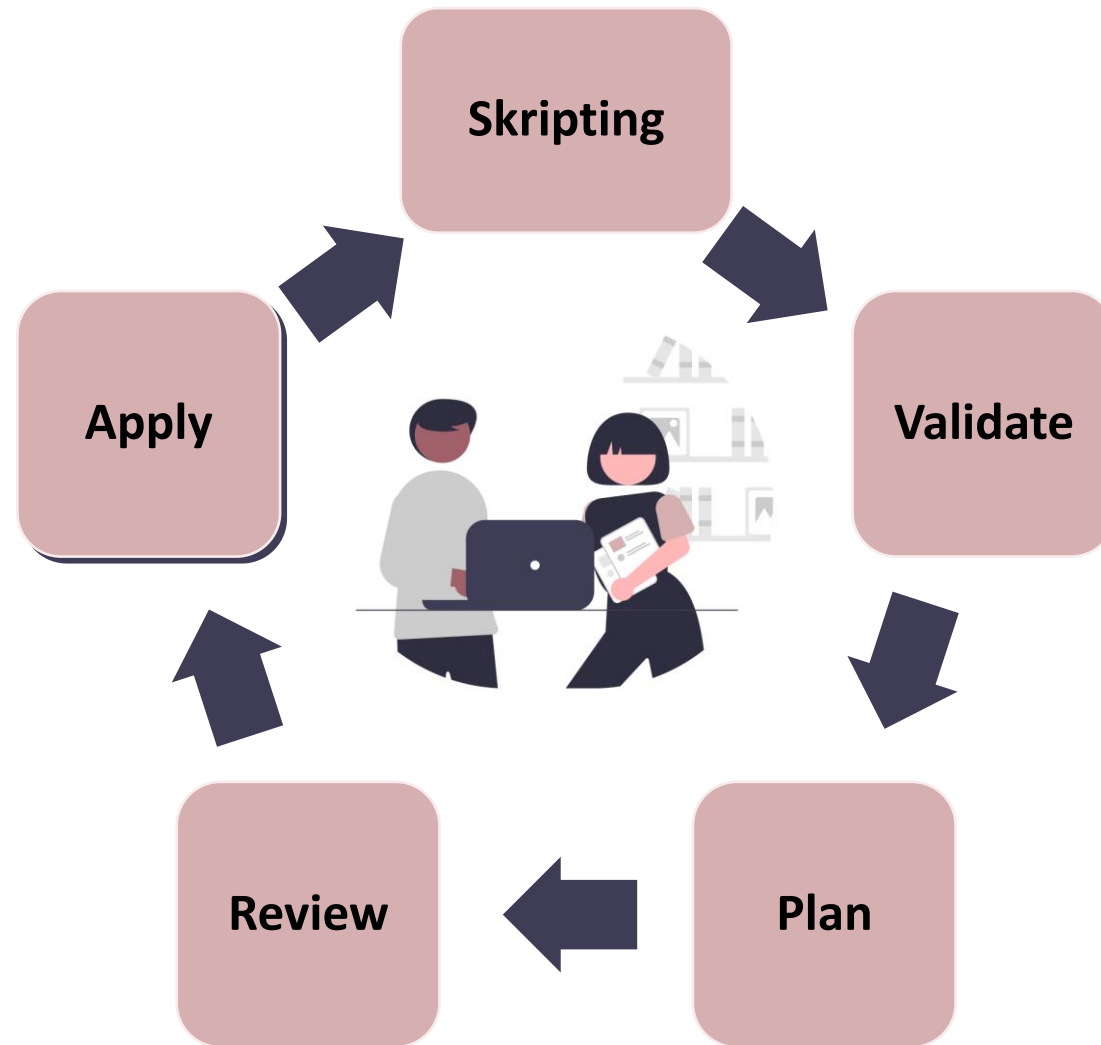
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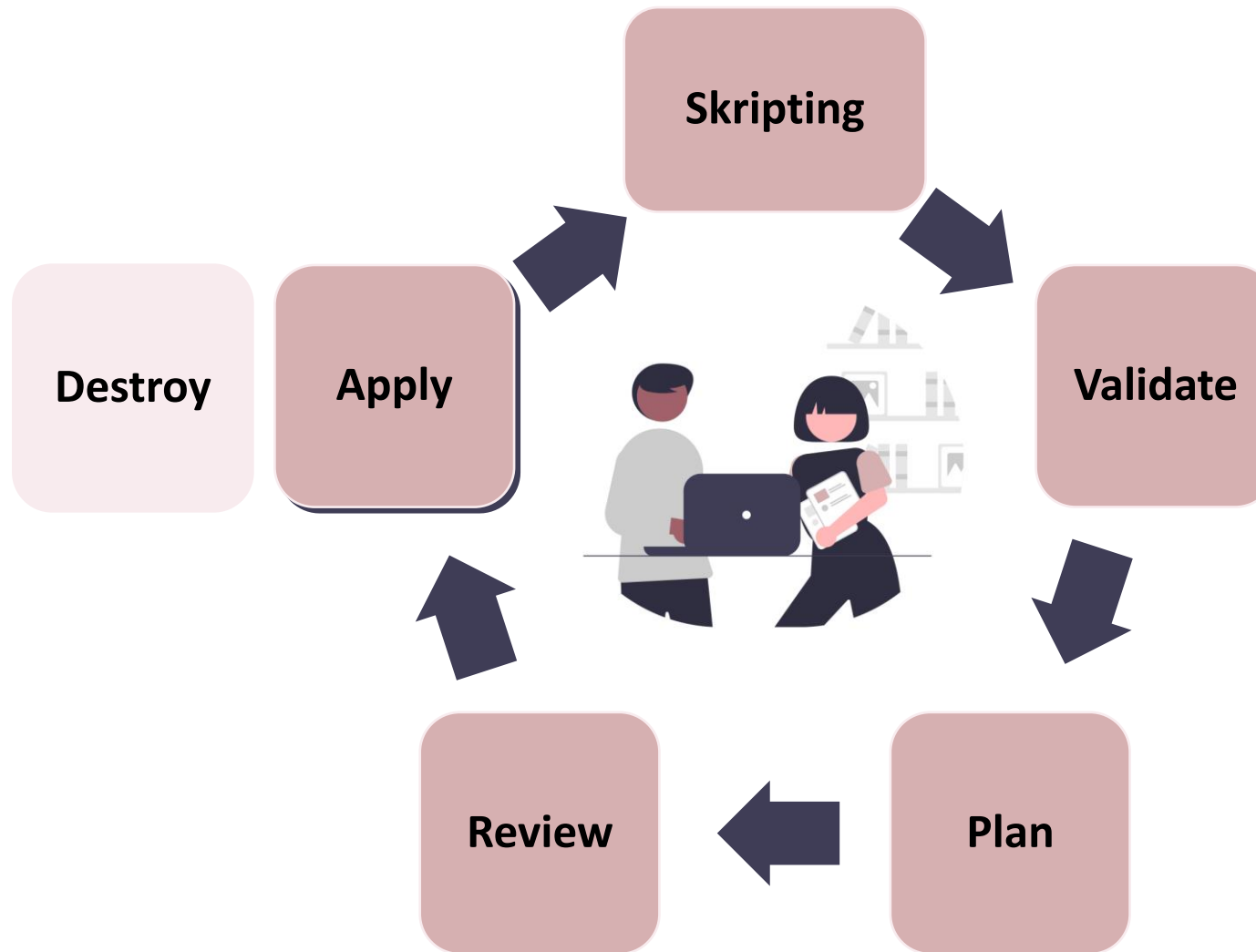
## Basic Workflow



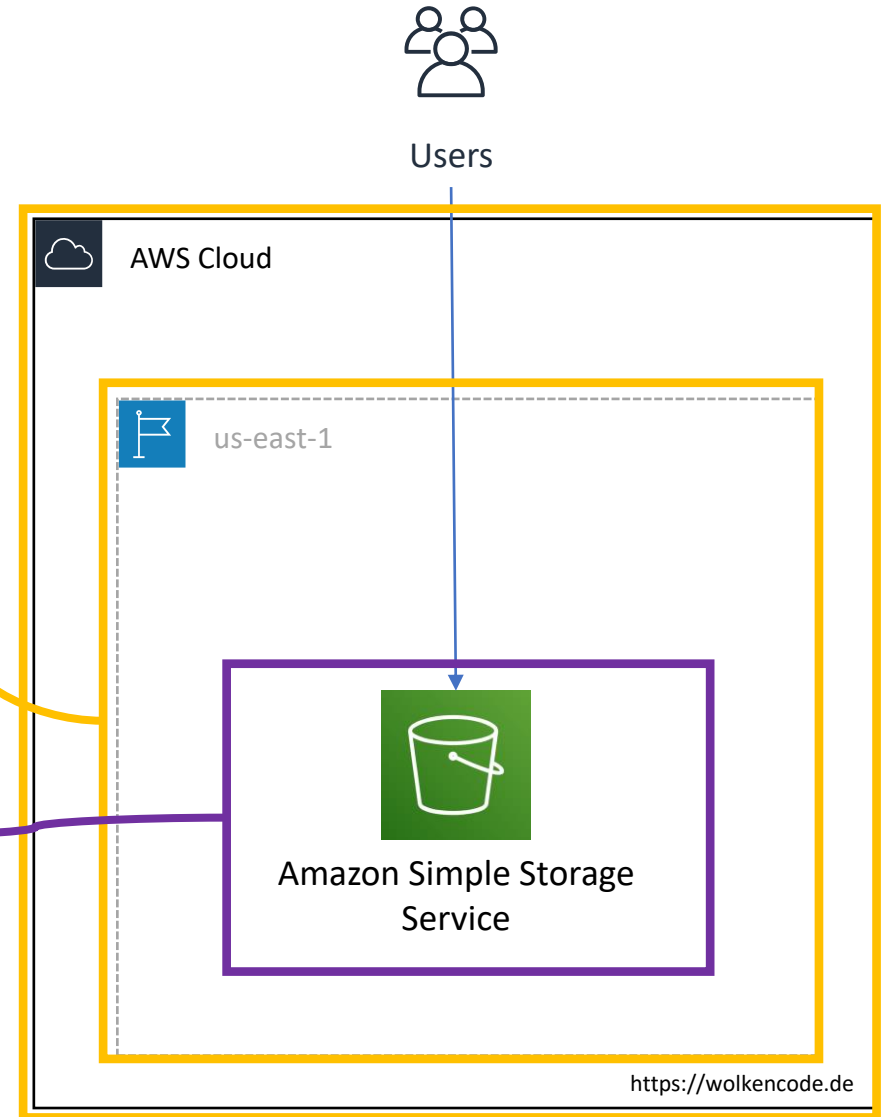
## Basic Workflow



## Basic Workflow



```
1  # provider
2  provider "aws" {
3    profile = "test"
4    region  = "us-east-1"
5  }
6
7  # s3 bucket
8  resource "aws_s3_bucket" "website" {
9    bucket = local.s3_bucket_name
10 }
```



## Terraform Advantages



easy and fast to learn



good documentation with a lots of examples



planning with state management



open-source & community-driven

## Terraform Challenges



complex conditions are not trivial to implement



unique resource set per provider



specific provider knowledge


```
aws_s3_bucket.website: Creating...
```


```
Error: error creating S3 Bucket (my-bucket-us-east-1-20-Apr-22): InvalidBucketName: The specified bucket is not valid.  
status code: 400, request id: 68KAXABRA31V1BQT, host id: S2EJOwbC2br6eIOuUczOCMmq3gkb21y5Q14Do92G40brrTANylFLdhkRuxJ7YdfbGFU8ivijMs=
```

```
with aws_s3_bucket.website,  
on maint.tf line 64, in resource "aws_s3_bucket" "website":  
64: resource "aws_s3_bucket" "website" {
```

## General configuration

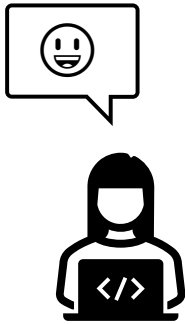
Bucket name

 Bucket name must not contain uppercase characters

Bucket name must be unique and must not contain spaces or uppercase letters. [See rules for bucket naming](#) 



## Sum it up!



Go even  
further!  
#1



Terraform CDK: <https://www.terraform.io/cdktf>



Terraform DRY Code Setup: <https://terragrunt.gruntwork.io/>  
Terraform Unit Testing: <https://terratest.gruntwork.io/>



Terraform Pull Request Automation: <https://www.runatlantis.io/>

Go even  
further!  
#2



Blog post about IaC Security Scan Tools (z.B. tfsec): [Link](#)



Check for Terraform (Security) Compliance: <https://terraform-compliance.com/>  
Tutorials: [Part 1](#) | [Part 2](#)

Go even  
further!  
#3



Terraform Awesome List: <https://github.com/shuaibiyy/awesome-terraform>



Terraform Weekly Newsletter: <https://weekly.tf/>



[Talk] Evolving Terraform by Nicki Watt: <https://www.youtube.com/watch?v=wgzgVm7Sqlk>

**Your  
set up is  
reviewable**



photo by CodeCamp:N GmbH

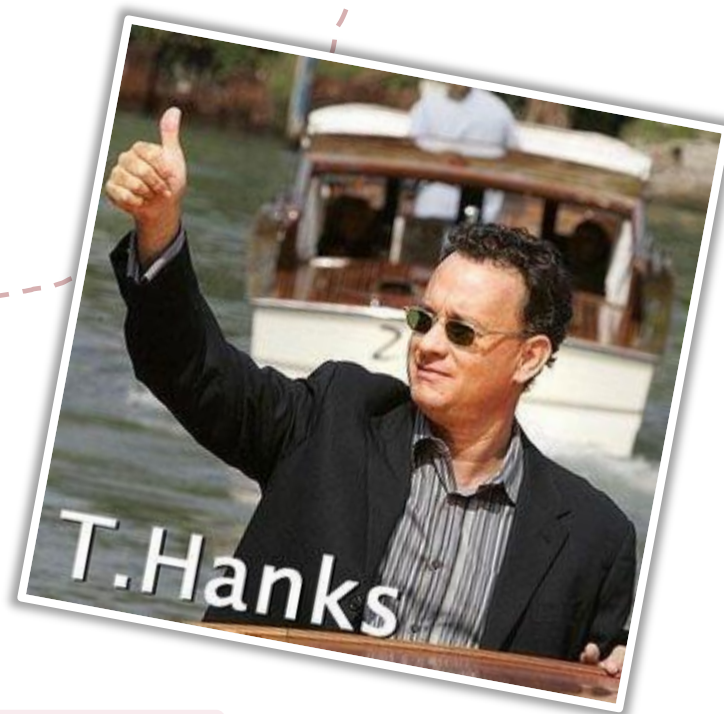
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photo by CodeCamp:N GmbH

**Thank you!**

Cloud Engineer/ SW Architect @ CodeCamp:N



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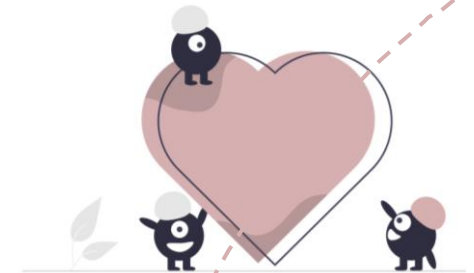




<https://wolkencode.de/posts/terraform-101/>



<https://wolkencode.de/en/posts/terraform-101/>







## photos



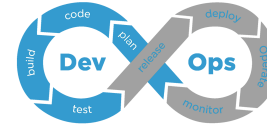
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<https://unsplash.com/photos/knYnEO5aoq4>  
Bill Aboudi | Unsplash



<https://aqua-cloud.io/blog/agiles-testmanagement-trifft-auf-devops>

logos taken from respective provider

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