

# INFRASTRUCTURE AS CODE

IaC with Terraform



# HI I'M NORA

Senior Software Developer @ CodeCamp:N



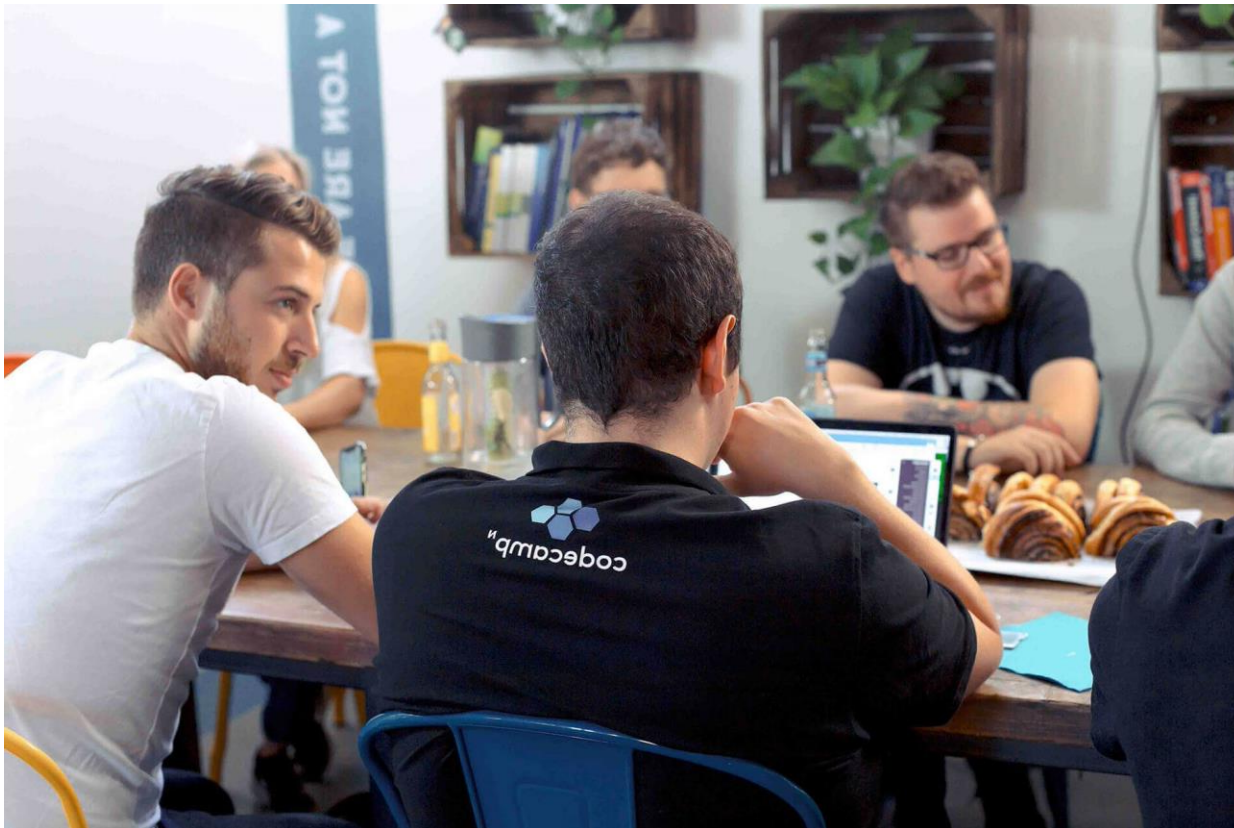
nora.schille@codecamp-n.com



@wolkencode

# WHY

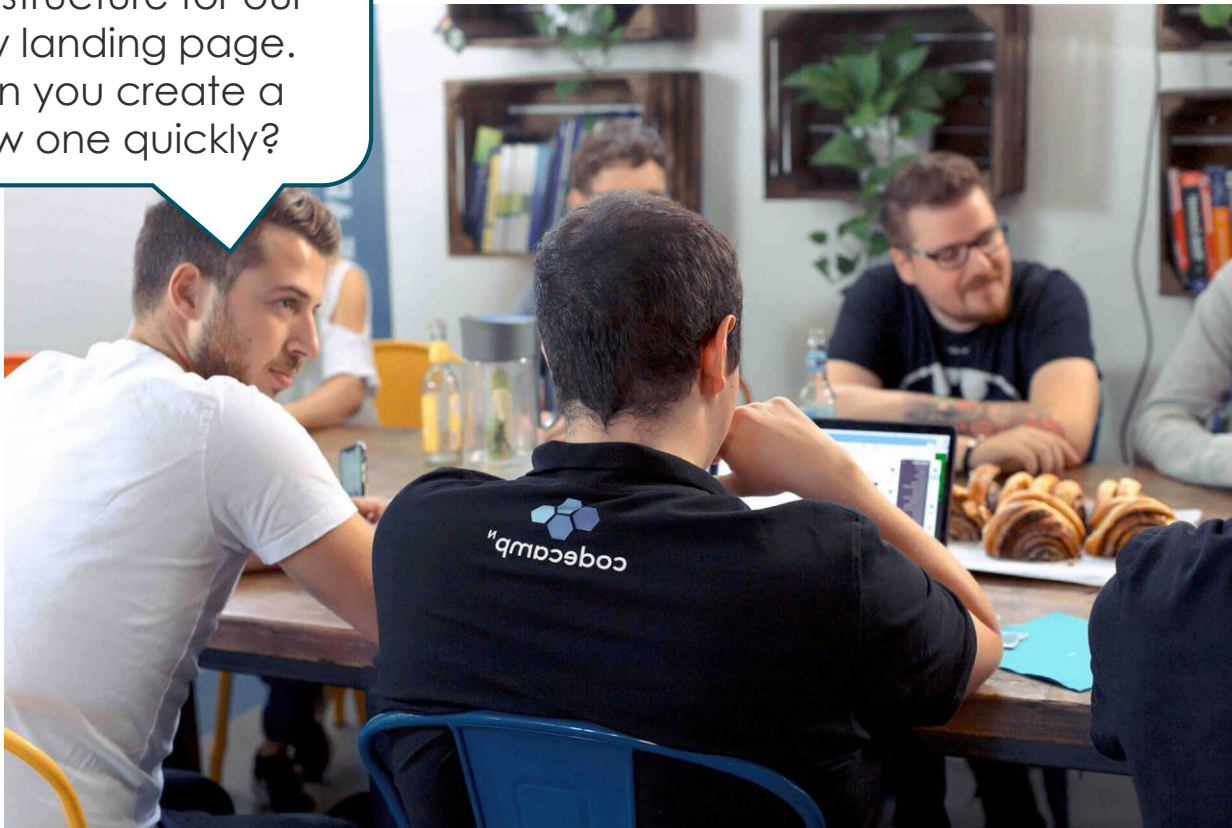
... is it usefull?



# WHY

... is it useful?

Hey, I need  
infrastructure for our  
new landing page.  
Can you create a  
new one quickly?



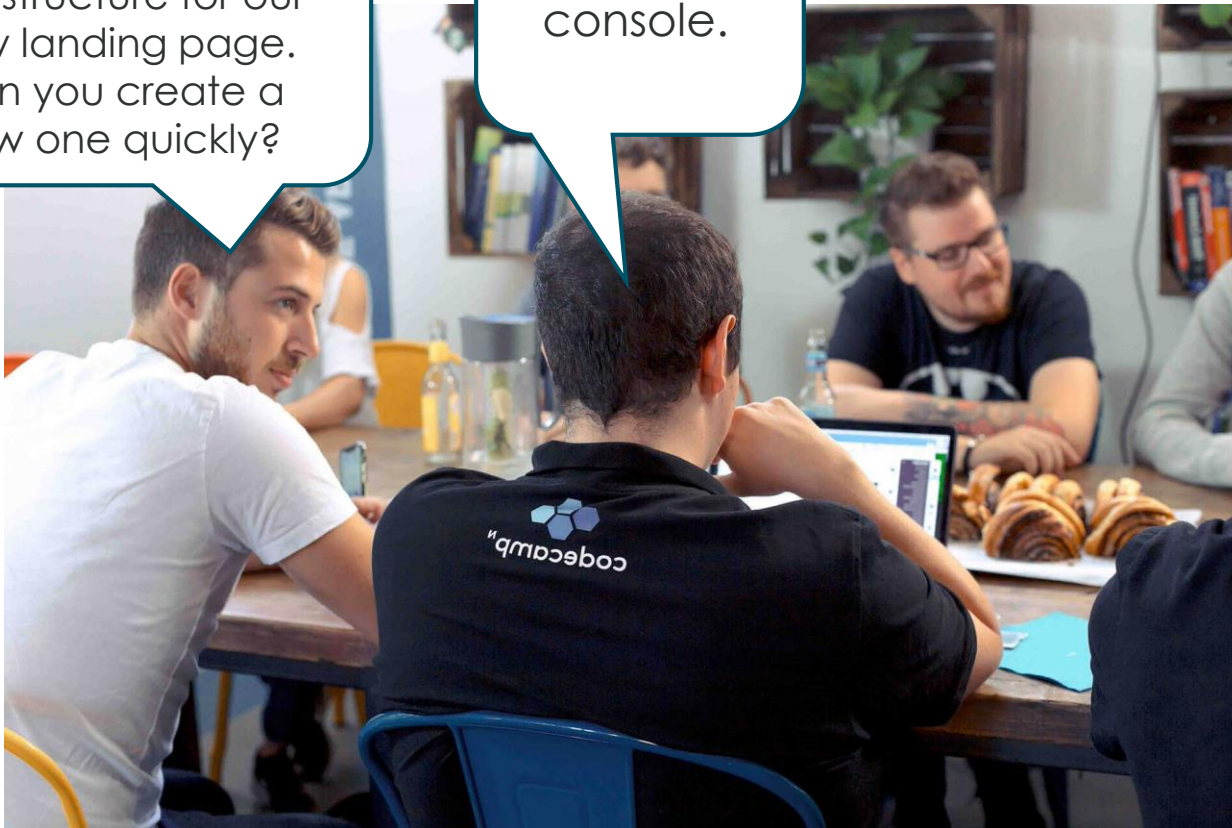


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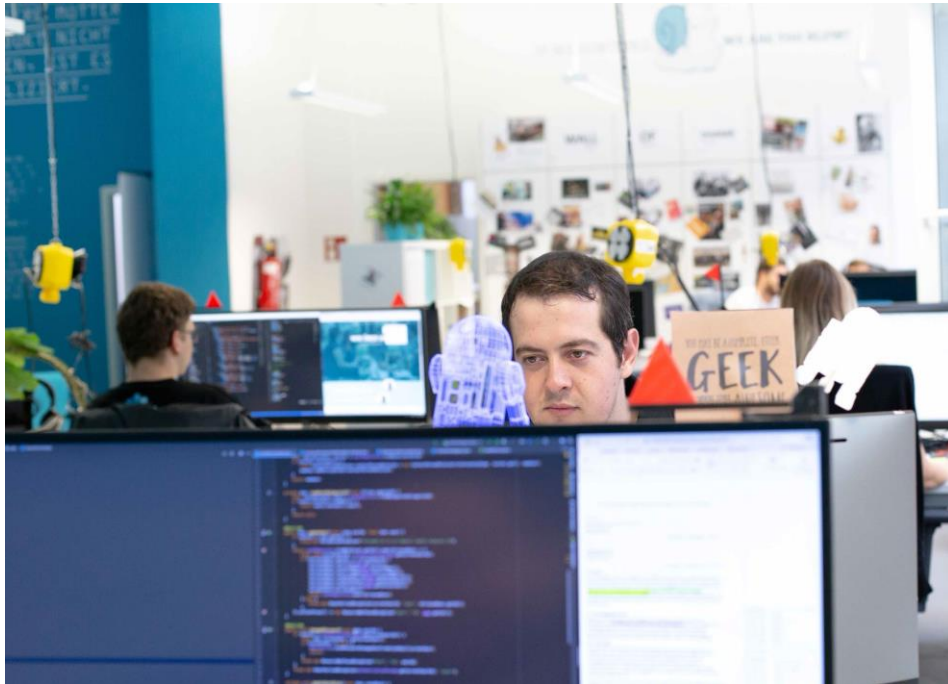
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“Don't be that poor colleague ...”

# WHY

... is it usefull?



“ Let's Go! ”



01

The Basics

Infrastructure as Code & Terraform 101

02

IaC @ AWS

What can you use?

03

Let's Get Started!

How can I use Terraform

04

Let's Code!

Give me some infrastructure!

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“WHAT IS IAC?”

# 01 THE BASICS

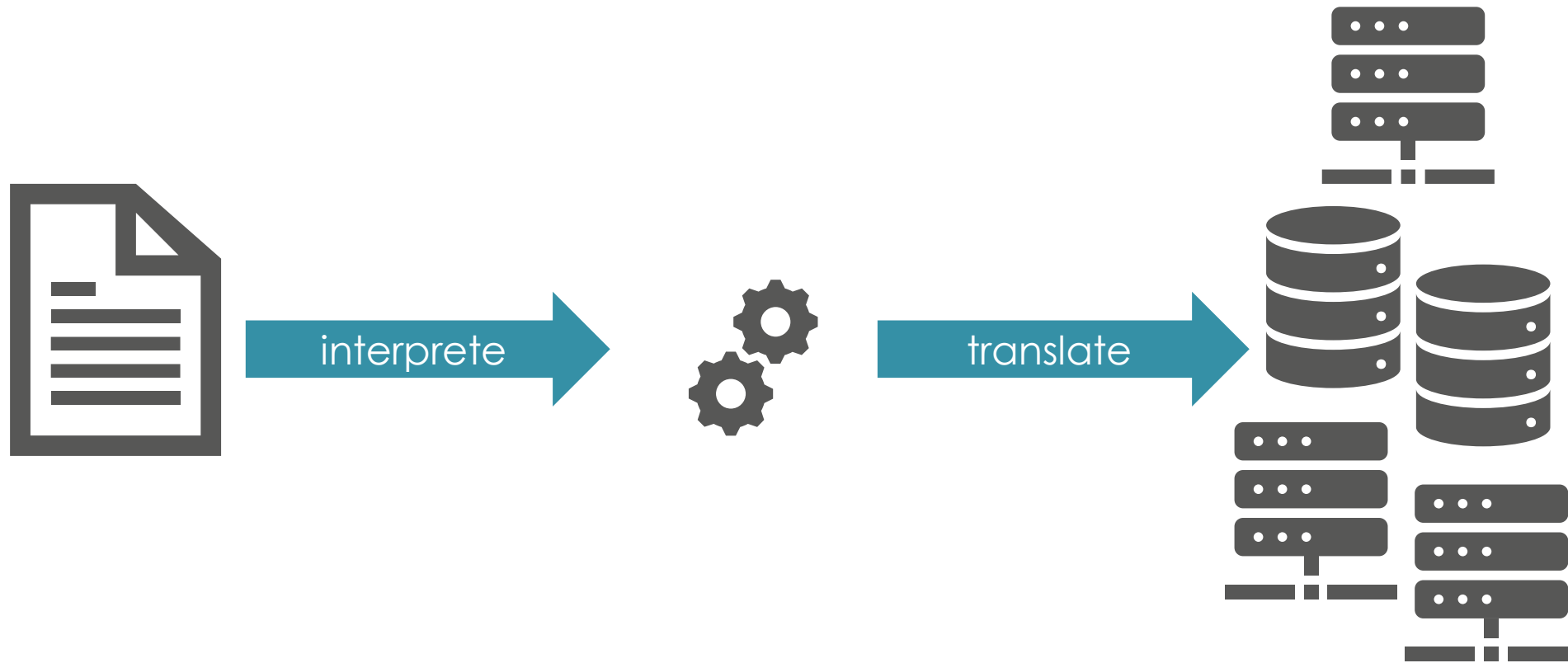
Infrastructure as Code





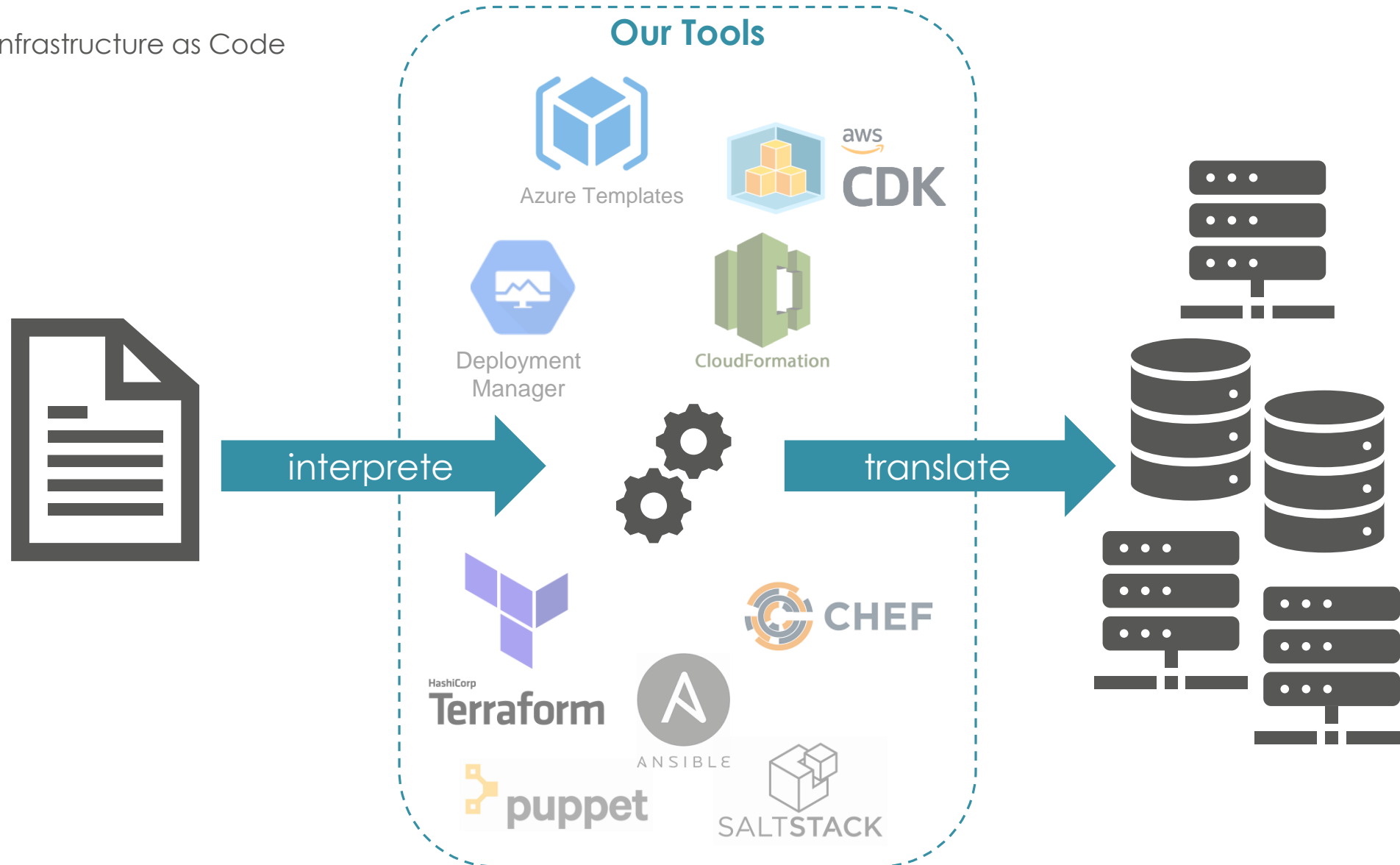
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Infrastructure as Code



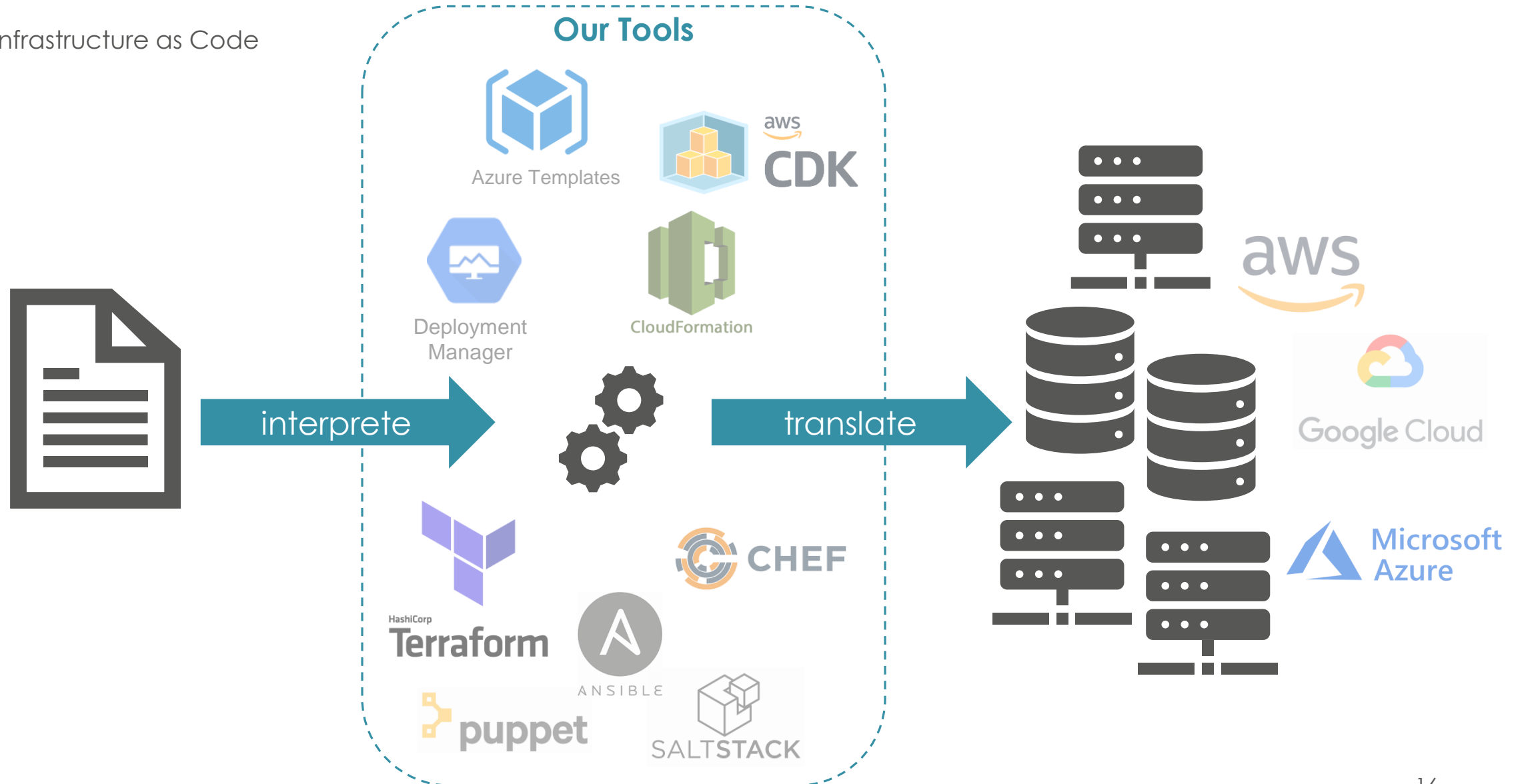
# 01 THE BASICS

Infrastructure as Code



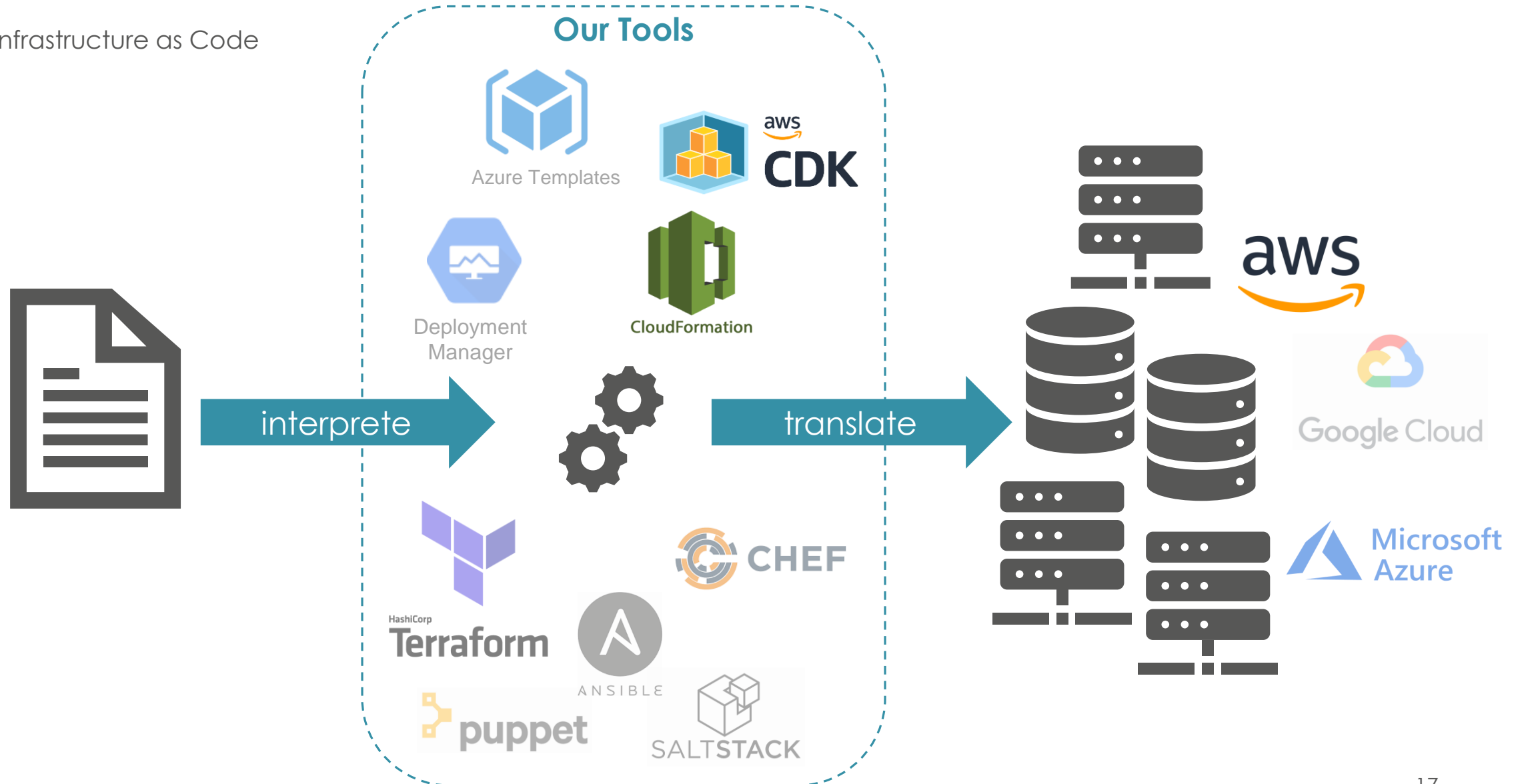
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Infrastructure as Code



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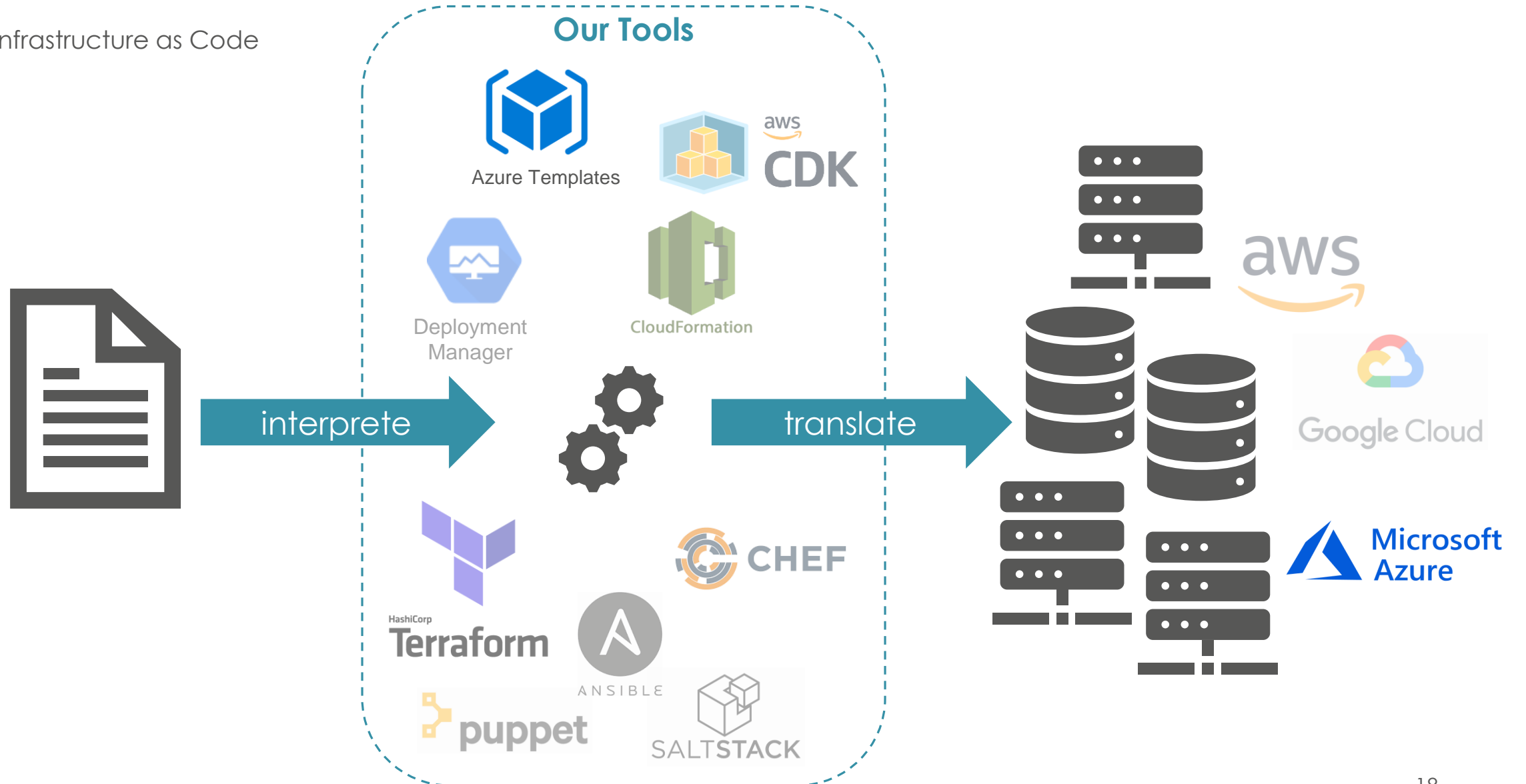
Infrastructure as Code





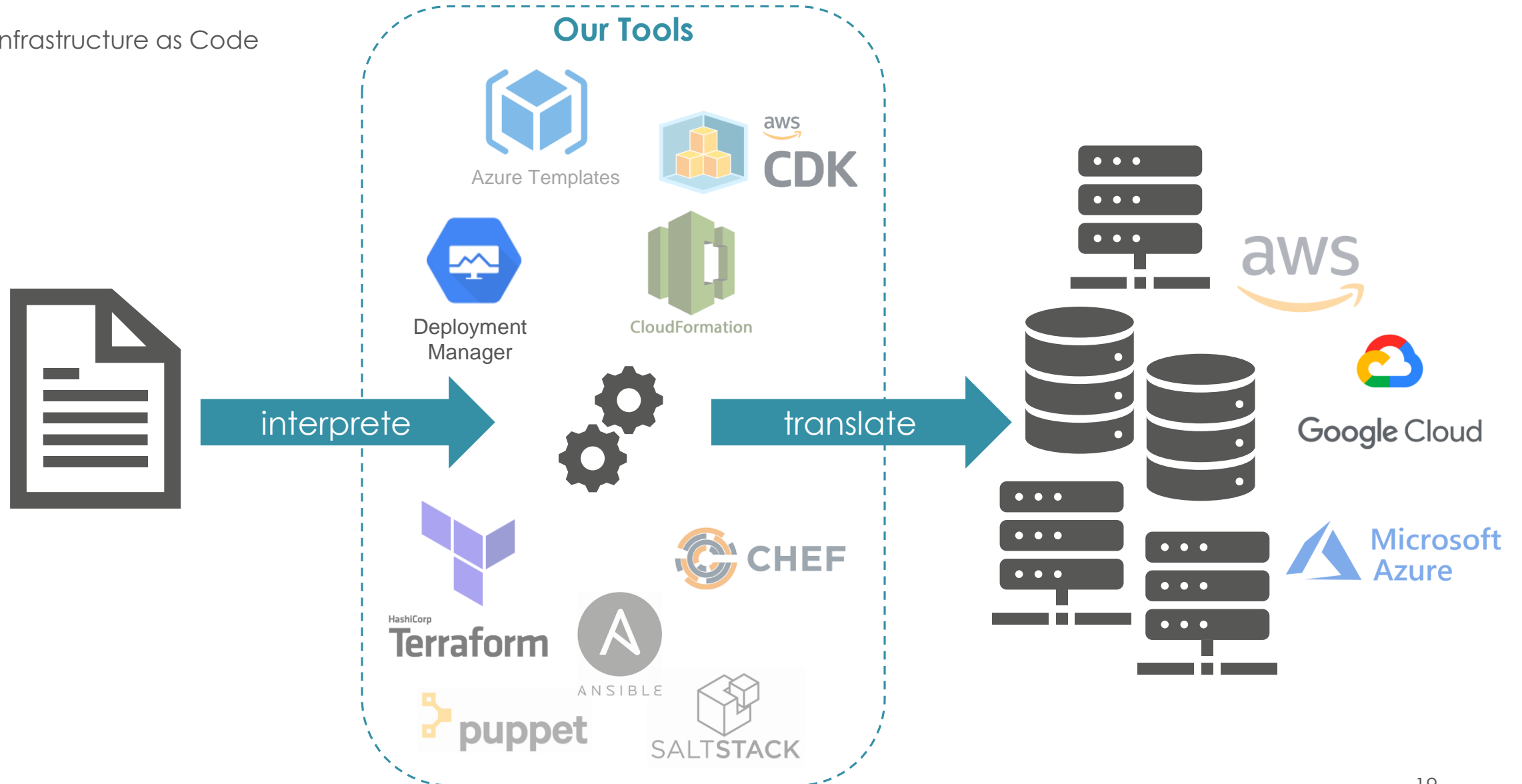
# 01 THE BASICS

Infrastructure as Code



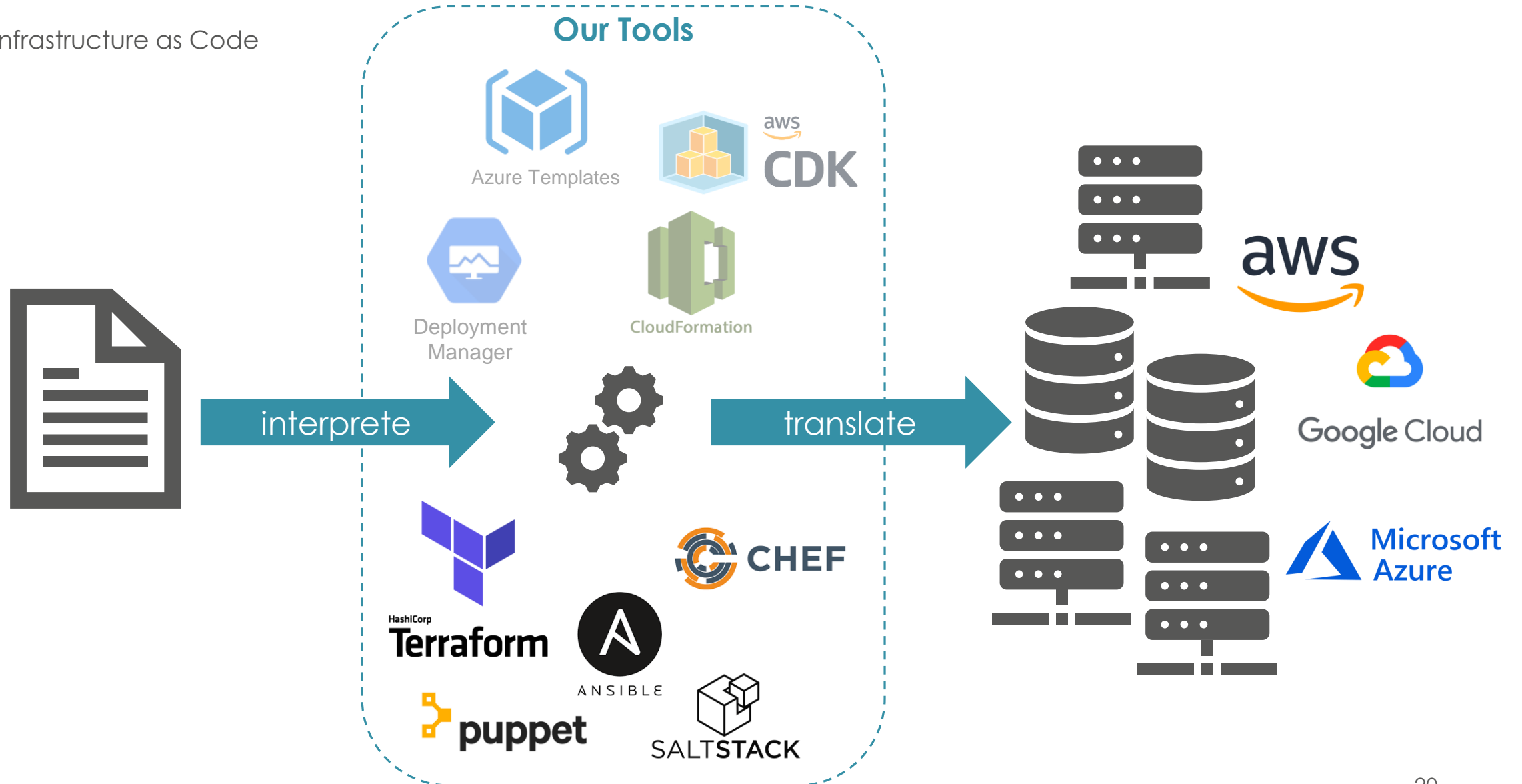
# 01 THE BASICS

## Infrastructure as Code



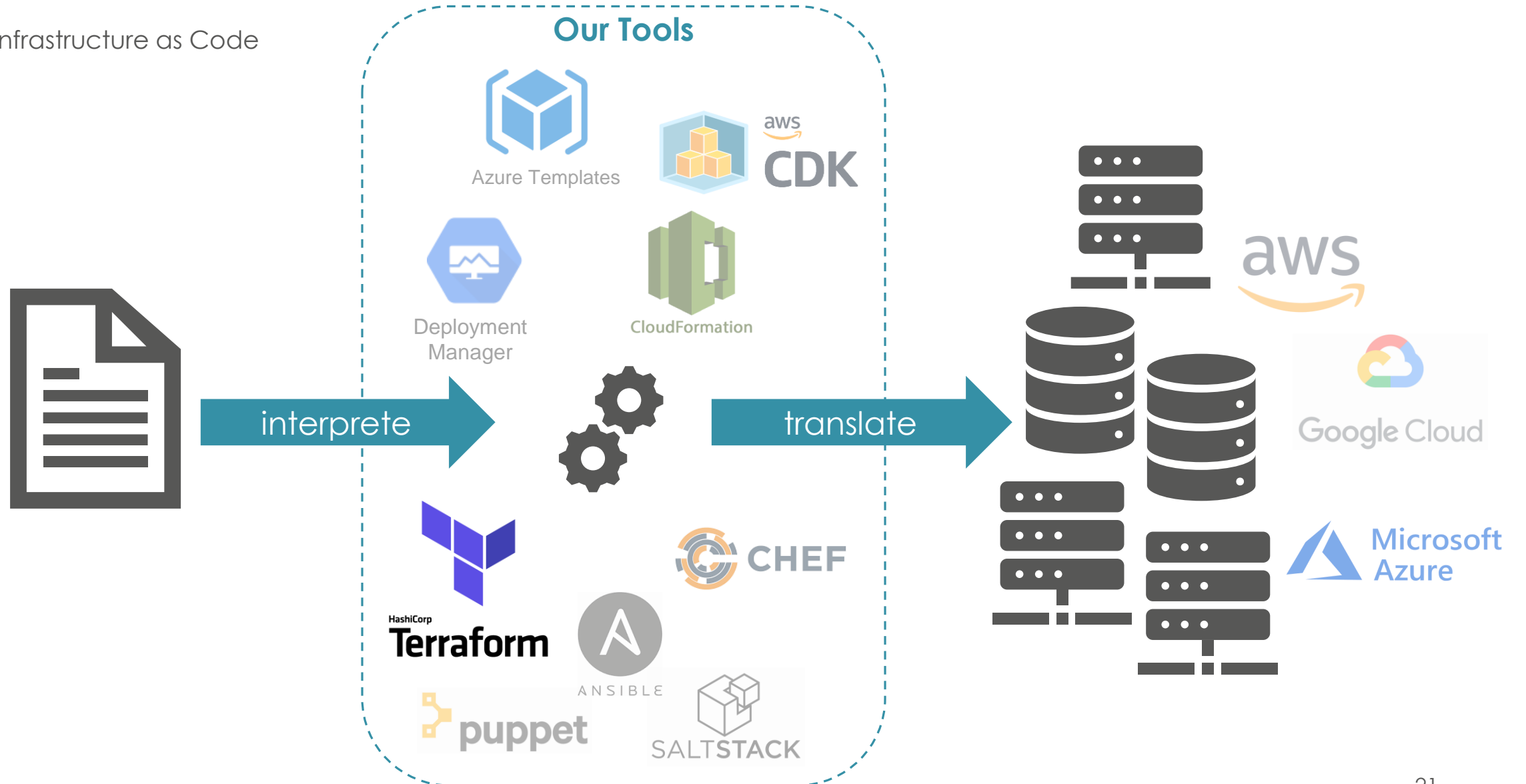
# 01 THE BASICS

## Infrastructure as Code



# 01 THE BASICS

Infrastructure as Code





# 01 THE BASICS

Why we should use it?



## TIME

CODE ONCE,  
USE SEVERAL TIMES



## COSTS



DECREASE



## MAINTANANCE

REUSABLE  
  
CONFIG  
(no guessing anymore)  
  
AUTOMATION (CI/CD)



## “TERRAFORM 101

# 01 THE BASICS

## Terraform 101

### WHAT IS TERRAFORM?



IAC  
Tool

Mitchell  
Hashimoto

Multi  
Platform

since  
2014

Terraform.io

Win  
Mac  
Linux

Freemium

Open  
Source

declarative

An execution plan has been generated and is shown  
Resource actions are indicated with the following  
+ create



codecamp

Terraform will perform the following actions:

```
+ aws_route53_record.chris_A_record
  id:                <computed>
  allow_overwrite:    "true"
  fqdn:              <computed>
  name:              "www"
  records.#:         "1"
  records.909960769: "5.6.7.8"
  ttl:               "300"
  type:              "A"
  zone_id:           "${aws_route53_zone.chris}"

+ aws_route53_record.chris_MX_record
  id:                <computed>
  allow_overwrite:    "true"
  fqdn:              <computed>
  name:              "mail"
  records.#:         "3"
  records.352805332: "5 mail.devsecops.cc"
  records.57:        "15 mail3.devsecops.cc"
  records.552805332: "10 mail2.devsecops.cc"
  ttl:               "300"
  type:              "MX"
  zone_id:           "${aws_route53_zone.chris}"

+ aws_route53_zone.chris_DNS_zone
  id:                <computed>
  comment:           "Managed by Terraform"
  force_destroy:     "false"
  name:              "devsecops.cc"
  name_servers.#:    <computed>
  vpc_region:        <computed>
  zone_id:           <computed>
```

Plan: 3 to add, 0 to change, 0 to destroy.

```
1 provider "aws" {  
2   region = "eu-west-1"  
3   profile = "ccn-infrastructure-iac"  
4 }  
5  
6 data "aws_caller_identity" "current" {}  
7  
8 resource "aws_iam_group" "admin" {  
9   name = "infrastructure-admin"  
10  path = "/"  
11 }
```

“ A SNIPPET ON THE SIDE



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# IAC @ AWS

Was gibt es?



- Deklaration in JSON oder YAML
- „eigene“ Sprache
- Dynamisch: Variablen und Funktionen



- bekannte Sprache (TS, Python, Java, .NET,...)
- Control Flow Operatoren (if, for, while usw.)
- Interaktion mit CloudFormation

- Multi Plattform / Multi Cloud Ansatz
- „eigene“ Sprache (HCL)
- mit v12 verbesserter Controll Flow
- State-Management einseh – und wartbar

- abgespekte CloudFormation Syntax
- Serverless Komponenten im Fokus



**AWS SAM**

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# LET'S GET STARTED!

How can I use Terraform?



# LET'S GET STARTED

Wie kann ich IaC und Terraform einsetzen?



## LOCAL

- only from my machine
- local state (.terraform)
- only one can work on it

## CI/CD

- for me a must: remote state
- several colleagues can work on it
- automation



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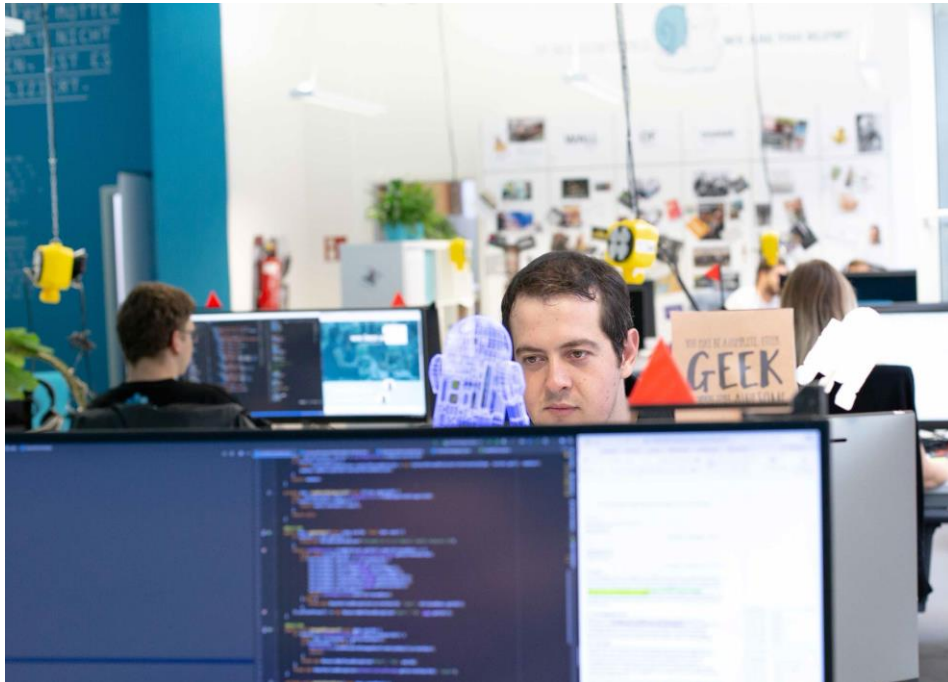
Give me some infrastructure!





“LET’S CODE!”

# DAS SIEHT DOCH GANZ GUT AUS!



“Finished!”

# THANK YOU FOR YOUR ATTENTION



IaC  
approved!