From zero to hero

Infrastructure as Code

Daniel Hasselwander

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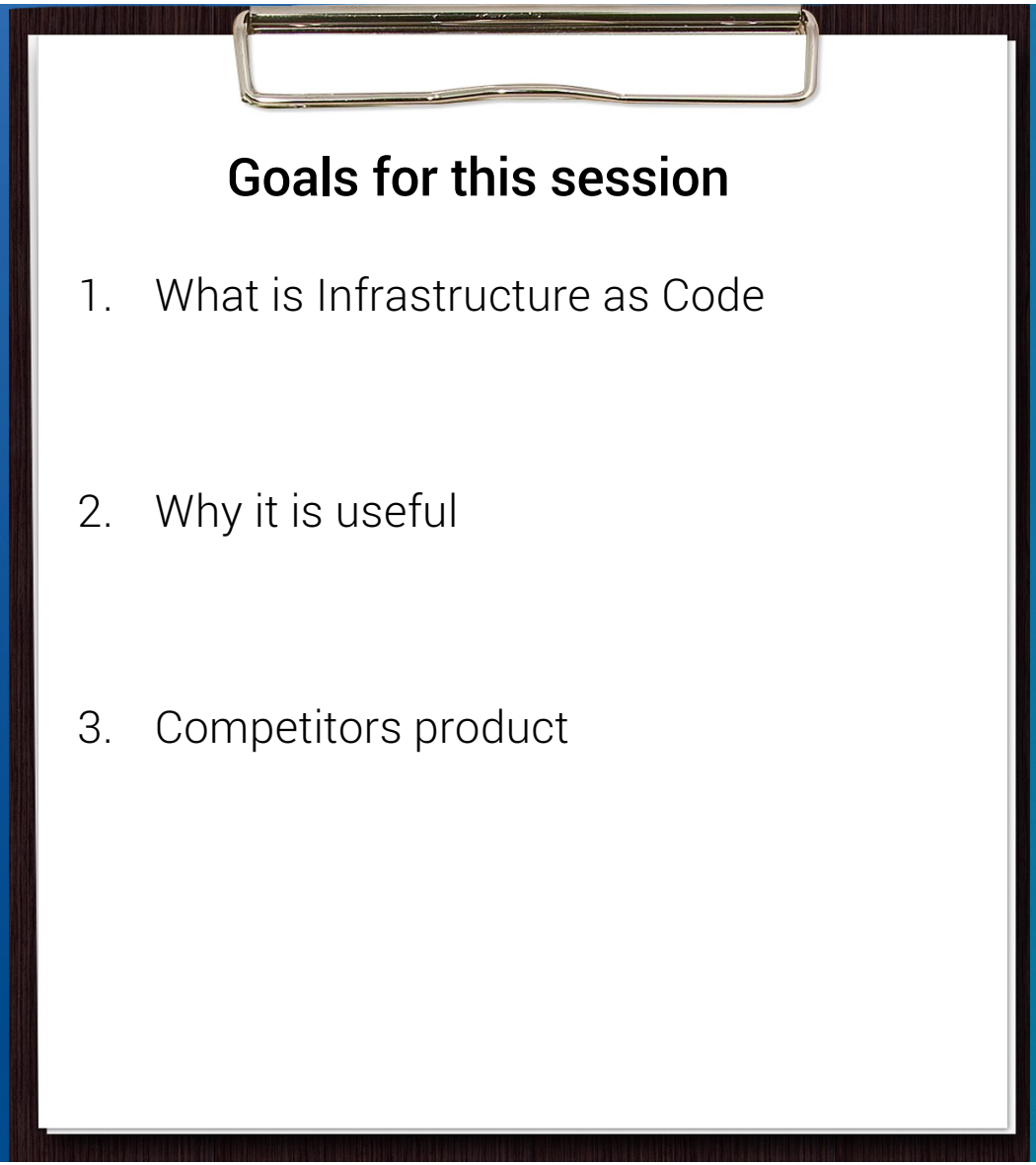

Goals for this session

1. What is Infrastructure as Code
2. Why it is useful
3. Competitors product

Definition

Managing and Provisioning computer infrastructure through machine-readable definition files

Infrastructure as Code

Deployment

automatic deployment

automatic infrastructure tests

Create time for work on business

easy setup of environments

reviews for your changes

Optimize your costs

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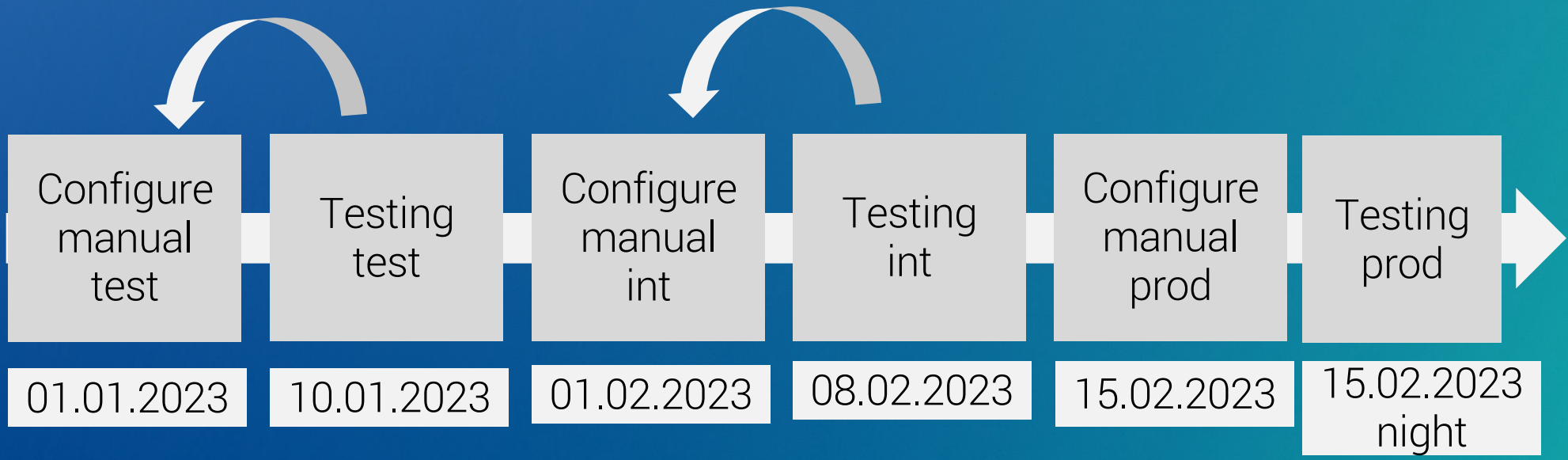
Deployment Manual

1. Login to the azure portal
2. Configure ressource to a test sub
3. Configure ressources in int sub
4. Configure ressources in prod sub

Deployment Manual



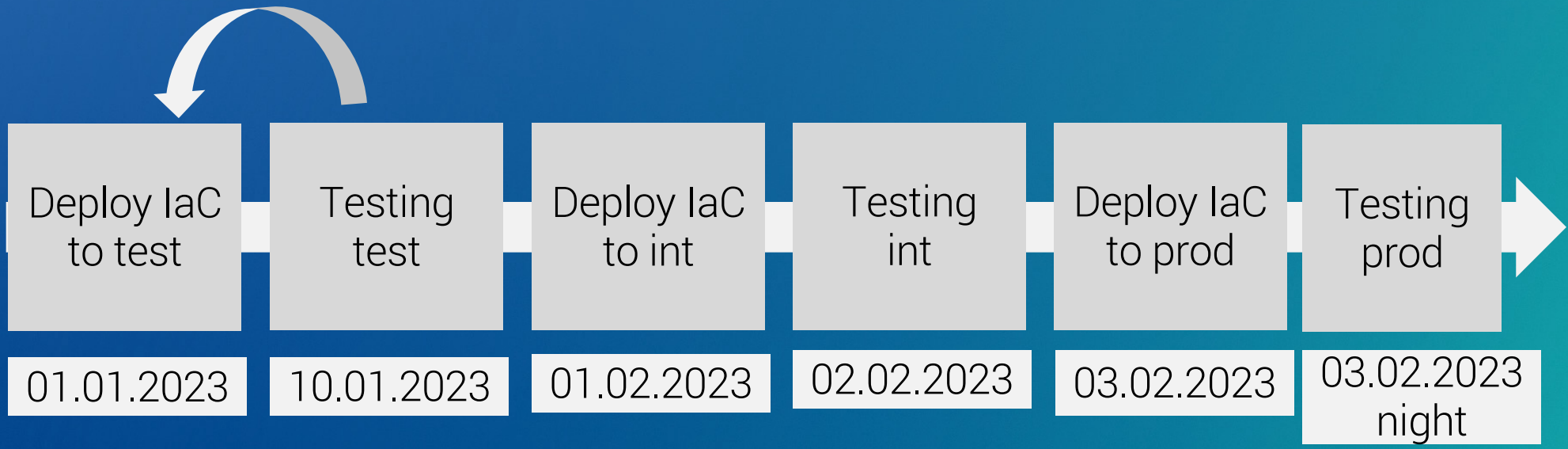
Deployment Manual – Typical Problems

Typos

Manual

Users can influence production

Deployment IaC



Benefits

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What IaC is not

A solution for all your problems

Low Code and Click Solution

Which methods can it used ?

– Declarative
– What is your target infrastructure

Cake

– Imperative
– How you can build your target infrastructure

How you can bake a cake ?

1. Put all the ingredients in a mixing bowl and mix it.
2. Mix the remaining batter with cocoa, amount to taste, and pour on top of the other batter. Draw patterns with a fork.

IaC Tools

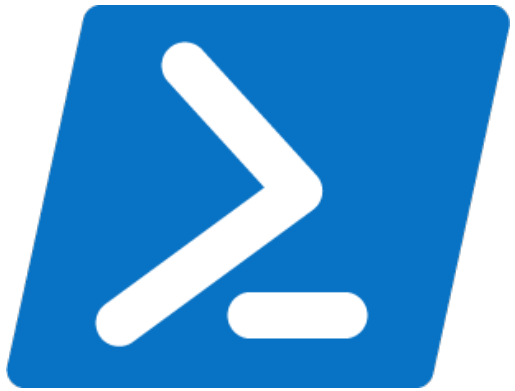
Declarative

HashiCorp Terraform

ANSIBLE

Imperative

Pulumi



IaC Tools Comparison Docent Task

Write a script which create a azure ressource group if not exist with the name rg_test.
Create a storage account with the name storageaccount inside of the ressource group if not exist and create a blob container inside of this storage

IaC Tools Comparison Docent Task Imperativ

```
ressourceGroupExist=$(az group exists --name "rg_test");

if [ "$ressourceGroupExist" == 'false' ]; then
  az group create --name "test_rg" --location "switzerlandnorth";
else
  echo "RG exists!"
fi

if az storage account show --name "storageaccountname" --resource-group "rg_test" --query "name"; then
  containerExist=$(az storage container exists --account-name "storageaccountname" --name "container" --query "exists" --auth-mode login);
else
  storageAccountNotExist='true'
  containerExist='false';
fi

if [ "$storageAccountNotExist" == 'true' ]; then
  az storage account create --name "storageaccountname" --resource-group "rg_test" --kind StorageV2 --location "switzerlandnorth" --sku Standard_LRS
else
  echo "ST exists!"
fi

if [ "$containerExist" == 'false' ]; then
  az storage container create --name "container" --account-name "storageaccountname"
else
  echo "Container exists!"
fi
```

IaC Tools Comparison Docent Task Declarative

```
terraform {
  backend "local" {
    path = "./terraform.tfstate"
  }
}

terraform {
  required_providers {
    azurerm = {
      source = "hashicorp/azurerm"
      version = "3.82.0"
    }
  }
}

provider "azurerm" {
}

resource "azurerm_resource_group" "rg" {
  location = "switzerlandnorth"
  name     = "rg_test"
}

resource "azurerm_storage_account" "storageaccount" {
  account_replication_type = "LRS"
  account_tier             = "Standard"
  location                 = "switzerlandnorth"
  name                     = "storageaccountname"
  resource_group_name      = azurerm_resource_group.rg.name
}

resource "azurerm_storage_container" "stcontainer" {
  name                  = "container"
  storage_account_name  = azurerm_storage_account.storageaccount.name
  container_access_type = "public"
}
```

Whats your opinion about this task

Comparison Declarative and Imperative

Manage dependecies can be very hard

Lot easier to read

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ti8m.com

ti&m AG
Buckhauserstrasse 24
8048 Zurich
SWITZERLAND
+41 44 497 75 00

ti&m AG
Monbijoustrasse 68
3007 Bern
SWITZERLAND
+41 31 960 15 55

ti&m AG
Innere Margarethenstrasse 5
4051 Basel
SWITZERLAND
+41 61 501 29 99

ti&m GmbH
Schaumainkai 91
60596 Frankfurt am Main
GERMANY
+49 69 24745268-0

ti&m GmbH
Kesselstrasse 3
40221 Dusseldorf
GERMANY
+49 211 90989580

ti&m Pte. Ltd.
18 Robinson Road #15-16
Singapore 048547
SINGAPORE
+65 6983 9530

ti&m