

Terraform

- Objectives:
 - Introduction to IAC
 - Different IAC tools
 - Why Terraform

Terraform

- Objectives:
 - HCL Basics
 - Terraform Configuration
 - Providers
 - Input Variables
 - Output variables

Terraform

- Objectives:
 - Resource Attributes
 - Resource Dependencies
 - Terraform State
 - Mutable vs Immutable Infrastructure
 - Terraform Lifecycle rules

Terraform

- Objectives:
 - Datasources
 - Meta-arguments
 - Count
 - For each
 - Version Constraints

Terraform

- Objectives:
 - Terraform commands
 - Terraform State
 - Terraform State Commands
 - Terraform state locking
 - Terraform with AWS

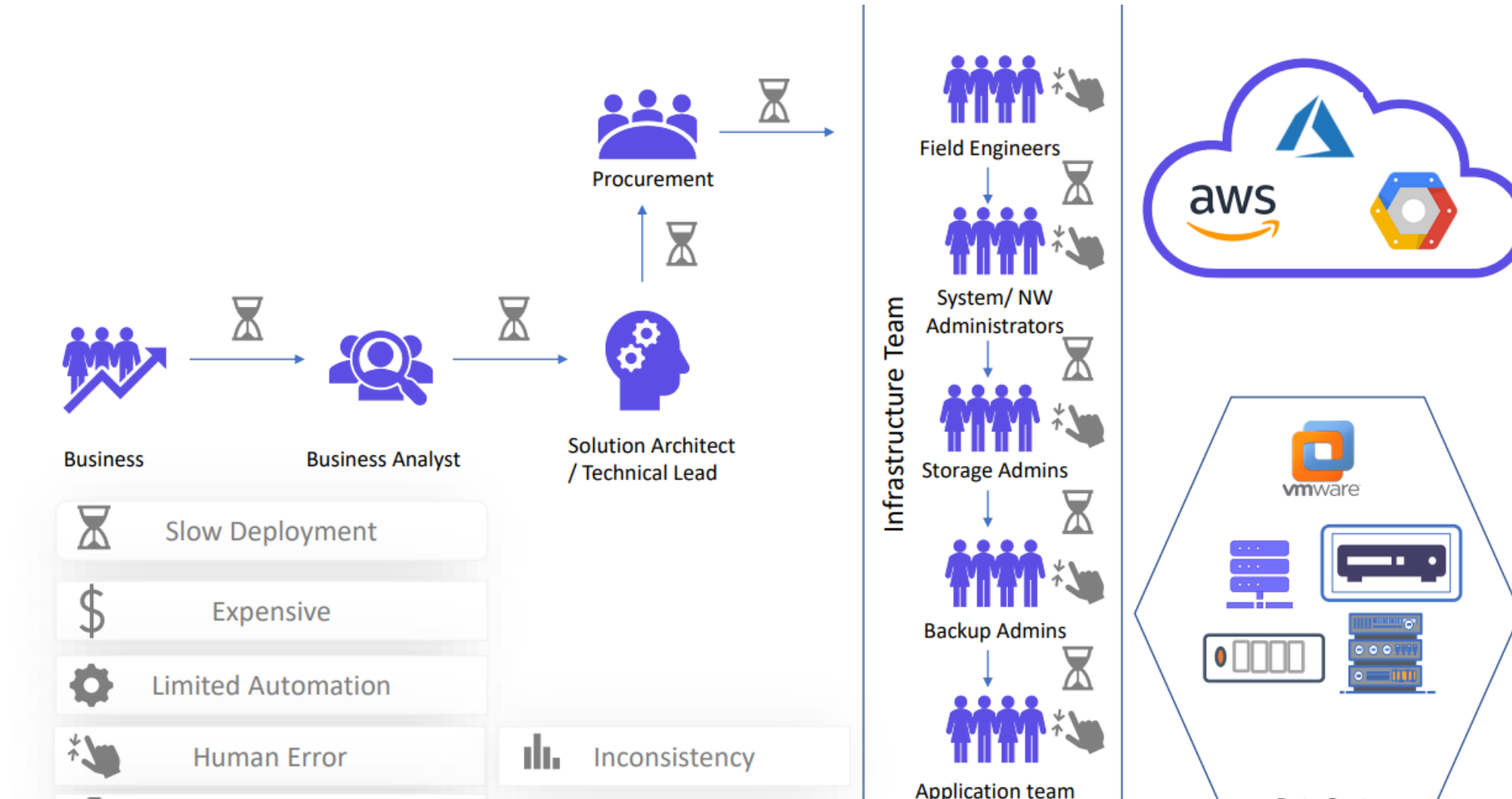
Terraform

- Objectives:
 - Terraform Remote State
 - Terraform tainting and untainting
 - Terraform Provisioners
 - Terraform import
 - Terraform with AWS

Terraform

- Objectives:
 - Terraform Modules
 - Terraform functions
 - Terraform Workspace

Traditional IT Challenges



Infrastructure as Code (IAC)

```
ec2.sh

#!/bin/bash

IP_ADDRESS="10.2.2.1"

EC2_INSTANCE=$(ec2-run-instances --instance-type
t2.micro ami-0edab43b6fa892279)


INSTANCE=$(echo ${EC2_INSTANCE} | sed 's/*INSTANCE //'
| sed 's/ .*//')

# Wait for instance to be ready
while ! ec2-describe-instances $INSTANCE | grep -q
"running"
do
    echo Waiting for $INSTANCE is to be ready...
done

# Check if instance is not provisioned and exit
if [ ! $(ec2-describe-instances $INSTANCE | grep -q
"running") ]; then
    echo Instance $INSTANCE is stopped.
    exit
fi

ec2-associate-address $IP_ADDRESS -i $INSTANCE

echo Instance $INSTANCE was created successfully!!!
```



 Services ▾ Resource Groups ▾ ⭐

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure S

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to ass

▼ AMI Details

 **Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-0b1e2eeb33ce3d66f**
 Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performanc
Root Device Type: ebs Virtualization type: hvm

▼ Instance Type

| Instance Type | ECUs | vCPUs | Memory (GiB) | Instance Storage (GB) |
|---------------|----------|-------|--------------|-----------------------|
| t2.micro | Variable | 1 | 1 | EBS only |

▼ Security Groups

Security group name

launch-wizard-1

Description

launch-wizard-1 created 2020-07-09T15:48:36.426-04:00

| Type ⓘ | Protocol ⓘ | Port Range ⓘ |
|--------|------------|--------------|
|--------|------------|--------------|

This security group ha

▼ Instance Details

Types of IAC Tools

Configuration Management



ANSIBLE



Server Templating

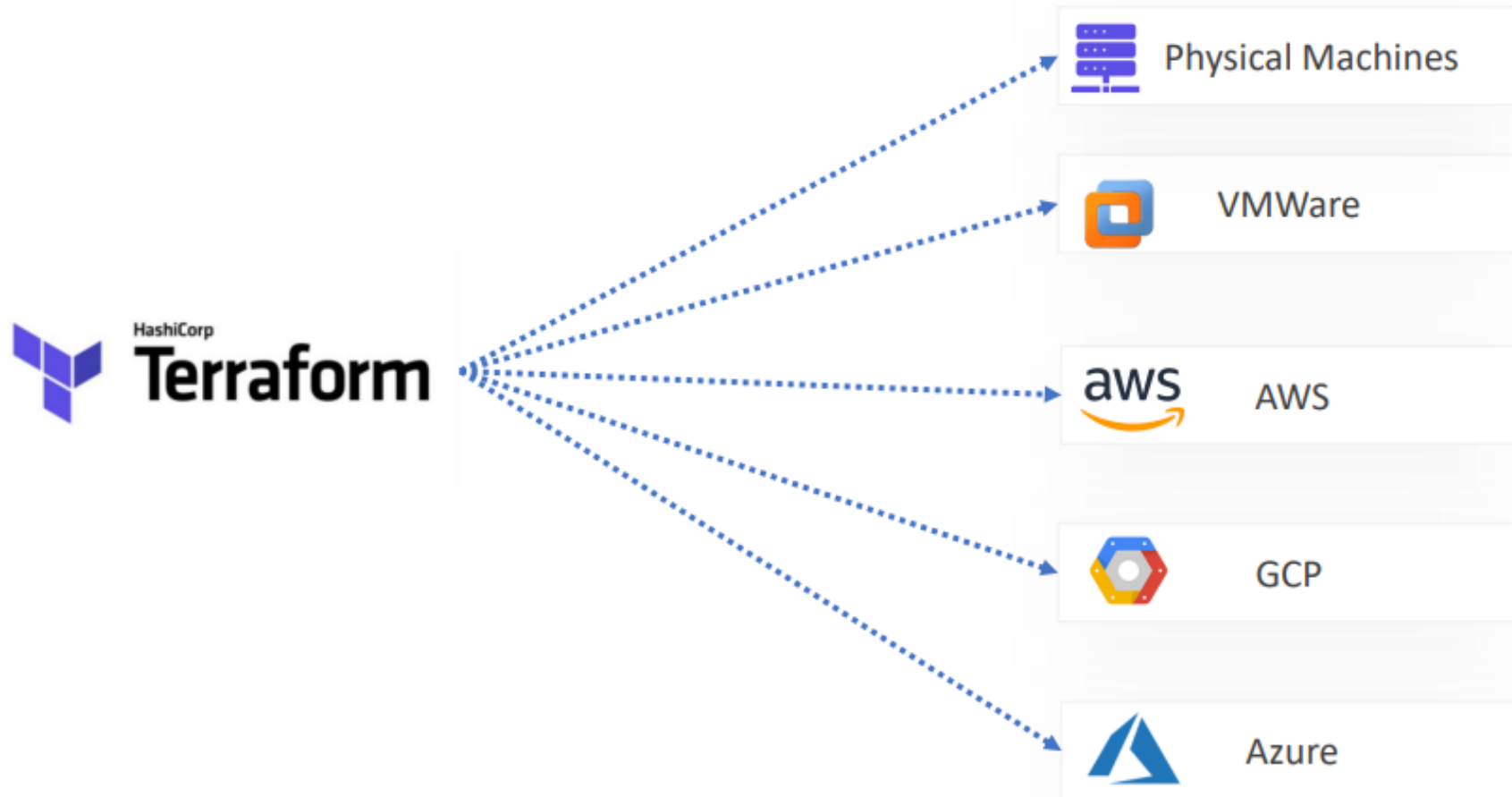


HashiCorp
Vagrant

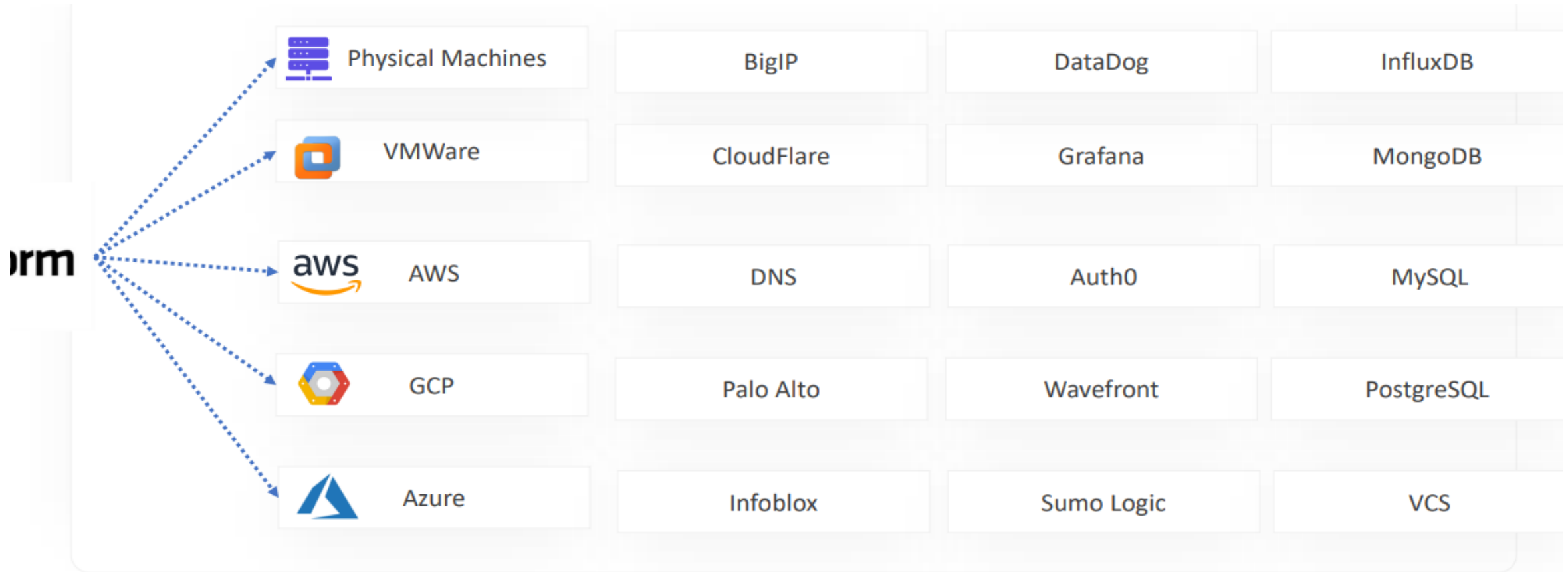
Provisioning Tools



Why Terraform



Why Terraform



Hashicorp Configuration Language (HCL)

```
main.tf

resource "aws_instance" "webserver" {
  ami          = "ami-0edab43b6fa892279"
  instance_type = "t2.micro"
}

resource "aws_s3_bucket" "finance" {
  bucket = "finanace-21092020"
  tags = {
    Description = "Finance and Payroll"
  }
}

resource "aws_iam_user" "admin-user" {
  name = "lucy"
  tags = {
    Description = "Team Leader"
  }
}
```

Init

Plan

Apply

Real World Infrastructure



Installing Terraform

```
> _  
  
$ wget https://releases.hashicorp.com/terraform/0.13.0/terraform_0.13.0_linux_amd64.zip  
$ unzip terraform_0.13.0_linux_amd64.zip  
$ mv terraform /usr/local/bin  
$ terraform version  
Terraform v0.13.0
```



macOS
64-bit



FreeBSD
32-bit | 64-bit | Arm



Linux
32-bit | 64-bit | Arm



OpenBSD
32-bit | 64-bit



Solaris
64-bit



Windows
32-bit | 64-bit

HCL Basics

