Unleashing the Power of Code-Driven Virtual Desktop Deployments for AVD & Windows 365

Please note: the views/opinions in this presentation are our own. This presentation will not be kept updated after the EUC Forum on 4th July 2023 – please check the latest documentation as some elements may be outdated!

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Key Points

- AVD vs Windows 365 - Overview
- Why use Code-Driven deployment?
- What Tooling is required?
- Methodologies
- Tips
- Lab and Demo
- Questions

AVD vs Windows 365

What is Windows 365?

Desktop as a Service Platform:

- High-performing managed desktop
- Cost Effective
- Secure

Two Deployment Choices:

- Business Deployment
- Enterprise Deployment

Fixed Price Model:

- Easier to manage costs
- Predict future consumption

Windows 365 Use Cases

- **Small to Medium Businesses:**
  - Fixed rate cost model
  - MEM Integration
- **Use cases:**
  - Contractors
  - Facilitate Training
  - BCP

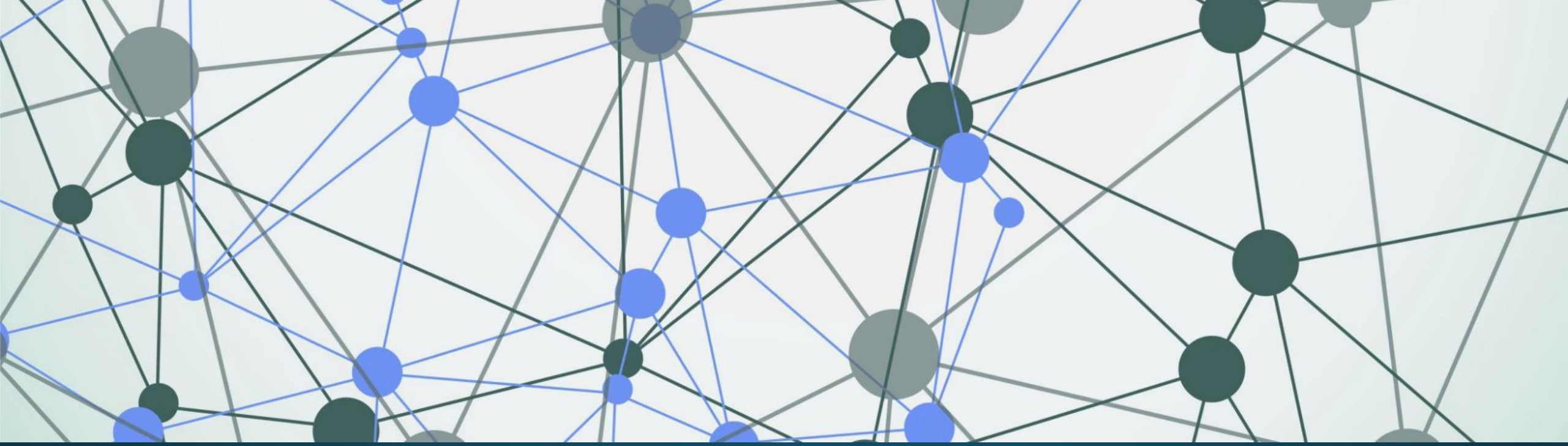
What is Azure Virtual Desktop?

Azure Virtual Desktop (AVD) is a Virtual Desktop Solution delivered using Microsoft Azure:

- Deliver Windows 10/11/Server Desktops and applications from any Azure Region
- Built in Security using the wider Azure Platform
- Rapid deployment and scaling
- Allows the use of existing licensing to reduce costs.

AVD Use Cases

- **Enterprise Orgs:**
  - Where extensive Automation/Scale is required
  - Wider Azure Eco-System Integration
  - Usage with other Azure Cost options – e.g. Reservations
- **Use cases:**
  - BCP/Disaster Recovery
  - High End Graphics
  - A mixed approach of Applications and Desktops

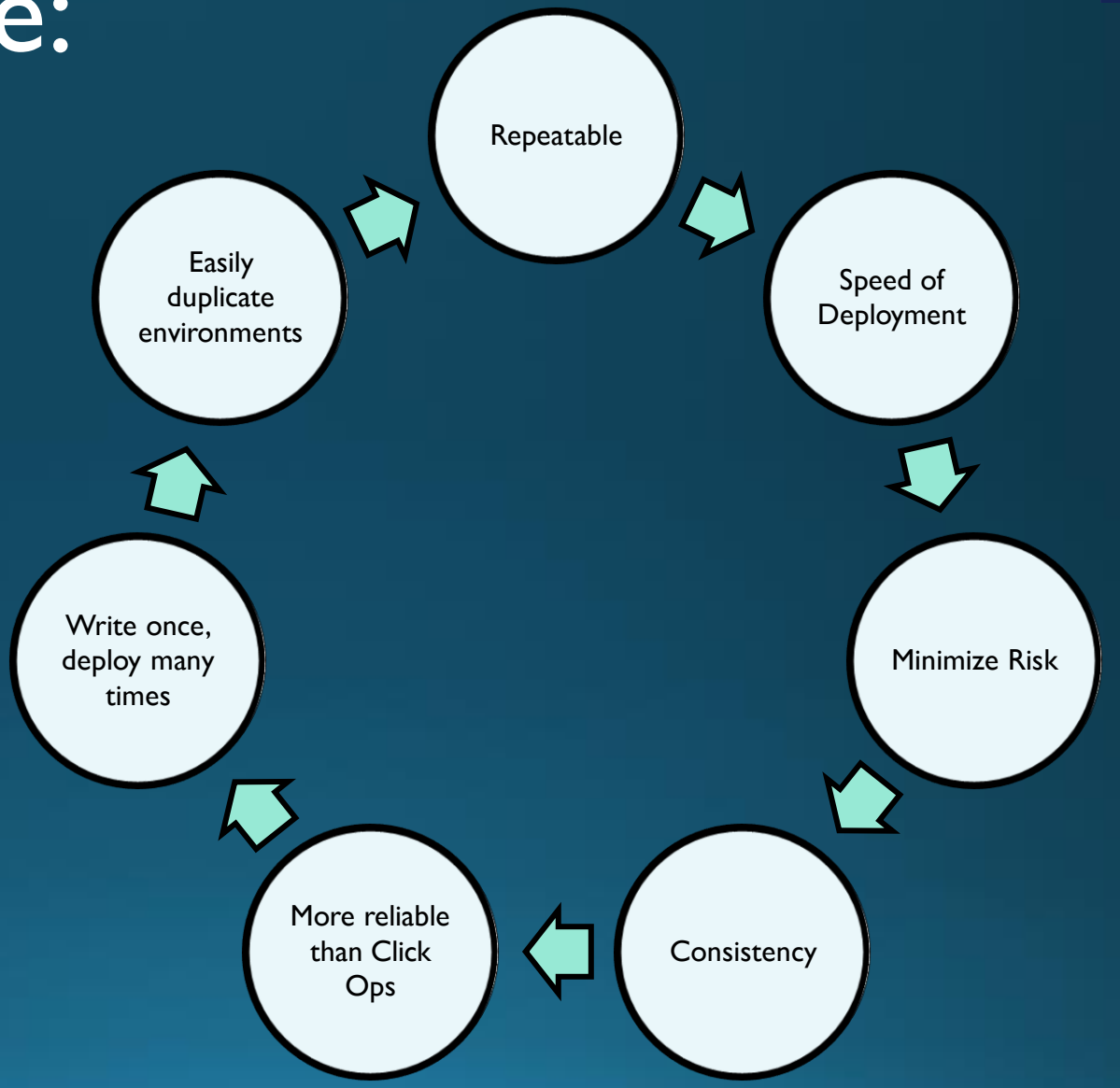


Why use Code-Driven deployment?

What is Infrastructure as Code?

- A method of managing and provisioning infrastructure resources via code
- Repeatable
- Scalable
- Can be shared easily – template files
- Imperative or declarative code
- Often integrated into version control systems – e.g. Git
- Can be edited and managed in most common tools and platforms – e.g. GitHub, Visual Studio Code, Azure DevOps etc.
- Usually adopted as part of a wider DevOps Strategy

Infrastructure as Code: The Benefits Cycle



What Tooling is required?

Key Tooling

- **Terraform** – To create the infrastructure
- **Packer** – To create machine images
- **Azure CLI** – Pre-terraform scripting/Azure tweaks
- **PowerShell** – Software installations and W365 deployment

```
Set-ExecutionPolicy Bypass -Scope Process -Force;
[System.Net.ServicePointManager]::SecurityProtocol =
[System.Net.ServicePointManager]::SecurityProtocol -bor 3072; iex ((New-Object
System.Net.WebClient).DownloadString('https://community.chocolatey.org/install.ps1'))
choco install vscode -y -no-desktopshortcuts
choco install terraform -y -no-desktopshortcuts
choco install azure-cli -y -no-desktopshortcuts
choco install packer -y -no-desktopshortcuts
choco install az.powershell -y -no-desktopshortcuts
```

https://chocolatey.org

Quick Setup – Use Chocolatey!

Chocolatey is a great way to get started using these tools quickly and easily.

What is Terraform?

- Terraform is an **Infrastructure as Code** Software tool, that can interact with a wide range of Platforms and Environments, using Providers.

- Terraform comes in 3 main varieties:
    - Open Source
    - Terraform Cloud
    - Terraform Enterprise

- In our examples/lab are using Terraform to create the core infrastructure for AVD.

HashiCorp Terraform

https://www.terraform.io/

What is Packer?

- A tool for automating the creation of machine images across a variety of platforms.

Why should we use it?

- We can automate the creation of machine images in AWS/Azure/other platforms.
- Note: Machine Images does not just mean for VDI!
- Can install software in an evergreen way – download latest versions etc.
- Simple JSON file configuration
- Easy to deploy
- Easy to repeat
- Easy to share
- Provides an image we can deploy from with minimal effort

https://packer.io

Methodologies

How, What, and Why…

Deployment Process

Azure Virtual Desktop:

Windows 365:

Deployment Process

Azure Virtual Desktop:

- Resource Groups
- Virtual Networks
- Subnets
- NSGs
- Storage (Profiles)
- Compute Galleries
- Etc.

- Machine Image
- Application Installations

- Publishing / Testing
- Final Deployment Steps
- Tweaks

Deployment Process

Windows 365:

- Machine Image
- Application Installations

- Publishing / Testing
- Final Deployment Steps
- Tweaks

AVD Deployment & Demo

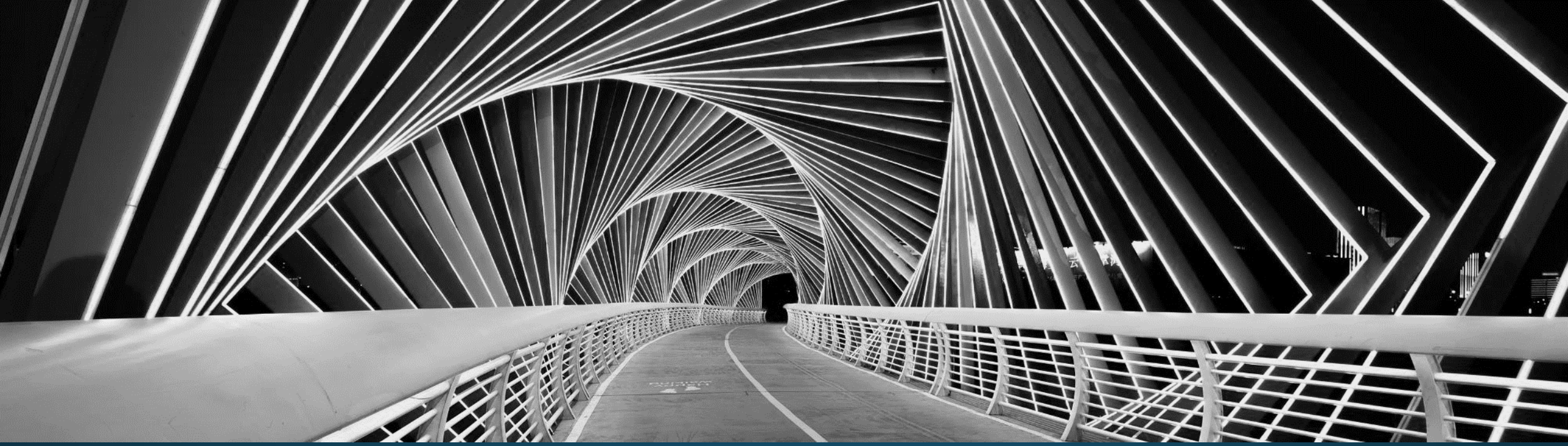
Terraform Process Overview

HashiCorp
Terraform

- Terraform code is typically arranged across several files, with the extension ".tf"

- These files define the infrastructure and its configuration that we want Terraform to apply.

- At the time of running Terraform, these files are analysed by Terraform, and turned into an execution plan to apply our changes.



Terraform – Example and Samples

Packer Process Overview

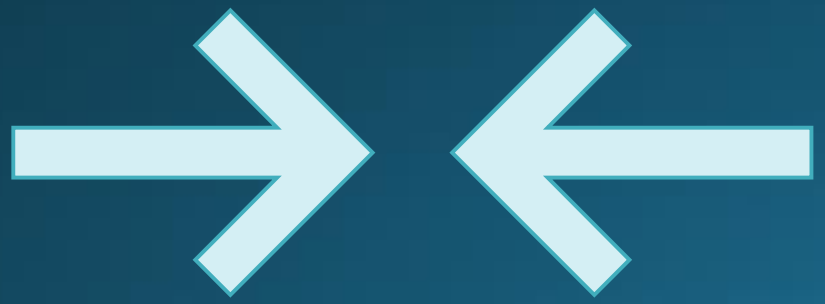
- Packer JSON/HCL File created that defines the Builder and settings we will be using.

- Packer JSON file also includes a “Provisioners” Section – where we are using Chocolatey to install applications. This could also include other apps based on your requirements.

- Packer Build Process is triggered and packer then builds our custom image.

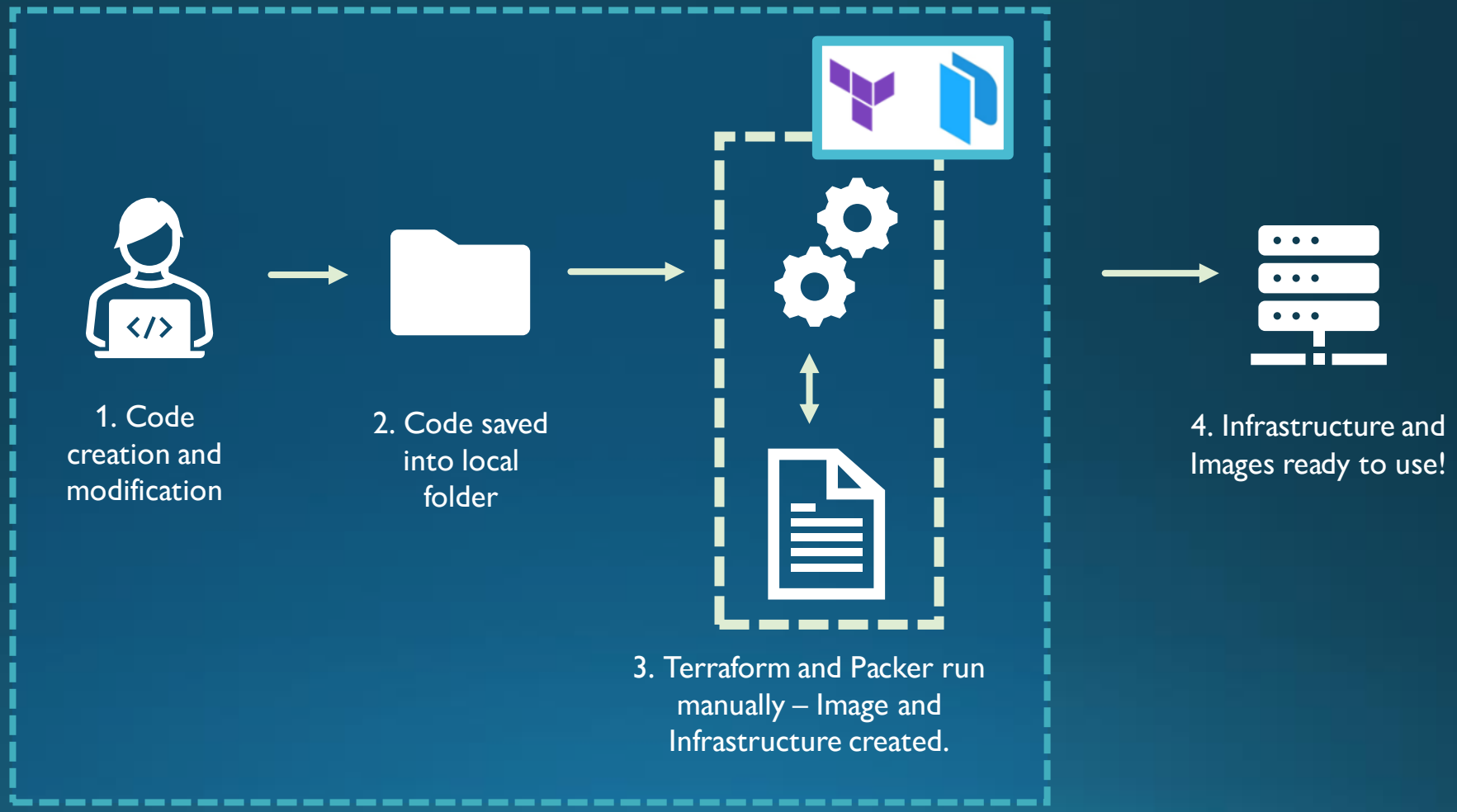
Packer – Example and Samples

Pulling it all together

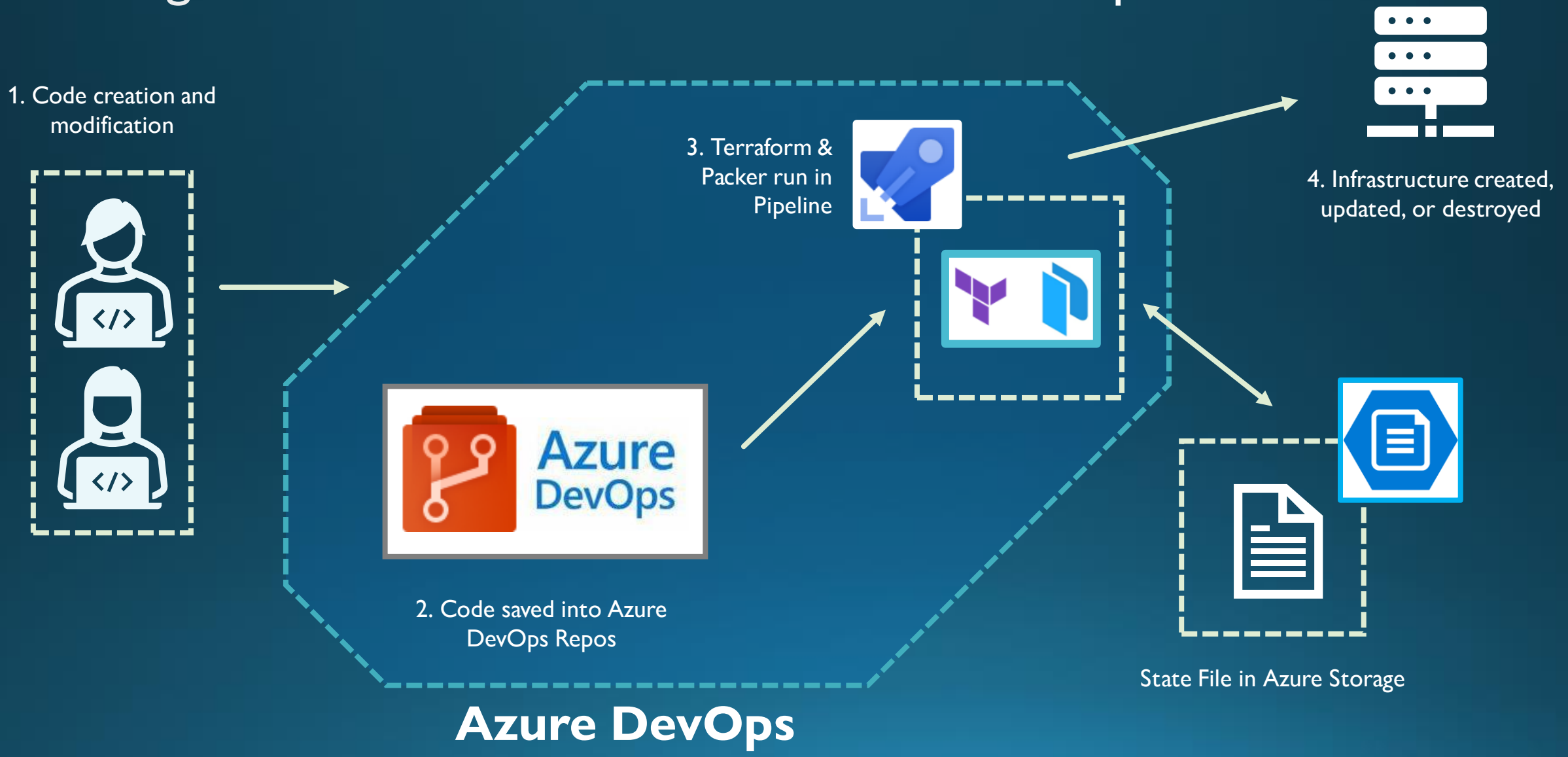


Using Terraform and/or Packer – Local Machine

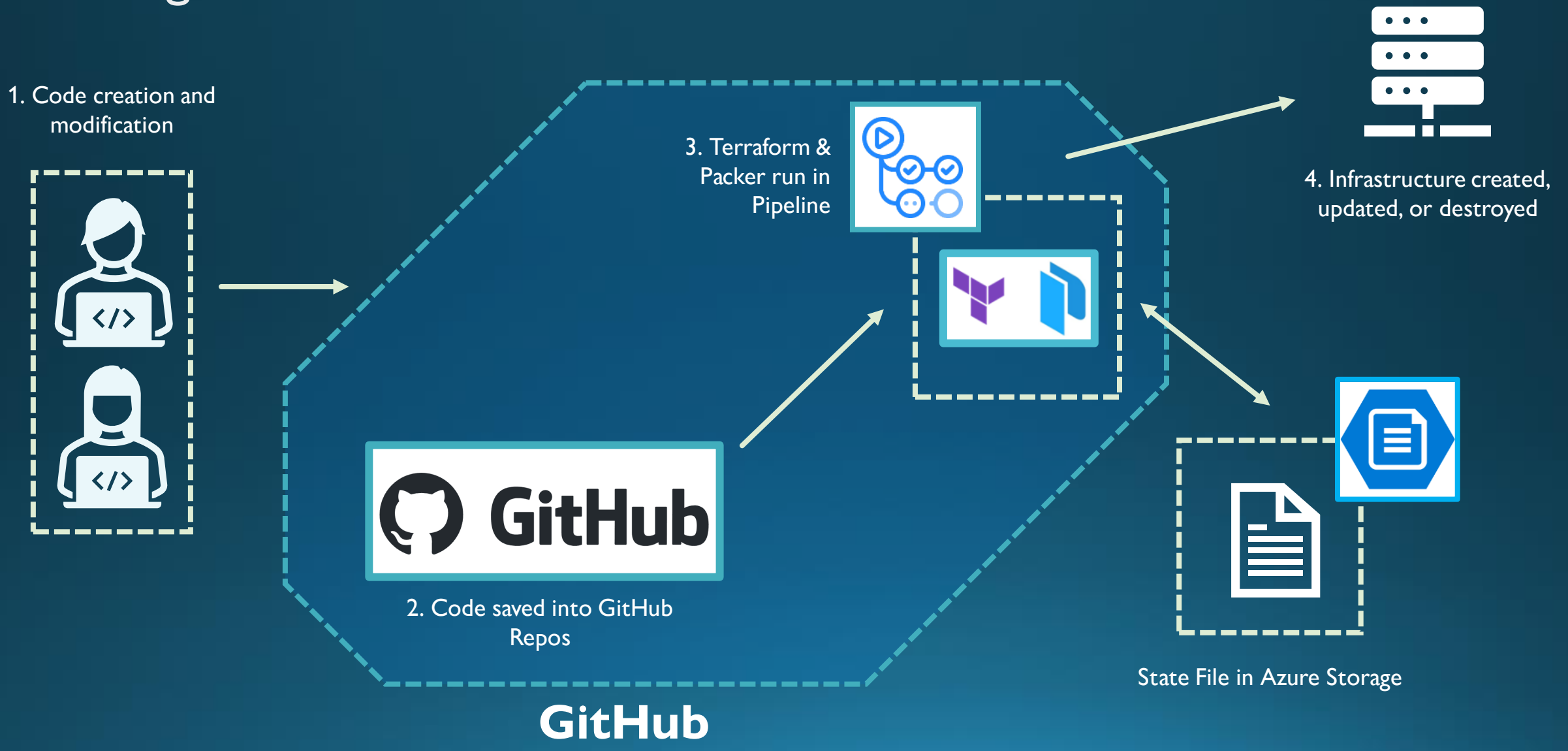
Local Example:
All work done on a single machine.



Using Terraform and/or Packer – Azure DevOps



Using Terraform and/or Packer – GitHub Actions



W365 Deployment and Demo

Note: all of these will be shared in a follow up blog post on jakewalsh.co.uk !

Resources

Products / Tooling:

- https://www.terraform.io/
- https://www.packer.io/
- https://azure.microsoft.com/en-us/products/devops
- https://graphxray.merill.net/

Sample Code:

- https://github.com/jakewalsh90/Terraform-Azure
- https://github.com/jakewalsh90/Packer-Azure

Blogs/Guides:

- https://jakewalsh.co.uk/how-i-deploy-my-azure-lab-environments/
- https://jakewalsh.co.uk/introducing-single-region-azure-baselab-v2/
- https://jakewalsh.co.uk/using-packer-to-create-azure-machine-images/
- https://jakewalsh.co.uk/category/terraform-getting-started/

Questions

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