



Cloud **Terraformation**

FROM CLICKOPS TO
INFRASTRUCTURE AS CODE

Agenda

ABOUT
THE LANGUAGE
THE PROVIDER
THE ASSIGNMENT
QUESTIONS

Hello from Grand Rapids!

I'm Victor Frye

Your friendly neighborhood developer

Unchallenged #1 Clippy fan

Love the internet and fun

- victorfrye.com/blog
- microsoftgraveyard.com
- shrugman.com

Passion for .NET, React, Azure, Xbox

DevOps specialist at Leading EDJE

Building with Microsoft solutions



About **Leading EDJE**

Technology consultancy and services

- Strategists, innovators, partners
- Craft **bespoke solutions**
- **Positive disruption** of business norm

Real. Fun. Geeks.

FREE lunch and learns

Expert talent

- **Cloud infrastructure**
- Digital and app innovation
- Data and AI
- Project management



The **ClickOps** story

Build application

What infrastructure?

Click, click, deploy

Cross fingers it works

Please do not change it

The background features a light blue gradient with several abstract, soft-edged shapes in shades of blue and purple. These shapes resemble clouds or large, inflated balloons, scattered across the frame. Smaller, solid-colored spheres in similar hues are also present, adding to the abstract, modern aesthetic.

The Answer

CODIFY INFRASTRUCTURE

The background is a light blue gradient with various abstract elements. There are several spheres of different sizes in shades of blue and purple. At the bottom, there are larger, more complex organic shapes in similar colors, resembling liquid or soft blobs. The overall aesthetic is clean and modern.

The Language

INFRASTRUCTURE AS CODE

HashiCorp Terraform

An infrastructure as code tool

Source-available

Cloud-agnostic

Declarative

Stateful

Uses Terraform configuration language (HCL)

Elements include:

- Blocks (e.g., resources, variables, data)
- Arguments (e.g., name = "value")
- Expressions (e.g., name = var.example)


```
resource "azurerm_resource_group" "example" {  
  name      = "example-resources"  
  location  = "Central US"  
}  
  
resource "azurerm_static_web_app" "example" {  
  name                        = "example"  
  resource_group_name        = azurerm_resource_group.example.name  
  location                    = azurerm_resource_group.example.location  
}
```

EXAMPLE CONFIGURATION FOR AN AZURE STATIC WEB APP

Write, Plan, Apply



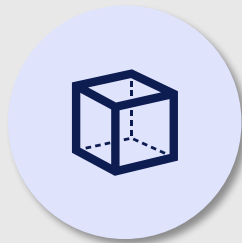
Alternative options



Bicep



CloudFormation



Pulumi



Ansible

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The Provider

YOUR CLOUD SPECIFIC INTERFACE

Multiple providers

AWS

AzureRM

Google

Kubernetes

AzAPI

AzureAD

MSGraph

GitHub

Choose your provider



AzureRM

- Automatic API versioning
- Simplicity
- Comprehensive documentation



AzAPI

- Immediate API access
- Targeted resource updates
- Fine-grained control

Terraforming Azure

ClickOps resources in the
Azure portal

Configure workload identity
federation with Entra ID

Set up Terraform backend with
blob storage

Use template exports for
Terraform

Automate CI/CD with GitHub
Actions



The background is a light blue gradient with various abstract elements. There are several spheres of different sizes in shades of blue and purple. At the bottom, there are larger, more complex organic shapes in similar colors, resembling liquid or soft clay. The overall aesthetic is clean, modern, and playful.

The Assignment

READY, SET, GO!

The background features a light blue gradient with several abstract, soft-edged shapes in shades of blue and purple. These shapes resemble clouds or large, inflated balloons, scattered across the frame. Some are solid colors, while others have a gradient. The overall aesthetic is clean, modern, and tech-oriented.

Install Terraform

DEMONSTRATION

The background features a light blue gradient with several abstract, organic shapes and spheres in shades of blue and purple. These shapes are scattered across the frame, with some appearing as soft, cloud-like forms and others as solid, smooth spheres of varying sizes. The overall aesthetic is clean and modern.

Set up identity

DEMONSTRATION

The background features a light blue gradient with several abstract, 3D-rendered shapes. On the left side, there are large, overlapping blobs in shades of blue and purple. Scattered across the right side are several smaller, solid blue spheres of varying sizes. The overall aesthetic is clean and modern.

Create backend

DEMONSTRATION

The background features a light blue gradient with several 3D-rendered blue and purple spheres of varying sizes. Some spheres are solid, while others are part of larger, more complex organic shapes that resemble bubbles or cells. The lighting creates soft shadows and highlights, giving the objects a three-dimensional appearance.

Configure RBAC

DEMONSTRATION

The background features a light blue gradient with several abstract, soft-edged shapes in shades of blue and purple. These shapes resemble clouds or large, smooth spheres, some of which are partially cut off by the edges of the frame. There are also several smaller, solid blue spheres scattered throughout the scene.

Export Terraform

DEMONSTRATION

The background features a light blue gradient with several abstract, soft-edged shapes in shades of blue and purple. These shapes include large, rounded blobs and smaller, smooth spheres, some of which are partially cut off by the edges of the frame. The overall aesthetic is clean and modern.

Refactor configurations

DEMONSTRATION

The background features a light blue gradient with several abstract, 3D-rendered shapes. On the left side, there are large, overlapping, soft-edged blobs in shades of blue and purple. Scattered across the right side and bottom are several smaller, smooth spheres in various sizes and shades of blue and purple.

Import state

DEMONSTRATION

The background features a light blue gradient with several 3D-rendered spheres and organic, cloud-like shapes in shades of blue and purple. These elements are scattered across the frame, with a larger cluster on the left and smaller ones on the right and bottom.

Build plan

DEMONSTRATION

The background features a light blue gradient with several 3D-rendered elements. On the left, there are large, overlapping organic shapes in shades of blue and purple. Scattered across the right side are several smaller, smooth spheres in various shades of blue and purple.

Apply plan

DEMONSTRATION

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Automate CI/CD

DEMONSTRATION

The background features a light blue gradient with several abstract, soft-edged shapes in shades of blue and purple. These shapes resemble clouds or large, inflated balloons, scattered across the frame. Smaller, solid-colored spheres in similar hues are also present, adding to the abstract composition.

Did it work?

SHRUGMAN.COM

Thank you

Provide feedback



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