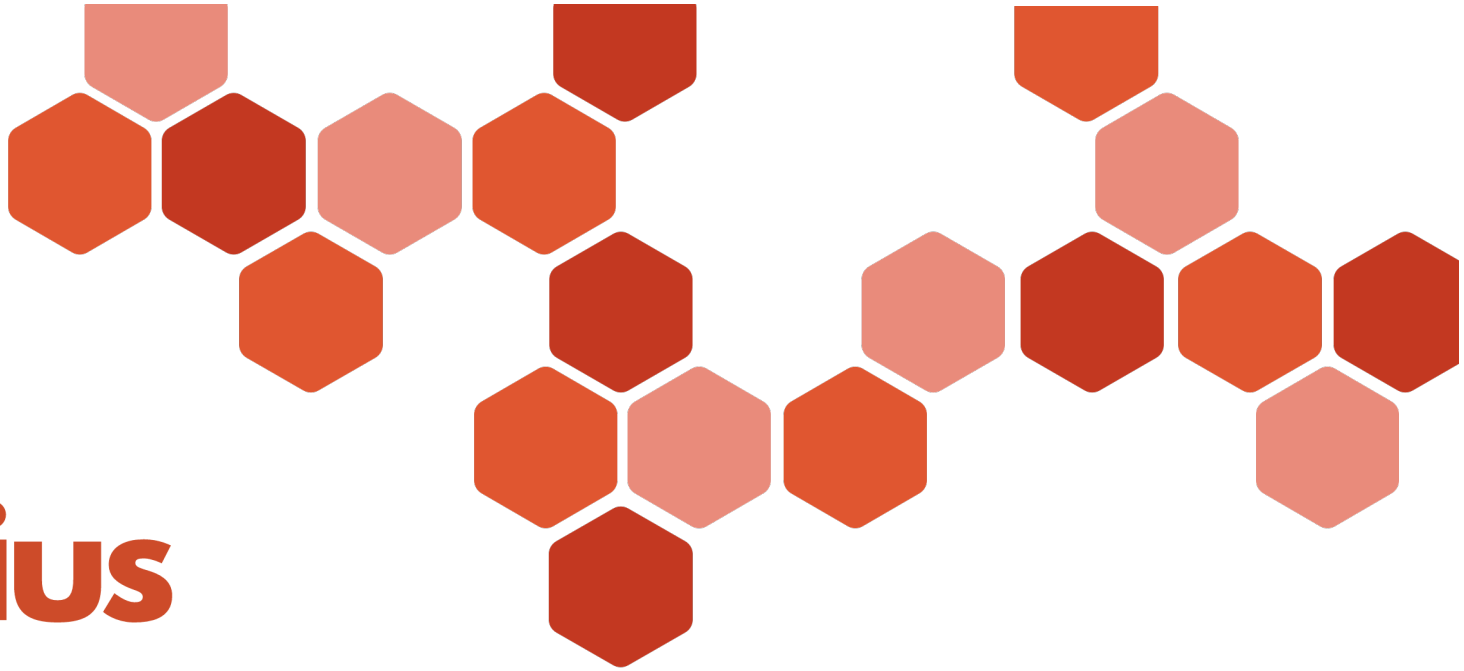


radius

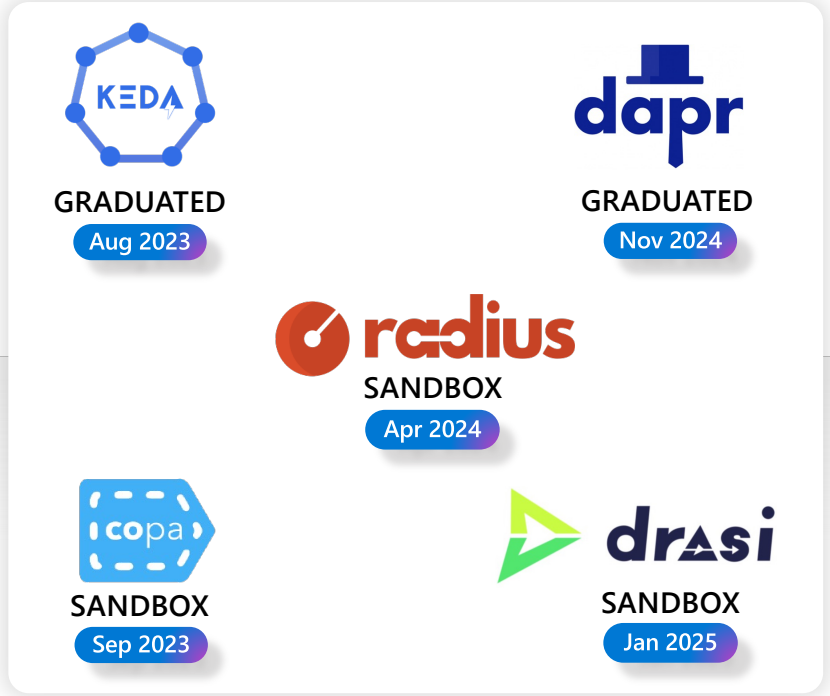
Cloud Federation with Radius

Zach Casper
Principal Product Manager
Azure Incubations

Azure Incubations

MISSION

Partner across Microsoft and the open-source community to explore and deliver industry-changing products

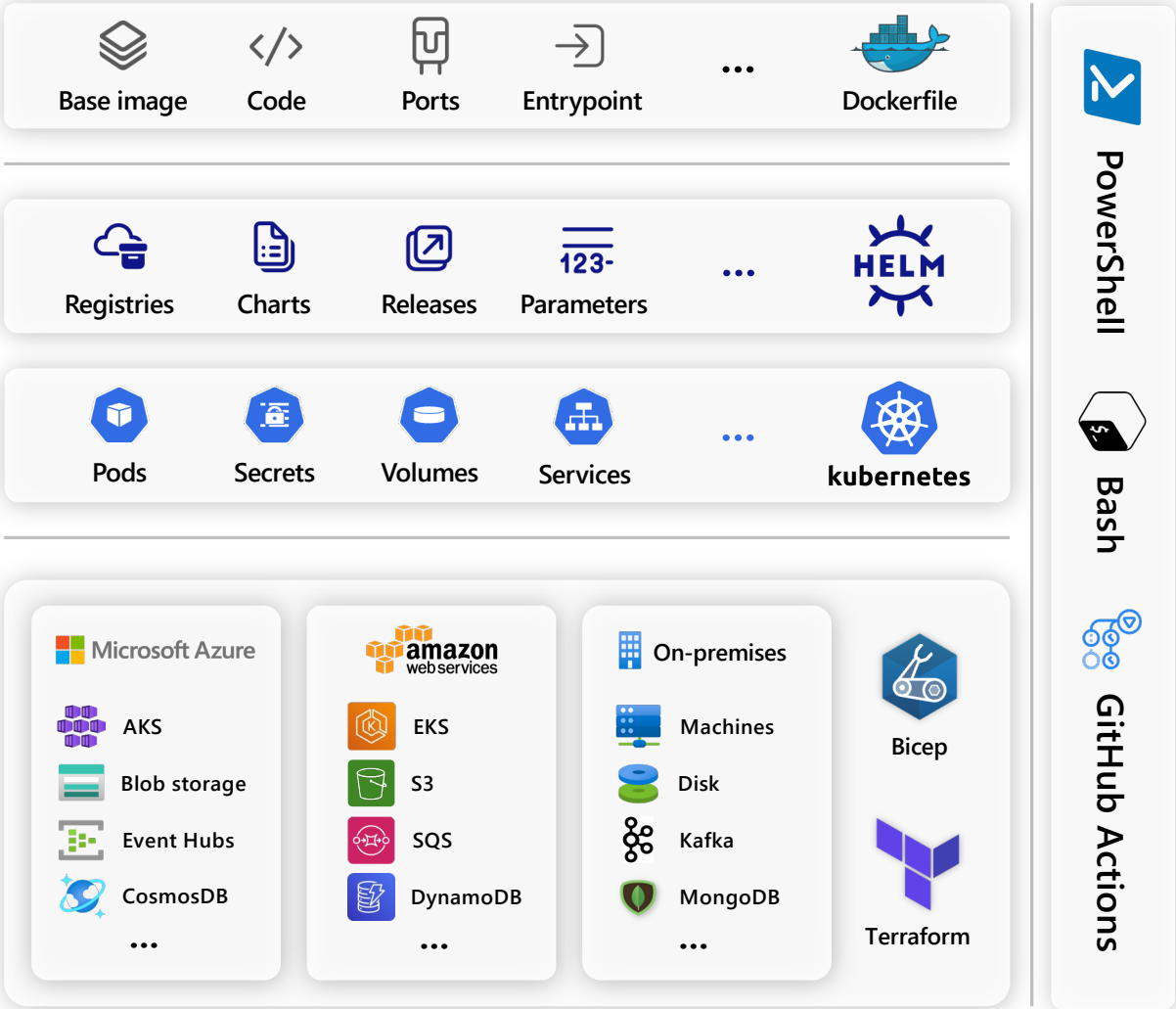


CLOUD NATIVE COMPUTING FOUNDATION

Cloud-native application platform
that works on any cloud

Cloud native apps are more than just

kubernetes



```hcl
terraform {
  required_providers {
    kubernetes = {
    ...

resource "kubernetes_deployment" "pos
...
     spec {
        container {
          name  = "postgres"
          image = "postgres:16-alpine

          env_from {
            secret_ref {
              name =...
            }
          }

resource "kubernetes_service" "postgr
  spec {
    selector = {
      app = "postgres"
    }
    port {
      port        = 5432
      target_port = 5432
    }
    type = "ClusterIP"
  }
}
```

```hcl
terraform {
  required_providers {
    aws = {
    ...

resource "aws_db_instance" "postgres" {
  identifier              = "demo-postgre
  engine                  = "postgres"
  engine_version          = "16.3"
  instance_class          = "db.t3.micro"
  allocated_storage       = 20
  db_name                 = var.db_name
  username                = var.db_userna
  password                = ...
  db_subnet_group_name    = ...
  vpc_security_group_ids  = ...
  skip_final_snapshot     = true
  publicly_accessible     = true
  deletion_protection     = false
}

...
```

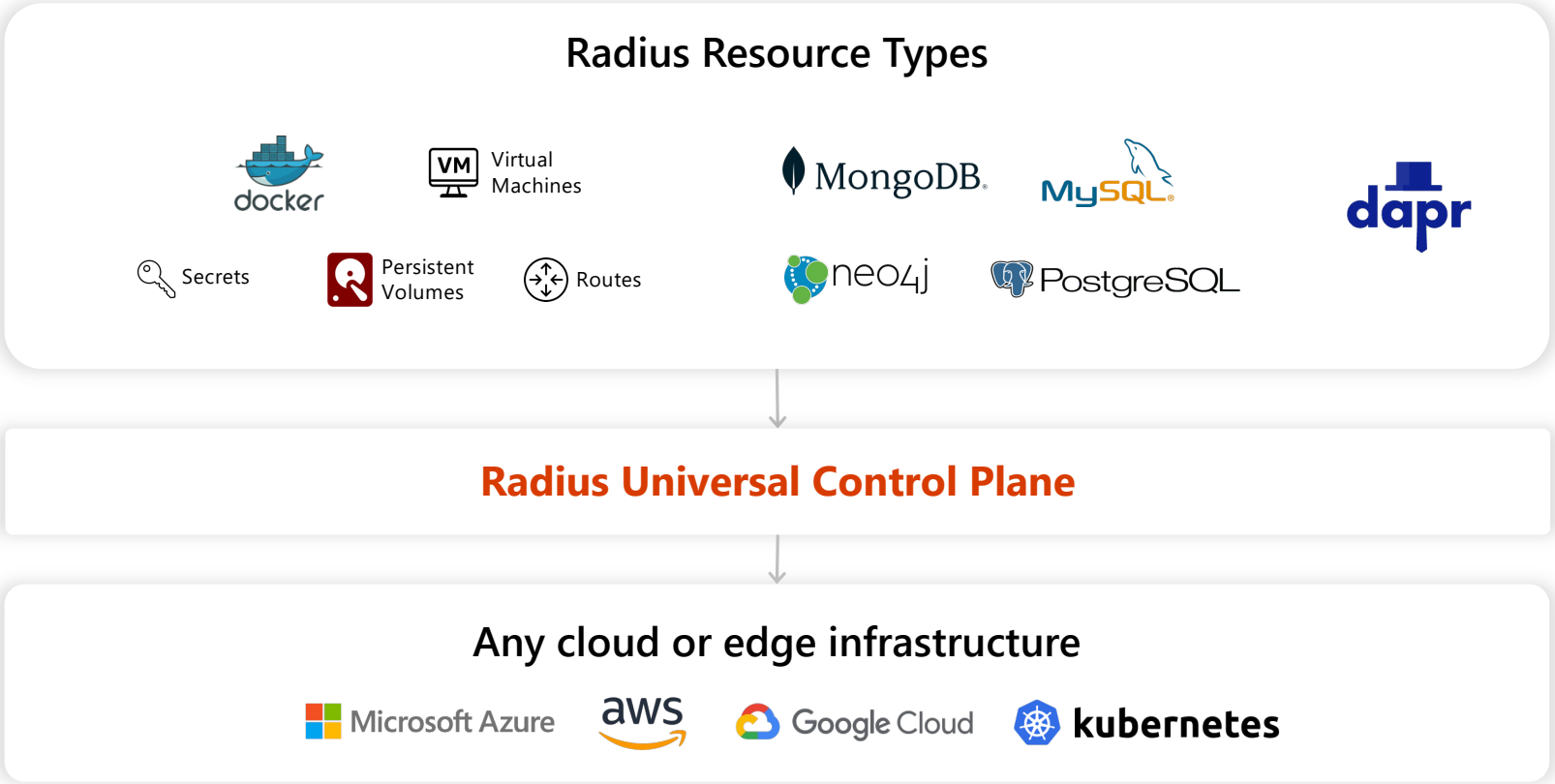

```hcl
terraform {
  required_providers {
    azurerm = {
    ...

resource "azurerm_postgresql_flexible_server" "postgres" {
  name                   = ...
  resource_group_name    = ...
  location               = ...
  administrator_login    = var.admin_username
  administrator_password = ...
  version                = "16"
  sku_name               = "B_Standard_B1ms"
  storage_mb             = 32768
  backup_retention_days  = 7
  zone                   = "1"
  authentication {
    password_auth_enabled = true
  }
}

resource "azurerm_postgresql_flexible_database" "app_db" {
  name      = var.db_name
  server_id = ...
  collation = "en_US.utf8"
  charset   = "UTF8"
}
```

Multi-Cloud Challenges

How do developers define their application resources across different cloud platforms?	How to developers work across multiple cloud platforms seamlessly?	How to control what resources are used in the underlying cloud environment?	How do developers manage their apps and application resources across multiple cloud platforms?

How do developers define their application resources across different cloud platforms?	How to developers work across multiple cloud platforms seamlessly?	How to control what resources are used in the underlying cloud environment?	How do developers manage their apps and application resources across multiple cloud platforms?
 **Radius Resource Types**	 **Radius Environments**	 **Infrastructure Recipes**	 **CLI, Dashboard, & IDE Integration**
Custom-defined resource types agnostic of any cloud platform.	Define the cloud provider, the region, and how to deploy resources	Define platform-specific configurations using existing IaC tools that enforce security and cost best-practices	Radius CLI deploys any cloud platform via the Radius control plane. Works with VS Code IntelliSense.

Defining cross-platform resource types



Example: Blob Storage Bucket

Resource name

APIs are versioned

Developer-facing properties

Design-time data validation, more possible at deployment time

Output properties

```
namespace: Radius.Storage
  types:
    postgreSqlDatabases:
      apiVersions:
        '2023-10-01-preview':
          schema:
            type: object
            properties:
              environment:
                type: string
              application:
                type: string
              size:
                type: string
                enum: [S, M, L, XL]
              database:
                type: string
                readOnly: true
              host:
                type: string
                readOnly: true
              port:
                type: string
                readOnly: true
              username:
                type: string
                readOnly: true
              password:
                type: string
                readOnly: true
            required: [environment]
```

How do developers define their application resources across different cloud platforms?

How to developers work across multiple cloud platforms seamlessly?

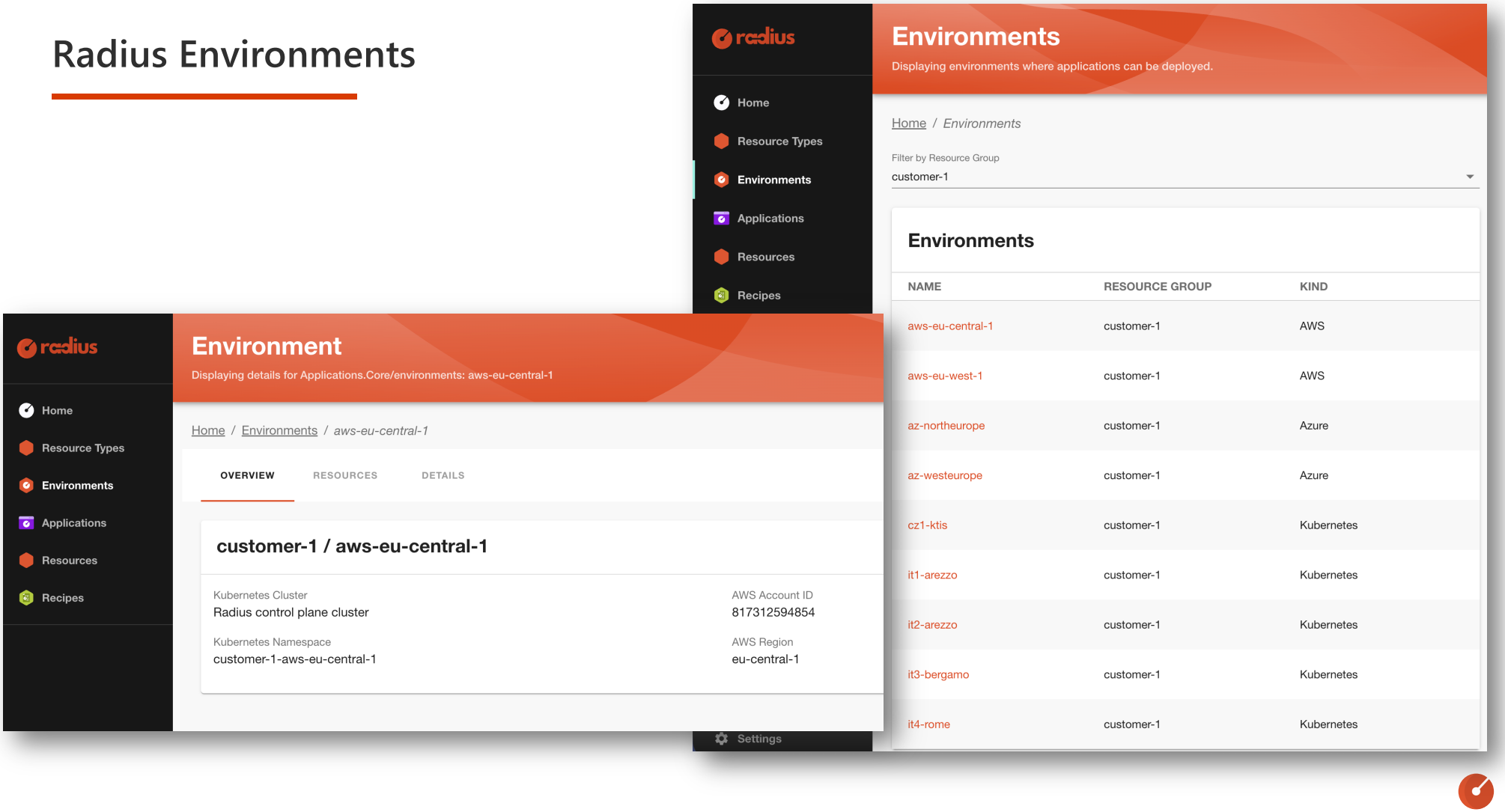
How to control what resources are used in the underlying cloud environment?

How do developers manage their apps and application resources across multiple cloud platforms?

Radius Environments

Define the cloud provider, the region, and how to deploy resources

Radius Environments



How do developers define their application resources across different cloud platforms?

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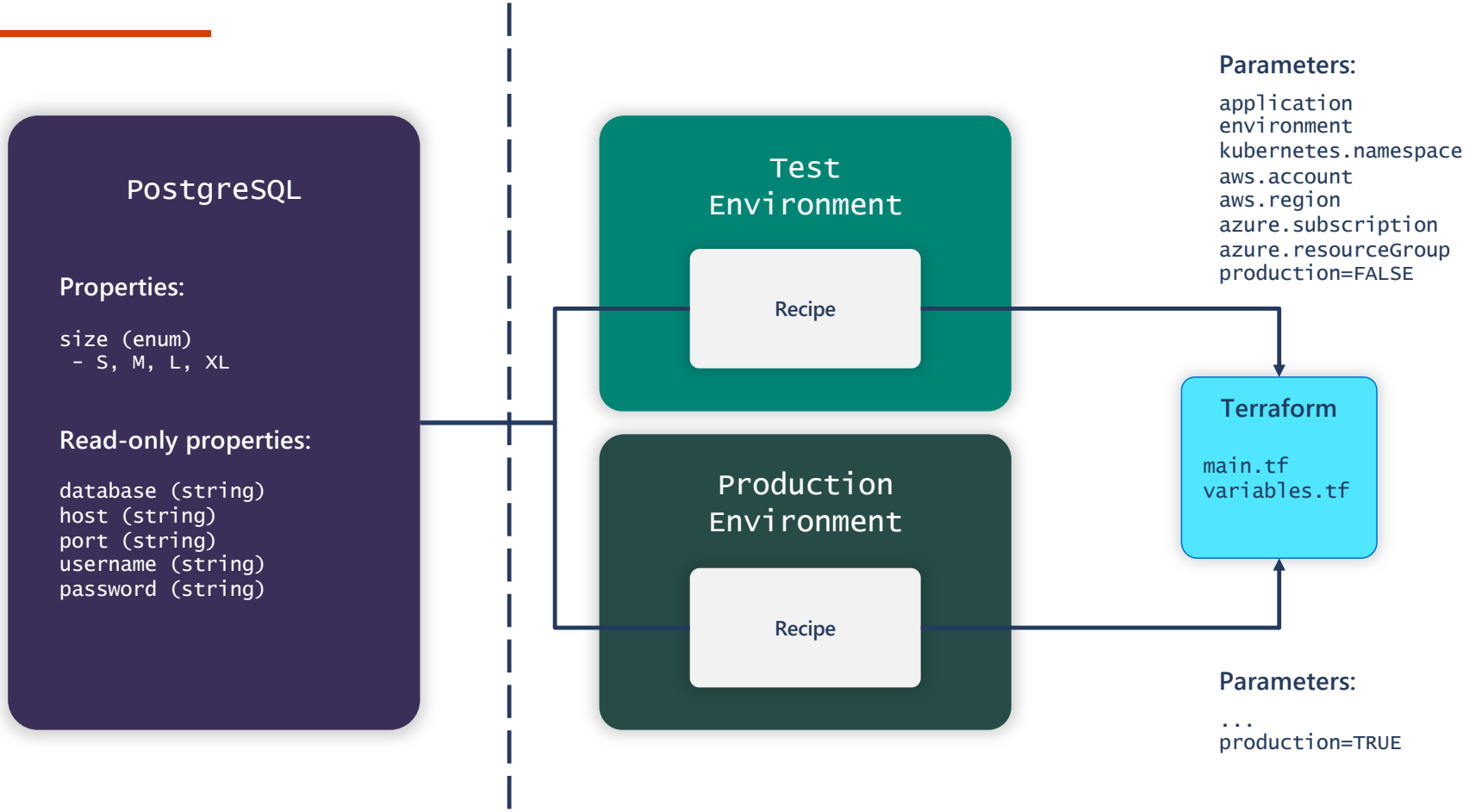
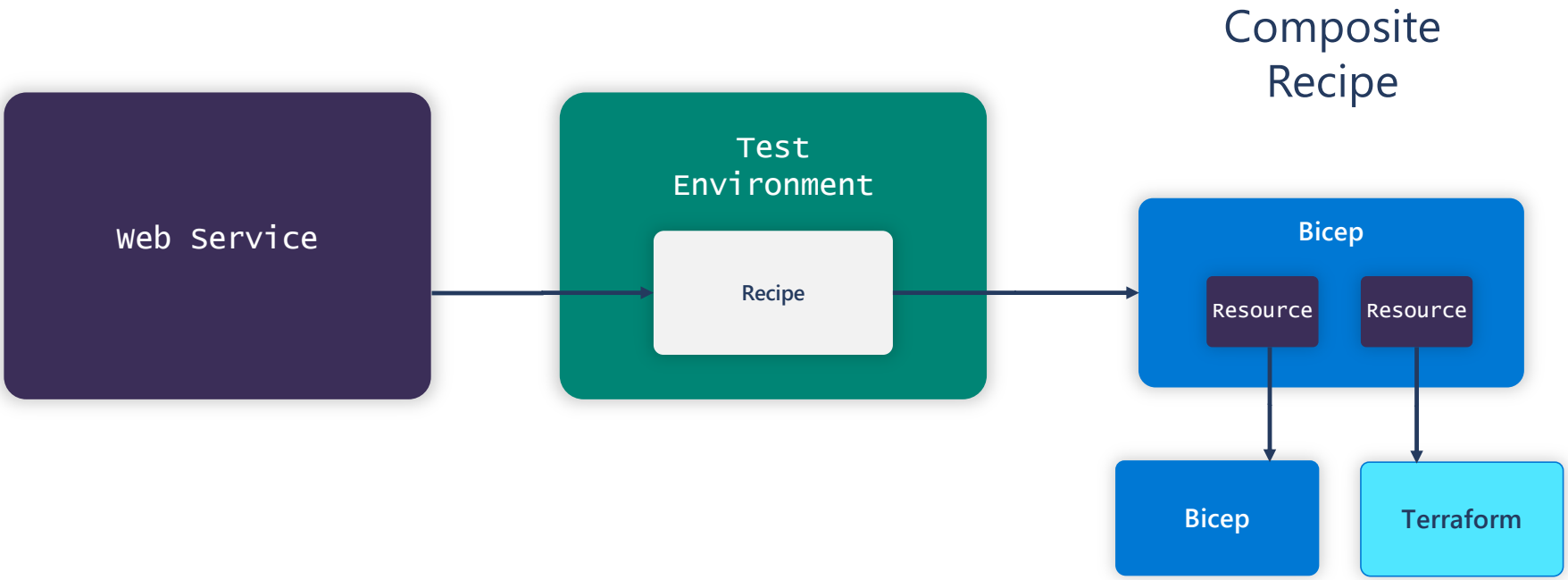
Infrastructure Recipes

Define platform-specific configurations using existing IaC tools that enforce security and cost best-practices

Recipes


PostgreSQL
Properties:
size (enum)
- S, M, L, XL
Read-only properties:
database (string)
host (string)
port (string)
username (string)
password (string)
Test Environment
Recipe
Production Environment
Recipe
Terraform
main.tf
variables.tf
Parameters:
application
environment
kubernetes.namespace
aws.account
aws.region
azure.subscription
azure.resourceGroup
production=FALSE
Parameters:
...
production=TRUE

Recipes


Composite Recipe
Web Service
Test Environment
Recipe
Bicep
Resource
Resource
Bicep
Terraform

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CLI, Dashboard, & IDE Integration

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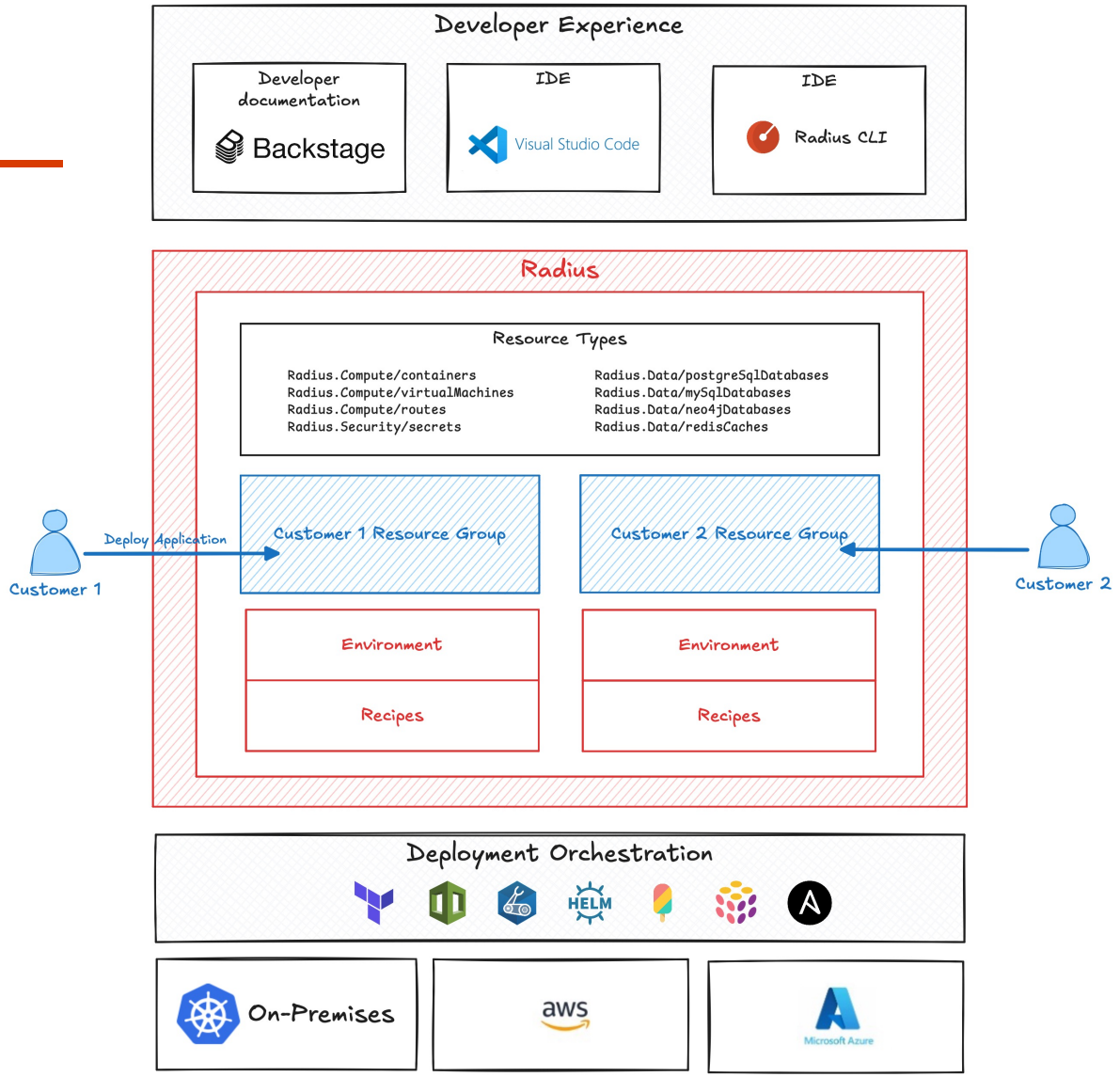
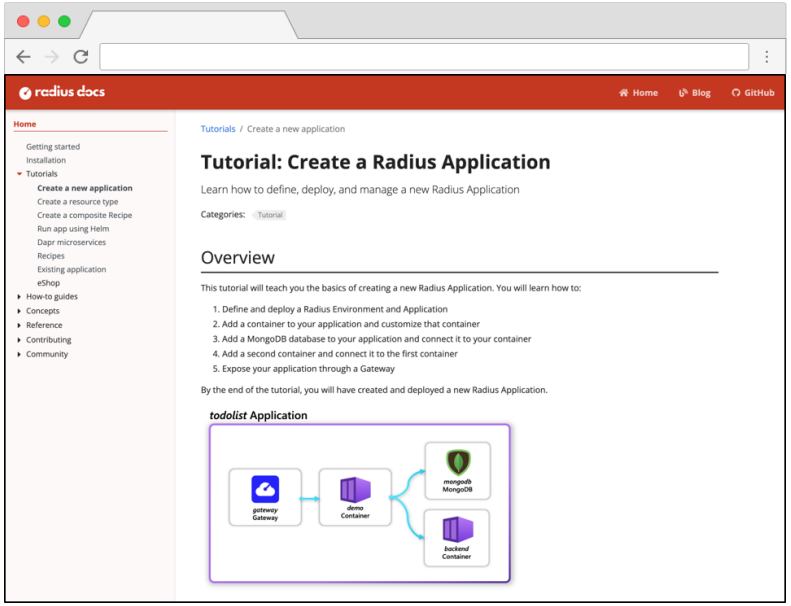
DEMO

Deploying PostgreSQL

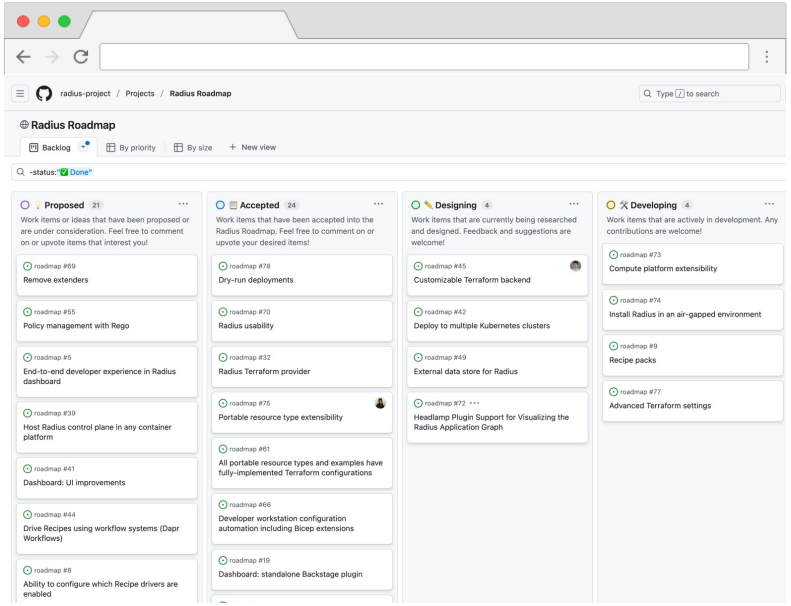
Architecture



Get Started with Radius



https://docs.radapp.io/tutorials/new-app/



https://aka.ms/radius-roadmap

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- https://www.threads.net/@radapp_io
- https://www.youtube.com/@radapp_io

Q&A