devops HEROES 2022

Implementa una pipeline CI/CD multi-stage per deployment su Azure con Bicep & GitHub Actions

Feedback → 7E

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UNIVERSITÀ DEGLI STUDI DI PARMA

daniela malvisi
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ETLOG
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iSolutions
SOFTWARE ENGINEERING

Speaker bio

- Advisory Engineer @ **SOFT** *Jam* what's next.
- Turchin.cloud community leader
- Geek to the 🦴 ⚽
- ♡ Azure and SQL Server

ABOUTME.OMEGAMADLAB.COM

Agenda

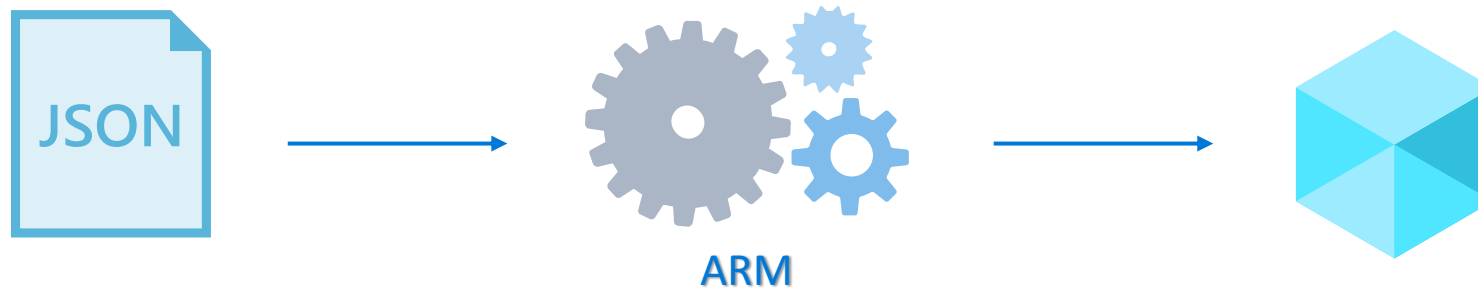- A short intro
  - Cool stuff & what to expext
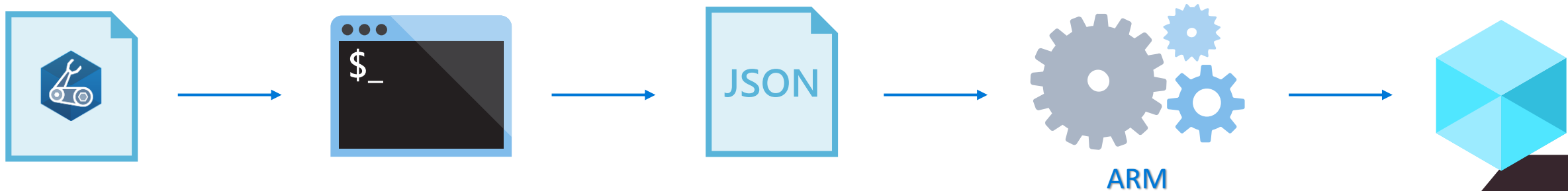- Bicep & CI/CD pipelines
- Demo
- How to learn & contribute
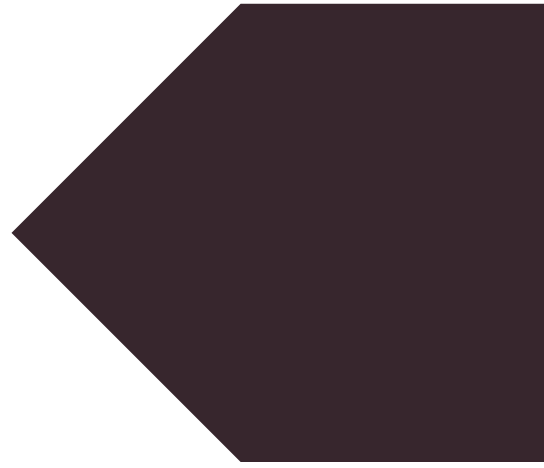
A short intro

What's Bicep?

JSON → ARM →

What's Bicep?

JSON
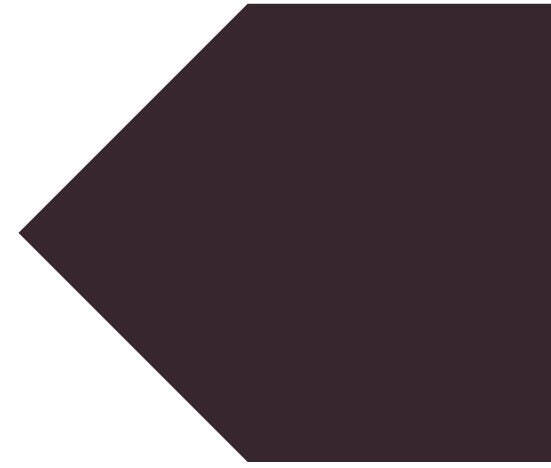
ARM

This is why I prefer Bicep over 3rd-party tools

- Complete coverage of all the features at day 0
- Azure is the state
- Preflight validation
- Super tooling
- Fully integrated with other Azure Services
- Automatic extraction
- Official support

Cool stuff & what to expect

Dynamic approach

- Loops
- Conditional deployment
- Ternary operator
- Lamba functions

Modules

```
@allowed([
  'DEV'
  'PROD'
])
param environment string = 'DEV'
param webAppName string


module appPlanModule .\module.bicep = {              ms@2020-12-01' = {
  name: 'AppPlan'
  params: {
    environment: environment
    appPlanName: webAppName
  }
}


resource webApplication 'Microsoft.Web/sites@2018-11-01' = {     8-11-01' = {
  name: take('${webAppName}-${environment}-${uniqueString(resourceGroup().id)}',     queString(resourceGroup().id)}',
20)
  location: resourceGroup().location
    properties: {
    serverFarmId: appPlanModule.outputs.serverFarmId
    siteConfig: {
      appSettings: [
        {
          name: 'ThisIsAnAppSetting'
          value: 'demo'
        }
      ]
    }
  }
}
```
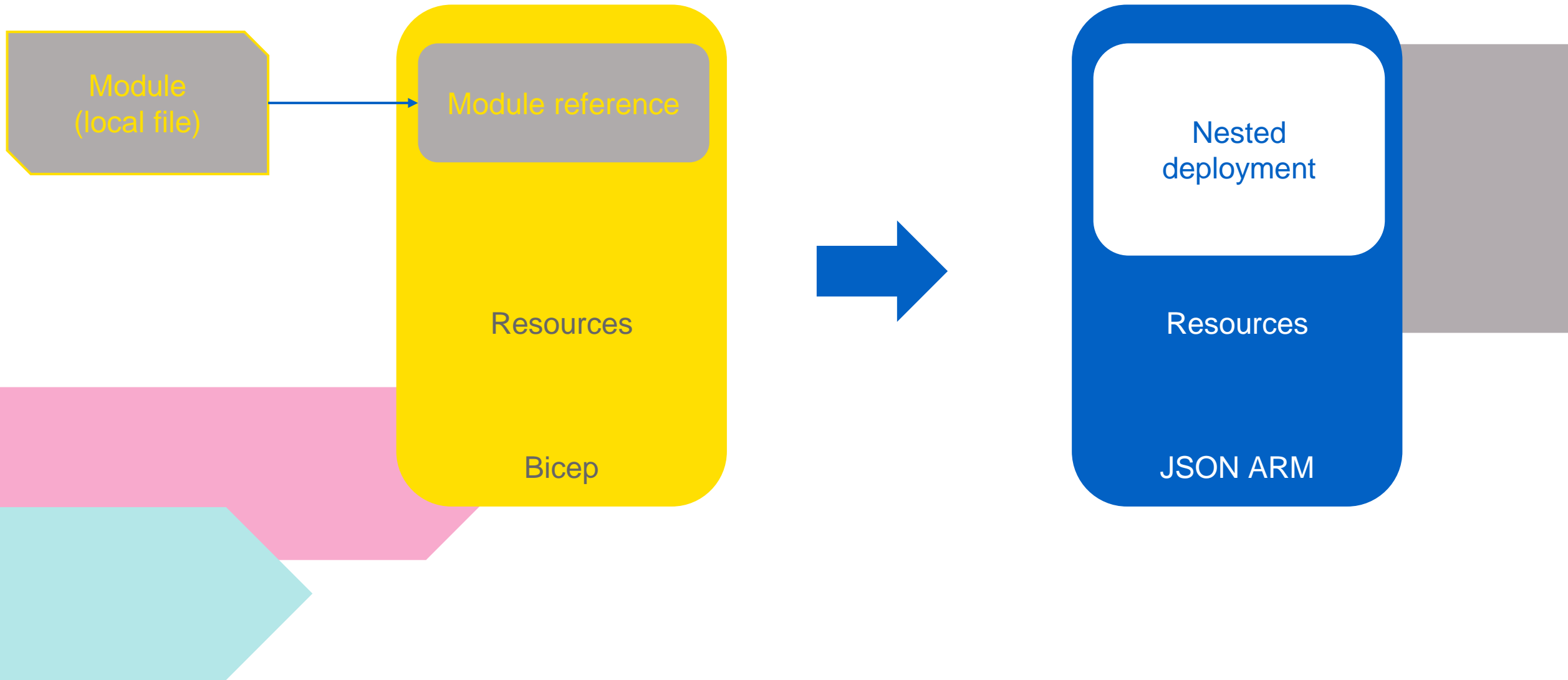
```
ng = 'DEV'
ng

n 'Microsoft.Web/serverfarms@2020-12-01' = {
-${environment}-AppPlan'
up().location

== 'DEV' ? 'F1' : 'S1'
nt == 'DEV' ? 1 : 2


ring = appServicePlan.id
```
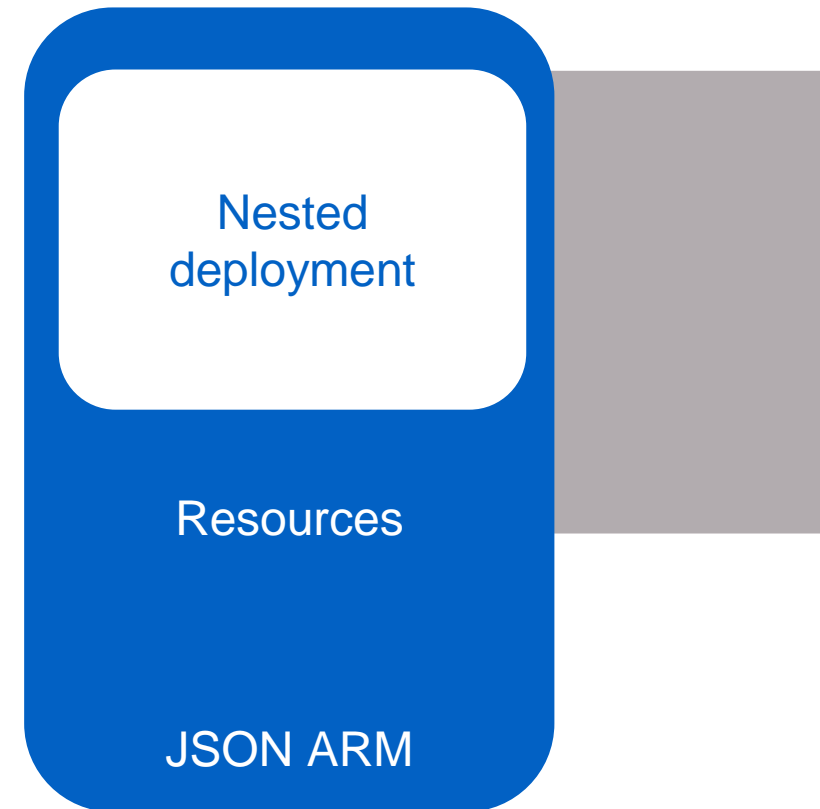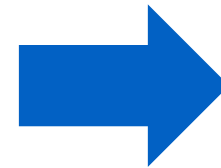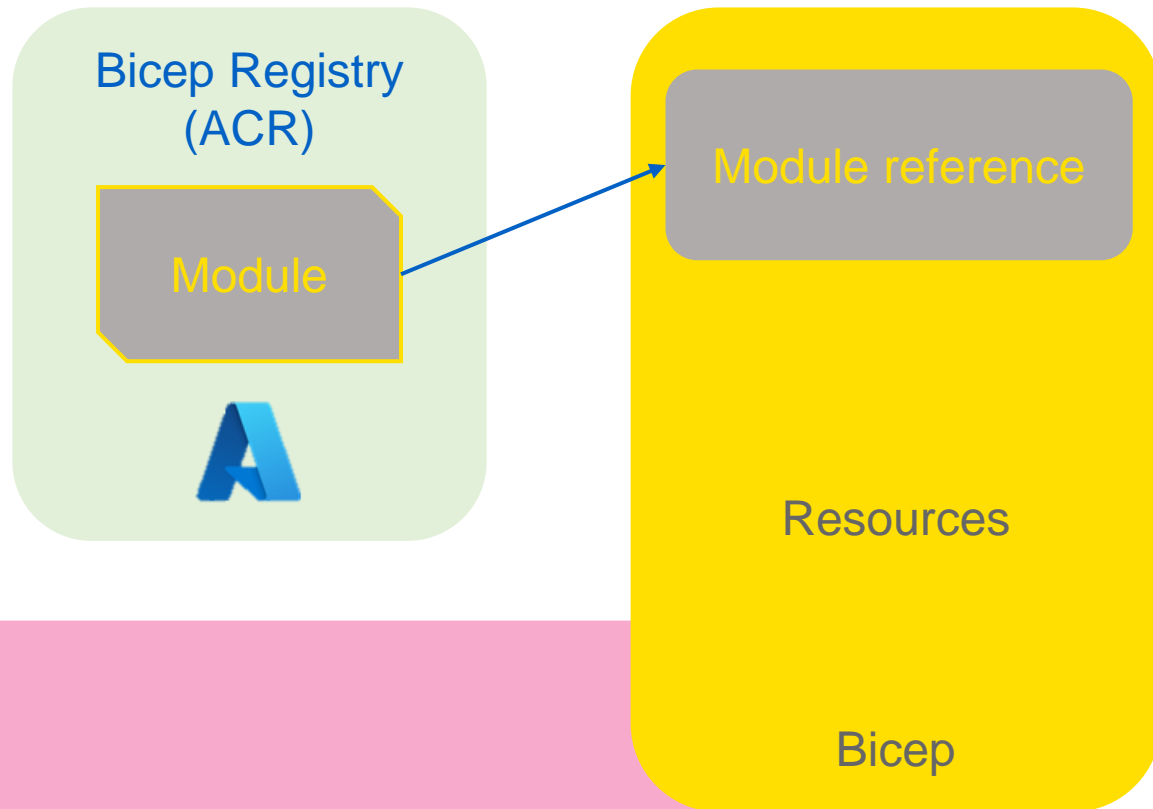
Modules

Module registries

Latest additions

- Monthy release cycle → current version 0.11.1
- Module registries
- Linter rules paired with ARM TTK
- Lambda functions
- Visual Studio extension
- Initial phase for AKS extensibility

Roadmap

Future releases

10/1	11/1	TBD	TBD
v0.11	**v0.12**	**v0.***	**v1.0**
Various Bicep decompile workflow improvements	Bicep parameters file	...	Strict breaking change policy
Custom types			Type updates separate from core updates
			AAD provider
			Pass resource between module
			`/build` and `/decompile` REST APIs

Bicep & CI/CD pipelines

Continuous integration/continuous deployment

Checkout code

`actions/checkout@v3 (GH Action)`

Azure login

`azure/login@v1 (GH Action)`

Linting & pre-flight validation

`az deployment group validate […] (Az CLI)`
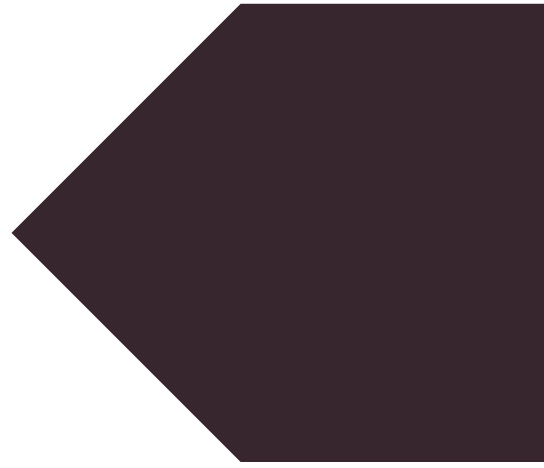`Test-AzResourceGroupDeployment (Az PoSH)`

Configure BicepConfig.json

What-if deployment

`az deployment group what-if […] (Az CLI)`
`New-AzResourceGroupDeployment –whatif (Az PoSH)`
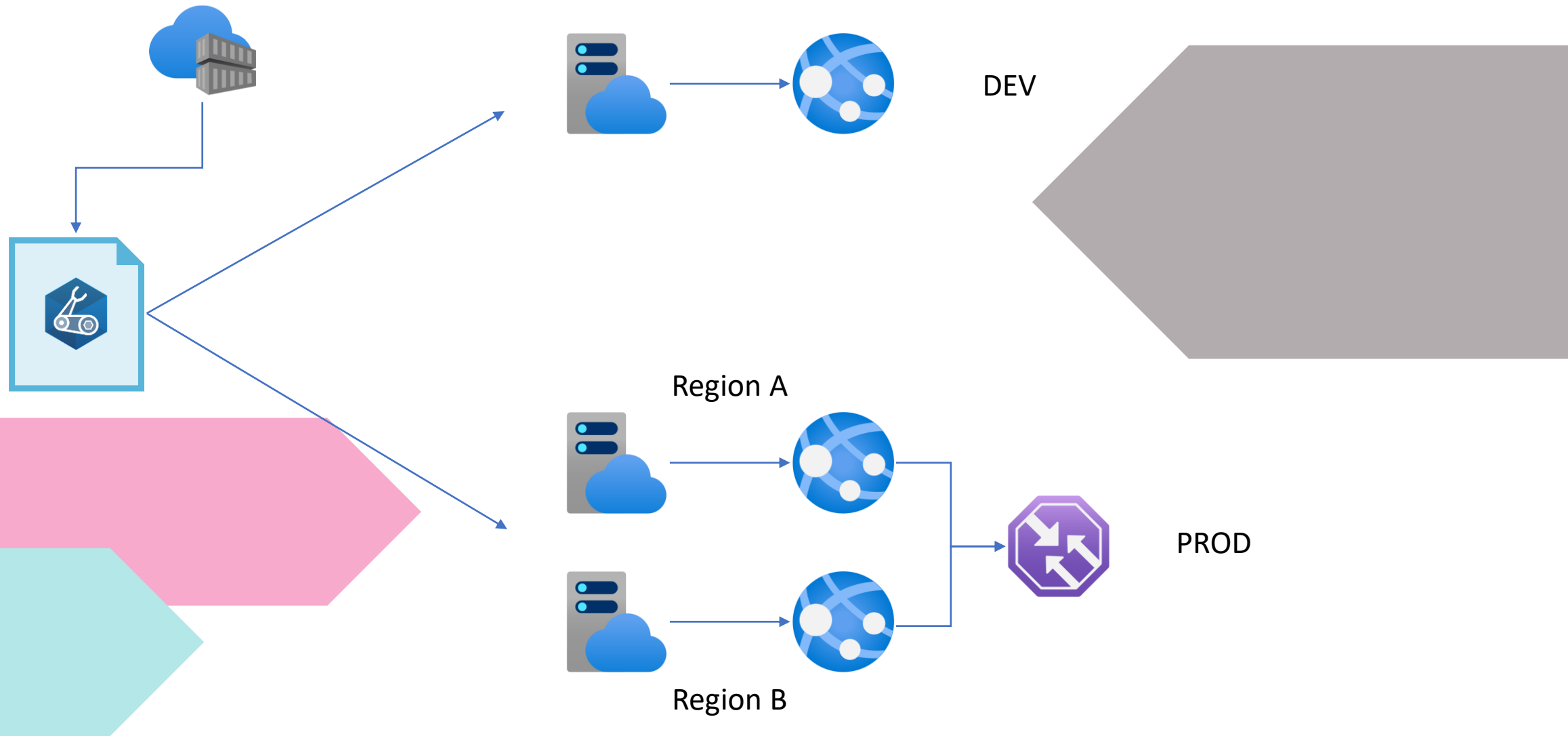`azure/arm-deploy@v1 (GH Action)`

ARM deploy

`az deployment group create […] (Az CLI)`
`New-AzResourceGroupDeployment (Az PoSH)`
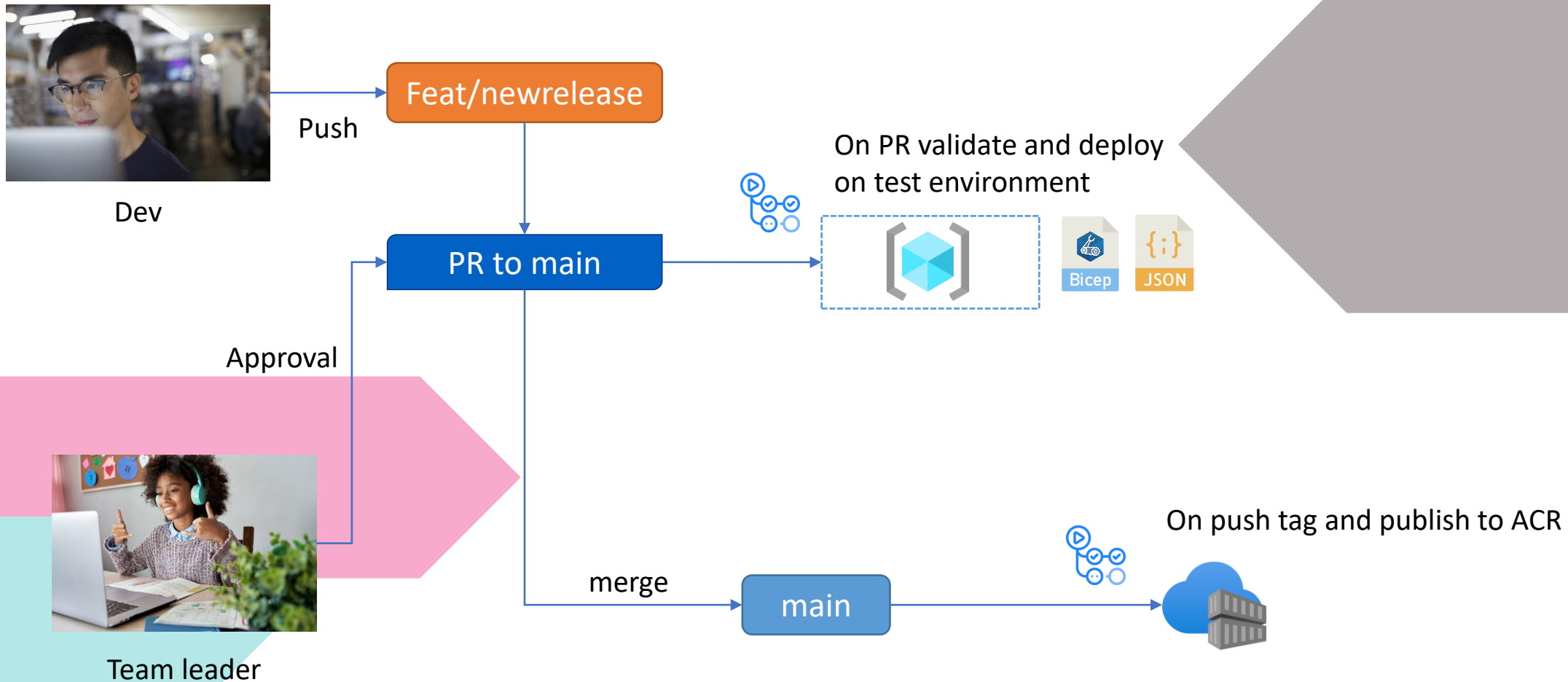`azure/arm-deploy@v1 (GH Action)`

Demo

Multi-environment deployment
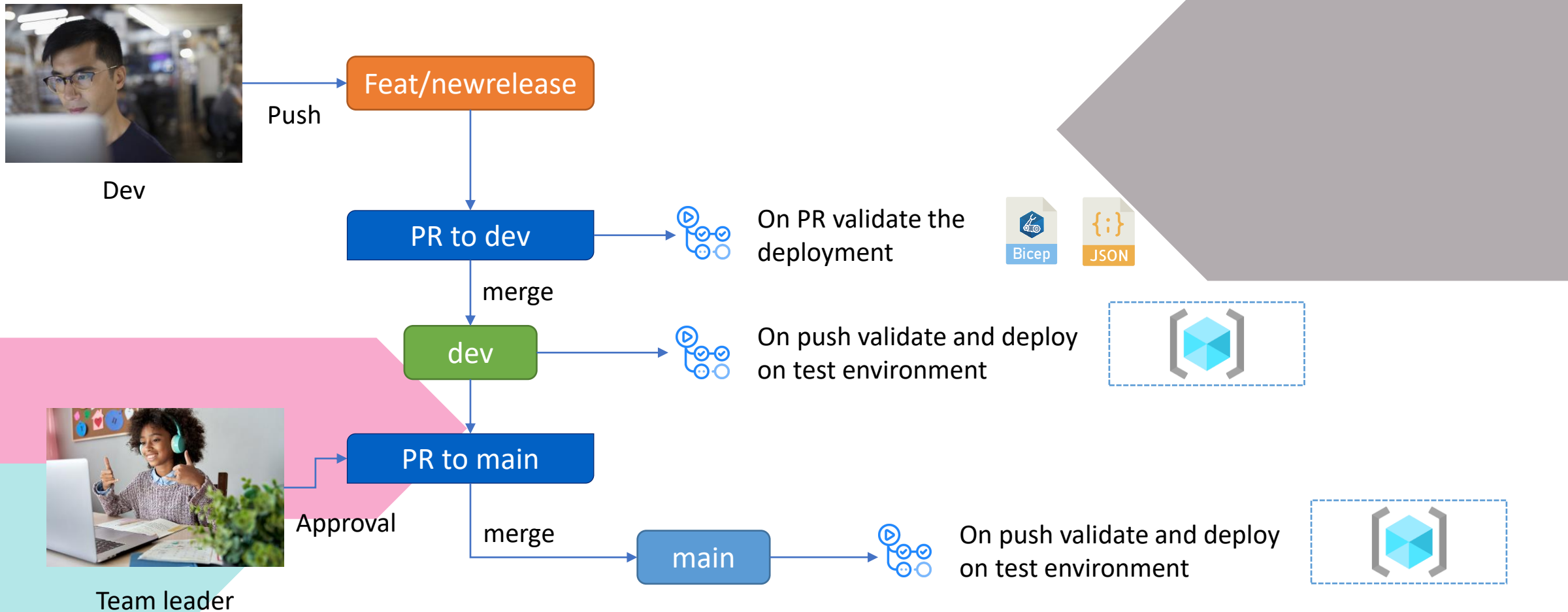

DEV

Region A

Region B

PROD

Bicep module pipeline

App1 pipeline

Dev

Push

Feat/newrelease

PR to dev → On PR validate the deployment

merge

dev → On push validate and deploy on test environment

Team leader

Approval

PR to main

merge

main → On push validate and deploy on test environment

Bicep | JSON
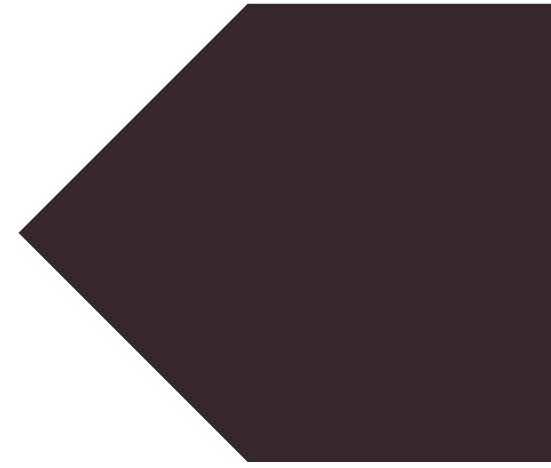
How to learn & contribute

Resources

- Learn Modules
  - https://learn.microsoft.com/en-us/azure/azure-resource-manager/bicep/learn-bicep
  - https://learn.microsoft.com/en-us/events/learn-events/learnlive-iac-and-bicep/
- Official GitHub repo
  - https://github.com/Azure/bicep
  - https://github.com/Azure/bicep-registry-modules
- Community call sign-up
  - https://aka.ms/armnews
- Bicep interviews sign-up
  - https://aka.ms/BicepInterviews
- Demo
  - https://github.com/OmegaMadLab/WebApp_BicepModule
  - https://github.com/OmegaMadLab/DevOpsHeroes2022

Grazie!!!

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