SoftServe Confidential

SIMPLIFY CLOUD DEPLOYMENT WITH AZURE BICEP

Jakub Podoba

softserve

WHOAMI

- Cloud Architect COE Azure @Soft**Serve**
- CEO @hotbee.eu
- Freelancer

https://www.linkedin.com/in/jakubpodoba/

jpodoba@hotbee.eu

@jpodoba1

https://hotbee.eu/blog

https://github.com/jpodoba

After work:

Husband and father of two awesome kids,

Aviation enthusiast,

Azure enthusiast, 🔥🔥🔥🔥🔥🔥🔥🔥🔥🔥🔥🔥

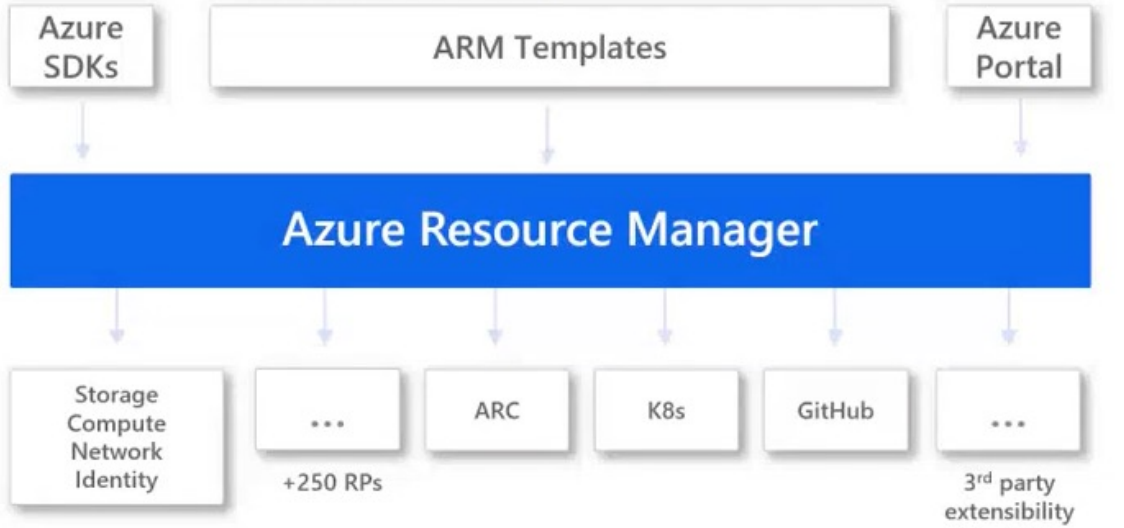
Agenda

1. Back to past: ARM & JSON
2. What is Bicep
3. How does it work?
4. What do you need to start?
5. Demo
6. Q&A

softserve

ARM

Azure Resource Manager is the deployment and management service for Azure. It provides a management layer that enables you to create, update, and delete resources in your Azure account.



softserve

https://aka.ms/bicep

JSON - template format

01-json-basic.json 3, U 01-json-basic.json

```
1   {
2       "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json#",
3       "contentVersion": "",
4       "apiProfile": "",
        Select or create a parameter file...
5       "parameters": {},
6       "variables": {},
7       "functions": [],
8       "resources": [],
9       "outputs": {}
10  }
```

softserve

https://docs.microsoft.com/en-us/azure/azure-resource-manager/templates/syntax

JSON – example app service plan

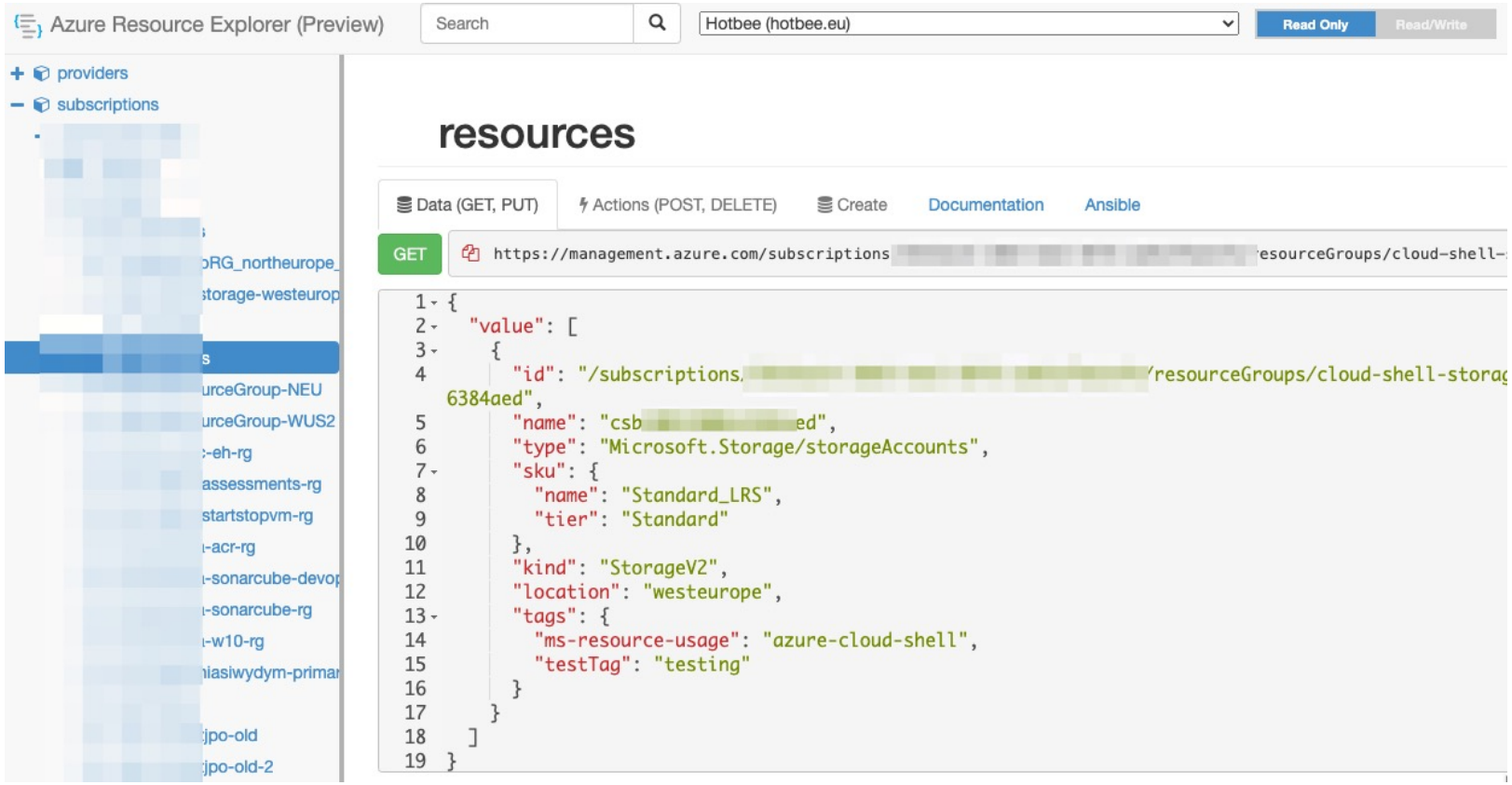
02-appservice.json U 02-appservice.json

```
1   {
2       "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json#",
3       "contentVersion": "1.0.0.0",
        Select or create a parameter file...
4   >   "parameters": {…
41      },
42  >   "variables": {…
44      },
45      "resources": [
46          {
47              "type": "Microsoft.Web/serverfarms",
48              "apiVersion": "2020-06-01",
49              "name": "[variables('appServicePlanPortalName')]",
50              "location": "[parameters('location')]",
51              "sku": {
52                  "name": "[parameters('sku')]"
53              },
54              "kind": "linux",
55              "properties": {
56                  "reserved": true
57              }
58          },
59  >       {…
91          }
92      ]
93  }
94
```

softserve

More examples: https://github.com/Azure/azure-quickstart-templates

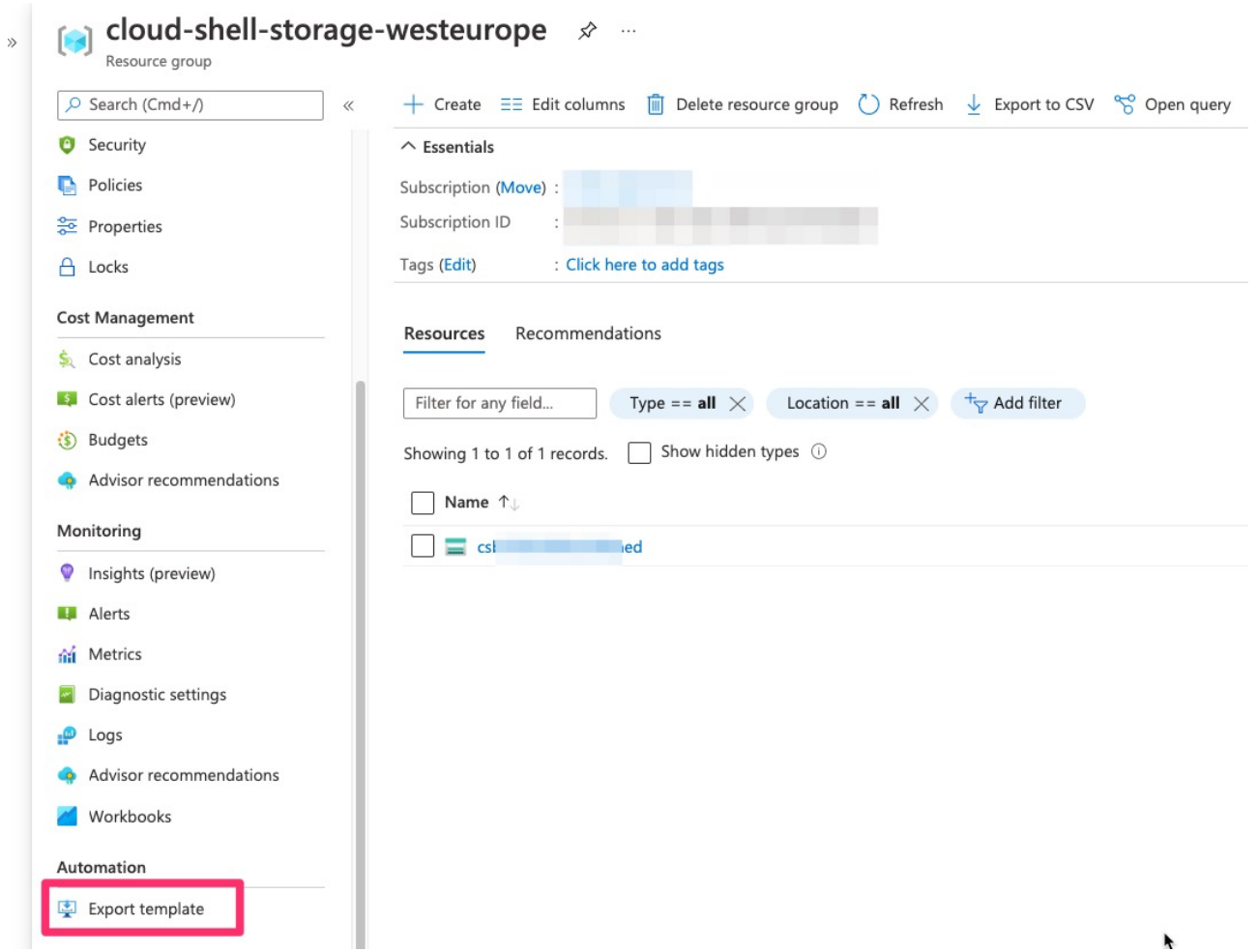
Azure Resource Explorer



softserve

https://resources.azure.com/

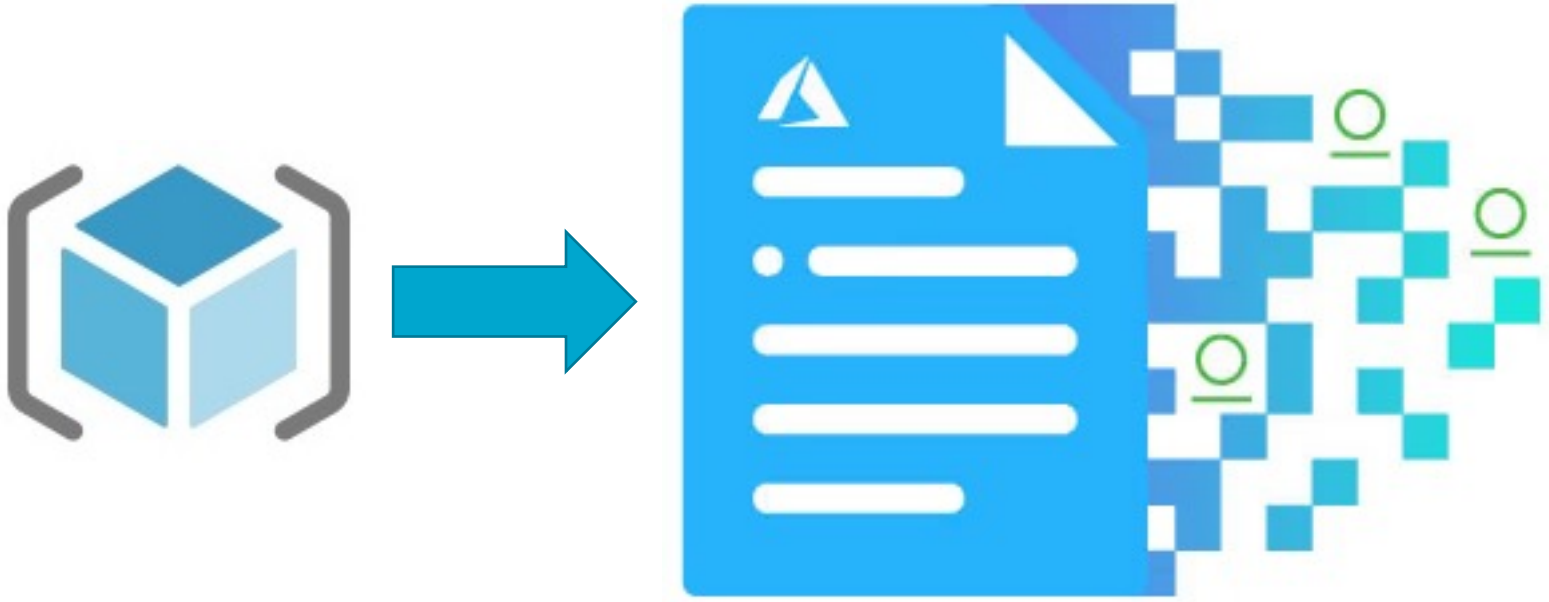
Export template



softserve

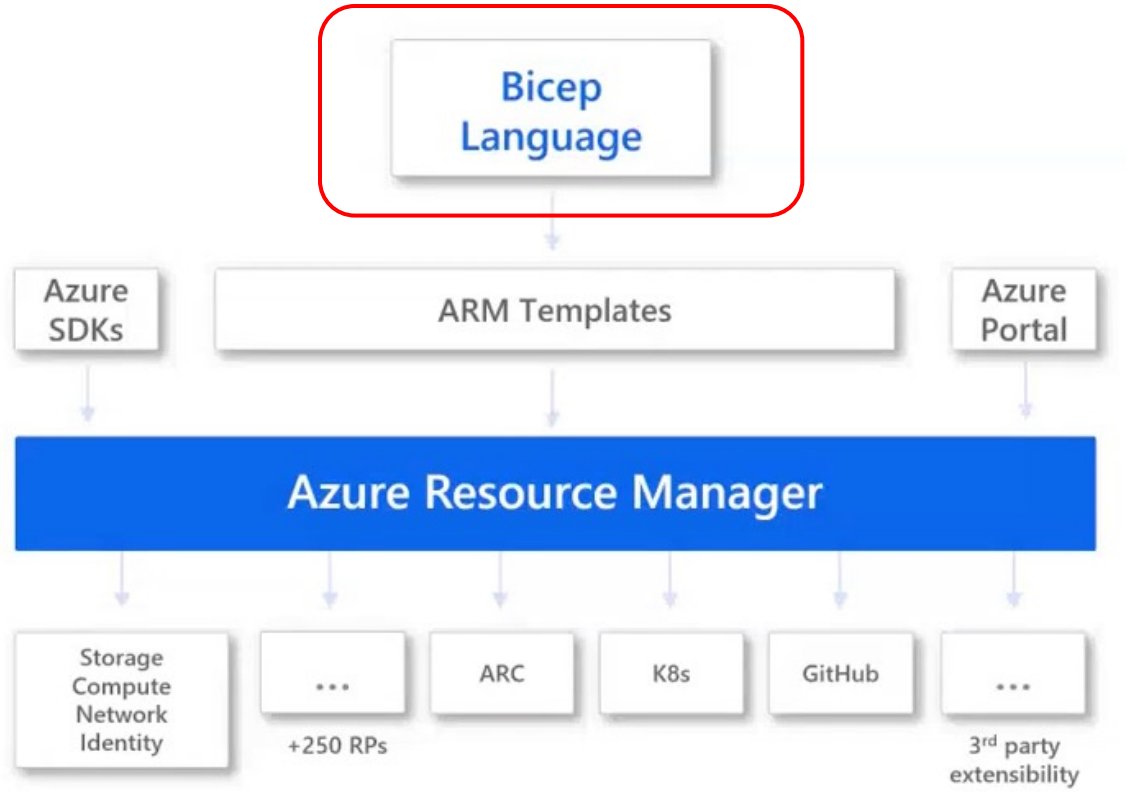
JSON – recap

- is configuration not programming language,
- is hard to read by humans,
- it's not too much friendly,
- can be extremely long ,



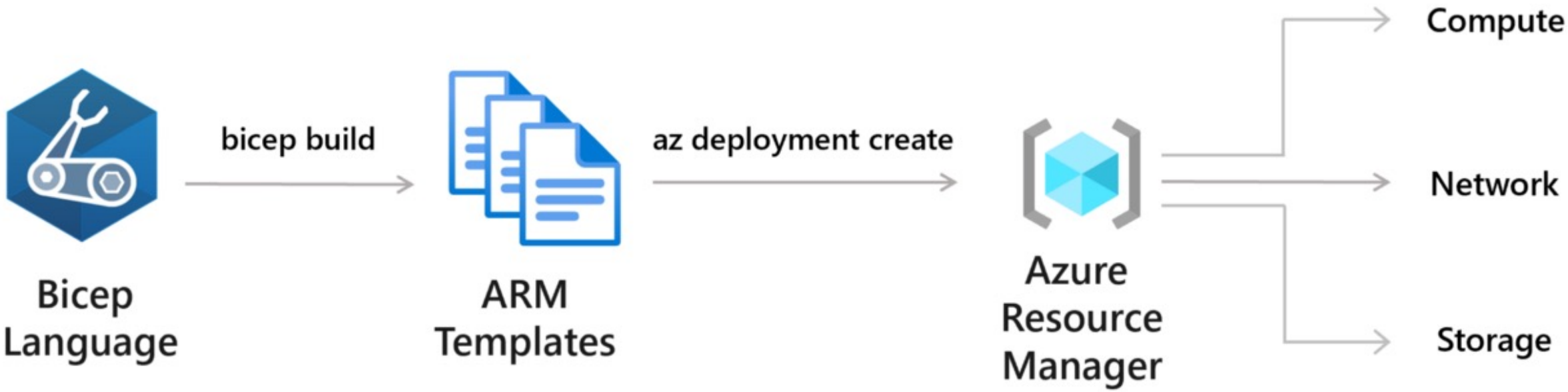
What is Bicep?

Bicep is a domain-specific language (DSL) that uses declarative syntax to deploy Azure resources. It provides concise syntax, reliable type safety, and support for code reuse.



softserve

How it works?



https://medium.com/codex/arm-templates-or-azure-bicep-what-should-i-use-14e8662d3f27

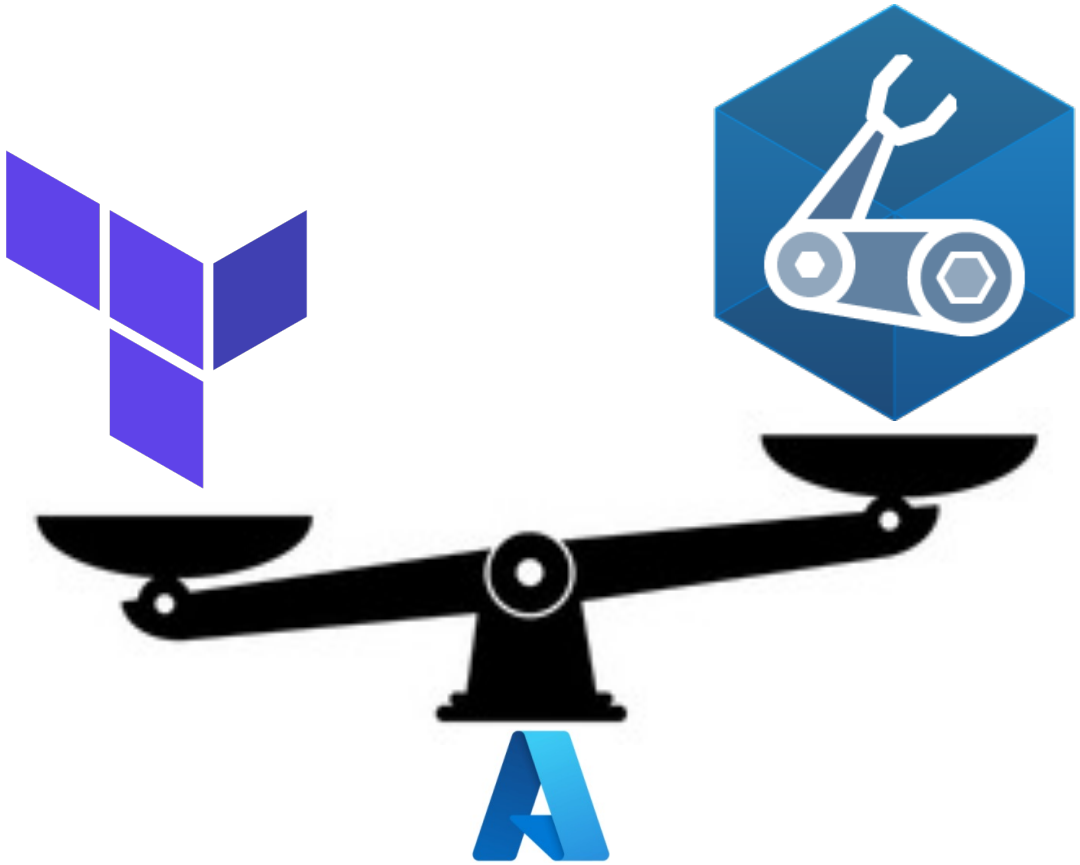
Bicep vs JSON

```bicep
@minLength(2)
param webAppName string = 'webApp-${uniqueString(resourceGroup().id)}'
param location string = resourceGroup().location
param sku string = 'F1'

var appServicePlanPortalName_var = 'AppServicePlan-${webAppName}'

resource appServicePlanPortalName 'Microsoft.Web/serverfarms@2020-06-01' = {
  name: appServicePlanPortalName_var
  location: location
  sku: {
    name: sku
  }
  kind: 'linux'
  properties: {
    reserved: true
  }
}

```

```json
{
    "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.jso
    "contentVersion": "1.0.0.0",
    Select or create a parameter file...
    "parameters": {
        "webAppName": {
            "type": "string",
            "defaultValue": "[concat('webApp-', uniqueString(resourceGroup().id))]",
            "minLength": 2
        },
        "location": {
            "type": "string",
            "defaultValue": "[resourceGroup().location]"
        },
        "sku": {
            "type": "string",
            "defaultValue": "F1"
        }
    },
    "variables": {
        "appServicePlanPortalName": "[concat('AppServicePlan-', parameters('webAppName'))]"
    },
    "resources": [
        {
            "type": "Microsoft.Web/serverfarms",
            "apiVersion": "2020-06-01",
            "name": "[variables('appServicePlanPortalName')]",
            "location": "[parameters('location')]",
            "sku": {
                "name": "[parameters('sku')]"
            },
            "kind": "linux",
            "properties": {
                "reserved": true
            }
        }
    ]
}

```

Bicep vs Terraform

- Day zero support for all resource types & API versions
- No state files
- Pre-flight validation
- Tooling

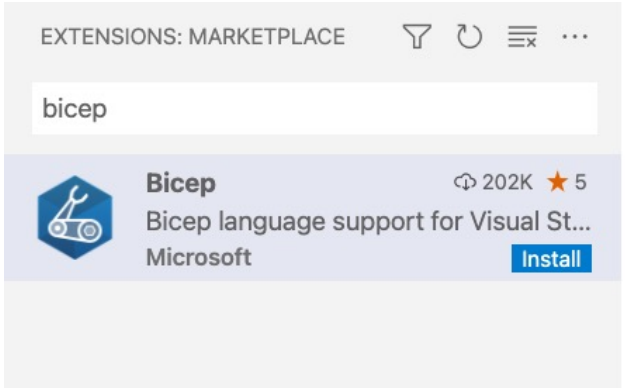


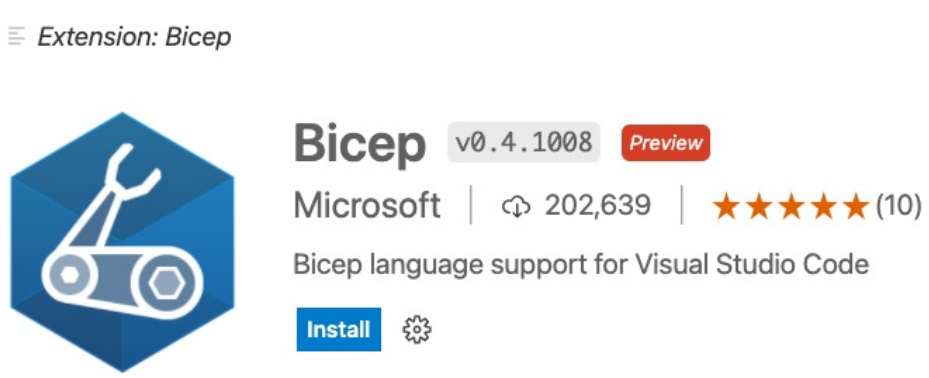
softserve

Install Bicep tools

You will need two components:

- **Bicep CLI** (required) - Compiles Bicep files into ARM templates. Cross-platform.
- **Bicep VS Code Extension** - Authoring support, intellisense, validation. Optional, but recommended.





softserve

https://docs.microsoft.com/en-us/azure/azure-resource-manager/bicep/install
https://github.com/Azure/bicep/blob/main/docs/installing.md

Demo

softserve

More... More... more..

Examples:

https://github.com/Azure/bicep/tree/main/docs/examples

Playground:

https://bicepdemo.z22.web.core.windows.net/

Bicep Learning Path:

https://docs.microsoft.com/en-gb/learn/paths/bicep-deploy/

softserve

https://giphy.com/explore/give-me-more

New features are coming...

- Private Module Registry
- Template Spec
- K8s
- AAD

More plus story how Xbox team use Bicep available below:

https://youtu.be/uj2RaINq4uk

softserve

Q & A ???

softserve

Useful URLs

- Today demo - https://github.com/jpodoba/Presentations/tree/master/2021-11-03-DevOpsLunch
- Github - https://github.com/Azure/bicep
- Bicep tutorial - https://github.com/Azure/bicep/blob/main/docs/tutorial/01-simple-template.md
- Examples - https://github.com/Azure/bicep/tree/main/docs/examples
- Playground - https://bicepdemo.z22.web.core.windows.net/
- Bicep on Microsoft Learn - https://docs.microsoft.com/en-us/azure/azure-resource-manager/bicep/learn-bicep
- Bicep Community Calls on youtube - https://www.youtube.com/channel/UCZZ3-oMrVI5sshеMzaWC4uQ

softserve

THANK YOU!

softserve

SoftServe Confidential

softserve