

SIMPLIFY CLOUD DEPLOYMENT WITH AZURE BICEP

Jakub Podoba

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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,           



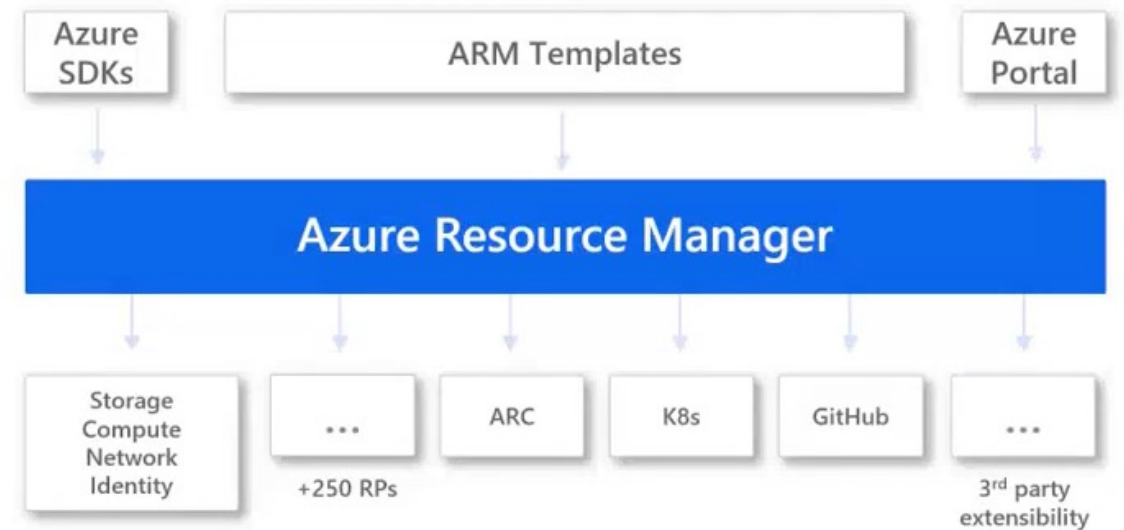
Agenda

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



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.



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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": "",
5    "parameters": {},
6    "variables": {},
7    "functions": [],
8    "resources": [],
9    "outputs": {}
10 }
```

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JSON – example app service plan

```
02-appservice.json 02-appservice.json
1  {
2    "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json#",
3    "contentVersion": "1.0.0.0",
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  |
```

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Azure Resource Explorer

The screenshot shows the Azure Resource Explorer (Preview) interface. The left sidebar displays a tree view with 'providers' and 'subscriptions'. The main pane shows the 'resources' section for a selected subscription. The URL bar indicates the resource path: `https://management.azure.com/subscriptions/[subscription-id]/resourceGroups/cloud-shell-storage-6384aed`. The resource details are as follows:

```
1 {
2   "value": [
3     {
4       "id": "/subscriptions/[subscription-id]/resourceGroups/cloud-shell-storage-6384aed",
5       "name": "csb-[subscription-id]",
6       "type": "Microsoft.Storage/storageAccounts",
7       "sku": {
8         "name": "Standard_LRS",
9         "tier": "Standard"
10      },
11      "kind": "StorageV2",
12      "location": "westeurope",
13      "tags": {
14        "ms-resource-usage": "azure-cloud-shell",
15        "testTag": "testing"
16      }
17    }
18  ]
19 }
```

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Export template

» **cloud-shell-storage-westeurope** ...
Resource group

Search (Cmd+//) « [+](#) Create [≡](#) Edit columns [🗑](#) Delete resource group [🔄](#) Refresh [↓](#) Export to CSV [🔗](#) Open query

Security

- 📄 Policies
- ⚙️ Properties
- 🔒 Locks

Cost Management

- 💰 Cost analysis
- 📊 Cost alerts (preview)
- 💰 Budgets
- 🔍 Advisor recommendations

Monitoring

- 💡 Insights (preview)
- 📊 Alerts
- 📈 Metrics
- 🔍 Diagnostic settings
- 📄 Logs
- 🔍 Advisor recommendations
- 📊 Workbooks

Automation

- 📄 **Export template**

Essentials

Subscription ([Move](#)) :

Subscription ID :

Tags ([Edit](#)) : [Click here to add tags](#)

Resources Recommendations

Filter for any field... [Type == all](#) [Location == all](#) [+ Add filter](#)

Showing 1 to 1 of 1 records. ☐ Show hidden types ⓘ

☐ Name ↑↓

☐ csl ed

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JSON – recap

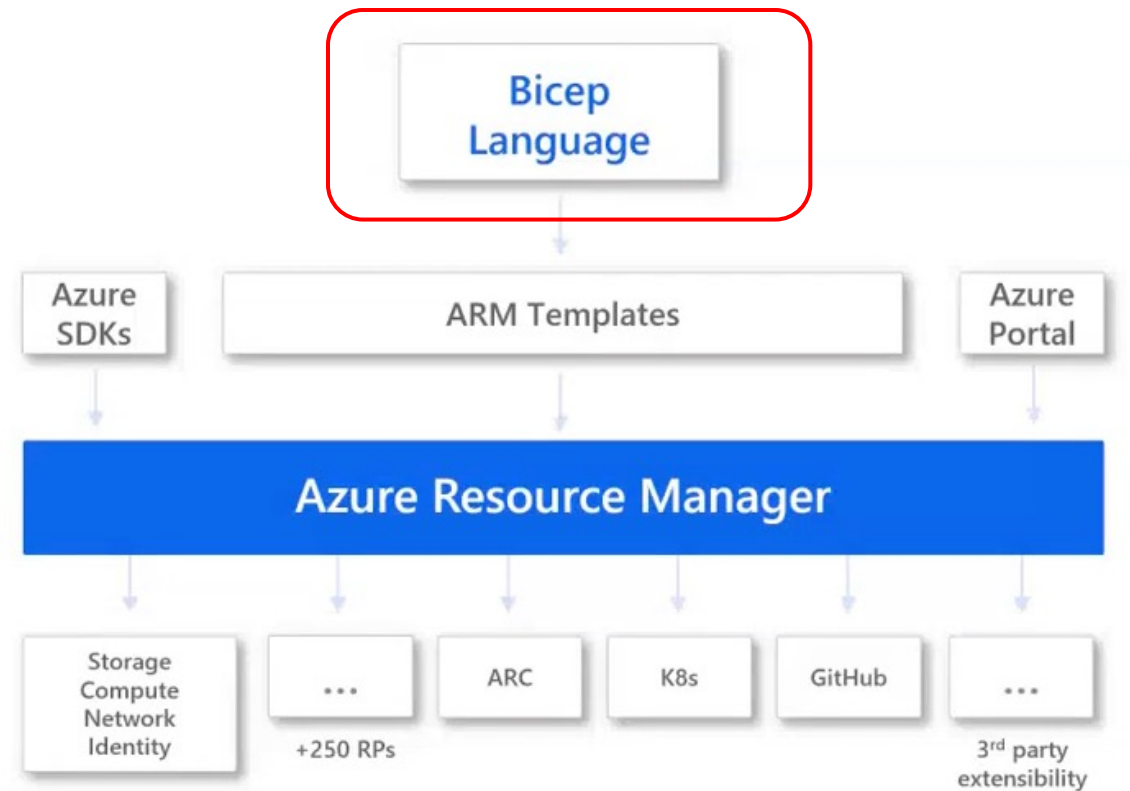
- is configuration not programming language,
- is hard to read by humans,
- it's not too much friendly,
- can be extremely long ,



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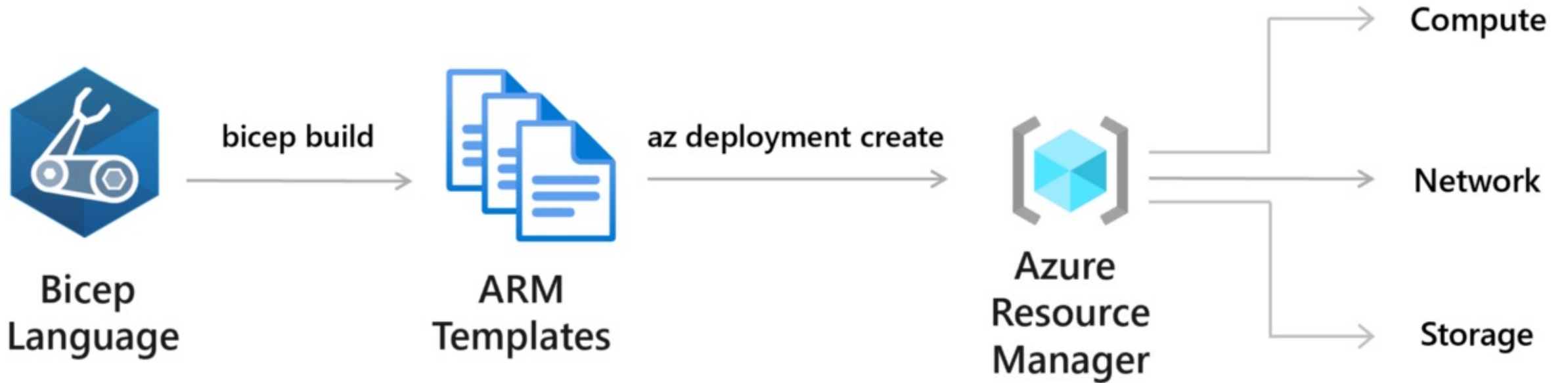
What is Bicep?

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.



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How it works?



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

Bicep vs JSON

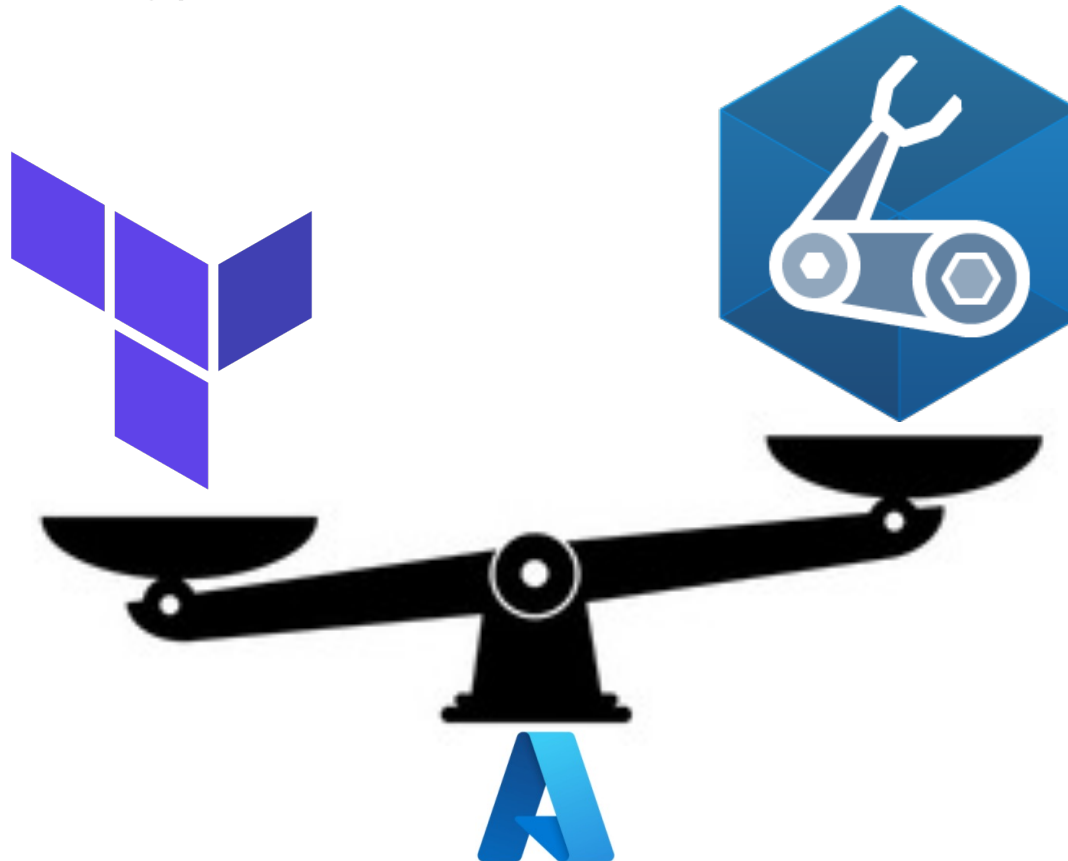
```
1 @minLength(2)
2 param webAppName string = 'webApp-${uniqueString(resourceGroup().id)}'
3 param location string = resourceGroup().location
4 param sku string = 'F1'
5
6 var appServicePlanPortalName_var = 'AppServicePlan-${webAppName}'
7
8 resource appServicePlanPortalName 'Microsoft.Web/serverfarms@2020-06-01' = {
9   name: appServicePlanPortalName_var
10  location: location
11  sku: {
12    name: sku
13  }
14  kind: 'linux'
15  properties: {
16    reserved: true
17  }
18 }
19
```

```
1 {
2   "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json",
3   "contentVersion": "1.0.0.0",
4   "parameters": {
5     "webAppName": {
6       "type": "string",
7       "defaultValue": "[concat('webApp-', uniqueString(resourceGroup().id))]",
8       "minLength": 2
9     },
10    "location": {
11      "type": "string",
12      "defaultValue": "[resourceGroup().location]"
13    },
14    "sku": {
15      "type": "string",
16      "defaultValue": "F1"
17    }
18  },
19  "variables": {
20    "appServicePlanPortalName": "[concat('AppServicePlan-', parameters('webAppName'))]"
21  },
22  "resources": [
23    {
24      "type": "Microsoft.Web/serverfarms",
25      "apiVersion": "2020-06-01",
26      "name": "[variables('appServicePlanPortalName')]",
27      "location": "[parameters('location')]",
28      "sku": {
29        "name": "[parameters('sku')]"
30      },
31      "kind": "linux",
32      "properties": {
33        "reserved": true
34      }
35    }
36  ]
37 }
38
```

re

Bicep vs Terraform

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

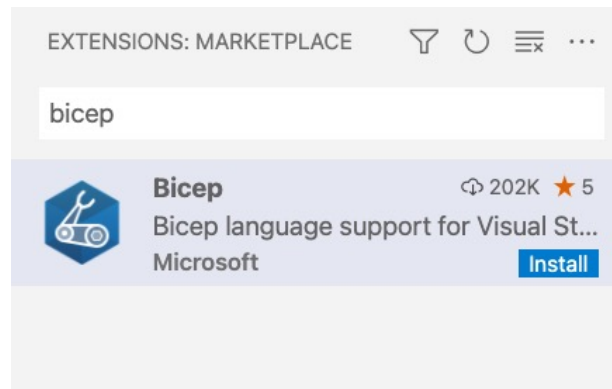


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Install Bicep tools

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.



Extension: Bicep



Bicep v0.4.1008 Preview

Microsoft | 202,639 | ★★★★★ (10)

Bicep language support for Visual Studio Code

Install ⚙️

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<https://docs.microsoft.com/en-us/azure/azure-resource-manager/bicep/install>

<https://github.com/Azure/bicep/blob/main/docs/installing.md>

Demo



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More... More... more..

Examples:

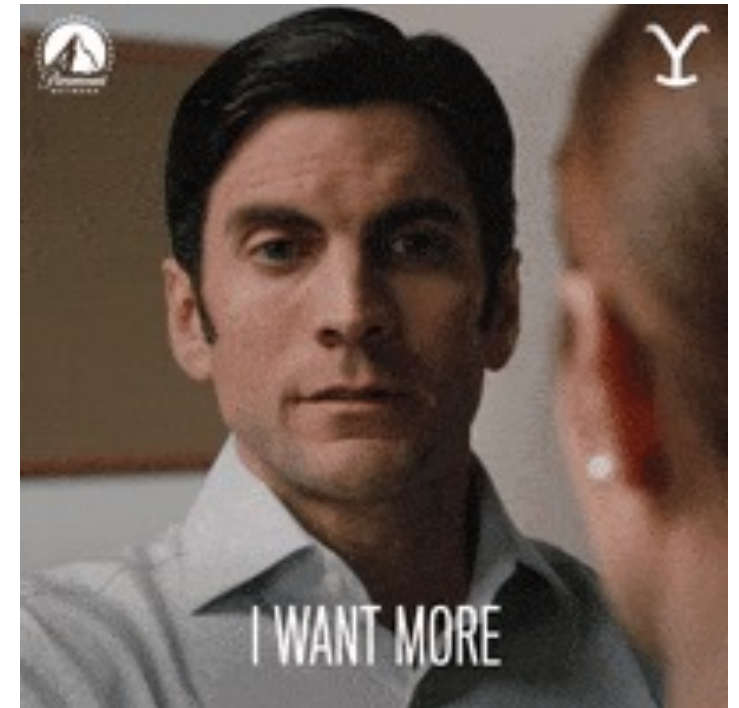
<https://github.com/Azure/bicep/tree/main/docs/examples>

Playground:

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

Bicep Learning Path:

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



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<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>

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Q & A ???



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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-oMrVI5ssheMzaWC4uQ>

**THANK
YOU!!**

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