

# How to Keep Your Security Posture Compliant While Managing Your Security Controls with IaC

by Elkhan Yusubov | Microsoft MVP & MCT RL



**CYBER  
BACK TO  
SCHOOL**

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8:30 PM EDT



## Elkhan Yusubov

Speaker | Author | Architect  
Founder at #CloudMarathoner



  @ElYusubov

Elkhan is a Director of Cloud & Infrastructure, and an Architect Manager, Microsoft Azure MVP and 17+ MCT with experience in cloud solutions, enterprise healthcare systems and healthcare data, and API standards (HL7 FHIR, EDI X12).

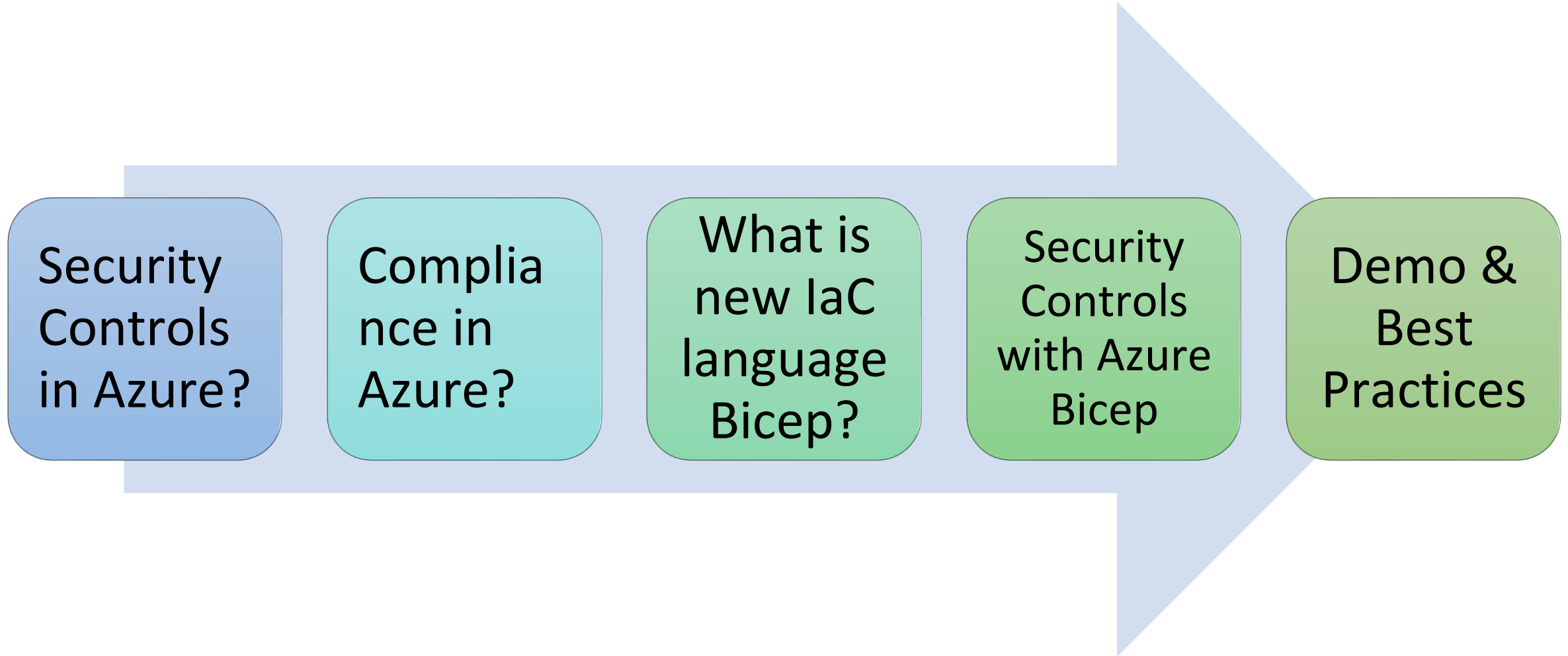
He is an active Microsoft Tech Community Contributor, Cloud Lunch and Learn Co-organizer, Learning expert and MCT Regional Lead, and as well as a LinkedIn instructor with interests in Architecture, DevOps & Security.

He is a frequent speaker at tech meetups and has volunteered for Give Camps, Azure Data Fest, SQL Saturdays and Microsoft community events, like this one.

And please, checkout the posts at Cloud Marathoner site & LinkedIn

<https://theCloudMarathoner.com>   

# What we will cover



# What we do; where we do it

## IT Engineering Services

Agile Transformation  
Cloud Adoption &  
Infrastructure Optimization  
Cybersecurity  
Data Engineering & Analytics



Defense Health  
Agency



ICE



Intel Community



USAF



US TRANSCOM



Defense  
Information  
Systems Agency

## Customer Experience

Technology Adoption  
Release Management  
Communications Management  
Change Management



General Services  
Administration



Education



Treasury

United States®  
**Census**  
Bureau

## Health IT

EHR Strategy & Management  
HIPAA Compliance  
Healthcare System Integration & Testing  
Patient Experience Enhancement

## Company Info

- Established: 1999
- Legal Structure: LLC
- Headquarters: Bethesda, MD
- SDVOSB Joint Ventures
- CMMI-DEV & SVC Level 3 v2.0
- ISO 9001; ISO27001; ISO20000

### Prime Vehicles/BPAs:

- GSA MAS HACS SIN
- GSA MAS Cloud SIN
- GSA MAS IT Svcs SIN
- COBRA OTA
- CIO-SP3 Small Business
- 8(a) STARS III via MPJV
- GSA MAS HACS SB & Cloud SIN SB via MPJV

Silver  
**Microsoft**  
Partner

Silver Datacenter  
Silver Data Analytics  
Silver Data Platform  
Silver App Dev  
Silver App Integration

aws partner  
network  
  
Select  
Consulting  
Partner



T-Rex has donated **over \$3.5M** in support of underserved youth, veterans, and local organizations.

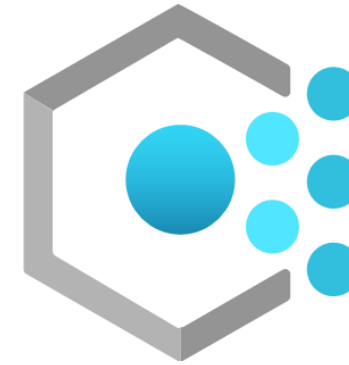
# Security Controls in Azure

- Identity and Access Management (IAM)
- Security Monitoring and Alerting
- Network Security
- Data Protection
- Application Security
- Compliance and Governance
- Threat Intelligence



# Compliance and Governance in Azure

- Azure Policy
- Microsoft Defender for Cloud
- Azure Security Benchmark
- Compliance Reporting
- Governance and Protection Disciplines



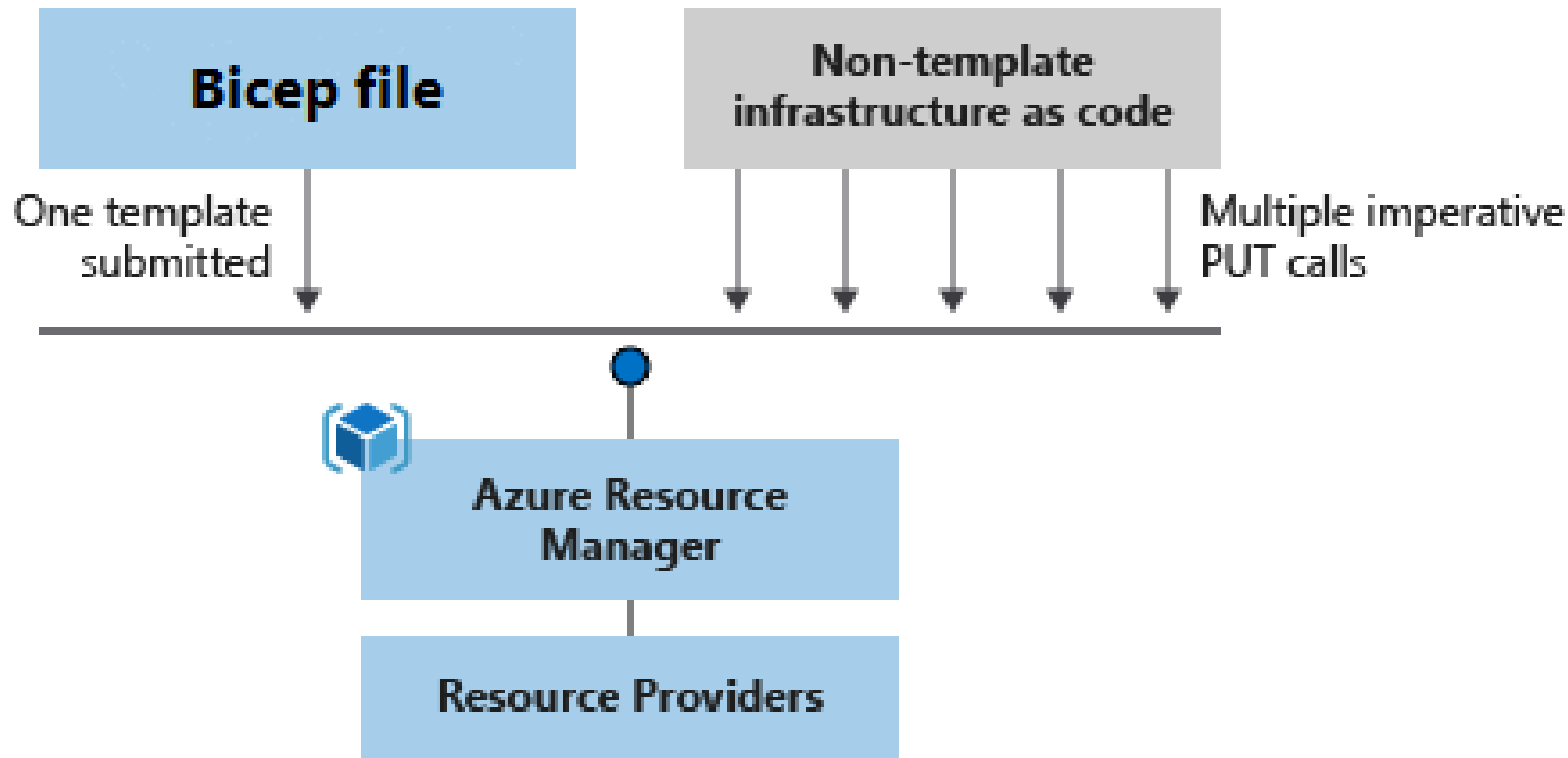


# What is new IaC language Bicep?

- DSL for deploying Azure resources
- Transparent abstraction over ARM and ARM templates
- Simple way to author Azure resources
- Transpiled to standard ARM Template JSON files



# Relationship between Azure Bicep and ARM





# Security Controls with Azure Bicep

- Resource locks
- Azure Policy
- Azure Firewall
- Data protection
- Security Monitoring
- Network Security
- Logging, auditing, etc.



# Demo – Defining security policies

## Deploying the security definitions, policies and locks



```

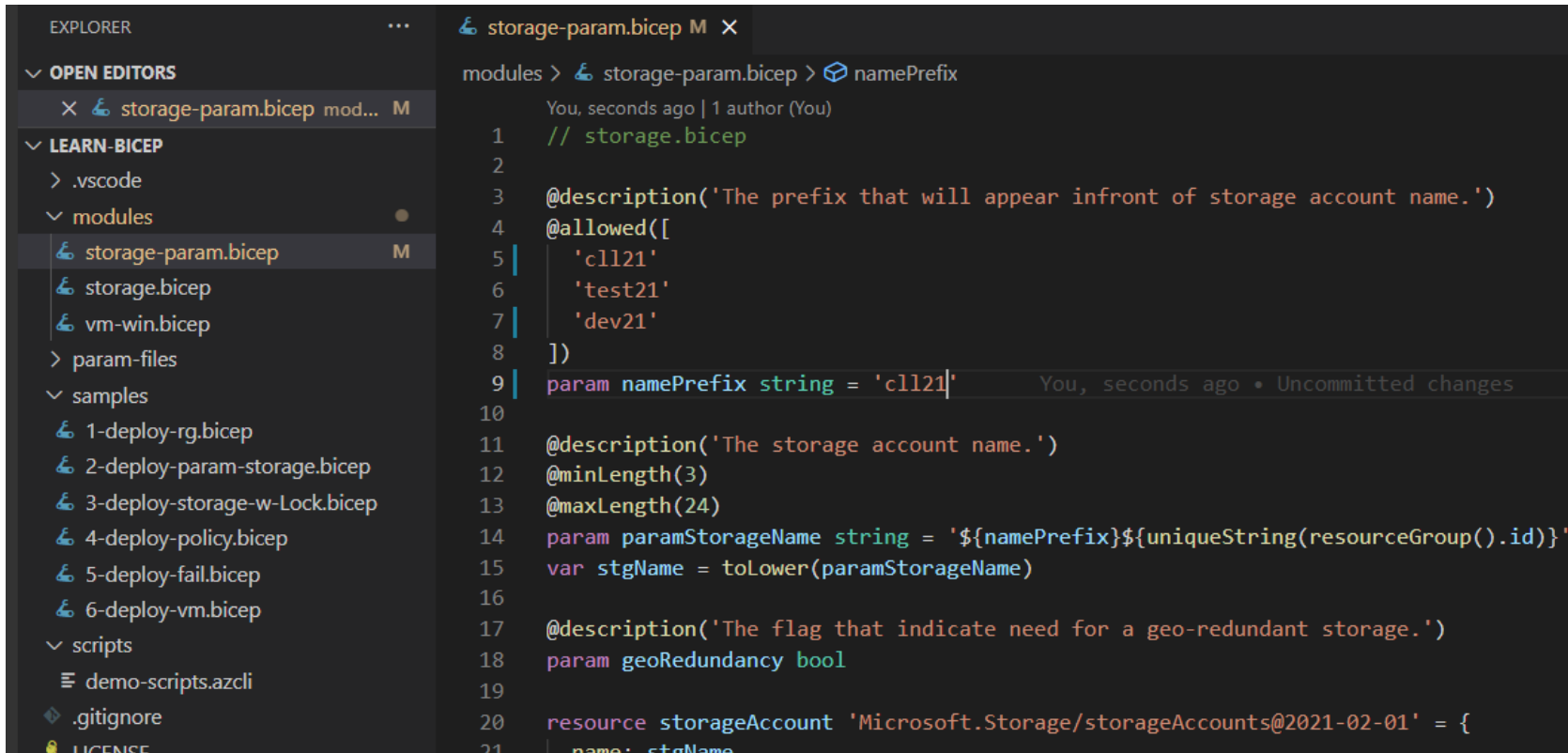
TERMINAL  DEBUG CONSOLE  PROBLEMS  OUTPUT

PS C:\Work\Bicep-Starter> az deployment sub create --location eastus2 --template-file .\samples\custom-locations.bicep
The system cannot find the path specified.
Please provide string value for 'policyEffect' (? for help):
[1] Audit
[2] Deny
Please enter a choice [Default choice(1)]: 2
{
  "id": "/subscriptions/751fab54-447d-4b8f-8d44-12172466e856/providers/Microsoft.Resources/deployments/custom-locations",
  "location": "eastus2",
  "name": "custom-locations",
  "properties": {
    "correlationId": "df1bc4a1-f8d2-4320-8606-ec9a7d2135db",
    "debugSetting": null,
    "dependencies": [
      {
        "dependsOn": [
          {
            "id": "/subscriptions/751fab54-447d-4b8f-8d44-12172466e856/providers/Microsoft.Authorization/policyDefinitions/c",
            "resourceName": "custom-allowed-location",
            "resourceType": "Microsoft.Authorization/policyDefinitions"
          }
        ],
        "id": "/subscriptions/751fab54-447d-4b8f-8d44-12172466e856/providers/Microsoft.Authorization/policyAssignments/Resou",
        "resourceName": "Resource-location-restriction",
        "resourceType": "Microsoft.Authorization/policyAssignments"
      }
    ],
    "duration": "PT1.6436266S"
  }
}

```

# Demo – Modular code deployment and security

## Modular deployment and securing the parameterization



```
modules > storage-param.bicep > namePrefix
You, seconds ago | 1 author (You)
1 // storage.bicep
2
3 @description('The prefix that will appear in front of storage account name.')
4 @allowed([
5   'c1l21'
6   'test21'
7   'dev21'
8 ])
9 param namePrefix string = 'c1l21' You, seconds ago • Uncommitted changes
10
11 @description('The storage account name.')
12 @minLength(3)
13 @maxLength(24)
14 param paramStorageName string = '${namePrefix}${uniqueString(resourceGroup().id)}'
15 var stgName = toLower(paramStorageName)
16
17 @description('The flag that indicate need for a geo-redundant storage.')
18 param geoRedundancy bool
19
20 resource storageAccount 'Microsoft.Storage/storageAccounts@2021-02-01' = {
21   name: stgName
```



# Learning resources

Learn Bicep – GitHub



Azure Bicep First Look 🎥



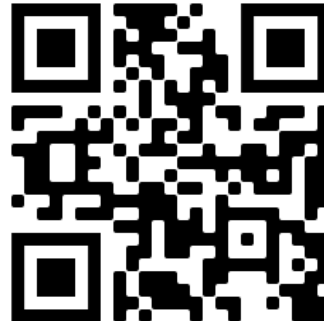
Building IaC with 💪 Part 1 🎥



Continue with 💪 Part 2 🎥



Bicep Project - GitHub



AWESOME 💪 - GitHub



# Applied Skills – hands on practices



## Filter

Clear all

### Products

Find a product

- ☒ .NET
- ☒ Azure
  - ☐ Microsoft Copilot
- ☒ Microsoft Defender
- ☒ Microsoft Entra
  - ☐ Microsoft Fabric
  - ☐ Microsoft Graph
- ☒ Microsoft Power Platform
  - ☐ Microsoft Teams

### Roles

- ☐ Administrator
- ☐ AI Engineer
- ☐ App Maker
- ☐ Data Analyst
- ☐ Data Engineer

Search

Search

Applied Skills ✕

27 results

Sort by: Alphabetical (A-Z) ▾

#### APPLIED SKILLS

**Administer Active Directory Domain Services**

Windows • Administrator • Intermediate



⊕ Add

#### APPLIED SKILLS

**Build a natural language processing solution with Azure AI Language**

Azure • AI Engineer • Intermediate



⊕ Add

#### APPLIED SKILLS

**Build an Azure AI Vision solution**

Azure • Developer • Intermediate



⊕ Add

#### APPLIED SKILLS

**Build collaborative apps for Microsoft Teams**

Microsoft Teams • Developer • Intermediate



⊕ Add

#### APPLIED SKILLS

**Configure SIEM security operations using Microsoft Sentinel**

Azure • Security Engineer • Intermediate



⊕ Add

#### APPLIED SKILLS

**Configure secure access to your workloads using Azure networking**

Azure • Administrator • Intermediate



⊕ Add

#### APPLIED SKILLS

**Create an intelligent document processing solution with Azure AI Document Intelligence**

Azure • Developer • Intermediate



⊕ Add

#### APPLIED SKILLS

**Create and manage automated processes by using Power Automate**

Microsoft Power Platform • Administrator • Intermediate



⊕ Add

# Azure always free resources



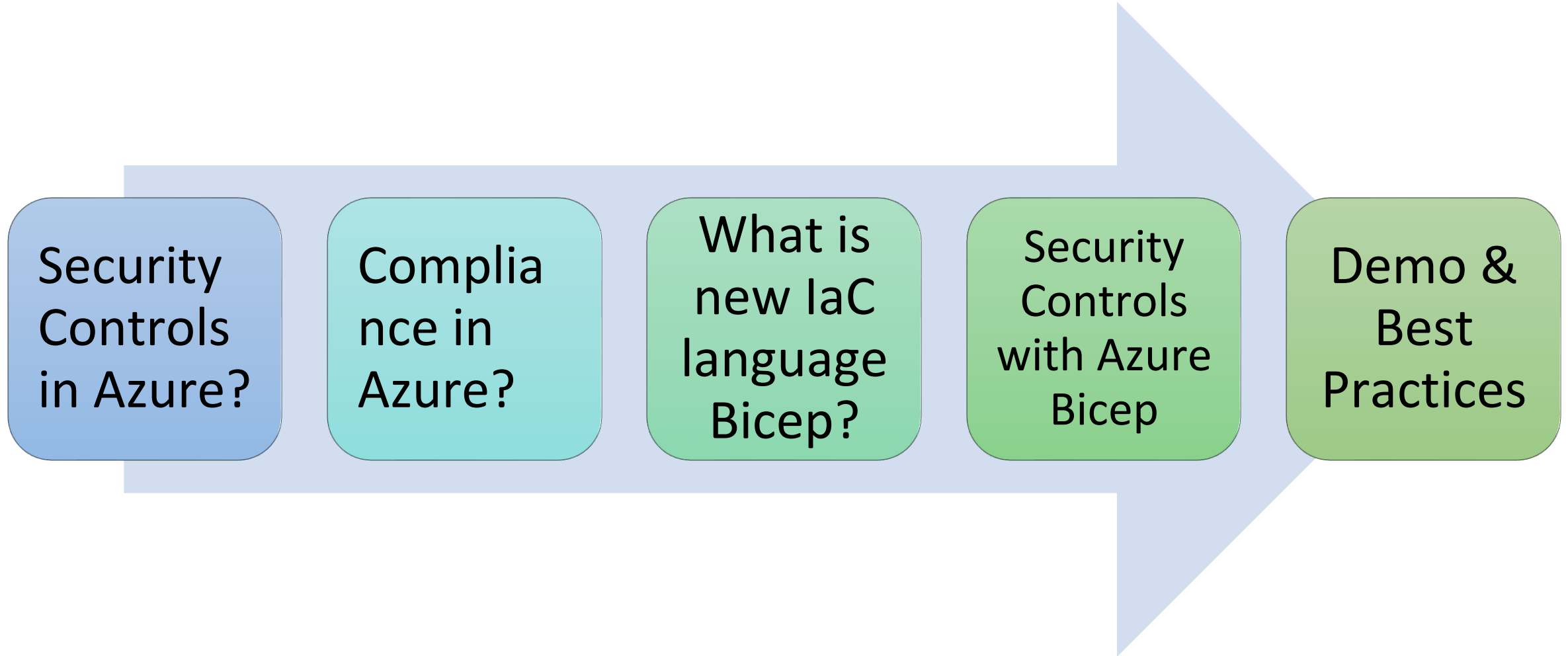
- Azure free subscription
- Always free 40+ services







# What we covered



# Thank you !



<https://cyberbacktoschool.com/>

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