

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).

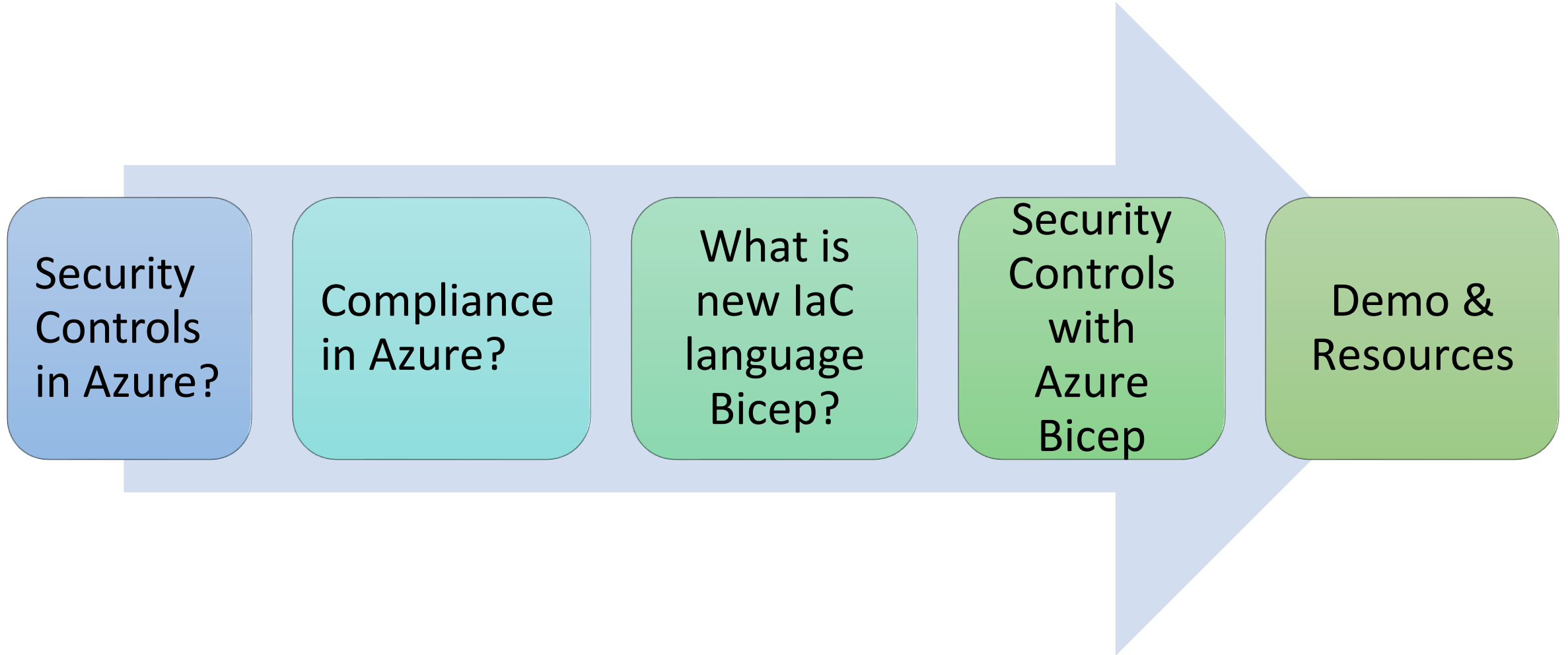
He is an active Microsoft Tech Community Contributor, Cloud Lunch and Learn Co-organizer, Learning expert and MCT Regional Lead, and as well as a LinkedIn instructor with interests in Architecture, DevOps & Security.

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.

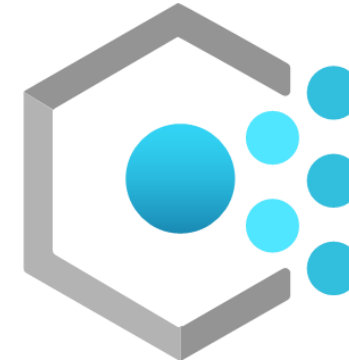
Security Controls in Azure

- 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

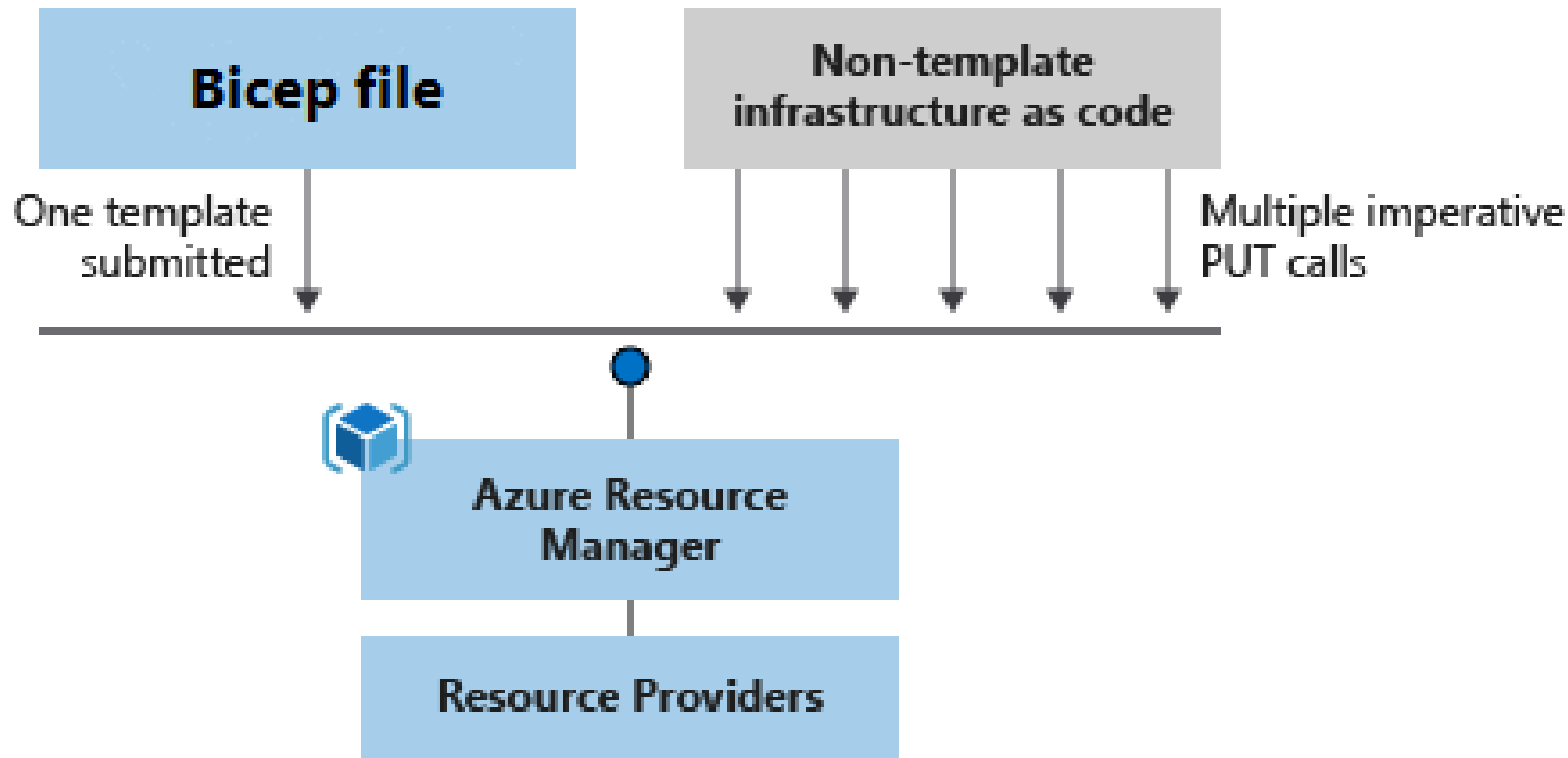


What is Bicep language?

- 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 resources 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



```

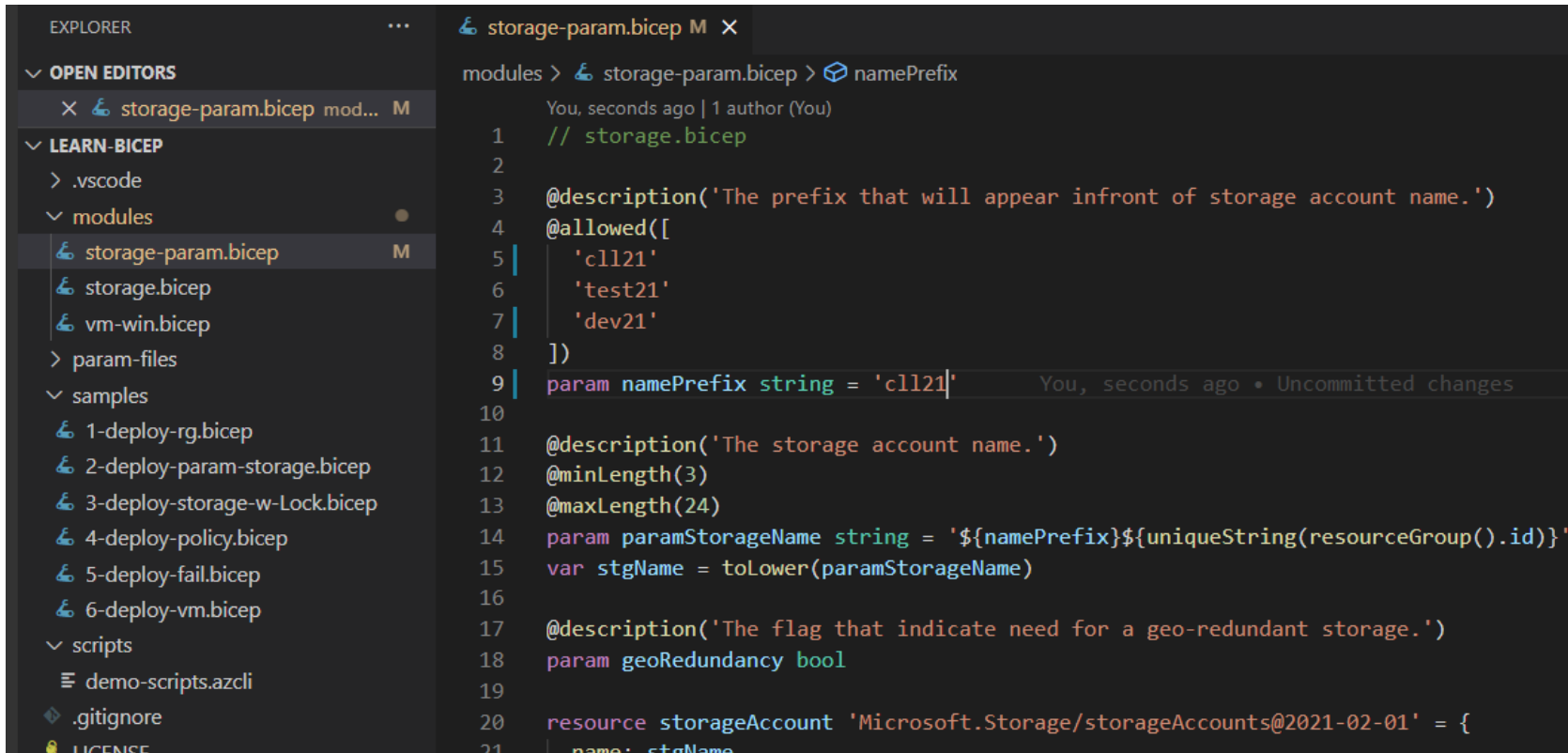
TERMINAL  DEBUG CONSOLE  PROBLEMS  OUTPUT

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



```
storage-param.bicep M X
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 🎥



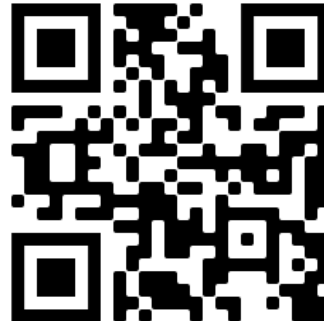
Building IaC with 💪 Part 1 🎥



Continue with 💪 Part 2 🎥



Bicep Project - GitHub



AWESOME 💪 - GitHub



Applied Skills – hands on practices



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- ☒ Microsoft Defender
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 - ☐ Microsoft Fabric
 - ☐ Microsoft Graph
- ☒ Microsoft Power Platform
 - ☐ Microsoft Teams

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

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Azure always free resources

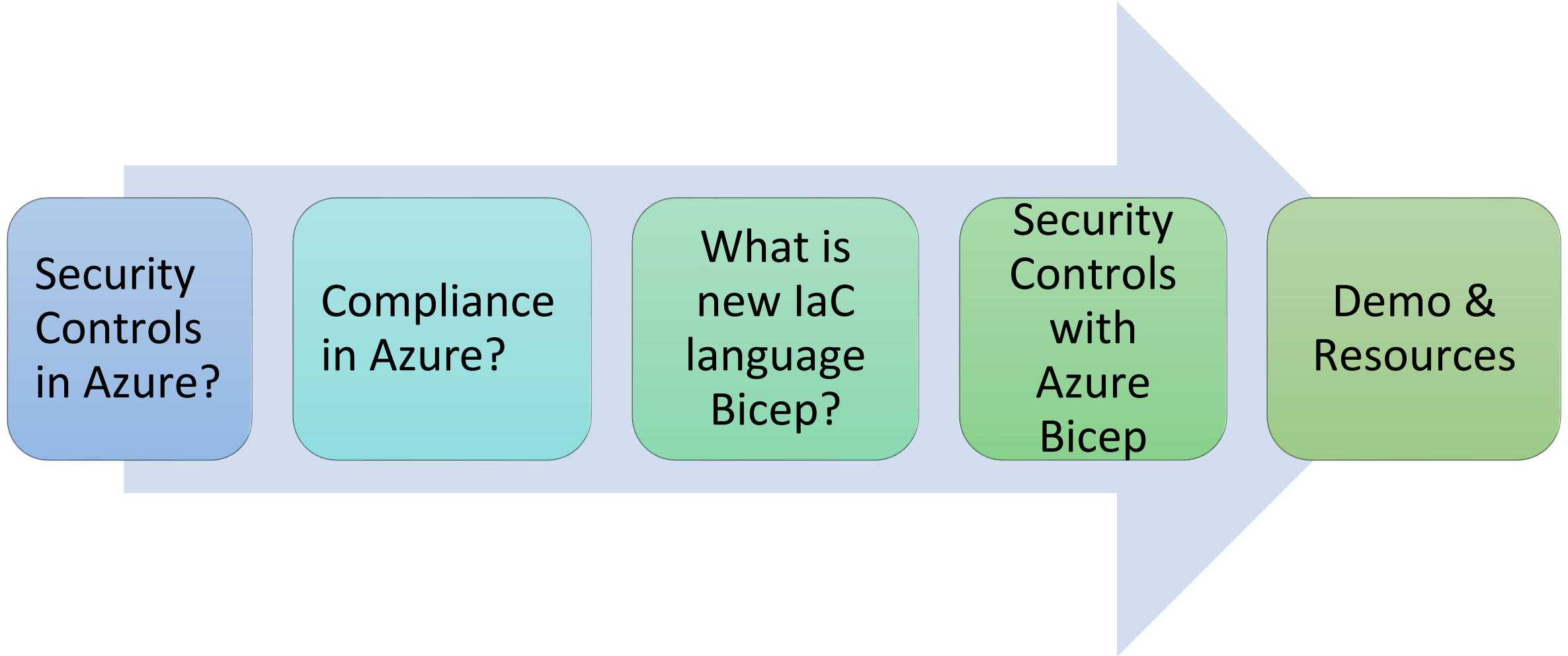


- Azure free subscription
- Always free 40+ services





What we covered



Thank you !



<https://cyberbacktoschool.com/>

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<https://theCloudMarathoner.com> 