Azure Spring Clean 2023

Monday, March 13 at 12 noon

Zero to Hero: Secure IaC with Bicep

azurespringclean.com

Featuring Elkhan Yusubov,
Azure MVP, T-Rex Cloud & Infrastructure SME

Use Azure Bicep IaC to organize Azure Security Services including Azure Policies.

Simple, powerful demos will have you flexing your expertise in no time!

And don't worry, we'll have a super express intro to this new IaC language to get you up to speed on Bicep fundamentals.

T-REX

trexsolutionsllc.com

I'm speaking at #AzureSpringClean 2023

Zero to Hero: Secure IaC with Bicep

Monday, 13 March 2023 10:00

Elkhan Yusubov

sessionize

Elkhan Yusubov
Speaker | Author | Influencer
Cloud Architect | Founder

Microsoft® MVP Most Valuable Professional

@ElYusubov

Elkhan is a Cloud Architect Manager, Microsoft Azure MVP and 15+ 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 Speaker and Co-Organizer, and 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.

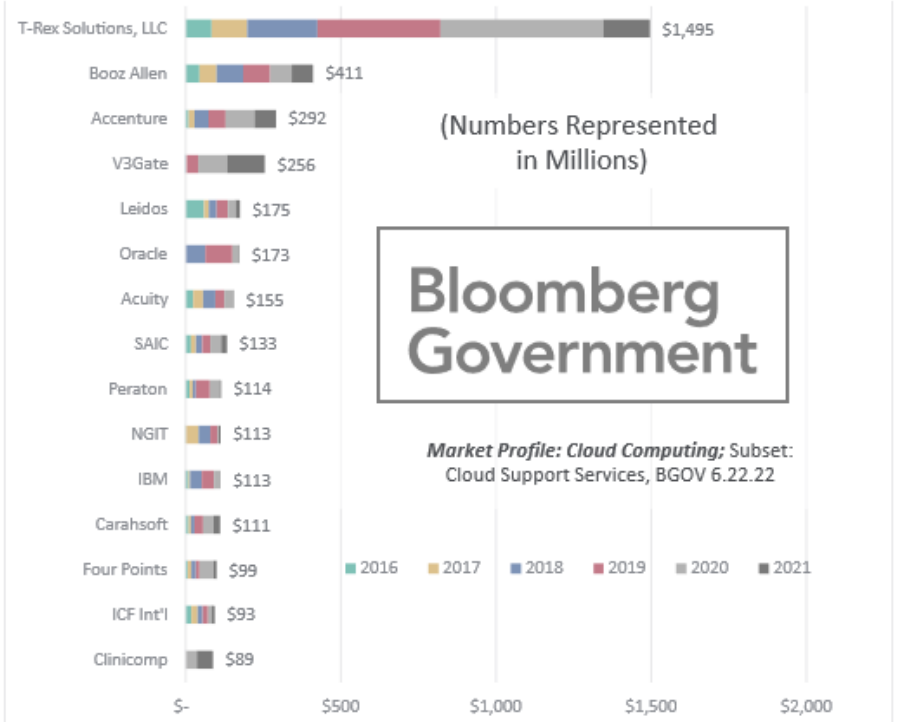
And please, checkout his blog posts at Cloud Marathoner site below.

https://linktr.ee/elyusubov

https://theCloudMarathoner.com

What we do; where we do it; how it relates

Top Cloud Support Services Vendors



Company Info

- **Established:** 1999
- **Legal Structure:** LLC
- **Headquarters:** Greenbelt, MD
- **8(a)/HUBZone & 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
- 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
Advanced Consulting Partner
Government Competency
Public Sector Partner

T-REX cares

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

TOP WORK PLACES 2020 The Washington Post

1st Place Gameday 2020 aws Public Sector

Top Cloud Vendor 2017-2019 GovWin from Deltek Federal Market

#1 Bloomberg Government Government Cloud Support Services PROVIDER 2016-21

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T-Rex's 2020 Census Technical Integration (TI) Program

Census Bureau is one of the first govt agencies to host and protect their mission-critical public-facing applications in the cloud.

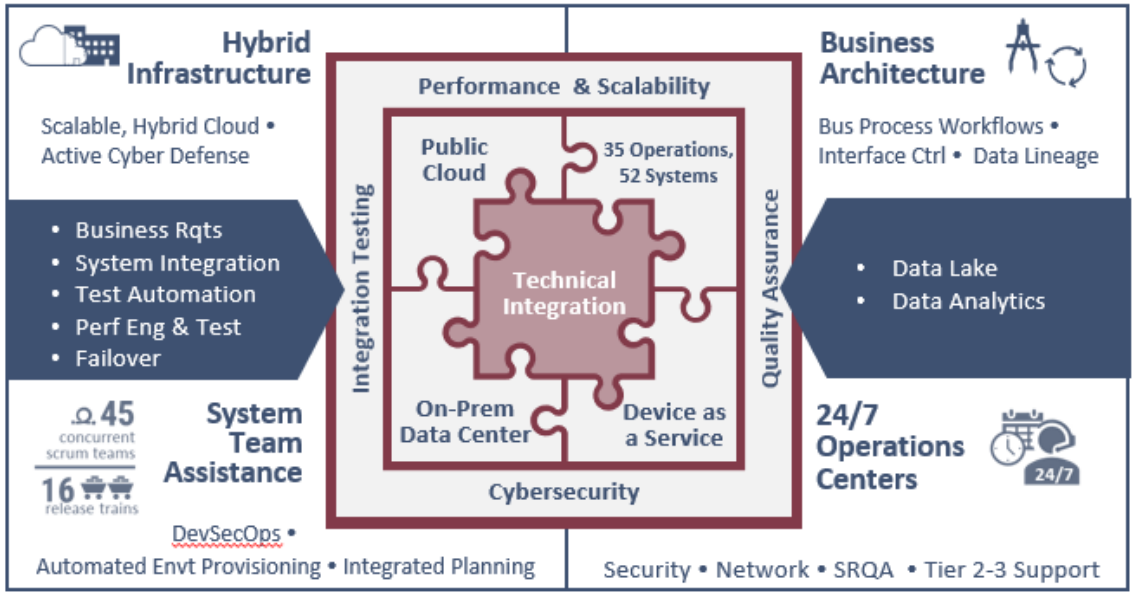
Mission Innovations:

- *Improve public access through internet*
- *Enhance data usage to reduce work*
- *Boost workforce productivity with mobile computing*

The 2020 Census Technical Integrator (TI) program is one of the largest, most visible government IT transformation programs in size, scale, complexity and scope.

Size, Scale & Complexity

Scope



IT Modernization encompassing Cloud, Cyber, Data Analytics, & App Development positioning USCB for the future

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What we will cover

- What is Azure Bicep
- Declaring resources as IaC
- Organizing cloud resources
- Azure Policies for governance
- Demos

What is Azure Bicep

- DSL for declaring the Azure resources
- Transparent abstraction over ARM templates
- Simple way to author Azure resources
- Transpiles to standard ARM Template JSON files

Declaring resources as IaC

azure-demo.azcli M | storage.bicep M

modules > storage.bicep > {} storageaccount

You, 1 second ago | 1 author (You)

```bicep
@maxLength(6)
param prefix string = 'azs23'

param storageName string = 'stg${prefix}'
param location string = resourceGroup().location

param environment string = 'dev'
var storageAccountSkuName = (environment == 'prod') ? 'Standard_GRS' : 'Standard_
var accountName = '${storageName}${environment}'

resource storageaccount 'Microsoft.Storage/storageAccounts@2021-02-01' = {
  name: accountName
  location: location
  kind: 'StorageV2'
  sku: {        You, 18 months ago • add storage account, its deployment script an
    name: storageAccountSkuName
  }
  tags:{
    'ms-resource-usage': 'azure-cloud-shell'
  }
}

resource secondStorage 'Microsoft.Storage/storageAccounts@2021-02-01' = {
  name: 'secstg01${prefix}'
  location: location
  kind: 'StorageV2'
  sku: {
    name: 'Standard_LRS'
  }
}
```

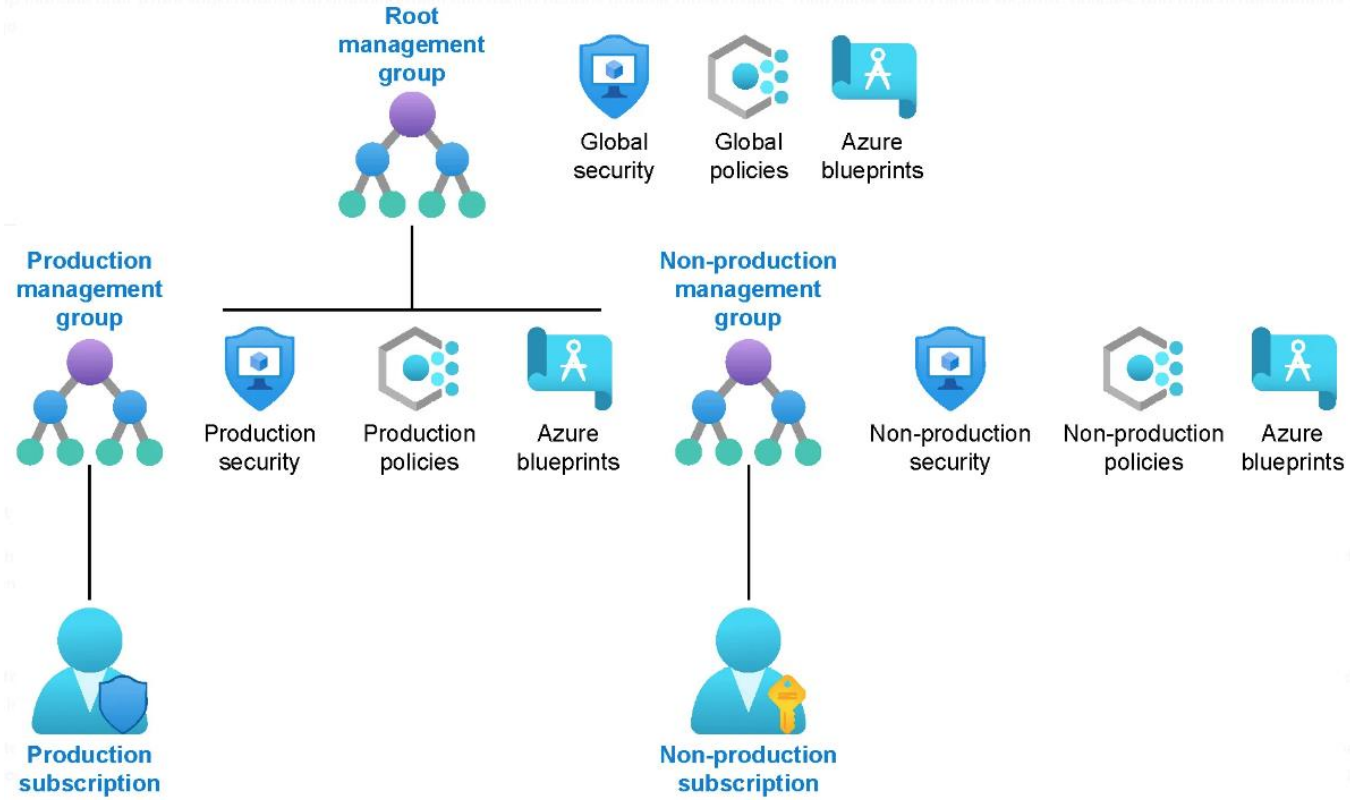
storage.json U

modules > storage.json

```json
{
  "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentT
  "contentVersion": "1.0.0.0",
  "metadata": {···
  },
  Select or create a parameter file...
  "parameters": {
    "prefix": {
      "type": "string",
      "defaultValue": "azs23",
      "maxLength": 6
    },
    "storageName": {
      "type": "string",
      "defaultValue": "[format('stg{0}', parameters('prefix'))]"
    },
    "location": {
      "type": "string",
      "defaultValue": "[resourceGroup().location]"
    },
    "environment": {
      "type": "string",
      "defaultValue": "dev"
    }
  },
  "variables": {
    "storageAccountSkuName": "[if(equals(parameters('environment'), 'prod'), 'St
    "accountName": "[format('{0}{1}', parameters('storageName'), parameters('env
  },
  "resources": [
    {
      "type": "Microsoft.Storage/storageAccounts",
      "apiVersion": "2021-02-01",
      "name": "[variables('accountName')]",
      "location": "[parameters('location')]",
      "kind": "StorageV2",
      "sku": {
```

Organizing cloud resources

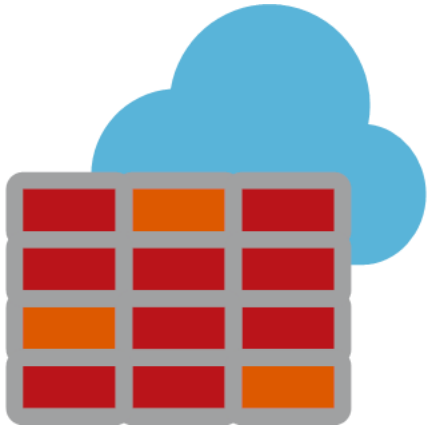
- Resource Governance
- Management scopes
- IaC management options
- Modules, ACR, Template Specs



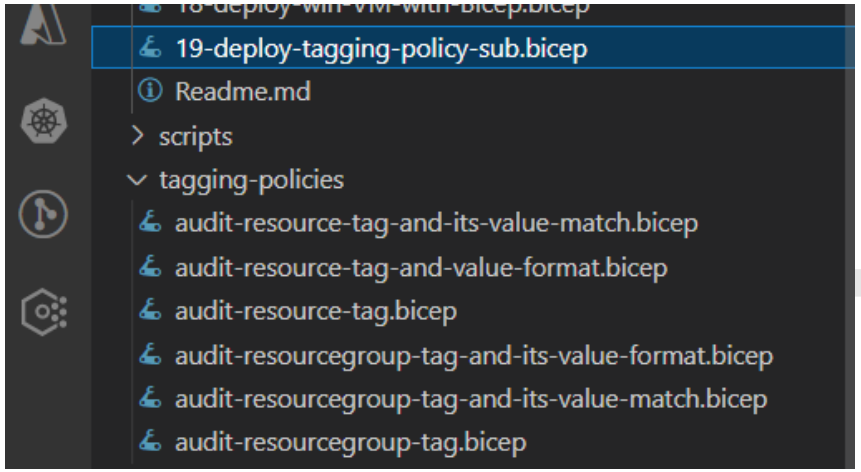
Azure Policies for Governance

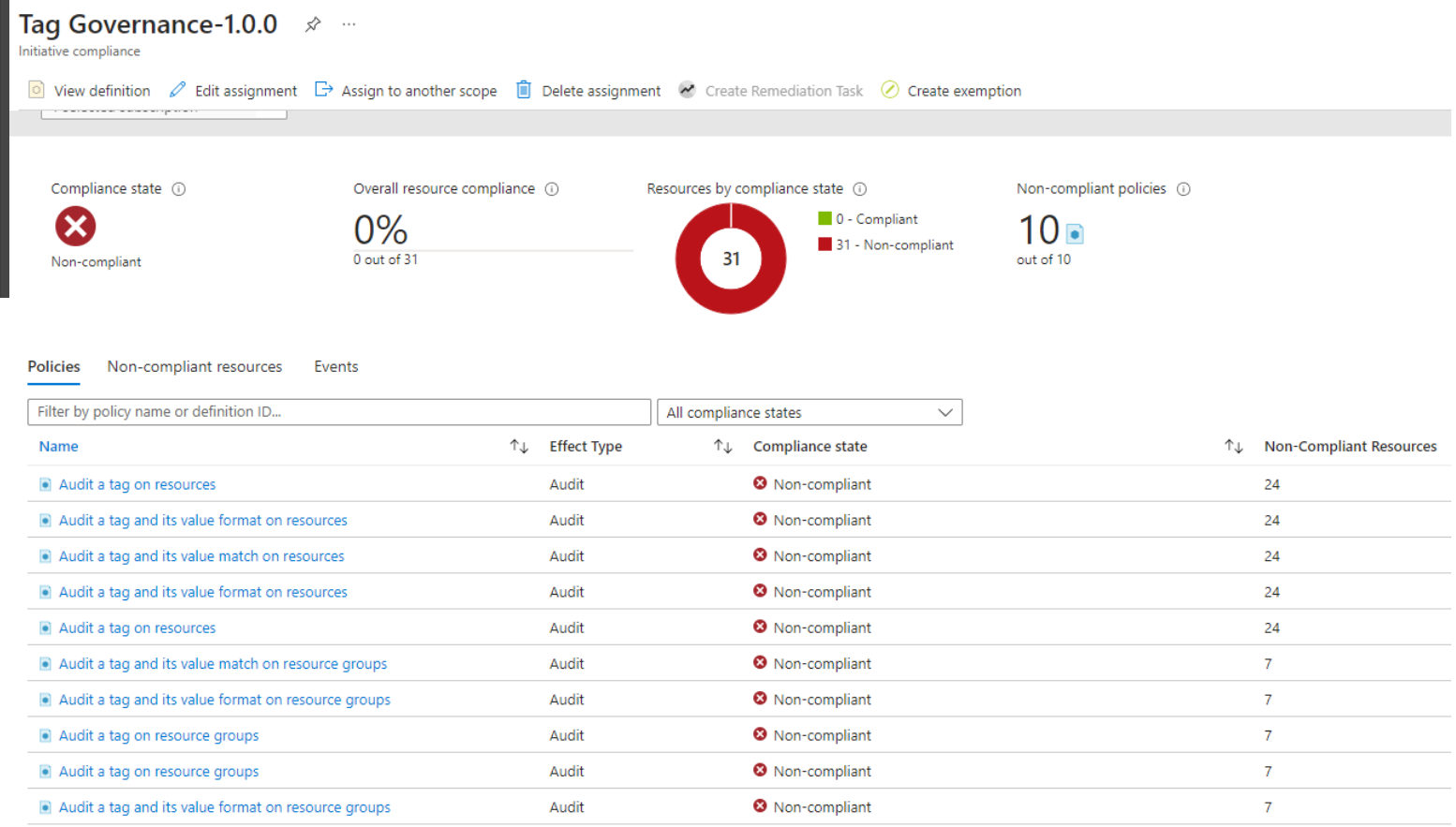
- Resource created, deleted or updated in a scope
- Policy or initiative assigned to a scope
- Policy or initiative is updated
- Standard evaluation happens every 24 hours

Demo



Tag Governance





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Questions
?
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Answers
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What we covered

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- Demos

Azure Bicep – First Look course 📽

Learn Bicep – GitHub

AWESOME Azure Bicep 💪

Bicep Project - GitHub

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https://linktr.ee/elyusubov

Thank you !

https://www.azurespringclean.com

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