



Azure DevTest Labs – testno okolje v oblaku

Slavko Kukrika, MVP in prijazen fant

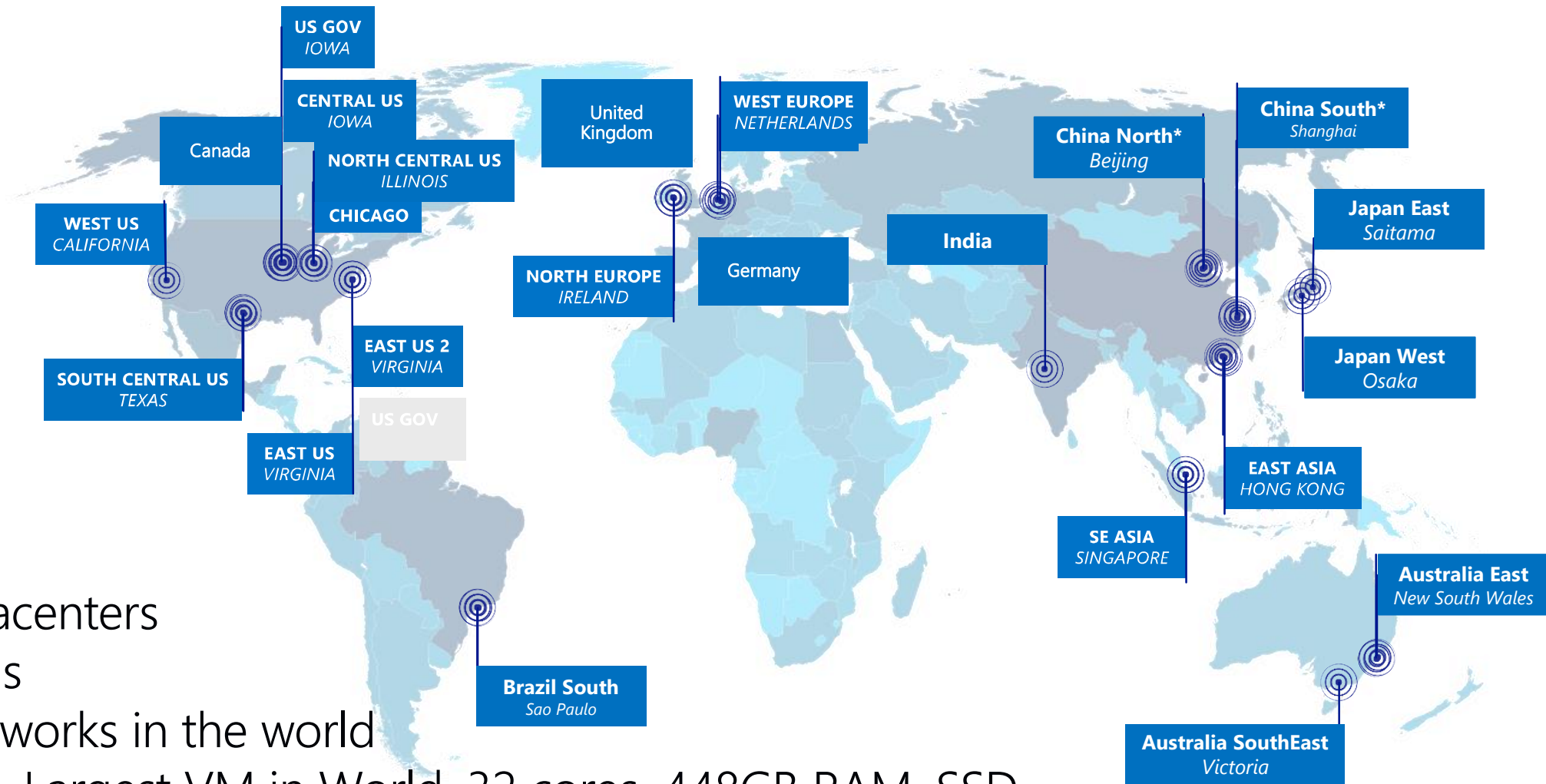
TEHNOLOGIJA



Agenda

- ➔ Microsoft Azure and DevOps
- ➔ Challenges of running test labs on premises
- ➔ Azure DevTest lab as a test lab in the cloud
- ➔ Creating and using Azure DevTest labs
- ➔ Artifacts, formulas, policies and more ...

Microsoft Azure presence and scale



120+ datacenters

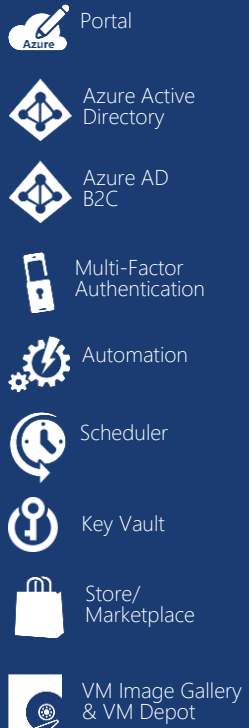
38 regions

Top 3 networks in the world

G Series – Largest VM in World, 32 cores, 448GB RAM, SSD...

Platform Services

Security & Management



Services Compute



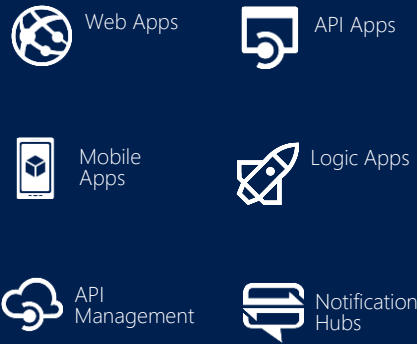
Integration



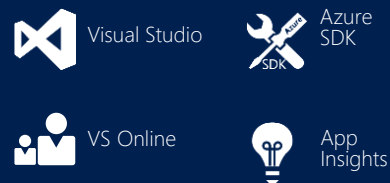
Media & CDN



Web and Mobile



Developer Services



Data



Analytics & IoT



Hybrid Operations



Infrastructure Services

OS/Server Compute



Storage



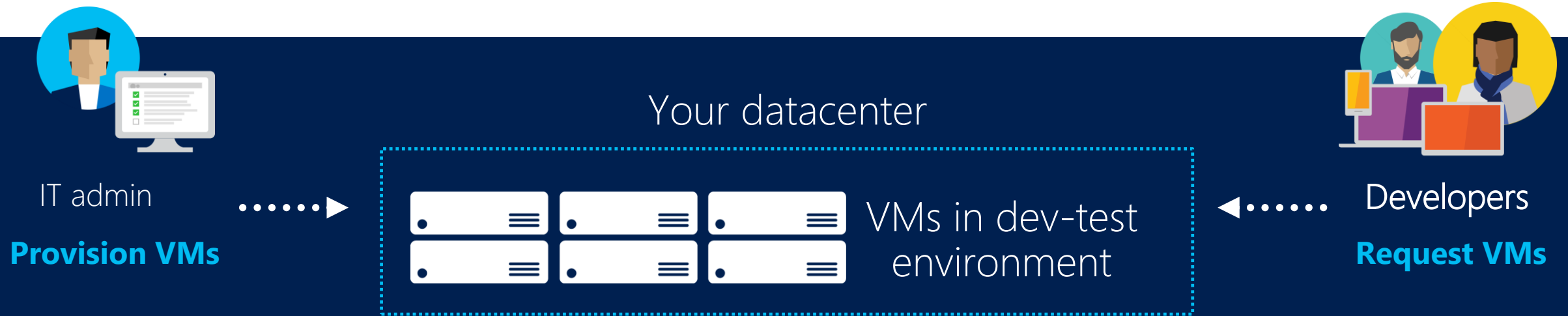
Networking



Datacenter Infrastructure (38 Regions)



Challenges of running dev-test on premises



65%

of developers say it is too complicated and time-consuming to get development and test resources

10%

Average utilization of dedicated dev-test infrastructure

Challenges

- Different team provides infrastructure
- Long infrastructure setup time
- Considerable infrastructure cost
- Lower developer productivity
- Realistic scale tests often challenging

When and where to use Azure DevTest Labs?

DevBox
in the Cloud

Test my App

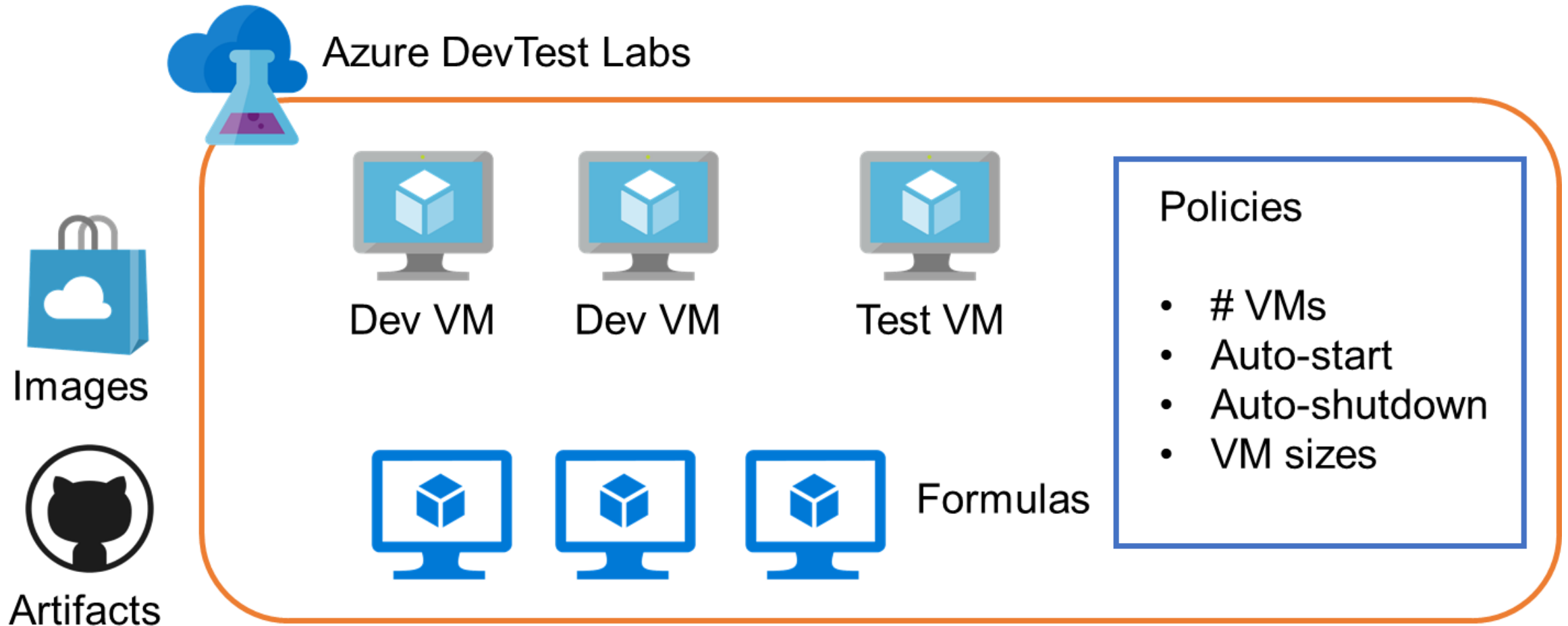
Pipeline

Training

Events/
Hackathon

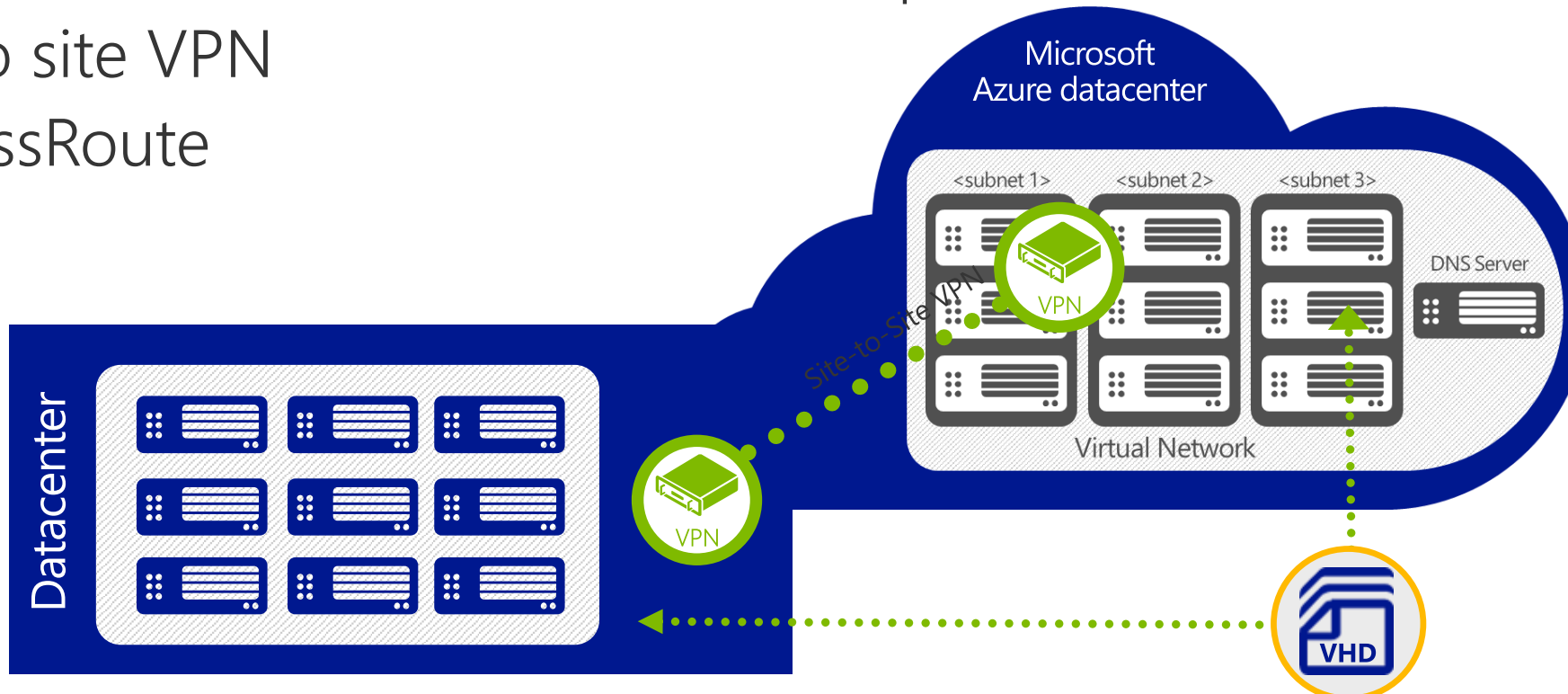
Trials/
Evaluation

Azure DevTest Labs



DevTest lab networking options

- Networking options are the same as in Microsoft Azure
 - Create virtual network(s) for the lab
 - Connect VMs to the virtual network
- VNET can be connected to on premises network
 - Site to site VPN
 - ExpressRoute

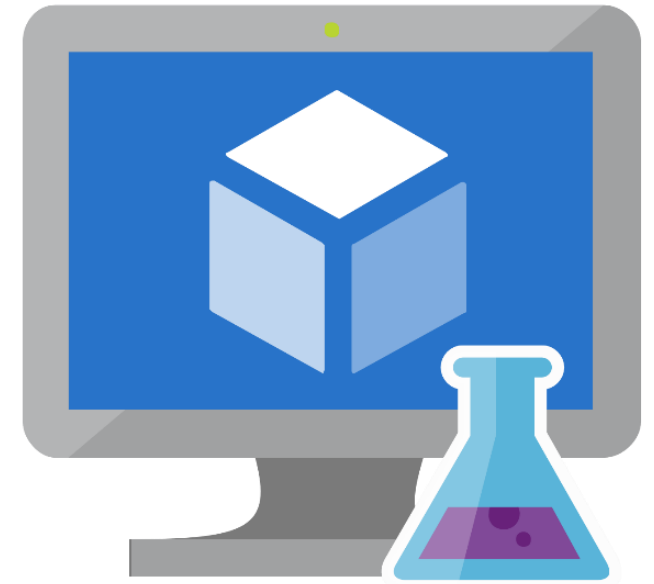


Demo

Creating DevTest Lab
Exploring DevTest lab VM settings

Creating virtual machine in DevTest lab

- Use image from the gallery
- Customize VM from gallery image and create custom image
 - Manually or by using artifacts
- Upload custom VHD image to Azure
 - AzCopy, Storage Explorer, ...
- Create formula to build custom VM
 - List of configuration steps for building VM
 - Steps are performed each time
 - Customizations are not included in the image



DevTest lab artifacts

- Artifacts are actions, run when VM is created
 - For example installing software or running scripts or commands
 - Several artifacts are available in DevTest lab
 - Additional artifacts repositories can be added

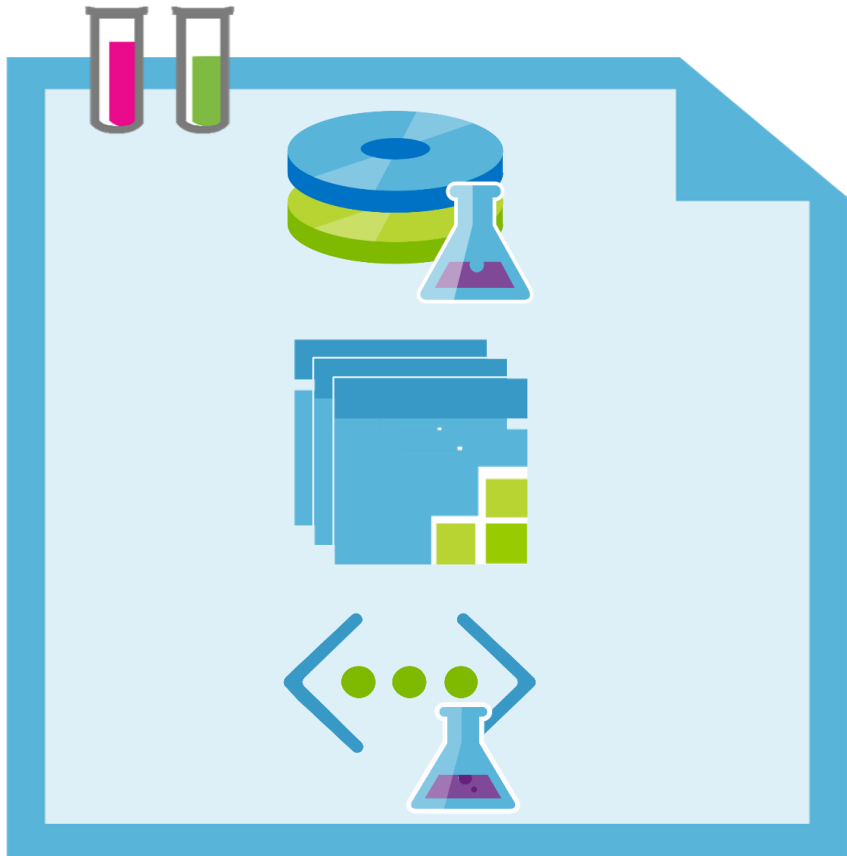
```
15 lines (15 sloc) | 626 Bytes
Raw Blame History

1 {
2   "$schema": "https://raw.githubusercontent.com/Azure/azure-devtestlab/master/schemas/2016-11-28/dtlArtifacts.json",
3   "title": "7-Zip",
4   "publisher": "Microsoft",
5   "description": "Installs 7-Zip using the Chocolatey package manager",
6   "tags": [
7     "Windows",
8     "7-Zip"
9   ],
10  "iconUri": "https://cdn.rawgit.com/ferrentcoder/chocolatey-packages/02c21bebe5abb495a56747cbb9b4b5415c933fc0/icons/7zip.svg",
11  "targetOsType": "Windows",
12  "runCommand": {
13    "commandToExecute": "[concat('powershell.exe -ExecutionPolicy bypass '& ./.startChocolatey.ps1 -PackageList ', '7zip', '\\')]"
14  }
15 }
```

NAME	DESCRIPTION	PUBLISHER	REPOSITORY
7-Zip	Installs 7-Zip using the Chocolatey package manager	Microsoft	Public Repo
Active Directory	Joins a Windows VM to an Active Directory	Microsoft	Public Repo
Atom	Installs Atom using the Chocolatey package manager	Microsoft	Public Repo
AWS Command Line Interface	Installs AWS Command Line Interface	Hosam Kamel	Public Repo
Azure PowerShell	Installs the latest version of Windows PowerShell	Microsoft	Public Repo
Chef Client	Downloads and installs the client	Microsoft	Public Repo
Chrome	Installs Chrome using the Chocolatey package manager	Microsoft	Public Repo
Clone a git repository	Installs git and clones specified repository	Microsoft	Public Repo
Configuration Manager	FOR TESTING ONLY! ; This Product is not supported for production use	Microsoft	Public Repo
Configuration Manager	FOR TESTING ONLY! ; This Product is not supported for production use	Microsoft	Public Repo
Create Domain	Create an AD Domain in a new Forest	Roger Zander	Public Repo
Create web shortcut	Creates a shortcut to a URL in the Start menu	Microsoft	Public Repo
Docker	Installs Docker on Windows Server	Marcus Robins	Public Repo

DevTest lab formulas

- Templates that capture all the settings for creating lab VM



- Define settings that custom images cannot provide, such as VM size and virtual network
- Base image
- VM settings
- Artifacts
- Automatic delete options
- Claim options

DevTest lab policies

- With policies you control cost and minimize resource usage
 - Allowed virtual machine sizes
 - Virtual machines per user
 - Virtual machines per lab
 - Auto-shutdown
 - Auto-start
- Auto-start/shutdown settings can be configured per VM

POLICY SETTINGS

 Allowed virtual machine sizes

 Virtual machines per user

 Virtual machines per lab

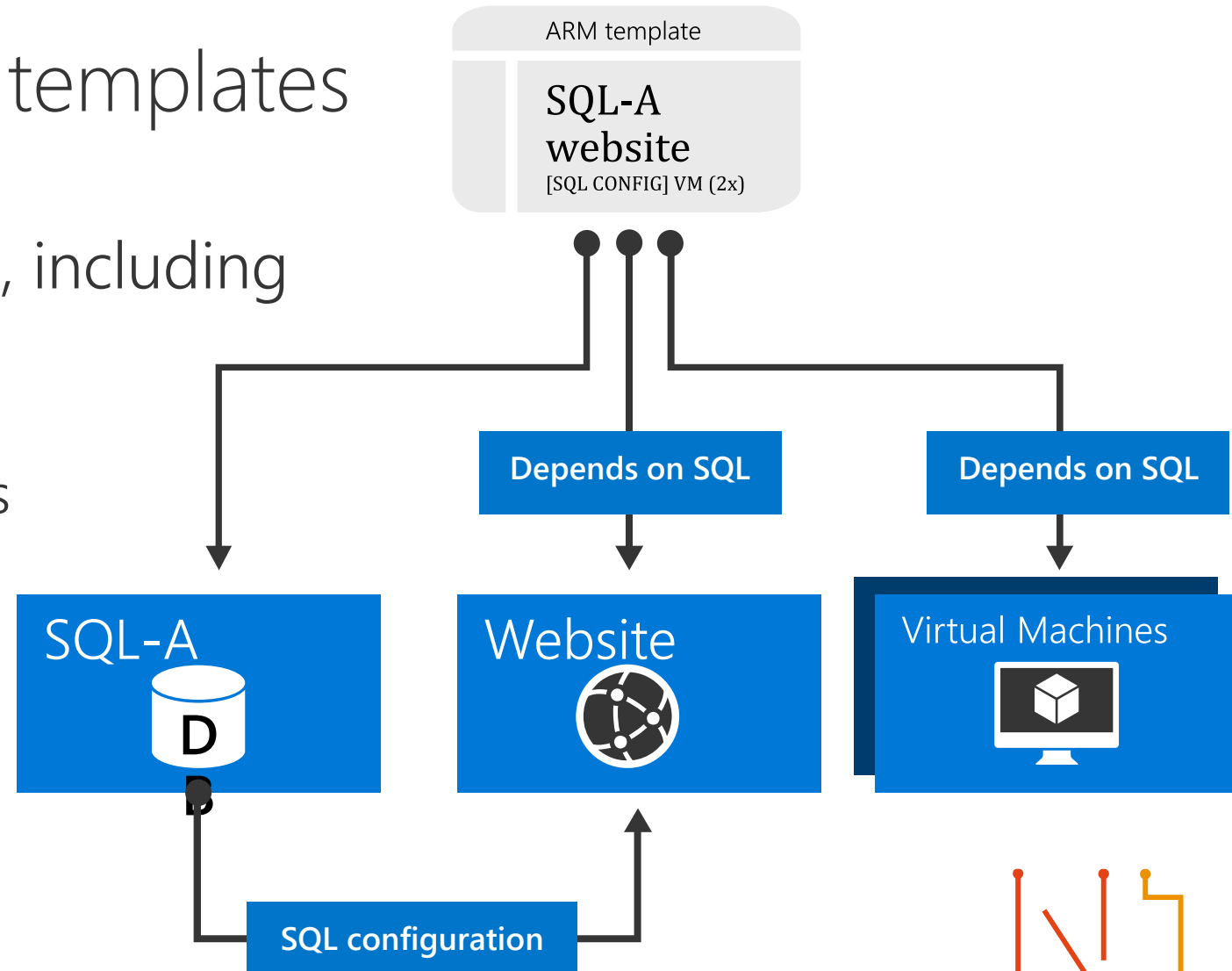
SCHEDULES

 Auto-shutdown

 Auto-start

Creating more than single VM lab environment

- Azure Resource Manager templates
 - "Infrastructure as code"
 - Defines complete environment, including
 - Virtual machine(s)
 - Virtual network(s)
 - Resources used and dependencies
 - Configurable parameters
 - Saved as JSON file



JSON files – simpler than they look

```
Branch: "resources": [  
    {  
        "type": "Microsoft.Storage/storageAccounts",  
        "name": "[parameters('newStorageAccountName')]",  
        "apiVersion": "2015-05-01-preview",  
        "location": "[variables('location')]",  
        "properties": {  
            "accountType": "[variables('storageAccountType')]"  
        }  
    },  
    {  
        "apiVersion": "2015-05-01-preview",  
        "type": "Microsoft.Network/publicIPAddresses",  
        "name": "[variables('publicIPAddressName')]",  
        "location": "[variables('location')]",  
        "properties": {  
            "publicIPAllocationMethod": "[variables('publicIPAllocationType')]",  
            "dnsSettings": {  
                "domainNameLabel": "[parameters('dnsNameForPublicIP')]"  
            }  
        }  
    }  
],
```

Demo

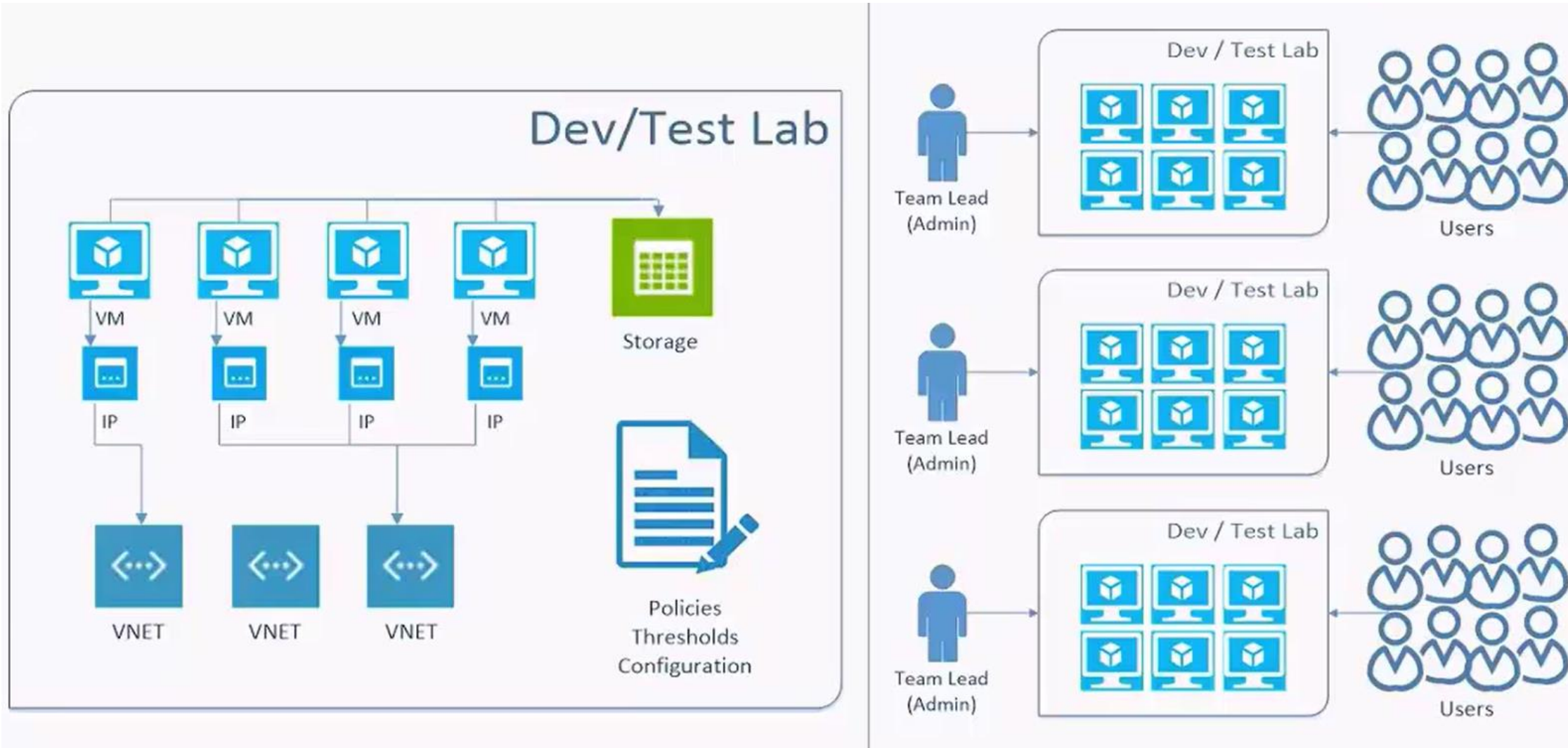
Adding artifact and ARM template repository
Using ARM template
Exploring policies

DevTest lab access control

- Controlled by Azure Role-Based Access Control (RBAC)
- Microsoft Account or Azure AD account
- Three main roles:
 - Owner
 - DevTest Labs User
 - Contributor

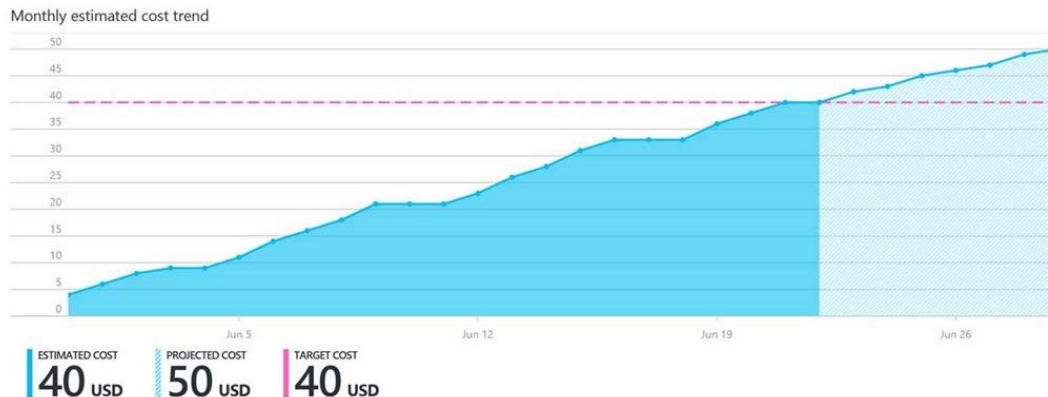
Actions users in this role can perform	DevTest Labs User	Owner	Contributor
Lab tasks			
Add users to a lab	No	Yes	No
Update cost settings	No	Yes	Yes
VM base tasks			
Add and remove custom images	No	Yes	Yes
Add, update, and delete formulas	Yes	Yes	Yes
Whitelist Azure Marketplace images	No	Yes	Yes
VM tasks			
Create VMs	Yes	Yes	Yes
Start, stop, and delete VMs	Only VMs created by the user	Yes	Yes
Update VM policies	No	Yes	Yes
Add/remove data disks to/from VMs	Only VMs created by the user	Yes	Yes
Artifact tasks			
Add and remove artifact repositories	No	Yes	Yes
Apply artifacts	Yes	Yes	Yes

DevTest lab access control



DevTest lab resource and cost monitoring

- DevTest lab is free Azure service
 - You still need to pay for compute and storage
- Portal includes following views:
 - Cost trend
 - Cost by resource
 - Activity log



DevTest lab integrates with existing tools



Summary

- Deploying to DevTest lab is similar to deploying to Azure
 - You have additional policies, artefacts, formulas and cost monitoring
 - Can be integrated with Visual Studio release management and other tools
- DevTest labs are not only for testing
- Azure Portal is used for managing DevTest labs
 - PowerShell for automation
 - ARM templates for advanced environments
- Learn about GitHub and JSON

Additional Information

About Azure DevTest Labs

<https://docs.microsoft.com/en-us/azure/devtest-lab/devtest-lab-overview>

Deploy resources with Resource Manager templates

<https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-template-deploy>

Azure DevTest Labs Updates Feed

<http://aka.ms/dtlupdates>

Deliver more features faster with a modern development and test solution

<https://channel9.msdn.com/events/Ignite/2016/BRK2103>

Set up DevTest Labs to send auto-shutdown notification

<https://docs.microsoft.com/en-us/azure/devtest-lab/devtest-lab-overview>