



WEEK 5

MANAGEMENT TOOLS

Taha Yiğit ALKAN



Agenda

- Azure Portal
- Powershell
- Azure CLI
- Azure Cloud Shell
- Azure Arc
- Infrastructure as Code
- ARM Templates





AZURE PORTAL

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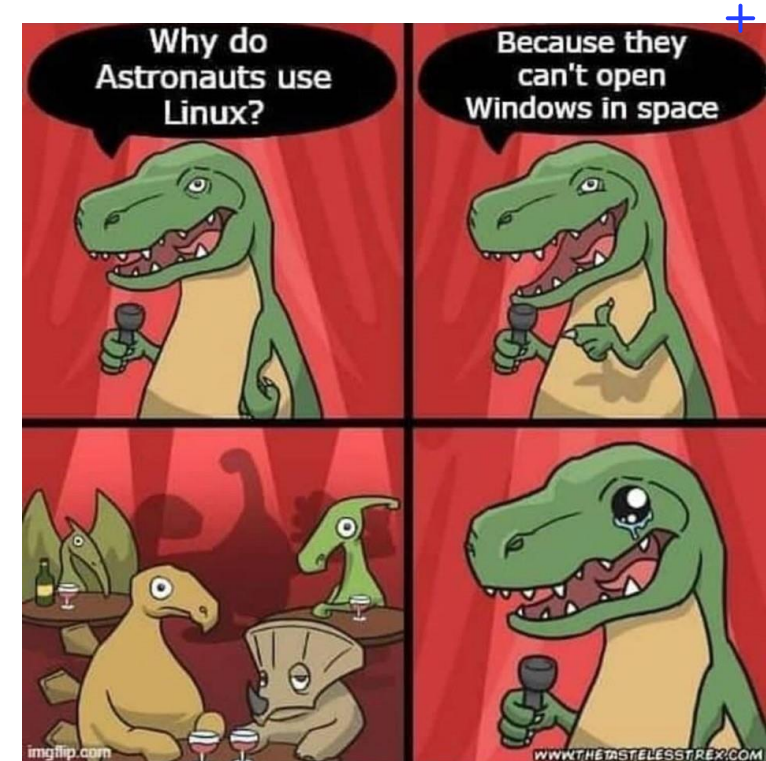


Azure Portal

Great way to manage azure
resources
(Up to certain scales)

Powershell and CLI/Bash

- Downloadable SDKs (local machine)
- Built-in portal
- Windows env vs. Unix/Linux env



Azure services

1. Select cloud shell



Create a resource



Azure AD B2C



Resource groups



Function App



Policy



App Services



Static Web Apps



SQL databases



Azure DevOps organizations



More services

Resources

Recent

Favorite

Name	Type	Last Viewed
CloudComputingWeek3	Resource group	7 days ago
Deneme20195175002	Function App	7 days ago
DefaultResourceGroup-EUS	Resource group	7 days ago

2. Create a new storage

You have no storage mounted

Azure Cloud Shell requires an Azure file share to persist files. [Learn more](#)

This will create a new storage account for you and this will incur a small monthly cost. [View pricing](#)

Azure Cloud Shell will register your subscription with Microsoft.CloudShell resource provider.

* Subscription

Cloud Computing Subscription [Show advanced settings](#)











Creating... Close

Cloud Shell terminal dial

Microsoft Azure Search resources, services, and docs (G+)

Azure services

You can use PowerShell or Bash

PowerShell          

Cloud Shell. **Succeeded.**

Welcome to Azure Cloud Shell

Type "az" to use Azure CLI

Type "help" to learn about Cloud Shell

Storage fileshare subscription 629743ed-8a0d-4521-9ca6-afe44ee1460b is not registered to Microsoft.CloudShell Namespace. Please follow these instructions "<https://aka.ms/RegisterCloudShell>" to register. In future, unregistered subscriptions will have restricted access to CloudShell service.

MOTD: Azure Cloud Shell now includes Predictive IntelliSense! Learn more: <https://aka.ms/CloudShell/IntelliSense>

VERBOSE: Authenticating to Azure ...

VERBOSE: Building your Azure drive ...

PS /home/taha> az

Welcome to Azure CLI!

Use `az -h` to see available commands or go to <https://aka.ms/cli>.

Telemetry

The Azure CLI collects usage data in order to improve your experience.
The data is anonymous and does not include commandline argument values.
The data is collected by Microsoft.

You can change your telemetry settings with `az configure`.

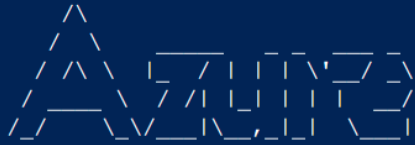
Automatically authenticates and configures environment

Azure services



PowerShell

You can change your telemetry settings with `az configure`.



```
Welcome to the cool new Azure CLI!
```

Use ``az --version`` to display the current version.

Here are the base commands:

```
account      : Manage Azure subscription information.
acr          : Manage private registries with Azure Container Registries.
ad           : Manage Azure Active Directory Graph entities needed for Role Based Access
              Control.
advisor      : Manage Azure Advisor.
afd          : Manage Azure Front Door Standard/Premium. For classical Azure Front Door,
              please refer https://docs.microsoft.com/en-us/cli/azure/network/front-
              door?view=azure-cli-latest.
ai-examples  : Add AI powered examples to help content.
aks          : Manage Azure Kubernetes Services.
ams          : Manage Azure Media Services resources.
apim         : Manage Azure API Management services.
appconfig    : Manage App Configurations.
appservice   : Manage App Service plans.
aro          : Manage Azure Red Hat OpenShift clusters.
```

See all

Navigate

```
Bash
Requesting a Cloud Shell.Succeeded.
Connecting terminal...

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taha [ ~ ]$ az functionapp list
[
  {
    "appServicePlanId": "/subscriptions/629743ed-8a0d-4521-9ca6-afe44ee1460b/resourceGroups/CloudComputingWeek3/providers/Microsoft.Web/serverfarms/ASP-CloudComputingWeek3-acbf",
    "availabilityState": "Normal",
    "clientAffinityEnabled": false,
    "clientCertEnabled": false,
    "clientCertExclusionPaths": null,
    "clientCertMode": "Required",
    "cloningInfo": null,
    "containerSize": 1536,
    "customDomainVerificationId": "A47A3F899C6D66E8AE6854784C2E762C77C7A380EAB9A6FB7813FF77245AD503",
    "dailyMemoryTimeQuota": 0,
    "defaultHostName": "deneme20195175002.azurewebsites.net",
    "enabled": true,
    "enabledHostNames": [
      "deneme20195175002.azurewebsites.net",
      "deneme20195175002.scm.azurewebsites.net"
    ],
    "extendedLocation": null,
    "hostNameSslStates": [
      {
```



Azure Arc

Allows manage all on-prem
infrastructure, anywhere

There is no charge!

Azure Arc



Infrastructure

- Virtual Machines
- Kubernetes clusters
- VMware vCenters

Data Services

- SQL Server instances
- PostgreSQL
- SQL Managed Instances

Application Services

- App Services
- Event Grid Topics
- Functions

Add a Kubernetes cluster with Azure Arc ...

Before you add your cluster to Azure Arc, you'll need

To identify or create a Kubernetes cluster

- **A new or existing Kubernetes cluster**
The cluster must use Kubernetes version 1.13 or later (including OpenShift 4.2 or later and other Kubernetes derivatives)
[Learn how to create a Kubernetes cluster](#) ↗
- **Access to ports 443 and 9418**
Make sure the cluster has access to these ports, and the required [outbound URLs](#) ↗
- **Connectivity method**
You can connect to the internet over a public endpoint, through a proxy server, or over a private endpoint. An Azure Arc Private link scope is required to connect over a private endpoint.
[Create an Azure Arc Private link scope](#)

To set up your local machine

- **Azure CLI**
An Azure CLI script will be generated that you will run locally to connect your cluster.
[Learn how to install the Azure CLI on your local machine](#) ↗
- **A new or existing Kubernetes cluster**
Install the latest connectedk8s and k8s-configuration, k8s-extension, customlocation CLI extensions.
[Learn how to install these extensions](#) ↗
- **Kubeconfig file with cluster admin permissions**
The file should be accessible via your CLI tooling. [Learn how to get a kubeconfig file](#) ↗



Infrastructure as Code (IaC)

Infrastructure (n):

All the servers, storage, database settings, network settings, firewalls, load balancers, etc.

HOW DO YOU “BACKUP” YOUR INFRASTRUCTURE SETUP?

IaC



Define your infrastructure
in a configuration file



Re-deploy resources
using configuration files

DESIRED STATE CONFIGURATION (DSC)

Using automation to ensure your configuration doesn't drift from the original setup

IaC Options

- ARM Templates (JSON)
- Bicep
- Terraform (3rd party, cross-platform)
- Chef, Puppet (Open source)
- PowerShell Scripts
- Other type of code (SDKs)

AZURE RESOURCE MANAGER



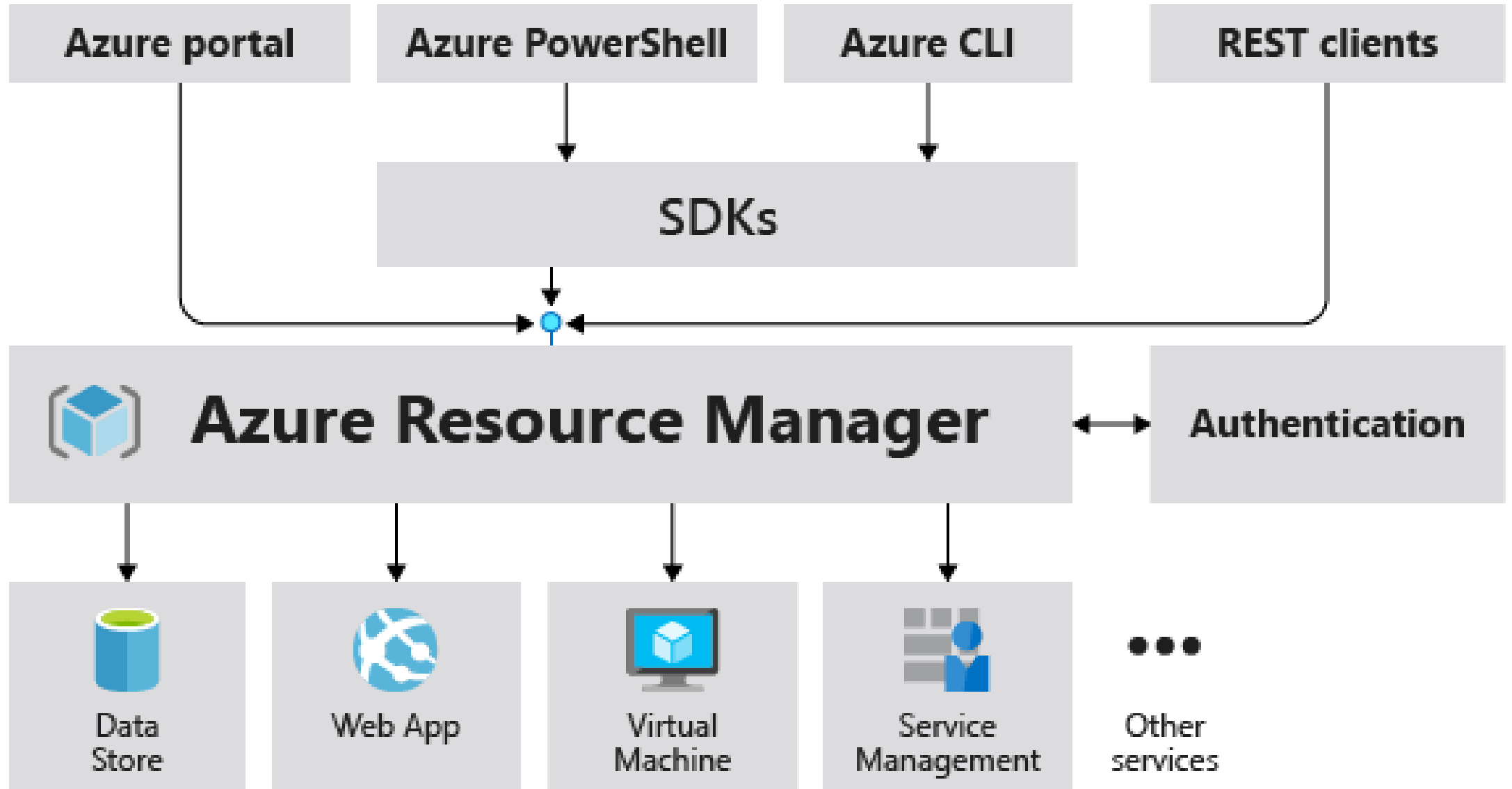
The deployment and management service



Management layer that allows you to create, update, and delete resources called “deployments”



All actions that you take to manage your Azure resources goes through the ARM layer



Example ARM Template

```
"resources": [  
  {  
    "name": "[parameters('storageAccountName')]",  
    "type": "Microsoft.Storage/storageAccounts",  
    "apiVersion": "2022-05-01",  
    "location": "[parameters('location')]",  
    "properties": {  
      "minimumTlsVersion": "[parameters('minimumTlsVersion')]",  
      "supportsHttpsTrafficOnly": "[parameters('supportsHttpsTrafficOnly')]",  
      "allowBlobPublicAccess": "[parameters('allowBlobPublicAccess')]",  
      "allowSharedKeyAccess": "[parameters('allowSharedKeyAccess')]",  
      "defaultToOAuthAuthentication": "[parameters('defaultOAuth')]",  
      "accessTier": "[parameters('accessTier')]",  
      "publicNetworkAccess": "[parameters('publicNetworkAccess')]",  
      "allowCrossTenantReplication": "[parameters('allowCrossTenantReplication')]",  
      "networkAcls": {  
        "bypass": "[parameters('networkAclsBypass')]",  
        "defaultAction": "[parameters('networkAclsDefaultAction')]",  
        "ipRules": []  
      },  
      "dnsEndpointType": "[parameters('dnsEndpointType')]",  
      "encryption": {
```

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THANK YOU

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