



Microsoft Azure Revenue

- ✓ Revenue: \$38.03 billion, vs. \$36.50 billion as expected by analysts, according to Refinitiv.
- ✓ Microsoft revenue grew 13% despite coronavirus

Source: <https://www.cnn.com/2020/07/22/microsoft-msft-earnings-q4-2020.html>

Common Repetitive Tasks

- ✓ Virtual Machine Deployment
- ✓ Storage Account Deployment
- ✓ Pulling Report
- ✓ Resizing VMs in bulk
- ✓ Cleaning up resources
- ✓ Configuration Management

Thank You



Mastering Azure PowerShell

Vijay Saini

A rectangular chalkboard with a light brown wooden frame is positioned diagonally on a background of vertical wooden planks. The planks are weathered and have a natural wood grain. The chalkboard itself is black and has the words "Course Introduction" written in a clean, white, sans-serif font in the center.

Course Introduction

Introduction

01

Course overview

What you can expect from this course

02

GUI Automation and its Need

What is GUI automation, When you need to think of automating a GUI

03

What is PyAutoGUI

Understand what it does and what are its advantages

04

What you need to get started

A computer machine, Python Installation

05

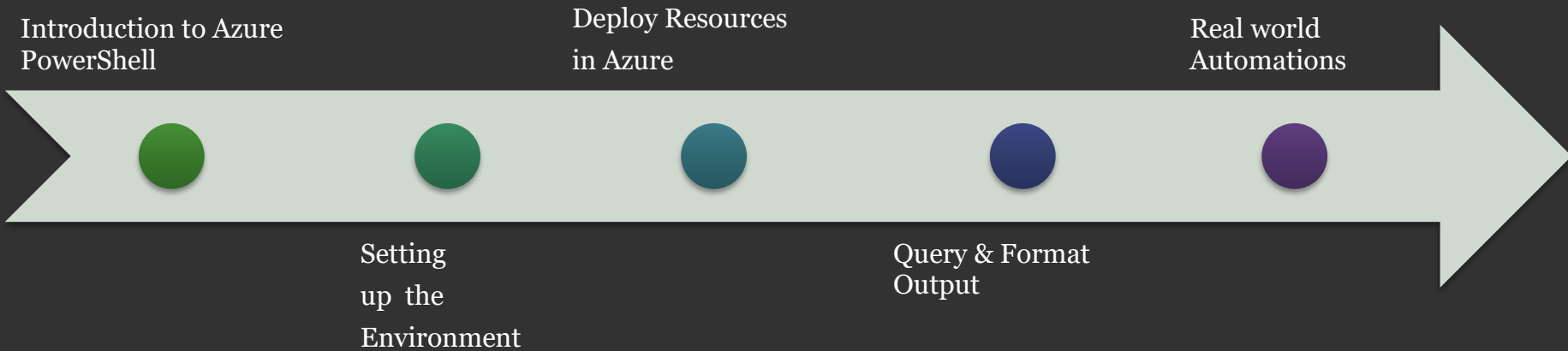
Setting up the Automation Environment

Installing PyAutoGUI and high level walkthrough

Table 1. Worldwide Public Cloud Service Revenue Forecast (Billions of U.S. Dollars)

	2018	2019	2020	2021	2022
Cloud Business Process Services (BPaaS)	41.7	43.7	46.9	50.2	53.8
Cloud Application Infrastructure Services (PaaS)	26.4	32.2	39.7	48.3	58.0
Cloud Application Services (SaaS)	85.7	99.5	116.0	133.0	151.1
Cloud Management and Security Services	10.5	12.0	13.8	15.7	17.6
Cloud System Infrastructure Services (IaaS)	32.4	40.3	50.0	61.3	74.1
Total Market	196.7	227.8	266.4	308.5	354.6

Course Structure



Useful Tips

- Download practice files and use them for reference while going through lectures
- Practice along with me. Don't simply sit and watch. Get your hands dirty in scripting
- Finish the course before start automating your tasks
- Raise Questions on the platform and also help others
- Review the course and provide your rating

What Should I know?

You should be aware of basic concepts of PowerShell Scripting and Microsoft Azure, Like:

- ✓ Aware of what is cloud, what is SAAS etc
- ✓ PowerShell For Loop, If Else, Try-Catch statements
- ✓ Able to create VM, storage account etc in Azure

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Introduction to Azure PowerShell

Azure PowerShell

- ✓ It is an extension of Windows PowerShell
- ✓ Azure PowerShell is a set of cmdlets for managing Azure resources directly from the PowerShell command line.



Azure PowerShell

Azure PowerShell Modules

- AzureRm vs Az
- Why AzureRM is depreciated?

Azure PowerShell Commandlet Nomenclature

Verb-AzNoun

AzureRm vs Az

Why AzureRM is depreciated?

Microsoft wanted to introduce a cross-platform PowerShell module to manage Azure based on the .NET Standard library. Also In the older Azure RM module, there were many inconsistencies in command let names. It would have been difficult to accommodate all the requirements in an existing module, so Microsoft decided to scrap the existing module and release a brand-new Az module.

AzureRm vs Az Module

Az Module

Azure PowerShell : Advantages

- ✓ Compatible with PowerShell Core 6.x and later all supported platforms
- ✓ Easy to learn and can work programmatically too, to automate tasks.
- ✓ Help system administrators create, test, deploy and manage Azure cloud platform services
- ✓ Robust functionality
- ✓ PowerShell scripts can be scheduled within Azure Automation Runbook to automate task

Thank You



A rectangular chalkboard with a light brown wooden frame is positioned diagonally on a background of vertical wooden planks. The planks have a weathered, greyish-brown appearance. The chalkboard itself is black and contains the text "Environment Setup" in a white, sans-serif font.

Environment Setup

Prerequisites

- ✓ Azure Account with appropriate access on an Active Subscription ?
- ✓ Laptop/Virtual Machine to practice (Preferably Windows OS) ?

PowerShell Installation

<https://docs.microsoft.com/en-us/powershell/scripting/install/installing-powershell?view=powershell-7>

List of Installed Modules

Get-InstalledModule

Az Installation

Azure PowerShell is an extension of Windows. It works by adding Azure module on top of regular PowerShell.

Install Azure Modules

- ✓ `Install-Module -Name Az`

Install Azure Modules, Suppress the warnings

- ✓ `Install-Module -Name Az -AllowClobber -Force`

Connect Azure PowerShell to Azure

- `Connect-AzAccount`
- `Get-Help Connect-AzAccount -ShowWindow`

PowerShell Execution Policy

Get the current Execution policy
Get-ExecutionPolicy

Change the execution policy
Set-ExecutionPolicy Bypass

Azure Cloud Shell

- Azure Cloud Shell is an interactive, authenticated, browser-accessible shell for managing Azure resources.
- It provides the flexibility of choosing the shell experience that best suits the way you work, either Bash or PowerShell.

Ways to use Azure PowerShell

- Install AZ Module In Local PowerShell and Connect with Azure
- Azure Cloud Shell via Azure Portal

Verb-AzNoun



```
graph TD; A[Verb-AzNoun] --> B[Verb like New, Get, Set, Remove, Update, Install etc.]; A --> C[Noun like VM, ResourceGroup, StorageBlob, Account, AdUser, VMSourceImage etc];
```

Verb like New, Get, Set, Remove, Update, Install etc.

Noun like VM, ResourceGroup, StorageBlob, Account, AdUser, VMSourceImage etc

Azure PowerShell Nomenclature

Deploy Resources in Azure



Deploy Resources in Azure

How to create a Virtual Machine in Azure using PowerShell?

`New-AzVm`

```
-ResourceGroupName "azuretest-rg" `
-Name "myTestVM" `
-Location "East US" `
-VirtualNetworkName "myTest-vnet" `
-SubnetName "myTest-subnet" `
-OpenPorts 80,3389 `
-Image win2019Datacenter
```




Azure Virtual Machine

How to deploy an Azure VM with specified?



Resource Group



Location



Ports (Inbound & Outbound rules)



Image (Operating System)



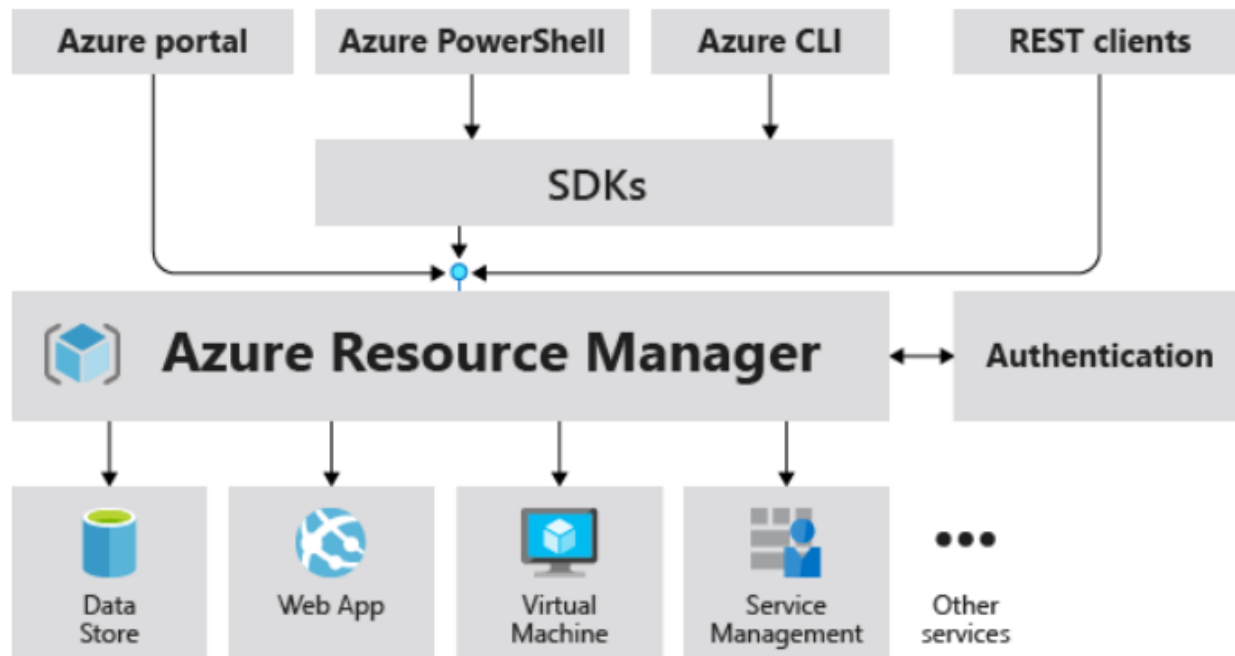
Azure Virtual Machine

Deploy an Azure VM using PowerShell with below specifications?

- **Name :** AzureDemoVM
- **Resource Group :** rg-azurepowershell
- **Location :** eastus2
- **Open Ports :** 80,3389
- **OS :** Windows 2019 Data Center
- **VNet Name :** eastus2-vnet
- **Subnet Name :** az-prod-subnnet



ARM Model





Practice Exercise

Using PowerShell's Show-Command window, find the PowerShell Command let for below Tasks:

Example: Create a new Resource Group -> `New-AzResourceGroup`

- 1.) Create a new Azure Disk
- 2.) Create a new Azure DNS Zone
- 3.) Get all Azure AD Groups
- 4.) Get all Azure Virtual Networks
- 5.) Stop an Azure Virtual Machine
- 6.) Restart and Azure Virtual Machine
- 7.) Remove / Delete Azure Virtual Machine
- 8.) Remove / Delete Azure SQL Server



Deploy Resources in Azure

How to create a resource group in Azure using PowerShell?

```
New-AzResourceGroup -Location testingpurpose -Name eastus2
```




Examples of deployment in Azure

- Fully Configured Virtual Machines with disks, policies, and extensions
- Backup Policy
- Virtual Networks
- Storage account
- SQL database
- Container
- Azure Functions
- Monitoring & Analytics
- Application Services

Thank You



Query & Format Output



Need of pulling data from Azure

- Auditing
- System Administration
- Cost Analysis, Security Analysis etc
- Management Dashboards
- User Management etc.



Requirement

- I. Pull list of all resource groups
- II. Filter resource groups that contains word '*prod*'
- III. Format List and Format Table
- IV. Select specific columns



Test Your Knowledge Assignment

1. List all the Virtual Machine names in Azure **within a given resource group(say xyz)**.
2. List Virtual Machines within **eastus2 or westus2** location.
3. List Virtual Machine that are in **stopped** state
4. List Virtual Machines that are in **running** state **or** are in **eastus2** location.
5. List all Virtual Machines that has **Linux OS**
6. List all Virtual Machines that are in **demo1** resource group and **D series Vm size**.
7. List all Virtual Machine that satisfy below conditions

Status : **stopped**

Region : **eus2**

Resource Group : **AzureTraining**

OS : **Windows**



Test Your Knowledge Assignment -Solutions

1. List all the Virtual Machine names in Azure **within a given resource group(say xyz)**.
2. List Virtual Machines within **eastus2 or westus2** location.
3. List Virtual Machine that are in **stopped** state
4. List Virtual Machines that are in **running** state **or** are in **eastus2** location.
5. List all Virtual Machines that has **Linux OS**
6. List all Virtual Machines that are in **demo1** resource group and **D series Vm size**.
7. List all Virtual Machine that satisfy below conditions

Status :	stopped
Region :	eus2
Resource Group :	AzureTraining
OS :	Windows



Export Results to File System

Various Popular File Formats:

- I. CSV (Comma Separated Values)
- II. JSON (JavaScript Object Notation)
- III. XML (eXtensible Markup Language)
- IV. HTML (Hypertext Markup Language)

Thank You

