**Python SDK UX study**

**Objective**

You are the CTO of a tech startup company and your company is growing rapidly and previously you have chosen Azure as your cloud provider, you found that using the UI to create virtual machines doesn’t scale any more.

As CTO, you decided to use a programmatic approach to create a virtual machine using the Azure Python SDK.

However, you just discovered that there are two types of Python SDKs out there, and you decided to try both by yourself and see which SDK you think is better for engineering team.

The two Python SDKs you have found are the following

* **Current Stable version of Python SDK (**[**https://github.com/Azure/azure-sdk-for-python**](https://github.com/Azure/azure-sdk-for-python)**)**
* **Preview version of Python SDK in private preview (Binaries and install instructions provided)**

You also got the requirements for your VM from CEO and here’s the list of parameters that you will be using for the VM

|  |  |  |
| --- | --- | --- |
| Entity | Value requirements | Reference |
| Location for VM / resource group / network | “west us 2” |  |
| Availability set | Update domain count : 5, fault domain count: 5, sku: a new sku named “newSku” | Python SDK  <https://docs.microsoft.com/en-us/python/api/azure-mgmt-compute/azure.mgmt.compute.v2019_12_01.models.availabilityset?view=azure-python>  REST API  <https://docs.microsoft.com/en-us/rest/api/compute/availabilitysets> |
| Public IP | A IPv4 address with dynamic allocation method, and same location as our VM | Python SDK  <https://docs.microsoft.com/en-us/python/api/azure-mgmt-network/azure.mgmt.network.v2020_04_01.models.publicipaddress?view=azure-python>  REST API  <https://docs.microsoft.com/en-us/rest/api/virtualnetwork/publicipaddresses> |
| Virtual network | Same location as VM, and a new address space with prefix “10.0.0.0/16” as well as a subnet with address prefix “10.0.0.0/26” | Python SDK  <https://docs.microsoft.com/en-us/python/api/azure-mgmt-network/azure.mgmt.network.v2020_04_01.models.virtualnetwork?view=azure-python>  REST API  <https://docs.microsoft.com/en-us/rest/api/virtual-network/> |
| Network interface | Same location as VM.  The IP configuration for this network interface should be primary and use the first subnet of the virtual network as stated in the requirements.  The IP configuration should also include the Public IP that we set in this requirement | Python SDK  <https://docs.microsoft.com/en-us/python/api/azure-mgmt-network/azure.mgmt.network.v2020_04_01.models.networkinterface?view=azure-python>  REST API  <https://docs.microsoft.com/en-us/rest/api/virtualnetwork/networkinterfaces> |
| Virtual machine | The VM should contain a network profile, this network profile should use the network interface we stated in the requirements  We will also need to set the following:  --OS profile (you can choose what to set)  --Storage profile (you can choose what to set)  --Hardware profile (We should set virtual machine size to StandardB1Ms)  --Availability set (defined in this table) | Python SDK  <https://docs.microsoft.com/en-us/python/api/azure-mgmt-compute/azure.mgmt.compute.v2019_12_01.models.virtualmachine?view=azure-python>  REST API  <https://docs.microsoft.com/en-us/rest/api/compute/virtualmachines> |

**Environment Setup**

Azure Subscription

Your current active Azure subscription is the following:

Username: [nickzhums@outlook.com](mailto:nickzhums@outlook.com) // Pwd: (Send separately)

SDK Install Instructions

**Note: Install the preview version only at first. You might have to uninstall previously installed versions of the libraries**

Install the preview version of the Python SDK management libraries

Please refer to here: <https://github.com/nickzhums/user_study_python_package>. The package install instructions are included in the repository README

Install the stable version of the Python SDK management libraries

Please directly download packages from PyPI

<https://pypi.org/project/azure-mgmt-resource/>

<https://pypi.org/project/azure-mgmt-compute/>

<https://pypi.org/project/azure-mgmt-network/>

**Documentation / References:**

Suppose that based on previous research, you have found the following documentation regarding the SDKs

Quickstart guide for Preview Python SDK:

<https://github.com/nickzhums/user_study_python/blob/master/mgmt_preview_quickstart.rst>

Current Stable Python SDK docs:

<https://docs.microsoft.com/en-us/azure/developer/python/azure-sdk-authenticate>

<https://docs.microsoft.com/en-us/azure/developer/python/azure-sdk-overview>

Azure REST API references for Compute

(<https://docs.microsoft.com/en-us/rest/api/compute/virtualmachines/createorupdate>)

**Task List**

A virtual machine is a complicated entity, so you will be creating multiple resources as part of this task.

When you think you complete each task, please let us know

The following are the details for the tasks. Please complete them in order and let us know when you think you have finished each of them. We’ll ask you a couple of brief questions after each task.

Task 1 – Authenticate to Azure and start interacting with Azure resources (~5 – 10 mins)

In order to interact with Azure resources, we will need to authenticate to Azure first

For Track 1 / Track 2 Python SDK:

Please use the existing binary / documentation and provided subscription to authenticate to Azure and create REST clients for Resource/Compute/Network

Task 2 – Create a resource group ( ~5mins )

A resource group is needed for all Azure resources, please create a new resource group with your name of choice

Task 3 – Create an Availability Set ( ~5mins )

Our VM will be using an availability set, please create an availability set with following properties and name of your choice

**Docs:**

|  |  |
| --- | --- |
| Python SDK Doc | REST API Doc |
| <https://docs.microsoft.com/en-us/python/api/azure-mgmt-compute/azure.mgmt.compute.v2019_12_01.models.availabilityset?view=azure-python> | <https://docs.microsoft.com/en-us/rest/api/compute/availabilitysets> |

Task 4 – Create an IP Address ( ~5mins )

In order to create a VM, network related info is also required. Let’s start by creating an IP address first. Please create an IP Address according to the requirements

|  |  |
| --- | --- |
| Python SDK Doc | REST API Doc |
| <https://docs.microsoft.com/en-us/python/api/azure-mgmt-network/azure.mgmt.network.v2020_04_01.models.publicipaddress?view=azure-python> | <https://docs.microsoft.com/en-us/rest/api/virtualnetwork/publicipaddresses> |

Task 5 – Create a virtual network ( ~5mins )

Next, we need to create a virtual network, please create a virtual network according to the requirements

|  |  |
| --- | --- |
| Python SDK Doc | REST API Doc |
| <https://docs.microsoft.com/en-us/python/api/azure-mgmt-network/azure.mgmt.network.v2020_04_01.models.virtualnetwork?view=azure-python> | <https://docs.microsoft.com/en-us/rest/api/virtual-network/> |

Task 6 – Create a network interface (~ 5mins )

As final step of network, we need to create a network interface. Please create a network interface according to the requirements (we will use the resources previously created)

|  |  |
| --- | --- |
| Python SDK Doc | REST API Doc |
| <https://docs.microsoft.com/en-us/python/api/azure-mgmt-network/azure.mgmt.network.v2020_04_01.models.networkinterface?view=azure-python> | <https://docs.microsoft.com/en-us/rest/api/virtualnetwork/networkinterfaces> |

Task 7 – Create a virtual machine (~7-8mins )

As last step of the task, we can finally create a virtual machine, please create a virtual machine (we will use the resources previously created)

Network profile -> A new network profile with the network interface we created in Task 6

OS Profile -> A new OS profile with your choice of parameters

Storage Profile -> A new Storage profile with your choice of parameters

Hardware Profile -> A hardware profile with virtual machine size set to StandardB1Ms

Availability set -> Use the availability set we created in Task 2

Create the VM and check the result in Azure portal

|  |  |
| --- | --- |
| Python SDK Doc | REST API Doc |
| <https://docs.microsoft.com/en-us/python/api/azure-mgmt-compute/azure.mgmt.compute.v2019_12_01.models.virtualmachine?view=azure-python> | <https://docs.microsoft.com/en-us/rest/api/compute/virtualmachines> |

**Conclusion & Feedback**

How satisfied / dissatisfied is your experience of managing Azure resources using Azure SDK (Score each area)

* API Design
* Coverage of Azure Services
* Documentation Quality (Tutorial / API References / Code Samples)
* Performance & reliability
* Community Support

How likely would you recommend Azure SDK to other people