

Lab 01 - Review the SDDC

Introduction

VMware Cloud on AWS is an on-demand service that enables customers to run applications across vSphere-based cloud environments with access to a broad range of AWS services. Powered by VMware Cloud Foundation, this service integrates vSphere, vSAN, and NSX along with VMware vCenter management, and is optimized to run on dedicated, elastic, bare-metal AWS infrastructure. ESXi hosts in VMware Cloud on AWS reside in an AWS Availability Zone(s) (AZ) and are protected by vSphere HA.

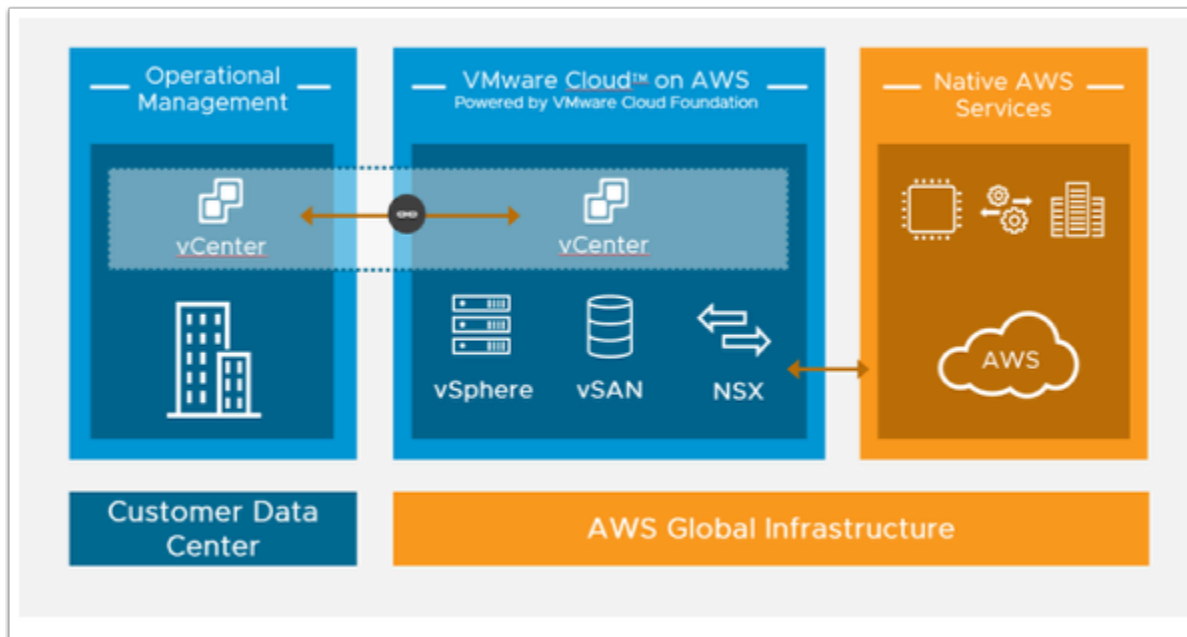
With VMware Hybrid Cloud Extension (HCX), customers can easily and rapidly perform large-scale bi-directional migrations between on-premises and VMware Cloud on AWS environments.

With the same architecture and operational experience on-premises and in the cloud, IT teams can now quickly derive instant business value from the use of AWS services and VMware hybrid cloud experience. VMware Cloud on AWS is ideal for enterprise IT infrastructure and operations organizations looking to migrate their on-premises vSphere-based workloads to the public cloud, consolidate and extend their data center capacities, and optimize, simplify and modernize their disaster recovery solutions.

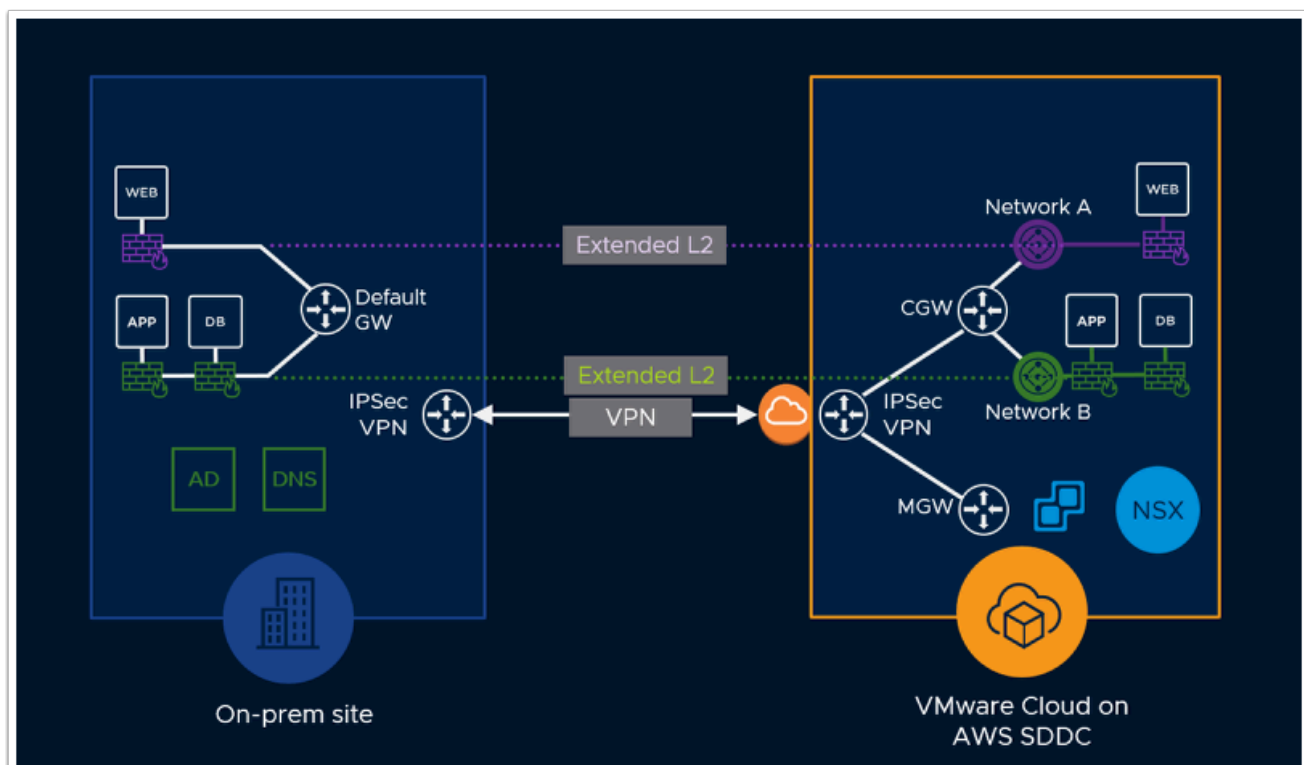
VMware Cloud on AWS is an integrated cloud offering jointly engineered by Amazon Web Services (AWS) and VMware. You can deliver a highly scalable and secure service by migrating and extending your on-premises VMware vSphere-based environments to the AWS Cloud running on Amazon Elastic Compute Cloud (Amazon EC2).

What is An Software Defined Data Center (SDDC)

The mobile cloud era is changing line-of-business (LOB) expectations of IT. For IT organizations to securely deliver the anticipated improvements in service quality and speed, a Software-Defined Data Center (SDDC) approach is required. The VMware approach to the SDDC delivers a unified platform that supports any application and provides flexible control. The VMware architecture for the SDDC empowers companies to run hybrid clouds and to leverage unique capabilities to deliver key outcomes that enable efficiency, agility, and security.



The Lab Environment



For the entirety of this workshop, you will have access to a live, dedicated VMware Cloud on AWS SDDC instance, along with a live vSphere 8 U1 On-Premises deployment. The VMware

Cloud on AWS SDDC instance provided to you is a single-host SDDC. Single-host SDDCs are designed for the following purposes:

- Training/Learning
- Proof of Concept
- Limited Development

The single-host SDDC supports all VMC on AWS use-cases, however, it should not be used for production workloads, as the availability and resiliency of this SDDC are far lower than a 2 or more host SDDC.

The single-host SDDC starter configuration allows you to kickstart your VMware Cloud on AWS hybrid cloud experience with a 60-day time-bound single-host configuration. Beyond this class, you can purchase this configuration on an hourly on-demand basis using a credit card or VMware credit funds.

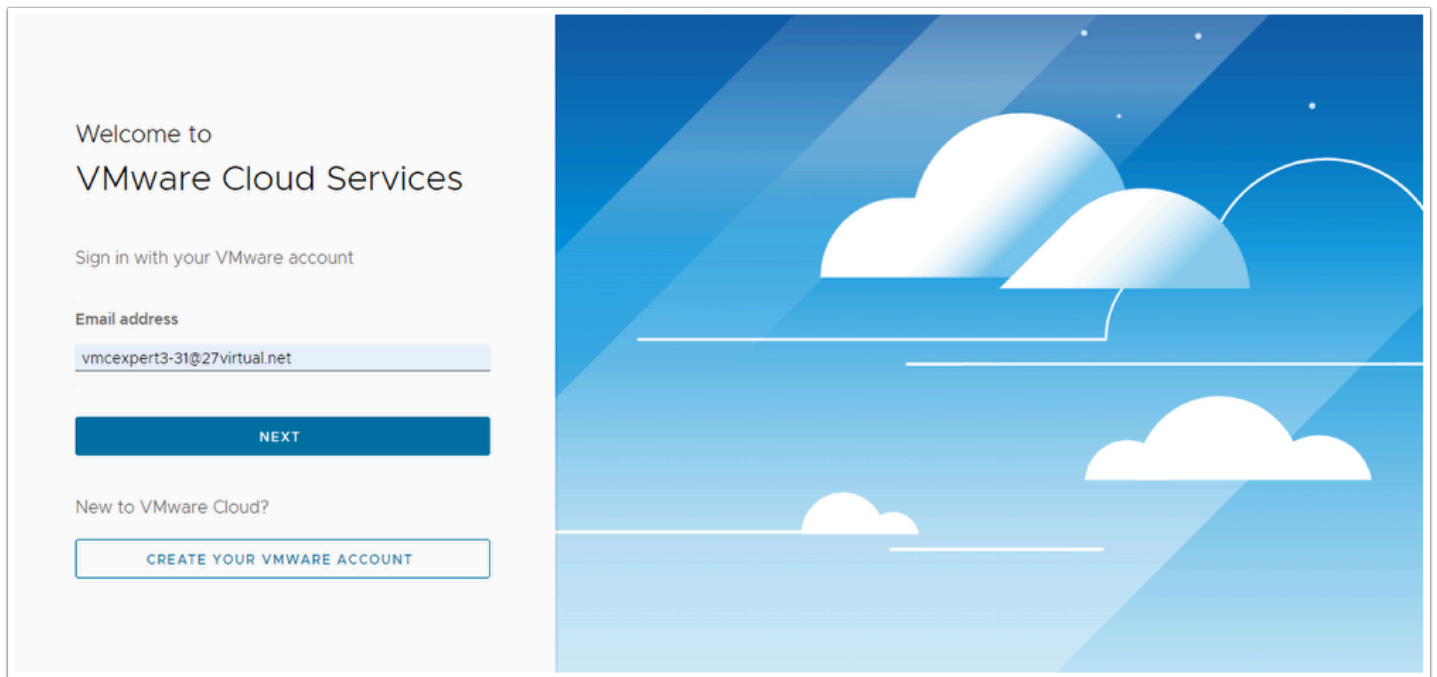
TASKS

Task 1 - Viewing and Exploring your SDDC

In this lab, we are going to start by looking at the basic tasks you can perform in the VMware Cloud on AWS user interface when you are administering the platform. We'll take a close look and discover, through a very intuitive interface, where you perform specific administrative tasks.

From your laptop/desktop access the VMware Cloud on AWS Console

1. Using your preferred browser go to <https://vmc.vmware.com>
2. In tests Google Chrome in **Incognito mode** or Firefox in **private browsing mode** works best
3. Click SIGN IN
4. Login with your VMC on AWS console credentials provided by your instructor:
 1. Type <**Your Assigned login Credentials**> in the email address field i.e. **vmcexpert#-XX@vmware-hol.com** (where **#** is your Environment ID, and **XX** is your assigned student number)
 2. Click **NEXT**
 3. Password: **VMware1!**
 4. Click SIGN IN



Upon signing in you'll notice there are two or more SDDCs named **VMCExpert#-XX** (Where **XX** indicates your student number).

⚠ NOTE: Unless instructed to, only use the SDDC that matches your assigned Student number.

PLEASE DO NOT add hosts or make other changes beyond those indicated in the lab steps or without your instructor's guidance.

VMCEXP3-01

Ready Expires in 15 days

| | | | |
|--------------------|----------------|----------|----|
| Region | EU (Frankfurt) | Clusters | 1 |
| Type | VMC on AWS | Hosts | 1 |
| Availability Zones | eu-central-1b | Cores | 36 |

CPU

82.8 GHz

Memory

512 GiB

Storage

10.37 TiB

[VIEW DETAILS](#) [OPEN VCENTER](#) [ACTIONS](#)

VMCEXP3-02

Ready Expires in 15 days

| | | | |
|--------------------|----------------|----------|----|
| Region | EU (Frankfurt) | Clusters | 1 |
| Type | VMC on AWS | Hosts | 1 |
| Availability Zones | eu-central-1b | Cores | 36 |

CPU

82.8 GHz

Memory

512 GiB

Storage

10.37 TiB

[VIEW DETAILS](#) [OPEN VCENTER](#) [ACTIONS](#)

An SDDC (Software Defined Datacenter) is a fully deployed environment including ESXi, NSX, vSAN, and vCenter Server, with all day-1 configurations completed. Deployment of an SDDC takes about 90 minutes so for this lab, we have already deployed one for you.

This SDDC is in the same state as it would be if you would have deployed it manually.

💡 Identify your SDDC, (**VMCEXP3-XX**, where **XX** is your Student Number). At the top left of the SDDC tile (i.e. **VMCEXP3-02**).

1. Click **VIEW DETAILS**

In this task we will review the options under each of the SDDC Tabs (Summary, Networking and Security, Integrated Services, Maintenance...)

SDDCs SDDC Groups

VMCEXPERT3-01

Ready
Expires in 15 days

| | | | |
|--------------------|----------------|----------|----|
| Region | EU (Frankfurt) | Clusters | 1 |
| Type | VMC on AWS | Hosts | 1 |
| Availability Zones | eu-central-1b | Cores | 36 |

CPU

82.8 GHz

Memory

512 GiB

Storage

10.37 TiB

VIEW DETAILS
OPEN VCENTER
ACTIONS ▾

VMCEXPERT3-02

Ready
Expires in 15 days

| | | | |
|--------------------|----------------|----------|----|
| Region | EU (Frankfurt) | Clusters | 1 |
| Type | VMC on AWS | Hosts | 1 |
| Availability Zones | eu-central-1b | Cores | 36 |

CPU

82.8 GHz

Memory

512 GiB

Storage

10.37 TiB

VIEW DETAILS
OPEN VCENTER
ACTIONS ▾

BACK TO TOP GO TO GRID VIEW

SUMMARY TAB

This tab displays the resource allocation of your VMware on AWS SDDC. It shows how many hosts (ESXi hypervisors) are in the SDDC along with the CPU, RAM, and Storage capacity of the SDDC.

From here, you can expand your SDDC by adding Hosts and/or Clusters to it. If allowed, you can also shrink the SDDC by removing one or more hosts. You can also configure elastic DRS, Activate Tanzu Services as well as enable the purchase of Microsoft Licenses for Microsoft OSes and Applications you intend to deploy in the SDDC.

2. Click the **Networking & Security** Tab

NETWORKING AND SECURITY

From here you can view the Networking & Security Dashboard. This dashboard allowing you only to view in Read-Only view information about VPN / Direct / Transit Connections, Management and Default Compute Gateways, inventory information about Cloud Provider.

To view and modify SDDC networking features you need to click Open NSX Manager button. In Window Open NSX Manager proceed further with clicking on button **ACCESS VIA THE INTERNET**. New browser tab will be opened, you need to wait till NSX Manager UI will be loaded (loading circle will spin - it will take up to 60 seconds).

- At Overview of Home tab you can see an overview network diagram of your SDDC.
- From **Networking** tab you can also perform the following:
 - Add additional **Tier-1 Gateways** and edit DHCP configuration on the **Tier-1** Compute Gateway
 - CRUD operations on Networks **Segments** for Applications running in your SDDC
 - Configure **VPN** from your SDDC to another endpoint such as your On-Premises environment or another SDDC
 - Configure **NAT**
 - Check inventory of Cloud Services: **Direct Connect, Transit Connect, Connected VPCs**
 - Request and manage **Public IPs** for workloads running in your SDDC
 - Configure **DNS** forwarders for the SDDC
 - Create and manage **Networking Profiles** for **Gateway QoS** and **DHCP** services
 - Change **Global Configuration** for Filtering and Route aggregation
- From **Security** tab you can also perform the following:
 - Define N/S Firewall policies on the **Gateway Firewalls** for Compute and Management workloads, as well as E/W Firewall policies using the **Distributed Firewall**
 - Configure NSX Advanced Security, such as **Distributed IDS/IPS, Layer-7 Firewall, and User Identity Firewall rules**
- From **Inventory** tab you can also perform the following:
 - Create or Edit custom User-defined **Groups** and **Services**
 - Create or Edit custom Context **Profiles** for NSX Advanced Security features
 - Review **Virtual Machines** in your SDDC Inventory
- From **Plan & Troubleshoot** tab you can also perform the following:
 - Configure Network troubleshooting tools (**IPFIX** and **Port Mirroring**)
 - Do **Traffic Analysis** operations using **Traceflow** utility or **Live Traffic Analysis**
- From **System** tab you can also perform the following:
 - Configure settings for **Identity Firewall AD**
 - View and edit **User Management** settings (Roles, Users and Authentication Providers)
 - Change settings of SSL **Certificates** of NSX Manager

3. Click the **Storage** tab to review external storage management in the VMC on AWS SDDC

The Storage tab is used to add customer-managed storage to an SDDC cluster. The Storage tab of the VMC Console gives you the tools you need to add, remove, and reconfigure mountable storage (file systems) like NFS.

4. Click **Elasticity** tab to view, and edit Elastic DRS profiles. for the SDDC Cluster(S). From here you can also create a Custom EDRS Policy for your Cluster(s)

You can manage the Elastic DRS policy for each SDDC cluster to optimize cluster scaling to meet your workloads' needs.

For any policy, scale-out is triggered when a cluster reaches the high threshold for any resource. Regardless of the policy you choose, the storage scale-out threshold cannot be set to greater than 80%. Scale-in is triggered only after all of the low thresholds have been reached.

5. Click the **Integrated Services** tab to review the additional services that can be added to your VMC on AWS SDDC

INTEGRATED SERVICES

These add-on services are used to extend the capabilities of the SDDC and provide solutions for specific Use Cases. The Add on services include:

- **VMware HCX** Allows the Migration of existing workloads to your SDDC
- **Site Recovery** Allows the protection and recovery of Workloads into your SDDC from on-premises, SDDC to On-Premises, or SDDC to SDDC
- **NSX Advanced Firewall** helps you secure your applications against an ever-expanding set of threats on the internet. Specifically, it includes a robust set of networking and security capabilities that enable customers to run production applications in the cloud.
- **VMware Aria Automation** Allows automated provisioning of workloads through a self-service service catalog. Also layers governance and policy management as part of the provisioning lifecycle.
- **VMware Aria Operations for Networks** provides end-to-end network visibility across VMware NSX, VMware SD-WAN, VMware Cloud, public cloud, and other multi-cloud deployments. Cloud, network, and security administrators can

use vRealize Network Insight Cloud to view usage details across all their clouds, both public and private

- **VMware Aria Operation** Enables you to perform real-time monitoring, optimize performance, manage cost and capacity, perform root-cause analysis, and measure configuration compliance of your workloads and SDDC infrastructure

6. Click the **Maintenance** Tab to view scheduled maintenance activities for your SDDC.

MAINTENANCE

VMware periodically schedules software maintenance for its services, including VMware Cloud on AWS. During maintenance, your workload VMs will remain online, but you won't be able to view or modify your vCenter Server and SDDC networking.

You can view the progress of ongoing maintenance by clicking on the Maintenance Tab.

7. Click the **Troubleshooting** tab to review the connectivity use case tests between On-Premises and the SDDC

TROUBLESHOOTING

Includes tests for connectivity and other use cases.

8. Click the **Settings** Tab to review the SDDC and vCenter Information

SETTINGS

This page displays information about SDDC settings, predefined user accounts, and SDDC access via the API and PowerCLI. These settings include:

- SDDC Management Appliance Size - Displays the size of management appliances in this SDDC. These sizes were specified when the SDDC was created.
- Default vCenter User Account - Displays the credentials for this pre-defined user. The password is generated when the SDDC is created. If you change it in vCenter, it does not get not updated on this page.
- vCenter FQDN - Shows the fully-qualified domain name and IP address of the vCenter in this SDDC


- vSphere Client - Provides the link to open the SDDC vCenter with the vSphere client
- vCenter API Explorer - Provides a link to open the API Explorer view of the SDDC and the VMC REST API
- PowerCLI Connect - The Command String can be used in PowerCLI to connect to the SDDC vCenter Server
- NSX Information - Includes NSX Manager URLs and Admin account credentials for NSX UI

9. Click the **Support** Tab to view support information about the SDDC.

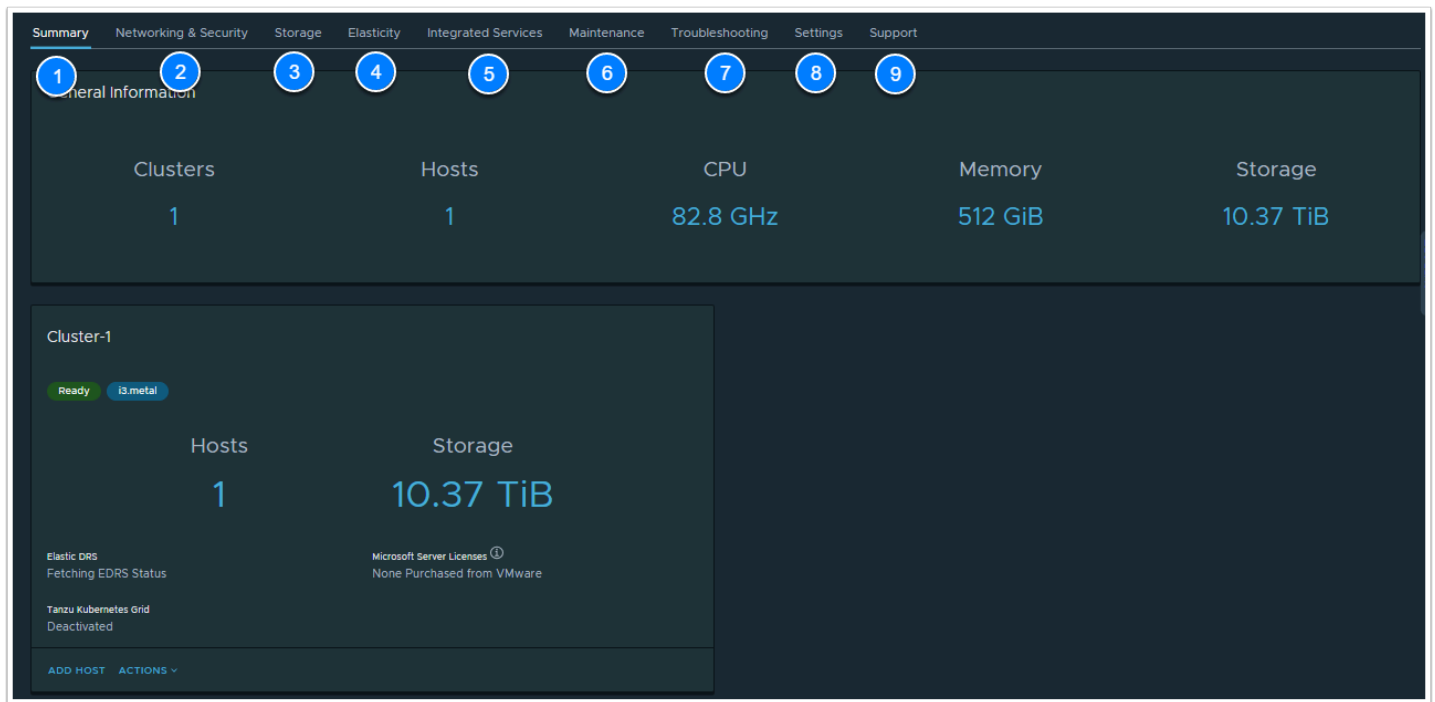
SUPPORT

This page displays information about your SDDC. You use the information in this tab when working with VMware Technical Support. The information includes:

- Org ID
- SDDC ID
- SDDC Version
- vCenter and NSX Manager IPs

 **NOTE:** Unless instructed to, only use the SDDC that matches your assigned Student number.

DO NOT add hosts or make other changes beyond those indicated in the lab steps or without your instructor's guidance.



Task 2 - Getting back to the SDDC

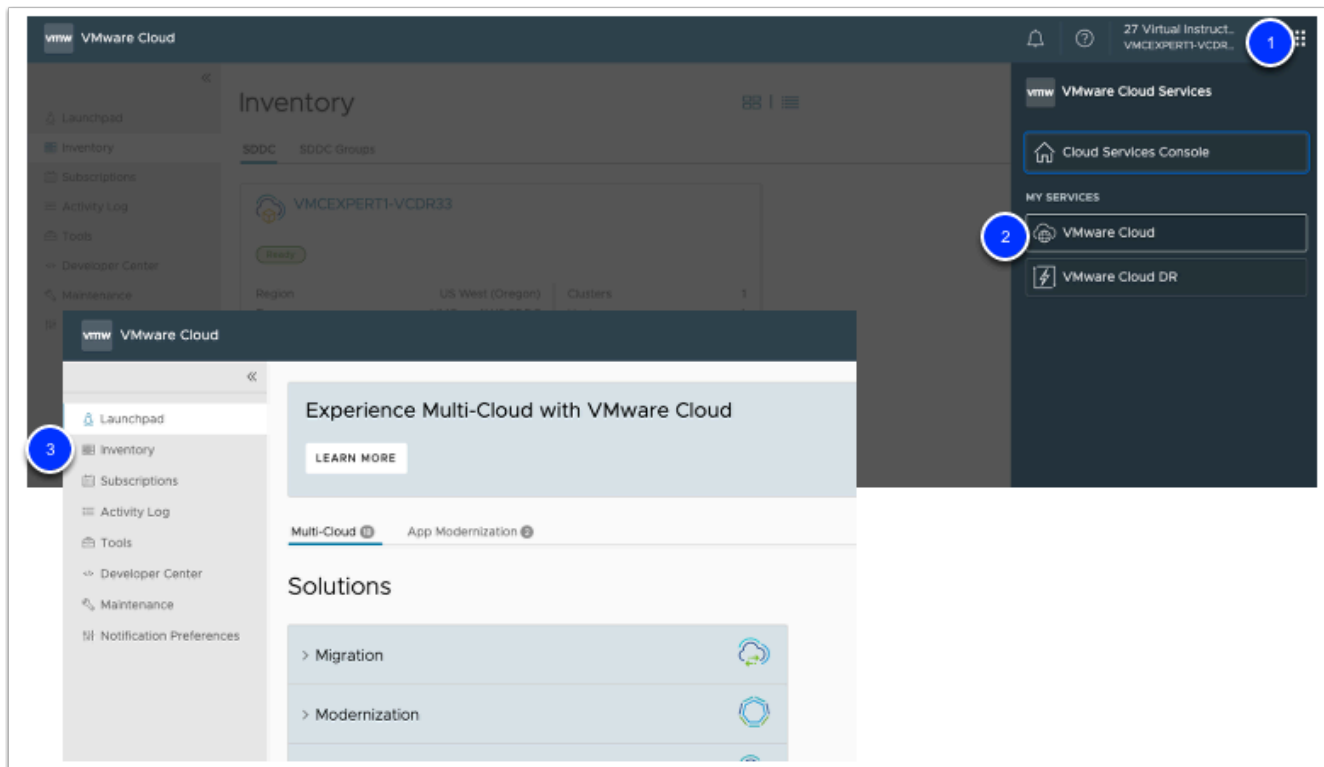
When you get automatically logged out and log back in, the interface may not take you back to the same screen you were before. There are two ways to get there:

Option 1:

1. In the Address bar, type:
 - vmc.vmware.com/console/sddcs

Option 2:

1. Click on the **waffle menu** (nine squares) in the upper right
2. Select **VMware Cloud**
3. Select **Inventory** in the menu on the left



Conclusion

The Single Host SDDC starter configuration is appropriate for test and development or proof of concept use cases. However, you can easily scale the number of hosts within 60 days to a 2 or more host SDDC. Do not run production workloads on a single host SDDC. You can however start to prove the value of VMware Cloud on AWS with a single host.