Welcome to PowerCLI Session

Self - Introductory

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Working as Consultant for Virtualization Projects at Optimum Solutions, Singapore.

Earlier companies : Thomson Reuters, PayPal, Hanover Insurance (USA)

Session I Overview

Overview

PowerShell Commands

vSphere Components

PowerCLI Basics…

Demo - PowerCli Commands

Scenario discussions – Repetitive tasks

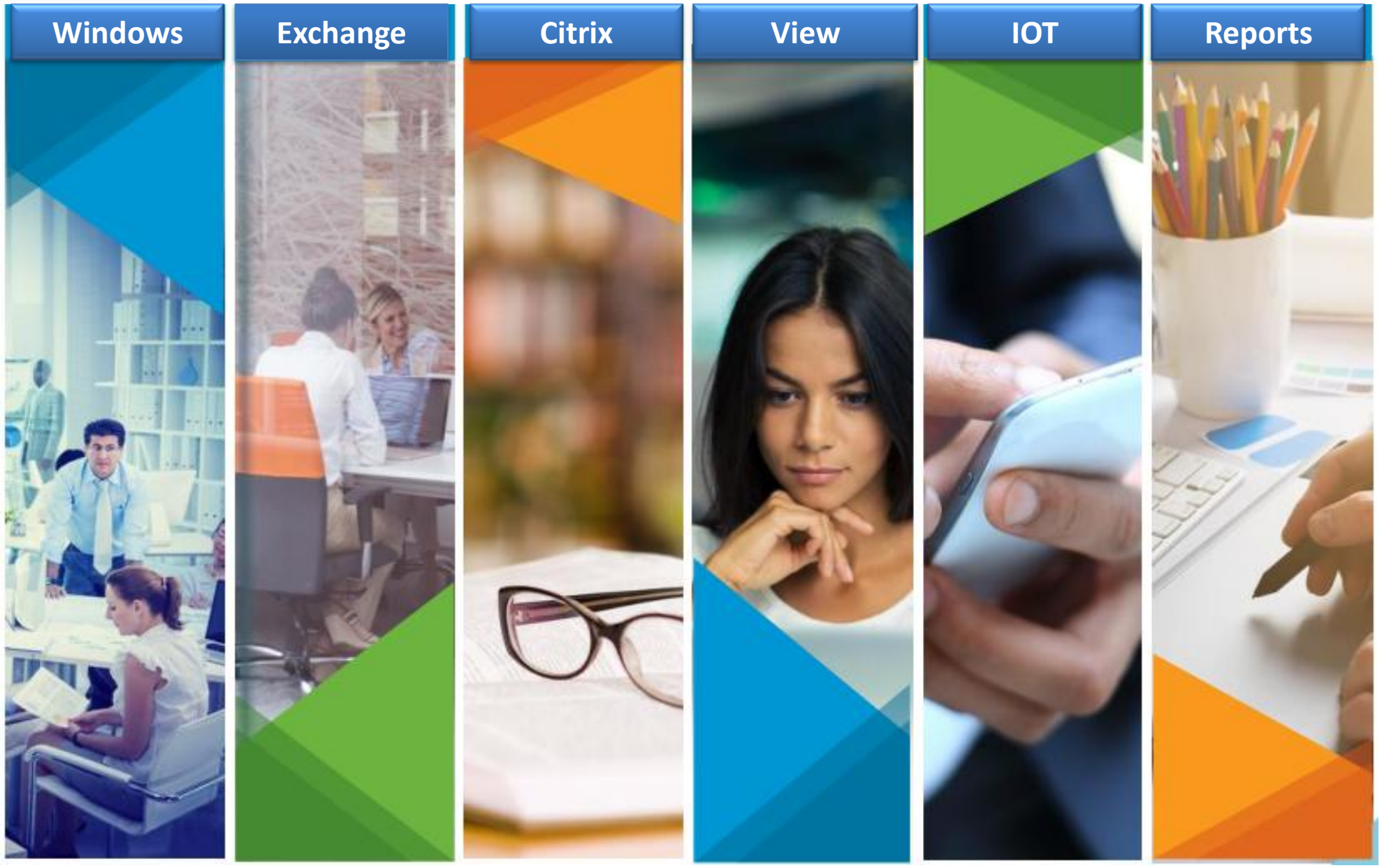
Session Summary

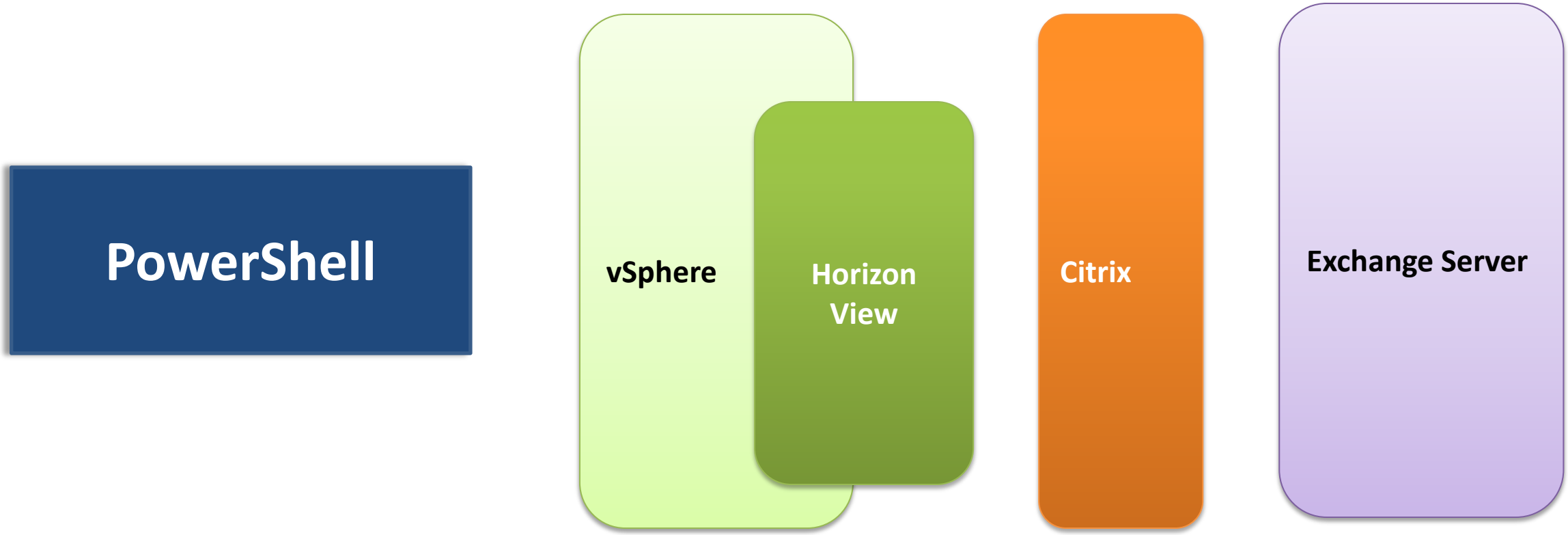
- Why Learn PowerCli / PowerShell?
- PowerShell Compatibility with non-Microsoft products.
- Which Infrastructure Phase I can use PowerCLI?
- vCenter tasks discussions and Demo
- Create GUI - discussion

PowerCli – Why?

- Perform the same tasks day in, day out
- Checklist each morning
- Performance tasks on mass
- Export vCenter information
- Remember and maintain multiple skills

Power Shell




PowerShell
vSphere
Horizon View
Citrix
Exchange Server

Which Phase?

- **Different Phases of IT Infrastructure**
  - **Implementation**
  - **System Administration**
  - **Report generation**

Session Overview

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PowerCLI Commands

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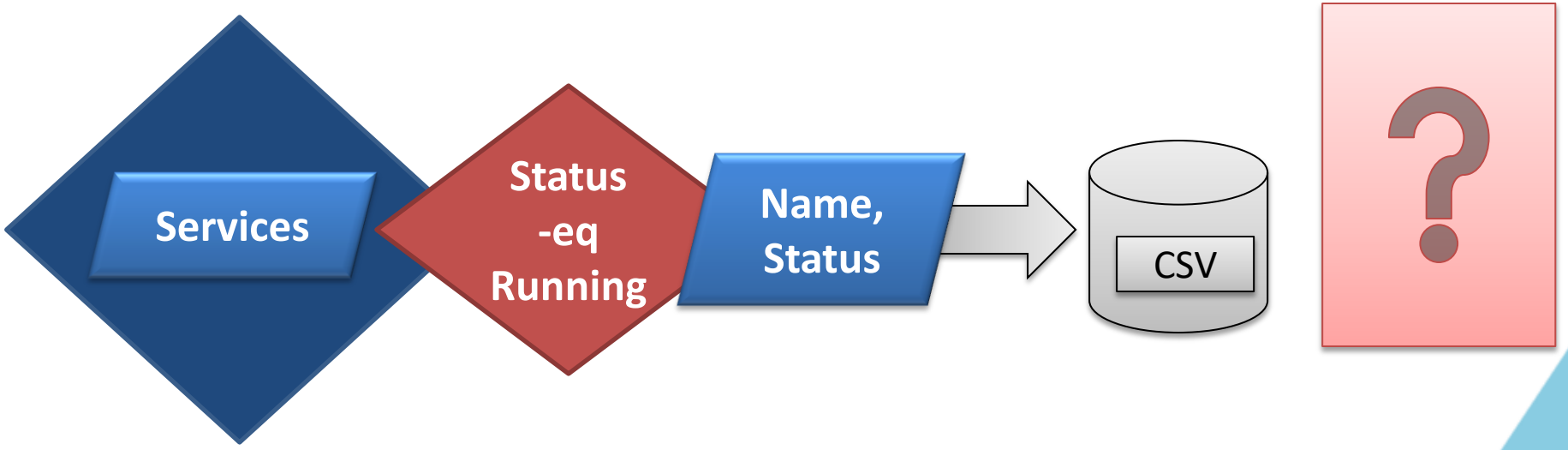
PowerShell – review

- **Get**
- **Select , |, $_ , Variable**
- **Where-Object**
- **Export-CSV**

Discussion points: Variables, $_. Pipe (|), Foreach..

- Obtain the Windows Patch information of all the Windows Servers?
- Get the Windows Patches installed in last two days?
- **Get the windows Services as status running?**
- Local Admin users, Services, Roles and Features, Registry keys, Validate particular registry keys exists on all windows servers? Etc..
- Get-content, write-host,

Get the windows Services as status running only!?



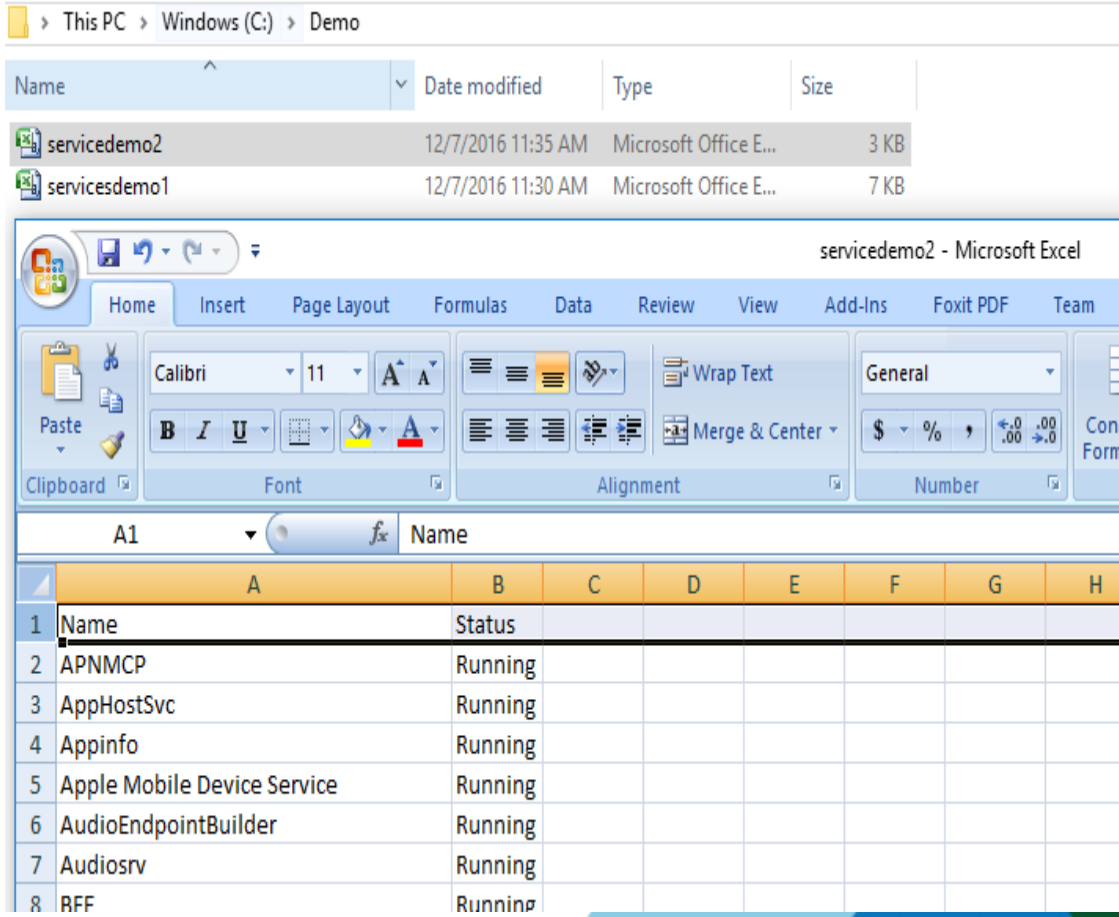

```
Get-service |  where-Object  {$_.Status -eq 'Running'} |
select Name, Status | Export-Csv C:\Demo\Servicedemo.csv
```

Demo

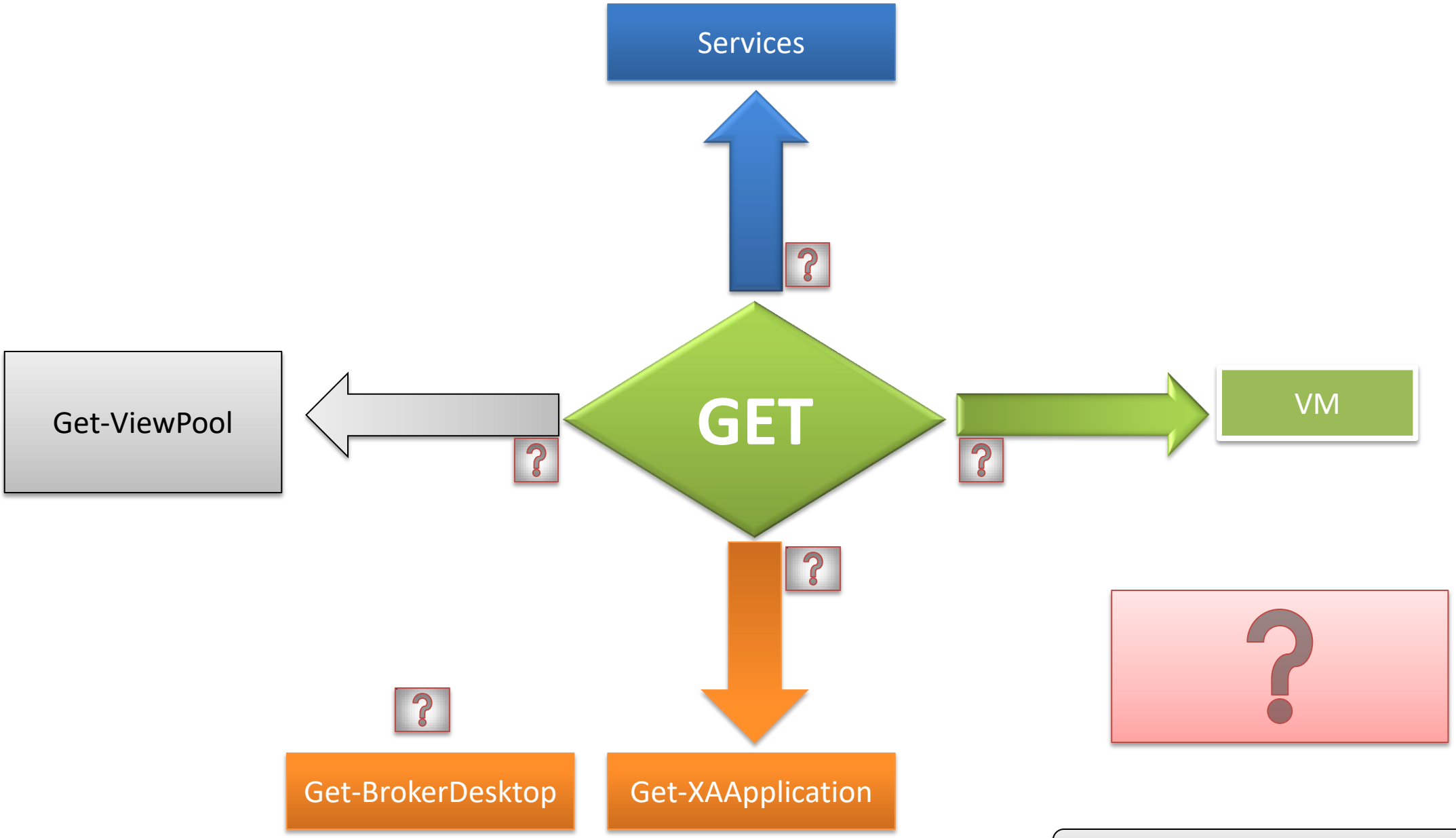
Simple Commands…

- **Get : Get-Service**
- **Get-Service | Select Name, Status**
- **Get-Service | Select Name, Status | Export-CSV C:\Demo\Servicedemo1.csv**
- **Where-Object**

```
Get-service | where-Object {$_.Status -eq 'Running'} | select name, status |
  export-csv c:\Demo\servicedemo2.csv
```



Identify the Product



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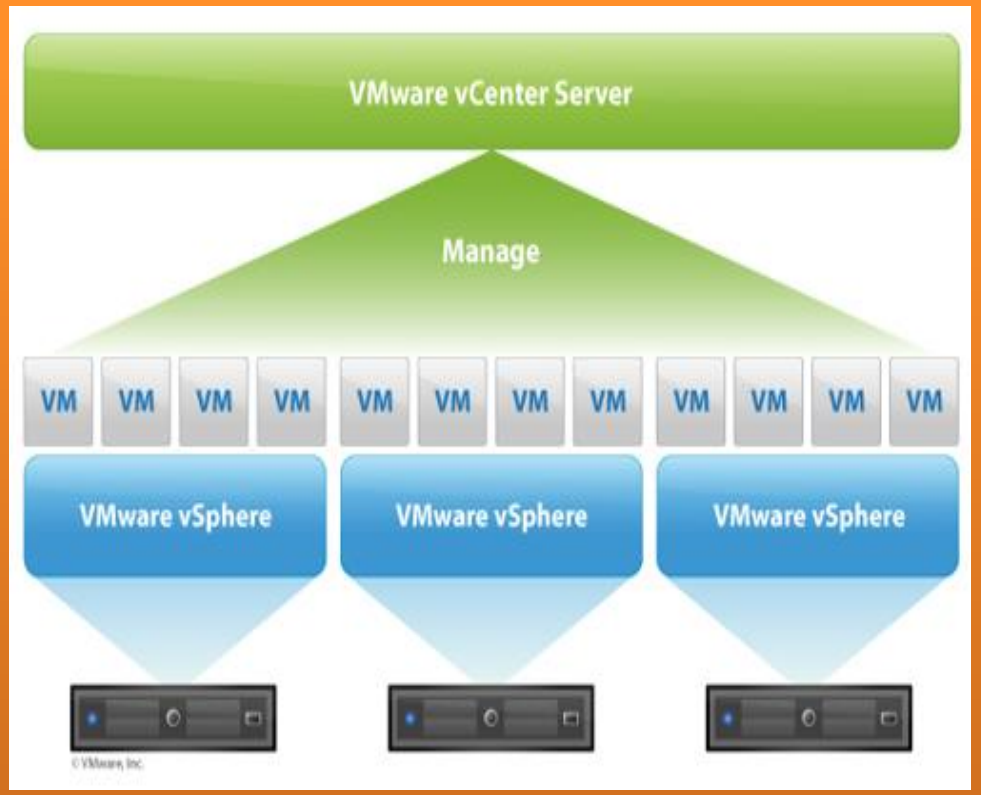
vSphere (vCenter) Components



- Data-Center
- Cluster
- Host
- VM [Virtual Machine]
- vSwitch
- Datastore

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PowerCLI – Which phase I can use?

- **Implementation**
  - vSphere, vCenter Server, Cloud director, VMware View, Update Manager, SRM
- **System Administration**
- **Report generation**

Implementation

- Add-Datacenter
- Add- Cluster
- Add Host
- Create Switch
- Create VM

System Administration

- **System Administration**
  - Deploy VM
  - Configure DNS / NTP / CD drives status
  - Rescan HBA / vmfs
  - VMs – Vmotion
  - New virtual Switch Creation

Reports

- Get- Data
- Interpret
- Format (filter)
- Export

PowerCli - Tasks - Demo

- **Connect to vCenter**

  - **Create Datacenter**
  - **Create Cluster**
  - **Add Host into Cluster**
  - **Configure Host – DNS, NTP..**
  - **Create VMs**
  - **Create Snapshot**
  - **Create Template**
  - **Create VMs using Template**
  - **Create vSwitch**

PowerCli - Tasks - Demo

- **Connect to vCenter**

  - **Configure DNS**
  - **Configure NTP**
  - **Modify Network policy**
  - **vSphere Role and Assign Permissions to a User**
  - **vCenter Server Email Configuration**
  - **Esxtop to Get Information on the Virtual CPUs**

  - **ADD datastore**
  - **Vmotion**

PowerCli - Tasks - Demo

VM tasks

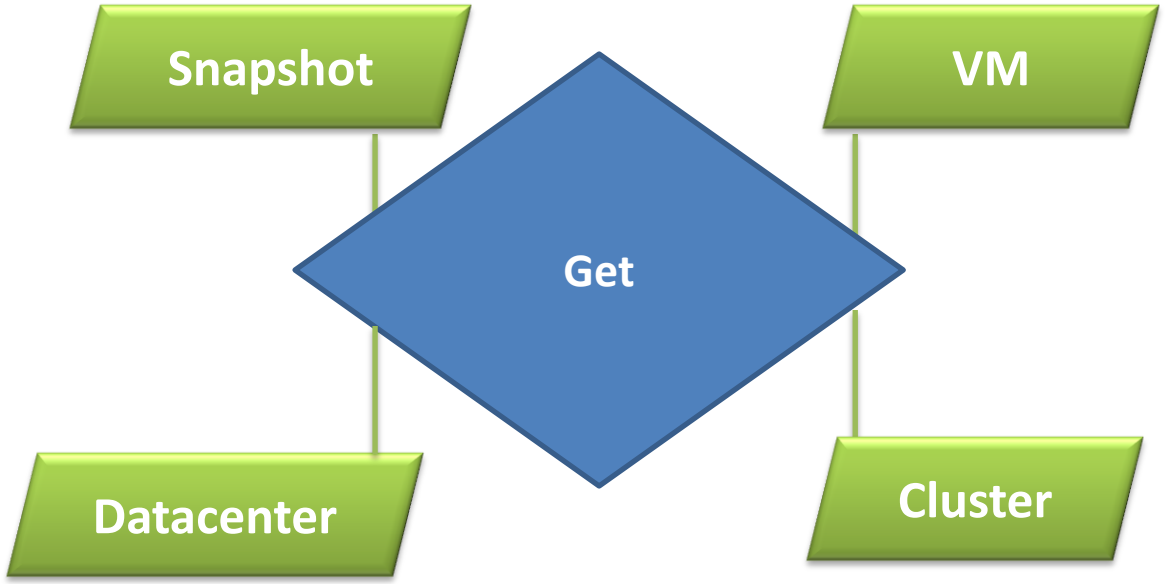
- $vms = Get-vm -- Get VM
- $vms.length -- Count VM
- $vms | get-vmhost | fl -- Get Host details of VM
- $vms[0].length | fl -- First VMs detail information
- Get-Vmhost –name esxio1 | Get-VM
- Get-cluster | Get-VM

- Get-VM | Get-CDDrive
- Get-VM | Get-Harddisk
- Get-VM –Name VM1
- Set-VM –VM “vm1” - Memorygb 4
- Stop-VM VM

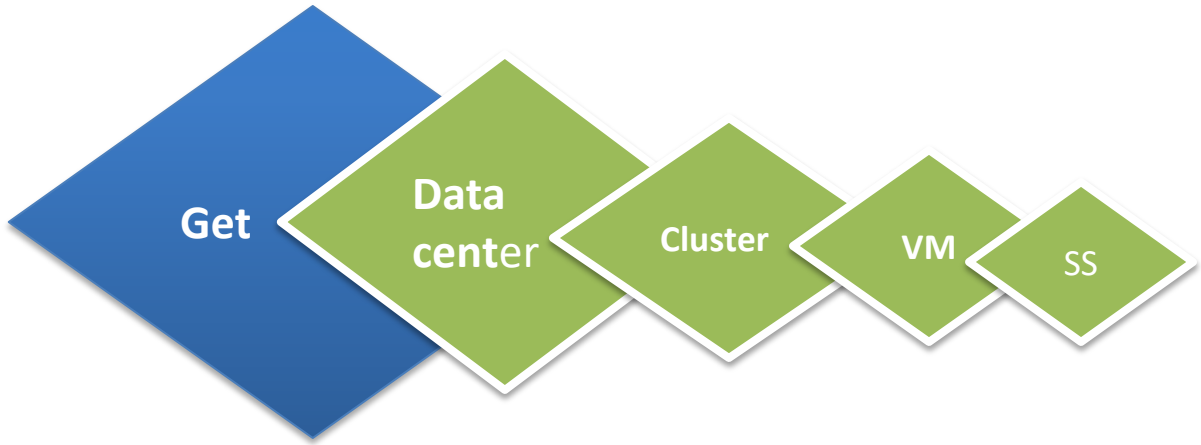
PowerCli - Tasks - Demo

Host tasks

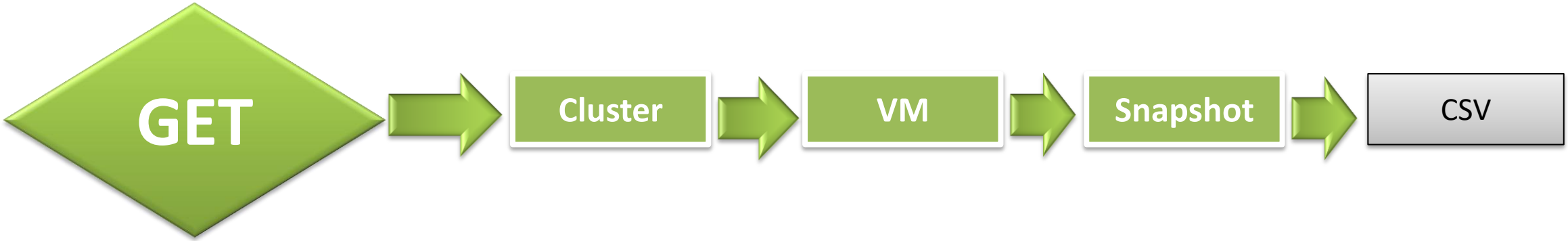
- **Host License**
- Set-VMHost -VMHost $vmhost -LicenseKey Your_license_key
- Set-VMHost -VMHost $vmhost -LicenseKey 00000-00000-00000-00000-00000
- **Host to maintenance mode:**
- $vmhost = Get-VMHost -Name Host
- $vmhostCluster = Get-Cluster -VMHost $vmhost
- $updateHostTask = Set-VMHost -VMHost $vmhost -State "Maintenance" -RunAsync


Snapshot
VM
Get
Datacenter
Cluster

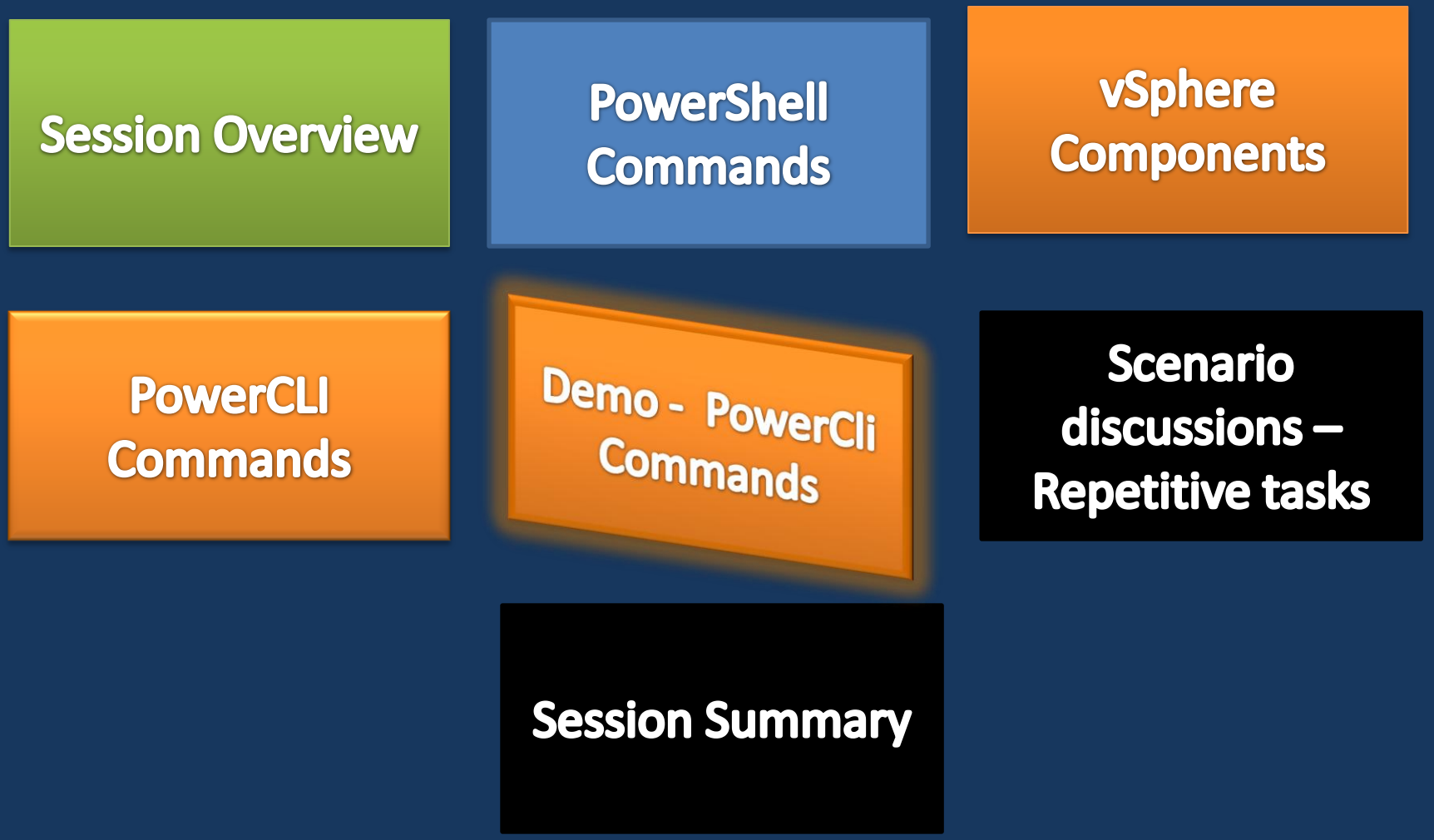
Difference


Get
Data center
Cluster
VM
SS

Get snapshot details of VMs




```
Get-Cluster | Get-VM | Get-snapshot | Export-csv c:\temp\snapshots.csv
```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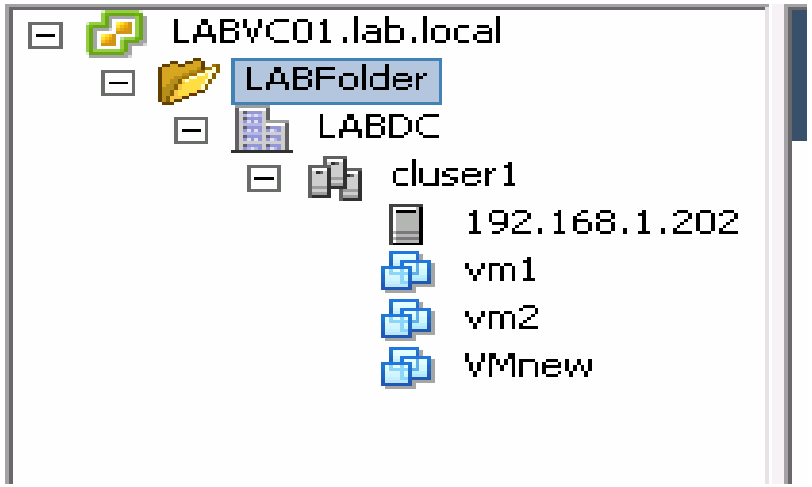
```
#---Connect to vCenter

Connect-VIServer 192.168.1.210 -User lab\selva -Password Password

#-- Create New DataCenter

$folder = get-folder -NoRecursion | New-Folder -name LABFolder

#--- Create new Datacenter

New-Datacenter -Location $folder -Name LABDC

$dc = Get-Datacenter

# ----Create Cluster with fully automated DRS eabed

New-Cluster -Location labdc -Name cluser1 -DrsEnabled -DrsAutomationLevel
FullyAutomated

# HA - SESSION II AFFINITY / ANTI AFF HOST ASSIGNMENT

#--- Add host

$cluster = Get-Cluster

Add-VMHost -Name 192.168.1.202 -Location $cluster -User root -Password Selva@177 -
Force

$host1 = Get-VMHost

#---- Create VMs
$vmt = New-VM -Name vm1 -VMHost $host1 -DiskGB 1 -MemoryGB 1 -RunAsync
$vmt = New-VM -Name vm2 -VMHost $host1 -DiskGB 1 -MemoryGB 1 -RunAsync
```

Demo

Implement Virtual Infrastructure using PowerCLI – vCenter objects



vSphere Build Script

- Add-PSSnapin vmware.VimAutomation.core
- Connect-VIServer 10.23.189.23 - **Add Host to be configured**
- $Iscsinics = “vmnic2“,“vmnic3“ - **Assign Nics for each port group**
- $vmotionnics = "vmnic4","vmnic5“ -
- $vdnetnics = "vmnic6","vmnic7"
- $iscsia="10.23.190.188“ - **ISCSCI – Storage IP**
- $iscsib="10.23.190.189"
- $iscsisw1 = "24“ - **Define number of ports**
- $vmotisw2 = "120"
- $vdtpgsw3 = "248“
- $ISCSISubnet = “255.255.255.128“

❖ Switch Creation

- New-VirtualSwitch -VMHost $host1 -Name “vSwitch1“ -NumPorts $iscsisw1 -Nic $Iscsinics
- New-VirtualSwitch -VMHost $host1 -Name “vSwitch2" -NumPorts $vmotisw2 -Nic $vmotionnics
- New-VirtualSwitch -VMHost $host1 -Name “vSwitch3“ -NumPorts $vdtpgsw3 -Nic $vdnetnics
- Set-VMHostNetwork -HostName “host1.abcd.domain.com" -DomainName “abcd.domain.com“

❖ Storage adapters

- New-VMHostNetworkAdapter -PortGroup “iSCSI-A" -VirtualSwitch "vSwitch1" -ip $iscsia -SubnetMask $VMotionSubnet
- get-virtualportgroup -name "HKGR-iSCSI-A"| Get-NicTeamingPolicy | Set-NicTeamingPolicy -**MakeNicActive** "vmnic2" -**MakeNicUnused** "vmnic3"

❖ Domain name configuration

- $vmhostnetworkinfo = Get-VMHostNetwork
- Set-VMHostNetwork -Network $vmhostnetworkinfo -DomainName “domo.domain1.com" -HostName “Exi-001" -DnsFromDhcp $false -SearchDomain “

❖ DNS Settings

- $dns1 = "10.29.128.9"
- $dns2 = "10.29.192.5"
- Set-VMHostNetwork -Network $vmhostnetworkinfo -DnsAddress $dns1,$dns2

❖ NTP Settings for HOST

- Add-VmHostNtpServer -NtpServer 10.29.128.4, 10.29.128.5, 10.29.192.4, 10.29.128.45
- Get-VmHostService -VMHost $host1 | Where-Object {$_.key -eq “ntpd“} |Start-VMHostService
- Get-VMHostService | where { $_.key -eq "ntpd" } | Set-VMHostService -Policy on

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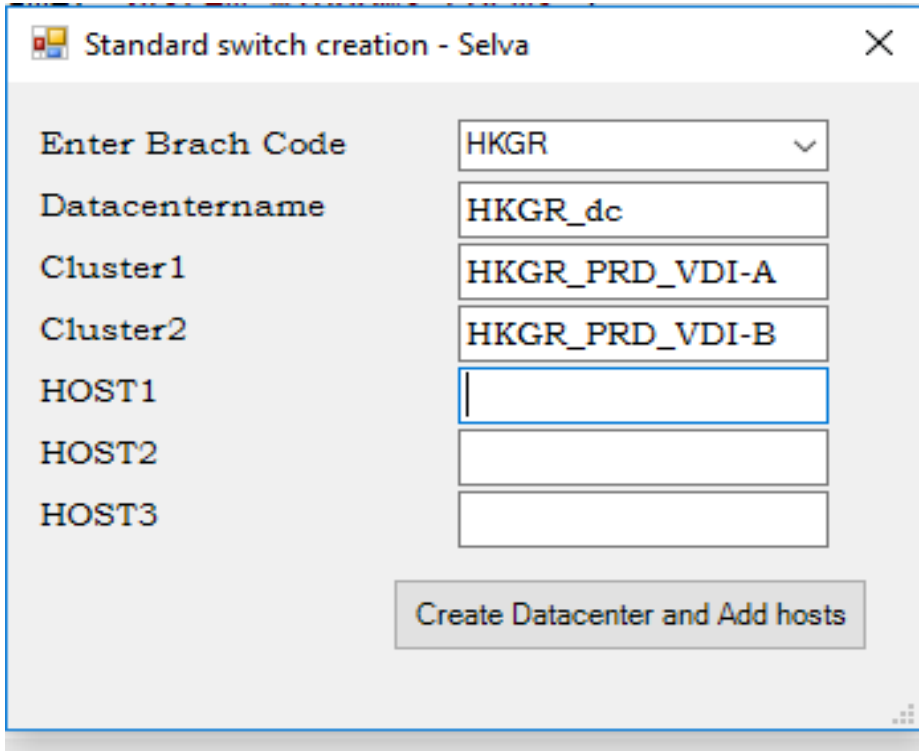
Scenario

- Implement 6 different vSphere environment different in different regions
  - Singapore, Hong kong, UK, india (2) with development with DR environment at UK.

    Each environment
    - Number of Hosts : 30
      - (Each host) Number of Virtual Switches – 04
    - Number of Clusters : 05
    - Number of VMs : 500 (With 10 different templates)
- VM Snapshots
  - 2000 – VM Sessions (including Servers and desktops) Generate a report of VMs having snapshots.
- vSphere Hardening
  - vCenter Hardening
  - Host hardening - 40 ESXi servers security configuration
  - Widnows Operating system hardening

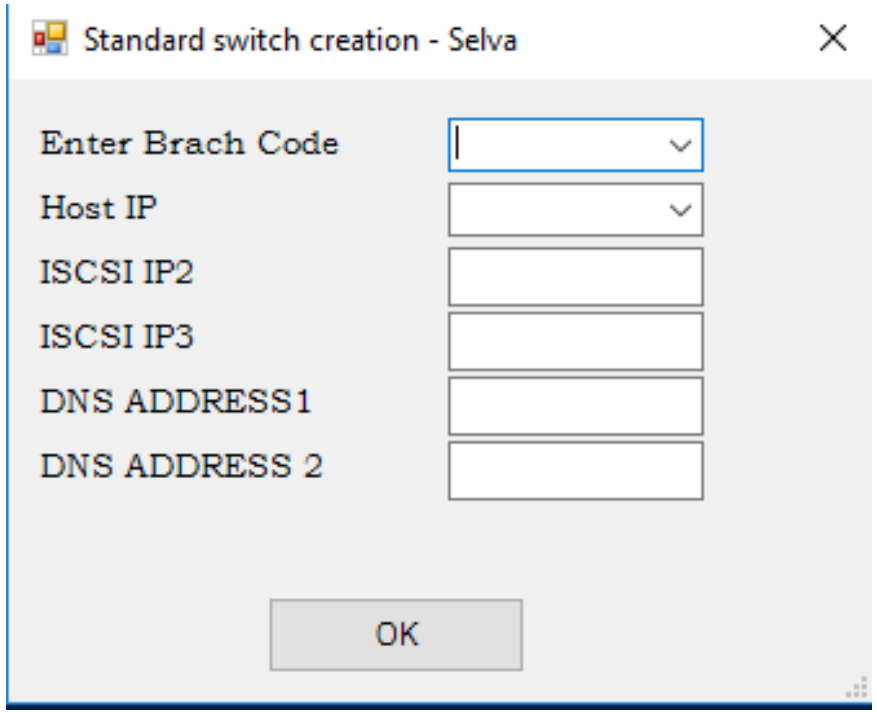
Solutions

Create Datacenter, Cluster and Host-Add



Solutions

Confiugre DNS, NTP etc



Solutions

View Pool users Report

DEMO – Programs outpur

Session II

- Standard and Distributed Switch configuration
- DRS and HA with advanced settings
- Statistics - performance analyze
- Linked Clone VMs
- Storage
- GUI development for Daily operations

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