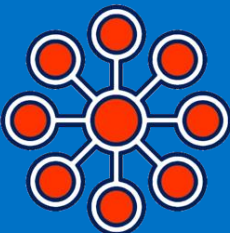


Software Defined

EIC Inspiration – 21 september 2016

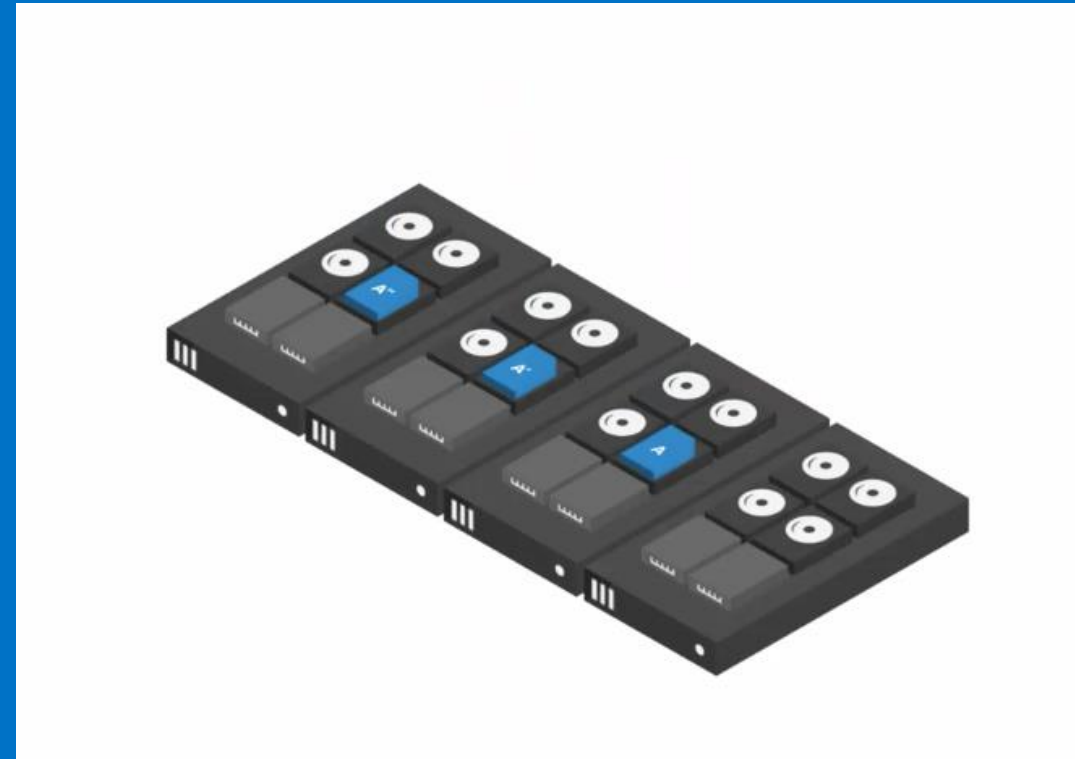
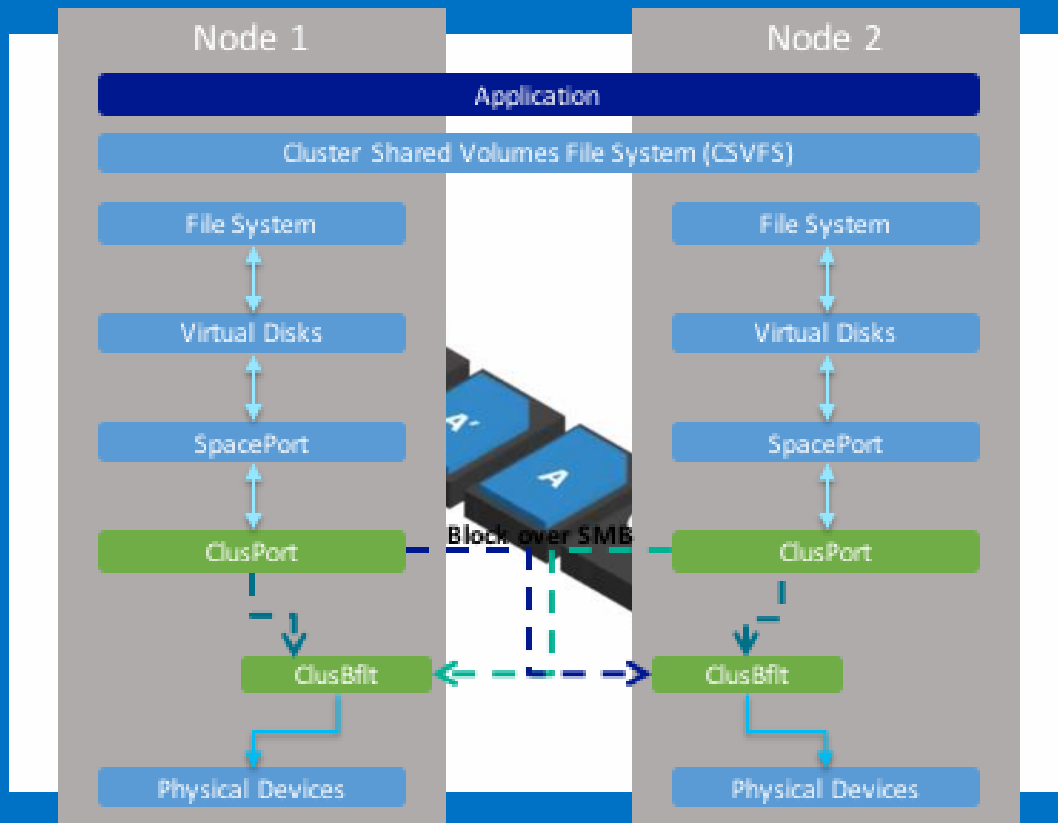
Erik Luth - Inframaster



Agenda

- Software Defined Storage
- Software Defined Networking

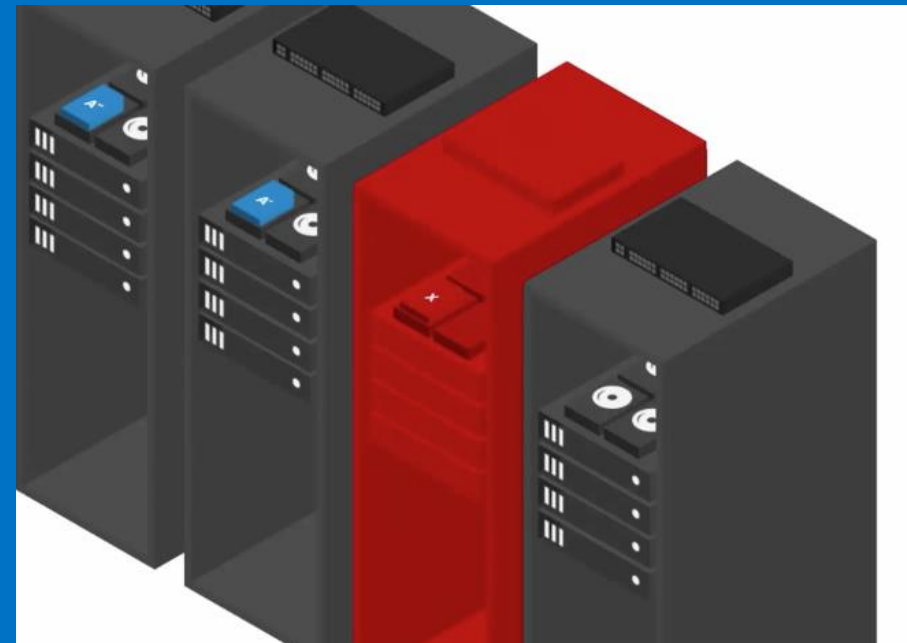
Storage Spaces Direct



New Things

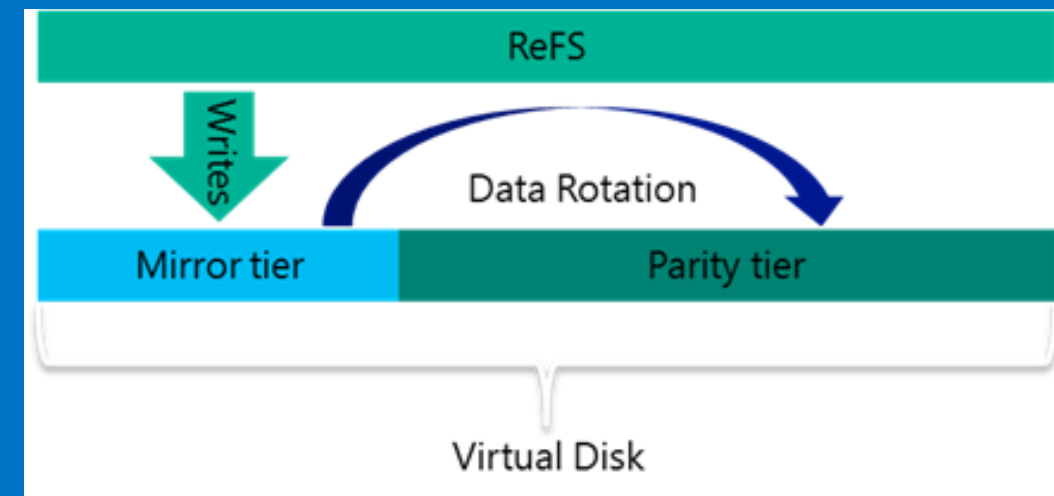
- 3-16 Nodes
- Enable-ClusterS2D
- Multi Resilient Volumes
- Set-ClusterFaultDomain

```
<Topology>
  <Rack Name="A01" Location="Contoso HQ, Room 4010, Aisle A, Rack 01">
    <Chassis Name="Chassis01" Location="Rack Unit 2 (Upper)" >
      <Node Name="Server01" Location="Left" />
      <Node Name="Server02" Location="Right" />
    </Chassis>
    <Chassis Name="Chassis02" Location="Rack Unit 6 (Lower)" >
      <Node Name="Server03" Location="Left" />
      <Node Name="Server04" Location="Right" />
    </Chassis>
  </Rack>
</Topology>
```



Cache en Tiers

- Onafhankelijk Cache
- MRV SSD+HDD | NVMe+HDD | NVMe+SSD | SSD+SSD | NVMe+SSD+HDD
- RealTime Tiering



Network Fabric

- SMB Direct

RDMA (RoCE/iWARP/IB)

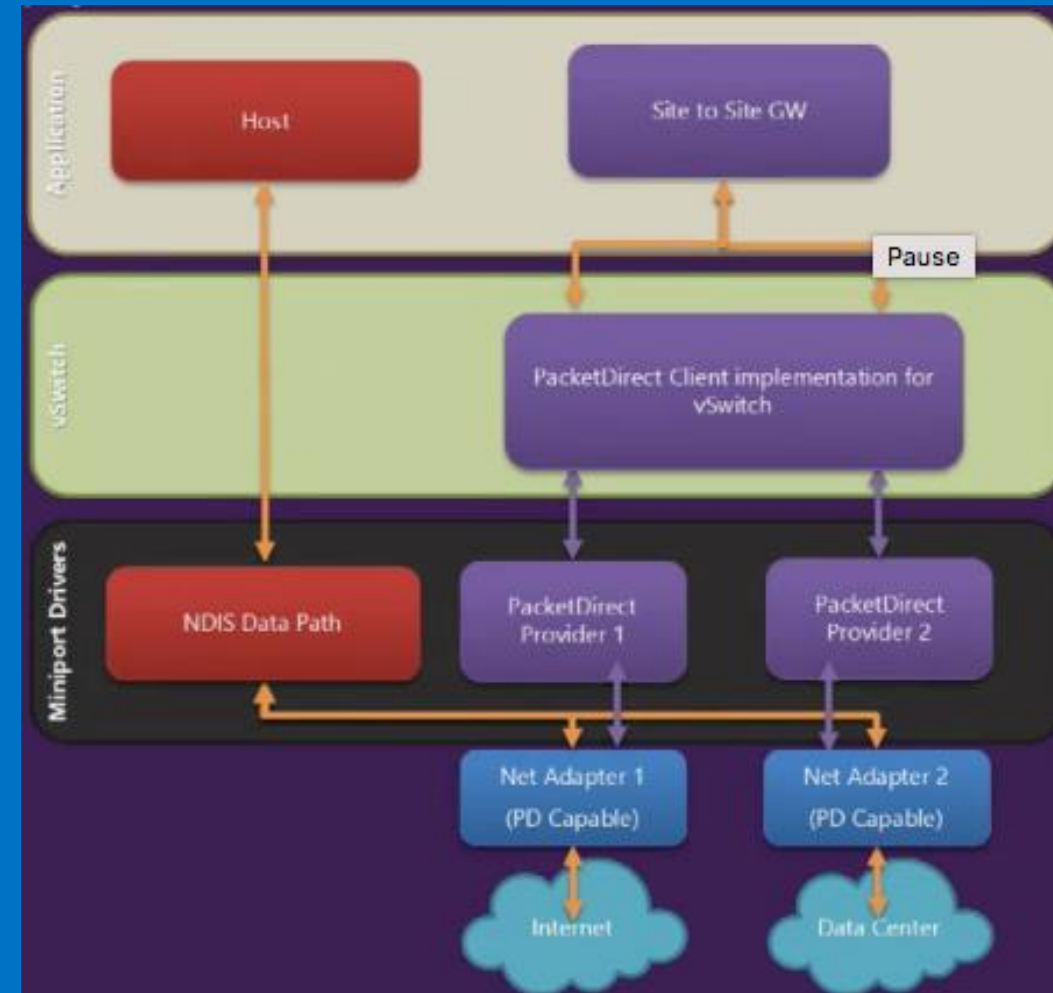
- SMB MultiChannel

Enkel subnet (nieuw in 2016)

PacketDirect

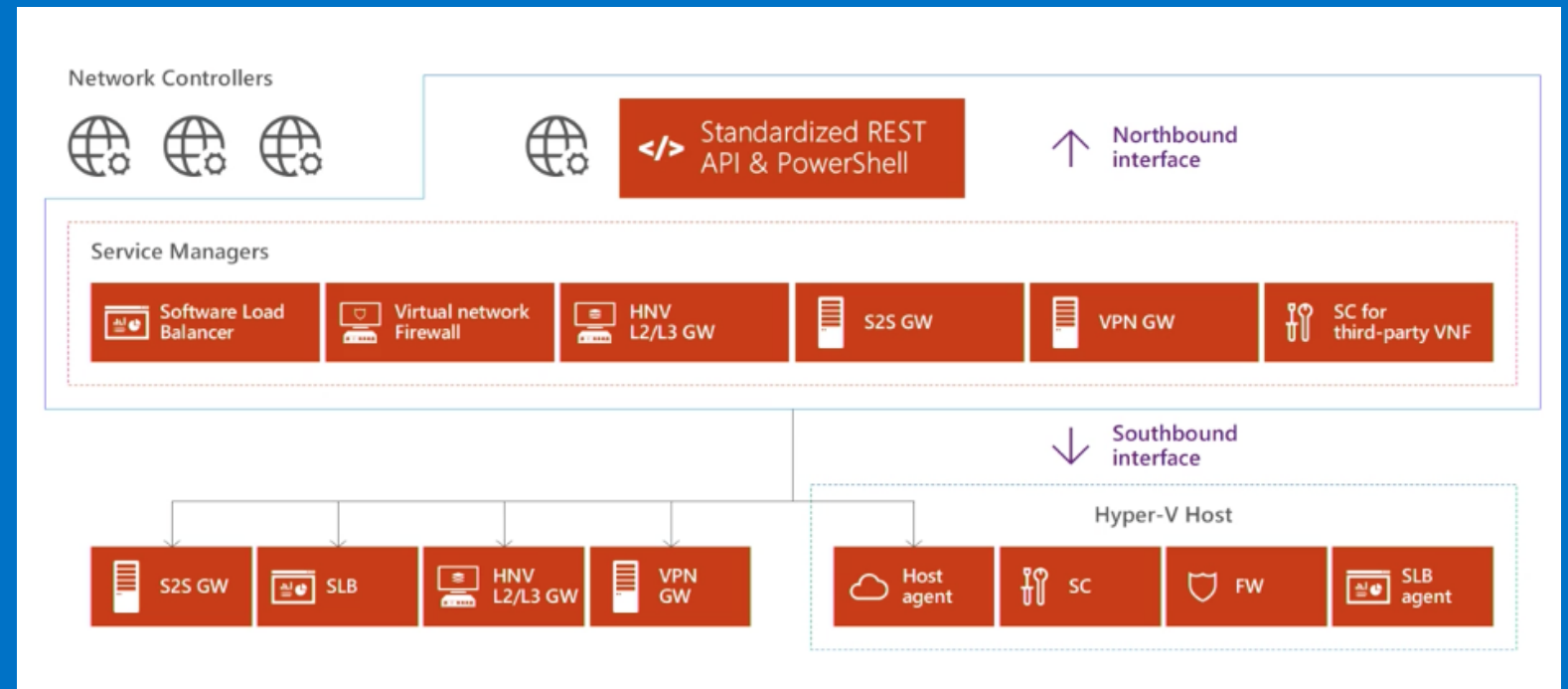
- MiniPort Driver
- PD Clients only
- Polling ipv Interrupting

Order of magnitude increase in simple forwarding (~1 million pps v ~12 million pps)



Network Functions

- NFV > VNF
- Management via Network Controller



Direct Server Return

ClientVM: <https://portal.azurestack.local>

ADVM > 192.168.133.74

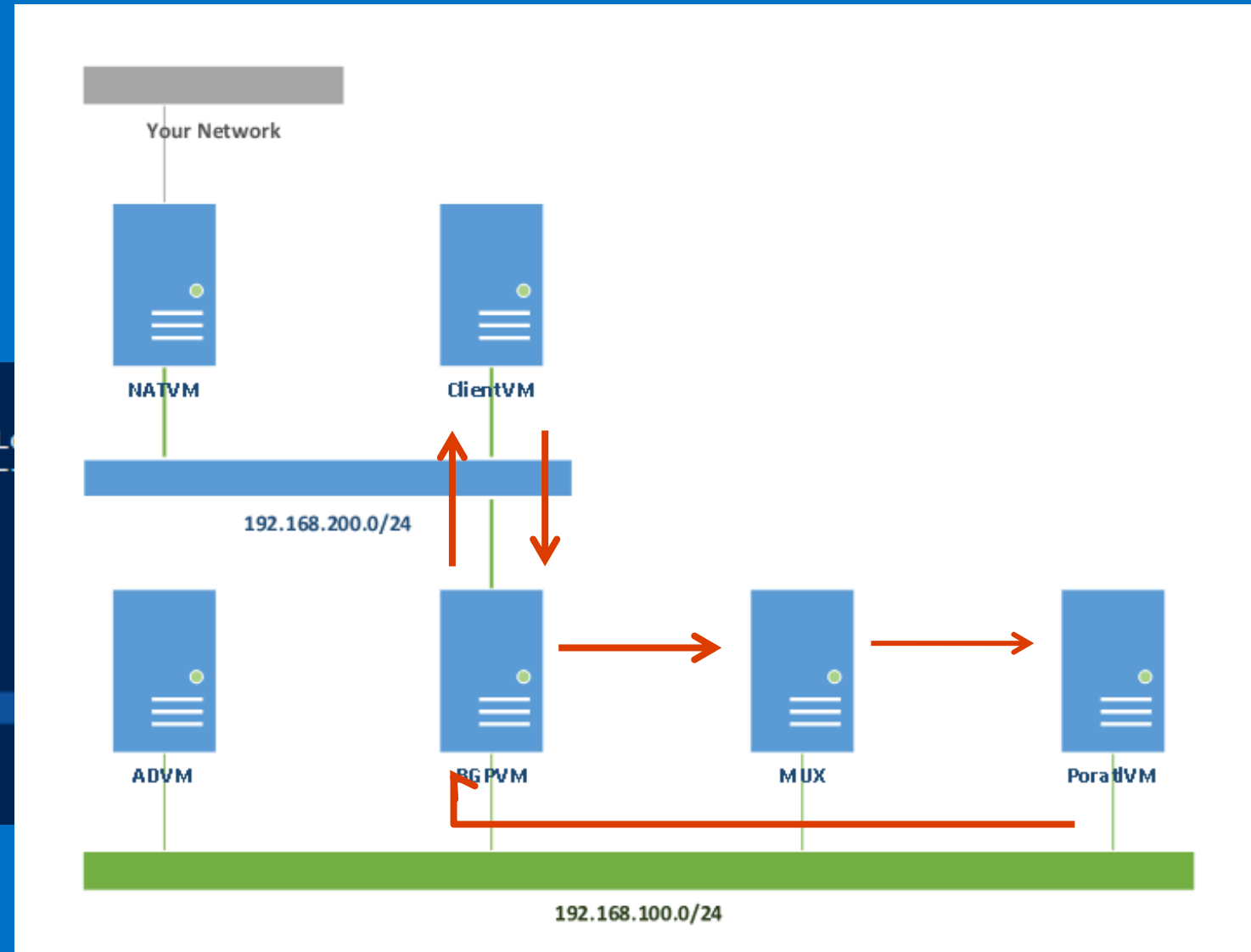
DefaultGateway = BGPVM

BGPVM: Route > MuxVM

MuxVM: VIP > DIP

PortalVM response

DSR (bypass MUXVM)



```
PS C:\Users\Administrator> Get-BgpRouteInformation
DestinationNetwork NextHop LearnedFromPeer State L
-----
192.168.133.20/32 192.168.100.5 Mux.poc.local Best
192.168.133.21/32 192.168.100.5 Mux.poc.local Best
192.168.133.24/32 192.168.100.5 Mux.poc.local Best
192.168.133.31/32 192.168.100.5 Mux.poc.local Best
192.168.133.32/32 192.168.100.5 Mux.poc.local Best
192.168.133.71/32 192.168.100.5 Mux.poc.local Best
192.168.133.72/32 192.168.100.5 Mux.poc.local Best
192.168.133.74/32 192.168.100.5 Mux.poc.local Best
192.168.133.75/32 192.168.100.5 Mux.poc.local Best
192.168.133.91/32 192.168.100.5 Mux.poc.local Best
192.168.133.92/32 192.168.100.5 Mux.poc.local Best
```

Inspired ?

Zelf doen!

Deploy S2D on One Single Machine (Larry Zhang)

<https://github.com/ostrich75/s2d-lab>

PowerShell script snel en eenvoudig een virtueel S2D cluster te bouwen!

Deploy S2D in Azure – DEV only! (Claus Joergensen)

<https://blogs.technet.microsoft.com/filecab/2016/05/05/s2dazuretp5/>

Deploy SDNv2 using VMM (Larry Zhang)

<https://blogs.technet.microsoft.com/larryexchange/2016/05/30/step-by-step-for-deploying-a-sdnv2-using-vmm-part-1/>

<https://blogs.technet.microsoft.com/larryexchange/2016/05/30/step-by-step-for-deploying-a-sdnv2-using-vmm-part-2/>

<https://blogs.technet.microsoft.com/larryexchange/2016/05/31/step-by-step-for-deploying-a-sdnv2-using-vmm-part-3/>

<https://blogs.technet.microsoft.com/larryexchange/2016/06/01/step-by-step-for-deploying-a-sdnv2-using-vmm-part-4/>


```
1 Get-NetworkControllerCluster -ComputerName ncvms
2 $Uri = "https://ncvm.azurestack.local"
3
4 $lnw = Get-NetworkControllerLogicalNetwork -ConnectionUri $Uri
5 $lnw
6 $lnw.properties.subnets.properties | ft VlanID, AddressPrefix
```

VlanID	AddressPrefix
1001	192.168.100.0/24
1002	192.168.200.0/24
1001	192.168.133.0/24