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Phenomenal Power: Automating Dell EMC vSAN Ready Nodes



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Dell EMC vSAN Ready Nodes have Identity Modules that act at the lowest level of a node and imbues a host with special features and characteristics. In this blog, we explore how to use the attributes of the Identity Module to automate tasks in a vSphere environment.

Let's start out by identifying all the Dell EMC vSAN Ready Nodes in our

is a plug-in for Microsoft PowerShell.

Note: We could also easily do this using other tools for vSphere such as Python (with pyVmomi), Ansible, and many others.

The environment we are using is a small environment using three Dell EMC vSAN Ready Nodes R740 with identity modules. All three nodes are running ESXi 7.0 U2 (vSAN 7.0 Update 2). VMware vSAN is using an all flash configuration. The code we are discussing in this post should work across current Dell EMC vSAN Ready Nodes and current vSphere releases.

The code displayed below may seem trivial, but you can use it as a base to create powerful scripts! This unlocks many automation capabilities for organizations. It also moves them further along in their autonomous operations journey. If you're not familiar with autonomous operations, read this white paper (<https://infohub.delltechnologies.com/t/an-introduction-to-the-autonomous-framework-by-dell-technologies/>) to see where your organization is with automation. After reading it, also consider where you want your organization to go.

We're not going to cover many of the things necessary to build and run these scripts, like connecting to a vSphere environment. There are many great blogs that cover these details, and we want to focus on the code for Dell EMC vSAN Ready Nodes.

In this first code block, we start by finding all the Dell EMC vSAN Ready Nodes in our environment. We use a ForEach-Object loop to do this.

```
        echo "Model: " $_.ExtensionData.hardware.systemInfo.model
        echo "Service Tag: " $_.ExtensionData.hardware.systemInfo.serialNumber
    }
    echo "BIOS version: " $_.ExtensionData.hardware.biosInfo.biosVersion
}
echo "ESXi build: " $_.ExtensionData.config.product.build
}
```

This code snippet assumes we have connected to a vSphere environment with the Connect-VIServer command. It then creates a view of all the hosts in the environment using the Get-VMhost command, the results of which are passed to the ForEach-Object loop using the | (pipe) symbol. We then loop through this view of hosts using a ForEach-Object command and look at the hardware.systemInfo.model property of each host. The object of focus, one of the discovered hosts, is represented by the \$_ variable, and to access the properties of the host object, we use the ExtensionData property. We check each host with a conditional method, .contains(), added on to the end of the property we want to check. Using the .contains method, we check if the hardware.systemInfo.model contains "vSAN Ready Node". This string is a property that is unique to Dell EMC vSAN Ready Nodes and the Identity Module. It's set at the factory when the Identity Module is installed.

If the system is a Dell EMC vSAN Ready Node with an Identity Module, we then display information from the hardware.systemInfo and the hardware.biosInfo, specifically the system's BIOS version. We also collect the vSphere build of the host using the config.product property of the host.

As we loop through each host, we only display these details for the Dell EMC vSAN Ready Nodes in the environment that have Identity Modules. This results in output similar to the following:

The remainder of the nodes are excluded from the output shown here:

```

Service Tag:
[redacted]
BIOS version:
  2.1.12
ESXi build:
18538813

```

This provides relevant information that we can use to create automated reports about our environment. You can also use the script as the basis for larger automation projects. For example, when a new Dell EMC vSAN Ready node is added to an environment, a script could detect that addition, perform a set of tasks for new Dell EMC vSAN Ready Nodes, and notify the IT team when they are complete. These sample scripts can be used as a spark for your own ideas.

This next script uses the same for loop from before to find the hosts that are Dell EMC vSAN Ready Nodes and now looks to see what VMs are running on the host. From this example, we can see how the Identity Module is integral in automating the virtual environment from the hosts to the virtual machines.

```

Get-VMhost -state "connected" | ForEach-Object {
    if ($_.ExtensionData.hardware.systemInfo.model.contains("vSAN Ready
Node")){
        echo "======"

        echo "System Details"
        echo "Model: " $_.ExtensionData.hardware.systemInfo.model
        echo "Service Tag: " $_.ExtensionData.hardware.systemInfo.seria
lNumber
        echo "BIOS version: " $_.ExtensionData.hardware.biosInfo.biosVe
rsion
        echo "ESXi build: " $_.ExtensionData.config.product.build
echo "++++++"
echo "$_ list of VMs:"
Get-VM -Location $_ | ForEach-Object{
    echo $_.ExtensionData.name
    }
    }
}
}

```

This new code snippet, shown in bold, builds on the previous example by looping through our hosts looking for the "vSAN Ready Node" as before. When it finds a matching host, it creates a new view using the Get-VM command, consisting of

This gives our code context. If an action is carried out, we can now define the scope of that action, not just on the host but on the workloads it's running. We can start to build code with intelligence – extracting a greater value from the system, which in turn provides the opportunity to drive greater value for the organization.

As I said earlier, this is just the starting point of what is possible when building PowerCLI scripts for Dell EMC vSAN Ready Nodes with Identity Modules! Other automation platforms, like Ansible, can also take advantage of the identity module features. We only covered the basics, but there are enormous possibilities beyond discovery operations. The nuggets of knowledge in this blog unlock numerous opportunities for you to build automations that empower your data center.

For more information see Dell EMC vSAN Ready Nodes overview (<https://www.delltechnologies.com/en-us/converged-infrastructure/hyper-converged-infrastructure/vsan-ready-nodes.htm>) and the Dell EMC vSAN Ready Nodes blog site (<https://infohub.delltechnologies.com/t/vsan-ready-nodes/>).

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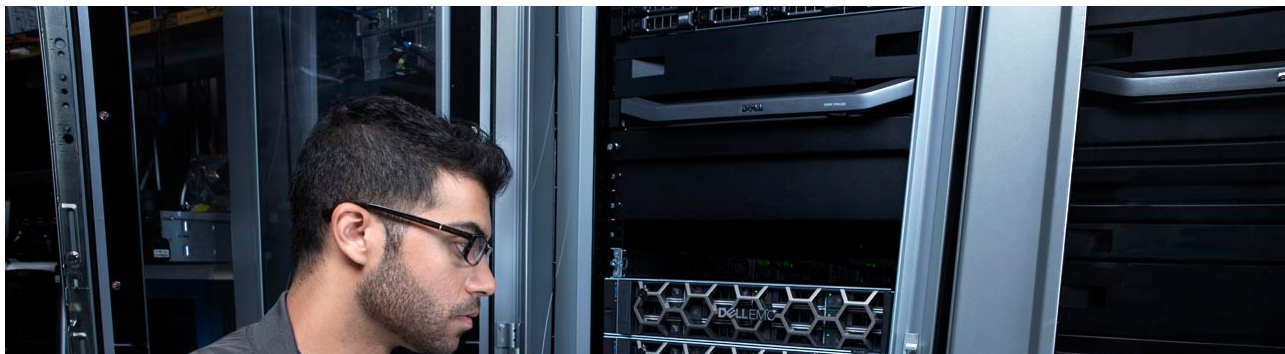
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Some people have speculated that 2020 was “the year of VDI” while others say that it will never be the “year of VDI.” However, there is one certainty. In 2020 and part of 2021, organizations worldwide consumed a large amount of virtual desktop infrastructure (VDI). Some of these



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Form Factor Fun with Dell EMC vSAN Ready Nodes

When thinking of a VMware vSAN-based integrated solution, it is clear that the virtualization layer is a key technology piece. That virtualization layer abstracts the classical hardware

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