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Five Reasons VMware vSphere 6.0 is a Game Changer

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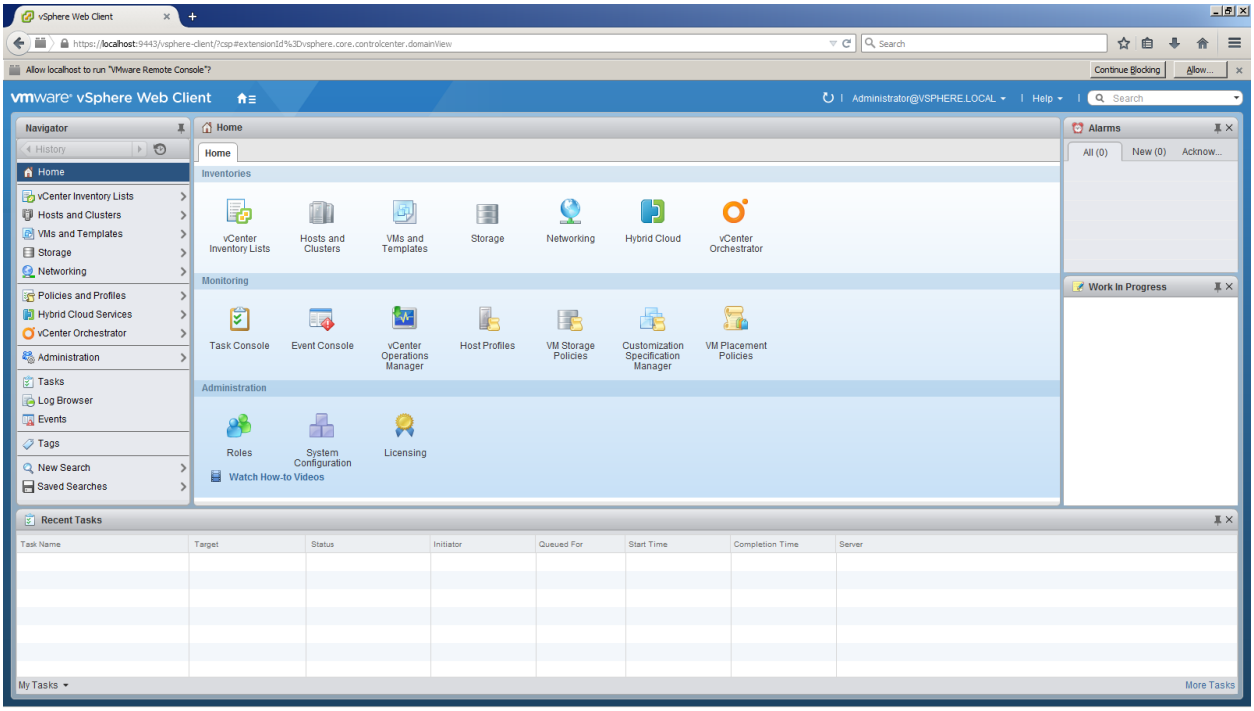
Introduction

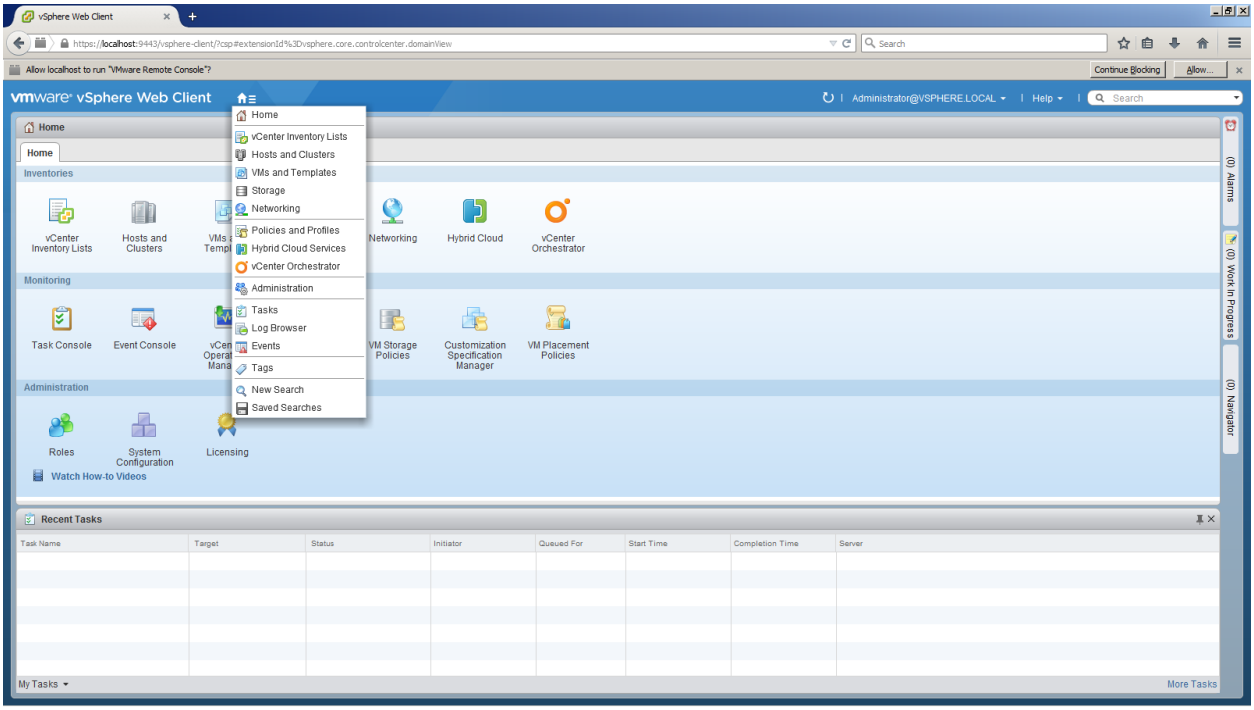
On February 2, 2015, VMware released vSphere 6.0 to the general public. During the launch, Pat Gelsinger, CEO at VMware Inc., twice stated, "It's the biggest release of vSphere ever!" To assist in meeting VMware's stated goal of "One Cloud, Any Application, Any Device," vSphere 6.0 is packed full of more than 650 technological breakthroughs. It's more powerful, more flexible, more secure, and more easily managed than ever before.

Of course I'm not going to list all 650 plus technological breakthroughs here, but I do want to focus on the five main improvements that I believe are the biggest "game changers." As you learn more about the new vSphere, I'm sure that you will create your own opinions and your own top five. In my opinion, these are the five most important improvements in vSphere 6.0.

A vSphere Web Client That You Will Want to Use

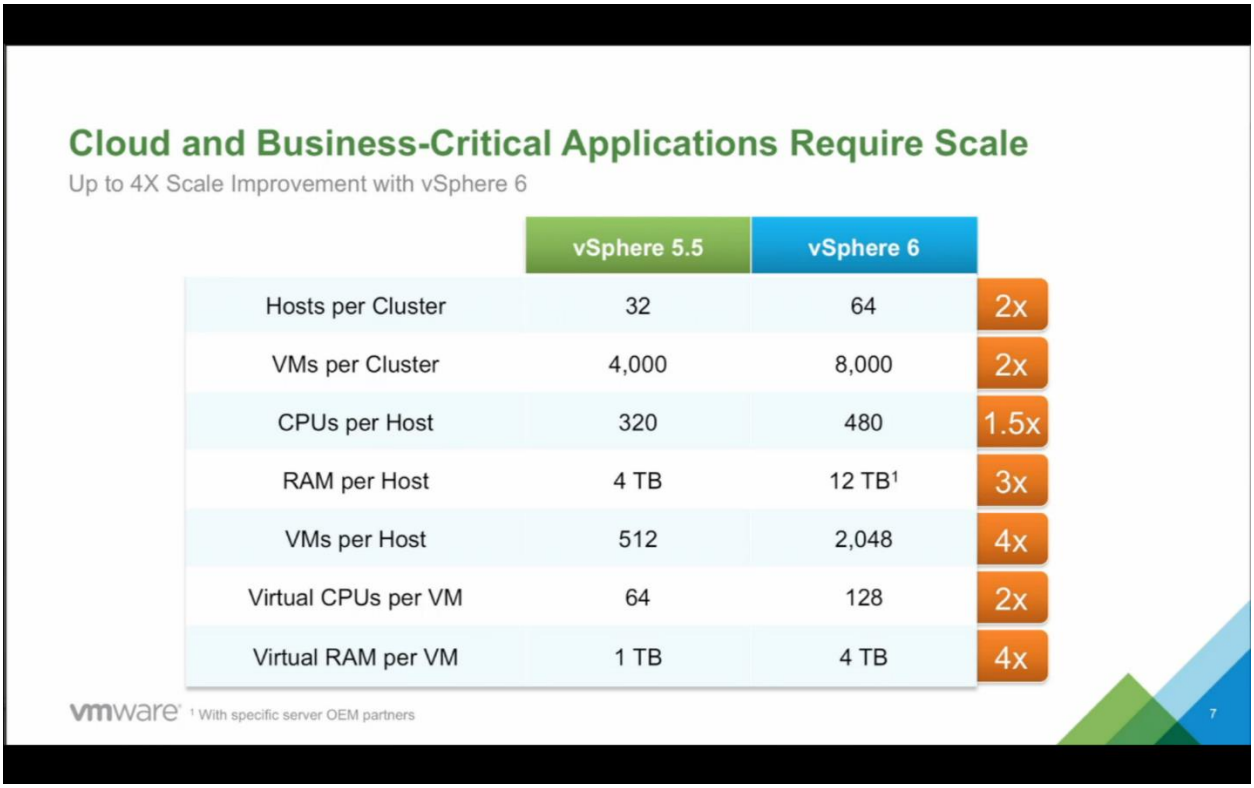
Having heard the opinions of the administrators using the 5.1 and 5.5 vSphere Web Client, many of whom were in my classes, VMware has redesigned the vSphere 6.0 client to be much more user friendly. The menus are flat, responsive, and easy to use. When you right-click, there is no delay before your options are available. The Recent Tasks are defaulted to the bottom of the screen, where they should be, so you can read across the whole screen and not scroll as much as when they are on the side. The Home button has a master list as a drop down that contains most locations that you might need. A console into a virtual machine (VM) creates a new smaller window that looks much more like that of the Windows Client and makes it easier to keep track of multiple VMs. In short, the new Web Client is so good that you will be able to stop running the Windows Client in the background, just in case, every time you open the Web Client.





Much Higher Configuration Maximums

I always tell my students that one of the main groups of facts that they should be studying for the test is configuration maximums, especially if they are higher than those of the previous version. Well, that means that "we" have some more studying to do now; because the configuration maximums that VMware announced for vSphere 6.0 have increased in just about every category regarding the design of clusters, hosts, and VMs. The following is a table showing the new configuration maximums. Noteworthy is the fact that we can now have 64 hosts in a cluster. Also, we can now have up to 128 vCPUs per VM, just in case someone wants to do that. In addition, note that we can have up to 2,048 VMs per host; provided that it's a really big host! At any rate, the idea here is not so much to "keep up with the Joneses" (whoever they might be) as to be able to always provide a VM instead of a physical server. These new configuration maximums allow VMware to, in essence, proclaim that there is nothing that a physical server can do that a VM can't do better.



More Flexible vMotion Options

vMotion, as you may know, is the capability to move the state of a running VM from one physical host to another host without user disruption. It requires the two VMs to be on the same datacenter, in the same cluster; have hosts sharing the same storage, on the same LAN, on same Layer 3, on the same switch; and on the same vCenter—if you are still using vSphere 4.0! However, each newer version of vSphere has gradually "whittled down" the requirements of vMotion, and vSphere 6.0 has removed all but the "same datacenter" requirement.

This means that if you want to move the state of a running VM from one host to another and they are in the same datacenter, then you can do it even if they are not on the same cluster, switch, Layer 3, or vCenter. Since many organizations currently have more than one vCenter, this flexibility provides a tool that they can use for maintenance activities, disaster recovery, and even disaster avoidance. In addition, Long Distance vMotion now allows you to vMotion over WAN connections as long as they provide less than a 100ms round trip time. Also,

vSphere 6.0 can leverage Cross-Host vMotion (which originated with vSphere 5.5) to vMotion VMs even if the source and destination hosts do not have shared storage. Truly, the only "wall" that remains in regard to vMotion is the datacenter . . . vSphere 7.0?

Fault Tolerance for VMs with Up to Four vCPUs

Fault Tolerance (FT) is the capability to run the same VM on two different hosts at the same time so if one host fails the VM on the other host picks up without "missing a beat." It assures that the two VMs are running lockstep to each other with usually less than a 20ms difference. It's a fantastic concept for those VMs running applications that just cannot be allowed to go down.

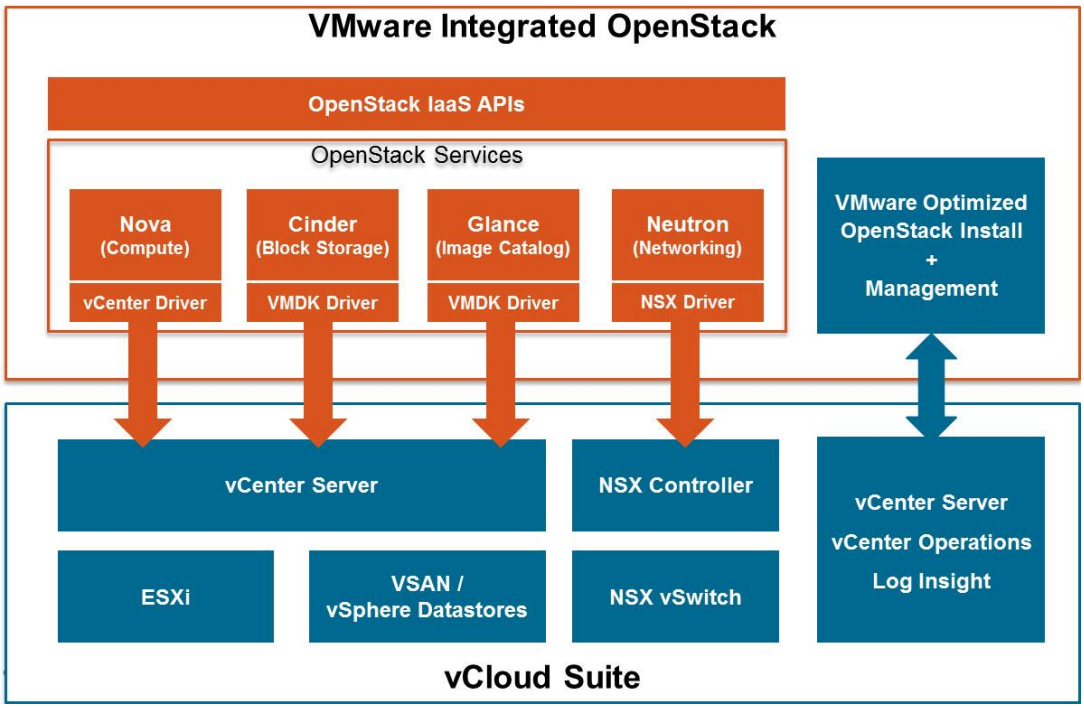
At my last three vmWorlds, there was a breakout session that was titled "Fault Tolerance for Multiple vCPU VMs." The first year that I saw this I was so excited since FT has been kind of an "ironic" feature with only support for single vCPU VMs. It's been ironic because although many VMs can have just one vCPU, it always seems like the ones that you want the FT on are the ones that perform best with two or even four vCPUs (e.g., SQL, Exchange, Java, and so on). However, when I attended the sessions, they always mentioned that what they were demonstrating was not ready for the general public release. Well, now it's finally out for us to use for our most critical applications. It will be interesting to see which applications will go on FT first.

vSphere/NSX/OpenStack/VSAN Working Together Seamlessly

Two terms that you will see most if you read IT forums today are "cloud" and "software-defined data center (SDDC)"; but what do they really mean? vSphere provides the capability to create an isolated compute (CPU and memory) environment for each of your applications. In fact, this has been true for years. Now, with integrated products such as VMware's NSX and VSAN you can create an isolated, controllable, and secure network and storage environment for each of your applications as well.

NSX allows you to use the network capacity of your routers and switches to pass the packets while all of the configuration of VLANs, access-lists, NAT, VPNs, and so on can be controlled in the software layers of NSX. Now, with vSphere 6.0, you can seamlessly use the network capacity of other networks to which you are connected as well. This includes not only inter-datacenter, but even hybrid networks where some of the network capacity that you are using is on the public domain. At the same time, VSAN allows you to quickly create logical storage containers that leverage the size and speed of the underlying physical storage. In addition, each VM (and therefore each application) can have its defined properties in regard to storage performance and redundancy. With these two additional services in place through vSphere, you can now have the CPU, memory, networking, and storage (all four of the "core 4") fully definable, controllable, and securable for each application within its own Software Defined Datacenter. With this complete microsegmentation in place, the only thing left to do is to define how various devices will gain access to this environment for consumption of the resources.

Of course, VMware certainly has products for consumption and management as well, such as vRealize Automation and vCloud Air, but they are not locking you down to only their products for cloud consumption. As you may know, an initiative that has made great progress in regard to the secure, efficient, and effective use of hardware resources in a cloud platform is OpenStack. First started by Rackspace Hosting and NASA in 2010, the OpenStack initiative has continued to take on new partners—including VMware. In fact, VMware assured that their original NSX product could be "consumed" by OpenStack's software by offering a Neutron plug-in. Now, with vSphere 6.0, Openstack is fully integrated into vSphere and its Web Client. This means you can create compute platforms in OpenStack and then manage them in OpenStack and/or through VMware's Web Client as needed for your applications.



Conclusion

So, as you can see, the new vSphere 6.0 is more powerful, more manageable, more secure, and more flexible than any previous release of vSphere. It will be fun to learn how you can use it best for your own IT environment. As you might imagine, VMware has announced a new group of classes to help you do just that.

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About the Author

Bill Ferguson has been in the computer industry for over 20 years. Bill runs his own company as an independent contractor in Birmingham, Alabama, teaching classes for many national training companies, including Global Knowledge. Additionally, Bill has written and produced many technical training videos including: A+, Network+, Windows 2000 Management, Windows XP Management, Windows 2000 Security, Server+, and Interconnecting Cisco Network Devices. He also wrote *MCSE 70-298 Exam Cram 2: Designing Security for a Windows Server 2003 Network* for Que Publishing. In addition, he wrote the *Microsoft Certified Desktop Support Technician (MCDST) Study Guide* for Sybex Inc. and several Network+ titles. Most recently, he wrote *The Official VCP5 Certification Guide* and the *VCP5-DCV, Official Cert Guide* (Pearson/VMware Press).

Bill says, "*My job is to understand the material so well that I can make it easier for my students to learn than it was for me to learn; whether I'm teaching in person, online, or in print.*"