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The Challenge of IP Address Management in Virtualized Environments

The ease and speed with which enterprises can deploy virtual machines has outpaced their ability to provide IP address services to them in a timely fashion. Even such simple tasks as assigning IP addresses to a virtual server, releasing IP addresses after a virtual server is taken down and managing those assignments are growing exponentially more difficult and have become obstacles to achieving true dynamic and real-time environments.

Virtualization Is Here To Stay

Enterprises are continuing to scale their virtualized environments beyond simple virtual server deployment, and are reaping the rewards and benefits of virtualization. They are now deploying virtual disaster recovery and virtual support for dynamic workloads, as well as incorporating private cloud infrastructure. In doing so, they are encountering unprecedented rates of change and growing complexity in the physical and logical network.

The transition from a physical to a virtual environment is occurring in all sectors, and the movement toward virtualization is growing at a breathtaking pace. According to Gartner Research, today there are more virtual machines than physical hosts. Gartner projects that in 2018 fully 86% of x86 workloads will be run on virtual machines, compared to 38% today.

Along the path towards virtualization, one key challenge facing IT professionals is the amount of time needed to obtain an IP address for a virtual machine. To deploy a virtual machine today, a system administrator must request an IP address from the network operations team, wait to receive it and then manually type it in — a tedious, delaying, time-consuming process that must be repeated for each newly created virtual machine. A recent Infoblox study revealed that 43% of system administrators must wait hours, days and sometimes weeks to receive an IP address from the networking team. Such IP configuration methods are error prone, lack speed, and are simply not scalable. Even automated provisioning systems struggle with IP address management because, while provisioning systems can assign addresses from a pre-provisioned block of addresses, there is no visibility for the network team into the virtual environment. This virtual world blindness affects the network team's ability to troubleshoot and manage the network effectively.

Inability to assign and release IP addresses in a workable time frame and attempting to manage DNS records and other settings manually in virtual environments can lead to substantial losses in productivity. Also, lack of collaboration between the server and the networking groups can further hinder business operations. Most importantly, these inefficiencies undermine the very nature of the dynamic infrastructure that virtualization is intended to deliver.

Finally, in addition to setting up a new virtual machine, other changes usually need to be made to the physical or virtual network infrastructure, such as updates to firewall rules, load balancer pools, QoS updates, etc. Virtual provisioning systems have limited abilities to update virtual network devices and no ability to update physical network devices, especially if the change requires awareness of the network topology.

Solving IP Address Management Challenges in Virtualized Environments

To simplify and streamline the processes of obtaining an IP address in a virtualized environment and updating network devices, Infoblox has jointly developed with VMware a plug-in that automates the processes of providing an IP address to a newly created virtual machine, updating DNS and configuring network devices, all in a matter of seconds instead of hours or days.

The plug-in was developed for and is delivered with the VMware vCenter Orchestrator (vCO), which works in tandem with the VMware vCloud Director (vCD). The vCD provides automated IP addressing and related management capabilities in real time as virtual machines are created and destroyed.

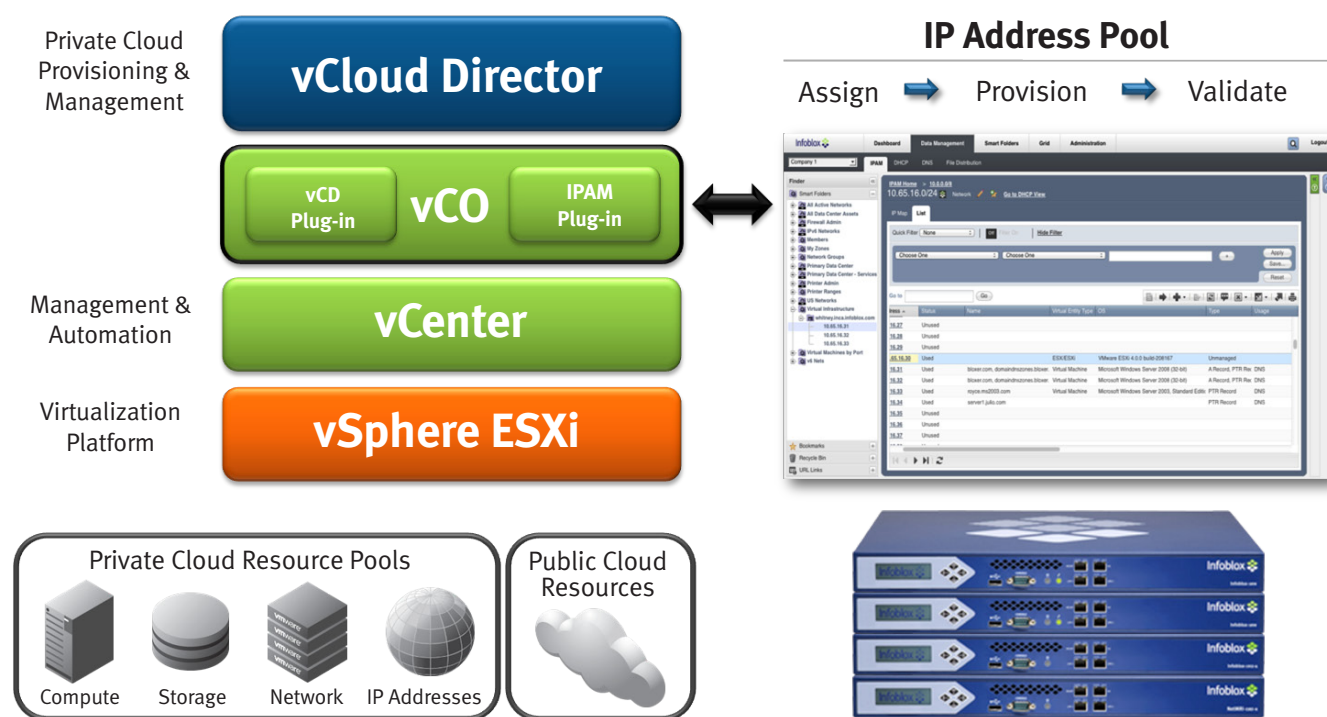


Fig 1: The Infoblox VMware vCenter Orchestrator plug-in overview

Using the Infoblox VMware plug-in solution, an IT professional managing a virtualized environment can now:

- Provision systems in minutes, instead of days, with automated IP address provisioning for Cloud infrastructure and services by enabling automatic IP allocation and de-allocation as VMs are spun up and shut down
- Simplify troubleshooting and reduce downtime with real-time visibility into physical and virtualized network infrastructure
- Manage movement between VM clusters easily with synchronization of critical DNS, DHCP and IP address services
- Eliminate errors introduced by manual processes

Infoblox IP Address Management also integrates with vCenter through the vDiscovery API to create intelligent groupings of virtual resources using Infoblox Smart Folders. These groupings are configurable by the network administrator, but may include vCloud, vApp, vSwitch, VLAN, Location, etc.

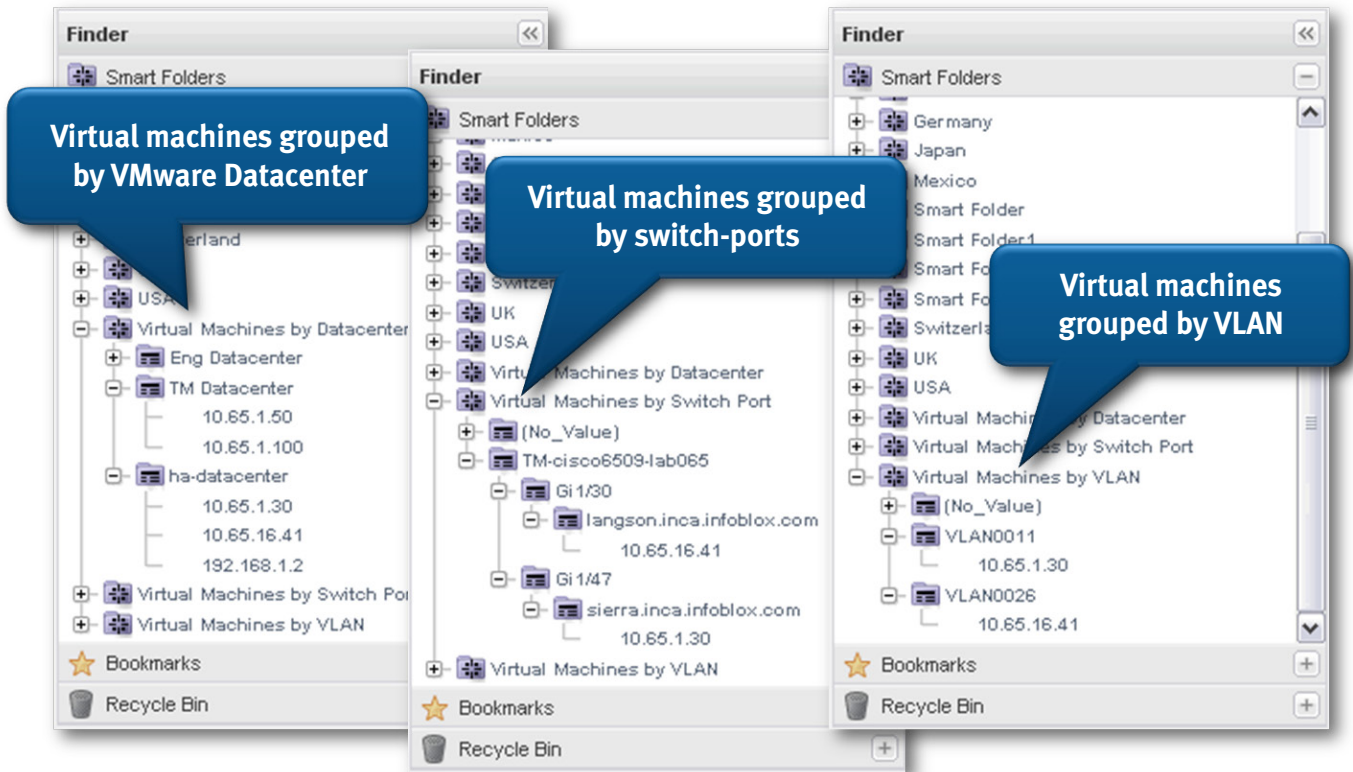


Fig 2: The Infoblox IPAM discovery and grouping of Virtual Machines

Leveraging Infoblox’s State-of-the-Art Grid™ Technology

Infoblox products work together to give operators of mission-critical networks a suite of automated methods to configure, manage and secure their infrastructures so that the loss of any core IP service never results in business downtime. No matter how small or large the network, Infoblox automated solutions can improve their operation and management. While the Infoblox VMware plug-in for VMware vCenter Orchestrator and vCloud Director adds speed and efficiency, Infoblox’s Grid™ technology and integrated DNS, DHCP and IP Address Management is what truly distinguishes Infoblox in the physical and virtual worlds of network automation. Infoblox enables virtual environments to function at the speed of thought, while ensuring network availability 24/7. To learn more about Infoblox’s Grid and integrated DNS, DHCP and IPAM technology, please visit www.infoblox.com.