

SOLUTION NOTE

Accelerating Server Automation Why Network Automation Lies in the Critical Path

Virtualization is the driving force behind a new key performance indicator for IT: mean-time-to-change. The speed that virtualized environments are known for has now become the norm against which other IT operations are being measured. With this compression of time has come a host of unintended consequences, many of them detrimental to the health of networks.

The problem starts with provisioning the servers.

No Longer Your Father’s Server Automation

Until recently, the traditional, silo-based definition of server automation meant simply provisioning physical and virtual servers. Rack it, stack it, auto-allocate an IP address and install a pre-defined server image. Job done. That was then. Not any more.

These days, while virtualization is deconstructing the traditional physical silo, this new-kid-on-the-block is also expanding the definition of what is meant by provisioning resources. Now it’s not just the server that needs to be provisioned when speaking of server automation, but also all the adjacent systems, including network, applications, storage and security, as shown in Figure 1.

With this new, wider scope comes a new level of complexity to both the process and its components, along with a concomitant, exponential increase in both the rate and volume of change. Not surprisingly, these adjacent technologies can dramatically slow down the execution of a provisioning workload.

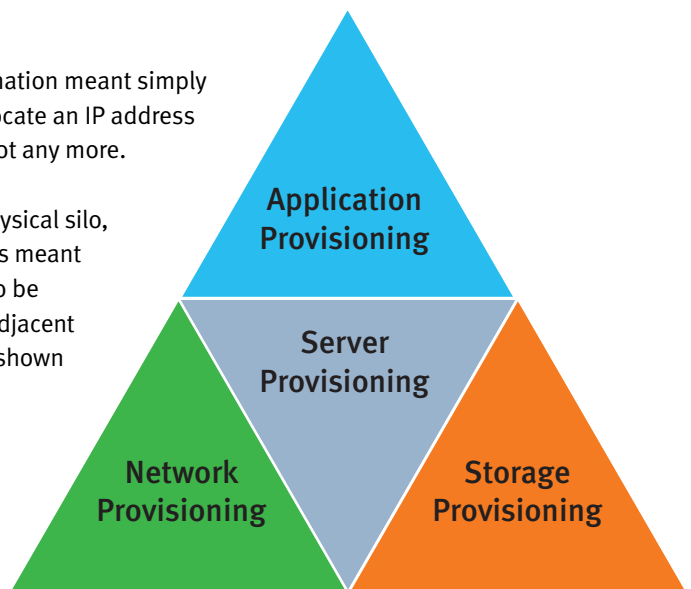


Figure 1. The IT Provisioning Pyramid

IP Address Management Can be the Accelerant or the Bottleneck

Consider, for instance, this typical example of how server provisioning can slow things to a crawl. A large, California-based virtualization-software company can currently provision 100 virtual machines for internal use within 20 minutes. Yet, the server provisioning team can take over a week to get IP addresses for these 100 servers. In this case, the deployment penalty becomes severe because the workload runs almost 500 times longer than it should.

Why? Because they haven’t integrated IP address management with their virtual machine provisioning applications.

IP addresses are a prime candidate for improved automation. They’re atomic — they’re everywhere and they continue to proliferate at incredible rates. Every server requires an IP address, and virtualization makes it dangerously easy to provision hundreds — if not thousands — of servers in a very short period of time. Cisco is predicting 15 billion Internet-connected devices by 2015. Assuming The World Bank is correct, that’s almost 2.2 IP addresses for every human being on the planet. With the advent of Virtual Desktop Infrastructure (VDI) environments, the problem is further amplified because now thousands to millions more new addresses will be required by the virtual infrastructure. Without IP address management (IPAM), it is — and will continue to be — veritably impossible to manage, control and provision IP addresses properly.

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Network Automation Streamlines the Process

Infoblox addresses the problem of server provisioning in today's speeded-up virtual environments by tackling the heart of the causes: changes occasioned across the network. Network automation vastly reduces the time associated with server provisioning by increasing visibility and reducing complexity. Increased visibility makes it more readily apparent what needs to be done when provisioning a new server, and reducing complexity by taking manual tasks out of the game — especially IP address assignment and management — shortens the time needed to accomplish provisioning to a miniscule span that is appropriate to virtual environments.

What does that do for you? Your newest IT key performance indicator — mean-time-to-change — plummets, and that makes server provisioning a near-instantaneous snap.

Network Automation Speeds Up All Three Provisioning Phases

The three critical components to any provisioning process are distinct but completely interrelated. If you perform poorly or create an error in any one of these phases, the other two will suffer as well, and the provisioning process will ultimately fail. The three provisioning components include:

- **Resource Management:**
You must know what resources are available to execute the provisioning successfully, and taking that inventory is enhanced and speeded up when you have visibility into what resources exist and where they are located and which ones are currently available to use.
- **Configuration Management:**
You must also know what you have configured at the time of the provisioning in order to know whether you need to make changes for this workload, not only to the existing infrastructure but also to the infrastructure that will result from provisioning this server.
- **Resource Provisioning:**
As mentioned, server provisioning today means also provisioning the associated resources, including dynamic allocation of IP addresses, physical & virtual switches, VRF's, VLANs, load balancing contexts, QoS settings, and firewall and ACL contexts, among others.

Infoblox's network management solutions automate all of these processes, from giving you single pane of glass insight into what is on your network and where every component is and what it is doing, to managing configuration and change from one end of the network to the other. Importantly, our network management solutions include IPAM which automatically allocates, assigns and manages IP addresses for all components on your network, physical as well as virtual, and keeps up with the pace of near-instantaneous changes that occur in today's virtual environments.

Integration and Orchestration Completes the Server Automation Picture

None of the above processes can happen in the compressed time frames considered in provisioning virtual infrastructure without tight integration and end-to-end orchestration of provisioning workloads. Infoblox has partnered with VMware to create a solution that meets today's virtualized environment's need for speed. The result is extremely accelerated server automation.

Infoblox has developed a unique "plug-in" that integrates seamlessly with VMware's vCenter Orchestrator (vCO). VMware's vCO essentially makes calls and issues instructions to systems within and adjacent to its vSphere/vCenter. Infoblox adds its powerful NiOS to the system — a kind of assistant conductor — to direct the IP address management section of the orchestra.

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The integrated orchestration works as shown in Figure 2. Infoblox’s DDI/IPAM plug-in, vCO calls Infoblox’s plug-in NiOS to request an IP address. Containing a set of DNS, DHCP and IP Address Management (DDI) solutions, NiOS provides the address to vSphere. In turn, vSphere issues the address to the virtual server it is about to provision. Once the server has been provisioned, vCO requests that NiOS forward the provisioned IP address information to IPAM so that the IP address database is automatically updated.

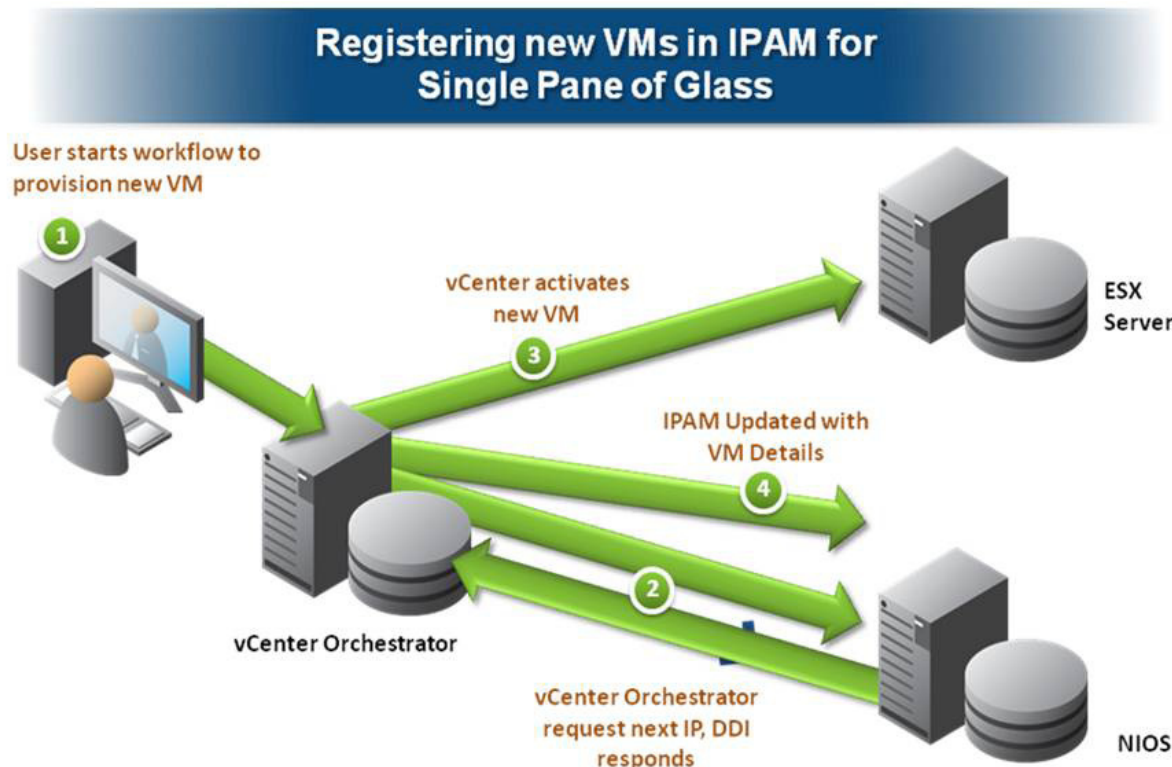


Figure 2. Infoblox NiOS IP Address Management Integration with vCenter Orchestrator

Conclusion

When combined with VMware’s vCenter, Infoblox’s network automation solutions accelerate server automation so that provisioning servers in today’s lightning-speed virtual environments can keep up with the speed of change. The latest IT key performance indicator, mean-time-to-change, thereby drops to a near instantaneous level, making server provisioning as accelerated, efficient and foolproof as possible.

Infoblox Product Warranty and Services

The standard hardware warranty is for a period of one year. The system software has a 90-day warranty that will meet published specifications. Optional service products are also available that extend the hardware and software warranty. These products are recommended to ensure the appliance is kept updated with the latest software enhancements and to ensure the security and availability of the system. Professional services and training courses are also available from Infoblox. Information in this document is subject to change without notice. Infoblox Inc. assumes no responsibility for errors that appear in this document.