Enterprise IT departments are always striving to deliver higher-quality, agile services to their business stakeholders—at the lowest possible cost. IT organizations have migrated from purely traditional physical data centers to highly virtualized data centers. In recent years, these IT organizations are moving to private or public clouds because cloud technologies provide enhanced IT agility and flexibility. IT leader surveys indicate that cloud adoption trends will continue to accelerate in the months and years to come because of the business benefits—mainly faster time to market for new services.

While private and public clouds provide powerful capabilities, there are still gaps that prevent IT organizations from truly realizing the promise of cloud technologies. Automation at the network layer is one of those gaps. Unlike automation at the server and storage layers, the deployment and configuration of critical network resources continues to be mostly manual. This hampers agility, increases the roll-out time for applications, and increases the human resources needed to manage the cloud environment. So, while servers and storage can be configured and provisioned in minutes, network setup tasks can take hours or days.

The Automation Gap: A Barrier to Realizing the Potential of Virtualization and Hybrid Cloud Deployments

Enterprise IT departments are always striving to deliver higher-quality, agile services to their business stakeholders—at the lowest possible cost. IT organizations have migrated from purely traditional physical data centers to highly virtualized data centers. In recent years, these IT organizations are moving to private or public clouds because cloud technologies provide enhanced IT agility and flexibility. IT leader surveys indicate that cloud adoption trends will continue to accelerate in the months and years to come because of the business benefits—mainly faster time to market for new services.

While private and public clouds provide powerful capabilities, there are still gaps that prevent IT organizations from truly realizing the promise of cloud technologies. Automation at the network layer is one of those gaps. Unlike automation at the server and storage layers, the deployment and configuration of critical network resources continues to be mostly manual. This hampers agility, increases the roll-out time for applications, and increases the human resources needed to manage the cloud environment. So, while servers and storage can be configured and provisioned in minutes, network setup tasks can take hours or days.

<table>
<thead>
<tr>
<th></th>
<th>Manual Processes</th>
<th>Disparate Platforms</th>
<th>Visibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/10</td>
<td>Handle DNS manually or with custom scripts</td>
<td>79% Of cloud deployments use 3 or more platforms</td>
<td>81% Want discovery, control on new spun-up assets</td>
</tr>
</tbody>
</table>

*Figure 1: Study conducted by ReRez Research on behalf of Infoblox*
Common Networking Challenges in Cloud Environments

- **Network configuration for virtual machines (VMs) is time consuming and slows down rollout:** It takes administrators hours or sometimes days to provision networks and IP addresses for VMs, instances, VPCs, and workloads, making it difficult to provide self-service style cloud services at a fast pace. Manual reclamation is cumbersome and error prone, leading to a sprawl of unused IP addresses and DNS records.

- **Solutions lack visibility and auditing capability for IP addresses and DNS records for VMs:** IT needs to know which IP addresses and DNS records were assigned to which resources at any point in time for security and auditing purposes.

- **IT teams lack consistent and centralized IP address and DNS management:** Without centralized management across the IT infrastructure (multiple data centers, physical, virtual and cloud), VM and network management gets more time consuming and expensive and can lead to configuration errors.

- **Cloud orchestration platforms for native DDI services are incomplete and unreliable:** Existing orchestration solutions provide only rudimentary cloud network automation capabilities. They most often lack high availability, have no central view of DHCP lease information across multiple DHCP server instances, and provide very limited DNS and IPAM capability.

- **Lack of multi-cloud and hybrid cloud correlation:** Virtually every enterprise has a combination of platforms ranging from traditional networks to public cloud (such as AWS, Google Cloud Platform or Microsoft Azure) to private cloud (such as Nutanix, OpenStack or VMware) to supported hypervisors (such as VMware ESXi, Microsoft Hyper-V, Nutanix AHV or KVM). Without a consolidated view across all of the different platforms, IT teams struggle with correlating multiple, disparate tools that use different terms and language which leads to increased errors and incomplete, out-of-date information.
### Infoblox Cloud Network Automation Solution Components

<table>
<thead>
<tr>
<th></th>
<th>Cloud Network Automation License (for Grid Master)</th>
</tr>
</thead>
</table>
| 1 | • Centralized, integrated management user interface across cloud and virtualization platforms  
    | • Detailed visibility of cloud-based resources including VMs, tenants, networks, VPCs and more  
    | • Tenant views and tenant-based management  
    | • Cloud-specific reporting and auditing capabilities |

<table>
<thead>
<tr>
<th></th>
<th>Cloud Platform Appliances</th>
</tr>
</thead>
</table>
| 2 | • Virtual appliance options purpose-built for cloud deployments  
    | • Supports communication with cloud management platforms through Infoblox adapters  
    | • Deployed in data centers to increase scale and reliability of cloud deployments |

<table>
<thead>
<tr>
<th></th>
<th>Infoblox Adapters</th>
</tr>
</thead>
</table>
| 3 | • IPAM integration with cloud/orchestration platforms (VMware, OpenStack, Red Hat Ansible, Terraform, Kubernetes and Docker)  
    | • Rich APIs to manage NIOS objects with RBAC  
    | • Integrations supported by Infoblox |

![Deployment model with Infoblox Cloud Network Automation](image-url)

*Figure 3: Deployment model with Infoblox Cloud Network Automation*
Infoblox DDI for Cloud and Virtualization Closes the Automation Gap in Cloud and Virtualization Deployments

Infoblox DDI for Cloud and Virtualization helps IT organizations get more agility, scalability, and reliability from their cloud deployments—with fewer human resources. With Infoblox, you can efficiently control and secure your virtualized or hybrid cloud deployment.

**Make Clouds More Agile**

Infoblox dramatically shortens the time needed for provisioning and de-provisioning critical network services in cloud and virtualized environments. Manual tasks that took hours or days now happen automatically in minutes or seconds. In addition, Infoblox provides unprecedented visibility into VM IP networking details. From discovery to IP addresses to DHCP lease and DNS histories, Infoblox gives administrators the visibility and control they need to deliver high-quality cloud services.

**Make Clouds More Scalable**

Through the Cloud Platform Appliance’s flexible deployment architecture, critical network services can be deployed in a variety of ways to suit your unique requirements. Cloud Platform Appliances can now be deployed in scale-up or scale-out fashion, enabling vertical (more tenants per cloud) or horizontal (more private clouds at various data center locations) expansion.

**Make Clouds More Reliable**

Infoblox is capable of delivering local, redundant (highly available) DDI services for every cloud instance at every location. This enables greater availability and local survivability.

**Reduce Human Resource Requirements for Cloud Network Management**

In addition to the massive manual labor savings gained through task automation, Infoblox provides ONE central management GUI for all cloud network automation tasks, regardless of the number, size, and geographical location of the clouds. This management GUI—alongside the Cloud Dashboard Widget and new cloud reports—saves significant time and effort and manual labor, reducing overall human resource requirements.

**Summary**

Cloud deployments continue to be a high priority for enterprise IT departments, and their adoption is likely to accelerate in the years to come. The promise of greater business agility will continue to require greater and greater levels of automation. With DDI for Cloud and Virtualization, Infoblox automates key, critical networking tasks for cloud teams, a capability not currently offered by cloud platform providers or networking vendors.