

## SOLUTION NOTE

# ENSURING DNS AND DHCP CONSISTENCY AND IP ADDRESS VISIBILITY IN AWS PUBLIC CLOUD

## SUMMARY

**Increasing Agility and Growth through Amazon Web Services Elastic Compute Cloud** Enterprises are increasingly deploying workloads in Amazon Web Services (AWS) Elastic Compute Cloud (EC2) to gain increased agility and elasticity.

However, public cloud deployments add unplanned risks including manual processes, policy inconsistency and lack of visibility across the enterprise. Infoblox DNS, DHCP, and IP address management (IPAM) (known as “DDI”) for AWS extends industry-leading critical network services capabilities to AWS EC2. Fully integrated with Infoblox Grid technology, this solution increases cloud agility, supports consistent network policies across the enterprise and improves visibility into public cloud workloads.

## AVOID “CLOUDED” VIEWS WHEN DEPLOYING IN AWS

Application delivery infrastructures are changing rapidly. IT organizations are increasingly utilizing AWS EC2 as a public cloud platform, hoping to increase agility, elasticity and flexibility for their growing workloads. Too often, however, the hype and promise of cloud is a far cry from reality because of the differences between simply spinning up a new compute instance and actually getting a working instance onto a production network, into service and in sync with the traditional network infrastructure.

Critical network service automation such as DNS, DHCP and IP address provisioning often lags behind compute and storage processes within AWS, delaying application rollout and increasing inconsistency of network policies. Without centralized management for DNS and IP addresses in a private, hybrid- or public multi- cloud instance, IT teams often have incomplete and out-of-date visibility into their virtual private clouds (VPCs), and the IP addresses and DNS records being assigned. And if there are multiple platforms, there is no correlation and consistency of common resources such as DNS zones and networks.

## CLOUD VISIBILITY AND CONTROL WITH INFOBLOX DNS, DHCP AND IP ADDRESS MANAGEMENT FOR AWS

Infoblox helps enterprises deploying AWS (or AWS multi-clouds) with visibility, security and control. Instead of standing up a basic DNS server in the cloud that needs continuous updates and patches or using the Route 53 service that doesn’t integrate with your traditional network and DNS policies, Infoblox DDI for AWS provides the industry-leading platform to ensure visibility, consistency and agility for AWS workloads—and correlated views with other platforms.

Infoblox provides fully automated allocation of IP address and DNS record creation for AWS workloads and automated discovery of virtual instances and VPCs within AWS deployments. Infoblox DHCP delivers an IP address to every device each time it connects to the network or changes locations. Whether IT teams are testing AWS for a single application, using AWS for disaster recovery or deploying a widespread public or hybrid environment, Infoblox has multiple deployment options for high availability and scale.

By bringing industry-leading, commercial-, enterprise- and service provider-grade critical network services together with AWS public cloud in a single management interface, Infoblox eliminates many of the challenges raised by the complexity of private, hybrid- and public, multi-cloud environments, and overcomes the insufficiency of traditional approaches and processes for managing network services in a cloud environment.

## **DELIVERING CRITICAL NETWORK CAPABILITIES FOR AWS ENVIRONMENTS**

Infoblox vNIOS for AWS provides automated virtual instance discovery, IP address allocation and DNS provisioning for enterprise-grade critical network services. With flexible deployment options, Infoblox empowers organizations to improve agility, reduce provisioning errors and enhance visibility of virtual machine (VM) network infrastructure inside AWS deployments. Benefits of the solution include:

### **Industry-leading DNS and IP Address Management for AWS EC2**

The Infoblox unified solution for DNS and IP address management ensures a uniform and consistent policy of DNS naming conventions and network/IP address provisioning. In multi-cloud environments, Infoblox reconciles disparate terminologies such as tenants, VPCs and VMs to eliminate the challenge in maintaining consistency across complex deployments. Infoblox further extends vNIOS support to EC2 R6 instance types, thereby improving performance while lowering the total cost of ownership. Infoblox also improves troubleshooting by allowing a direct connection to AWS Nitro Systems and the EC2 Serial Console for better user experience and control in AWS. vNIOS further enhances cloud security and control by allowing Elastic Block Store (EBS) encryption for data at rest, data in transit and all volume backups.

### **DHCP Consistency for AWS**

Organizations with cloud-first initiatives or those interested in decommissioning physical data centers and simplifying migration to the cloud can deploy DHCP for AWS. This capability ensures service consistency by allowing DHCP services to be configured on vNIOS instances in AWS and serve DHCP to on-prem clients.

### **Automated Discovery, Visibility and Auditing for AWS**

Keeping track of dynamic public cloud instances and workloads is hard with legacy management solutions. Infoblox's automatic discovery and visibility of VPCs and instances overcomes these challenges, providing IT teams with complete visibility. The Infoblox solution greatly reduces the time needed to audit DNS and IP address information across networks and geographic regions, automating and accelerating compliance, operational and executive reporting processes. Infoblox further empowers cloud visibility and control by detecting and including or excluding network resources using Selective Classless Inter-Domain Routing (CIDR or private IP) vDiscovery to ensure efficient distribution of IP addresses in AWS. Infoblox vNIOS for AWS goes even further by enabling vDiscovery for multi-account and GovCloud environments. By reducing multiple discovery tasks into a single discovery job across multiple AWS and AWS GovCloud regions and accounts, vNIOS saves administrators money and returns time for higher value activities. It also retains account filters to enable region selection and migration of existing vDiscovery jobs without data loss for greater user experience, workload efficiency and admin control.

### **High Availability, Uptime and Resilience**

NIOS allows customers running cloud platform (CP) appliances to configure two Infoblox appliances for High Availability (HA) and uptime. HA measures the reliability of access to systems impacted by planned maintenance and unscheduled downtime. Uptime measures the time a system is operational. With HA, admins can achieve both and avoid single points of failure in Azure and other public cloud environments, especially for mission-critical applications and workloads.

### **Stronger DNS Security and Control**

In recent years, Distributed Denial of Service (DDoS) attacks on the internet services provider Dyn and other prominent companies have proven the need for protection against DNS-based threats to minimize costly business disruptions, lost revenue and damage to brand reputation. NIOS adds virtual Advanced DNS Protection (vADP) for AWS public cloud to detect and mitigate the widest range of DNS attacks including volumetric, NXDOMAIN, DNS hijacking and other exploits. With vADP, administrators can quickly detect attacks, maintain DNS integrity, enhance uptime and extend external DNS protection from local on-premises instances to public cloud environments.

To further harden system security, Infoblox enables vNIOS synchronization with Amazon Route 53 multi-account subset lists. Administrators can extend Route 53 discovery and sync from a single NIOS instance to a list of multiple accounts in AWS, strengthening security posture and improving control. Administrators can choose between 1) NIOS providing automatic account discovery, or 2) specifying a list of accounts to be discovered and synchronized from Route 53 environments. This capability strengthens security by 1) preventing child accounts from accessing the root; 2) blocking delegate administrator access; 3) inhibiting discovery of all Organizational Unit (OU) accounts; and 4) using Assume-Role permission access. These DNS security provisions fortify critical network services against attack and keep applications available and performing so organization can focus on serving customers and running their business.

### Faster, Automated AWS Workload Provisioning

By using automation to eliminate manual provisioning of DNS records and multiple handoffs between cloud and network teams, Infoblox dramatically shortens the time needed to spin-up new workloads in AWS. And when the virtual resources are decommissioned, Infoblox handles the mundane, labor-intensive work of reclaiming IP address and DNS records so overburdened staff can limit time on manual, tedious processes in favor of higher-value assignments. Further, for teams needing to manage and sync multiple accounts in Amazon Route 53, Infoblox saves significant time and AWS usage fees by eliminating vNIOS member deployments in each account and synchronizing all Route 53 hosted zones to the Infoblox Grid. For federal and other government customers, Infoblox enables Route 53 support for AWS GovCloud for highly available and scalable DNS to connect user requests to AWS Internet applications, customize routing policies and reduce latency.

### Flexible Deployment Options

Infoblox DDI for AWS is tightly integrated with industry-leading on-premises virtual and physical appliances. The comprehensive DDI platform can support AWS public cloud, private cloud environments (e.g., including VMware, OpenStack, Microsoft and others) and traditional networks—or any combination in a hybrid deployment. The unified solution ensures maximum flexibility, scalability and service availability.

Infoblox offers a full range of deployment options through secure, purpose-built physical and software appliances for small remote and branch offices, medium-sized organizations and large enterprises and services providers with data centers and distributed sites. The Trinzic X6 physical and software appliance platform offers up to 50% better DNS and DHCP performance over prior models. It also includes cost-saving licenses for Cloud Platform API automation, DNS Firewall and DNS Traffic Control global server load balancing. No matter what your organization needs, Infoblox provides the commercial-, enterprise and service-provider-grade solutions that deliver a consistent, critical network experience with the reliability and flexibility to scale your environment as your business needs require.

Infoblox enables cloud migration by allowing administrators to deploy Network Insight discovery and Reporting and Analytics appliances in AWS public clouds. Network Insight provides integrated Layer-2 and Layer-3 discovery, IPAM sync with devices, end hosts and network ports, switch port management and lifecycle and compliance notification. In addition, the Infoblox Reporting and Analytics solution, built on Splunk, the market- leader in data search, delivers monitoring, **visualization and Security Information and Event Management (SIEM) capabilities**. Placing solution-optimizing appliances in AWS supports cloud-first initiatives, simplifies the migration of physical data centers to the cloud. It also reduces physical data center resources and delivers single- and multi-site visibility into DDI metadata for historic audit/compliance, real time alerting, network performance and capacity planning. As a result, organizations gain complete on-demand visibility, simplify compliance reporting and enable detailed audits of DNS and IP address information for AWS resources across networks and geographic regions.

INFOBLOX DNS AND IPAM VIRTUAL APPLIANCE OPTIONS FOR AWS ENTERPRISE PLATFORM (R6 INSTANCE)

Software Model	DNS Queries Per Second* (QPS)	DHCP Leases Per Second*(LPS)	AWS R6 Instance Type	Network Discovery (ND) Model		Reporting (RPT)
TE-926	33,750	225	m6i.2xlarge	ND-906	✔	N/A
TE-1516	67,500	400	m6i.4xlarge	ND-1516	N/A	N/A
TE-1526	112,500	675	r6i.4xlarge	ND-1526	✔	N/A
TE-2326	250,000	1,200	r6i.8xlarge	ND-2326	✔	N/A
TE-4126	450,000	1,500	r6i.12xlarge	ND-4126	✔	N/A
TR-v5005	N/A	N/A	Customize	N/A		✔

\* The stated performance numbers are for reference only. They represent the results of lab testing in a controlled environment focused on individual protocol services. Enabling additional protocols, services, cache hit ratio for recursive DNS and customer environment variables will affect performance. To design and size a solution for a production environment, please contact your local Infoblox solution architect.

✔ Supported / included    ⊖ Feature is supported on this model but not this platform  
N/A Feature is not supported on this model or platform

OPTIMIZE YOUR AWS PUBLIC OR MULTI-CLOUD

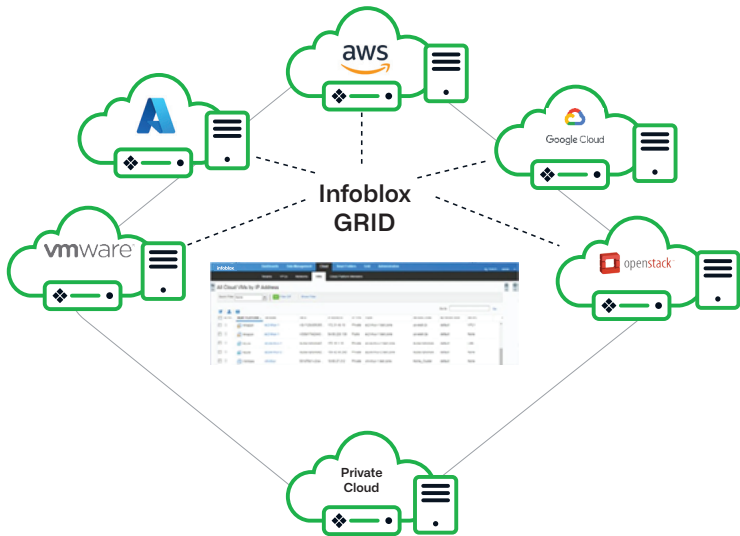


Figure 1: Infoblox is the only vendor supporting traditional networks and private, hybrid- and public, multi-clouds with authoritative single control plane visibility.

The Infoblox and AWS hybrid solution offers comprehensive and efficient management to organizations by boosting cloud agility, supporting consistent network policies across the enterprise and improving visibility into on-premises and public cloud workloads. Together, Infoblox and AWS empower organizations to meet the growing demands of today’s increasingly distributed enterprises.

CONTACT US

For more information or to get answers on Infoblox DNS and IPAM and other network services for Amazon Web Services (AWS), connect with your Infoblox account team, see our [critical-network integrations](#) or [contact us](#) at Infoblox.com.



Infoblox unites networking and security to deliver unmatched performance and protection. Trusted by Fortune 100 companies and emerging innovators, we provide real-time visibility and control over who and what connects to your network, so your organization runs faster and stops threats earlier.

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