

SOLUTION NOTE

Rapid Provisioning Supports Service Agility

OVERVIEW

Service providers have embraced network functions virtualization (NFV) and software-defined networking (SDN) as key technologies to promote service agility and fast roll-out, simplify network operations, provide cost-effective and elastic scalability and reduce costs. This extensive network transformation, combined with new security and competitive challenges, requires a redefinition of the role of DNS, which was initially designed to provide simple mapping of application and service names to IP addresses. Infoblox has grown DNS into a robust technology, which supports new services, protects against escalating threats and supports service-provider network strategies.

Today Infoblox Virtual Secure DNS Solution includes enhanced capabilities that support existing physical and hybrid networks and a smooth network transition to NFV and SDN.

critical in virtualized environments where virtual machines (VMs) will be quickly provisioned and need to be spun up and down in seconds or milliseconds, and IP addresses dynamically assigned and reassigned to achieve that operational efficiency.

Service agility, the ability to launch or modify services quickly, is one of the primary drivers of NFV and SDN adoption. Service providers need to quickly launch new competitive services where and when they are needed, in response to dynamic market demands or other business changes. Rapid, accurate provisioning is an essential component to enabling this capability.

This highly reactive, dynamic virtualized environment requires tight integration of IP address assignment, with the creation of DNS records as new VMs are deployed. Also essential to efficient management of DNS and IP data is the cleanup of DNS records and freeing up IP addresses when VMS are deleted by the orchestration environment.

Infoblox Virtual Secure DNS Solution

The Infoblox Virtual Secure DNS solution for service providers is a hardened, proven solution that provides mission-critical functionality while reducing the business and operational risk during the network transition to NFV and SDN. The Infoblox solution redefines DNS, once regarded simply as a rugged, scalable network utility, and incorporates the function into a strategic platform that supports next-generation operator services, network transformation strategies and business goals.

Service Agility

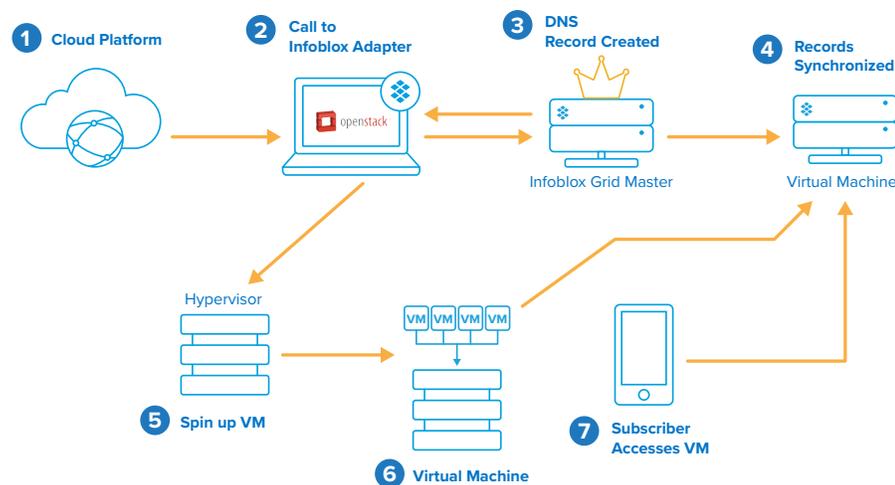
The need to identify a source of truth for IP address assignments using authoritative DNS and IP address management is a challenging requirement even in existing physical networks. This will become especially

Rapid Provisioning

The Infoblox Virtual Secure DNS solution provides the rapid provisioning and orchestration integration needed for service-provider NFV and SDN environments. The solution manages the full lifecycle of an object's IP address, DNS record and host name automatically and seamlessly. Integrating the Infoblox solution with the orchestrator using RESTful API or the Infoblox Cloud Adapters (OpenStack, Microsoft and VMware) allows real-time assignment of IP addresses and real-time setup of DNS in a fully automated manner.

Centralized Visibility and Control

Many legacy DNS systems have multiple disconnected, individually managed DNS services running in the network, making coordinated software updates, configuration changes, or other system-wide changes both labor intensive and prone to error. A single view of the entire network is essential to reduce administrative time, eliminate the risk of service-impacting configuration errors and identify threats, overload conditions, or other traffic anomalies that need to be addressed in real time.



Infoblox provides a streamlined and efficient method of centrally managing all virtual and physical DNS machines. The Infoblox Grid™ manages a geographically dispersed, virtualized or hybrid NFV system as one system. DNS data, including software updates, configuration changes and threat feeds are replicated throughout the system in real time where necessary. Adding newly spun-up DNS members to the Grid is simple and can be easily automated through an orchestrator, and then added to the DNS pool—and everything can be centrally managed and visible from the easy-to-use user interface.

Service Chaining

SDN technology enables intelligent chain service functions so that traffic from each subscriber or service traverses only a specific set of service functions as defined by the policy for that individual subscriber or service. This prevents over-provisioning of required functions and unnecessary exposure of the

broader network to risky service upgrades. The Infoblox highly programmable Grid provides a control plane mechanism that supports service chaining and policy enforcement.

DNS servers that are deployed in different parts of the network, offering services to service zones (Gi, Gn and Gx), are configured and managed centrally at the Grid Master. Using multi-tenancy and DNS views, the entire IP address management (IPAM) and DNS deployment is behind a single role-based, audited interface.

Operational Efficiency

Operators expect NFV and SDN to simplify operational processes when they deploy common automation and provisioning to commodity hardware. As operators fully implement NFV and SDN strategies, orders-of-magnitude greater management efficiencies (10x–100x) are expected with the use of hypervisors and orchestration systems. Deployment is less complex and risky, since commodity servers can be used for multiple capabilities and can be quickly scaled up, changed, or moved as the network evolves or service requirements change.

Many service providers choose to make these changes in phases, managing a hybrid network during the transition. Migration of authoritative DNS and IPAM infrastructure is especially critical to sustain uninterrupted service between virtual machines.

Reduce Complexity and Risk

The Infoblox Virtual Secure DNS solution supports these efficiency goals and reduces the risk of disruption during network transition. With Infoblox Virtual Secure DNS, service providers can quickly and effectively manage their entire platforms, across all networks— physical,

hybrid, or virtual—based on the same familiar Infoblox GUI and processes throughout the network transition process. This decreases deployment time, reduces the risk of network disruption from human error with frequent changes or updates, and eliminates the burden of added administrative learning.

Maintain Maximum Flexibility

The Infoblox solution for service providers is available as a hardware or virtualized solution using standard orchestrators, providing service providers maximum deployment flexibility. The Infoblox Grid Master supports both hardware-based and virtual Grid members within the same Grid.

Visibility and control for updating Grid member firmware and software, and for configuration management remains centralized regardless of the number of Grid members, or whether they are hardware based or virtualized.

Improve Subscriber and Network Protection

Infoblox specializes in DNS-specific attack prevention and visibility. The Virtual Secure DNS solution includes Infoblox DNS Firewall, providing broad protection against DNS-based malware. DNS Firewall protects subscriber devices from becoming infected if they access malicious domains and identifies infected clients for cleanup. It takes a live reputation-feed service from the Infoblox global threat ecosystem to create a dynamically updated list of known malicious URLs and IP addresses. When a DNS query reaches an Infoblox DNS server, any match to the reputation-feed list results in redirection or blocking according to the service provider's policy rules. All actions are logged, and reports can be generated showing all malicious activity.

Automated Kill Chain

Automated threat mitigation removes limitations of manual updates, significantly improving protection levels. The sheer volume of attacks has exceeded the ability for administrators to manually keep up with the changing landscape. Petabytes of data need to be combed through in order to identify infected or rogue devices and mitigate individual security incidents. The Infoblox global security ecosystem provides early detection and automatic updates. The unique automated update of both reputational and identified threats enables an automated kill chain, effectively blocking zero-day threats and often mitigating attacks before they can cause any damage to subscribers or service availability.

Reduce Business and Operations Risk

Infoblox Virtual Secure DNS solution for service providers delivers the intelligence, performance, and proactive protection service providers need to safeguard their networks, subscribers, and brand as they transition from hardware-based to virtualized environments and provides operational efficiency at the same time.

In addition, the Infoblox solution provides automated network control through the Infoblox Grid, which can free key network operations staff from labor-intensive, costly, and error-prone administrative tasks. The technology automates routine tasks such as updates, patches, and configuration changes, provides a mechanism for automatic, real-time security updates, and provides a single centralized view of the entire network, including both physical and virtualized elements, with advanced reporting visibility for planners and operations teams.

Proven Integration with Standard Orchestrators and Hypervisors

Infoblox has been deploying to cloud and virtualized environments for a number of years. In addition to tight VMware integration, Infoblox also offers OpenStack support for Icehouse, Juno, and Kilo. In fact, Infoblox is included in the OpenStack Liberty platform. Supported hypervisors include VMware, KVM, Xen, and Hyper-V. All Infoblox OpenStack code is freely available to Infoblox customers looking for integration at the [github site](#)—where you can also find [documentation](#).

Contact us today to find out more about Infoblox Virtual Secure DNS Solutions for service providers.



Infoblox is leading the way to next-level DDI with its Secure Cloud-Managed Network Services. Infoblox brings next-level security, reliability and automation to on-premises, cloud and hybrid networks, setting customers on a path to a single pane of glass for network management. Infoblox is a recognized leader with 50 percent market share comprised of 8,000 customers, including 350 of the Fortune 500.

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