Infoblox Cloud Platform Appliances

Scalable, Automated, Future-proof DDI Infrastructure for All Cloud Environments

As enterprises adopt cloud deployments, the orchestration and automation functions become paramount. Infoblox Cloud Platform Appliances improve the scalability and resilience of data center deployments by distributing API processing and keeping API calls and DNS/DHCP protocol services local to each data center or cloud environment. This lets enterprises scale their core network services with an architecture that satisfies the needs of today’s distributed cloud deployments as well as future deployment topologies.

The Challenge: Creating a Scalable DNS and IPAM Architecture

Automation and distribution of core networking services (DNS, DHCP and IPAM) are critical for cloud and next-generation data center (NGDC) environments due to the dynamics of the infrastructure. Applications can be deployed on premises in private clouds, off premises in public clouds, or in a hybrid environment simply by changing configurations in the cloud management or orchestration platform. Similarly, applications can be moved to make better use of infrastructure-as-a-service (IaaS) resources. Therefore, it is critical that DNS, DHCP, and IPAM be both flexible and distributed across these environments.

As part of the provisioning workflow, integration is needed between the server/cloud teams to provision the compute, storage and network requirements for each VM.

Scalable, Enterprise-grade DDI for Cloud and NGDC

Infoblox Cloud Platform Appliances solve this challenge by combining the ability to serve DNS and DHCP protocols with API management of DNS, DHCP, and IPAM records in a single virtual platform that is directly
integrated into the Infoblox Grid. As virtual machines are provisioned, Cloud Platform Appliances allocate IP addresses and automatically create DNS records for each virtual machine, eliminating the bottlenecks created by manually provisioning blocks of IP addresses and individual DNS records. Cloud Platform Appliances are grid members with additional capabilities such as API survivability, distributed API processing and authority delegation.

Infoblox integrates with leading Cloud Management Platforms using RESTful APIs to improve agility by providing IP address management and automated DNS provisioning for workloads. Cloud-orchestration platforms use API calls to provision network services for DNS and IP address automation. Servicing these API calls becomes critical to the virtual machine provisioning process and requires a scalable, resilient solution with no single point of failure.

Improved API Handling with Cloud Management Platforms

Without Cloud Platform Appliances, API calls are sent to the Infoblox Grid Master as part of the Infoblox Cloud Network Automation deployment. While this works fine if communication with the Grid Master is available, but if network connectivity is disrupted between the data center hosting the cloud management platform/orchestrator and the primary data center hosting the Grid Master, DNS and IP address management will be impacted, and the risk of a service outage is increased.

Infoblox Cloud Platform Appliances serve DNS and DHCP just as traditional Grid Members do, but have the added capability of being able to and IPAM records. This keeps all of the API calls within the same data center or cloud environment while DNS/DHCP changes happen in real time. This eliminates availability and latency issues even if connectivity to the Grid Master is lost. When the connectivity resumes, data is synchronized between the Grid Master and cloud platform members automatically. This ensures local survivability while still providing centralized visibility and management. In scaled-out cloud environments where VMs are spun up across multiple locations, the local API capability improves overall system reliability and avoids latency with API calls that have to be sent over a WAN.

Distributed DDI Management and Multi-tenancy Support

Infoblox Cloud Platform Appliances are designed to support a delegation model enabling organizations to segment sets of DNS, DHCP, and IPAM data for management through specific appliances. This is an ideal way to delegate management of records for zones, subzones, networks/subnets, or ranges to particular organizations or projects within an organization. When used with Infoblox Cloud Network Automation, Cloud Platform Appliances can delegate and isolate management of DDI records specific to OpenStack or VMware vRA tenants or AWS EC2 VPCs, facilitating management of multi-tenant environments.

Additional Cloud Platform Appliances can be deployed on-demand to increase protocol and API capacity or to provide core network services for new cloud environments as they are provisioned. This improves overall time to service while providing additional scalability and resiliency for cloud deployments. Cloud Platform Appliances are critical tools for providing the dynamic and scalable core network services required by cloud and NGDC deployments.

Centralized Visibility and Management for Hybrid Cloud Deployments

The data synchronization and distributed database capabilities of the Infoblox Grid make it easy to centrally manage all DDI data while distributing DNS and DHCP protocol support. Cloud Platform Appliances take this concept a step further by enabling API updates on the same Infoblox members that serve DNS/DHCP. The Infoblox Grid performs bi-directional synchronization of all data within the Grid in near real time, providing the unique capability to allow updates of critical DNS, DHCP, and IPAM records through the Grid Master and/or through Cloud Platform Appliances. This gives enterprises the same benefits of distributed, highly available API processing as they get for serving DNS/DHCP protocols from their Infoblox Grid.

Figure 2: Sample deployment scenario using Cloud Platform Appliances with Infoblox DDI
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### Cloud Platform Appliances (virtual appliance only)

<table>
<thead>
<tr>
<th>Model</th>
<th>Recommended number of VMs</th>
<th>API Calls per minute</th>
<th>DNS Queries per Second</th>
<th>DHCP Leases per Second</th>
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</thead>
<tbody>
<tr>
<td>CP-805</td>
<td>1,000</td>
<td>10</td>
<td>4,000</td>
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<td>200</td>
<td>143,000</td>
<td>600</td>
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</tbody>
</table>

### Why Infoblox

- Industry-leading enterprise grade DDI platform
- Grid technology that leverages Cloud Platform Appliances for scalable and reliable cloud network automation
- The most comprehensive API integrations, including VMware, AWS, Azure, GCP and OpenStack
- Complete visibility of virtual and physical resources with single pane of glass management