Infoblox DDI Best Practices Guide

Best practices for managing and using Infoblox

Part 1

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Introduction

Infoblox provides a very robust solution for managing your network, helping to simplify and automate many tasks for DNS, DHCP, IPAM (DDI) and other services. It is common to find multiple ways of accomplishing tasks and it is not always clear where different options should be used to provide better usable, performance and/or security. While not an exhaustive list, this guide covers common areas where a best practice is recommended.

Intended Audience

This guide is intended for administrators new to Infoblox or are deploying new features and services.

Best Practices

DNS

When enabling DNS services, there are many times where things can be done a number of different ways to accomplish the same goal. The following is intended to help with choosing when to go with a certain configuration under different circumstances.

Name Server Groups

Configuring name server assignments for multiple zones can be a tedious process. While there are steps that can be taken to simplify this process, the easiest solution is to use the Name Server Groups feature. With Name Server Groups, you setup and maintain your name server assignments in one place and this will be applied to all zones that are assigned to it.

Name Server Groups can be configured for multiple types of zones, including:

- Authoritative
- Delegated
- Forward
- Stub
- Forward/Stub

For Name Server Groups for authoritative zones, it is helpful to enable the default option for at least one. This will tell NIOS to assign it to any new zones as they are created. Name Server Groups should be used to control name server assignments wherever possible.

Delegated, Forward and Stub Zones

When working with external name servers, it is frequently required where authority must remain with those external servers and this can be accomplished using either a delegated, forward or stub zone. A common question which one of these would be best to use and why.

Delegated Zones

Delegated zones are used when you are authoritative for the parent zone and want to allow another server to be authoritative for a subzone. Recursion is not required for delegations to work, though this can help speed up responses as this allows the DNS server being queried to provide the answer directly to the client sending the query.
Forward (Forwarding) Zones
Forward zones enable conditional forwarding. A server receiving a query which falls in a forward zone will send that query to one of the forwarders configured for that zone. Any response received is then sent back to the client, similar to the way a web proxy operates. These types of zones are useful when you are not authoritative for a zone and need to send queries for that zone to specific set of servers. Recursion must also be allowed for a forward zone to work.

Stub Zones
Stub zones can almost be considered a cross between both a secondary and forward zone. With a stub zone, you configure a Master name server (one or more) where it pulls the authority records (SOA, NS and glue (A) records) for the zone and stores those locally. These authority records are used for resolving any corresponding queries and are periodically refreshed, making stub zones particularly useful when the authoritative name servers can be expected to change frequently.

Use Forwarders Only
The Use Forwarders Only option allows you to control how DNS queries are handled for recursive lookups and/or for a Forward Zone (also referred to as conditional forwarding). This option (as displayed below) is not enabled by default and when not enabled, the general behavior is that queries can be resolved using both the forwarders and recursive lookups using the ROOT hints.

One of the main benefits to leaving this option disabled would be to allow recursion to work even if the forwarders stop working. When deciding when to enable this option or not, factor in how you want the queries to be processed. Considerations to make include:

1. If the forwarders are not used and the query is resolved recursively, would it get the same answer? If no, then this option should be enabled.
2. Will the query resolve successfully if the forwarders are not used? If no, then this option should be enabled.

Don't use forwarders to resolve queries in subzones.
This property can be found in the settings for different zone types, including authoritative and stub zones. When forwarders are enabled, they can take precedence over any delegations or stub zone
configurations that you may have. If any delegated or stub zones currently fall within the zone in question or might be added at a later time, this option should be enabled.

Cloud

CP (Cloud Platform) appliances

CP appliances provide additional functionality when supporting environments where automation of virtual machines and networks is crucial to day-to-day operations. CP appliances should be considered when:

- Redundancy is required for API connections to the Grid.
- Client endpoints making API calls to the Grid are not able to communicate directly with the GM.
- Administration/management of networks and/or DNS zones will be delegated to other groups and access through the GM is not desired.
- The appliance will not be the GM or a GMC but may still be used for protocol services.

Public Cloud

Infoblox appliances can also be deployed in the public cloud, such as AWS (Amazon Web Services) and/or Microsoft Azure. Important considerations to keep in mind are:

- Anycast and Infoblox HA (High Availability) are generally not supported.
- Only two network interfaces are supported, such as LAN1 and MGMT.

To ensure maximum availability, for AWS (Amazon Web Services), appliances should be deployed across multiple Availability Zones and/or Regions. Appliances deployed in a single Availability Zone could end up on a single hardware cluster. If that hardware cluster experiences an outage, this can result in a service impact on multiple appliances.

With Microsoft Azure, appliances should be deployed in a single Availability Set and across multiple Regions. This allows you to take advantage of multiple Fault and Update Domains which helps ensure
maximum availability of your appliances. Each Fault Domain will use its own hardware cluster and each Availability Set will have five (5) Fault Domains and three (3) Update Domains by default.

Note: Appliances added to an Availability Set will be distributed across these fault and update domains in the order that they are created. It is important to monitor this distribution as this order can become uneven when appliances are terminated.