Infoblox
CONTROL YOUR NETWORK

WHITE PAPER

Infoblox DNS Traffic Control (DTC) Solution

Reduce your application response times, lower your resource utilization, and provide business continuity.

Introduction

Striving to meet customers where they are, today's businesses are focused on modernizing and strengthening their networks, integrating technologies to increase speed and efficiency, reduce cost, minimize risk, and, most importantly, improve the customer experience. To support a geographically dispersed workforce, enterprise employers are making similar investments. The availability and performance of applications to serve the needs of both customers and employees is crucial to any organization transacting business on the web, placing increased demand on systems and resources.

The Challenge: Load-balancing All Traffic Efficiently

By year-end 2016, Internet traffic is estimated to reach 1,000 Exabytes, growing threefold by 2020. To keep pace with increasing customer expectations and maintain employee productivity goals, balancing the impending increase in traffic will be critical and presents challenges for any IT Team.

To serve both global customers and employees, businesses deploy applications on multiple servers in data centers (sites) worldwide. To ensure that user experience meets performance and availability goals, regardless of the location of the user, IT teams use multiple DNS servers to serve these applications. User traffic is load-balanced across sites and servers using global server load balancers (GSLBs) in conjunction with DNS servers.

While common in the marketplace, standalone GSLB solutions create interdependencies; both servers have to be purchased, manually configured, and kept in sync, creating vulnerability around configuration errors, increasing management costs, and potentially causing costly downtime.

Further, defining an internal GeoIP database to identify the source of a DNS query can be challenging. As a substitute for GeoIP information, traditional solutions use IP subnets to identify the location of a DNS query. This is not scalable and is onerous to maintain. Adding new subnets organically, in the same geographical location, is also troublesome. As an example, adding new subnets during a building expansion or an infrastructure consolidation project requires a manual update to the GSLB servers. This is time-consuming and error-prone, and the GSLB and DNS servers could enter an inconsistent state.

Infoblox DNS Traffic Control (DTC) Solution

Infoblox DNS Traffic Control (DTC) integrates GSLB functionality with core DDI network services. Highly automated, it provides the performance, scalability, and availability that organizations require. Configuring load balanced domain names is simplified with Infoblox's unified management portal. Hosts in Infoblox IPAM can easily be configured as application instances that are being load balanced.

Ideally, a GSLB solution should redirect user traffic only to servers that are up. With Infoblox DTC, multiple health checks are available, including looking at the content of the returned page for a string to exist or not exist. For example, finding "Under Maintenance" is undesirable. Additionally, values can be extracted from the web page and compared to a configured value. For example, the page might return "Database Status: UP", and DTC can extract the value next to "Database Status" and make sure it is "UP" (and not "DOWN"). Similarly, use of SNMP OID can also determine health. For example, you want CPU utilization to be less than 65%.

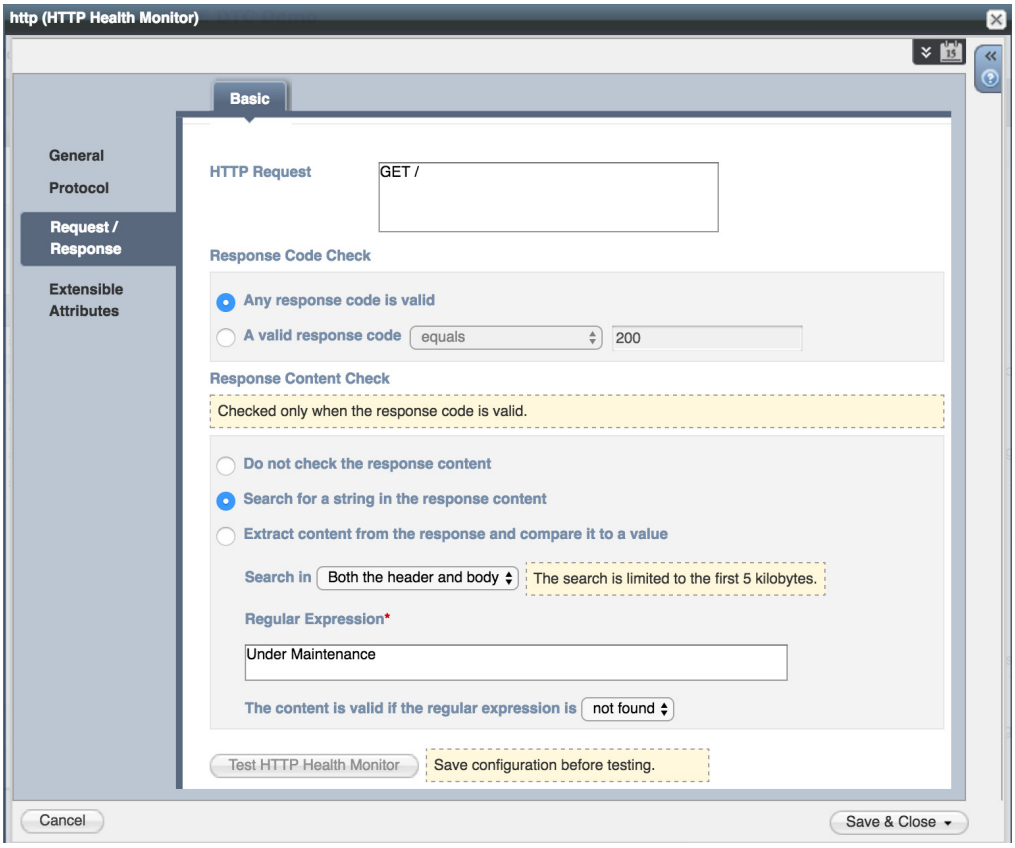

Figure 1: Infoblox HTTP Health Monitor

With its powerful graphical user interface (GUI), the Infoblox DTC solution is intuitive to configure and monitor, providing hierarchical relationships between different configuration parameters in deploying DNS load balancing such as load balanced domain names, pools, and servers. Also, users can test the configuration before production deployment, as well as add, configure, and troubleshoot DNS load balancing.

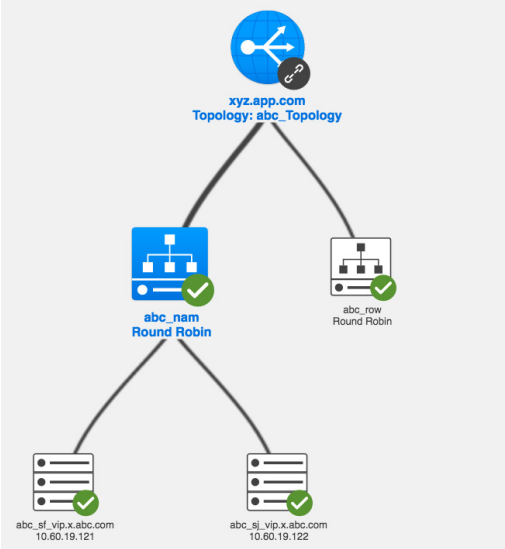

Figure 2: Graphical display of Infoblox DTC.

Identifying the location of the DNS user is much more intelligent. Using Infoblox Extensible Attributes (EAs), regions, countries, sites, or buildings can be specified. Then, DTC rules are built using the attributes—much easier to configure than specifying subnets. Better still, most Infoblox users are already using Extensible Attributes to identify a subnet's location.

Here is an example of a Topology Ruleset using Extensible Attributes for location:

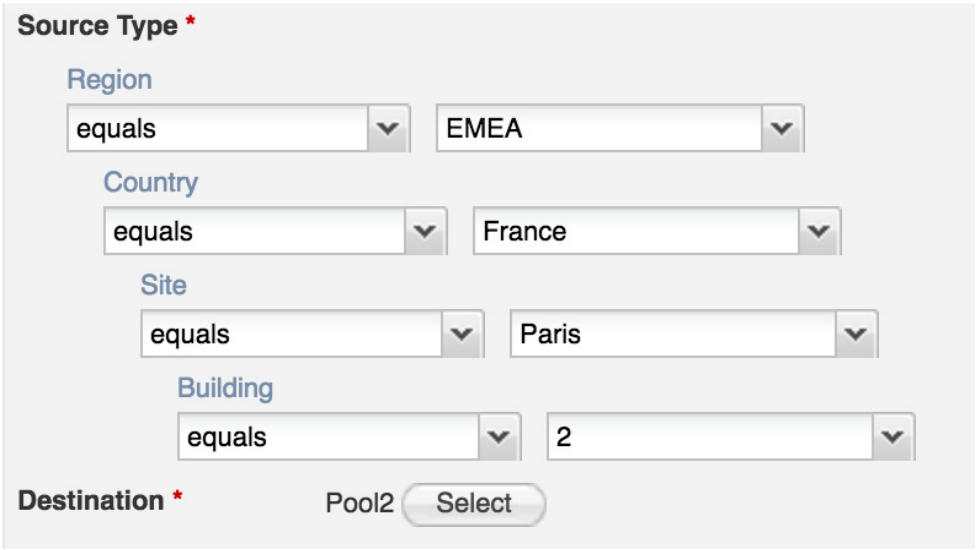

Figure 3: Destination based upon source IP and extensible attributes

Using Extensible Attributes, DTC can direct users to the optimal instance of an application.

Use Cases

Load-balance Application Resources across the Internet

Infoblox DTC improves application response time for Internet users, taking into account the user's geographic location, server load, server availability, and corporate policies. User locations are determined based on their public IP and a GeoIP database to effectively direct user traffic to the geographically nearest server that is functional and available.

Load-balance Application Resources for Internal Enterprise Networks

A GeoIP database does not work within a corporate network. Infoblox DTC uses IP address metadata (Extensible Attributes) to identify the user's location and direct them to the best instance of an application. Extensible attributes in Infoblox IPAM database contain customer-defined attributes including locations, business units, and other relevant corporate data.

Disaster Recovery

During normal operations, the IP address of the primary site or server is always returned. However, in the case of an outage at the primary data center, all traffic is directed to the secondary data center. Infoblox DTC monitors the state of the primary and secondary data centers, directing traffic appropriately.

Summary

Integrated into the Infoblox Grid™, Infoblox DNS Traffic Control enhances core DNS functionality, resulting in a highly resilient, seamless GSLB solution. Infoblox DTC leverages insights from Infoblox IPAM, the authoritative single source of truth for the network. By combining DNS and GSLB functionality into a single solution, Infoblox DTC shrinks your platform footprint, eliminating wasteful operational expenses. In addition, internal application traffic can be load-balanced based on geo-location of the internal IP addresses—a powerful capability for the Intranet. With predictive and historic reporting capabilities, IT administrators can easily track all available servers, their health status, and DNS usage data.

Tap into the benefits of DNS Traffic Control to reduce your application response times, lower your resource utilization, and provide business continuity across your sites and servers.

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