

# DNS Traffic Control

## GLOBAL NETWORK LOAD BALANCING FOR WORKPLACE MODERNIZATION

Workplace modernization is changing the network landscape. Direct access to cloud applications from everywhere is expanding the network perimeter. SaaS is raising expectations for a fast, efficient, always-available customer experience. SD-WAN is enabling direct Internet access for local branches, 5G is emerging and IoT is increasing connectivity demands on network resources.

These challenges magnify as organizations adopt new platforms and technologies. Users expect real-time performance, especially from e-commerce and internal portals. Managing legacy and modern apps is becoming more complex. Privacy regulations are intensifying with severe penalties for non-compliance. Increasing trends in mobile and remote workers and branches, globalization, data center consolidation, ongoing resource limitations and expanding DNS, malware and stealth attacks are placing an even greater strain on teams responsible for managing network traffic, uptime and availability.

## RELIABLE GLOBAL UPTIME AND AVAILABILITY FOR THE HYBRID CLOUD

Infoblox's DNS Traffic Control (DTC) can help solve these challenges. DTC is an integrated DNS global server load balancing (GSLB) solution that delivers customer satisfaction and business continuity through reliable application uptime, performance and seamless failover. It distributes network traffic loads across geo-diverse, on-premises and hybrid, multi-cloud environments for e-commerce, customer-facing portals, the web and internal business-critical applications for business continuity and disaster recovery in the event of a catastrophic event.

## DNS-BASED GSLB INTEGRATED WITH THE MARKET-LEADING CORE NETWORK SERVICES AND SECURITY SOLUTION

DTC is uniquely able to deliver the reliability, visibility and automation today's organizations require. It's fully integrated with Infoblox's market-leading enterprise-grade DNS, DHCP and IP address management (DDI) physical and virtual appliances. It delivers robust, highly intelligent GSLB functionality with core authoritative DNS network and security solutions. DTC enables networking teams to get the best of DNS and GSLB in an integrated, authoritative and easy-to-use solution.

## KEY FEATURES

### RELIABILITY

- **Integrated DNS/Global Server Load Balancing (GSLB):**  
Integrates authoritative IP address management (IPAM) with DNS and GSLB to deliver five-nines, highly available Intranet and Internet app uptime and performance without dependence on a separate DNS platform
- **Infoblox Grid Integration:**  
Allows all DNS and GSLB server settings to be managed through a simple, consolidated GUI from a single control plane with no special programming required
- **Intelligent Global Traffic Management:**  
Uses DNS-based GSLB to intelligently direct user traffic to the optimal server based on client and server location, server health and server availability
- **Server Health Check Validation:**  
Provides a broad range of configurable balancing algorithms, along with flexible, automated, multi-tier health checks to ensure availability and avoid sending traffic to impaired destination servers
- **Scalability:**  
Enables scalable, multi-level decision making to support increasing data volumes using CNAME records
- **Service Record (SRV) Support:**  
Supplies GSLB support for SRV records (e.g., VoIP, video conferencing) to ensure maximum quality, response and availability

## BENEFITS

Infoblox DTC GSLB delivers the following benefits:

### Reliability

- App uptime and performance enabled by intelligent load balancing to the server at the most efficient location
- Seamless management control empowered by a fully integrated DNS/GSLB architecture
- Server validation verified by configurable load-balancing algorithms and flexible, automated, multi-tier health checks
- Scalability to meet changing global network load-balancing needs on-premises or in the hybrid multi-cloud

### Visibility

- Seamless management visibility into all network assets and endpoints across distributed, hybrid, multi-cloud environments
- Compliance with expanding privacy regulations through extensible attributes (EAs) and GeoIP client zone management
- Summary and forensic-level visibility through integrated real-time Reporting and Analytics

### Automation

- Efficient topology management using IP subnet, GeoIP and EA data
- Time and resource savings through API automation
- Simple, fast software configuration and updates across the Grid in just a few clicks
- Data shared throughout the security ecosystem and community

## SOLUTION

### Integrated DNS-Based Traffic Control

At the center of every network connection is DNS. Unlike most other application delivery controllers (ADCs), DTC does not depend on an administrator having to build a topology map for internal networks. Instead, DTC uses the IPAM data already within the system to manage network traffic via the DNS server. IPAM EAs, or user-defined data tags, provide user location for Intranet applications, while an integrated MaxMind GeoIP database supplies user location for Internet clients. This approach enables DTC to deliver improved availability and performance for internal and external applications.

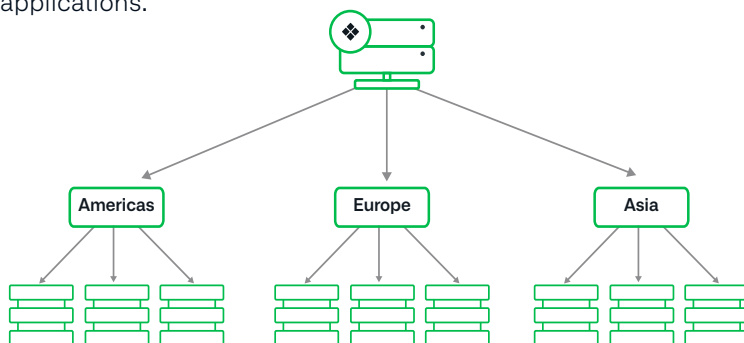


Figure 1: DTC conceptual global topology map

## KEY FEATURES (CONT'D.)

- **CSV Import/Export:**  
Offers bulk import of configuration data and export of DTC data for backup and analytics

## VISIBILITY

- **DTC Visualizer:**  
Displays load-balanced domain names (LBDNs), pool and server relationships and attributes through a single GUI visualization
- **Pre-Production Testing:**  
Allows testing of new and updated LBDNs, pools and servers quickly and in real time to ensure pre-production readiness before go-live
- **Compliance:**  
Allows the use of GeoIP and extensible attribute (EA) data to restrict traffic to region-specific zones for LBDNs and pools to assist with meeting privacy compliance requirements
- **Integrated Reporting and Analytics:**  
Supplies Splunk-based pre-built and customizable dashboards, reports, search, alerting and automated report distribution for enhanced visibility and control

## AUTOMATION

- **Topology Management:**  
Powers discovery, creation and management of topologies automatically using IP subnet, GeoIP and EA data
- **API Automation:**  
Add new server instances, provision new apps quickly, integrate with other systems and automate routine GSLB management tasks, saving time and money with this easy-to-use, well documented API that mirrors the functionality of the web GUI
- **Grid Software Updates:**  
Deploys, configures and updates software for all Grid members, saving time, money and resources

## API Automation

Thanks to DTC's well-documented, easy-to-use RESTful API, DTC configuration can be automated. Unlike other APIs, DTC's API mirrors the GUI functionality to improve usability and productivity. Configure LBDNs, pools and servers, set topology rules, spin-up new instances, make system-wide changes, integrate with existing tools and technologies, automate ongoing tasks like disaster recovery testing and more, saving time and money while freeing staffing resources for higher-value assignments.

## Compliance

DTC's topology rulesets using GeoIP and EAs enable network teams to restrict traffic to region-specific zones to enable compliance with privacy requirements.

## CSV Support

DTC includes CSV tools to enable DNS data import to ease migration from other GSLB solutions. It also offers the ability to export DTC data for backup or external parsing and analysis.

## Flexible, Automated, Multi-Tier Health Checks

To ensure traffic is directed only to the best available servers, DTC provides flexible, automated, multi-tier health checks, including HTTP/S, SNMP, TCP, SIP, PDP and ICMP. These health monitors detect for impaired or offline upstream servers before routing traffic, thus maintaining performance and continuity by sending traffic only when web, app and database servers are available.

## Grid Deployment and Provisioning

Because DTC is a licensed product, it can be deployed on an existing Infoblox Grid appliance in several minutes. For existing operational environments, updating software on the Grid is fast and easy, using a few simple clicks. Unlike some ADC platforms, there are no more manual, error-prone box-by-box updates, saving time, money and resources.

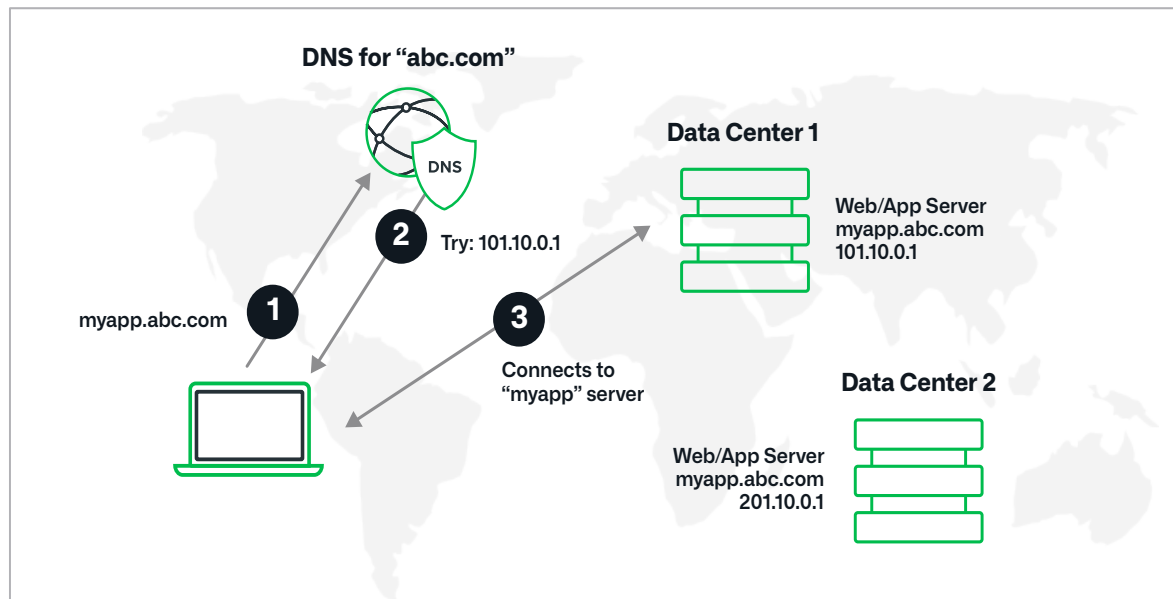


Figure 1: DTC provisioning showing 1) app deployment initiation, 2) company DNS connection, and 3) myapp server provisioning in distributed data centers.

## GUI Visualizer for Unified DNS/GSLB Management

With Infoblox's DDI integration with patented Grid technology, DTC's easy-to-use GUI visualizer allows unified global visibility into and management of all DDI and GSLB functions from a single control plane. You can see detailed real-time status of all LDBNs, pools and server relationships, configurations and operational status on-premises and in the hybrid, multi-cloud. The GUI visualizer makes DTC very easy to use, without requiring special programming skills, saving training and management time and effort over more expensive load-balancing solutions. DTC makes planning, provisioning and troubleshooting fast and easy, improving usability and efficiency.

The screenshot displays the Infoblox DTC GUI. The top navigation bar includes 'Data Management', 'Cloud', 'Smart Pools', and 'Grid'. The left sidebar shows 'Traffic Control' with sub-options for 'LDBN', 'Pool', and 'Server'. The main content area features a table of DNS objects and a topology diagram.

NAME	TYPE	STATUS	IPV4 ADDRESS	COMMENT	LAST STATUS UPD...	LOAD BALANC
dtc-001.dtc.alpha	Server	None	10.40.0.56			
dtc-002.dtc.alpha	Server	None	10.40.0.57			
dtc-003.dtc.alpha	Server	None	10.40.0.58			
dtc-004.dtc.alpha	Server	None	10.40.0.59			
dtc-005.dtc.alpha	Server	None	10.40.0.60			
DTC-Pool1	Pool	None				Round Robin
DTC-Pool2	Pool	None				Round Robin
DTC-LBDN1	LBDN	None				Round Robin

The topology diagram shows a central node 'DTC-LBDN1 Round Robin' connected to two intermediate nodes 'DTC-Pool1 Round Robin' and 'DTC-Pool2 Round Robin'. These pools are further connected to three server nodes: 'dtc-001.dtc.alpha 10.40.0.56', 'dtc-002.dtc.alpha 10.40.0.57', and 'dtc-004.dtc.alpha 10.40.0.58'.

Annotations in the image highlight key features:

- Single GUI combines DNS and GSLB configuration reducing management complexity**: Points to the navigation menu and table.
- Quickly choose which EAs to use for location without leaving DTC configuration pane**: Points to the 'Test LBDN' button in the right sidebar.
- GUI shows relationships & aids configuration**: Points to the topology diagram.

Figure 2: DTC GUI showing DNS and GSLB data, visualizer and configuration in a single control plane

## Health Monitor Manual Failback

On occasion, a network site may become unstable and waver on and offline. Administrators may want to disable or enable the site for maintenance without a DNS restart. The Health Monitor Manual Failback feature expands control by allowing users to disable DTC objects for, or after, a specified timeframe, yet continue network health monitoring activities until user action can manually re-enable the site or execute a DNS restart. The failback features can also manage traffic during disaster recovery scenarios to ensure optimal resource and application uptime. It includes an upgraded GUI that displays different object settings, colors and descriptions for easy status visualization, while log messages and existing reports provide visibility into object status.

## Integrated Reporting and Analytics

While most ADCs often provide only third-party bolt-on reporting solutions, DTC offers a fully integrated, engineered and purpose-built Reporting and Analytics tool with over 100 customizable dashboards and reports. Built on the Splunk reporting and visualization engine, integrated pre-built DTC dashboards and reports provide summary and forensic-level historical views for audit and compliance, real-time views for trouble detection, triage and root-cause analysis and future views for planning and analytics. Monitors, alerts and report distribution can be quickly automated to deliver full visibility into the wealth of data on your network for better management and control.

## Intelligent Load Balancing

Thanks to Infoblox's DNS, DHCP and IPAM (DDI) integration, DTC can intelligently direct user queries and traffic to the optimal server based on configurable algorithms, client location, server location, health and availability. This intelligent load balancing means that client traffic is routed to the closest, highest-performing server available for the best possible user experience.

## LBDN On-Demand Testing

One of the most helpful DTC features is LBDN on-demand testing. On-demand testing saves time, money and resources without having to initiate a project to validate readiness of newly spun-up or reconfigured assets. The GUI visualizer provides real-time visibility into LBDNs, pools and servers with immediate response to confirm configuration, status and availability prior to go-live.

## Load-Balancing Algorithms

DTC enables network teams to route network traffic to pools or servers using pre-defined customized load-balancing algorithms, including Round Robin, Ratio (Weighted Round Robin), Topology (external GeoIP; internal Subnet, EA) or Global Availability (based on a designated resource list). Further, because data center and server loads vary throughout the day, DTC features Round Trip Delay that detects latency changes and directs traffic to the fastest responding servers. DTC also enables the use of Simple Network Management Protocol (SNMP) health checks, which can assess information, such as CPU utilization to route users to servers with the most available resources, thereby distributing application load and improving response times.

## Multi-Tier Scalability

Large, global or multi-tier applications can require successive levels of decision-making to map traffic to servers properly. DTC allows LBDNs to be mapped to CNAMEs of other LBDNs to scale to as many additional tiers as needed to accommodate scalability requirements.

## Service Records

With 5G, Voice over IP (VoIP), video conferencing and other resource-demanding network applications, service records will only intensify the need for GSLB. DTC provides support for the service record type to enable these plus other service applications to ensure optimal availability, quality and location.

## Topology Management

DTC's deep integration of DDI data from IP subnet, GeoIP and Infoblox's extensible attributes automates discovery, creation and management of global network topologies whether on-premises or in the public/ hybrid-cloud. This automated topology management saves time and makes routine load-balancing tasks fast and easy.

## SUMMARY

As you prepare to transform your environment to SaaS, the hybrid, multi-cloud, SD-WAN, 5G and IoT technologies, give your network and applications teams Infoblox DNS Traffic Control for the reliability, visibility and automation necessary to keep your apps highly available, highly performing and secure to meet your users' needs and expectations.



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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