

DnsMux™

IP load-balancing and traffic management appliances for enhanced performance, high availability, reliability, and disaster tolerance

Natural disasters can be unpredictable and unavoidable, but they do not need to cause systems to be unavailable.

As Internet and intranet applications continue to grow in popularity and criticality, as more and more users around the globe become connected to the Internet, and as applications are increasingly served via the Internet, the demands for continuous availability and the cost of downtime continue to escalate. Today's users demand ever-more stable computing environments and expect web sites to always be available.

Today's users also demand high performance from anywhere in the world. Many companies are deploying additional hosting sites to satisfy user demands but face challenges as to how to connect users to the best servers to satisfy their requests and deliver high performance to users located far away from hosting servers

Introducing DnsMux

DnsMux™ is an intelligent DNS server that can ensure the uptime and of Web- and other IP-based applications by diverting traffic away from failed servers to servers at one or more different geographical locations, while also ensuring that users worldwide are connected to the best servers to meet performance and content objectives.

Availability of hosting servers becomes harder to manage when they are at different locations, so further challenges arise as to how to handle scheduled downtime – and, even more difficult, unscheduled downtime due to failure – of servers that are out of reach, while ensuring demands for continuous availability to users worldwide. DnsMux facilitates servers or entire sites to be taken out of operation at will, all from a Web-based interface anywhere in the world.

CAI Networks has created a simple and affordable solution to meet these challenges. With DnsMux, what has until now been available only to those with the resources to spend on high-priced solutions is now available to everyone.

What is DNSMux?

DnsMux is a network appliance that replaces conventional authoritative DNS servers, which offer limited functionality. In a multi-site environment, DNSMux provides all the functionality of existing DNS server but additionally offers:

- **High availability / failover:** DnsMux automatically monitors the health of the web servers it controls; should a failure occur, or should one or more servers at a site be taken out of operation, DnsMux automatically sends new traffic to a functioning site.
- **High performance / load balancing:** DnsMux automatically detects heavily-loaded servers or sites and directs users to equivalent servers or sites with lighter loads.



- **Affinity targeting:** DnsMux can automatically determine the geographical location of each user and, based on configuration settings, route them to the appropriate web server or server farm that contains the appropriate content based on language, geography, etc.

High Availability / Failover

Natural disasters, power outages, ISP failures, and other problems can cause a site to be totally unreachable for a short or extended period of time. During that time, many users are likely to give up and assume the worst, since they will have no idea when the site may come back up, and are likely to abandon after retrying for a brief period of time. This can mean loss of confidence, and loss of business.

DnsMux handles such problems by regularly checking the health of each site (comprised of one or more web servers) it manages every few seconds to ensure that each is operational. Should the site experience problems, its servers are immediately taken out of service and new traffic is routed to another site.



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Such multiple sites can all be active, or one or more can be designed as hot standby. DnsMux can be configured to fail over to either any active site or to a specific site should a failure occur.

DnsMux's health-checking uses OSI layer 4 to 7 network protocols and RSA-encrypted secure communication between DnsMuxes at all times. Should an abnormal situation be detected, DnsMux can be configured to send notification to a specified email address, mobile phone, or PDA.

Facilitates Planned and Unplanned Downtime

Besides being able to avoid unplanned downtime due to disaster or other mishap, DnsMux facilitates planned downtime for maintenance or other purpose by exempting one or more (or all) servers at a site from receiving traffic. During such times, traffic is diverted to other servers or other sites until the server(s) are brought back online.

DnsMux permits sites to be designated for normal operation, or they can act as hot standbys should another site fail.

Peak Performance for Geographically Distributed Users and Sites

Whereas ordinary DNS servers directs users to multiple sites serving the same content on a rather arbitrary basis, DnsMux can route each user to the site that offers the best performance.

DnsMux can automatically determine each user's approximate geographical location and the proximity to each server in a DnsMux-managed geographical network, and cause the traffic to be routed to the closest server that hosts the content being sought.

DnsMux regularly monitors the performance of each server it manages and routes traffic to the best performing servers, thereby ensuring optimal user response times. DnsMux can intelligently load-balance traffic between multiple sites as well as multiple servers at a site.

Affinity Targeting Connects Users to Appropriate Content

An important DnsMux feature for sites that contain disparate content is the ability to automatically routes users to the sites and servers containing appropriate content. Such affinities are typically based on geography – for example, routing users in Germany to German-language sites, or routing European users to a Europe site while US-based are routed to English-language sites in North America.

Such affinity targeting is accomplished via automatic determination of users' locations and configuration settings identifying which geographies should be associated with various sites. If multiple servers can satisfy affinity-based user requests, DnsMux is able to route users to the closest ones, based on geographical proximity or measured performance.

Failover capability is employed so that if any of the DnsMux-managed sites should fail users will be automatically rerouted around them to the sites that contain the appropriate content.

Easy and Secure Remote Setup and Administration

DnsMux configuration and management is done via a browser-based interface, permitting remote administration from anywhere that has IP connectivity and secure access to the DnsMux unit. DnsMux contains its own firewall to enforce access only by authorized users or other DnsMux units with which it communicates.

DnsMux's configuration and management features include:

- Master/slave configuration capability permits changes to be made on one DnsMux and automatically propagated to other DnsMuxes in the network
- DnsMux's built-in firewall restricts configuration access to only authorized users
- DnsMux is equipped with a second network interface, allowing administration tasks to be routed through a specified network
- DnsMux can be located behind a NAT firewall or WebMux load balancer

The DnsMux unit includes a front keypad interface and menu-driven LCD display, which constantly updates its operational status.

To further ease implementation, CAI Networks can factory pre-configure a customer's DnsMux unit(s) as a free service.

Three Years of Technical Support Included

Each DnsMux comes with three years of technical support without charge. During the first three years after purchase, free advice and help with problems is provided at no cost. In addition, the following options are offered:

- Free factory pre-configuration
- 24x7 telephone and email support
- One-day on-site installation and setup
- Customized network design and training

Three Year Warranty Included

The components of CAI Networks' hardware products are warranted against defects in materials and workmanship for a period of three years. During the warranty period, any defective component will be replaced at no charge (excludes damage by accident, misuse, or unauthorized repair).

Should a faulty DnsMux unit be received, it can be returned for repair, update, for replacement at CAI Networks' discretion. A 24-hour express exchange service is offered, under which a replacement unit is sent out before the defective one is returned.

Money-Back Guarantee

CAI Networks through participating resellers offers a 30-day money-back guarantee on its products, permitting DnsMux to be tested in the actual usage environment without risk. Should the decision be made not to purchase, return and refund may be arranged through the point of purchase.

