

WebMux™

Family of layer 2/3/4/5/7 load-balancing and traffic management appliances certified by Microsoft® and Oracle® for high performance, availability, and reliability in a local environment

Introduction

Internet and intranet applications have become a critical part of today's enterprises. High availability and peak performance for both internal and external IP client access are required for large and small businesses alike. Any IP information platform downtime can translate into huge losses in terms of opportunity, productivity, customer confidence, and goodwill.

In today's market, high performance and high reliability are usually synonymous with high-priced. High-cost solutions are difficult to justify and often are out of reach for many businesses. The WebMux™ line of load balancers provides a number of scalable models that provide not only high performance and availability but also high value that fit a wide range of budgets.

WebMux's flexibility and scalability lets a pool of IP servers (such as Web servers, FTP servers, email servers, etc.) to be created and managed and budgeting to be done incrementally instead of making a large up-front capital outlay.

Multi-Layer Traffic Management (Layers 2/3/4/5/7)

One of the main reasons to use a load balancer is to increase the capacity of IP servers (such as Web servers, application servers, email servers, FTP servers, terminal servers, Citrix servers, etc). WebMux load balancers can share the transaction load among multiple servers, making them appear as one large virtual server.

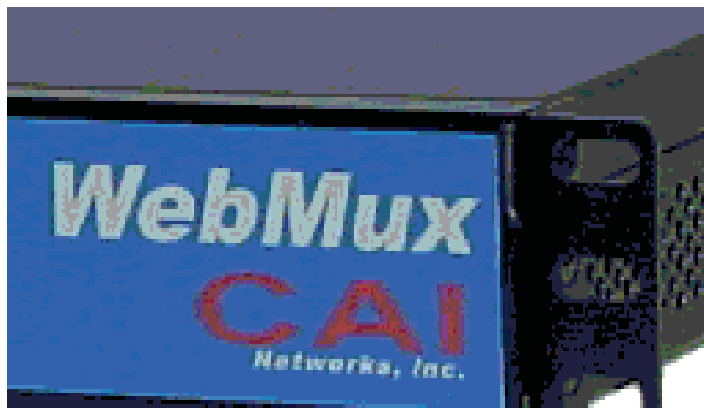
In addition to transparently clustering multiple servers and automatically balancing traffic between them, WebMux is able to direct designated traffic to the appropriate servers based on content. This permits traffic to not only be distributed evenly between multiple content-identical IP servers but also traffic that must be routed to particular servers to be done so automatically.

Load balancing – which is done at OSI layers 2 (Data Link), 3 (Network), 4 (Transport), and 5 (Session) ensures maximum throughput and performance, while traffic management – which is done at OSI layer 7 (Application) – ensures that server-specific content is appropriately routed.

Application-level traffic management transparently routes transactions to appropriate servers based on URLs or cookies. Using this technology, different content can be located on various servers of different types, and WebMux can automatically

direct traffic to the appropriate server or server – without requiring changes to web sites or applications. Load balancing can be accomplished without changes to server IP addresses, network routes, or other configurations, thereby WebMux's presence in the network is effectively transparent.

WebMux's sophisticated yet easy-to-implement traffic management capabilities and comprehensive OSI layer support for load balancing is in today's market only found in products costing



five to ten times more.

High Availability/Failover

WebMux ensures high availability for IP servers. If a server in a server pool fails, WebMux will automatically bypass the failed server and notify the appropriate parties by calling a pager or sending an email. WebMux has built-in high-level protocol and health checking which maintains communication with the services on the server to make sure they are running and healthy.

WebMux can be deployed in a paired configuration, thereby not only providing high availability via failover for inoperative IP servers but also for WebMux itself.

WebMux's failover capability is invoked automatically and requires no user intervention.

High Performance

By employing a unique routing algorithm, WebMux achieves persistent connections without sacrificing performance. With NAT



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(in-path), Direct (out-of-path) or Transparent (bridged) load balancing, WebMux can handle huge amounts of traffic with ease. In Direct mode, WebMux's high-end model can handle up to 6,000,000 concurrent connections.

Built on an ultra-fast hardware platform, WebMux easily outperforms many devices that cost much more, including those that claim to offer run at "wire speed". WebMux's CPU speed is 10 to 30 times faster than most networked devices so that it can process more data packets per second.

Recent independent lab testing shows that WebMux model 481SD can handle over 70,000 new HTTP transactions per second and sustain more than 1,440,000 concurrent connections or more in NAT or Transparent mode (in Direct or out-of path mode, throughput can be 100 times greater). WebMux's low-end model can handle up to 1.2GB/s transactions, while the high-end model can handle upto 4GB/s transactions. From a recent survey, 99.99% of web sites experience less traffic than WebMux 481SD can handle.

(Unlike other vendors that use TCP/IP connection rates as their performance measurement, CAI Networks uses realistic HTTP transaction rate to measure WebMux performance, since users see actual HTTP transactions. Each HTTP transaction contains many TCP/IP connections, and a web site with one million page views a day typically experiences about 30 new connections per second and reaches about 500 concurrent connections during peak access.)

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SSL Acceleration

For sites that handle significant volumes of SSL (Secure Socket Layer) transactions, WebMux offers hardware-based SSL termination via its own CAI-RSA SSL acceleration cards. These dedicated cards offload the resource-intensive processing of SSL transactions from WebMux's main processor to ensure optimum performance without burdening the WebMux processor.

CAI Networks' CAI-RSA SSL acceleration cards are based on industry standards and use an market-leading high-performance chipset – the same found in dedicated SSL acceleration appliances. Thereby, WebMux is able to offer comparable quality and performance to dedicated SSL accelerators without requiring a separate appliance, saving both cost and complexity and increasing efficiency.

WebMux includes software-based SSL acceleration for environments in which hardware-based SSL acceleration is not required (either because SSL is not used or overall transaction volume is low enough that the WebMux processor can handle the load without negative performance impact).

Content-Based Traffic Management

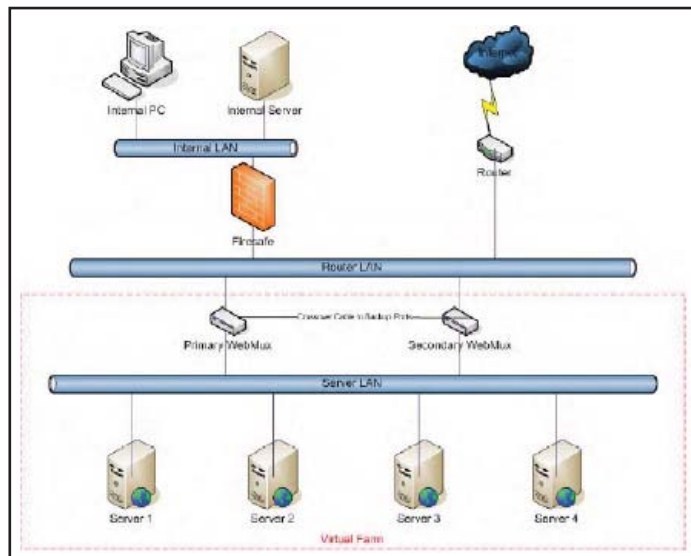
WebMux is able to target content to disparate servers it load balances. This is accomplished by comparing URL or cookie content against customized configuration settings to determine which server or servers can handle the request and routing the call appropriately.

Content-based targeting does not require any scripting or programming: routing rules are set via WebMux's GUI-based configurator. These rules specify which URLs or cookies to filter, and the related server or servers to direct requests to. In SNAT mode, WebMux automatically insert X-Forward-For tag in both L4 and L7.

High Reliability

WebMux is built for maximum reliability. Unlike most products, WebMux uses solid-state flash memory instead of a hard disk drive. This substantially increases reliability, as hard disk failures are the most common cause of computer breakdown. WebMux passes the standard two-meter "drop test" and uses top-quality components, such as made-in-the-USA fans that have a lifetime of five to seven years (versus the typical three), to ensure that hardware failures are averted.

For mission-critical sites, WebMux offers "dual configuration" using a redundant hot standby WebMux to safeguard against the failure of WebMux itself. With dual configuration, if in the unlikely event the primary WebMux fails, the secondary WebMux will automatically take over and notify the administrator.



Enhanced Security

Since WebMux routes all IP traffic, it is able to offer several firewall features to ensure the integrity of data and protect servers from attack. These features include:

- Network Address Translation (NAT and SNAT)
- Port Mapping and default Deny Any Connections
- Denial of Service (DoS and DDoS) protection
- TCP SYN protection
- End-to-end SSL transactions
- SSL termination/acceleration

WebMux is able to block the most common kinds of attacks, even dynamic attacks before they ever reach any inside firewalls or servers.

Multiple Tag Based VLAN Support

WebMux supports multiple tags based VLAN for enterprise level network configuration. In addition to Internet and Intranet, user can configure multiple VLAN for meeting the security needs of different departments. With VLAN enabled switch, WebMux can also bond all the interfaces together to expand its throughput and performance.

Expandable and Flexible

The rapid expansion of the Internet often means traffic bot-

tlenecks and product obsolescence. WebMux scales to provide an easy and flexible upgrade path, and can be upgraded to meet growing requirements at a nominal incremental cost.

WebMux requires only one real IP address for all kinds of traffic. If an ISP has assigned only one IP address to the hosting server, WebMux can direct out the SMTP, POP, FTP, DNS, and other services from this one real IP address to separate servers. There is no limit to how many IP addresses can be used with WebMux.

Includes SNAT / Multiple Uplink Capability

WebMux has a SNAT and multiple ISP link load balancing capability that is required for the Microsoft OCS 2007R2 and high availability setups. As successfully tested by CyberCash's engineers, CyberCash servers behind WebMux can initiate IP connections to CyberCash and other credit card processing services. WebMux blocks any unwanted connection attempt initiated from outside. WebMux's AAD function automatically identifies attacks even on the farm address/port and blocks them.

WebMux also supports Skype, SipPhone, FWD, Net2Phone, and other services: if the servers behind WebMux are running the Skype software, they can make phone calls to any U.S. phone via WebMux without a requirement for phone lines.

Easy and Secure Setup and Administration

Unlike all other products in its class, WebMux supports not only OSI layer 4 for load balancing but also layers 2 and 3. This facilitates WebMux's Transparent mode, which provides a major setup advantage for WebMux since it does not require server IP addresses or network routes to be changed to use WebMux.

Management of the IP server pool is done via a browser-based interface, so configuration can be done from any PC that has IP connectivity and secure access to WebMux. Configuration of an entire server pool typically takes no more than five or ten minutes with no training required.

The WebMux unit includes a front keypad interface and menu-driven LCD display, which is backlit for dark data centers or computer labs.

WebMux can be factory pre-configured as a free service.

Three Years of Technical Support Included

Each WebMux 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 WebMux 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, permitting testing in the actual usage environment without risk. Should the decision be made not to purchase, return and refund may be arranged via point of purchase.

WebMux™ Product Matrix			
	481SD	591SGX	690PG
Performance			
Maximum concurrent connections	1,440,000*	2,880,000*	5,760,000*
Maximum transactions per second	65,000	100,000	200,000
Maximum throughput per second	1.1 gigabits	2 gigabit	4 gigabits
Layer 7 and SSL Acceleration			
Max. 1024 bit RSA terminations/sec. (round-trip)	300	600	4,000
		1200**/2400***	
Maximum Layer 7 connections/sec.	20,000	60,000	100,000
Number of SSL certificates	32	32	32
HTTP Compression	Yes	Yes	Yes
Load Balancing and Traffic Management Methods			
Cookie content-based	Yes	Yes	Yes
URL-based	Yes	Yes	Yes
Round-robin	Yes	Yes	Yes
Persistent round-robin	Yes	Yes	Yes
Weighted round-robin	Yes	Yes	Yes
Persistent weighted round-robin	Yes	Yes	Yes
Least connections	Yes	Yes	Yes
Persistent least connections	Yes	Yes	Yes
Weighted least connections	Yes	Yes	Yes
Persistent weighted least connections	Yes	Yes	Yes
Traffic Management Methods			
URL-based content switch	Yes	Yes	Yes
Cookie-based content switch	Yes	Yes	Yes
Fault Tolerance			
Diskless design	Yes	Yes	Yes
Port aggregation	Yes	Yes	Yes
Failover via network connection	Optional	Optional	Optional
Failover via Ethernet link	Yes	Yes	Yes
Service-aware	Yes	Yes	Yes
Server-aware	Yes	Yes	Yes
Backup server	Yes	Yes	Yes
Security			
Network Address Translation (NAT)	Yes	Yes	Yes
TCP SYN protection	Yes	Yes	Yes
Address mapping	Yes	Yes	Yes
Port mapping	Yes	Yes	Yes
TCP Denial of Service (DoS) protection	Yes	Yes	Yes
HTTPS/SSH management	Yes	Yes	Yes
Topologies			
SNAT over NAT	Yes	Yes	Yes
Single Network	Yes	Yes	Yes
Out-of-Path Mode	Yes	Yes	Yes
Transparent Mode	Yes	Yes	Yes
Device Support			
Interface to switches	Gigabit x2	Gigabit x2	Gigabit x20
Maximum virtual servers	Unlimited	Unlimited	Unlimited
Maximum real servers	65,532	65,532	65,532
Device's role in the network	Bridge/Router	Bridge/Router	Bridge/Router
UDP-based service support	Yes	Yes	Yes
Management			
Secure web browser access	Yes	Yes	Yes
In service / Not in service	Yes	Yes	Yes
Phone / pager alarm notification	Yes	Yes	Yes
Email notification	Yes	Yes	Yes
Configuration access	Yes	Yes	Yes
Persistent connections	Yes	Yes	Yes
Port-specific services	Yes	Yes	Yes
Miscellaneous			
Factory warranty	3 years	3 years	3 years
Free telephone and email support	3 years	3 years	3 years
Free factory pre-configuration	Yes	Yes	Yes
Overnight pre-sent exchange unit	Optional	Optional	Optional
24x7 Gold Premium Support	Optional	Optional	Optional
30-day money-back guarantee	Yes	Yes	Yes

* NAT (in-path) mode. Much higher performance in Direct (out-of-path) mode

** With CAI-RSA3500 option card *** With CAI-RSA7000 option card