

E-Mail Provider Continues Growth with Trimmer Infrastructure

Mail2World consolidates security and load-balancing functions of a four-vendor network into one high-performance device.

EXECUTIVE SUMMARY
<p>MAIL2WORLD</p> <ul style="list-style-type: none"> • Industry: Service Provider • Location: Los Angeles, California • Number of Employees: 25
<p>BUSINESS CHALLENGE</p> <ul style="list-style-type: none"> • Find a solution that scales according to customer growth, handles high-traffic periods, and responds to DDoS attacks • Consolidate load balancing, enhance security, and meet demanding service level agreements • Manage rapid growth in customer base
<p>NETWORK SOLUTION</p> <ul style="list-style-type: none"> • Application control module installed on redundant master switches handles security and load balancing • Easy and flexible licensing allows accommodation to rapid customer growth • Feature-rich modules allow easy addition of new services
<p>BUSINESS RESULTS</p> <ul style="list-style-type: none"> • Streamlined IT management with a single-vendor solution • Lowered costs by \$3000 per month • Flawless failover and zero traffic loss

Business Challenge

Mail2World, Inc., designs, delivers, and supports a suite of business-class, Web-based e-mail and collaboration services. The privately held corporation is headquartered in Los Angeles and has offices worldwide serving global organizations, small and medium-sized businesses, and large-scale service providers. Since its founding in 2000, the company has provisioned nearly 10 million mailboxes, and its Mail2World Message Hosting Platform currently handles more than 7 billion messages per month for millions of active users around the world.

Average traffic for the company is approximately 20 Mbps during the day, but during peak hours traffic can spike to 100 Mbps. The company's IT infrastructure was a heterogeneous mix of four vendor solutions for routers, firewalls, and load balancers. According to Julian Tang, senior network manager for Mail2World, the mixed network infrastructure was becoming a challenge to manage as the company's client base expanded. An upgrade was badly needed.

"One of the driving factors behind the upgrade was the increasing difficulty of balancing the vendor mix and managing the infrastructure, which were becoming more and more disjointed as our customer base grew," says Tang. "We really needed to streamline our management and have a single vendor to go to for upgrades and support issues. It was equally important for us to have a partner who knows our full infrastructure and can make intelligent recommendations."

Mail2World consulted with Data Systems Worldwide (DSW), an integrator and Cisco® partner that collaborates with the company on an ongoing basis.

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—Julian Tang, Senior Network Manager, Mail2World

Network Solution

The Mail2World IT team accepted a recommendation from DSW to deploy a solution based on Cisco appliances and software modules. The heart of the solution is the Cisco Application Control Engine (ACE) module, installed on a redundant pair of Cisco Catalyst® 6905 E Switches with Supervisor Engine 720. This and two other modules, the Cisco Firewall Service module and Cisco 6748-GE Switch module, fully equip the switches for their purpose of ensuring proper load balancing, high availability, and performance.

Tang says the performance, reliability, and failover tests for the Cisco ACE module were definite selling points.

“If we are not able to process messages for even a few minutes, you can just imagine the kind of e-mail traffic jams we create,” says Tang. “It is extremely important that our SMTP server farms are available and processing as much traffic as possible. Our mail hosting platform is being utilized by our user base through different services, all of which are passing through the ACE. Mail2World receives more than 120 million messages per day, and the ACE ensures proper load balancing, high availability, and maximum processing.”

Mail2World measures traffic through several means, including concurrent connections, bandwidth utilization, latency, and user application activity. Tang credits the Cisco ACE module for handling millions of concurrent connections and for its ability to scale in the event of malicious attacks, particularly distributed denial-of-service (DDoS) attacks.

“During peak traffic times, we have more than 200,000 concurrent connections and need the capacity for more, in addition to capacity for attacks,” says Tang. “The ACE can handle 4 million concurrent connections, and during a typical DDoS, when we can easily get up to 500,000 concurrent connections, we need the ability to handle that type of intense load with zero impact on end users while we implement on-the-spot countermeasures.”

Tang says the flexible pay-as-you-go licensing option was another reason he and his team selected Cisco ACE. “We really appreciate that purchasing the ACE modules didn’t mean we had to pay for everything at once. We can upgrade to 8 or 16 Gbps of throughput at any time by just adding a license. As our company and network grow, we can upgrade software and add higher throughput for performance, virtual devices, or SSLs as needed. We are confident the ACE can accommodate us in so many areas, and that’s one of the reasons we decided on a pure Cisco solution.”

Mail2World is able to continue meeting its demanding service level agreements (SLAs) thanks to the upgrade, says Tang. “Some of our SLAs are very specific, such as transactions that have to be initiated and completed within a certain number of seconds. For instance, one of our customers is a university law school with extremely sensitive data and a “five-nines” SLA that requires e-mail transactions to be completed within 7 seconds.”

The design, development, and migration took a month to fully implement. “The transition was very smooth, and minor issues that arose during the migration were quickly resolved,” says Tang. “For a

move involving 10 million users that took place only on weekends, we were truly impressed.”

Business Results

The biggest benefit Tang says he and his team have achieved from the upgraded system is the ability to cope with rapid growth. The Cisco ACE module can scale as Mail2World’s customer and network demands grow, and the flexible licensing structure helps the company as it expands by a million users at a time.

“What makes our network design so great is that we can easily upgrade with minimal or no downtime,” says Tang. “We monitor our infrastructure and all customer environments very closely, down to the millisecond, for transaction times. This allows us to track growth and plan for upgrades. Since we are fully redundant, I can easily upgrade our redundant side of the network, then move all the traffic to the upgraded side before upgrading our primary equipment. The result is minimal impact on our customers.”

Security features within the Cisco ACE module have already become instrumental to Mail2World, according to Tang. “A few weeks back, we were under a DDoS attack and getting more than 45,000 concurrent connections per second from thousands of machines. We utilized the ACE at a Layer 7 capacity to perform packet inspection and search for a specific URL where these users were originating. Through the ACE, we were able to block that traffic and drop it off our network so we could stop processing, which quickly turned our server farm load back to normal.”

The high availability of the Cisco ACE has resulted in zero failover for Mail2World. “We are utilizing the ACE in an active/passive mode, so we have the one context for one ACE, and if need be, we can failover to the second ACE,” says Tang. “We have deployed this method several times, and so far, every single time we’ve had a flawless failover in subsecond, and we’ve lost zero traffic.”

Tang says that since deploying the Cisco ACE modules, the company has been able to lower costs. “Annually, we’re saving a total of \$36,000 across the board, including our data center cost and network infrastructure. And because we’re no longer spending so much time managing our infrastructure, time is definitely an intangible savings we’re achieving. I’m now free to focus on other projects and tasks versus trying to constantly find ways to make four vendors work together.”

Next Steps

Tang and his team are exploring new customer services through automated virtualization. “At Mail2World, we have dozens of partners who resell our services either as their own or as a reseller. Virtualization would give them the ability to go to a Web page and sign up for a dedicated virtual environment with 24/7/365 support, allowing them to be up and running within minutes.”

And Tang likes the potential of the Cisco ACE module: “There is so much potential in the ACE and so many different functions that I can’t possibly implement them all. The more I learn and understand about the ACE’s different abilities, the more confident I am that Mail2World’s IT is well prepared for future expansion.”

PRODUCT LIST

Cisco Application Networking Services:

- Cisco ACE module
- Cisco Catalyst 6509-E Switch with Supervisor Engine 720
- Cisco Firewall Service module
- Cisco 6748-GE Switch modules

For More Information

To find out more about the Cisco ACE module for the Cisco Catalyst 6500 Series, please visit <http://www.cisco.com/go/ace>.



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