

The scientific method

F5 technology is helping Thomson Scientific and Healthcare get vital information to demanding clients faster than ever before.



James McGhee, lead network engineer at TSH, heads up load balancing, continuity, and disaster recovery for all customer-facing applications.

BY RICH FREEMAN

Photograph by Ryan Donnell

Every Internet business pays close attention to availability. But at Thomson Scientific and Healthcare (TSH), a division of Stamford, Conn.-based information solutions giant The Thomson Corporation, uptime is more than just a preoccupation: It's a contractual obligation.

TSH maintains a variety of powerful Web-based clinical and pharmaceutical-related databases that get heavy usage in the academic, government, drug development, and healthcare fields. Larger subscribers invest significantly for access to TSH data. Needless to say, such clients insist upon near-continuous uptime.

"Our SLAs to those customers demand that we consistently deliver," says James McGhee, a lead network engineer at TSH. "If we ever fail to meet those demands, people will be lining up for refunds."

Though availability is everyone's concern at TSH, there may be no single employee at the company with greater responsibility for uptime than McGhee, who heads up load balancing, continuity, and

disaster recovery for all of TSH's customer-facing applications. It's a charter that sets McGhee and his team apart from peers in TSH's systems and network services group. "We're not really a networking team and we're not really a systems team," observes McGhee. "We're kind of an application delivery team."

Since application delivery is one of F5's specialties, it comes as little surprise that F5's BIG-IP application delivery network solutions play a key role in TSH's availability strategy. What surprised McGhee was BIG-IP's impact in areas beyond availability. With the help of BIG-IP, TSH has recorded dramatic improvements not only in uptime but in performance, scalability, and supportability.

Sophisticated solution

McGhee first began using F5 products back in 2001. At the time, TSH left load balancing up to its multiple ISPs, which distributed application traffic among themselves automatically via a popular Internet routing technology called Border Gateway Protocol (BGP). As McGhee observes, however, BGP can be a crude and only marginally effective load balancing technology. "Essentially, you're putting your network on autopilot and leaving your load balancing up to not-very-intelligent algorithms," he says. "If one ISP is having problems but its link isn't down, BGP isn't going to help you. You will continue to send traffic over that link as long as it's alive."

McGhee wanted a more sophisticated load balancing solution that would give TSH greater control over its Internet traffic flows. After researching his options, he selected F5's Link Controller, a BIG-IP module that offers intelligent, bidirectional management of ISP connections. According to McGhee, it was the only product available on the market "that could do that type of thing without BGP."

McGhee found that Link Controller made an immediate impact on both availability and performance. "From an application support and deployment perspective, we were extremely

PUTTING A RELATIONSHIP TO THE TEST

TSH's partnership with F5 is a two-way affair: F5 provides products that keep TSH up and running, and TSH offers feedback on those products that strengthens future releases. In fact, TSH's lead network engineer, James McGhee, is an active member of the beta testing program for F5's Global Traffic Manager and Link Controller systems. An F5 product manager invited him to join shortly after making a startling discovery. "He went through the [support incident] ticketing system and found that an inordinate amount of my tickets resulted in fixes or patches," says McGhee, who has been only too happy to test-drive F5's newest products. "From a geekier perspective, it's new toys for me," he observes. More substantively, though, having early access to new F5 releases has helped him to roll out valuable new features and functions sooner. "If they weren't tested and familiar, I would never get the go-ahead to deploy them," McGhee observes.

satisfied with the flexibility it gave us,” he explains. “We could force traffic over one connection or the other and do constant fine-tuning.”

Pretty savvy

Based on that initial success, TSH soon began expanding its use of F5 products. Late in 2002, the company added a second data center in Europe to better service its overseas clients. Suddenly McGhee had to balance loads and ensure continuity not just within two server farms, but across them as well.

Link Controller is designed for single data center environments, so TSH added two additional BIG-IP products: Local Traffic Manager (LTM) and Global Traffic Manager (GTM). “They gave us both high-level and low-level load balancing and failover capabilities that we didn’t have or need before then,” McGhee explains.

Today, TSH has three data centers and a total of 12 BIG-IP 6400 and 8400 series appliances. McGhee and his team deployed those devices largely without outside assistance. “James

FIRE PREVENTION SYSTEM

TSH’s James McGhee hails BIG-IP for reducing his team’s break-fix workload. Engineers in McGhee’s group spend much of their time reacting to the inevitable technical glitches that afflict every network. “We’re fire fighters,” McGhee says. “Most of the time we’re in damage control situations.” BIG-IP addresses many uptime-threatening problems on its own, however, freeing up staffers for more strategic efforts. “If equipment fails, they’re certainly notified,” McGhee says, “but our uptime is maintained by both Global Traffic Manager and Local Traffic Manager in an automated way.”

tion processing across numerous servers reduces the impact when any one machine goes down. “We maintain a much more even response when we have a system or a network component failure,” McGhee notes.

BIG-IP has also helped TSH enhance application performance. Early in 2004, company leaders launched an initiative

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and his team are pretty savvy,” says John Prego, the global account manager at F5 who supports TSH. “They’re one of our most skilled customers.”

McGhee and his staff have other reasons to smile, because LTM and GTM have dramatically boosted uptime. “Thinking back to the way our environment was pre-F5, if we had a network appliance fail or a system fail, our recovery time was hours,” McGhee says. Thanks to BIG-IP, however, network stoppages and even ISP failures no longer pose a problem. “If an ISP goes down in our European data center, traffic is moved within 60 seconds to other data centers, with session continuity in many cases,” McGhee notes. “It’s automated disaster recovery that we never had in place before.”

LTM and GTM have contributed to scalability as well. Before BIG-IP, TSH relied on a small number of large multiprocessor servers. It was a hardware strategy with serious long-term

drawbacks, however. “You hit the ceiling eventually,” McGhee observes. “There are limits to how many CPUs you can put in a box, and you create single points of failure.”

F5 load balancing technology, however, has enabled TSH to replace its big iron with greater numbers of smaller, more affordable servers. “We were able to scale horizontally, which allows us to deliver better performance with less expensive equipment,” McGhee explains. In addition, dispersing applica-

to cut average page rendering speeds to two seconds. That effort ultimately succeeded—but not for the reasons some managers had anticipated. “They purchased a lot of [server] hardware, but the tool that probably assisted us the most was BIG-IP,” according to McGhee, who gives that product’s compression and SSL acceleration features particular credit for shortening response times.

At TSH, BIG-IP also plays a role in simplifying maintenance. As the company added new systems and data centers, McGhee and his team found routine maintenance increasingly challenging. “There were many other groups interacting with our applications suddenly, and we needed a way to automate maintenance,” McGhee recalls. “F5 provided that solution for us with its failover and health monitoring capabilities.”

BIG-IP also enables other groups to steer traffic easily around specific systems or entire data centers during administrative sessions, reducing their dependence on McGhee’s team for help.

Deepening the commitment

TSH, it turns out, is one of several Thomson divisions to gain impressive benefits from BIG-IP in recent years. Accordingly, in 2003, Thomson declared BIG-IP its corporate load balancing standard and added F5 to its preferred vendor list. F5’s Prego traces that move to a natural affinity between the two companies: Both Thomson and F5, after all, live and breathe applications. “Thomson Corporation’s different divisions are service providers, and they do that through applications,” says Prego. “That’s their business. So their requirements and focus are in line with ours.”

McGhee offers a more straightforward explanation for Thomson’s deep commitment to F5 technology. “We’ve looked for the most robust, flexible equipment we could find to maintain our application borders and provide the best performance,” he says. F5 is simply where they’ve found it. ✨

Additional resources

F5 white paper on conquering ISP link challenges with Link Controller

(www.f5.com/solutions/technology/lc_multihome_wp.html)

F5 white paper on keeping up with multiservice applications using BIG-IP Global Traffic Manager

(www.f5.com/solutions/technology/gtm_multiservice_wp.html)

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