

“[BIG-IP] definitely helped us get to profitability faster.”

Tom Putnam  
Operations Manager

## Microsoft's MSN Games Portal Saves Over \$600,000 In Annual Operating Costs and Capital Costs Using F5 Networks BIG-IP



### Industry:

Media and Entertainment

### Challenges:

- Slow page load times
- High bandwidth expenses
- High capital costs and annual expenditures

### Solution:

BIG-IP v9 Application Delivery Controller

### Benefits:

- Capital costs avoidance: \$270K<sup>1</sup>
- License Fees avoidance: \$40K<sup>1</sup>
- Appliance Refresh/Replacement avoidance: \$150K<sup>1</sup>
- Server acquisition avoidance: \$80K<sup>1</sup>
- Annual operating costs avoidance: \$384K<sup>1</sup>
- Annual hosting costs avoidance: \$240K<sup>1</sup>
- Bandwidth/connectivity costs avoidance: \$144K<sup>1</sup>

<sup>1</sup>The Microsoft Casual Games F5 BIG-IP Installation Savings Summary, 2005



### Overview

Microsoft's MSN Games is one of the largest and busiest gaming portals on the Internet, bringing casual gaming to multiple devices and platforms including MSN Games, Messenger Games, Microsoft Mobile Games, Xbox Live Arcade and the Windows Operating System, allowing players from around the world to compete, collaborate and socialize together – anywhere, anytime. The site averages 12,000 page requests per second, 200,000 concurrent sessions and more than eight million page views per day. Since gamers are typically unforgiving of poor web performance, and their website loyalties are fleeting as a result, Microsoft MSN Games cannot afford anything less than peak performance. MSN Games chose F5 Networks' BIG-IP<sup>®</sup> version 9 Application Delivery Controller to deliver on that need, and avoided many thousands of dollars in total expenses in the process.

### Challenge

At MSN Games, part of Microsoft's Game Studios (MGS) division and one of the Internet's largest and busiest gaming sites, performance is everything. After all, gamers were the fickle lot who drove the market for graphics acceleration in

personal computing's early days. Today, they still won't tolerate anything slow or unresponsive, web pages included.

But achieving top performance at MSN Games isn't easy. One reason is the sheer scale of its Seattle-based operations: 100 application servers fronted by 25 web servers. These support multiple end-user gaming devices, including, of course, Microsoft's wildly successful Xbox gaming console. All this gear helps MSN Games support as many as 250,000 concurrent sessions with 15,000 page requests per second, adding up to nine million page views a day.

For its trouble, MSN Games derives substantial, profitable revenues: from premium downloads that offer additional features and content missing in the sites free downloads, from scores of other games leveraging Microsoft's Messenger client, and, with so many site visitors, from banner ads.

These revenues and traffic volumes demand website performance that is secure, fast, reliable and available. For the MSN Games Operations Team – including Operations Manager Tom Putnam, Operations Program Manager Ken Knightley, Operations Engineer Jason Pietrzyk,



and Systems Engineer Dean Berry – those fundamentals are not easily achieved, especially given the nature of an international gaming website.

“Several things set a gaming website like ours apart from other high-traffic websites,” Putnam explained. “One is that traffic peaks during nights and weekends. So, with the cost of staffing those off-times at a premium, we need operational simplicity.

“Another thing is the nature of gaming traffic; it involves all kinds of data types – hundreds of megabytes of UDP traffic, for example.

“And last is that gaming applications and devices are always pushing the technology in ways that continually present us with new challenges. On average, industry CPU usage is about 10 percent, while our games take 70 percent or more. When you push code that hard, it can break without system-wide optimization.”

Putnam and his team realized that meeting these challenges while sustaining MSN Games’ profitable growth would require that they deal with a long list of ongoing and emerging technical issues. Their top four: load balancing, packet aggregation, compression, and Secure Socket Layer (SSL) termination.

“We had a lot of devices and means to address these concerns,” Putnam said, “but we were looking for a simpler, longer-term solution. So we began evaluating what vendors had to offer in terms of web and application management.”

### Solution

Putnam and his team contemplated a variety of approaches, giving special consideration to how they could leverage their existing equipment from Cisco, Redline and F5 Networks. In the end, they chose F5 Networks’ BIG-IP on its own merits. “The others were strong in some areas we needed,

but none could do it all like F5’s BIG-IP,” said Putnam.

MSN Games deployed BIG-IP version 9 over two Model 6800E servers, located within its Northwest server farm. “We like the fact that with just these two devices, we get all the functionality we need to optimize performance, while avoiding all kinds of capital and operating expenses,” Putnam said. “Plus they’re easy to manage. You pretty much set them up and that’s it.”

He reported that the BIG-IP has enabled them to “vastly improve” their ability to do server maintenance by pushing traffic to other servers without dropping connections. He added that overall system availability has gone from 80 percent to 99.5 percent without random errors, slow web page responses, or the “500” errors that indicate servers are too busy.

“BIG-IP has really helped to cut page load times, too,” he said, noting that about 10% of MSN Games site visitors use dial-up connections. “We went from load times of over 30 seconds to less than 10 seconds for these users, vastly improving their site experience, as you might imagine.” In fact, the optimizations and efficiency gains are due to the efficiency of the overall system. For example, F5 engineered its own TCP stack, which has proven to deliver significant improvements in link efficiencies.

To aggregate MSN Games packet traffic, BIG-IP employs a feature called OneConnect™. This reduces TCP overhead by channeling HTTP traffic between a single user and the web system through a single TCP connection, no matter the number or type of requests made. This cuts the number of TCP sessions to be opened and closed during a user session, lowering the server capacity required. Putnam explained that this one BIG-IP feature replaced a competitor’s point solution that would have cost \$150,000 in hardware and \$66,000

a year in license fees and hosting costs<sup>1</sup>.

According to Putnam, MSN Games is realizing even more operational savings via BIG-IP’s bandwidth compression capabilities; capabilities that independent tests under operating conditions put at 80 percent. “We’ve been really surprised at its efficiency,” he said. “We’ve been able to compress our bandwidth requirements so much – regardless of data types – that we’re saving about \$12,000 a month in network bandwidth charges. It saves us data center costs, too<sup>1</sup>.”

BIG-IP’s SSL bulk encryption acceleration capabilities, coupled with F5 Network’s unique licensing model, enables MSN Games to save both in terms of server capacity and licensing costs. Putnam estimated that BIG-IP has helped cut the number of web servers needed to deliver SSL encryption by half.

“What appeals to us about the BIG-IP approach is that instead of needing 15 different SSL servers – plus all the capital, overhead and expense that goes with acquiring and operating them – we can license BIG-IP’s SSL capabilities for our entire server farm,” he explained. “It’s much more economical for us in many ways.” Those server savings amount to about \$20,000 in capital costs and \$50,000 a year in hosting costs<sup>1</sup>.

Putnam further noted that he and his colleagues are especially excited about the BIG-IP version 9 interface’s capability to help them “see” the SSL traffic. This provides them with a lot more insight and information on the various data types flowing in and out of the MSN Games system. “For one thing, it’s helped us be a lot more proactive in our (web) farm administration,” he said. “For another, we haven’t had to deploy extra servers just to ‘play it safe.’”



As a matter of fact, Putnam said, complete redundancy across their server farm as a best practice approach would define MSN Games average capacity utilization to be 50 percent. "But with BIG-IP," he said, "we can run at 70 percent capacity and feel much safer about doing so. In effect, we'd otherwise need about 50% more servers in specific areas, costing us about

\$80,000 in additional servers and running us about \$20,000 a month in hosting costs<sup>1</sup>."

In total, MSN Games' decision to deploy BIG-IP has led to approximately \$270,000 in capital expense savings and another \$384,000 in annual operating cost savings. Unsurprisingly, those savings have contributed

significantly to the company's profitability, according to Putnam. Like most startups, even one within Microsoft's constellation, MSN Games' operating costs exceeded revenues for a number of years. But with the approach that BIG-IP has enabled, Putnam declared, "it definitely helped us get to profitability faster<sup>1</sup>."

**F5 Networks, Inc.**  
**Corporate Headquarters**  
 401 Elliott Avenue West  
 Seattle, WA 98119  
 (206) 272-5555 Voice  
 (888) 88BIGIP Toll-Free  
 (206) 272-5556 Fax  
[www.f5.com](http://www.f5.com)  
[info@f5.com](mailto:info@f5.com)

**F5 Networks**  
**Asia-Pacific**  
 +65-6533-6103 Voice  
 +65-6533-6103 Fax  
[info.asia@f5.com](mailto:info.asia@f5.com)

**F5 Networks, Ltd**  
**Europe/Middle-East/Africa**  
 +44 (0)1932 582 000 Voice  
 +44 (0)1932 582 001 Fax  
[emeainfo@f5.com](mailto:emeainfo@f5.com)

**F5 Networks**  
**Japan K.K.**  
 +81-3-5114-3200 Voice  
 +81-3-5114-3201 Fax  
[info@f5networks.co.jp](mailto:info@f5networks.co.jp)