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Bjorn Andersson,  
Manager of Shipboard and Network  
Operations for Crystal Cruises



## Cruise Line Triples Internet Performance and Doubles Internet Usage with F5 BIG-IP WebAccelerator



### Industry

Travel and leisure

### Challenges

- Customers demand premium Internet speeds at sea
- Slow satellite-based Internet service aggravates customers
- Internet-service revenue decreasing
- Bandwidth costs increasing with no performance gain

### Solution

BIG-IP® WebAccelerator™

### Benefits

- Internet performance, and customer satisfaction, triples
- Judged best Internet connection at sea
- Onboard Internet usage and revenue doubles
- Hardware savings from centralized deployment
- One-month return on investment

### Overview

The luxury cruise line Crystal Cruises caters to affluent travelers who spend anywhere from 12 to 108 days at sea at a time. They're used to the best of everything, including Internet. Crystal Cruises addressed the problem of slow Internet response times by installing an F5 BIG-IP® WebAccelerator™ appliance in its Los Angeles data center. The company has boosted Internet performance, Internet usage, and customer satisfaction.

### Challenges

Crystal Cruises knows that while its luxurious cruise ships go a long way toward keeping its high-end clientele happy, it also needs to provide stellar Internet response times for customers.

However, with no access to hard-wired broadband circuits in the while at sea, cruise operators depend on satellite communications for Internet access—and satellite service is notorious for its long latency times. “Great on-board technology is a very important selling point for us—sometimes it’s the only way that some executives will accompany their families on a vacation,” explains Bjorn Andersson, Manager of Shipboard and Network Operations for Crystal Cruises.

While aboard Crystal Cruises vessels, customers are trading stocks, paying bills, and running businesses. “Our customers come

to us to relax and get away from problems; we don’t want them to get stressed out over slow Internet speeds,” Andersson says. Plus, customers were upset about paying for Internet access and suffering through poor Internet performance.

### Solution

Crystal Cruises tried increasing the bandwidth on its satellite link at great expense, but the move didn’t translate into an improved guest experience; satellite-related delay, not lack of bandwidth, was behind the performance problems. The company also tinkered with quality-of-service parameters, to no avail, and considered installing more powerful routers but deemed them too expensive.

Every time a technology vendor came to call, Andersson proposed a simple bargain: “If you can speed up my onboard Internet speeds, you’ll have my business.” CDW, a leading technology solution provider, suggested F5 BIG-IP WebAccelerator, which speeds up web-based applications by employing intelligent technologies such as Intelligent Browser Referencing (IBR) and Dynamic Data Offload (DDO).

IBR eliminates the need for web browsers to download duplicate data and ensures the best use of bandwidth by controlling browser behavior when caching or



compressing content. This reduces the number of requests traversing the satellite link. Using IBR, BIG-IP WebAccelerator can increase interactive web application performance by up to 10 times.

DDO offloads the web server from computationally-intensive chores like SSL acceleration, caching, compression, and HTTP protocol optimizations. With BIG-IP WebAccelerator doing all the heavy lifting, server loads are dramatically reduced.

Crystal Cruises tested BIG-IP WebAccelerator on one of its ships in the summer of 2007. The company wanted to see a 50 percent improvement in Internet performance without requiring customers to make modifications to their PCs. BIG-IP WebAccelerator exceeded Crystal Cruises' expectations by delivering a 6X or 8X performance improvement—plus, required no additional software on client PCs. The company deployed BIG-IP WebAccelerator in August 2007 and has seen even more impressive results on its *Crystal Symphony* and *Crystal Serenity* vessels.

All Internet traffic flows through the Los Angeles-based BIG-IP WebAccelerator, which caches web pages the first time they're accessed. All subsequent hits to the same page are lightning-fast, since they are supplied from the cache. BIG-IP WebAccelerator also provides a high level of compression, which reduces the amount of traffic that has to traverse the satellite links.

### Benefits

Since deploying BIG-IP WebAccelerator, Crystal Cruises has seen onboard Internet

performance triple and Internet usage double. The company has realized a one-month return on its BIG-IP WebAccelerator investment in bandwidth savings alone.

### Internet Performance—and Customer Satisfaction—Triples

Before installing the F5 BIG-IP WebAccelerator, the top speed Crystal Cruises could hit on its satellite Internet links was 664 Kbps to 710 Kbps, and that was for a mere two to three hours per day for 18 to 27 days per month. After installing BIG-IP WebAccelerator, the company saw Internet throughput shoot to 2 Mbps to 3 Mbps for 12 to 13 hours per days, a full 30 days per month—an improvement of roughly 300 to 500 percent.

"The difference was dramatic and a relief to us and our customers," Andersson says. "Shortly after installing F5 BIG-IP WebAccelerator, a reviewer from the 'Cruise Week' newsletter came on board and was amazed at our Internet speeds. He wrote, 'The Internet connection...is absolutely the fastest I have encountered at sea. It symbolizes the smoothness of the whole experience.' That's exactly the reaction we want from our guests."

### Internet Usage Doubles

Since Internet performance has improved, guests have been purchasing larger Internet packages because they're able to do more. "Before installing the WebAccelerator, we cut our Internet fees in half because of all the complaints," Andersson says. "However, since installing the WebAccelerator, we've doubled or tripled the number of users and increased our Internet-derived revenue, even with the reduced fees."

Another Crystal amenity to benefit from faster Internet speeds is its Computer University@Sea (CU@Sea) program. CU@Sea provides group and individual instruction on using a variety of computer-based services. With faster Internet speeds, Crystal Cruises delivers an exceptional learning experience.

### Using Every Bit of Bandwidth

In addition, Crystal has been able to deliver dramatically faster Internet performance without purchasing more bandwidth. "Previously, we were not able to use the bandwidth we had purchased because of transmission inefficiencies. With the WebAccelerator, we're able to take full advantage of every bit of bandwidth. In terms of bandwidth savings, we've received a one-month return on our WebAccelerator investment," Andersson says.

### Centralized Deployment

BIG-IP WebAccelerator sits in the Crystal Cruises data center, making it easy for the central IT staff to monitor. Crystal Cruises not only saves staff time and stress with the centralized configuration; it also saves hardware budget. An onboard installation would require two to three BIG-IP WebAccelerator devices per ship, to provide redundancy. "We're saving money and making money with the BIG-IP WebAccelerator. It's a win-win business solution," Andersson says.

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