



## Puerto Rico's Department of Health Improves Bandwidth Availability, Performance, Employee Productivity, and Security with ISA Server 2004

### Overview

**Country or Region:** Puerto Rico

**Industry:** Government

#### Customer Profile

With 5,000 employees and an annual budget of more than \$500 million, the Department of Health (DoH) of the Commonwealth of Puerto Rico operates healthcare facilities and administers public health policy throughout the island.

#### Business Situation

DoH found that allowing unrestricted Internet access was decreasing both available bandwidth and employees' productivity. DoH also needed a secure way to publish Web services to its health-care facilities and to provide unrelated, untrusted sites with access to data without compromising its security.

#### Solution

Installing Microsoft® Internet Security and Acceleration (ISA) Server 2004 provided firewall, caching, and security capabilities that resolved all of the above problems.

#### Benefits

- Greater bandwidth availability
- Faster Internet access
- Higher employee productivity
- Ability to securely publish Web services—both to its own facilities and to unrelated, untrusted locations

"We are very pleased with the way ISA Server 2004 is helping us control inappropriate Internet usage, improve user productivity, and free up bandwidth—both by restricting Internet access to appropriate sites and by serving Internet requests from cache."

*Jose Cordero, Director of Technical Support, Department of Health*

Like many organizations, the Department of Health (DoH) of the Commonwealth of Puerto Rico was finding the Internet to be both a boon and a source of problems. While it made it easier for employees to get needed information, accessing Web sites unrelated to work was consuming large amounts of bandwidth and decreasing employee productivity. DoH also wanted to publish Web services to its facilities to help automate processes such as verifying patient eligibility—and, eventually, to make its data available to unrelated, untrusted sites—but was concerned about opening its network to security threats.

Installing Microsoft Security and Acceleration Server 2004 solved all of these problems. By enabling DoH to restrict employees' Internet access to specified sites, it increased both bandwidth availability and productivity. ISA Server's caching capability further increased bandwidth availability by making the most frequently used Web sites available without having to connect to the Internet. And its firewall capabilities are enabling DoH to securely publish its Web services.

## Situation

With 5,000 employees and an annual budget of more than \$500 million, the Department of Health (DOH) of the Commonwealth of Puerto Rico serves the island's entire population, some 4 million strong. In early 2002, DoH began working with Microsoft Consulting Services (MCS) and local partners to create a hospital information system (HIS) that would connect all its facilities across the island, as well as providing access to private insurance companies processing claims for DoH. As part of the requirements analysis for this project, MCS identified several Internet-related problems that DoH was experiencing:

- **Internet access.** Giving DoH employees unrestricted Internet access was consuming huge amounts of bandwidth and decreasing productivity.
- **Secure publishing of Web services.** DoH needed a way to securely publish Web services, so its healthcare facilities and private insurance companies throughout Puerto Rico could access such applications as patient eligibility verification.
- **Access by untrusted sites.** Eventually, DoH wanted to provide unrelated, untrusted sites with access to HIS data. Such sites include offices in remote locations that are not part of its network, as well as private doctors and hospitals. DoH needed a way to provide this access without compromising security.

## Solution

Microsoft® Internet Security and Acceleration (ISA) Server 2004 Enterprise Edition, a member of the Microsoft Windows Server System family, solved all of the above problems. ISA Server controls employees' access to the Internet based on rules set up for each user group. By reducing access to Web sites unrelated to employees' work, ISA Server both improves productivity and

provides an increase in available network bandwidth. ISA Server's caching capabilities further increase available network bandwidth, and its firewall capabilities provide additional layers of security for DoH's internal network.

## Configuration

The configuration consists of a demilitarized zone (DMZ), with the department's existing Cisco PIX 525 firewall between the DMZ and the Internet and four ISA Server machines between the DMZ and the DoH network.

The four ISA Server machines are part of a Windows 2003 Active Directory domain and are configured as a single array, with the configuration store service (for storing configuration information) installed on all machines. In addition, network load balancing is configured on both the internal and external NICs (network interface cards)—not only providing evenly distributed load balancing, but also supporting fault tolerance, so other servers in the cluster can detect a failing server and distribute its load between the functioning servers.

## Rapid Deployment

Deploying the four ISA Server machines took just one week. The network templates that come with the system simplified the setup process, providing a quick way of creating default rules for the backend configuration. In addition, the system's export configuration feature enabled the project team to easily export the complete configuration from the pilot to the production environment.

“The new network templates enabled us to jump-start our server configuration, eliminating the need to build everything from scratch, says José Cordero, director of technical support at DoH. “As a result, it took us just one week to migrate from our previous firewalls. And by using the export configuration feature, we were able to move

our pilot and test environment to production in just one day."

### Easy to Manage

DoH has found ISA Server easy to manage. The **dashboard console** enables adminis

trators to see, from a single window, what is happening in the entire array—not only the machines and users that are currently accessing the Internet, but also what Web sites they are visiting. "The dashboard console makes it easy to monitor ISA Server 2004 utilization, since it tracks all activities," says Dorca Torres, a DoH system analyst. "And you can easily create whatever filters you need."

In addition, ISA Server's **connectivity verifiers** automatically check the health of connections to the Active Directory and the Web services that are being published and generate dashboard alerts when a problem occurs. As a result, administrators are immediately aware of any problems and can act quickly to correct them. For example, when a switch problem occurred, the administrators were notified immediately and were able to fix it promptly. Previously, they would not have been aware of a problem like this until a user reported it.

"I like the ability to see network traffic in real time," notes Joel Maysonet, DoH system programmer. "And the intrusion detection alerts are great—they make me immediately aware of any network attacks, so I can defend against them."

Further ease of use comes from the exposed, easy-to-use scripting interface, which enables the administrators to create scripts to automate common tasks. For example, they have created scripts to generate the domain name sets and URL sets that are used to deny or allow a specific group of users to access a particular group of Web sites.

### Benefits

DoH completed its ISA Server installation less than a month ago, but they are already noticing significant benefits.

## For More Information

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For more information about the Department of Health of the Commonwealth of Puerto Rico, call (787) 765-2929 or visit the Web site at: <http://www.salud.gov.pr>

## Increased Bandwidth and Productivity

Although the new Internet usage policies have been in effect for only a few weeks and the database of allowed and restricted sites is not yet complete, DoH has found that restricting employees' access to the Internet based on their user group has resulted in a significant drop in surfing of Web sites unrelated to employees' work.

ISA Server's caching capabilities further increase bandwidth availability. After just two weeks of caching Web content, DoH found that nearly half of Web site requests were coming from cache rather than going through an Internet connection.

"We're very pleased with the way ISA Server 2004 is helping us control inappropriate Internet usage, improve user productivity, and free up bandwidth—both by restricting Internet access to appropriate sites and by serving Internet requests from cache," says José Cordero. "Before, users would often connect to sites that were irrelevant to their work, consuming our limited bandwidth and reducing their productivity. Now, with ISA Server, we block access to more than 1.5 million Web sites as well as specifying allowable sites for specific job roles. The result is significantly greater bandwidth availability and noticeably higher productivity. Plus the cache is now handling more than 45 percent of users' requests, freeing up even more bandwidth."

## Secure Publishing of Web Services

### Software and Services

- Microsoft Windows Server System
  - Microsoft Windows Server 2003,
  - Microsoft Internet Security and Acceleration Server 2004, Enterprise Edition

ISA Server enables DoH to securely publish Web services using SSL-to-SSL bridging. As a result, DoH facilities and insurance companies throughout Puerto Rico can perform tasks such as verifying patients' eligibility without exposing the DoH network to attacks by viruses and other malicious software. Eventually, Web service access will be extended to unrelated, untrusted locations, such as private doctors and hospitals as well.

### Microsoft Windows Server System

Microsoft Windows Server System integrated server infrastructure software is designed to support end-to-end solutions built on Windows Server 2003. It creates an infrastructure based on integrated innovation, Microsoft's holistic approach to building products and solutions that are intrinsically designed to work together and interact seamlessly with other data and applications across your IT environment. This helps you reduce the costs of ongoing operations, deliver a more secure and reliable IT infrastructure, and drive valuable new capabilities for the future growth of your business.

For more information about Windows Server System, go to:

[www.microsoft.com/windowsserversystem](http://www.microsoft.com/windowsserversystem)

### Technologies

- Active Directory
- Network load balancing

### Microsoft Consulting Services

### Hardware

- HP DL380 servers, each with 2 Xeon 3.2 GHz MP processor and 2 GB of RAM

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