

Federal Agency Enables Global Collaboration over Low-Bandwidth Links

Peace Corps is using Wide Area Application Services (WAAS) to optimize WAN bandwidth and accelerate application performance in 70 countries.

EXECUTIVE SUMMARY
<p>PEACE CORPS</p> <ul style="list-style-type: none"> Federal Government Washington D.C. 7000 volunteers, 3500 staff
<p>CHALLENGE</p> <ul style="list-style-type: none"> Enable global volunteers to collaborate Reduce network costs Minimize IT burden
<p>SOLUTION</p> <ul style="list-style-type: none"> Deployed a global VPN Used Cisco Wide Area Application Services (WAAS) to optimize WAN bandwidth and accelerate application performance
<p>RESULTS</p> <ul style="list-style-type: none"> Accelerated file transfers by up to 20 times Decreased overall bandwidth usage by 50 percent and email bandwidth by 75 percent Saved US\$185,315 in one year by optimizing existing bandwidth instead of buying more bandwidth

Challenge

The Peace Corps is a U.S. federal government agency dedicated to world peace and friendship, established in 1961. Approximately 3500 staff members and 7000 volunteers serve in 74 countries in Africa, Asia, the Caribbean, Central and South America, Europe, and the Middle East. They work to improve local education, agriculture, health, business development, information technology, HIV/AIDS prevention and care, and food security. Remarkably, the Peace Corps supports 10,500 people with an annual operating budget of less than US\$350 million.

Previously, low-bandwidth satellite and wired network connections prevented volunteers from collaborating with their peers in other locations and headquarters personnel. Each agency had its own Microsoft SharePoint portal, but volunteers in different offices could not share files. “As an agency, our job is to empower our volunteers,” says Domenico Palombo, Chief of Network Operations and Telecommunications, Peace Corps. “We wanted to deploy a global network with the performance to support collaboration applications and

unified communications.” The agency wanted to begin developing a knowledge base helpful to future volunteers, and also forestall eager volunteers from using public shared workspaces, which do not meet government security requirements.

The Peace Corps does not have the budget to bring high-bandwidth links to its posts. And even if it did, the latency for traffic traveling the thousands of miles between remote posts and Washington D.C. headquarters would slow application performance. Therefore, the agency sought a solution to optimize existing WAN bandwidth and provide LAN-like performance. “We wanted to enable collaboration to make our volunteers more effective at their mission,” says Palombo. “And we wanted the solution to be scalable so that we wouldn’t have to redeploy it in a few years.”

Solution

After evaluating leading WAN optimization solutions based on functionality, performance, availability, and security, the Peace Corps selected the Cisco® Wide-Area Application Services (WAAS) solution. Cisco WAAS optimizes bandwidth utilization, accelerates application performance, and reduces latency. “Cisco WAAS stands out because it enables our volunteers and staff to continue to connect to the network even if the solution is taken down for maintenance,” says Palombo. Other advantages of the Cisco WAAS solution included scalability and ease of management.

The Peace Corps deployed a cluster of Cisco Wide Area Application Engines (WAE) at headquarters, and is providing its international posts with a Cisco Integrated Services Router (ISR) that has a Cisco WAAS Network Module (see “Technical Implementation”).

Now volunteers and staff can log in to the network from any global Peace Corps office to access centralized applications in Washington D.C. Performance is as good as if the applications were housed in the next room. Applications delivered using the Cisco WAAS solution include:

- Microsoft Active Directory
- Global Microsoft SharePoint portal for sharing ideas and lessons learned
- Volunteer management application, including project tracking
- Safety and security reporting application
- Financial services, including bill paying

As of March 2009, the Peace Corps had deployed Cisco WAAS in 29 of its 70 main posts, in Central America, South America, The South Pacific, Africa, Eastern Europe and South East Asia . By the end of 2010, Cisco WAAS will be deployed in approximately 100 offices in 70 countries. The Peace Corps global network is the world’s largest to take advantage of WAN optimization technology on very low bandwidth connections. “Other federal agencies with a global presence have the budget for 1.5 MB satellite connections,” Palombo says. “The Peace Corps has to make the most from 256 and 512 KB connections, and Cisco WAAS solution has enabled us to do that.”

Monitoring

The IT department uses the built-in reporting capability in Cisco WAE to meet government reporting requirements. Reports show usages by individual user, enabling the IT department determine if someone is using too much bandwidth to download movies, for example.

Voice over IP

By reducing the bandwidth used for data applications, Cisco WAAS has freed up bandwidth for voice over IP. Now volunteers can now make phone calls over the WAN, at no cost, helping them to stay in touch with family and prospective employers, when their service term is ending. “Voice quality is better than it was before, even though voice traffic is encrypted,” says Palombo.

“Buying enough bandwidth across the [Americas] region to support collaboration would have cost US\$302,640 annually. Cisco WAAS saved US\$185,315 in the first year alone.”

—Domenico Palombo, Chief of Global Network Operations and Telecommunications, Peace Corps

Results

Cisco WAAS has reduced overall bandwidth utilization by 50 percent, enabling the Peace Corps to deploy a global Microsoft SharePoint portal. It has also accelerated application performance up to 20 times for file sharing. “The Cisco WAAS solution is accomplishing exactly what we wanted it to,” says Palombo. “We can provide services on existing links with good performance. And the relative cost, compared to upgrading the links, was very low.”

Return on Investment

Many global Peace Corps sites would not have been able to support the new global environment without more bandwidth. "If we were to actually buy additional bandwidth instead of optimizing, we would have had to pay an average of US\$970 monthly per site, or US\$11,640 annually," says Palombo. "That compares to US\$6,175 annually per site for Cisco WAAS." As of March 2009, Peace Corps had deployed 26 WAAS devices, at a total cost of US\$192,465. "Buying enough bandwidth across the [Americas] region to support collaboration would have cost US\$302,640 annually," says Palombo. "Cisco WAAS saved US\$185,315 in the first year alone. Projected savings by the end of 2011, when all 26 sites will be deployed, will be US\$642,610."

Furthermore, even if Peace Corps had spent the money to upgrade bandwidth, the Microsoft SharePoint portal would have been painfully slow because of the round-trip latency, which has a bigger impact on application response time than bandwidth increase, according to Palombo. Cisco WAAS mitigated latency at the same time it increased available bandwidth.

"The small price that we pay at each site for a Cisco ISR with a WAAS module provides an enormous return on investment," Palombo says. "It enables us to get a team online in the middle of Paraguay or Lesotho, for example, which simply was not possible in the past."

Enhanced Collaboration for Increased Mission Effectiveness

Volunteers and staff can now log on from any global location with the Cisco WAAS solution to readily share documents with peers in other countries, and access centralized services. "Volunteers are making an impact in their villages," says Palombo. "The global Microsoft SharePoint portal and optimized WAN make it a lot easier to share the information with other volunteers." As an example, a volunteer in Mexico who is providing IT consulting for start-up technology companies is collaborating with another volunteer in Ecuador with the same mission. "I can get my documents anytime and anywhere I need them," says Andres Jaime, IT Specialist, Peace Corps. "Sharing files between my post and headquarters has never been easier because we no longer have a 5 MB limit for email."

Increased Productivity for In-Country IT Specialists

According to Luis Ly, a Peace Corps IT specialist in Peru, Cisco WAAS has made a big difference in productivity. He says, "Microsoft Active Directory and all of our web-based services are much faster. Recently, I downloaded a 345 MB file in 15 minutes, which would have taken two hours without the Cisco WAAS solution. And I no longer have to start over if the Internet connection goes down."

Management time as decreased, as well. "Having a single password for any site has significantly reduced the time I spend maintaining passwords for users at my site," adds Gustavo Draugelis, IT Specialist, Peace Corps.

Improved Quality of Life for Volunteers

Volunteers have responded enthusiastically to the upgrade. "Frequently, the Peace Corps post is the only place in the region that provides a decent Internet connection, so volunteers visit the post to check email and the news," says Palombo.

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—Luis Ly, IT Specialist, Peru, Peace Corps

Next Steps

After connecting posts and remote offices in all 70 countries, the Peace Corps IT department plans to:

- Add wireless hotpots to posts so that volunteers can use their own laptops.
- Enable the Cisco WAAS feature that decrypts and accelerates certain type of traffic.
- Accelerate additional applications.
- Deploy Cisco Unified Communications, which has become possible because Cisco WAAS freed up the needed bandwidth.
- Optimize the Internet connection, which will accelerate all web-based applications that the Peace Corps uses, including Cisco WebEx™.

PRODUCT LIST
<p>Switching and Routing</p> <ul style="list-style-type: none"> • Cisco Integrated Services Router 2821 (at posts) • Cisco Adaptive Security Appliance 5505 (at remote offices) <p>Application Networking Services</p> <ul style="list-style-type: none"> • Cisco Wide Area Application Engine 512 and 612 (at headquarters) • Cisco WAAS Module NME-WAE-509 (at posts) <p>Security</p> <ul style="list-style-type: none"> • Cisco Adaptive Security Appliance 5540 (at headquarters) • Cisco Adaptive Security Appliance 5505 (at remote offices) • Cisco Security Monitoring, Analysis, and Response (MARS) Appliance

Technical Implementation

Main posts in each country received a Cisco 2821 Integrated Services Router with a Cisco WAAS Module NME-WAE-509. Remote posts, which generally support one to five volunteers, use a Cisco Adaptive Security Appliance 5505. The Peace Corps IT department configured the equipment at headquarters, and then shipped it to each post, where the local IT specialist simply connected it to establish the VPN. Each office's VPN connection terminates at Peace Corps headquarters in Washington D.C., which has a cluster of Cisco Adaptive Security Appliances (ASA) and Cisco WAE (Figure 1). Peace Corps has turned on the Cisco NetFlow feature of the Cisco WAE, which provides detailed statistics that can be used with other reporting applications.

For More Information

To find out more about Cisco WAAS, visit:

<http://www.cisco.com/go/waas>



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