

Cisco WAAS: WAN Optimization for Defense Networks



Challenge

For defense organizations, delivering applications and critical operational data to the network edge imposes many challenges—most significantly, the limitations of low-bandwidth radio frequency links over long distances. Defense communications are increasingly distributed, yet must provide adequate service levels for key applications such as email, common operational picture, video, teleconferencing, software distribution, and logistics services. Complex and bandwidth-intensive, these applications are often difficult to deliver with efficiency in a deployed military environment.

Obstacles to Effective Communications

Defense organizations face mounting pressure to consolidate costly infrastructure and improve data protection, all while complying with government regulations and maintaining service levels necessary to empower increasingly distributed forces. Bandwidth is limited and very expensive when using commercial providers, especially in tactical environments. Because of these constraints, commanders may not always have full access to the services and applications they normally would in a highly connected environment. As an example, they may need to forego

voice conferencing with headquarters so that email correspondence can continue. Such tradeoffs are risky and can impair decision-making.

Reducing the amount of equipment deployed to the field is important for operational staff. Delivering large, unwieldy gear to remote areas is costly and time-consuming, and, at times, impossible. To use existing resources efficiently, data compression and network optimization are essential. Defense organizations must find ways to deliver more data over bandwidth-constrained connections, while reducing equipment and deployment costs with a smaller, more consolidated footprint.

Accelerating Information Delivery

Cisco® Wide Area Application Services (WAAS) is a new class of technologies that enable application delivery and infrastructure consolidation. It increases the transmission speed of important data while reducing the necessary size, weight, and power of deployed equipment. In many cases, Cisco WAAS allows you to use your existing Cisco networking equipment. By accelerating the delivery of information over the WAN, Cisco WAAS helps ensure that defense organizations have the information they need, when they need it.

Application Acceleration for Strategic and Tactical Environments

Cisco WAAS functions as an accelerator and optimizer of critical data traffic, helping to alleviate some of the bandwidth constraints in radio and satellite links and make space for other critical, bandwidth-intensive applications. Cisco WAAS comprises a set of appliance, module, and software-based solutions to address both large-scale, fixed defense WANs and deployable tactical WANs serving deployable units. The solution works by combining a Cisco Wide Area Application Engine (WAE) hardware platform at a central location, such as headquarters, with WAAS software in satellite devices distributed throughout the network as needed.

Cisco WAAS can be delivered as a larger, more powerful appliance for fixed strategic deployments, such as in headquarters or garrison command agencies, providing a high degree of computational power and bandwidth for larger networks. This architecture addresses application velocity and network transparency in bandwidth-unconstrained environments. Cisco WAAS also comes in a smaller footprint for deployment in communication intensive nodes, such as command posts in tactical operations, and even as a purpose-built software application for remote PCs, minimizing the equipment needed to establish communications in tactical environments.

Reliable, Secure Application Delivery

Cisco WAAS offers several benefits to defense organizations:

- **Reliable delivery of key applications:** Cisco WAAS optimizes the WAN to accelerate the delivery of critical applications and information-sharing services such as data, voice, and video. These services can have significant impact on decision making and collaboration, especially where real-time information is essential for mission effectiveness.

- **Secure data transport:** Other WAN acceleration solutions use tunneled architectures, which compromise network visibility and limit functionality. The transparent architecture of Cisco WAAS allows optimization of HTTPS connections, among others.
- **Operation efficiency, cost, and power savings:** Cisco WAAS can be delivered in a very small form factor to integrate with Space Communication Protocol Standards (SCPS), which result in operational efficiencies as well as cost savings for shipping, implementation, and power. Deployed units that rely on satellite links can use Cisco WAAS to save bandwidth and deliver communications to austere environments, leaving the bulk of the services back in the headquarters where power and space are abundant.

Innovative Global Government Solutions

The Cisco Global Government Solutions Group (GGSG) supports governments and defense agencies around the world by delivering innovative, integrated mission capabilities through thought leadership and advanced technologies and services. The GGSG staff comprises top experts from space, military, homeland security and public safety, and the intelligence community from all levels of government around the world. They not only understand the unique challenges of government, but also bring years of personal experience to help meet mission requirements.

For More Information

Learn more about the Cisco WAAS solution for critical military operations and other global government solutions and services for defense at <http://www.cisco.com/go/defense>.

Cisco WAAS in Action—The Virtualized Deployed Unit

A recent international deployment of Cisco WAAS helped a large military organization optimize limited WAN resources and reduce data transfer time for critical applications. Officials at a deployed site in another country needed to establish a teleconference with a commander at headquarters and ensure there was sufficient bandwidth to accommodate the teleconference without interrupting day-to-day activities, such as email. During testing, Cisco WAAS reduced transfer time of a 14.9 MB file from 6 minutes to just 9 seconds—an acceleration factor of more than 100x. This level of data acceleration provides ample bandwidth for data, voice, and video traffic to transmit reliably across the network.



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