Cisco Wide Area Application Services (WAAS)

At-A-Glance

Cisco® Wide Area Application Services 4.0 (WAAS) is a powerful new application acceleration and WAN optimization solution for the branch office that improves the performance of any TCP-based application operating in a wide area network (WAN) environment. With Cisco WAAS, enterprises can consolidate costly branch office servers and storage into centrally managed data centers, while still offering LAN-like service levels for remote users.

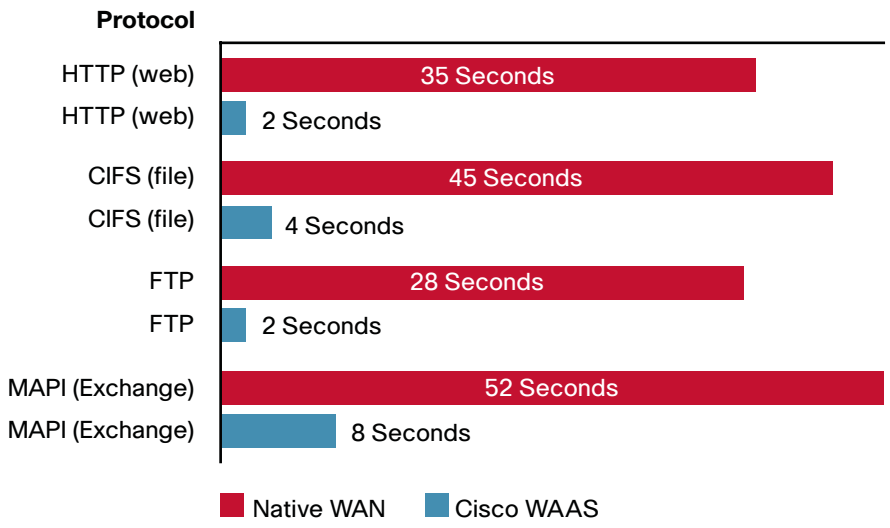
The Cisco WAAS solution offers a significantly lower total cost of ownership (TCO), greater application performance, more efficient WAN usage, and transparent integration with the network with secure, centralized manageability and control in an easy-to-implement package.

High Performance for Applications and Files

The Cisco WAAS solution provides LAN-like performance for applications and files across the WAN through a combination of technologies, including:

- **Application and file protocol acceleration**—Mitigate latency and bandwidth through advanced protocol optimizations, including read-ahead, message prediction, and caching.
- **Throughput optimization**—Improve behavior of transport protocols to make them more efficient in WAN environments.
- **Bandwidth optimization**—Minimize the transmission of redundant data patterns through data redundancy elimination (DRE) and compression.

Figure 1. Performance Across the WAN



Operations using a 5MB file, T1 link with 80ms latency

Customer Benefits of Cisco WAAS

Branch Infrastructure Consolidation

- Consolidate branch servers into corporate data centers.
- Reduce branch office operational, capital, and bandwidth costs.
- Improve data availability, manageability, and compliance.
- Centrally protect data and streamline storage management.

Fast Application Access

- Enable near-LAN performance to centralized applications across the WAN.
- Increase application reach, employee productivity, sharing, and collaboration.
- Reliably deliver all branch application content (Web, file, video, ERP, CRM, etc.).

Improved WAN Utilization

- Reduce the cost of WAN bandwidth while improving end-user performance.
- Integrates architecturally with the network to ensure optimal service levels for network traffic based on business requirements.

Designed for the Enterprise

- Part of an architected solution for the branch office.
- Enterprise-class scalability, ease of deployment and reliability.
- Integrates transparently with the existing IP network.
- Backed by Cisco advanced services and support worldwide.

Return on Investment with Cisco WAAS

By consolidating branch office infrastructures—servers, storage, and backup—companies can save on hardware, software, IT and storage management costs, and can improve productivity. Coupled with improved application delivery, employee productivity and satisfaction are increased. The net savings over a three-year period can be significant, with the investment payback typically less than six months.

Over a typical three-year refresh cycle, savings per location could include the elimination of:

- Local file, mail, application, software distribution, print, and other servers
- Backup hardware, software and maintenance
- Local tape drives, tape media, and offsite storage
- Server and storage management (IT) costs

In addition, savings can be generated through:

- Reduced bandwidth consumption, potentially mitigating WAN upgrade
- Higher availability and reduced downtime (faster restore)
- Greater productivity (file sharing and collaboration)

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Broad Optimization, Transparent Integration

To accelerate applications and improve performance, Cisco WAAS incorporates best-of-breed application acceleration and WAN optimization techniques, including compression, redundancy elimination, transport optimizations, protocol optimizations, and content distribution.

Each of these techniques is designed to overcome the bandwidth, throughput, and latency limitations associated with WAN links and application protocols. Cisco WAAS achieves superior results over alternative offerings by applying optimization at three separate layers:

Application and File Acceleration—Latency and Response Time Reduction

- Advanced protocol optimizations such as read-ahead, prediction, and suppression, are coupled with sophisticated caching techniques to minimize latency and unnecessary object transfers across the WAN.

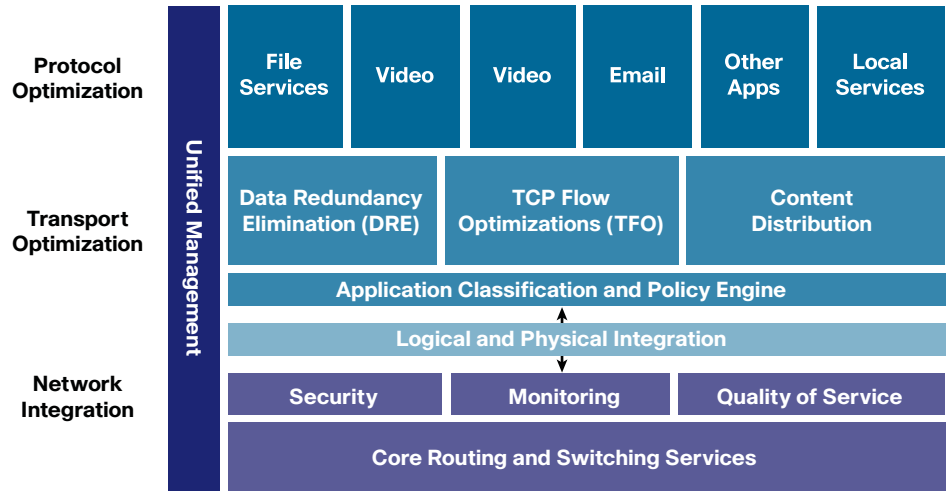
WAN Optimization—Bandwidth Reduction and Throughput Improvement

- DRE coupled with compression improves efficiency and mitigates unnecessary bandwidth consumption.
- TCP flow optimization (TFO) optimizes TCP to enable higher levels of performance and efficiency in WAN environments.

Transparent Network Integration

- Dynamic autodiscovery of endpoints ensures efficient deployment without the need to create and manage overlay networks.
- End-to-end visibility and compatibility is provided with existing network functions such as quality of service (QoS), firewall security, NetFlow monitoring, and high availability.

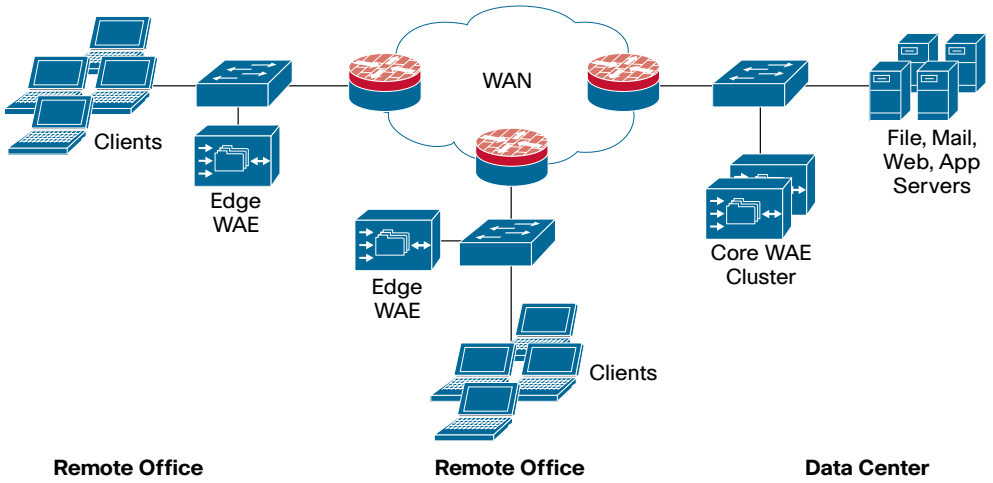
Figure 2. Cisco WAAS Architecture



Cisco WAAS Deployment

Cisco WAAS software running on Cisco Wide Area Application Engine (WAE) appliances is deployed in the data center and remote office locations as nodes attached to the LAN. Cisco WAAS employs the Web Cache Communication Protocol (WCCP) v2 or Policy-Based Routing (PBR) to intercept traffic and transparently forward it to the local Cisco WAE on both sides of the network.

Figure 3. Deployment of Cisco WAAS



Cisco Application Networking Services: Broad Product Portfolio

Cisco WAAS is part of the Cisco Application Networking Services (ANS) portfolio the industry's most comprehensive range of application-aware network-based services for improving the value and effectiveness of enterprise application deployments.

The Cisco ANS family includes technologies such as server load balancing, application security, application acceleration, and WAN optimization to enhance the full range of deployment scenarios, including branch office, remote worker, data center, and back-office application integration projects, all using a common foundation and enterprise quality.

For More Information

For more information about Cisco Wide Area Application Services visit http://www.cisco.com/go/waas.

C45-353699-00 07/06