

Accelerate Applications Using Cisco Wide Area Application Services (WAAS) Mobile

What You Will Learn

Cisco® Wide Area Application Services (WAAS) Mobile provides significant application acceleration and bandwidth savings to telecommuters, mobile users, small-branch-office, and home-office users accessing corporate HTTP applications, e-mail, and file servers. This document discusses the optimizations that Cisco WAAS Mobile provides to CIFS, HTTP, HTTPS, Microsoft SharePoint, Microsoft Outlook, IBM Lotus Notes, and many industry standard TCP-based enterprise application.

Challenge

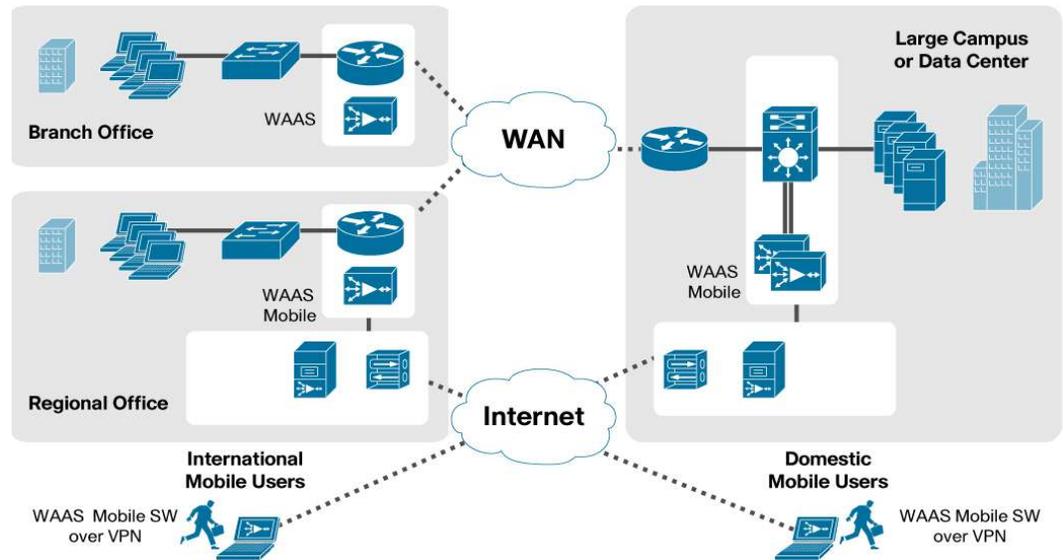
The extended WAN introduces significant latency between a mobile user and the data center where these applications are centrally hosted. The responsiveness of applications that work well across the low-latency LAN deteriorates rapidly across the extended WAN. In addition, many applications are “chatty” and send repetitive data across the WAN. These typical applications are:

- Common Internet File System (CIFS) file sharing
- Web-based applications (HTTP and secure HTTPS)
- E-mail
- Customer Relationship Management (CRM)
- Database
- Other TCP-based enterprise applications

Cisco WAAS Mobile extends Cisco WAAS Software application acceleration and WAN optimization benefits to these mobile users and telecommuters:

- Accelerated access to centralized applications, providing LAN-like performance to any employee regardless of location
- Reduced network bandwidth consumption of 50 to 75%
- Ease of integration with the organization’s existing remote access VPN and desktop software management infrastructure

With Cisco WAAS Mobile, telecommuters and mobile enterprise users can now experience the same application acceleration benefits offered by Cisco WAAS. Figure 1 shows mobile users with the Cisco WAAS Mobile client running on their notebook computers.

Figure 1. Cisco WAAS Application Acceleration for Branch and Mobile Users

Acceleration and Optimization Using Cisco WAAS Mobile

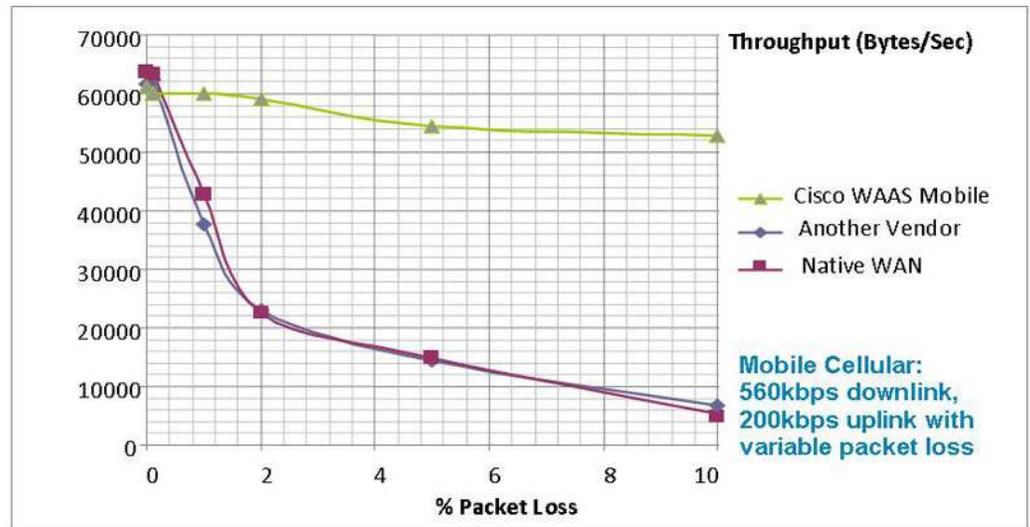
Cisco WAAS Mobile achieves industry-leading performance by extending Cisco WAAS acceleration technologies including:

- **Advanced data transfer compression:** Cisco WAAS Mobile maintains a persistent and bi-directional history of data on both the mobile PC and the Cisco WAAS Mobile server. This history can be used in current and future transfers, across different VPN sessions or even after a reboot, to minimize bandwidth consumption and improve performance. In addition, instead of using a single algorithm for all file types, Cisco WAAS Mobile uses a file-format-specific compression to provide higher density compression than generic compression for Microsoft Word, Excel, and PowerPoint files; Adobe Shockwave Flash (SWF) files, ZIP files, and JPEG, GIF, and PNG files.
- **Application-specific acceleration:** Cisco WAAS Mobile reduces application-specific latency for a broad range of applications including:
 - Microsoft Exchange: Microsoft Outlook Messaging API (MAPI) Protocol acceleration
 - IBM Lotus Notes
 - Windows File servers or Network Attached Servers Common Internet File System (CIFS) acceleration
 - Web based applications; HTTP acceleration, supporting enterprise intranet and Internet applications
 - Secured web based applications; HTTPS acceleration, supporting secure intranet applications without compromising security
- **Transport optimization:** Cisco WAAS Mobile extends Cisco WAAS technologies to handle the timing variations found in packet switched wireless networks, the significant bandwidth-latency problems of broadband satellite links, and noisy Wi-Fi and DSL connections. The result is significantly higher link resiliency.

These techniques are proving to be highly effective in mobile user environments.

Cisco WAAS Mobile provides highest application throughput improvement under the most challenging network conditions with very high latency and packet loss (Figure 2). Benchmark testing showed that the solution provides substantial end-user throughput improvements, which results in 11 times (11X) faster application response time when encountering 10 percent packet loss. By contrast, rather than improving throughput, other alternatives drop application throughput as substantially as native WAN.

Figure 2. Throughput Improvement with Cisco WAAS Mobile

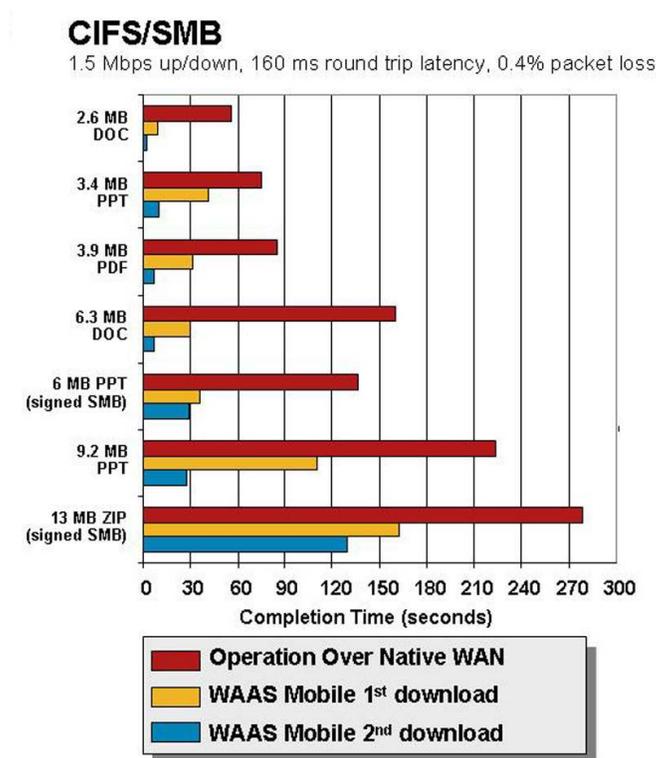


Performance Improvements Using Cisco WAAS Mobile

Windows File Sharing (CIFS)

Cisco WAAS Mobile can provide significant performance improvement for CIFS file sharing over the WAN. Employing application-specific acceleration and WAN optimization capabilities, Cisco WAAS Mobile gives mobile users LAN-like access to the files they need, as shown in Figure 3. This figure shows the sending and receiving of various files over a 1.5 Mbps link with 160 millisecond (ms) round-trip time (RTT) latency and 0.4 percent packet loss.

Figure 3. File Sharing Performance Improvement with Cisco WAAS Mobile



Web Applications (HTTP)

Figure 4 and Figure 5 show significant HTTP improvements achieved as a result of data reduction and further optimization performed by Cisco WAAS Mobile.

Figure 4. HTTP Acceleration with Cisco WAAS Mobile for File Downloads

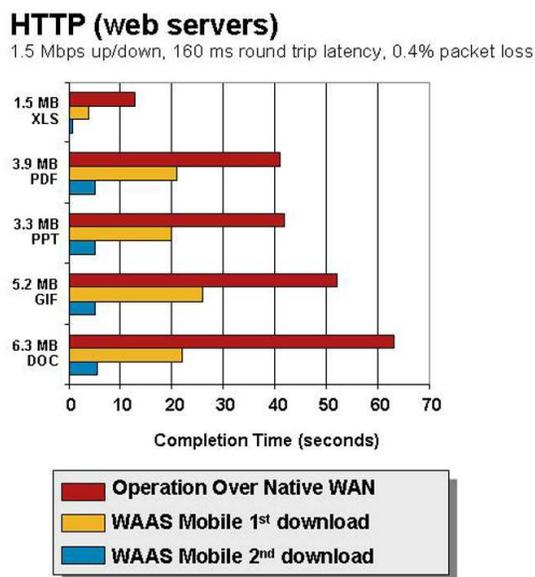
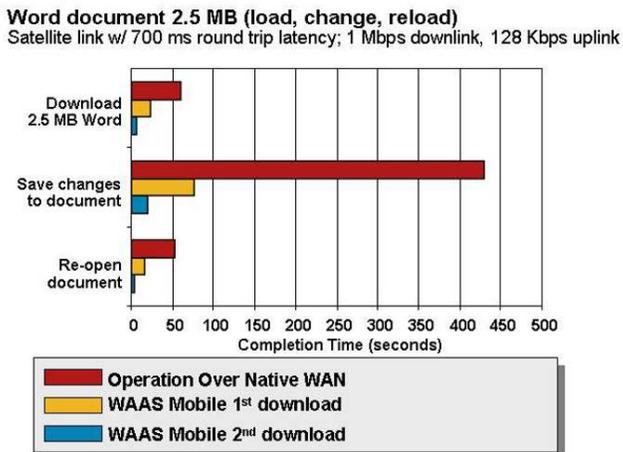


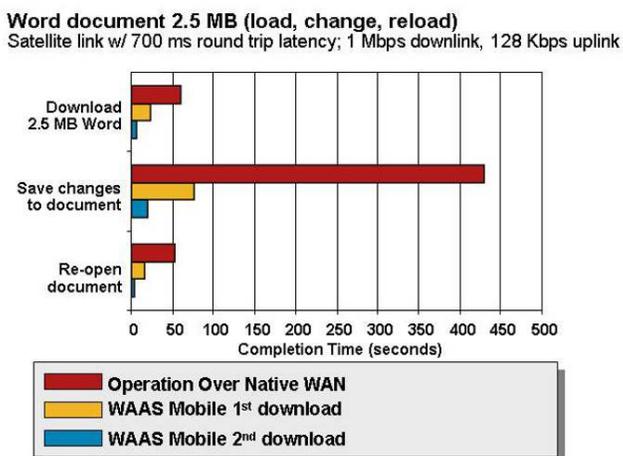
Figure 5. HTTP Acceleration with Cisco WAAS Mobile When Accessing Websites



Microsoft SharePoint Portal

Microsoft SharePoint and other collaboration portal applications can be optimized by Cisco WAAS Mobile. Figure 6 shows that response times are significantly improved with Cisco WAAS Mobile. Bandwidth savings through advanced compression are also significant.

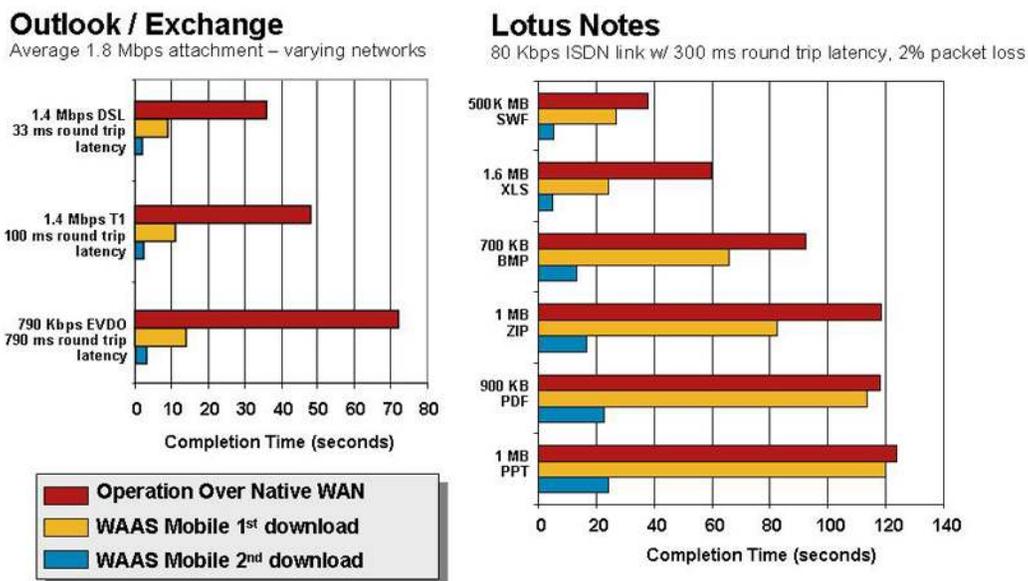
Figure 6. Cisco WAAS Mobile Optimization for Document Transfers from Microsoft SharePoint



Microsoft Exchange (MAPI) and IBM Lotus Notes

E-mail is another application that can be accelerated with Cisco WAAS Mobile. Figure 7 shows Microsoft Outlook with Microsoft Exchange and IBM Lotus Notes performance improvements when downloading attachments. Cisco WAAS can dramatically reduce bandwidth consumption and improve response times for e-mail users.

Figure 7. E-mail Acceleration with Cisco WAAS Mobile



Conclusion

Cisco WAAS Mobile provides industry-leading application acceleration and WAN optimization capabilities for networks and applications to make them work better for mobile enterprise users and telecommuters. With its thorough understanding of the application protocols needed to safely optimize communications, use of file caching to reduce unnecessary data transfers and WAN use, and use of best-in-class WAN optimizations, Cisco WAAS Mobile provides IT organizations with the capability to provide safer and faster access to TCP-based enterprise applications today.

For More Information

For more information about Cisco WAAS Mobile, visit: <http://www.cisco.com/go/waas> or contact your local account representative.



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