



White Paper

Cisco Wide Area Application Services Software 4.0 Optimizations for Microsoft SharePoint

The market for collaborative applications has grown significantly with the introduction of Web-based solutions for collecting and sharing information among distributed employees. Microsoft SharePoint is an example of such an application that allows distributed teams to share and collaborate on documents using the network and a Web browser. SharePoint sites provide a central repository for documents, information, and ideas and allow users to work interactively with one another. When used by employees over a WAN, applications such as SharePoint are susceptible to performance challenges from excessive bandwidth consumption, slow performance, and lost productivity. Cisco® Wide Area Application Services (WAAS) Software Version 4.0 can significantly improve throughput for SharePoint by overcoming the WAN conditions that can decrease SharePoint performance, thereby increasing productivity and minimizing bandwidth consumption.

CISCO WAAS OVERVIEW

Application acceleration and WAN optimization products are designed to provide IT organizations with the tools necessary to consolidate costly remote-office infrastructure and improve the performance of applications and services that run over WANs. These solutions typically include an array of technologies and features, each designed to address a specific component that creates a performance barrier to application delivery:

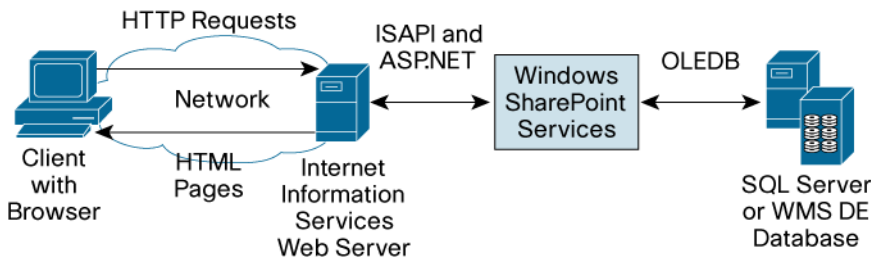
- Compression—Standards-based compression for data in transit to minimize the amount of bandwidth consumed on a link during transfer
- Data suppression—Suppression of transmission of data that has been previously seen, based on a history of previously seen data segments in devices deployed at each end of the link
- Flow optimizations—Mitigation of the performance and efficiency limitations of commonly used transport protocols such as TCP through the use of a WAN-optimized transport protocol
- Application proxy—Transparent or nontransparent proxy that understands application messaging so that unnecessary messages can be suppressed, handled locally, bundled, predicted (read ahead), or forwarded to the originating server; primarily used to overcome application latency
- Application caching—Local repository of application-specific information; used by application proxies to safely serve validated content when requested by an authorized user

Although these capabilities certainly do provide value in facilitating centralization, improving performance of applications using the WAN, and minimizing bandwidth consumption, IT organizations must verify that such solutions do not effect currently deployed network policies. In other words, such solutions must be transparent to the underlying network infrastructure so that they do not negatively affect anything that is already deployed. Cisco WAAS 4.0 is an application acceleration and WAN optimization product that provides compliance with packet network functions through transparency and network integration.

MICROSOFT SHAREPOINT PORTAL SERVER 2003

SharePoint is available either as Microsoft Windows SharePoint Services, which facilitates creation of team-oriented collaboration sites, or Microsoft SharePoint Portal Server, which provides a secure enterprise portal site. SharePoint Portal Server 2003 integrates information from various systems into one secure solution through single sign-on and enterprise application integration capabilities. It provides flexible deployment and management tools and facilitates end-to-end collaboration through data aggregation, organization, and searching. SharePoint Portal Server 2003 is built on Windows SharePoint Services. SharePoint Portal Server 2003 extends the capabilities of Windows SharePoint Services by providing organizational and management tools for SharePoint sites and by allowing teams to publish information to the entire organization. Figure 1 shows the Windows SharePoint Services architecture.

Figure 1. Windows SharePoint Services Architecture



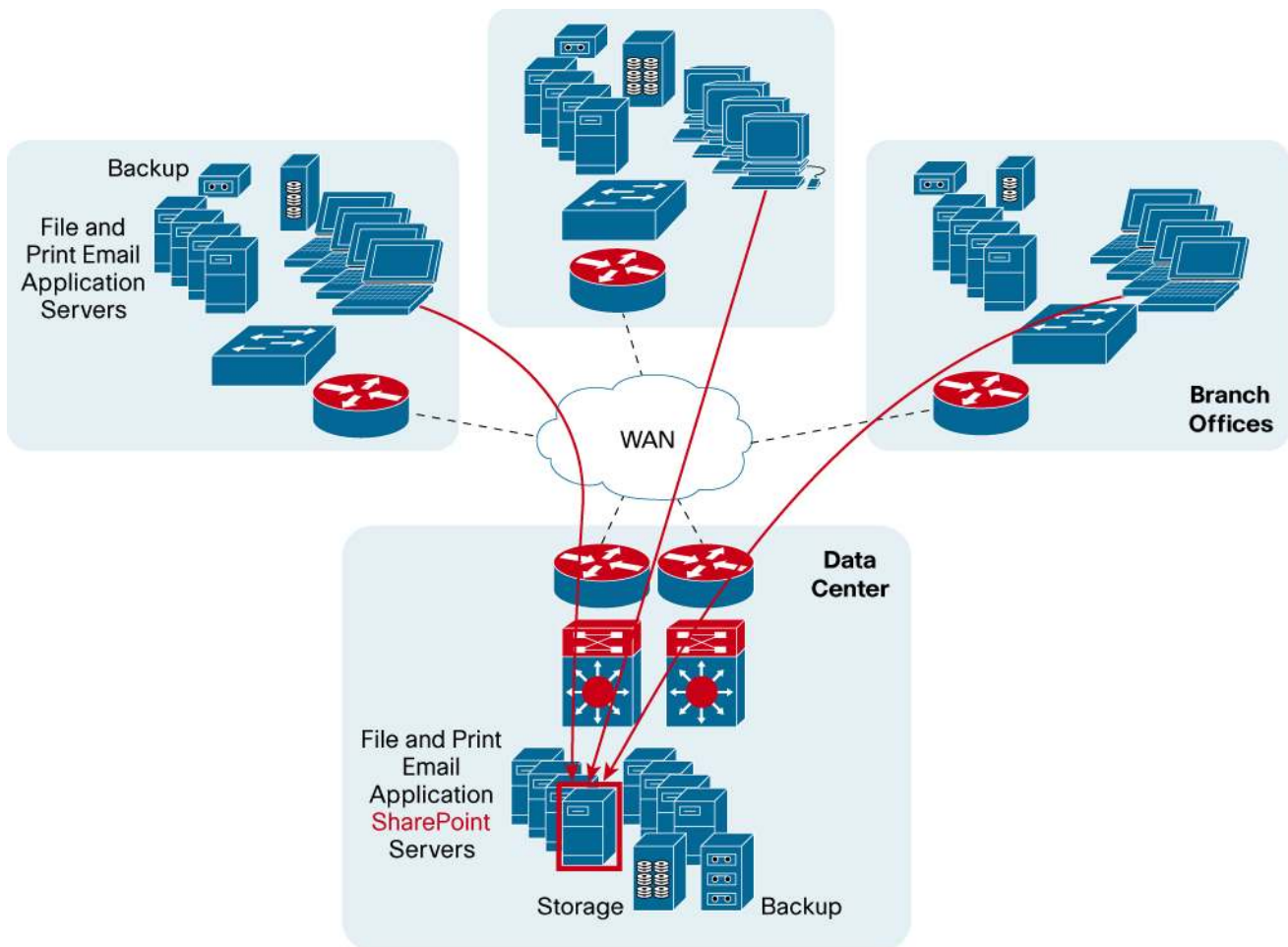
SharePoint provides *document workspace* sites—SharePoint sites that hold information relevant to the collaboration of a group, including members, tasks, links, and related documents. A shared attachment is a document that is stored at a SharePoint site and linked to a file attachment in an e-mail message. When you create a shared attachment, Windows SharePoint Services stores the document, and you can configure the document workspace site to track document versions.

SharePoint also provides *meeting workspace* sites, which are prepopulated with information relevant to meetings. For recurring meetings, team members can track the progress of ongoing tasks or projects

CHALLENGES WITH SHAREPOINT

At an enterprise portal site such as SharePoint, every user creates or manipulates dozens of electronic documents daily (Figure 2). Documents of different types and sizes are used in every function across organizations daily—marketing collateral, purchase orders, approvals, invoices, budgets, project plans, and more. Document workspace sites in SharePoint Portal Server 2003 serve as central repositories for these documents and files. Although SharePoint sites are accessed from a Web browser using HTTP, the documents can be opened through traditional applications such as Microsoft Office. When accessing these documents and document repositories over the WAN, users can encounter performance bottlenecks as a result of link latency, protocol chattiness, and WAN bandwidth requirements.

Figure 2. Typical Distributed SharePoint Environment



CISCO WAAS PROVIDES OPTIMIZATION FOR SHAREPOINT PORTAL SERVICE

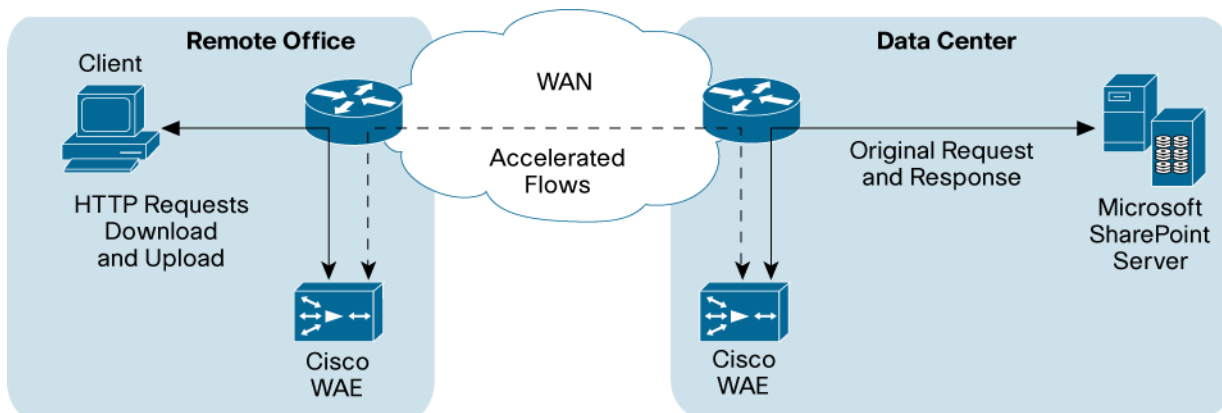
Cisco WAAS is a multilayer application acceleration and WAN optimization solution that improves application performance over the WAN, thus facilitating centralization. By employing application-specific acceleration and WAN optimization capabilities, Cisco WAAS provides LAN-like performance for users in remote offices who access centralized applications, content, or files.

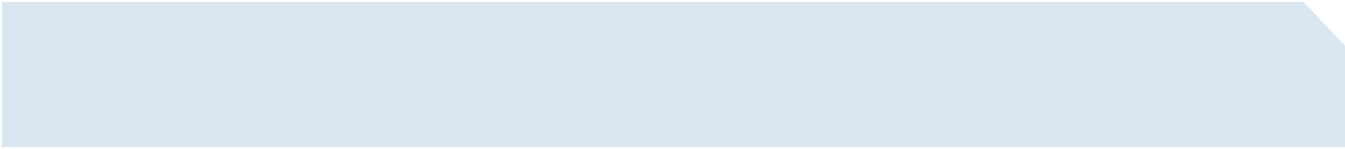
By deploying Cisco WAAS, IT organizations are better positioned to do the following:

- Centralize costly distributed IT capital resources in the data center
- Improve throughput and delivery of applications and application data to the enterprise edge
- Increase efficiency for existing WAN connections
- Maintain remote-office user application performance expectations

Cisco WAAS provides WAN optimization capabilities, along with application-specific acceleration, through devices that are deployed on each side of the WAN. These devices, called Cisco Wide Area Application Engine (WAE) Appliances, are available as router-integrated network modules or as standalone appliances and are deployed out of the data path in the data center and in the remote-office LAN. Figure 3 shows how Cisco WAAS can optimize SharePoint Portal Server 2003, improve performance, minimize WAN bandwidth consumption, and improve productivity.

Figure 3. Cisco WAAS Optimizes SharePoint Portal Server



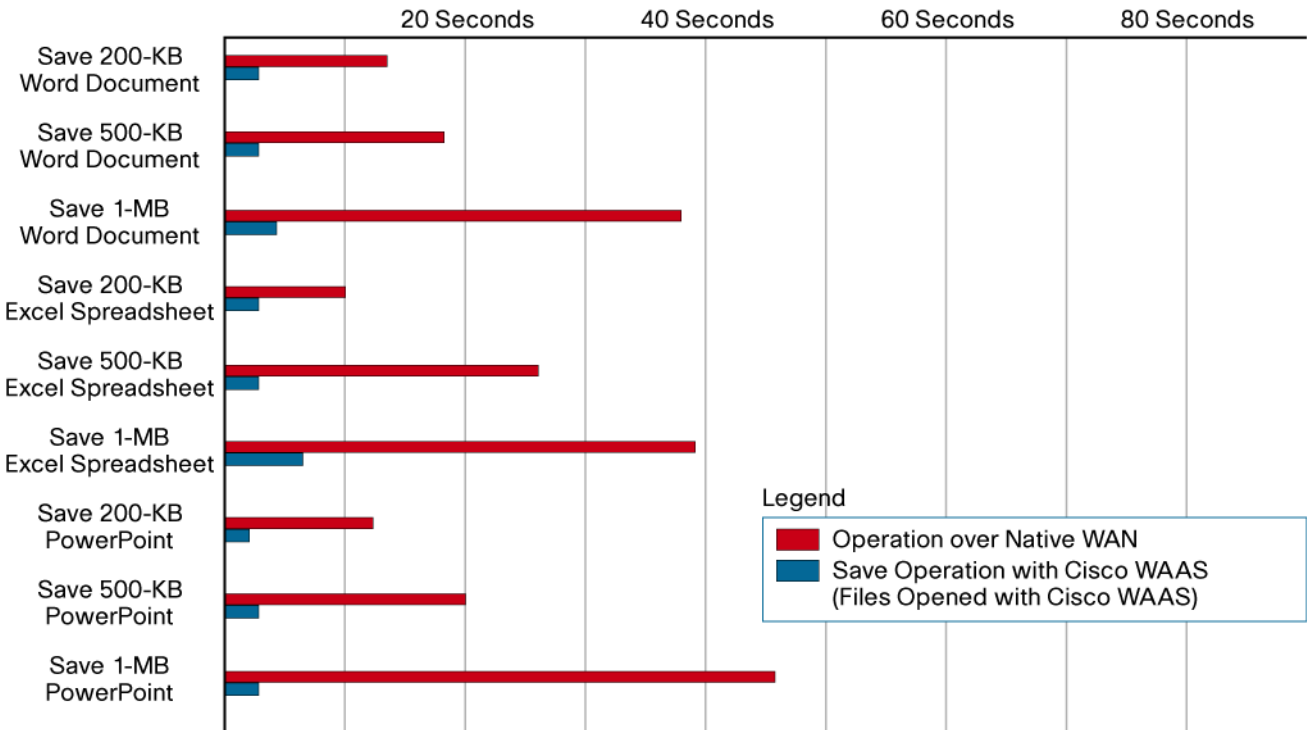
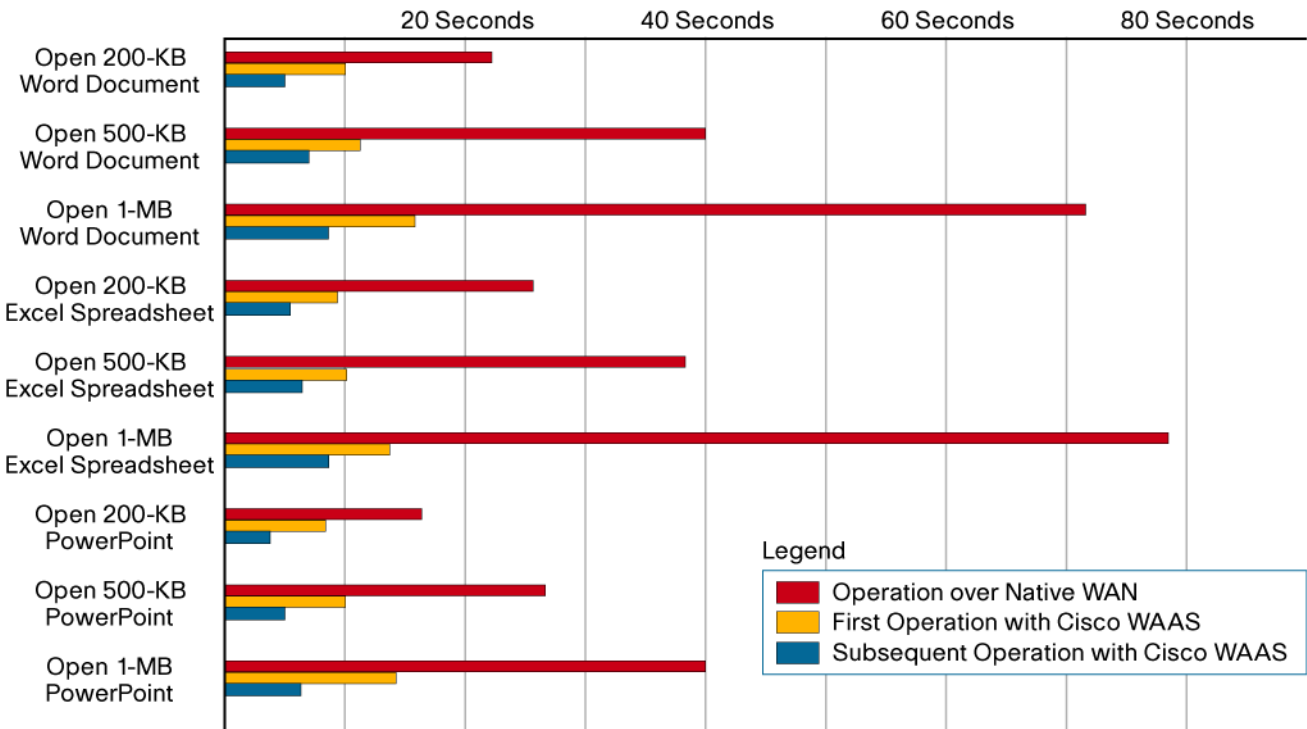


Cisco WAAS can provide 2 to 20 times better performance for remote users accessing a centralized SharePoint Portal Server over the WAN. Optimization for SharePoint and other associated applications is achieved through the following Cisco WAAS features:

- Application acceleration for the Common Internet File System (CIFS) protocol—Through file data and metadata caching, latency mitigation through techniques such as read-ahead caching, and local message handling, the Cisco WAE can accelerate access to documents without incurring latency or bandwidth penalties caused by the WAN.
- Cisco Data Redundancy Elimination (DRE)—DRE eliminates the transfer of redundant data segments that have been previously identified. DRE is application independent and can identify patterns within flows from any TCP-based application and later use those identified patterns to suppress redundant transmission. DRE is very effective for documents that are downloaded multiple times and also for documents that have had changes applied to them. DRE is bidirectional—it is effective regardless of the direction of traffic flow. Thus, data patterns that have been identified for one application protocol can be used by other applications, and patterns that have been identified for one direction of traffic flow can be used to remove redundancy for traffic flowing in a different direction.
- Persistent Lempel-Ziv (LZ) compression—To minimize bandwidth consumption, all data is compressed in transit. Persistent LZ compression can provide from 2:1 to 5:1 compression depending on the application being used and the data being transmitted.
- Cisco Transport Flow Optimization (TFO)—TFO improves the behavior of TCP in WAN environments to facilitate high performance, reliability, and efficiency when the WAN is used. TFO terminates TCP sessions locally and transparently optimizes flows that traverse the WAN, thereby shielding communicating nodes from the limitations of the WAN.

Figure 4 shows the performance increase that Cisco WAAS provides when working with documents stored on a SharePoint Portal Server on a WAN.

Figure 4. Cisco WAAS Optimizes Document Transfers from SharePoint (256 kbps with 120-ms Round-Trip Delay and 0.5 Percent Packet Loss)



Cisco WAAS can provide bandwidth savings of up to 98 percent and from 2 to 20 times faster response time.

SUMMARY

Cisco WAAS provides industry-leading application acceleration and WAN optimization capabilities without compromising on simplicity or compatibility. By using this Cisco Systems® solution, IT organizations can effectively consolidate costly infrastructure, improve application performance over the WAN, and help ensure that the investment that has already been made in crucial network services is fully preserved. For SharePoint portal services, Cisco WAAS dramatically reduces response time and bandwidth utilization, providing users with LAN-like access to SharePoint Portal Servers and content, thereby improving productivity.



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