Accelerate Business Innovation with SAP and Cisco Wide Area Application Services

What You Will Learn

To enable transformation to a globally connected real-time business network that accelerates innovation across the borderless enterprise, Cisco, in collaboration with SAP, offers Cisco® Wide Area Application Services (WAAS) for SAP. This solution provides industry-leading Cisco WAAS optimization capabilities to business process applications, improving application delivery across a globally distributed enterprise.

Overview

As many organizations expand, they are challenged by two important but competing needs: the need to optimize their network response time as they adopt new business applications, and the need to reduce costs. In addition, as organizations use more bandwidth-intensive applications such as video and virtual desktops across increasingly larger areas, organizations are experiencing correspondingly increased bandwidth consumption and communications latency. Bandwidth continues to represent a significant portion of operating expenses for WANs as businesses adopt video, voice, and other applications. In addition to sending large files, businesses need to connect their remote workers to applications hosted in their data centers. Companies must also consider the mobile nature of their users and potential cost savings through data center consolidation. WAN optimization is a beneficial network feature that can help organizations address these challenges.

Cisco helps businesses build and expand their networks with Cisco WAAS, a comprehensive WAN optimization solution that accelerates applications over the WAN, provides local hosting of branch-office IT services, optimizes end-user experiences, and mitigates bandwidth and latency problems.

Cisco WAAS improves response time and reduces bandwidth consumption for transactions that occur across the WAN. As a result, Cisco WAAS delivers:

- Enhanced end-user experience and overall business productivity by increasing effective bandwidth and reducing latency
- Ease of integration into existing network infrastructure, providing the most flexible deployment options in the industry
- Reduced costs by enabling centralization of IT services and decreasing bandwidth expenses with lower total cost of ownership (TCO) and more quickly achieved return on investment (ROI)
- Smoother evolution to the cloud by removing performance barriers that pose a challenge to data center virtualization, a step toward true cloud service

SAP Business Suite

Since the creation of the SAP Enterprise Resource Planning (ERP) business application in the 1970s, SAP has expanded to related business process applications, including SAP Product Lifecycle Management (PLM), Supply Chain Management (SCM), Supplier Relationship Management (SRM), and Customer Relationship Management

(CRM). These solutions have been further customized for various specific-industry markets, such as education, finance, and manufacturing (Figure 1).

Figure 1. SAP Business Suite

Built on an open, service-oriented architecture (SOA) and powered by the SAP NetWeaver technology platform, SAP Business Suite applications offer companies the opportunity to develop practices for greater differentiation and to integrate business processes that enable businesses to compete more effectively in your industry.

Organizations and departments in all industries can deploy SAP business applications to address specific business challenges on their own timelines and without costly upgrades. SAP business applications provide insight and visibility across organizations, improve operation efficiency and effectiveness, and increase your flexibility to address business change.

You can incrementally adapt and tailor SAP Business Suite applications through enhancement packages that alleviate the need for costly and time-consuming upgrades. SAP Business Suite applications increase visibility across departments and business silos, enabling every enterprise to make clear business decisions and eliminating process bottlenecks.

Cisco WAAS for SAP Business Suite

SAP Business Suite business applications are complemented by a number of middleware solutions that are packaged as part of the SAP NetWeaver platform. Today, SAP NetWeaver is an enterprise SOA platform that helps enable rapid development of composite applications. These composite applications, which include right-sized enterprise services, help enable organizations to rapidly improve business processes and be more responsive to market demands. These composite applications include:

- SAP Composite Application Framework: Applications built by combining multiple existing functions into a new application using web services; this application is the first tool for building composites
- SAP Web Application Server (WebAS): The Advanced Business Application Programming (ABAP) language and Java 2 Platform, Enterprise Edition (J2EE), foundation on which all SAP applications run
- SAP Mobile Engine (ME): Now called the SAP Mobile Infrastructure (MI); a tool that provides support for mobile devices such as personal digital assistants (PDAs) through a Java client that connects to SAP WebAS
- SAP Enterprise Portal (EP): A tool that integrates access to multiple applications and customizes the view based on a user's identity

- SAP Business Intelligence (BI): A tool for advanced data analysis and reporting; also known as the SAP Business Warehouse (BW)
- SAP Exchange Infrastructure (XI): A tool that enables cross-system processes between different applications, such as SAP, non-SAP, ABAP-based, and Java-based applications; renamed SAP Process Integration (PI) toward the end of 2007
- SAP Knowledge Management (KM): A framework in SAP Enterprise Portal for document sharing, rating, and updating
- SAP Master Data Management (MDM): A solution for consolidating and harmonizing data from multiple systems

When implemented with SAP, Cisco WAAS demonstrated noticeable improvements in the performance of SAP applications such as the SAP Enterprise Portal. Figures 2 and 3 show the application performance improvements provided by Cisco WAAS when users access various parts of SAP Enterprise Portal over a DSL network link and a T3 network link, respectively. Performance was as much as 70 times faster when users logged into a SAP portal over a DSL link.

Figure 2. Accessing SAP over DSL Link (Response Time in Seconds)

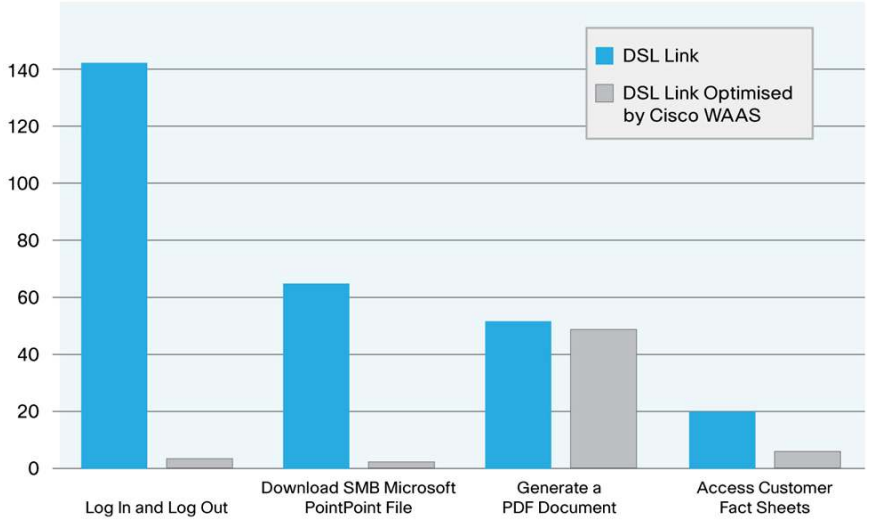
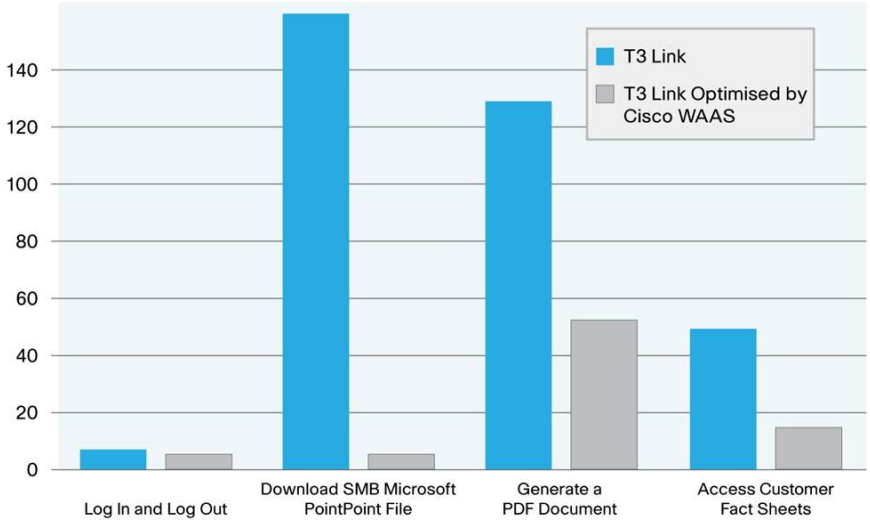


Figure 3. Accessing SAP over T3 Link (Response Time in Seconds)



These benefits are achieved through a series of optimization features that are both application friendly and packet network friendly:

- Application-specific acceleration: Application-specific acceleration mitigates application latency and bandwidth consumption through protocol acceleration, read-ahead, safe data caching, and other optimizations to improve application responsiveness and performance over the WAN. With Cisco WAAS, packages can be prepositioned at the network edge proactively or cached dynamically based on user requests. Application protocol latency and bandwidth consumption for SAP NetWeaver is mitigated, and package download performance is improved.
- Advanced network compression: Data redundancy elimination (DRE) can remove previously seen blocks of TCP data safely to reduce bandwidth consumption and dramatically improve throughput. Coupled with persistent LZ compression, Cisco WAAS can provide up to 100:1 compression. With Cisco WAAS, SAP NetWeaver data traffic is heavily compressed, thereby reducing the amount of data that must traverse the network.
- Throughput improvements: Cisco WAAS transport flow optimization (TFO) overcomes bottlenecks created by use of TCP as a transport in WAN environments, including throughput and loss recovery, to improve application performance, make better use of available WAN capacity, and mitigate the effect of loss and congestion. TFO improves the capability of a package transfer to take full advantage of WAN capacity and reduces the effects perceived in environments that tend to experience higher rates of packet loss.

With Cisco WAAS, almost any TCP-based application can benefit from the network- and application-specific acceleration techniques, including Internet and intranet applications, databases, file services, file transfer, email, data protection, and client-server applications. Cisco WAAS integrates transparently into a SAP NetWeaver environment without requiring any special configuration of either Cisco WAAS or SAP NetWeaver.

Case Study: Pacer International

Pacer International (NASDAQ:PACR) is a U.S.-based holding company with operations in non-asset-based third-party logistics and intermodal freight transportation services. In 2008, it rolled out a centralized SAP and Microsoft Exchange solution to 62 sites globally. With Cisco WAAS, Pacer successfully mitigated WAN limitations and

improved the performance of these applications across the network. Cisco WAAS successfully reduced SAP response time by 50 percent and WAN bandwidth use by 75 percent. The complete video testimonial is available online at http://bit.ly/pacerwaas.

> "With WAAS our remote facilities are getting the same LAN speed as we're getting in the central office."
> **— Jim Ward, Executive Vice President, CIO, Pacer International**

Which Cisco WAAS Is Right For You?

Customers can deploy WAN optimization throughout their entire network by choosing from the expanding portfolio of Cisco WAAS offerings. Designed to optimize network service delivery in a range of form factors that include both hardware and software, companies can deploy WAN optimization over a broader range of deployment options and use cases:

- Appliances: The Cisco Wide Area Virtualization Engine (WAVE) appliance portfolio has options that scale from small branch offices to large data centers. Cisco WAAS solutions deliver exceptional optimization and acceleration for business-critical applications such as video, virtual desktop sessions, and software as a service (SaaS). Cisco WAVE appliances are simple to scale and simple to manage at scale.

Software options include:

- Express: Cisco WAAS Express offers WAN optimization natively on Cisco IOS® Software for small branch offices in a cost-effective, router-integrated form factor compatible with existing Cisco WAAS devices. It interoperates with router services including policy provisioning, monitoring, and management. Cisco WAAS Express provides WAN optimization without complete equipment upgrades, resulting in easy deployment, reduced operating expenses, and a smaller branch-office footprint.
- Mobile: Cisco WAAS Mobile extends application acceleration to mobile workers and addresses associated unique challenges. Cisco WAAS Mobile provides industry-leading performance under the most challenging network connectivity conditions, has a small PC footprint, and helps reduce the costs normally associated with installation of client software on PCs. Cisco WAAS Mobile is excellent for public cloud environments that cannot support an appliance.
- Virtual appliances: Cisco Virtual WAAS (vWAAS) is the first cloud-ready WAN optimization solution that accelerates applications delivered from private and virtual private cloud infrastructure, using policy-based on-demand orchestration. Cisco vWAAS can be virtualized on the industry-leading VMware ESX and ESXi hypervisor and on the Cisco Unified Computing System™ (Cisco UCS®) and x86 servers in on-demand, elastic, and multi-tenant manner.
- Modules: Cisco WAAS is available as software on Cisco Services-Ready Engine (SRE) modules for Cisco Integrated Services Routers Generation 2 (ISR G2) routers and as dedicated modules with Cisco WAAS network module (NME) adaptors for Cisco ISRs. Cisco SRE branch-office applications, including Cisco WAAS WAN optimization, can be provisioned on demand without a physical visit to the branch office.

Conclusion

Cisco WAAS provides robust application acceleration and WAN optimization technologies to improve application delivery while enabling infrastructure consolidation. With Cisco WAAS, IT departments can effectively maintain service levels for existing locally deployed services while improving performance for centrally deployed application

infrastructure. Customers who are planning to deploy SAP Business Suite can use Cisco WAAS to improve application response times across the enterprise.

For More Information

- Cisco Wide Area Application Services: http://www.cisco.com/go/waas/
- Cisco Data Center blog: http://blogs.cisco.com/datacenter/

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