

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 lowers total cost of ownership (TCO), improves application performance and WAN utilization efficiency, and integrates transparently into the network with secure, centralized manageability and control in an easy-to-implement package.

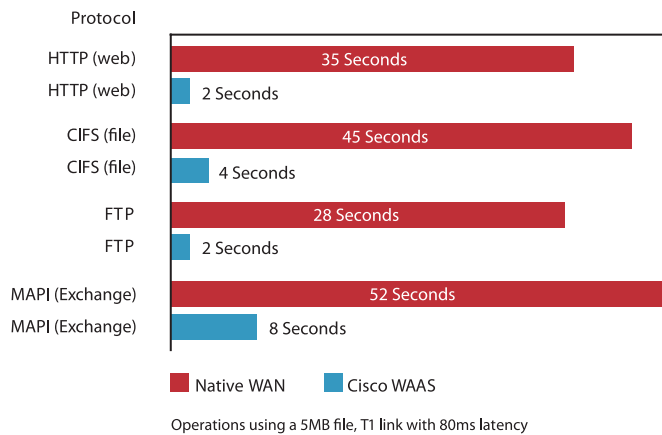


Figure 1. Typical application improvements with Cisco WAAS deployed.

NetQoS ReporterAnalyzer™, the traffic analysis module of the NetQoS Performance Center, allows network professionals to understand how application traffic is impacting network performance. It was the first enterprise-class product to harvest a rich set of traffic statistics from Cisco IOS® NetFlow and IP Flow Information Export (IPFIX)-enabled routers and switches, and is now recognized as the industry standard for flow reporting and analysis. ReporterAnalyzer provides enterprise-wide traffic analysis for Cisco WAAS deployments, enabling IT staff to: optimize the network for application performance, avoid unnecessary infrastructure costs, mitigate risks associated with data center consolidation, and prove application performance to their users.

Together, Cisco WAAS and NetQoS ReporterAnalyzer provide transparent integration of WAN optimization and performance reporting data. Cisco WAAS and ReporterAnalyzer provide complete and accurate visibility into traffic flow data (via NetFlow) before and after optimization occurs. This visibility enables you to quantify the Cisco WAAS application acceleration and WAN optimization improvements by reporting pre- and post-optimized traffic flows accurately.

High Performance, Enterprise-Wide Visibility

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

- » Application acceleration - Reduce latency and bandwidth through advanced protocol optimizations, including read-ahead, message prediction, and sophisticated caching
- » WAN optimization - Minimize the transmission of redundant data patterns through data redundancy elimination (DRE) and compression; Improve the utilization of WAN bandwidth by implementing Transparent Flow Optimization (TFO) techniques
- » Transparent network integration - Retain end-to-end visibility and compatibility with existing network functions such as NetFlow monitoring, quality of service (QoS), high availability, L3, L4 and security services like ACLs; Avoid creating overlay networks with dynamic discovery of endpoints

Broad Optimization, Transparent Integration

Cisco WAAS architecture overcomes the bandwidth, throughput, and latency limitations associated with WAN links and application protocols by applying optimization at three separate levels:

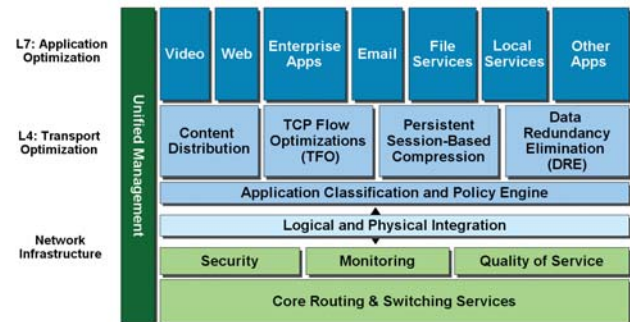


Figure 2. Cisco WAAS Architecture

Cisco WAAS Benefits

- » Deliver near-LAN performance to centralized applications across the WAN
- » Increase application reach, employee productivity, sharing, and collaboration
- » Reliably deliver all branch application content (e.g. Web, file, video, ERP, CRM)
- » Integrate transparently with the existing IP network infrastructure and metrics (NetFlow monitoring, QoS, L3, L4 and security services such as ACLs, and availability)
- » Reduce the cost of WAN bandwidth while improving end-user performance
- » Protect data centrally and streamline storage management

Cisco WAAS Benefits (Contd.)

- » Reduce and quantify branch infrastructure capital and maintenance costs by consolidating servers (e.g. file, print, and mail servers), backup hardware and software, and storage devices and media to a centralized data center
- » Communicate improved application performance, availability, manageability, and compliance

NetQoS ReporterAnalyzer for traffic analysis

NetQoS ReporterAnalyzer provides enterprise-wide visibility into the traffic flow metrics (via NetFlow) necessary to quantify the improvements of Cisco WAAS deployments.

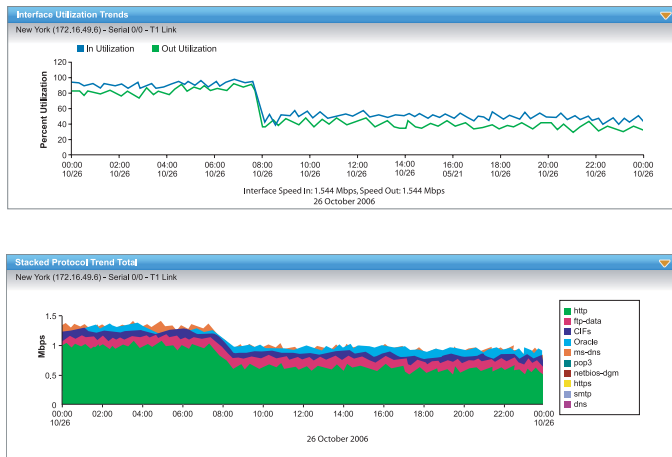


Figure 3. NetQoS ReporterAnalyzer utilization and stacked protocol graphs before and after Cisco WAAS is deployed.

NetQoS ReporterAnalyzer Benefits

- » Measure enterprise-wide WAN utilization and identify the applications, hosts, and conversations consuming bandwidth
- » Rapidly identify the network circuits that would most benefit from a Cisco WAAS deployment with alerts for interfaces that breach defined thresholds
- » Baseline network performance before and after Cisco WAAS is deployed
- » Quantify branch office capital expenditures, bandwidth costs, and other operating expenses
- » Measure application performance, availability, manageability, and compliance
- » Analyze trends in applications, hosts, and conversations per class of service
- » Increase productivity through file sharing and collaboration

Status	Interface	Traffic Direction	Speed (bps)	Avg. Util.	Percent Time Util >= 50.00 %	Percent Time Util >= 90.00 %
■	Houston (10.2.176.127):Serial0/0/5 - T1 Link - US Link to Singapore	Out	1.54 M	92.00 %	99.91 %	87.92 %
■	Houston (10.2.176.127):Serial0/0/5 - T1 Link - US Link to Singapore	In	1.54 M	68.00 %	83.07 %	62.18 %
■	Singapore (172.13.176.131):ATM10.5-aad layer - 256 Kb PVC	Out	256.00 K	29.70 %	26.62 %	6.72 %
■	Houston (10.2.176.127):POSD1 - DC-3	In	188.00 M	28.19 %	32.97 %	5.64 %
■	London (10.1.176.127):VLAN 101 - Finance	Out	1.00 G	23.12 %	30.99 %	5.25 %
■	New York (172.16.49.6):Serial 0/0 - T1 Link	Out	1.54 M	27.13 %	36.24 %	9.00 %

Figure 4. NetQoS ReporterAnalyzer identifies network interfaces that would most benefit from a Cisco WAAS deployment.



Figure 5. NetQoS ReporterAnalyzer identifies the applications, hosts, and conversations consuming bandwidth. ReporterAnalyzer may be used to quantify utilization and application volume reduction before and after a Cisco WAAS deployment.

How can Cisco WAAS and NetQoS ReporterAnalyzer help your organization?

- » Optimize the network infrastructure for application performance
- » Identify, reduce, and avoid unnecessary infrastructure costs
- » Mitigate risks from infrastructure consolidation
- » Provide consistently improved application performance
- » Make more informed infrastructure investments

For More Information

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

For more information about the NetQoS Performance Center, including ReporterAnalyzer, visit <http://www.netqos.com>

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