

WAN Acceleration: Getting More Data Rabbits Out of the Bandwidth Hat Faster

By David G. Hill, Mesabi Group

With the Internet networks becoming increasingly ubiquitous, bandwidth may appear to be free. Organizations know better, since for them bandwidth is still very much an economic issue. Many enterprises would like distributed users (such as in branch offices) to be able to receive LAN-quality application performance over a WAN. Such performance offers geographically-dispersed individuals and departments the ability to work better collaboratively, to capture savings through the consolidation of scattered and relatively inefficient distributed servers and storage into one or more centralized locations, and to implement stronger and more effective data protection practices.

Yet existing WANs may not have enough bandwidth horsepower to meet these users requirements. Going to the capital committee to upgrade the existing network infrastructure is an unappealing Procrustean stretch and a Procrustean amputation of plans to upgrade proposed future functionality to improve WAN performance is equally unappetizing. To minimize bloodshed, the Procrustean IT bed that businesses live with must leverage existing capital investments and network infrastructures as well as minimizing the need for any new staff education.

Mastering WAN Magic Tricks

Squeezing more effective performance out of an existing WAN infrastructure may seem impossible. However, there are two general categories of "magic" tricks that can — separately or together — get more data rabbits out of the same bandwidth hat faster:

- Reduce bandwidth demand by sending only necessary bits of data. Example: Eliminate redundancies by sending only one copy of a file or sending only the changes to a file that is already available at a remote site.
- Improve the efficiency of the carrier. Example: Cut out the chattiness in the TCP protocol that slows things down or eliminate unnecessary actions that an application might take that increase latency.

These network and application efficiency improvements can be called WAN acceleration or WAN optimization or even application acceleration. You may not derive more actual bits per second, but you do get faster effective throughput of the bits that you are working with. Individual vendors have their own secret sauces, but most attempt to eliminate inefficiencies in the TCP protocol and individual application protocols

that create unnecessarily repetitive WAN traffic. Some such products are sophisticated, for example, shielding applications from intermittent network issues, such as bit errors, jitter, congestion, route buffer overflows, and packet loss.

The Benefits of Enhanced WAN Efficiency

Applications that may enable the greater integration of distributed business processes through WAN acceleration include:

- File sharing E-Mail, such as Microsoft Exchange
- Web, such as HTTP and an Intranet
- Data protection software, such as backup/restore software and replication software
- Databases
- Enterprise resource planning (ERP)

One big focus of WAN acceleration is branch offices, where such bandwidth improvements enhance application performance and allow users to access files that reside in a central data center. Central management of the backup and data protection process can eliminate the need to have costly and difficult-to-do-well backup at innumerable remote branch sites. In addition, the consolidation of servers and storage resources into one or a few central sites offers economies-of-scale savings over provisioning and managing IT infrastructures at a large number of smaller sites.

Many vendors claim to deliver WAN acceleration solutions. Several— Cisco, Juniper Networks, NetEx, and Riverbed — sell WAN acceleration appliances that differ by focusing on particular applications and bundling in other features, such as data reduction to reduce bandwidth demand. This type of vendor typically partners with storage vendors, such as EMC, IBM, and Network Appliance.

Other vendors bundle WAN acceleration functionality as part of greater product offerings. For example, Tacit Networks adds Wide Area File Services (WAFS) to data reduction and WAN acceleration for its product. A few of the other players of this sort include Asigra with Asigra Televaulting and FalconStor with its Remote Replication Option for its IPStor software as well as InMage, SEPATON, Signiant, Sun Microsystems, and Tandberg Data.

Table 1: A Sampler of WAN Acceleration Products

Vendor	Product	Product Focus	Technology Foundation
Cisco	Cisco WAE (Wide Area Application Engine) Cisco AVS (Application Velocity System)	WAE offers application acceleration for Web-based and application servers, file servers, and streaming video AVS is an enterprise appliance for improving application response times over a WAN	WAE is the successor to the Cisco File Engine and the Cisco Content Engine products Formerly known as FineGround

Juniper Networks	Juniper WX Series (formerly Peribit SR Series) and Juniper WXC Series (formerly Peribit SM Series)	Increase WAN capacity, deliver faster application performance, and prioritize application delivery	Juniper acquired Peribit in 2005; Peribit focused on improving application performance over an IP network
NetEx	HyperIP appliance	Focuses on business continuity and disaster recovery replication solutions	Its production-hardened data transport technology has been used for a number of years
Riverbed	Riverbed Steelhead appliance	Focuses on increasing network performance over a wide range of generic business applications	Its RiOS (Riverbed Optimization System) is designed to accelerate enterprise applications through the streamlining of data and the network protocols that move it.
Tacit Networks	IShared	Leverages WAN application performance to allow files accessed by branch office users to reside on data center storage	Combines Wide Area File Services (WAFS) with a WAN optimization appliance

Source: Mesabi Group December 2005

Mission Accomplished?

Getting more value out of existing bandwidth by reducing TCP and application networking inefficiencies is attracting the attention of many enterprise customers. The WAN acceleration bandwagon (by any name) will continue during the year since its potential benefits are very attractive. Consolidating servers and storage is always a popular topic for efficiency-hungry IT organizations. Trying to manage the IT equipment at a large number of branch offices has never been a favorite chore for IT management so consolidation to a central site is an attractive alternative. Add in that data protection policies, practices, and procedures are much easier to manage centrally than in widely distributed environments as an additional plus. As another bonus; WAN acceleration allows widely dispersed users to more easily share files and information collaboratively.

Naturally, businesses will have to make an investment in WAN acceleration software and hardware to realize these scenarios, but a cost/benefit analysis can determine whether or not investments are justified. The key point for IT organizations to remember is that these solutions require no costly rip and replace of the existing network infrastructure and that the knowledge required to use the new technology is easily assimilated. Overall, WAN acceleration is an all around win for distributed users, for the IT organization that services them, and for the enterprise that wants cost effi-

ciencies along with improved productivity and greater data protection. What's not to like?

David G. Hill is principal of the Mesabi Group (www.mesabigroup.com). The Mesabi Group focuses on the revolutions in Storage Networking and Storage Management, and helps clients make the best and most efficient use of information for business value.

© 2005 Pund-IT, Inc. All rights reserved.

Contact:

Web: www.pund-it.com

Phone: 510-909-0750

E-mail: charles@pund-it.com