



The Need for Speed

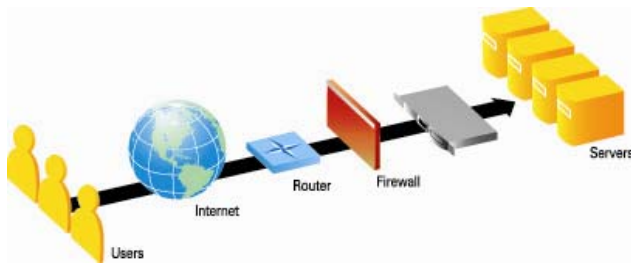
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The passion for optimizing data communications has always been driven by the need for speed. Seasoned information technology veterans remember fondly the advent of the 28.8K modem, followed by 56K, right on up to today's DSL and cable-modem broadband connectivity. While data communication speeds have been steadily going up, enterprise server consolidation projects have put users farther away from the data sources, while at the same time, the volume of data has ballooned, in part because it must now be packaged in HTTP browser-readable format.

Today's Web-use goes far beyond simple browsing of static Web pages with a new breed of enterprise Web applications. Mission-critical applications that require instant access to real-time database information, as well as the ability to upload and down-load large amounts of data now proliferate. As these dynamic HTTP applications are deployed, enterprises are faced with an assortment of related challenges, such as:

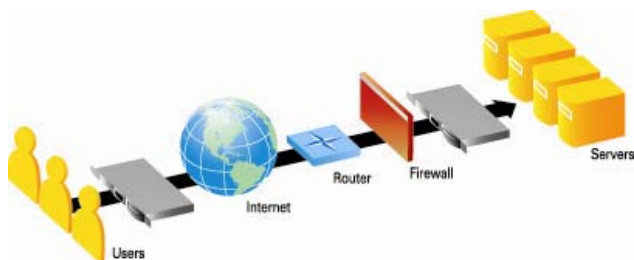
- Security
- Authentication
- Encryption
- Intrusion detection
- Slow and/or inconsistent response time
- Excessive server CPU utilization and performance degradation
- High network bandwidth consumption
- Network traffic prioritization

These challenges have led to the development of an entirely new set of data communication optimization techniques, and to a new class of WAN acceleration products that optimize application delivery and increase end-user productivity. These products usually provide compression, caching, and SSL termination to reduce network traffic and provide an offload to the enterprise application servers. In general, WAN acceleration products can be categorized as either "one-sided" or "two-sided".



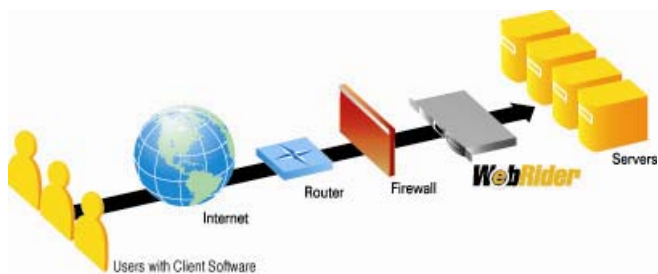
One-sided solutions are usually situated in the same data-center as the enterprise application servers: behind the firewall and in front of the load balancers. In some cases, as with the products offered by Redline Networks and NetScaler™, the appliance can also function as a load balancer.

One-sided appliances function as proxy servers for static content, and have the ability to terminate SSL connections to offload heavy duty encryption chores. These appliances often employ specialized ASICs that can efficiently crunch SSL key-generations. Most one-sided acceleration solutions usually handle only HTTP traffic, applying industry-standard GZIP compression to that HTTP traffic. That GZIP compression generally reduces network bandwidth by about 60% for outbound traffic-from the data-center browsers. While they are typically very easy to deploy because they only require an appliance to be installed in the data-center, that one-sided installation limits their effectiveness. Because their connection to users outside the data center must be via interface with standard browsers, they have built-in limitations as a result. The amount of optimization they can achieve is limited to what is defined in the HTTP 1.1 specification.



Two-sided solutions are characterized by the installation of acceleration appliances on both sides of a communications link: one in the data center, and another at each remote location. Since it maintains a presence on both sides of the transmission, a two-sided solution can employ non-standard proprietary optimization techniques. It can provide bi-directional TCP/IP compression and a data communications flow that is immune to the inefficiencies inherent in TCP/IP flow over high-latency connections.

Although two-sided solutions such as those offered by Expand Networks, Peribit Networks, and Riverbed Technology generally provide superior data compression due to the application of very sophisticated differencing techniques, SSL encrypted data may thwart their sophisticated algorithms. Many two-sided solutions can prioritize TCP traffic and enforce bandwidth limits based on application policy; some also optimize non-HTTP traffic such as that of FTP, MS-Exchange/Outlook and file I/O. There is little flexibility in the placement of two-sided solutions because of the proprietary nature of their data communications.



Stampede Technologies has raised the bar with its unique WebRider[®] product. WebRider combines the flexibility and functionality of a one-sided solution, with the more powerful compression capability that's possible with of the two-sided solutions. Like the one-sided solutions, it requires the installation of an acceleration appliance in the data-center. But, WebRider takes enterprise Web application optimization to an entirely new level with an optional browser plug-in that provides bi-directional compression, cache-differencing, and patented HTTP

transaction optimizations. The WebRider plug-in also provides patent-pending TurboStreaming™ of large objects (even uncompressible objects) by multiplexing combined objects over multiple TCP connections, allowing enterprises to take full advantage of all available bandwidth. The WebRider plug-in can also facilitate the classification and prioritization of network traffic by transparently assigning different TCP ports to different applications based on Quality of Service policies; especially useful for SSL traffic, where deep packet inspection is not possible.

The WebRider plug-in eliminates many time-consuming round-trips by intelligently communicating with the acceleration appliance about the state of the local browser cache. It is able to edit differences (including even binary data) of the dynamic objects in browser cache exactly as they would have been dynamically generated by the enterprise Web application servers. The compression of the WebRider plug-in is bi-directional. It encompasses all HTTP headers and includes compression of large "cookies" that are often embedded in each and every HTTP request of today's enterprise Web applications. Unlike many of the other two-sided approaches, the WebRider plug-in can securely terminate SSL traffic at the browser-level, then apply all of its optimization techniques before re-encrypting the optimized data stream over SSL. In May, 2005, Stampede further enhanced its plug-in to compress and TurboStream non-HTTP traffic with layer-5 acceleration.

In summary, one-sided acceleration solutions are best-suited for organizations that require only some optimization-not exceeding what can be achieved with standard HTTP optimization technique-and can tolerate only relatively low deployment costs. For enterprises driven to satisfy the "need for speed," a two-sided solution is often the best choice. To provide their user communities with a competitive edge, these enterprises are willing to invest in the higher up-front cost associated with deploying appliances in multiple locations in order to deliver improved user productivity and reduced network bandwidth consumption. Stampede's WebRider product offers an attractive alternative because, not only can it function in a one-sided capacity, but the deployment of the optional plug-in is effectively like installing a software version of a two-sided appliance at the users workstation, so provides two sided benefits with exceptional ease of deployment, to provide the utmost in secure end-to-end network traffic reduction and response time improvement.

