Executive Summary

Blue Coat ProxySG appliances utilizing MACH5 WAN Optimization allow IT organizations to accelerate and secure the delivery of business applications for all users across the distributed enterprise - including those near Internet gateways, as well as in branch offices, data centers, and even individual end points. As an integral part of the MACH5 WAN Optimization framework, Compression can be implemented across the network to increase productivity and profits by decreasing WAN utilization which reduces costs and improves user performance.

What is Compression?

Compression is the reduction in size of data by converting it to a format that requires fewer bits. Most often compression is used to minimize storage space (on a hard drive, for example) or for reducing transmitted data over a network. By reducing the size of data transferred, more bandwidth is available and transmission times are reduced.

Why should I perform Compression in my network?

Blue Coat’s Compression technologies are designed to significantly improve bandwidth utilization by minimizing the amount of data traversing the network. One can enable Compression if your Blue Coat ProxySG appliances are deployed as Internet Gateways, or as part of a WAN Optimization solution. For Internet Gateways, the ProxySG appliance can request compressed data from Web servers on the Internet and then serve that data to clients in compressed or uncompressed format. The ability to decompress data on-the-fly for clients that do not support compression allows ProxySG appliances to use the minimum amount of server-side bandwidth to satisfy requests. If the object already exists in cache, the ProxySG appliance can compress or decompress the object to satisfy the request without needing to request it from the Web server. For WAN Optimization solutions, ProxySG appliances on each side of the WAN use the ADN to transfer compressed data between them. This is useful for requests originating at branch offices to servers at the core, but can be even more beneficial for backups that must occur regularly over the WAN.

How does Compression work?

Compression technology uses algorithms to remove extraneous/repetitive information. After compression is applied, the original information is represented by a more compact and efficient format. This “compressed” payload can then be sent over the network. After the compressed data is received at the destination, it is uncompressed based on extraction algorithms. Blue Coat ProxySG appliances use the industry standard gzip/deflate algorithm to compress data and support two types of compression methodologies: HTTP Compression and ADN Compression.

HTTP Compression

HTTP Compression is part of the HTTP 1.1 specification and is fully supported on Blue Coat ProxySG appliances. When HTTP Compression is enabled, the ProxySG appliance forwards the supported compression algorithm (either deflate or gzip) specified in the client’s request to the server, and attempts to send compressed content to the client whenever possible. When a client browser requests an HTTP object that is already in cache, the ProxySG appliance uses the Accept-Encoding header in the request to determine whether to serve compressed or uncompressed content to the client (both are stored in cache to
minimize user response-time). However, if the cached object does not match the type requested by the client, the ProxySG appliance can satisfy the client request by compressing it (if the only object in cache was uncompressed), or decompressing it (if the only object in cache was compressed). The ability to compress or decompress data on-the-fly allows the proxy to serve objects to clients using the minimum amount of server-side bandwidth. Compression and decompression of cache objects is controlled by user-defined policies. Whether CPU is more expensive (the default assumption), server-side bandwidth is more expensive, or client-side bandwidth is more expensive, Compression can have a huge performance benefit, and can be customized to meet the needs of your environment.

ADN Compression

For Blue Coat WAN Optimization deployments, ADN Compression enables organizations to fully extract every performance benefit available when sending data through an ADN tunnel between ProxySG appliances. ADN tunnels require that ProxySG appliances on opposite sides of the WAN be members of the same ADN network and that the upstream ProxySG appliance either be advertising routes to servers to be accessed by ProxySG appliances on the opposite side of the WAN, or be deployed inline so that transparent ADN tunnels are possible. Traffic accelerated between clients and servers is automatically compressed before being sent through the ADN tunnel, decreasing bandwidth usage and optimizing response time to the end user. ADN Compression is often used in conjunction with Byte Caching and Object Caching to achieve optimum results. In the case of Byte Caching and Compression, Byte Caching is first applied to the data and then the resulting data is compressed. Both features are enabled by default to optimize ADN directed traffic. ADN Compression for any arbitrary protocol can also be configured on the Blue Coat ProxySG using policy; it can also be controlled separately for both inbound and outbound traffic on the WAN.

Blue Coat Difference

Object Caching, Byte Caching, and Compression

Caching and Compression are two complimentary technologies that work together to minimize the amount of data traversing the enterprise WAN; Object Caching eliminates the need to transfer data over the WAN, Byte Caching minimizes the transmission of duplicate data over the WAN, and Compression reduces the total amount of transmitted data over the WAN. The combination of these technologies results in a solution unmatched by other vendors.