

Compression

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exinda
networks

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About Exinda Networks

Exinda Networks is a global supplier of intelligent application traffic management systems for enterprise, government and service provider clients.

Founded in 2003, Exinda's mission is to ensure predictable network performance, maximize network productivity and reduce network operating costs. Exinda solutions have been deployed worldwide.

Exinda's solutions support the networking trends of Service Oriented Architectures (SOA), Voice over IP (VoIP) and Webification of Enterprise Applications.

Exinda's 4700 appliance received ZDnet's Technology & Business magazine's 2005 Editor's Choice Award for ease of management and excellence in traffic reporting and prioritization. Exinda's award winning technology is available by contacting leading resellers or Exinda directly.

Exinda's research and development offices are headquartered in Melbourne, Australia. Exinda's Partner Program is based in Seattle, Washington.

For more information, visit www.exinda.com

The Experience

Most of us have, at times, become frustrated with the speed and performance of our Internet/WAN connections. There are two obvious solutions to this problem.

- Internet/WAN link upgrade, or
- Manage and control the traffic on the link.

The first option is often expensive and doesn't address the underlying problem. It may offer a short-term solution; however, the same frustrations and problems are bound to re-occur.

A more elegant, long-term and cost-effective solution is to properly manage the traffic on the link. This can be achieved in a number of ways, as outlined below.

- Block unwanted traffic (i.e. peer to peer)
- Apply QoS policies to manage and control bandwidth usage
- Compress WAN traffic to reduce data transfer and increase link capacity

Exinda Networks employs all these methods to provide a complete Network Optimization solution. Traffic on a WAN between offices can be blocked, optimized and compressed in order to reduce the amount of data sent across the WAN to increase WAN capacity.

Compression can be achieved by using the compression feature built into Exinda's 4700 appliance or by using Exinda's Compressor, our stand-alone compression product.

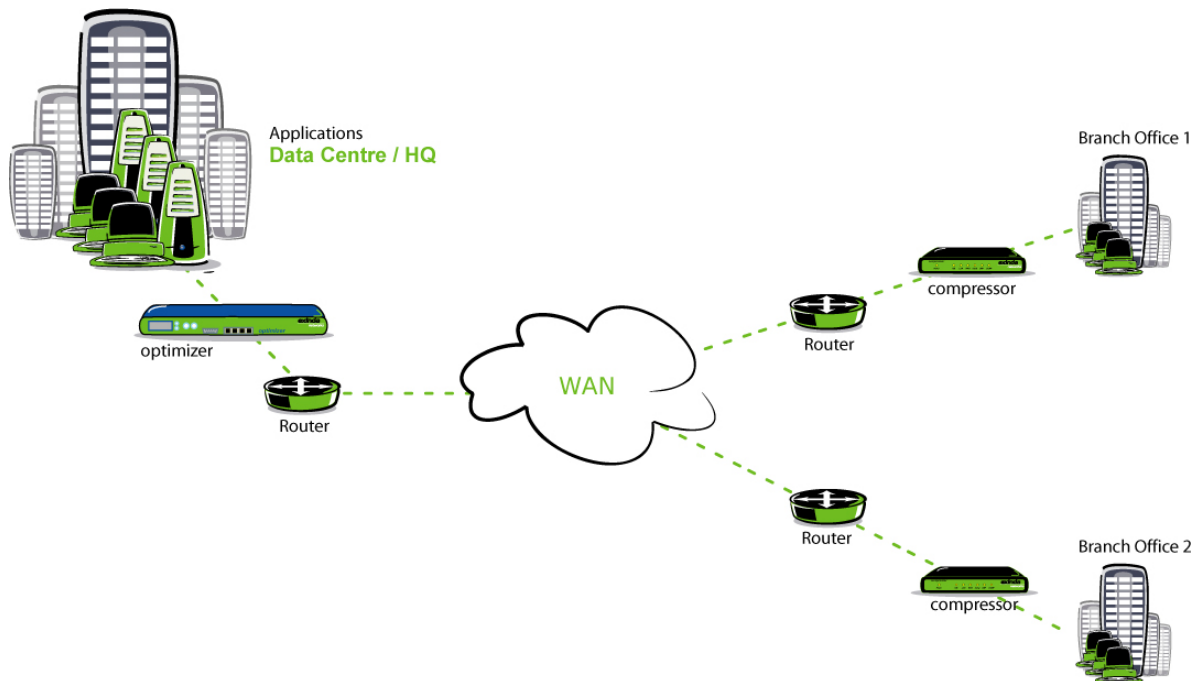


Figure 1: An example of Exinda compression technology deployment.

Figure 1, shows how Exinda products are used to enable compression across an entire WAN. By compressing the traffic

traversing the WAN in this scenario we are effectively increasing WAN capacity.

How It Works

Exinda compression is a point-to-point technology, meaning a suitable unit needs to be deployed at every location that compression is to be enabled. Each location requires compression so that bi-directional compression and decompression can occur.

Exinda compression technology is easily deployed and can be up and running in minutes. Users simply have to configure what traffic should be compressed and Exinda compression will do the rest. Any packet that Exinda compression deems suitable for compression will be transferred in a smaller, compressed format. The packet will retain all routing and header information and will appear unchanged as far as the network is concerned.

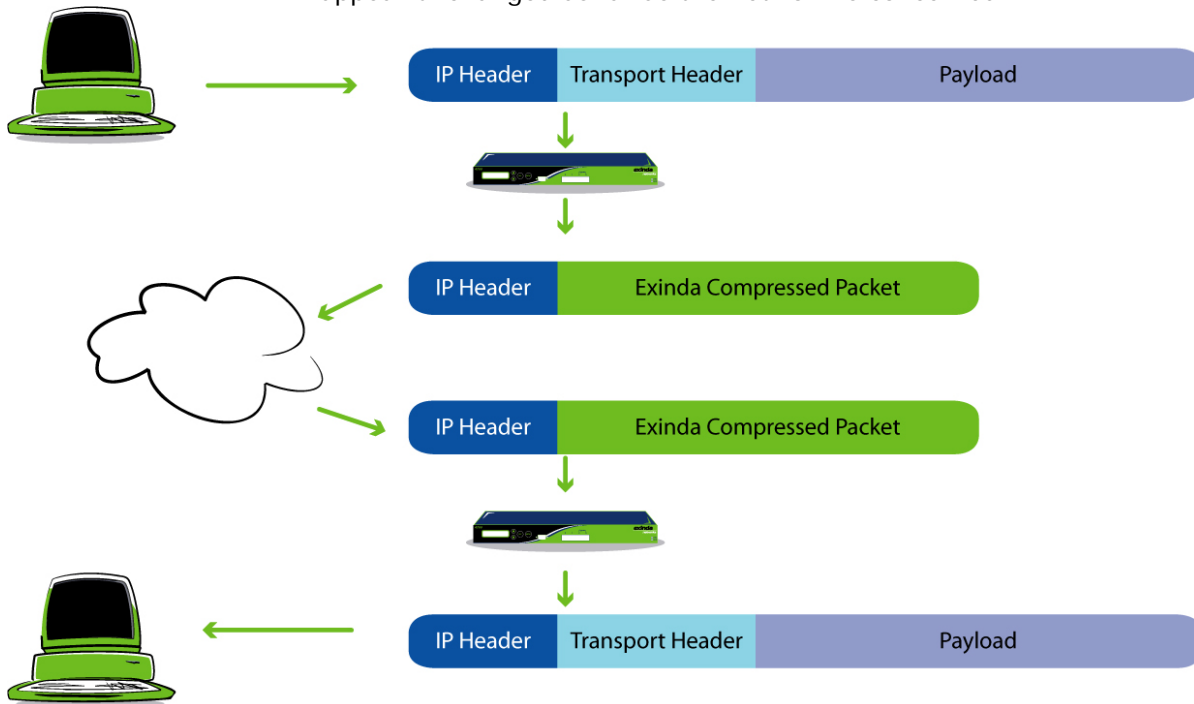


Figure 2: How Exinda's Compression Engine works.

The packet payload is compressed using Exinda's lossless algorithms before being transmitted onto the network. The packet will be routed to its destination network as normal, where it will pass through another Exinda box which will recognize it as a compressed packet and subsequently decompress it. The packet has now been restored to its original state and will reach its destination host in its intended form.

Common Internet protocols such as web (http) and email (smtp/pop/imap) can be very bandwidth intensive and often contain redundant data that can be effectively compressed. Exinda compression employs various checks and algorithms to determine the compressibility of traffic flows traversing the network and takes appropriate action. For example, if a heavily compressed MP3 file is being transferred, Exinda compression will detect that it is already compressed and ignore it.

With Exinda compression deployed, a typical network can enjoy capacity gains, on average, of about 100-400+%. Capacity gains vary from network-to-network and depend largely on the type of traffic on the network. Networks that consist mostly of already compressed data will experience lower capacity gains compared to other networks. The table below outlines typical compression results for common traffic types.

Traffic Type	Expected Compression
<i>http</i>	200 → 400+% for text html pages 100 → 200+% for GIF/JPEG/PDF etc
<i>smtp / pop (mail)</i>	200 → 400+% for body and attachments 100 → 200+% for already compressed attachments
<i>Citrix</i>	100 → 400+% (with Citrix compression off) 100 → 200+% (with Citrix compression on)
<i>MP3 (ie P2P)</i>	100 → 150+%
<i>FTP</i>	200 → 400+% 100 → 200+% (when transferring compressed data)
<i>Telnet</i>	100 → 200+% (small, infrequent commands) 100 → 300+% (highly active session)
<i>Printing</i>	100 → 800+%

Compression and decompression algorithms, by nature, take a small amount of time to process. To ensure that Exinda compression will not introduce any delay into the network, it will only compress data that will benefit from compression, that is, Exinda's proprietary algorithm makes sure any processing delays are significantly outweighed by throughput gain.

Figure 3, below, shows the effect of compression. The 'before' graph shows what would have been transferred across the network, while the 'after' graph shows what will be transferred across the network. A notable difference in bandwidth consumption can be observed.

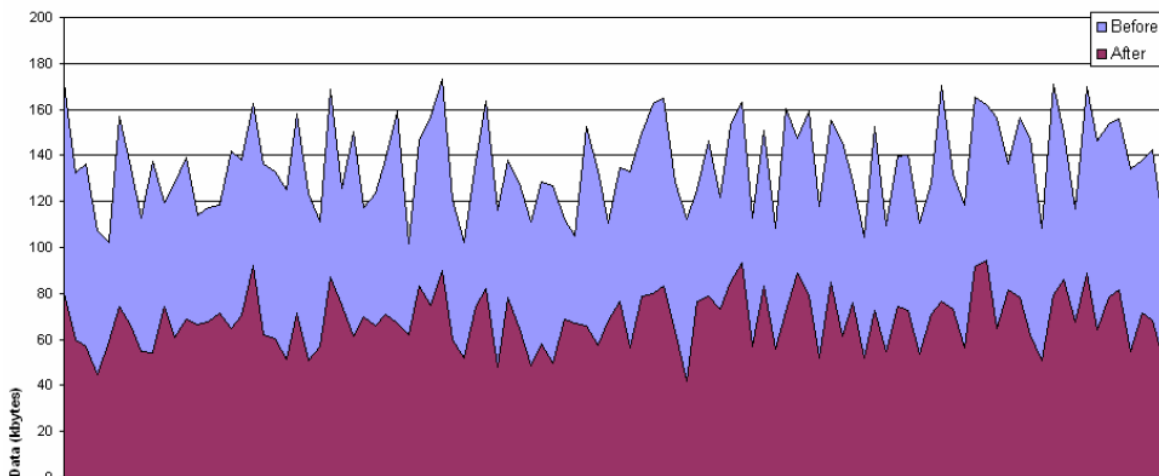


Figure 3: The effect of compression.

Compression has the effect of increasing WAN capacity. A chunk of data will take a finite amount of time to be transferred across a network. If we shrink (compress) that chunk of data, for example, to half it's original size, then it will take half the time to be

transferred. This effectively means the WAN capacity has been doubled, and as a result, makes more bandwidth available for other applications. Furthermore, significant cost savings can result deferring expensive WAN upgrades.

By combining compression with Exinda's proven optimization technology, a total WAN optimization solution can be achieved. Optimization is used to control the amount of bandwidth applications utilize and when used in conjunction with compression, it can significantly improve WAN performance and enhance user experience.