



## jetNEXUS ALB-X in action

Ok, so you have heard the hype and read the sales material, but what does acceleration actually mean in real life? What actual benefits can you expect to see and more importantly, what difference will it make for your customers or users?

The four main areas of acceleration:

- Compression
- Connection Management
- Content Caching
- SSL Acceleration

### *Compression:*

Web pages are very compressible. Typically an average web page, whether it is dynamically generated or static content, can be reduced in size by 80-90%. This means that there is a lot less data to send across the internet to the end user. Nearly all browsers can accept the compressed content automatically without the end user having to make any changes. The ALB-X is intelligent enough to recognise what level and type of compressed content browsers can accept, thus ensuring reliable page renditions. The page will be delivered faster, using less bandwidth and server resource.

jetNEXUS does not compress all types of content. Images such as JPG, PNG etc are already compressed; as such they see very little benefit from additional compression.

**The ALB-X shows number of live statistics from the compression engine:**

This screen shot was taken from the GUI of an ALB X in action at an e-commerce customer's site. The **“Content compression to Date”** is 85%. This means that out of the content that can be compressed, the average level of compression is 85%. 1.12 TB would have been sent over the network but due to compression only 164GB was sent.

<b>Content Compression to Date</b>	=	<b>85%</b>	
Throughput Before Compression	=	1,126 GB	
Throughput After Compression	=	164.4 GB	
			<b>Current Values</b>
<b>Overall Compression to Date</b>	=	<b>81%</b>	85%
Throughput Before Compression	=	1,177 GB	34.51 Mbps (data)
Throughput After Compression	=	215.4 GB	4.95 Mbps (data)
Throughput From Cache	=	966.0 GB	0.00 Mbps (data)
			Total: 39.46 Mbps (data)
<b>Overall Hits Counted</b>	=	<b>50,157,432</b>	
Total Connections	=	60,594,370	162.81 Connections per Second
Peak Connections	=	202	0 Current Connections

The “**Overall Compression to Date**” is 81%. This number should equate to your bandwidth usage, assuming that all your traffic is from the ALB-X. In this example most of the traffic is compressible, as such the overall reduction in bandwidth is 81%. 1.17Tb would have been sent but only 0.25Tb was actually sent.

We can see in this example that the max throughput for this site was 34.51Mbps with peak connections hitting 202. It had processed 50 million hits.

## Connection Management

This is more of a behind the scenes technical feature but makes sound, logical sense. On one side of the ALB-X we talk with end users. (These are clearly not permanent). However on the other side we are nearly always talking with the same web servers. Connection management enables the device to open up a number of re-usable connections with the web servers. This is far more efficient in terms of time and server resource than opening and closing many hundred per second. In other words, the ALB-X offloads connection processing from the web servers and buffers them from long internet delays by acting as their local client.

Benchmarks show that improvements of up to 40 - times better utilisation, and 8 times faster download times can be achieved with ALB-X in front of web servers when internet latency is high.

## Content Caching

The basic principle of a content cache is to only send requests to the web servers that are unique. This means that the content cache, in this case the ALB-X, will respond to the end user on behalf of the web server. The benefit is that you will need less web servers because the ALB-X is doing much of the work. In addition to this, the user will tend to get a better response time as we do not have to go back to the web server.

Content Caching	Hits	Bytes
From Cache	= 10436922 / <b>16.3%</b>	966.0 GB / <b>81.8%</b>
From Server	= 53443687 / <b>83.7%</b>	215.4 GB / <b>18.2%</b>
Cache Contents	= <b>16 entries</b>	609.5 KB / <b>1.2%</b>
<b>CPU Usage</b>	= <b>19.0%</b>	
<b>Disk Usage</b>	= <b>26%</b>	
<b>Memory Usage</b>	= <b>5.2% ( 51.2MB of 986.1MB)</b>	

In this example, taken from an e-commerce customer's site, we can see that 81% of all the hits are actually being served from the ALB-X. This could mean that you would need only 1 rather than 4 web servers to serve the same number of hits. Clearly this has significant cost savings in terms of web servers hardware, software licences and maintenance.

## SSL Acceleration

SSL termination is a CPU intensive task to enable the safe transfer of secure data. This can be performed by the web server but the downside is that it's very CPU intensive and slows the server down. There is also an associated cost of having to buy and maintain a SSL certificate on each web server. The ALB-X can be easily configured to perform this function very efficiently. It can offload SSL for multiple web servers and web site using only one SSL certificate.

Using ALB-X to offload SSL processing from web servers can improve the transaction rate and speed up download times by 20 times.

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