



# **jetNEXUS Accelerating Load Balancer Extreme (ALB-X) 2.0 Features Update Report**

**A Broadband-Testing Report**

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## BROADBAND-TESTING

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## EXECUTIVE SUMMARY

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- Application Delivery Control (ADC) and application acceleration solutions now need to be more flexible than ever, thanks to the influence of the cloud, SaaS-based application delivery and changing data centre profiles.
- With the 2.0 version of jetNEXUS' ALB-X load-balancer/ADC product, we have a true range of solutions that provides this level of flexibility in formats to satisfy every need – large or small.
- While the primary focus of vendors in this market to date has been high-end, meaning the vast majority of companies in the small to medium business (SMB) sector (93% of companies globally) have been unable to afford the benefits of load-balancers, with both the virtual appliance and the ALB-X ISO version, finally we have a true mass market product and one that comes with green credentials.
- Regardless of which version of the product is used, it is simplicity itself to deploy, keeping costs down in the long as well as short term. This low cost of ownership, both in terms of CapEx and OpEx, means that the ALB-X 2.0 has real credentials from a hosted/managed service perspective for service providers as well as for direct enterprise and SMB use. The technology is applicable to any user with high value data and the need to maintain uptime.
- In addition to looking to improve performance – notably in https environments – with 2.0, jetNEXUS has looked to add far more flexibility than before, both in terms of its routing/interface support capabilities and with the introduction of flightPATH, a powerful routing engine which enables clients to create and implement bespoke application rules. The aim here is to considerably improve day-to-day traffic management for clients, giving them greater control and intelligence in managing service delivery.
- The management GUI has also been completely refreshed to make the product easier to manage while integrating the new features.
- As we enter the next generation of the Internet, the reliance on access to data held anywhere across the globe becomes more critical than ever, as does the need for affordable, easily managed ADC and application acceleration technology. With 2.0 of ALB-X, in all its forms, jetNEXUS is looking to provide exactly that.

## INTRODUCTION: MOVING THE GAME ON

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Historically, the benefits of load-balancing and application acceleration, while clearly advantageous to any user who accesses data and applications stored in a data centre or server farm – and who doesn't – have been restricted to Enterprise and above.

However, with its ALB-X product, jetNEXUS made these features available in every format from a physical appliance through virtual appliance, down to ISO – an image sitting on a CD or USB key that turns pretty well any server into a load-balancer. Now the company has introduced version 2.0 of its product, with the additional features available in all three product formats.

Regardless of the format, all ALB-X 2.0 products come with very competitive price tags compared with traditional L-B solution providers. The cost of server real estate has fallen so far since the heady days of the dot com boom, it is not reasonable now to demand mega-money for an ADC/L-B solution if it's simply cheaper to add more servers and other forms of redundancy. With a new GUI design for 2.0, the company is also making it easier to manage this environment than before, while adding new levels of flexibility and performance (look out for our follow-up performance test reports on the ALB-X 2.0).

What jetNEXUS is doing, then, is taking both the excess cost and complexity out of ADC and application acceleration, while – at the same time – moving the game on. Whether you're a "tin" man and opt for the turnkey appliance, a "virtualisation" fan and go for the virtual appliance, or simply want to turn a surplus server into an ADC you have the choice.

From a user perspective, then, as a small to medium business (SMB), the benefits of L-B/ADC are truly affordable. At the opposite end of the scale, if you're a Service Provider or Hosting company looking to offer managed services to a broad range of customer types and sizes then, again, all the options are available. Equally, if you're an enterprise with HQ and a number of satellite or branch offices, there is a complete solution available to meet these diverse needs.



Figure 1 – ALB-X 2.0 Appliance

So let us now look at the features and functionality of the ALB-X 2.0, highlighting the new features within.

## ALB-X 2.0

Here we focus on what we see as the key features being offered by jetNEXUS' ALB-X 2.0 that are of real use by a broad range of customer types to provide Load-Balancing and Application Delivery Control.

**Note** - with the ALB-X VA, the virtual appliance version of the ALB-X product, this offers the full range of ALB-X features, just in a virtual appliance. The build includes a custom kernel operating system integrated with the ALB-X software. The virtual appliance runs on many desktop environments as well as the increasingly ubiquitous VMware ESX server.

New to 2.0 of the product, in addition to significant performance improvements on the hardware side, a new GUI replaces the old version with a far sharper appearance than previously.

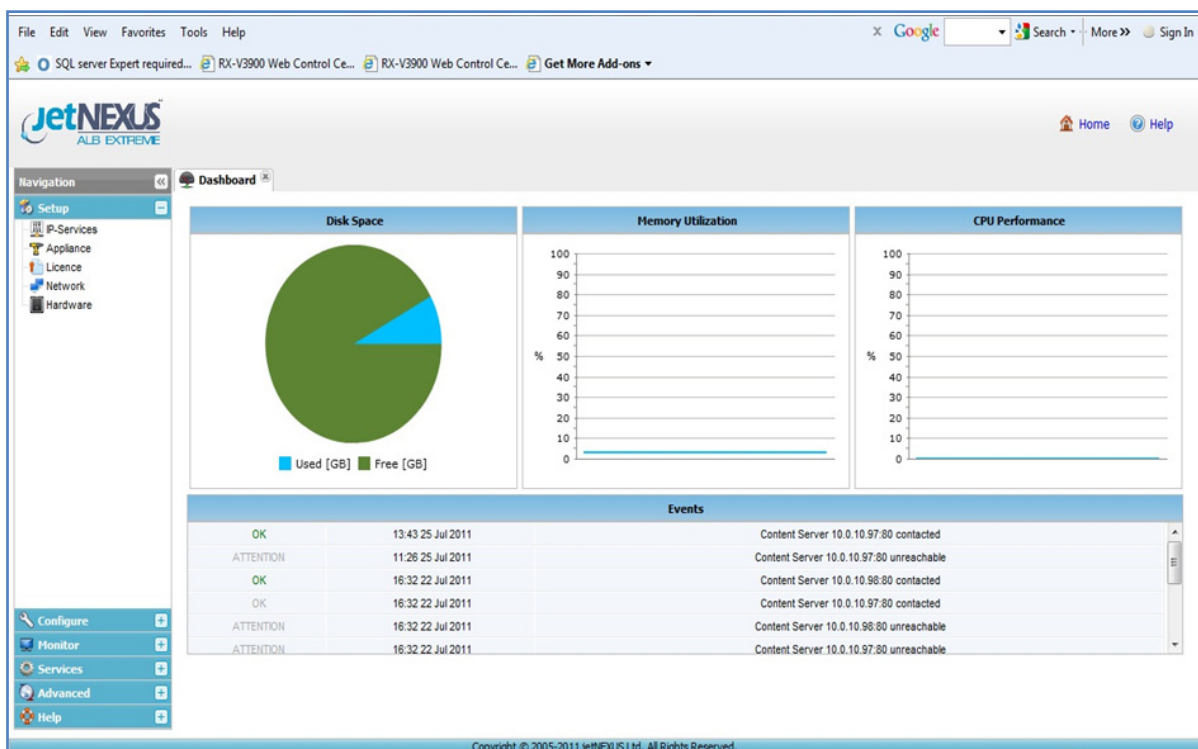


Figure 2 – ALB-X 2.0 GUI Home Page

Routing options are also improved significantly so that multiple interfaces and combination can now be used to provide both more flexibility and better performance than before.

## flightPATH

An important addition is flightPATH - a powerful routing engine which enables clients to create and implement bespoke application rules. The aim here is to considerably improve day-to-day traffic management for clients, giving them greater control and intelligence in managing service delivery. This is especially crucial when managing online applications and ecommerce sites. Due to the configurable nature of flightPATH, rule options are

infinite but some common uses are to, for example, block unwanted requests, rewrite user requests, control spiders and fix broken URLs.

FlightPATH can be used to modify incoming and outgoing HTTP/S content and requests. As well as using simple string matches such as "starts with" and "ends with," powerful Perl compatible regular expressions can also be implemented for more control. In addition, custom variables can be created and used in the "action" enabling many different possibilities (see illustration below).

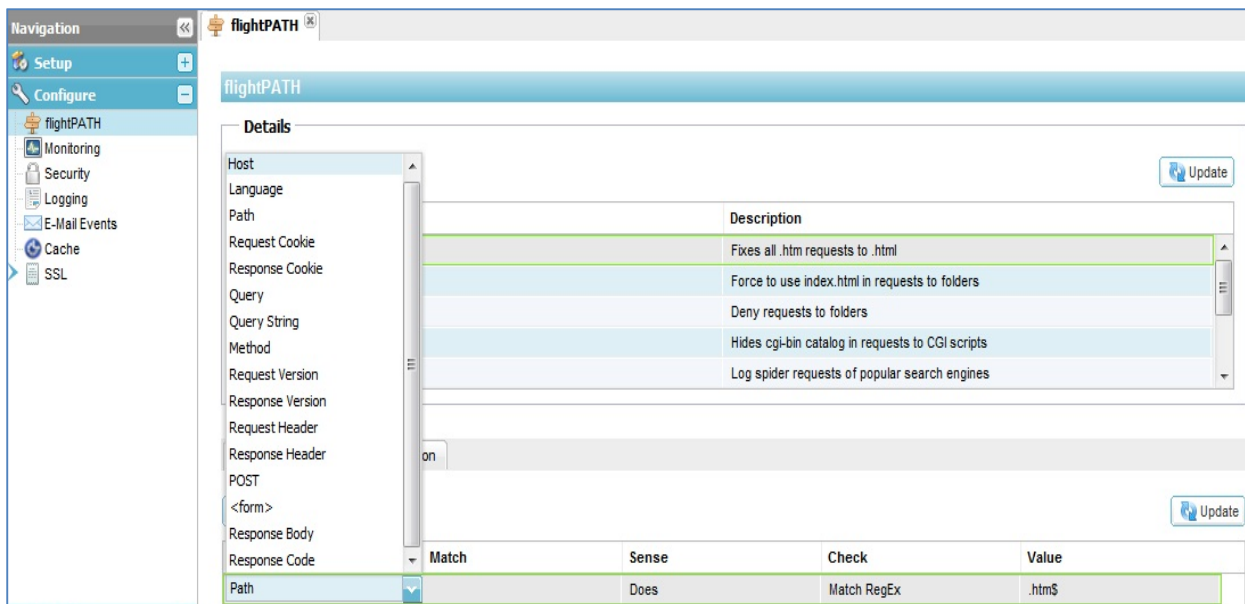


Figure 3 – flightPATH Condition Example

Some common examples of real-world applications of flightPATH are suggested below though please note, these are purely a handful of options – in reality the possibilities are all but infinite:

For application firewalling and security	For application management
<ul style="list-style-type: none"> <li>› Block unwanted IP's</li> <li>› Force user to HTTPS for specific (or all) content</li> <li>› Block or redirect spiders</li> <li>› Prevent and alert cross site scripting</li> <li>› Prevent and alert SQL injection</li> <li>› Hide internal directory structure</li> <li>› Rewrite cookies</li> <li>› Secure directory for particular users</li> </ul>	<ul style="list-style-type: none"> <li>› Redirect users based on path</li> <li>› Provide Single sign on across multiple system</li> <li>› Segment users based on User ID or Cookie</li> <li>› Add headers for SSL offload</li> <li>› Language detection</li> <li>› Rewrite user request</li> <li>› Fix broken URL's</li> <li>› Prevent directory access/ browsing</li> <li>› Send spiders different content</li> </ul>

An important consideration with flightPATH is that it doesn't require development skills. You create rules using Action and Condition options and build your rule in a similar way that you would create a search rule in a reporting environment.

This means that administrative, as well as IT, individuals are suited to development flightPATH rules, making the product extremely flexible. Simple drag 'n' drop techniques can be used to select variables and build rules accordingly.

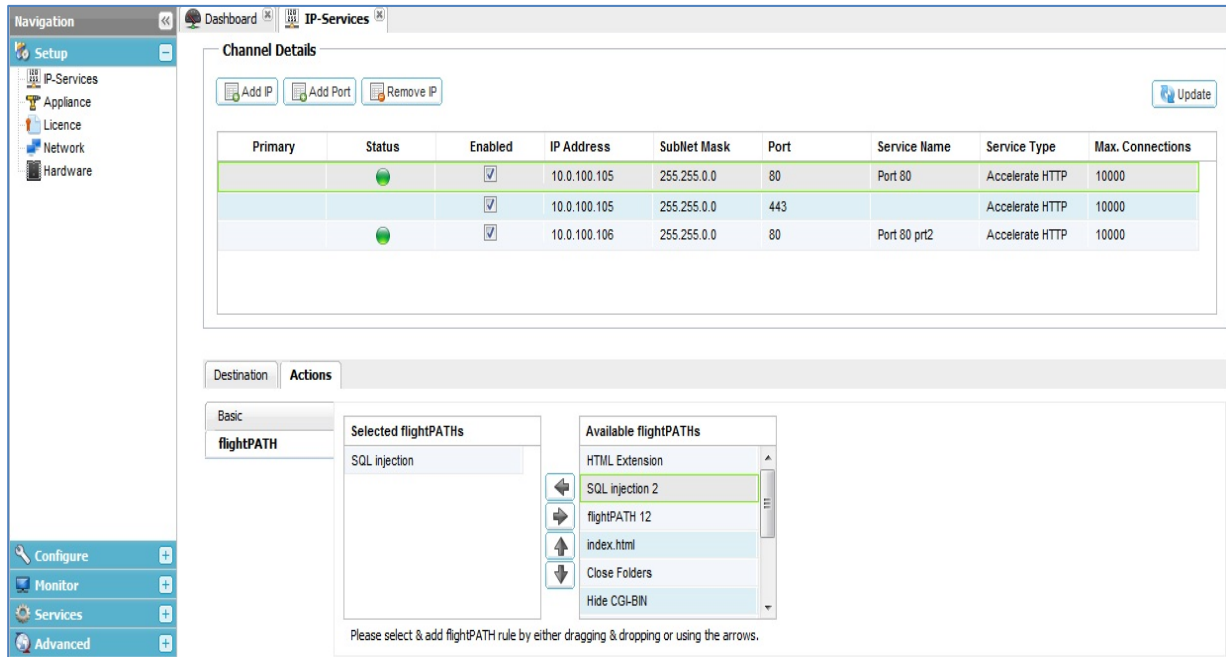


Figure 4 – Drag 'n Drop flightPATH

In terms of what else ALB-X 2.0 offers, let's start with the obvious. Performance is clearly a primary requirement for L-B and ADC. For this reason, ALB-X 2.0 includes Content Caching – a feature that has typically only been found on dedicated devices or top end application delivery controllers, and then typically as a high-cost option. Is it effective? Well, one e-commerce customer of jetNEXUS has reported that it now serves 94% of all its content from the cache. Not only does this improve performance but also reduces the number of back end servers and subsequent licences required.

Layer 7 L-B is fundamental to ADC, operating, as it does, at the application protocol level. Again, this was a feature absent on lower-priced devices until the likes of jetNEXUS introduced at an entry-mid level. Key to Layer 7 L-B is that the device recognises the type of data it is processing - HTTP and HTTPS where the ALB-X 2.0 is concerned and consequently allows for many features that are not possible at lower-level L-B such as URL switching, cookie-based persistence and request scanning.

In conjunction with Layer 7 optimisation, the ALB-X 2.0 also supports Connection Management. This is used to optimise the performance of TCP/IP in that it terminates the thousands of TCP connections applications generate at the device, then consolidates them to send far less (effectively bundled) connection requests to the web server. TCP connections are one of the primary killers of server performance placing, as they do, enormous stress levels on the server pool. Connection Management is therefore a fundamental requirement of high performance L-B and application delivery.

How do you know if all servers in the pool are operating in full health? Unless you monitor the server pool, it is impossible to know, meaning you could be forwarding large amounts of traffic to a server that is experiencing operational problems, or is simply saturated. For this reason, the ALB-X performs a series of server health checks, from simple ping and TCP tests to full web GETs, to ensure every server is performing as it should.

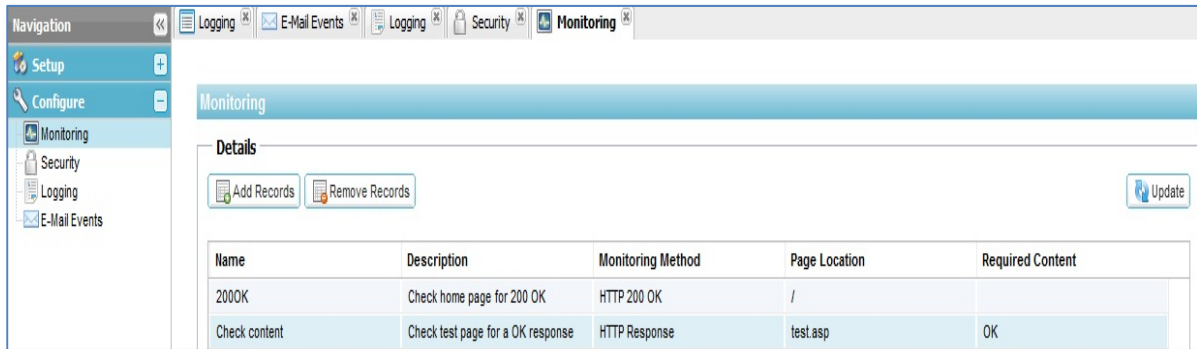


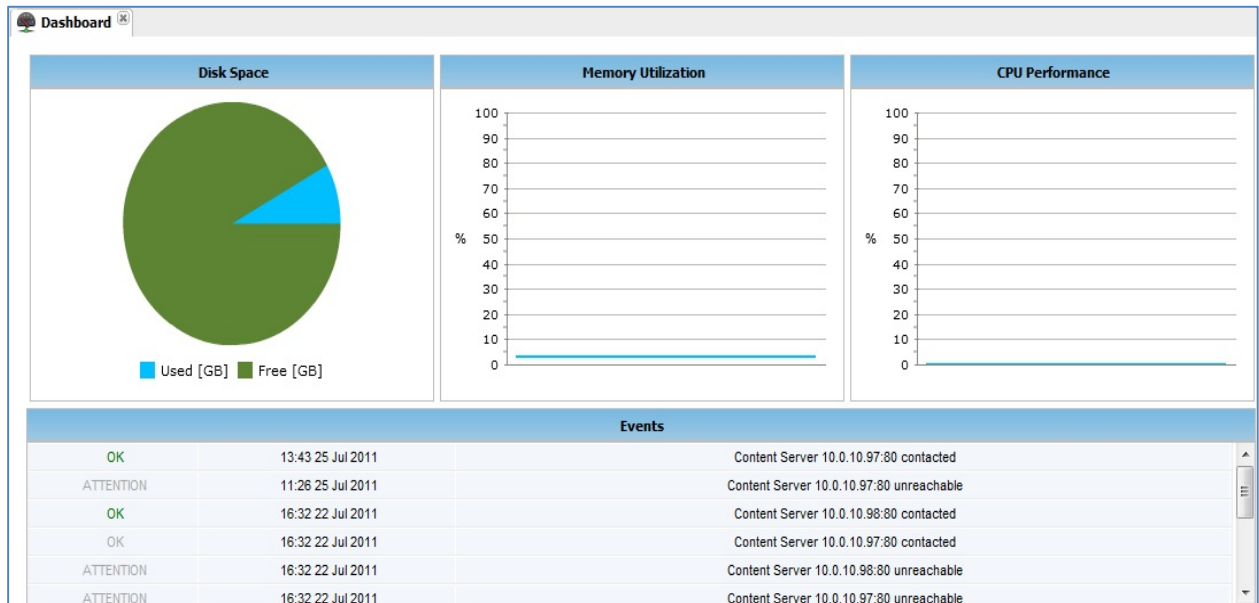
Figure 5 – ALB-X 2.0 Server Monitoring

Another fundamental of data performance optimisation is accelerating web traffic. The ALB-X 2.0 uses jetNEXUS’ compression algorithm to deliver compressed, optimised content in a form that is readable by the browsers. This acceleration is tuneable via the ALB-X 2.0 management GUI and rule of thumb guidelines are provided by jetNEXUS to aid with optimising configuration for each particular environment. Rule based compression detects and compensates for browser behavioural differences and defects, therefore guaranteeing that accelerated pages can be displayed correctly by the client’s browser. It has the ability to accelerate most content including Javascript, AJAZ, XML and other types, as well as Office documents (e.g. DOC, XLS, PPT, etc.) and configurable MIME types. It can act on HTTP headers - POSTS, SOAP, HTML, JavaScript, etc and has the ability to accelerate HTTP 1.1 through HTTP 1.0 Proxies and Caches (e.g. Squid, MS ISA, etc.) and can accelerate through Personal Firewalls (e.g. Symantec, MacAfee, etc.). Streaming compression is also supported. In conjunction with connection control, terminating SSL (https) requests at the Load-Balancer, rather than at the server – SSL offload in other words – massively reduces the performance impact on the server pool. Past testing has shown that https traffic can generate 10 times more load on the server than regular http traffic. Therefore, by terminating it at the ALB-X device, not only is server performance dramatically improved but it also means that – in some cases – server consolidation can take place, reducing costs further. This also has major management benefits – both from an operational and cost perspective.

Statistics			
<b>Compression Statistic</b>			
<b>Content Compression to Date</b>			
Compression	= 0%		
Throughput Before Compression	= 0		
Throughput After Compression	= 0		
<b>Overall Compression to Date</b>			
Compression	= 0%	<b>Current Values</b>	= 0%
Throughput Before Compression	= 0		= 0
Throughput After Compression	= 0		= 0
Throughput From Cache	= 0	<b>Total</b>	= 0
<b>Hits and Connections</b>			
<b>Overall Hits Counted</b>	= 0		0 Hits/sec
Total Connections	= 0		0 / 0 connections/sec
Peak Connections	= 0		0 current connections
<b>Caching</b>			
<b>Content Caching</b>			
From Cache	<b>Hits</b>		<b>Bytes</b>
From Server	= 0 / 0%		= 0 / -
Cache Contents	= 0 / 0%		= 0 / 0%
	= 0 entries		= 0 / -
<b>Hardware</b>			
Disk Usage	= 4%		
Memory Usage	= 0.9% ( 27.5MB of 2954.5MB)		
CPU Usage	= 0.0%		

Figure 6 – ALB-X 2.0 Reporting Stats

A number of reporting and logging features are available with the ALB-X 2.0. Reporting is where many network devices typically come unstuck – if it is impossible to get decent statistics out of the device then how do you know if it performing as well as it should be? For example, you can capture live traffic stats to see what levels of content compression, throughput rates and cache performance and view it real-time. Equally, you can monitor the status of the ALB-X 2.0 device itself. As well as being available in tabular format, a “dashboard” can be viewed, providing a graphical analysis of current device status, with alert logs and compression performance.



*Figure 7 – ALB-X 2.0 Dashboard*

In addition to the aforementioned logging, statistics and reporting on inbound and outbound traffic in real-time, jetNEXUS provides extensive alerting facilities – for example, via an email alert – as well as full SNMP support.

## SUMMARY & CONCLUSIONS

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Application Delivery Control (ADC) and application acceleration solutions now need to be more flexible than ever, thanks to the influence of the cloud, SaaS-based application delivery and changing data centre profiles.

With its original ALB-X product, jetNEXUS already offered excellent flexibility for L-B and ADC deployment, notably in terms of the form factors available – physical, virtual and ISO.

Now, with the release of version 2.0 and the addition of flightPATH, the appliance – in any format – can be requested to carry out any number of actions and via a simple drag 'n' drop interface that removes the requirement for programming skills.

The GUI has also been improved significantly so all features are more readily accessible, while allowing the new features to be integrated.

In terms of future roadmaps for the ALB-X, all we can say here is that there are some very interesting additions in the near immediate pipeline that we'll be putting to the test as soon as possible, so watch this space...

