FUSION BROADBAND BONDING VS LOAD BALANCING

How does multi-WAN bonding compare to a load balancing router?

Overview

When considering the installation of multiple broadband services to 'boost' your businesses connectivity, it is important that you make good decisions in order to get the best out of your newly acquired broadband services. Is a *load balancing router* an effective solution for your business? Or would *broadband bonding* give your office the speed it needs to improve your staff's productivity?

We are often asked by prospective customers, "What is the difference between Load Balancing and Bonding?"

What is Load Balancing?

A load balancing router is designed to distribute traffic from your LAN to a number of broadband services according to a set of configurable rules.

Generally speaking, the router can be configured to treat your LAN traffic as your office sees fit. For example, you may configure it to have desktop computers send and receive data across one broadband line and wireless devices to use a second broadband line. Alternatively, different types of traffic can be directed to different broadband services (for example, http traffic down one line and VoIP traffic down another or email traffic on one line and web browsing on another, etc).

The main problem with the examples above is that if no one is using a wireless device, no one is making a VoIP call or no one is browsing the web, the bandwidth (or the broadband line assigned that service/user) sits there idle and unused; wasted! Not to mention that in any of these three scenarios, when one of the services goes offline for any reason, the business will definitely have some type of connectivity issue.

A load balancing router will only ever send/receive traffic at the speed of a single service. In the example in *Figure 1*, the router has been configured to split the network into two groups of users, with two users utilising one ADSL service and a 'stand-alone user' using the second ADSL line. If the 'stand-alone user' is absent or not using the Internet, their bandwidth is not utilised and as a result is wasted.

A load balanced solution will also present your business to the world over a number of IP addresses making it difficult for secure transactions, VPNs and Remote users. A Internet 'session' through a load balancer is pinned to a single IP address so in the event of a connectivity failure the session is terminated; lost because the request for info from your remote site cannot connect to a different IP address associated with a another broadband service.

When load balancing, a file sent from one PC will only ever utilise the capacity of one connection. The speed of that file is limited by the speed of that single connection. (i.e. at 1Mbps as shown below).
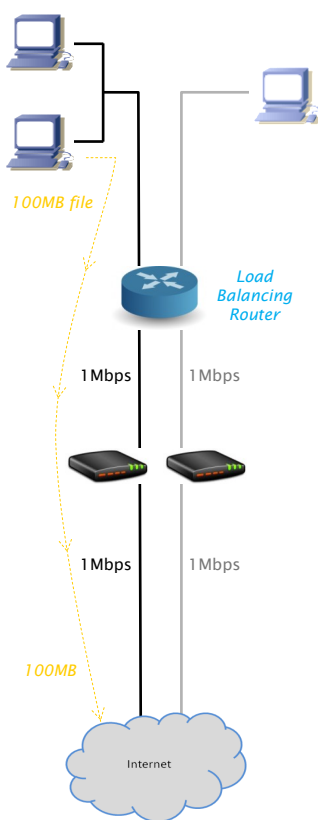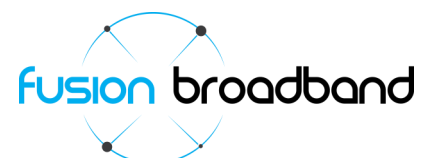

100MB file

Load
Balancing
Router

1Mbps   1Mbps

1Mbps   1Mbps

100MB

Internet

Figure 1

100MB file

2Mbps

Bonder

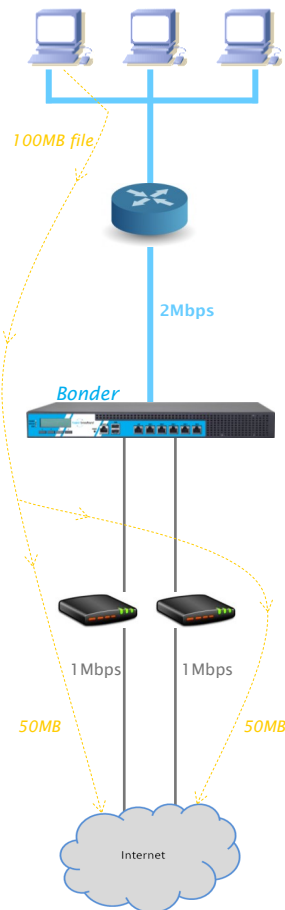1Mbps   1Mbps

50MB   50MB

Internet

Figure 2

What is Bonding?

Bonding will give you the combined speed of all of your broadband services in both directions on all file types (including a single file/session); it is a bandwidth aggregator. Simply put, bonding will make available *ALL* of your bandwidth *ALL* of the time for *ALL* of your applications for *ALL* of your staff. There is no need to segregate users into groups or amend traffic flow based on its type; the bandwidth is simply available to everybody for everything!

A bonded solution transmits data at the *packet level*. Regardless of how many connections you are *bonding*, your network will only see one virtual connection. For example, let's assume you had a 'file' that was 100MB in size and you had a bonded broadband service that was giving you a 2Mbps uplink connection made up of 2 x 1Mbps services of the same speed and quality. If you were to send this file, it would leave on a 2Mbps connection. All the packets of that single file will flood all the available services at the same time giving you 2Mbps (sending approximately 50MB of data down one line and 50MB down the other - see *Figure 2*). A load balanced solution would send the file out on only one of the 1Mbps connections (see *Figure 1* on the previous page), so the fastest connection speed for that file will be 1Mbps.

In addition, with a Fusion Bonded solution, when any single service goes offline for any reason, the business doesn't lose its connectivity (just some bandwidth); the failover to the other service is seamless and unattended (as is the failback).

The other added benefit is that your business is presented to the world as a single IP address allowing VPNs, Remote Desktop users and secure sessions to all take advantage of the bonded/aggregate bandwidth. Fusion bonding issues a static IP address that Internet sessions are pinned to, so in the event of a disruption/loss of any one of the broadband services, the IP address won't change so the Internet session can continue - even during a secure banking transaction!

Summary

From the examples shown there is a vast difference in how load balancing works as compared to bonding. Bonding simply creates more speed by aggregating services rather than managing data flows over multiple connections.

*Bonding gives you **all** your bandwidth **all** the time for **all** your applications for **all** your users.*

For More Information

To learn more about how Fusion Broadband bonding solutions can help solve your business and bandwidth challenges, visit **fusionbroadband.com.au**, call us on **1300 553 526** or email us at **info@fusionbroadband.com.au**

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