



Opinion

Blade.Org: The Snowball Effect

Introduction

How is it that the number three vendor in the x86 marketplace has the number one position in the fastest growing segment of that marketplace – the blade segment? To *Clabby Analytics*, the answer is simple: this particular vendor has the best ecosystem surrounding its blades – bar none, period. This ecosystem is giving this vendor more products sooner than its competitors are receiving them. This ecosystem is enabling this vendor to innovate more quickly than its competitors. And this ecosystem is making it possible for this vendor to price its products more aggressively than its competitors, and thereby enter new markets more expeditiously.

Who is this vendor? It's IBM.

How is IBM doing this? IBM has opened-up the specifications to its BladeCenter chassis – and has co-created an independent organization called Blade.org to help users and vendors participate in the development of innovative blade solutions.

Why would opening-up the specs to something as mundane as a blade chassis have any impact whatsoever on IBM's position in the blade marketplace? Because over 400 vendors are now building products to fit within that chassis – greatly expanding IBM's blade solutions set and delivering far more products and innovation than IBM could have ever achieved on its own.

Blade.org has become like a snowball rolling down a hill, the community that now surrounds BladeCenter keeps getting bigger and bigger as venture capitalists, start-ups, and networking companies pile onto the bandwagon. And as a result, almost one billion research and development dollars are being invested into blade development on IBM's BladeCenter chassis!

In this *Opinion* report, *Clabby Analytics* examines the impact that Blade.org is having on IBM's success in the blade market. It examines why IBM (in cooperation with Intel) formed Blade.org; and it shows the kinds of results Blade.org is achieving. And it concludes that Blade.org – with the level of innovation and investment it is driving – is the single, largest contributing factor to IBM's outstanding success in the blade market today.

What is Blade.org?

Clabby Analytics was in New York City in August, 2004 when IBM announced that it was going to open the specifications to its BladeCenter chassis. IBM stated that its

Blade.org: The Snowball Effect

goal was to build a collaborative organization and a developer community that would focus on expanding the number of solutions that could be made available on its blade architecture. IBM also stated that it believed it could not drive all innovation on blades itself – it believed that its partners would play a major role in driving the blade innovation of the future.

In February, 2006, IBM took collaborative blade development to a new level when it announced (along with Intel) the formation of an independent organization (Blade.org) that would serve as the epicenter of blade development on IBM's BladeCenter chassis. Not only did IBM make its BladeCenter specifications public, it invited vendor and user communities to provide feedback and develop products specifically for BladeCenter. And this vendor/user collaboration is yielding impressive results.

The Impact of Blade.org

In two words, Blade.org is a "game changer". Blade.org:

- Fosters innovation (because entire communities, not just individual vendors, can build products to fit in blade enclosures);
- Helps reduce system design costs for 3rd parties — enabling them to focus on building value-added components rather than whole systems. 3rd parties need only invest in building their own server, storage, or client blades or in building networking modules — the rest of the development expense (development of the chassis, the power/cooling scheme, and the internal switching) is borne by the blade enclosure maker;
- Opens-up new markets for blade vendors. Specialized blades can help vendors sell into new markets such as telecommunications, high-performance computing, and small and mid-sized business (SMB) — markets that they may not have been able to serve with scale-up and/or rack designs; and,
- Helps lower acquisition, deployment, and operational costs for buyers because internal blade switches eliminate the need to purchase external switches and manually cable servers together.

As an example of the impact of Blade.org, we offer NALLATECH (a blade vendor we met in of all places, Krakow, Poland):

NALLATECH, a Scotland-based maker of FPGAs, is using IBM's BladeCenter enclosure as the basis upon which to deploy its FPGA (field programmable gate array) blades. By so doing, NALLATECH does not have to build a complete system in order to bring its products to market. It can rely on IBM to build and test its own enclosure, power and cool that enclosure, and innovate in network design and storage integration within that enclosure. NALLATECH needs only to build what it is good at — FPGAs on a board. Accordingly, NALLATECH doesn't have to spend tons of research and development Euros building and testing a complete system. Nor does the company need to build a large support staff to support IBM BladeCenters (support is available from IBM as well as from a number of 3rd party solutions providers). And because IBM's BladeCenter sells in large volumes, NALLATECH can take advantage of BladeCenter

Blade.org: The Snowball Effect

economies of scale which translate into lower build costs for a complete system (and lower purchase prices, therefore, for NALLATECH customers).

More, and More, and More Blade.org-related Innovations

A very close examination of Blade.org shows that the organization is helping to deliver a wide variety of products from a number of sources including high-speed switches from networking vendors; a variety of microprocessor options such as field programmable gate arrays, and cell microprocessors from various chip makers; storage blades as well as storage subsystems built specifically to support blade environments; and numerous blade management packages available from independent software vendors (ISVs) as well as from the open source community. These vendors and the open source community are helping to drive innovation in the blade market by working aggressively and collaboratively to integrate their latest/greatest technologies and products within various blade vendor's chassis. The following subsections examine the Blade.org development activities in each of these spaces.

Blade Servers

Industry standard, general purpose x86- and x64-based servers are available from dozens of sources. And powerful 64-bit RISC (reduced instruction set computing) blades are available from IBM and Sun. 64-bit EPIC Itanium blades are available from a number of sources including HP, Unisys, and Egenera. Blades that use field programmable gate arrays (FPGAs — another type of processor) are available from Interactive Circuits and Systems, Silicon Graphics, and NALLATECH, amongst others. And cell-based blades from IBM (as part of its partnership with Mercury Computer Systems) have also arrived. Blade.org is helping to drive the creation of POWER blades, industry standard blades, FPGAs and cell blades.

This ability to incorporate numerous, different types of processors, gives blade servers great flexibility. This flexibility will be used over time to enter new markets where specialized or hybrid processors may be exploited to gain competitive advantage. Meanwhile, multi-core processing can be expected to greatly increase the processing power of blades — posing a real threat to scale-up computing designs.

Storage Blades

As for storage blades, the whole idea behind a storage blade is to put as much storage as possible in cache as near to a blade server as possible to speed input/output and thus speed processing. Today, storage blades have been introduced by HP, IBM, and other vendors specifically to put storage resources close to blade servers such that the servers can handle data intensive applications.

One idea that is currently being discussed in blade storage is the creation of "storage sidecars" — network attached storage (NAS) blades in a cabinet that can be linked in a tightly-coupled fashion to the communications backplane of a blade server. Sidecars could help speed up data serving to blades without necessarily having to be located

Blade.org: The Snowball Effect

within the chassis. Another idea on the table is the creation triple-height storage blades that can deliver as much as 3.5 terabytes of sharable storage within a blade enclosure. Blade.org is helping drive these innovations.

Client Blades

Imagine a stock broker or product designer who has several workstations and/or PCs in his/her workspace — all generating heat. By placing workstation blades in the datacenter away from workers, heat can be dissipated more efficiently while also allowing centralized management and security under the control of the datacenter.

Putting a workstation or a PC on a blade is not tremendously complicated. And switches are available to provide keyboard, video, and mouse (KVM) services using Ethernet to connect to the datacenter where client blades are housed. But building the management environment to manage potentially hundreds of PC or workstation blades can prove to be a real challenge. Terminal server software (such as that provided by Citrix, Microsoft, and others), however, is proving to be ideal for the centralized management of client blades.

Expect innovation in workstation and PC designs as multi-core processors make the client blade scene. And expect most of the innovation in this space to occur on the management side as blade software vendors seek to build monitor, control, and security software to manage large client blade environments.

The High-Speed Networking Roadmap for Blades

High-speed 10 gigabit (GB) Ethernet, Infiniband, Fibre Channel, and Myrinet interconnects are all available now on blade architecture. But when it comes to networking, more choices are not necessarily a good thing as blades could interoperate more efficiently if a common fabric was used inside and outside of the box rather than having to rely on a conversion/gateway activity when bridging from one type of network to another. So instead of a great deal of innovation in high-speed networking (in essence, more choices), the industry might be better served by standardizing on fewer high-speed network choices.

To that end, *Clabby Analytics* observes that Blade.org partner Blade Network Technologies introduced a 10GB Ethernet switch that delivers 10 GB Ethernet speed not only to the blade chassis – but to and between the individual blades themselves. And, it is important to note that this functionality was delivered to IBM first as a result of cooperation between Blade Network Technologies, IBM, and reseller/integrator Avnet. Blade.org is helping IBM get high-tech solutions before its competitors, giving IBM distinct competitive advantage.

Blade.org: The Snowball Effect

Summary Observations

Blade architecture is amazing. It is an architecture that is simple in its design, but can be used to deliver some of the world's most powerful, flexible, and innovative systems.

In our opinion, the largest contributing factor to IBM's success in the blade marketplace has been "openness" – the openness brought about by the formation of Blade.org. Blade.org has created a vibrant ecosystem of hardware and software vendors that build their products into a common enclosure – greatly expanding the kinds of things that IBM's blade architectures can do.

It is important to stress how blade enclosures have become strategically important to blade makers and to 3rd party hardware manufacturers. Blade makers use their enclosures to innovate in the areas of power consumption, cooling, management, and networking speed to create competitive differentiation. 3rd party hardware makers leverage blades to reduce entire system design costs — as well as to reduce support and quality assurance costs. Both of these activities lead to innovative, collaborative designs that come to market faster than an individual vendor could bring them to market.

To us, it's a wonder why competitors like Hewlett-Packard and Dell have not directly mimicked Blade.org by creating an open *community* around their respective blade offerings. (HP's Blade Server Alliance is a traditional approach that manages partners by giving them access to equipment, hardware and software development kits, and provides a certification process and marketing services. And Dell manages its blade partners in much the same way). We think these vendors have left the door wide open for IBM and the Blade.org community to out-innovate them in the blade space. And as long as these competitors fail to respond to Blade.org, we believe that IBM will maintain its solid lock on the number one position in the blade marketplace.

Clabby Analytics
<http://www.clabbyanalytics.com>
Telephone: 001 (207) 846-0498

© 2007 Clabby Analytics
All rights reserved
February, 2007

Clabby Analytics is an independent technology research and analysis organization that specializes in systems architectures, information infrastructure, and consolidation, virtualization, and provisioning (CVP). Other research and analysis conducted by Clabby Analytics can be found at www.valleyviewventures.com.