



# Research Report

## An Impartial Critique of Red Hat Linux

### *Executive Summary*

As enterprises consolidate around three systems architectures (multi-core x86, POWER, and z), Linux is taking a more prominent role in enterprise information systems strategic planning. This is because Linux has become the “lowest-common-denominator” operating environment — a bridge that can tightly link all three architectures.

***The reason that cross-platform Linux is important is that, by standardizing on a common operating environment for all systems architectures, IT organizations can:***

- ***Reduce management costs by building IT management skills that can be leveraged across all three architectures — and by using common tools to manage those environments;***
- ***Reduce software licensing costs by leveraging volume purchase agreements when acquiring independent software vendor (ISV) applications and databases — and by using low-cost/free Linux-based open source code across all three environments; and enterprises can***
- ***Reduce systems integration costs by using Linux along with corresponding service-oriented middleware across all three platforms.***

***Further, IT managers who use Linux as the operating system as the basis for heterogeneous clouds will find that it is easier to virtualize and provision their clouds because they don't have to worry about whether a given application is compatible with the underlying operating system and middleware environment. IT managers, therefore, would be able to make decisions where an application workload would run best — rather than being constrained by whether a particular server runs the operating system required by a given application...***

In the enterprise-class Linux market, there are two dominant vendors: Novell (with SUSE Linux) and Red Hat (with Red Hat Enterprise Linux — or RHEL for short). Enterprise IT buyers frequently ask *Clabby Analytics* which Linux distribution they should buy — and our answer is: “we have no preference; they are both good”. But, we also observe that there are distinct differences between each vendor’s go-to-market and product strategies. The primary differences in these two Linux offerings can be found in each vendor’s:

- Release philosophy;
- Investment/innovation in Linux;
- Virtualization approach (Xen vs. KVM);
- Strategic commitment (as evidenced by business unit commitment); and,
- Cost (Red Hat generally costs 20-30% more than Novell SUSE).

***In order to produce an objective view of each vendor's Linux offerings, we have chosen to interview each vendor and several of each vendor's customers. In this report, we ask Red Hat where it believes the differences between its Linux distribution and that of Novell SUSE reside. And we ask Red Hat customers to confirm or deny Red Hat's claims.***

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*It is Clabby Analytics intent to produce a similar report that represents Novell's view of the differences between its product offering and those of Red Hat — and to solicit Novell customer feedback on Novell's view.*

### *A Closer Look at Release Philosophies — The “Upstream” Comparative Difference*

Perhaps the greatest difference between Novell and Red Hat in Linux is how each vendor handles Linux updates and revisions. Red Hat insists upon “upstream” approval; Novell does not.

The concept of “upstreaming” has to do with soliciting feedback and obtaining the blessing of projects that logically reside above the Linux operating environment. For instance, the KDE (a cross-platform desktop environment), GNOME (another cross-platform desktop environment), and Apache (an HTTP server environment) are individually not core Linux projects — but to many Linux users, these projects are fundamental to their Linux use. Logically, these projects reside above the Linux distribution (or upstream of Linux).

*Red Hat insists that anything that makes it into its Linux distribution be tested and blessed by the Linux community — Novell does not.*

*Novell's approach enables it to bring new various features and functions to market more quickly than Red Hat. But, bear in mind that those features and functions may or may not be blessed by the upstream Linux community at a later date — meaning that Novell customers may become dependent on SUSE extensions that are not part of Linux future development. Red Hat customers, on the other hand, know that whatever has been built into their RHEL releases has been approved by the upstream Linux/open source community and will be supported by that community over time.*

*It can be argued that Red Hat's conservative approach ensures stability (because IT buyers know that whatever features and functions that are found in RHEL are supported for the long run). It can also be argued that Novell's approach enables SUSE buyers to get access to new and different functionality more quickly than RHEL users.*

### *The Benefits that Red Hat Sees By Upstreaming*

By adhering to upstream development/release practices, Red Hat believes that it avoids conflicts and liabilities that may be introduced by not soliciting community approval. And Red Hat believes it also benefits from rigorous peer review processes; testing by thousands or users from hundreds of companies worldwide; maintenance burden (or lack thereof); and consistency (because getting features approved and implemented into upstream releases means that Red Hat does not have to keep track of its value-add but non-upstream improvements and ensure that these features make it into successive releases of Linux over time).

Red Hat's approach, however, does not preclude the company from developing and testing new features/functions on a regular basis in conjunction with the Linux community. By working closely with the Fedora Linux distribution community, Red Hat releases versions of Red Hat Linux in beta form to the Linux community “early and often” (note: RHEL is a commercial derivative of the Linux community's Fedora Project). This practice enables

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Red Hat to get volumes of community feedback (both good and bad) on its distro before a formal release.

Red Hat also points out that it hosts numerous on-site development partners who assist in adding new Linux features, as well as help overcome bugs and perform incremental testing.

### *Investment/Innovation*

Red Hat states quite passionately that it is “unequivocally the largest contributor of software to the Linux” — surpassing IBM (and surpassing Novell by a wide margin). Further, Red Hat finances Linux development by paying developers to add new features and functions to Linux (thus fostering innovation).

Amongst the many projects that Red Hat contributes time, money and resources are:

- The GNOME project;
- The Free Desktop project;
- Linux kernel development;
- A variety of open source development tools;
- Various administrative frameworks;
- Service management; and,
- Systems clustering (including Linux virtualization).

Additionally, Red Hat is a major contributor to emerging Linux technologies including SystemTAP and OProfile.

### *Virtualization: Xen vs. KVM*

Of all of the projects listed in the previous subsection, *Clabby Analytics* finds Red Hat’s efforts in clustering (and more specifically, its efforts in Linux virtualization) to be amongst the most interesting. Consider the following:

- At one point, Xen from XenSource (which was ultimately purchased by Citrix) was the darling of the Linux community when it came to virtualization. Both Novell SUSE and RHEL closely embraced Xen.
- Over the past few years, KVM (Kernel Virtual Machine — originally built by Qumranet) has met with increasing acceptance within the Linux community, largely because the community likes the way that this software exploits processor virtualization extensions; and because,
- Also because KVM can run on many platforms (it is not totally focused on x86 architecture like Xen is).

Now consider this: Red Hat recently purchased Qumranet — and is actively and aggressively integrating KVM into its distribution. Novell, on the other hand, is not integrating KVM with its distribution. What this means is that Red Hat is building a Linux-based, cross-platform virtualization architecture; while Novell remains focused on x86 architecture.

*What this means is that there is a significant difference between Novell and Red Hat in the area of virtualization. For IT organizations that plan to run x86-based servers only, both Novell (with Xen) and Red*

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*Hat (with Xen and KVM) can address various virtualization needs. But for organizations that wish to operate Linux-based heterogeneous computing environments, Red Hat's KVM implementation is a clear differentiator.*

*From Clabby Analytics perspective, both Xen and KVM are good approaches for virtualizing Linux environments. But Clabby Analytics observes that KVM will be an integral part Red Hat's Linux distribution — capable of making processor level calls to exploit processor virtualization. And KVM also works across all three systems architectures that Clabby Analytics believes will dominate the computer market over time (x86, POWER, and z). So, Red Hat's RHEL is therefore the logical choice for heterogeneous Linux-based server virtualization.*

### *Strategic Commitment*

Red Hat makes a big deal about its strategic commitment to Linux — and points to recent reorganizations at Novell as an indicator that Novell's focus on Linux may be waning. For instance, during a recent set of reorganizations at Novell, the company has eliminated its Linux business unit.

*Clabby Analytics puts this “differentiator” in the fear/uncertainty/doubt (FUD) category because Novell still derives a healthy revenue stream from Linux — and has no reason to de-commit from a rapidly growing market. We will follow-up on Novell's reasons for its restructuring in a subsequent Research Report.*

### *Costs/Pricing*

Red Hat admits that Novell's SUSE Linux generally costs 20-30% less than its own RHEL environment — but emphasizes that Novell's investments in Linux development, testing, and innovation are lower, hence its costs are lower. This cost differential, according to Red Hat, is why Novell SUSE generally costs less than RHEL.

*From Clabby Analytics perspective, however, cost should not be the major comparison point when considering the deployment of either of these Linux environments. (Our logic is that cheaper may not necessarily be better when it comes to the deployment of an enterprise-class operating environment). The real metric should be “what is the value that a customer derives when deploying each vendor's Linux distribution”.*

### *What Red Hat Users Are Saying About Pricing*

After interviewing several Red Hat Network (RHN) Satellite customers in depth, crossing geographies and industry verticals, the International Data Corporation (IDC — another analyst firm) reported significant return on investment (ROI) and productivity results for RHN Satellite customers. The following highlights were drawn from customer testimonials:

- Average of 338 percent ROI;
- Average payback period of 4.8 months;
- A doubled increase in the number of Linux servers managed per sys admin;
- Average annual benefit of \$82,521 per 100 Linux servers; and,
- Average of \$23,207 in annual user productivity increase.
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In their own words, customers reported that RHN Satellite helped them to achieve enhanced productivity, scalability, reduced costs, faster server setup and management, and business growth. To read the full IDC paper on RHN Satellite, visit [inquiries.redhat.com/go/redhat/idc-rhn-satellite](http://inquiries.redhat.com/go/redhat/idc-rhn-satellite).

*In Competitive Situations, Costs Become Quite Close...*

Another point to consider is “are the Red hat and Novell reasonably close when it comes to competitive deals?” To answer this question, *Clabby Analytics* recently examined Red Hat and Novell pricing for IBM’s new mainframe Solution Editions (to find out what Solution Editions are, go to <http://www.clabbyanalytics.com/uploads/SolutionEditionsFinal.pdf> for more information).

Two of IBM’s Solution Edition products contain special, very competitive Linux pricing for mainframe environments:

- From a RHEL pricing perspective, IBM and Red Hat have worked together to deliver a specially priced Red Hat Solution Edition bundle. This bundle included Red Hat Enterprise Linux as well as management, update, and provisioning entitlements to the Red Hat Network (this additional software can be used to build a Linux cloud environment). As for pricing, the Red Hat Solution Edition price has been lowered \$20,000/IFL to \$8,400/IFL (a 59% discount). Furthermore, Red Hat has created volume discount schedules, which begin at quantity 2, to ensure customers retain a high price/performance ratio and encourage workload expansion.
- From a Novell SUSE perspective, IBM has also worked closely with Novell and together both companies have architected a promotional offering called SUSE Linux Enterprise Consolidation Suite for System z. Good until December 31, 2010, this product bundle is based on SUSE Linux Enterprise Server for System z and sold at a discounted price. On IBM System z Business Class systems it includes 2 IFL subscriptions to SUSE Linux Enterprise Server for System z for 3 years with the option to grow to 4 IFLs at no additional cost. On IBM Enterprise Class systems it includes 4 IFL subscriptions to SLES for System z for 3 years. Novell also offers Multi-IFL package pricing for SUSE Linux Enterprise Server for System z — a permanent discount offer to the existing 1-IFL pricing. Further, Novell offers volume discounts for subscriptions to multiple IFLs and is available for all IBM System z machine types, not only for IBM Solution Edition for Enterprise Linux machines.

### *Summary Observations:*

*Clabby Analytics* believes that the server market is in the process of consolidating around three microprocessor/systems architectures: Xeon multi-cores; POWER7, and mainframe z. As this happens, we expect:

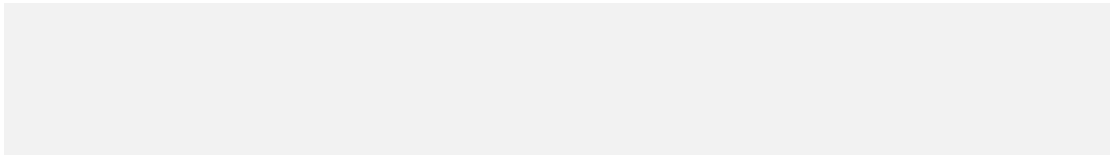
- x86 buyers will deploy applications and databases on Windows and/or **Linux** operating environments on new Xeon-class multi-core servers;
- POWER buyers will deploy on their applications and databases on AIX (Unix) and/or **Linux** on Power System; and,

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- System z buyers will deploy their applications and databases on z/OS and/or z/VM (running **Linux** in zVM partitions) on mainframes.

As this consolidation takes place, Linux will move more aggressively across systems architectures (Linux has, to date, been primarily an x86 operating environment). In the consolidated, heterogeneous world, Linux will become an important “glue element” that holds together heterogeneous clouds.

Both Red Hat and Novell offer Linux distributions that work across heterogeneous environments. IT buyers who are trying to choose between the two should examine each vendor’s release philosophy, investment/innovation/virtualization differentiators before making an ultimate decision on which Linux distribution to choose. Because Linux is a fundamental building block for systems environments, pricing should be a secondary consideration when it comes to choosing between these two vendors (choosing the right Linux distribution to meet your enterprise strategic goals should be your first consideration).



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

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