

Quick Take

Big Blue and Red Hat: Good News for the Technical Computing Sector

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HYPERION RESEARCH OPINION

IBM's decision to acquire Red Hat not only boosts the combined firm's potential to exploit the overall cloud market, but it will likely have a significant impact on the global technical computing market as well. This is based on the rapidly growing number of enterprise IT data centers that are integrating HPC into their AI and other data-intensive workloads that their enterprise servers cannot effectively handle alone.

- In one of Hyperion Research's recent worldwide studies, 10% of the respondents were enterprises that had adopted HPC for the first time to accelerate business operations.
- IBM's agreement to acquire Red Hat for \$34 billion is one of the largest IT deals in U.S. history and underscores IBM's intent to get a larger piece of the fast-growing cloud market.

What role does HPC play in this?

This deal centers on Linux, an open source operating system that was initially targeted for the PC market that then went on to dominate the HPC market as well as financial services and other enterprise IT markets. Indeed, the widespread adoption and flexibility of Linux was an important element in the dramatic rise of standards-based clusters starting in 2001. For a time, Linux became somewhat of a political football despite its growing popularity, and it was unclear which organizations would assume the responsibility of managing this important resource.

- At Hyperion Research HPC User Forum meetings during that time, buyers and users had to be reassured that Linux would not be allowed to die an unnatural death.

Flash forward to the nanosecond before the IBM-Red Hat deal was announced and Intel was the number one contributor to open source Linux, with Red Hat as the second-most-important benefactor. IBM has stated that with Red Hat on board, it will now be "by far" the leading backer of open source Linux. Although that remains to be determined, the important point is that Linux now is strongly supported by multiple large, stable, and technically-capable companies.

The potential \$1 trillion market projection that IBM is targeting for open source Linux in hybrid cloud environments presumably includes a rising tide of AI workloads that will be economically important for IBM's growth plans. Critical applications include automated driving systems, precision medicine, fraud and anomaly detection, affinity marketing, smart cities, the IoT. Today, Hyperion Research studies show that HPC is at the forefront of R&D in each of these areas.

- The HPC community's strong experience with Linux running servers, historically important at both IBM and Red Hat, could benefit the combined IBM/Red Hat organization in these emerging market opportunities.

In the announcement materials, IBM CEO Ginni Rometty said that 20% of enterprise workloads have already moved to the broad category of hybrid (presumably public-private) clouds and the combined company will now endeavor to move the remaining 80% to cloud environments. For the HPC sector, especially a growing number of enterprises that are pushing up into the HPC competency space, that analysis may be overly optimistic.

- Hyperion Research studies consistently show that just under 10% of all HPC workloads are being run in external cloud environments today, though that could increase to 14-15% in just two years.
- Additional Hyperion Research studies consistently show that about 40% of the world's HPC sites do not run any workload in external clouds.

Nevertheless, there is a growing trend in the HPC community to run HPC workloads in external clouds. Indeed, Hyperion Research studies show that most HPC sites understand which workloads make sense to run in which environments—on premise, private cloud, hybrid cloud, public cloud. So, the task facing cloud services providers (CSPs) is less about market education and more about making cloud environments friendlier toward a larger portion of the HPC workload spectrum—venturing far beyond support for embarrassingly parallel jobs, complying with more industry regulations, bolstering data security, and easing initial data transport, as examples.

- In short, external cloud environments are in no position yet to give on premise HPC data centers 24 hours or even 8,760 hours (a year) to get out of town.
- The two environments will likely co-exist for years to come. But it's equally likely that clouds will gradually increase their share of all HPC jobs, including some of the enterprise workloads at the forefront of AI R&D.

A potential challenge is IBM's stated goal to keep Red Hat as a vendor-neutral business open to IBM competitors while also layering "unique IBM offerings on top." Those of us who remember the disruption when IBM Microelectronics morphed from a neutral foundry, supporting many different competitors, to an IBM-only business, realize some Red Hat customers and prospects may be concerned about IBM's ability to keep the wall up and fully provide Red Hat products and services to all of its competitors. Hyperion Research assumes that IBM has taken the microelectronics experience to heart and will steer a calmer course with the Red Hat business.

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Hyperion Research provides data-driven research, analysis and recommendations for technologies, applications, and markets in high performance computing and emerging technology areas to help organizations worldwide make effective decisions and seize growth opportunities. Research includes market sizing and forecasting, share tracking, segmentation, technology and related trend analysis, and both user & vendor analysis for multi-user technical server technology used for HPC and HPDA (high performance data analysis). We provide thought leadership and practical guidance for users, vendors and other members of the HPC community by focusing on key market and technology trends across government, industry, commerce, and academia.

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