Rack-Mounted Mainframes

RFG Perspective: A major breakthrough: mainframes redesigned for the 21st century – compacted to be rack-mounted and standardized for data center aisles while still leaving rack space for other components. This modernization should make the new, highly secure, compact low-end z14 ZR1 and LinuxONE Rockhopper II attractive to enterprise executives as they build out their next generation data centers, including their private cloud infrastructures. IT executives should determine if these new rack-mounted mainframes are the least risk, least cost compute platforms for certain workloads from both the financial and technical perspectives.

Since the z14 was introduced in mid-July 2017, IBM has seen its IBM Z revenues increase by more than 70 percent in fiscal year 2017 over 2016. Moreover, Z sales in first quarter 2018 were 54 percent higher than the previous year's. While this is a great story, most of these sales were to existing accounts where the MIPS demand continues to grow. One major inhibitor to growth into new markets has been the fact that the mainframe's bulky two-door cabinet design was not compatible with the current data center standards.

On April 10th of this year, IBM addressed this when it revealed a new generation of mainframes that are rack-mounted and can therefore fit nicely into any data center aisle. Two new low-end models were introduced: the z14 ZR1 mainframe and the LinuxONE Rockhopper II. These models consume 40 percent less floor space than the z13 and original Rockhopper and have a lower cost entry point while still delivering more compute power than their predecessors.

The Rack-Mounted Specifications

The z14 ZR1 and Rockhopper II only utilize part of a standard rack, leaving 16U of space free for other components such as networking, storage, and switches. It does this through a complete architectural redesign and optimizing these servers for a maximum of 30 processor cores. Each comes with four processor configuration options: four, 12, 24, and 30 cores, enabling users to start out with as little as 88 MIPS for the ZR1. An entry Rockhopper II model consists of 2 IFLs and 128 GB of memory and comes with a granular growth path to 30 IFLs and 8 TB of memory.

Moreover, IBM redesigned these servers so they operate using standard air cooling and single-phase power rather than the three-phase power required by previous mainframe servers. The rack-mounted Rockhopper II offers 50 percent more capacity and twice the memory of its larger single-door Rockhopper at a lower cost than the original Rockhopper. Additionally, the server has been scale tested to support up to 330,000 Docker containers.

Both the z14 ZR1 and Rockhopper II offer full lifecycle pervasive encryption and compliance management features. They are the only systems that encrypt all business and customer data associated with an application, database, or cloud service. The pervasive encryption capabilities address data at-rest and in-flight, are standard features that require no action on the part of developers, and enable users to significantly reduce the time and effort required to meet compliance obligations and complete audits. IBM's hardware-accelerated encryption outperforms encryption on x86 hardware so much so that the z14 ZR1 can process more than 850 million fully encrypted transactions a day on a single system.

Copyright © 2004-2018 ***Robert Frances Group****, all rights reserved*
46 Kent Hills Lane, Wilton, CT. 06897; (203) 429 8951;
http://www.rfgonline.com/; *Contact: inquiry@rfgonline.com*

Secure Service Container

IBM's Secure Service Container technology is being added to the z14 ZR1 and Rockhopper II, making them logical platforms for hosting cloud-native, container-based applications. These servers come with 40 hyper-secure logical partitions (LPARs), providing vertical isolation and protection of data from privileged users. The technology also enables validation of code to reduce risk of malware or tampering while supporting pervasive encryption.

Summary

Enterprise internal private clouds are traditionally with Linux workloads on x86 hardware – without consideration of other alternative platforms. Similarly, even if the new applications are not being designed and implemented to be "cloud first," then they are primarily targeted to be on infrastructure built around the x86 architecture. In fact, IBM servers have less than a five percent unit share of the entire server market. The new z14 ZR1 and Rockhopper II rack-mounted servers not only eliminate a number of the inhibitors but provide pervasive encryption and secure service container capabilities, making them the least-cost, least risk server platform.

RFG POV: Enterprises require infrastructure solutions that are low-risk, scalable, low-cost, and transparent to the non-system user, need minimal manual intervention and conform to data center specification standards. Up until now the z14 mainframes and LinuxONE servers satisfied most of those requirements but did not make the final cut because they were perceived as legacy platforms and failed to conform to the standard rack architecture used in the large data center farms. The z14 ZR1 and Rockhopper II are game changers and earn the right to be considered as part of an enterprise's target infrastructure architecture. IT executives should put these innovative, cloud-ready rack-mounted servers on their target platform short list for new analytic and transactional applications, databases, and other workloads.

Additional relevant research and consulting services are available. Interested readers should contact Client Services to arrange further discussion or interview with Mr. Cal Braunstein, CEO and Executive Director of Research.

Copyright © 2004-2018 ***Robert Frances Group****, all rights reserved*
46 Kent Hills Lane, Wilton, CT. 06897; (203) 429 8951;
http://www.rfgonline.com/; *Contact: inquiry@rfgonline.com*