Oracle Pursues "Datacenter Core" with Virtual Compute Appliance
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The 3rd Platform era is forcing traditional enterprises to develop dynamic digital business processes and their associated workloads, which are emerging to serve the cloud, mobile, social, and big data analytic needs of large and small enterprises. IDC continues to study shifting IT budgets where customers increasingly chase new forms of efficiency in legacy 2nd Platform workloads in order to finance the transformational 3rd Platform investments they need to make. On January 21, 2015, Oracle announced the fifth generation of its engineered systems portfolio where the company engineers Sun hardware and Oracle software to work optimally together. This better together hardware and software vision was the driving force behind Oracle's acquisition of Sun Microsystems five years ago. However, up until now, Oracle's focus has largely been on what IDC calls integrated platforms, where the core integrated system extends up through Oracle's middleware and application stack. Oracle's Exadata system is the best known example of such an integrated platform system where the influencer is often the database administrator.

At the same time, Oracle has largely ignored the general-purpose integrated infrastructure market, which provides enterprise and managed service provider customers with highly optimized consolidation platforms for traditional virtualized workloads. Oracle CTO Larry Ellison opened the launch event in Redwood Shores, California, by pointing out that "we've never really competed for the data-center core, now we have a new strategy." Ellison was referring to a new Oracle system included in the broader announcement called the Virtual Compute Appliance (VCA). VCA targets workloads moving to competing platforms such as VCE's Vblock, NetApp's FlexPod, and a number of other competitive offerings in the market. That said, Ellison pointed to Cisco and EMC and their jointly developed VCE Vblock as the top competitor for VCA. In addition, Oracle used the launch event as an opportunity to introduce a number of enhancements to its Integrated Infrastructure portfolio.

Oracle announced the following integrated systems at the Redwood Shores event:

- **Oracle's Virtual Compute Appliance X5**: VCA is a new full-rack system incorporating 27 2-socket Intel Xeon compute nodes coupled with storage in a software-defined networking and an InfiniBand networking environment priced at a cost of approximately $600,000 inclusive of Oracle software. VCA supports all virtualized x86 workloads, including Microsoft Windows, any Linux, and Oracle Solaris.

- **Oracle Database Appliance X5**: An updated system designed for distributed and branch office environments, Oracle Database Appliance includes integrated compute, storage, and software optimized to run Oracle Database and application workloads. The X5 adds flash caching, integrated InfiniBand connectivity, and upgraded Intel Xeon processors, which add additional cores and improve performance for consolidation densities.

- **Oracle Big Data Appliance X5**: An updated system designed for Hadoop and NoSQL applications, the new X5 appliance comes with twice the RAM and more than double the Intel Xeon processing cores. Oracle is also offering Oracle Big Data SQL on the system to extend Oracle SQL to Hadoop and NoSQL workloads.

- **Oracle's Zero Data Loss Recovery Appliance X5**: Another system update, Oracle's data protection appliance eliminates data loss exposure for all Oracle databases while minimizing performance impact to production environments. The updated appliance includes updated Intel Xeon CPUs enabling faster recovery, higher throughput, and improved database backup consolidation rates.
Sixth-generation Oracle Exadata Database Machine X5: Oracle introduced a number of enhancements to its flagship engineered system now in its sixth generation including new Intel Xeon processors, 50% more memory capacity, and a larger flash footprint — all of which increase system performance. Other Exadata enhancements include:

- A new all-flash PCIe-based storage server leveraging Non-Volatile Memory Express flash and InfiniBand networking
- New elastic configurations, which allow storage and compute nodes to be updated one server at a time to provide more granular on-demand capacity expansion
- Oracle VM support, which enables workload isolation
- Capacity on Demand software licensing, which enables cores to be disabled and thus software unlicensed until needed
- New software features including faster pure columnar flash caching, database snapshots, flash cache resource management, and support for Oracle Linux 6
- To provide investment protection, prior-generation Oracle Exadata systems can be expanded with new X5-2 server nodes and new software features are supported on previous generations of Oracle Exadata hardware.

The remainder of this link provides analysis of the market opportunities and challenges Oracle will face with their new Virtual Compute Appliance X5.

Integrated systems have become an important tool for end users looking to drive increased datacenter resource utilization, reduce capital spending, and deliver improvements to IT staff productivity and system availability. Many users are finding that their traditional client/server architecture is not able to scale effectively and economically. At the same time, enterprise IT continues to look for ways to shift more IT spend from maintenance to innovation in the business. The market is in need of new modular infrastructure platforms capable of supporting applications connected to a large number of users and devices. While consolidation, virtualization, and cloud usage continues to increase, the technology focus is now shifting to how to create systems that are optimized "end to end" in order to reduce interdependent operational inefficiencies across the core compute, storage, and networking infrastructure.

The first integrated infrastructure systems came from systems vendors such as Cisco, EMC, NetApp, and IBM. Those systems delivered superior performance and consolidation capabilities, albeit usually at a premium price. The payback for customers was faster time to value, improved availability, easier management, and lower operational costs. Enter software vendors with a different approach that may raise the level of competition incumbents in the industry face. IDC has noted for several years the profound impact that the 3rd Platform is having on the industry. Proof points like cloud, mobile, social, and big data in the market are easy to see, and the associated business impact for established technology players is easy to find. This trend forces the enterprise IT customer base to broaden as line-of-business (LOB) executives become more influential in technology decision making.

Integrated systems adoption is rapidly moving from the evaluation stage to mainstream use within customer environments. IT organizations view integrated systems as a useful consolidation and migration platform for production workloads; in fact, many end users are planning to standardize on integrated systems. In discussions with IT customers, IDC finds IT organizations fully trust the technology and are increasing deployment of mission-critical tier 1 applications. The increased adoption of integrated systems is being driven by the significant operation benefits IT executives are anticipating, specifically in the areas of reduced downtime, improved cost savings, and improved resource utilization. IT organizations also see integrated systems as a method to improve the efficiency of the IT staff and enable it to accelerate IT service and improve the agility of the environment. IDC forecasts integrated infrastructure systems will grow at a 26.9% CAGR to $13.2 billion in 2018, an increase from $4.0 billion in 2013. IDC predicts that, by 2018, nearly 15% of the hardware infrastructure market (server, storage, and networking) will be sold as a part of an integrated system.

Oracle’s Virtual Compute Appliance leverages a hardware and software stack that Oracle has spent years of effort developing and optimizing. The predefined infrastructure targets a large and growing set of virtualized and bare metal Windows, Linux, and Solaris workloads. In fact, IDC estimates that approximately 120 million virtualized and bare metal workloads run on Linux and Windows alone today. IDC research shows that one-quarter of all enterprise customers are reaching the end of their consolidation
programs with very few organizations expecting to virtualize much more than 90% of their application portfolio. These customers — and the many thousands of mainstream customers that will soon follow — have entered what IDC calls the "last mile of virtualization," which increasingly requires robust infrastructure and aggressive virtual machine densities. This next phase of virtualization will focus on application portfolio management, resource pooling, elasticity, and modularity best achieved through integrated systems.

In addition to the systems vendors mentioned previously, IDC notes that ISVs are also entering the market with a mix of their own software stack coupled with partner hardware. For example, VMware introduced its EVO:RAIL offering at VMworld in August, which seeks to deliver an integrated-like experience but based on VMware software and lower-cost hardware for smaller-scale deployments. VMware is expected to follow with the EVO:RACK offering, which is focused on larger deployments that may include full datacenters. Microsoft followed shortly thereafter with its Cloud Platform System, which runs on a prescriptive mix of Dell hardware. In addition, upstart companies such as Nutanix and SimpliVity are also chasing many of the same workloads with their software-defined hyper-converged appliances. As a result the dynamics of the market continue to change.

With the Virtual Compute Appliance, Oracle is competitive in both the rapidly evolving integrated systems marketplace by extending its red stack of hardware and software assets to enterprise and service provider customers via a packaged solution that is consistent from a deployment, management, and provisioning perspective. This initiative is furthering the industry's focus on designing/evaluating systems based on an integrated systems model. Oracle's VCA offering helps demonstrate a continued shift toward deeper architectural implementations, which leverage a software-defined infrastructure. IDC notes that the potential financial consequences of this architectural approach are significant as more and more users measure the economics of their integrated systems by looking at their infrastructure cost at the virtual machine level. Oracle's success in the market will be governed by its ability to tell this economic story effectively to senior infrastructure customers as opposed to the database administrators and application development community largely targeted with Oracle's existing engineered systems portfolio.

With the 3rd Platform come big technological challenges (and opportunities). Oracle's pursuit of the "datacenter Core" with VCA is a competitive play aimed at weakening traditional infrastructure competitors such as EMC and Cisco to free up budget for additional Oracle hardware and software. Although Oracle focused on cost and performance in its launch, the company will find an evolving market of mature competitors and start-ups. That said, customers benefit from additional choice in the market coupled with a lower cost per virtual machine for their existing 2nd Platform workloads. This frees up the financial and human capital necessary to invest in new 3rd Platform workloads aimed at enabling a new type of digital enterprise.

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