Oracle engineered systems are now going to compete on price
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Ovum view

Summary

With the new X5 generation of engineered systems, Oracle is significantly changing its positioning to compete head-to-head with converged system industry leaders (e.g., Cisco) on price. This is a marked shift in Oracle's positioning, which had emphasized high-performance and long-term TCO. While Oracle is not dropping the high performance and TCO focus (the optimizations for its own software stack won't be readily matched by rivals), technology price/performance trends for all aspects of converged system infrastructure are allowing Oracle to go mass-market in price while delivering premium performance. But, as this is not Oracle's opportunity alone, Ovum expects a pricing war and more choices for customers to result.

Oracle competing aggressively on price

Oracle has built a very respectable engineered systems (also known as converged infrastructure, or appliances) business, having sold more than 10,000 units to date. It has promoted its engineered systems as the gold standard for performance, reliability, time to value, security, and TCO. But it has never been known as a price leader. This value proposition has hardly been unique to appliances. For instance, with its public cloud offerings for its enterprise applications, Oracle is not trying to price-match rival hosters such as Amazon. Instead, it promotes the value-add of native support of applications, which allows the Oracle Public Cloud to detect and track client customizations to make the version-upgrade process smoother.

But with the X5 generation of engineered systems, Oracle is competing head-on on price with Cisco UCS, the market leader, which has been the platform of choice for NetApp, Red Hat, HDS, and others. It is going full bore with the commodity Intel 2-socket architecture that has become the de facto standard of Internet data centers, which allows Oracle to reduce the price-point. But it is surrounding those 2-socket CPUs with premium Infiniband interconnects and an array of configurable storage options. Oracle is shifting its goals from margins to market share.

For instance, the latest model of Oracle's Virtual Computer Appliance 972 cores, dual fabric interconnects, and rack infrastructure retails at $562,000 plus $22,000 annual maintenance, versus a $912,000 purchase price and $26,000 in annual support for a similarly configured Cisco UCS M4 Blade Server array.

Besides lowering the list price, Oracle is also adding new upgrade options that further reduce pricing issues. Exadata was formerly only available in quarter-, half-, or full-rack configurations with minimum half-rack upgrade increments. That has changed with X5, where an Exadata customer can start with a base of two database servers and three storage servers, with the option to expand by as little as an individual database and/or storage server at a time.

The "good enough" factor is driving Oracle's and its rivals' appliance strategies

"Good enough" is proving a double-edged sword in the appliance or engineered systems market.
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On one hand, it allows rivals with systems based on commodity hardware to narrow the gap with higher-end systems. Temporary pricing blips aside, the cost of silicon-based storage (Flash and DRAM) continues dropping, resulting in most server providers increasing the level of Flash or in-memory storage in their latest offerings. In some cases, the differences between commodity infrastructure and premium counterparts are narrowing. For instance, while Infiniband has delivered superior network throughput thanks to features such as remote memory access, in some cases, Ethernet implementations are now adding similar capabilities. We view this as a recipe for a pricing war – we don’t expect Oracle rivals Cisco, EMC, Dell, or HP to sit still.

For Oracle, the flip side of "good enough" is that standard designs, such as the 2-socket Intel server configuration that Oracle is now adopting, can now be made "good enough" for its high-performance requirements when paired with premium components, such as silicon-based storage or Infiniband, and through optimizations. More to the point, the Intel architecture allows Oracle to price aggressively. So, Oracle fights fire by continuing its strategy to optimize its database, middleware, and applications for hardware, and vice versa. Enhancements include:

- columnar "Smart Flash Cache" that selectively tiers data between Flash and disk based on data usage patterns;
- Exadata pushing query processing and data filtering down to the storage layer (which has its own CPUs) to reduce I/O bottlenecks and leverage parallelism and compression in that tier, returning only pertinent rows and columns of data to the server;
- new Infiniband protocols optimized for accelerating transaction processing.

Oracle is aggressively leveraging Flash storage

With X5, Oracle is revising its storage architecture and options. Specifically, Oracle is adding a new, high-performance form of Flash (PCIe), which differs from the better known (and less costly) SSD (solid-state disk) Flash with an architecture that eliminates disk controllers with direct connection to the CPU. And in the new release, Oracle is using Flash storage to replace high-performance disk for high throughput, performance-sensitive applications; DRAM is available for extreme high-speed, real-time processing. As part of the release, Oracle is introducing a new optimized, high-performance Flash storage array called the FS1 Flash Storage System. While high-performance disk is gone, Oracle (and the rest of the industry, for that matter) continues to rely on high-capacity disk as the workhorse for storing "cool" temperature data (data that isn’t accessed that often) and big data.

These enhancements are entirely consistent with a trend that we identified in the Ovum Opinion, "Storage tiering is the new black for databases." We forecast that, as silicon-based storage becomes more affordable, Flash would make high-performance disks obsolete, given declining costs and the overwhelming edge in performance that silicon delivers over magnetic media. For some transaction applications, Flash would become the primary storage medium. Otherwise, we predicted that most storage arrays – either direct or pooled – would feature mixes of Flash, DRAM, and high-capacity disk. As Flash (and memory) get cheaper, disk won't go away, and will continue being part of Oracle's engineered systems.

Customers win from pricing competition

As noted above, Oracle has had a good business with engineered systems; it has effectively communicated the long-term TCO value proposition. But the success of Cisco also shows that price...
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remains a key hurdle – and requirement – for the broad enterprise market. To gain wider share, Oracle needed product at Cisco-like price-points (not to mention HP and Dell). Price/performance trends in balance of system (storage and networking) have allowed Oracle to become, not only price-competitive in this tier, but also to deliver high performance on the de facto standard Intel architecture.

Oracle gains a shot at being on the short list for budget-minded customers. Ovum believes that Oracle engineered systems offer natural advantages for existing Oracle software customers because of the optimizations. If rivals stand still, Oracle gains a natural advantage in vying for appliance customers with non-Oracle workloads. But that won't happen; as rivals respond to Oracle's aggressive pricing, Oracle's battle will still be uphill; it must demonstrate lower TCO for non-Oracle workloads that won't have the same degree of optimization.

Regardless of outcome, customers win from such pricing competition.

Appendix

Further reading

"Composite buy boosts Cisco's network analytics strategy," IT014-002750 (June 2013)

Exploring Oracle's Engineered Systems, IT0022-000248 (December 2014)

"Storage tiering is the new black for databases," IT014-002808 (October 2013)

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We hope that this analysis will help you make informed and imaginative business decisions. If you have further requirements, Ovum’s consulting team may be able to help you. For more information about Ovum’s consulting capabilities, please contact us directly at consulting@ovum.com.

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Oracle engineered systems are now going to compete on price

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