Oracle re-architects WebLogic Server to support application microcontainers
Ovum view

Summary

In the most significant upgrade since 2006, Oracle has re-architected WebLogic Server to support developers working with microservices architecture. The upgrade introduces multitenancy, continuous availability, and adds developer innovations. The new WebLogic architecture is built internally on microservices and offers containers that in turn enable the server to best support these new architectures in the field. Multitenancy is achieved by creating microcontainers, called partitions, and enables users to consolidate WebLogic instances by a factor of three or more. This new approach also supports DevOps continuous delivery, a trend in the market that Ovum predicts will become mainstream in the 2016-17 timeframe. For Java EE developers, the modernization of WebLogic to support the latest microservices innovations will be welcomed, and the server consolidation features will be a cost-saver for businesses.

Microcontainers simplify the deployment of complex applications

The WebLogic microcontainer enables developers to parcel a Java application and all its associated resources, including JMS, security, and data sources, and treat these as a unit (the microcontainer) that can be easily moved between WebLogic environments (from development to test to production, on-premise, or cloud, and so on) as well as consolidate resources, so that a single WebLogic Server manages multiple microcontainers. For security and other reasons, each microcontainer needs to be isolated from the other(s) and so the WebLogic architecture allows multi-tenancy, with vertical and horizontal isolation, down to CPU, RAM, I/O, load balancer, and caching levels, as well as administrative isolation. Each microcontainer has a virtual IP with its own firewall rules.

The pricing model is adjusted according to the consolidation, so all existing WebLogic users will receive a free single partition, but to benefit from the microcontainer multi-tenant option this will be an add-on license. Oracle will provide tools to migrate domains to partitions. Oracle’s analysis of this new high-density virtualization suggests that hardware capex is reduced by 66%, the admin opex costs are down by 25%, and consolidation of WebLogic domains by a factor of 10. These types of savings will drive demand for the upgrade to the new release.

The new WebLogic architecture allows zero downtime patching

With the old WebLogic Server, each server had to be manually stopped, patched, and restarted. With the new WebLogic Server, which allows the microcontainer partitions to be updated without disrupting the rest of the server, the “Oracle home” is patched first and then patches are automatically rolled out to the clusters of WebLogic Servers, all with zero-downtime. The load balancer can therefore work around a partition that is down while being patched, and can route work to other partitions. Any state on the patched partition is replicated elsewhere, so overall there is no impact to the user.

The experience that Oracle has gained with microservices in re-architecting its server is valuable to the developer community at large as they grapple with microservices architecture 1.0 and questions over the degree of service granularity, and Oracle should share its insights.
Appendix

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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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