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DATABASE

An Oracle White Paper
November 2013

Simplify Consolidation
with Oracle Database 12c

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Simplify Consolidation with Oracle Database 12*c*

This is the title of a presentation I gave at DOAG 2013. The companion whitepaper for the presentation's content was posted on the OTN site at the time that the general availability of Oracle Database 12*c* was announced. Here is its title and abstract:

Oracle Multitenant

Oracle Multitenant is a new option for Oracle Database 12*c* Enterprise Edition that helps customers reduce IT costs by simplifying consolidation, provisioning, upgrades, and more. It is supported by a new architecture that allows a container database to hold many pluggable databases. And it fully complements other options, including Oracle Real Application Clusters and Oracle Active Data Guard. An existing database can be simply adopted, with no change, as a pluggable database; and no changes are needed in the other tiers of the application. The benefits of Oracle Multitenant are brought by implementing a pure deployment choice. The following list calls out the most compelling examples.

- *High consolidation density.* The many pluggable databases in a single container database share its memory and background processes, letting you operate many more pluggable databases on a particular platform than you can single databases that use the old architecture. This is the same benefit that schema-based consolidation brings. But there are significant barriers to adopting schema-based consolidation, and it causes ongoing operating problems. The new architecture removes these adoption barriers and operating problems.

- *Rapid provisioning and cloning using SQL.* A pluggable database can be unplugged from one container database and plugged into another. Alternatively, you can clone one, within the same container database, or from one container database to another. These operations, together with creating a pluggable database, are done with new SQL commands and take just seconds. When the underlying filesystem supports thin provisioning, many terabytes can be cloned almost instantaneously simply by using the keyword *snapshot* in the SQL command.

- *New paradigms for rapid patching and upgrades.* The investment of time and effort to patch one container database results in patching all of its many pluggable databases. To patch a single pluggable database, you simply unplug/plug to a container database at a different Oracle Database software version.

- *Manage many databases as one.* By consolidating existing databases as pluggable databases, administrators can manage many databases as one. For example, tasks like backup and disaster recovery are performed at the container database level.

- *Dynamic between-pluggable database resource management.* Oracle Database 12*c* Resource Manager is extended with specific functionality to instantly control the competition between the pluggable databases within a container database.

This whitepaper explains the new Oracle Database architecture, the new functionality that this brings, and the benefits that ensue.

It is best to have just a single copy of the paper exposed on the Internet because, otherwise, a proliferation of out of date copies causes confusion when the paper is revised — as it doubtless will be. Here is the paper's URL on OTN:

http://www.oracle.com/technetwork/database/multitenant-wp-12c-1949736.pdf

It is linked from the Oracle Multitenant page on OTN, here:

http://www.oracle.com/technetwork/database/multitenant/overview/index.html

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