Frequently Asked Questions
Oracle Database Innovation Online Forum

The Oracle Database Innovation Online Forum broadcast on March 18th, 2015 generated more questions than we could answer in real-time.

In this FAQ, Oracle Database experts have answered questions we received during Tom Kyte's Keynote and the On-Demand sessions that followed. We hope you find this useful.

Keynote with Tom Kyte
Tom Kyte kicks off the forum with what's new in Oracle Database 12c along with the top reasons customer choose Oracle including best practices for optimal performance and availability.

On-Demand Sessions
- Top Five Things to Know About Oracle Database In-Memory
- Simplify Database Consolidation and Enable Private DBaaS with Oracle Multitenant
- Migrating Pluggable Databases to the Oracle Database Cloud Service
- Use Oracle Big Data SQL To Seamlessly Integrate Hadoop and Oracle Database 12c
- Today's Data Warehouse: A Foundation for your Big Data Management System
- Best Practices for Oracle Database High Availability and Data Protection
- Best Practices for Enabling Information Lifecycle Management and Improving Database Performance
- Securing Oracle Database 12c
- Comprehensive Management for Oracle Databases with Oracle Enterprise Manager 12c
- Best Practices for Upgrading to Oracle Database 12c

Register for the forum. If you've previously registered, you can return as often as you like to view additional sessions or to replay a session that really made an impact.
FAQ

ORACLE DATABASE 12c

Q: Is edition-based redefinition an enterprise edition feature?
A: It’s not exclusive to EE

Q: Are all the features in this presentation available for Standard Edition and Enterprise Edition? If not, is there a doc that shows what feature is available?
A: This ‘family’ white paper is a good place to start. http://www.oracle.com/technetwork/database/oracle-database-editions-wp-12c-1896124.pdf

Q: Does Oracle Database 12c require RAC?
A: RAC is not required, but it is an option for Oracle Database 12c Enterprise Edition. It is also included with Oracle Database 12c Standard Edition (on clusters with a maximum of 4 sockets)

MULTITENANT

Q: Is there a performance gain with DBLINK in Multitenant architecture (links are between multitenant databases)?
A: Yes, dblinks between Pluggable Databases (PDBs) in the same Container Database (CDB) are more efficient than between standalone databases.

Q: What if a main database instance crashes? Will it have impact on all multitenant databases?
A: The nature of a consolidated system is such that a CDB-wide outage will by definition affect all PDBs. For this reason we recommend following our MAA (Massive Availability Architecture) best practices for setting up databases - in general, and particularly Multitenant databases - for High Availability. The Oracle Multitenant option will allow you to make very significant cost reductions. We recommend reinvesting some of those savings in HA options such as RAC and Advanced Data Guard. You'll still have plenty of savings to show, and you'll have improved SLAs.

Q: How does the multitenant architecture differ from traditional SQL Server instance based architecture?
A: In that Microsoft SQL Server supports multiple "databases" within a single server, while Oracle Multitenant supports multiple Pluggable Databases (PDBs) within a single Container Database (CDB), there is a superficial similarity between the two. There are some important differences, however, Microsoft SQL Server users are defined at server level, so there's imperfect namespace isolation, which makes it less suitable for Database as a Service (DBaaS). SQL Server Databases are difficult to move between servers. By contrast the pluggable portability of Pluggable Databases (PDBs) allows for a great range of flexibility.

Q: Does Oracle Database 12c support Non-Container databases?
A: Yes, customers have the choice of using existing architecture or new multitenant architecture (or a combination of both)

Q: Do you have any guidance regarding capacity/resource sizing of multitenant database?
A: This is highly dependent on the loads being consolidated. The savings are proportional to the numbers of databases consolidated. Rough rules of thumb for minimal savings are about 1.5GB per database and maybe 1/3 core for databases under load. On top of that, you might expect greater savings because of the ability to share “peaks and troughs” in load. In terms of storage, snapshot clones facilitate huge savings in storage and IOPS. Don’t forget the operational savings because of the ability to manage many databases as one.

Q: Do we need additional licence for multitenant architecture?
A: Multitenant is an Oracle Database 12c option that must be licensed.

Q: Is Pluggable Database (PDB) / Container Database CDB always a cost option?
A: No. The single tenant configuration - a single PDB within the CDB - does not require or trigger the licensed option. This configuration delivers some of the advantages of multitenant - including pluggable portability and upgrade/patch via unplug/plug. Two or more PDBs per CDB gives you full functionality and requires the licensed option.

Q: Can we configure undo and redo at pluggable database (PDB) level with Multitenant Option? if not why?
A: Consolidation advantages are delivered by sharing resources such as a single set of background processes, as Tom is describing. Single logwriter writes a single consolidated redo stream.

Q: It's mentioned that cloning pluggable databases (PDB's) is "rapid provisioning"...my experience testing is that the raw datafiles still have to be copied...so, if
you have a large database, its dependant on IO capacity. Really no faster than non-PDB if you ask me. Am I wrong?

A: It is much faster. Instead of creating a new database by running through the catalog script - slow-by-slow as Tom describes it - we create a new database by simply cloning it. Snapshot clones are incredibly fast. Snapshot clone for a 1TB PDB in less than five minutes!

Q: Why is multitenant not the default architecture? In what scenarios should multitenant architecture be avoided?

A: Multitenant is the default option in Database Configuration Assistant (dbca). In general we recommend using the Multitenant architecture. Features not yet compatible with Multitenant are listed in the database readme doc. Over time all features will be compatible with Multitenant providing all users the option of transitioning to a single architecture.

Q: Is it possible to copy data across container databases (CDBs)?

A: Yes, we now have a remote clone capability. create pluggable database a from b@dblink

Q: Can we clone a live PDB?

A: We currently require a PDB to be read-only to be cloned. One option is to take clones from a DG standby.

Q: How different can the schema be for each PDB?

A: There are no limitations in this regard. You can consolidate a disparate collection of applications if you like. The application schema is defined within the self-contained PDB.

Q: Can you run CDB in RAC or some type of HA environment?

A: Multitenant is fully compatible with HA options such as RAC and Data guard. PDBs may be affinitized to specific nodes, or configured as uniform.

Q: We are already using OVM for consolidation - what does Multitenant give us over that?

A: OVM is good for infrastructure consolidation. Multitenant is specifically designed for database consolidation - much higher consolidation density, simpler management as you can now manage many databases as one. You could still use MT for further consolidation benefits on top of OVM.

Q: With an enterprise license, I can have one CDB and one PDB?

A: Correct. The single tenant configuration - one PDB per CDB - does not require or trigger the licensed option.

Q: Can flashback be used to recover dropped container database?

A: No. Use RMAN to recover a CDB that has been dropped.

A: Can Goldengate replication be set up between pluggable databases in the same server? Does anything need to be done to container database for that to happen?

A: Yes, we can replicate between PDBs in the same server. We would capture from the CDB (root container) which allows us to capture from any PDB in the environment, and then we would set up a replicat to replicate directly into the PDB. The activity that the Replicat does will be ignored by the Extract process running in the CDB. No docs, nothing to change. just pretend they are two different systems. By default, Extract will ignore any activity done by an OGG Replicat process, so you don't even need to add a special parameter or anything. If you want to move the PDB, it's as easy as changing the connection for the replicat. You could initially set it up with a connect string (TNSNAMES.ORA) and then when you move it, just change the TNSNAMES.ORA entry to point to the new location.

Q: Can RAC instances work in multitenants architecture?

A: Yes, RAC is supported in a multitenant environment

DATABASE IN-MEMORY

Q: Is column storage in Oracle Database 12c an enterprise edition feature?

A: Database In-Memory is an Enterprise Edition Option which must be licensed so there is an extra cost in addition to the EE license.

Q: TimesTen is currently being used with Exalytics and 11g, if we move to 12c, do we still need TimesTen? What is the best recommendation?

A: Both databases work in memory, but do so in very different ways. They are complementary technologies that address very different business requirements. TimesTen is an in-memory row store, designed for extremely high-frequency processing. Typically configured tightly-coupled with the application server, TimesTen can deliver sub-millisecond response time for individual transactions. DB In-Memory is an in-memory column store that is designed to accelerate scans of very large numbers of rows. It is therefore particularly suitable for OLAP - scans of a few columns in
large data sets with filters can be sped up by factors such as 100x or even 1000x.

Q: How is In-Memory enabled?
A: Database In-Memory is enabled by setting the initialization parameter inmemory_size > 0.

Q: Does Oracle Database 12c using in-memory capabilities by default, or does the DBA need to configure?
A: Oracle Database 12c does not enable Database In-Memory by default. To enable Oracle Database In-Memory the inmemory_size initialization parameter must be set to a value greater than zero. You then need to alter one or more tables, partitions, sub-partitions or materialized views to be populated into the IM column store. The Oracle optimizer can then transparently make use of the IM column store.

Q: Does Database In-memory have a hardware dependency like some specific quality of RAM?
A: No, Database In-Memory can run on any hardware platform supported for Oracle Database 12c. You do have to have enough memory to support the In-Memory column store in addition to the other components in the SGA though.

Q: Does the DBA control which tables participate in In Memory Columnar Technology?
A: Yes, the DBA or a privileged user that can alter a table, partition, subpartition or materialized view to be inmemory.

Q: How is Database In-Memory priced? Is this an add-on?
A: Oracle Database In-Memory is an option priced at 23K per processor unit. Refer to our price list for more details. http://www.oracle.com/us/corporate/pricing/technology-price-list-070617.pdf

Q: Can Oracle Database In-Memory columnar format store a subset of rows from a table? We have a SaaS application that does OLTP analytics, but strictly within a tenant. We use a single schema with VPD.
A: Oracle Database In-Memory supports tables, partitions and sub-partitions so if you partition your table then yes it can store a subset of the rows of a table.

Q: Would Oracle Database In-Memory Columnar technology be leveraged in the PeopleSoft Campus Solutions application if the memory allocations are sized properly?
A: PeopleSoft does support Database In-Memory. You should check their documentation or MOS for specific objects that can be populated into the In-Memory column store.

Q: Is there any way to analyse data use to recommend tables/columns that would benefit from in-memory option?
A: Yes, there is the In-Memory Advisor which is available on OTN that can analyze your system to determine which objects would benefit from Database In-Memory.

Q: How easy is it to move from a row to columnar format in Oracle Database In-Memory?
A: Once you've allocated the In-Memory column store then it is a simple alter table command to populate the table into the IM column store.

Q: How is Oracle Database In-memory different from caching a table?
A: The biggest difference is the format. In the buffer cache the table is in row format and in the column store it is in columnar format.

Q: How much memory will be used for table in memory, is it been from sga ? please explain
A: For the table itself, that will depend on the compression level. The IM column store is allocated from memory in the SGA and once allocated a simple alter table command can be used to populate the table into the IM column store.

Q: Before purchasing, how can we determine whether or not Oracle Database In-Memory will give us and ROI given our data structures and reporting needs?
A: There is a business calculator which allows you to see the economic impact of Oracle Database In-Memory. The calculator is intended to provide an approximate savings calculation for your consideration. It is not an exact ROI calculation. Direct access to the tool: https://valuenavigator.oracle.com/valuetool/faces/create.jsp ?_adf.ctrl-state=rgs8ln1vh_4&_afrLoop=68385613937054253. On a technical level, there is a tool Database In-Memory Advisor which allows you to size and use In-Memory. The whitepaper on best practices: ODBIM Advisor Best Practices White Paper - http://www.oracle.com/technetwork/database/manageability/info/wp-in-memory-advisor-bp-2430474.pdf

Q: I need to understand the difference between row-format and column format? Where can I get info about these formats please?
A: To get started you can look at the Database In-Memory White Paper on OTN. This explains Database In-Memory and the difference between the row store and the column store. http://www.oracle.com/technetwork/database/in-memory/overview/twp-oracle-database-in-memory-2245633.html

Q: Are In-Memory tables protected by the same ACLs as normal tables?

A: Yes because it is still one table. The optimizer controls when a query will access the object in the column store or the row store. The actual table is still protected just as it is without Oracle Database In-Memory.

Q: Does EBS support Oracle Database In-Memory?

A: Yes, EBS does support Database In-Memory.

Q: What is the down side of removing the indexes?

A: The only down side would be if you remove an index that is needed for referential integrity or for OLTP support. Indexes are not used for the IM column store.

Q: Would Oracle Database In-Memory be as beneficial for a traditional data warehouse as for reporting off an OLTP system?

A: Yes, EBS does support Database In-Memory.

Q: For tables that are marked to be in-memory, are they actually loaded into memory upon database startup or when a query requests data from the tables?

A: This is configurable. Data may be loaded into memory on startup, or on demand.

Q: Fact or fiction? Oracle Database 12c capability for column based data retrieval vs. traditional row based data retrieval now allows one single database for OLTP and data warehouse? Any implementation of this in the real world yet where companies are doing this?

A: Fact. Oracle Database In-Memory adds columnar data format in addition to Oracle’s traditional row based format. We have many companies using Database In-Memory.

Q: Can a table data reside simultaneously in both In-Memory and SGA?

A: Yes, but let’s clarify. The In-Memory column store is part of the SGA and so is the traditional buffer cache. If a table is loaded into the IM column store it can be accessed in either the buffer cache or the column store. This is an optimizer decision based on the cost of the query.

Q: Are companies using Oracle Database 12c to support OLTP and data warehouse / Decision Support Systems using the same database, without pruning data from OLTP database to a separate Datawarehouse database? (with reference to column retrieval vs row retrieval)

A: There are two very significant use cases for Oracle Database In-Memory; one is where an application can run queries against a OLTP system in real-time such as with E-Business Suite, JDE, Siebel etc. The second, there is where multiple OLTP sources (data from multiple apps) funnel into a Data Warehouse for DSS. The in-memory capability accelerates query speeds exponentially in that environment as well. Both use cases are equally important and in use by our customers.

Q: Is the database startup going to be slow if data has to be represented in both row and column store?

A: No, the database will startup normally. The population of the IM column store happens in the background after the database has started.

Q: Does this mean we have two instances of tables? One in memory(column store) and another on disk (row)?

A: Yes, Oracle operates as it always has with the buffer cache caching blocks from on-disk tables in row format. When a table is added to the IM column store then it is read from disk and populated into the IM column store in columnar format.

Q: What are best practices for monitoring and adjusting the memory allocation for the in-memory column store?

A: The best practice is to leave enough room in the IM column store for any growth in the objects that have been marked for in-memory. That will depend on your data growth.

Q: Are there any scalability issues with the size of the SGA? Should I avoid 2TB, 4 TB or 8TB of SGA?

A: No, the SGA can be as large as is supportable by the Oracle Database on your server.

Q: Is there any ratio or certain %, that inmemory_Area cannot be more than 15% of SGA?

A: No, normal sizing still applies to the other areas of the SGA. The IM column store is in addition to those values and can be as large as your memory and the Oracle Database supports.

Q: Does data always get compressed when put into memory?
Q: What occurs if the in-memory static size amount is insufficient for all the data in a column?

A: If there is not enough memory in the IM column store for the entire object being loaded then just part of it will be loaded and the rest will be accessed from the raw store. A message will be written to the alert log that the IM column store is full.

Q: The data buffer cache uses a block size that matches the block size in the data file. What is the unit of storage in a columnar array?

A: The unit of store for columnar data is 1MB. This can be seen in the view v$inmemory_area.

Q: Can the in-memory extent size be adjusted?

A: No, there is no control over the in-memory extent size.

Q: Do we have to explicitly create storage indexes?

A: No, you cannot control the creation of storage indexes.

Q: Is the in-memory feature available in all license editions?

A: No, the Database In-Memory option is only available in Enterprise Edition.

Q: Does the optimizer pick a hybrid, Row and Column access methods?

A: Yes, if the entire object does not fit into the IM column store then part of it can be accessed from the IM column store and the rest from the buffer cache.

Q: In-memory may contain a list all unique values to determine which parts of the in-memory column store to access. But what if there are minimal duplicate values (as in a unique column or a column phone #s of clients)? Is this list of values maintained?

A: Compression is performed at the IMCU level and the algorithms adapt based on the data values. The compression won’t waste space if there is no compression benefit from the values found.

Q: How does this help with ‘join cardinality’ issues?

A: Join cardinalities are the same, the optimizer uses statistics on the object as well as statistics on the in-memory object to determine the best execution plan.

Q: Once I’m done with partitioning in-memory, how do I take it out of memory?

A: alter <object> no inmemory

Q: How is duplicate different from mirroring?

A: The duplicate subclause is essentially the same as mirroring at the IMCU level but it only occurs in-memory.

Q: How does the database deal with a situation in which you have specified in-memory for a specific table, dropped all of the analytic indexes but the entire table doesn’t fit into the in-memory column store? Will analytic queries suffer in this situation?

A: Yes, but only because the data will have to be fetched from the raw store and won’t take advantage of the IM column store’s features. Indexes won’t be used in the case where some data is accessed from the IM column store and some from the buffer cache. In general you would not want this to happen. The best practice is to populate entire objects into the IM column store.

BIG DATA

Q: Is Hadoop SQL going to be more efficient than Oracle 12c SQL Engine?

A: Unlikely. And anyway, we could argue that the more important question long term is not “which is better, SQL on Hadoop or SQL on Oracle Database?” It’s “how can I use SQL to seamlessly work with data in both Hadoop and Oracle Database.”

Q: Do you agree that Hadoop Clustering can not replace Oracle 12c RDBMS OLTP high performance even though Big Data has large number of CPUs from commodity servers clustered together for processing large volumes of data?

A: The way the industry is going, organizations are increasingly using both RDBMS like Oracle Database and Hadoop. They complement, rather than replace each other. What we are focusing on is making it possible to integrate Hadoop and Oracle Database more closely. We have taken a first big step towards that with Oracle Big Data SQL - one fast query on all your data (Hadoop, NoSQL and Oracle Database).

Q: Comprae Big Data SQL speed vs. Hive? Impala is significantly 10x faster than hive. What about Oracle Big Data speed comparisons?

A: We don’t publish any benchmark data on Big Data SQL. It’s also important to note that it’s not a “Hadoop on SQL” implementation like Impala and Hive. It’s main purpose is to provide integrated query across Hadoop, NoSQL and Oracle Database. Check out this series of blog posts for
more information.  
https://blogs.oracle.com/bigdataentry/why_oracle_big_data_sql

**AUTOMATIC DATA OPTIMIZATION**

**Q:** Is Automatic Data Optimization an extra cost option?

**A:** Yes, Automatic Data Optimization is part of the Advanced Compression Option, which must be licensed.

**Q:** Are indexes automatically maintained during the ILM compression (like alter table move partition update indexes)?

**A:** Yes, indexes are automatically maintained when applying a compression policy.

**Q:** Why not always compress to the highest level that saves I/O?

**A:** You make the decision based on the type of data. Archive data, that is accessed less frequently, should be compressed at the highest rate. Read more about Oracle Automatic Data Optimization: http://www.oracle.com/technetwork/database/enterprise-edition/automatic-data-optimization-wp_12c-1896120.pdf

**Q:** Is Automatic Data Optimization available on all servers or only on Oracle Exadata?

**A:** ADO is what can be achieved with a combination of database storage optimization technologies used on any hardware. Of course we optimize engineered systems for the Oracle Database so we think there are some great advantages over commodity hardware infrastructures that you build yourself.

**Q:** Is Smart Compression part of Oracle Advanced Compression which needs extra license?

**A:** Enabling Smart Compression require both Partitioning and Advanced Compression.

**Q:** Do we need to have ASM to have ADO feature?

**A:** No, ASM is not required. Although to use Automatic Data Optimization you must have license Oracle Advanced Compression.

**Q:** Why not always compress to the highest level that saves I/O?

**A:** When using Hybrid Columnar Compression (HCC) different levels of compression are available, this includes Warehouse (Low/High) and Archive (Low/High). Warehouse compression is intended for data which is still being actively queried, so the compression will be less than that of archive level so to reduce the CPU overhead associated with the compression/uncompression of this still active data. Archive compression is typically the highest level of compression, requiring more CPU overhead, and is intended for historic/cold data that typically would be less active and require less compression/uncompression.

**Q:** When will Automatic Data Optimization operate at the segment level instead of at the partition level?

**A:** Automatic Data Optimization can be specified at the segment or row level. A segment means both tables and partitions. So, if a table is not partitioned, then segment-level operations will act on the entire table; if a table is partitioned, then segment-level operations will act on individual partitions. Please see this white paper for more information: http://www.oracle.com/technetwork/database/enterprise-edition/automatic-data-optimization-wp_12c-1896120.pdf

**Q:** Can we replay clone DB delta changes post master DB refresh?

**A:** With CloneDB, the source / master database must be read only; if changes are made to the master database, will invalidate all of the clones that were made using that master database. After refreshing the master database, if a particular clone user wants to replay the database changes they had made before the refresh, they will have to re-run the workloads that created those changes; there is no “change tracking” built in to CloneDB.

**Q:** What is the difference between different types of ILM compression?

**A:** Automatic Data Optimization can be used with Oracle’s Advanced Row Compression and Hybrid Columnar Compression. Advanced Row Compression, a feature of Advanced Compression, uses a unique compression algorithm specifically designed to work with database tables that are part of OLTP and DW applications. The algorithm works by eliminating duplicate values within a database block, even across multiple columns. Hybrid Columnar Compression (HCC) enables the highest levels of data compression and provides enterprises with tremendous cost savings. Average compression ratios can range from 6x to 15x depending on which Hybrid Columnar Compression level is implemented – real-world customer benchmarks have resulted in storage savings of up to 50x and more - HCC is best suited for applications with no, or very limited DML operations.
Q: When a partition is moved and compressed to another tablespace using ILM, does the partition need to remain associated to the original table?
A: When ADO moves and compresses a partition, it will always keep the partition associated with the table. After the ADO operation(s), the user can choose to remove the partition from the table (presumably using partition exchange), but that is a manual operation that is not part of ADO.

Q: When ILM compresses a partition, do the indexes remain usable?
A: Yes, indexes are automatically maintained when applying a compression policy.

Q: I'm confused? Only advanced row compression is available unless I have Oracle Storage?
A: Yes. Advanced Row Compression is a feature of the Advanced Compression option (which is required to use Automatic Data Optimization) and Advanced Row Compression can be used on any platform where Oracle Database Enterprise Edition is available. To use Hybrid Columnar Compression with Automatic Data Optimization you must be using Exadata Storage, Pillar Axiom, SUN ZFS Storage Appliance (ZFSSA) or FS1 storage.

Q: Is OISP unique to ZFS or works with dNFS is used with Netapp or EMC VNX?
A: OISP is unique to ZFS Storage Appliance.

Q: Is Direct NFS only available with ZFS?
A: Direct NFS is available with any NFS storage server.

Q: Is ILM a license option or included in enterprise edition?
A: Automatic Data Optimization and Heat Map are included with the Advanced Compression option, so a license for Advanced Compression is required.

DATA GUARD FAR SYNC

Q: Looking at using Goldengate vs DataGuard, is Goldengate included as part of 12c licensing?
A: Oracle GoldenGate is a separate product, not included with the Oracle Database 12c license. Data Guard is included with Oracle Database 12c Enterprise Edition. Active Data Guard, which enables the standby to be used for Read-only activities such as reporting, ad-hoc queries and offloading backups from the primary is an option for Oracle Database Enterprise Edition.

Q: Is Data Guard Far Sync an extra cost option?
A: Far Sync Instance is a feature that is included with Active Data Guard. Active Data Guard is an option for Oracle Database Enterprise Edition. Far Sync requires Active Data Guard. It does not come with Data Guard.

Q: With Far Sync is there automatic synching if the remote standby goes down for an extended period (day or two)
A: Yes, as long as the Far Sync instance has enough disk space to hold archive logs needed to resync the standby. The same RMAN deletion policies that customers are used to setting on a primary db can also be set at a Far Sync instance.

Q: What is the advantage of using RMAN to restore a table, rather than Flashback?
A: RMAN maintains the repository of archives to be recovered.

Q: RMAN 12c now requires an Oracle Database EE with partitioning option. Is a free license included? Is there additional license cost for setting up HA capabilities (RAC DG) for the RMAN database?
A: Partitioning is required for RMAN 12c but is only needed for the RMAN catalog. There is no additional licensing required, however the customer has to manually enable the partitioning option. We are working on a patch to eliminate the partitioning dependency. RAC is an option for Oracle Database Enterprise Edition, for which there is an additional cost. Data Guard is included with Oracle Database EE. However Active Data Guard is an EE option for which there is an additional cost.

Q: Looking at using Goldengate vs DataGuard, is Goldengate included as part of 12c licensing?
A: Oracle GoldenGate is a separate product, not included with the Oracle Database 12c license. Data Guard is included with Oracle Database 12c Enterprise Edition. Active Data Guard, which enables the standby to be used for Read-only activities such as reporting, ad-hoc queries and offloading backups from the primary is an option for Oracle Database Enterprise Edition.

APPLICATION CONTINUITY

Q: For Application Continuity, does it replay only SELECTS or it works replays DML transactions
A: Application Continuity replays DML transactions. This white paper should provide more information for you.
Q: Is Application Continuity more from application coding or Database level setup? Is Application Continuity transparent to all application servers or only for Weblogic?

Q: Oracle Universal Connection Pool (UCP) is required. UCP is now supported by WebLogic, IBM Websphere and Apache Tomcat. See white paper for more information.

DATA REDATION

Q: How does Data Redaction capability affect TDE encryption at Column level?

A: Both redaction and encryption are features of Oracle Advanced Security. Check OTN for more details.

Q: Is the Redaction feature free or licensed?

A: Redaction is a feature of Oracle Advanced Security.

Q: Is there any special procedure needed by Java application to access a redacted column data?

A: Details on how to use redaction can be found in documentation.

Q: Can you please advise what is the tool used for the Data Masking?

A: Oracle Data Masking and Subsetting for removing sensitive production data from nonproduction environments for testing, QA and development purposes.

Q: Can redaction be used with a pattern matching masking

A: As part of Oracle Advanced Security, data redaction removes sensitive data from being displayed in applications. It provides real-time sensitive application data redaction based on database session context and uses a library of redaction policies and point-and-click definitions. Oracle Data Masking and Subsetting on the other hand is used to copy over production data into nonproduction environments for test/dev, while replacing the data with real, but not true values.

Q: If the CDB is hacked by a hacker can they get information from PDBs?

A: This depends on what type of hack is committed and whether or not you have Oracle Advanced Security with Transparent Data Encryption, and Oracle Database Vault deployed within the database. These security controls help to encrypt the data at rest as well as prevent privileged users from accessing sensitive data. Nearly 50% of the hacks highlighted in the 2014 Verizon Data Breach Investigations Report used lost, weak or stolen privileged user credentials to penetrate an organizations. So if the criminal was able to "hack" using stolen credentials, then yes, they would have all privileges of that user. So, it's important to use Oracle Database Vault to lock that user's credentials down.

Q: Is there a feature to prevent someone from extracting large number records from DB? To prevent SOWNDEN effect. Can we put control to preventing some from extracting large number of records and on the other hand allow some to extract large number of data.

A: Yes, there are preventive and detective measures. Layers of defense are important when thwarting attacks. This includes encryption of data in the database, using privileged user controls, and masking and redacting sensitive data in the application layer as well as nonproduction databases.

Q: When cloning a PDB how can masking of confidential data be implemented?

A: You would want to encrypt the data within the production databases. If you were to clone the PDB, it would maintain the data as encrypted, so unless you also had the keys to decrypt that data, then the PDB would be useless to a cyber criminal.
Q: How suitable is CDB-PDB for cost effective solution to Prod and Staging and Dev environments? How protected/isolated could Prod be?

A: To really protect your databases, you need to implement encryption at a minimum, manage those encryption keys with Oracle Key Vault and then isolate the data from your privileged users with Oracle Database Vault.


A: Would it be advisable to consolidate into a multitenant architecture with multiple clients who all have sensitive client data into one CDB with each client having their own PDB?

A: When consolidating databases, there are two most important things to do: Use Oracle Advanced Security to encrypt the data before you move it. As well, when you bring all of your privileged users into one, run privilege analysis to determine all privileged users at runtime and what they have access to, as well, use lock down privileged user controls using Oracle Database Vault. The more privileged users you have in one database, the greater the attack surface; anyone of those users could have their credentials stolen and jeopardize the entire database.


DEVELOPER

Q: Is this JSON doc part of 12.1.0.1 or only in 12.1.0.2?

A: 12.1.0.2

Q: Is JSON support in 12c an enterprise edition feature?

A: JSON support is available for all editions of Oracle Database 12c

Q: Does oracle have plans to support XML document too (just like JSON docs)?

A: Oracle Database has supported XML for a few releases now. More information is available here http://docs.oracle.com/database/121/ADXDB/toc.htm