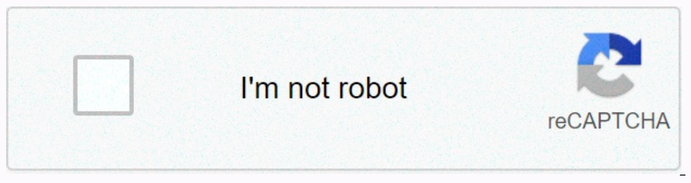

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Oracle multitenant architecture pdf

Large companies can use hundreds or thousands of databases. These databases often run on different platforms on multiple physical servers. Due to improvements in hardware technology, especially the increase in processors, servers can handle heavier loads than they currently do. The database can only use a fraction of the server's hardware capacity. This approach wastes both hardware and human resources. For example, 100 servers may have a database, and each database uses 10% of the hardware resources and 10% of the administrator's time. A group of KBA must manage SGA, database files, accounts, security, and so on separately, while administrators must maintain 100 different computers. To display the problem on a reduced scale, use step 17-2. The head of the DBA oversees a team of four DBA, each responsible for two or three databases. Typical answers include using virtual machines (VMs). In this model, you can replicate the operating infrastructure of the physical server — the operating system and the database — in a virtual machine. VMs are agile, but technical resources are not used efficiently and require custom management. Virtual expansion, which is just as expensive to manage, replaces existing physical expansion. Place multiple databases on each server. Stand-alone databases eliminate os replication, but do not share background processes, system and process memory, or Oracle metadata. Databases require custom administration. Logically separate the data into schemas or virtual private databases (VPD). This technique uses technical resources effectively. You can treat multiple schemas or VPD as one. However, this model is less agile than its alternatives and requires more effort for treatment, safety and transportation. In addition, the logic model typically requires extensive application changes, which discourages acceptance. Large companies can use hundreds or thousands of databases. These databases often run on different platforms on multiple physical servers. Due to improvements in hardware technology, especially the increase in processors, servers can handle heavier loads than they currently do. The database can only use a fraction of the server's hardware capacity. This approach wastes both hardware and human resources. For example, 100 servers may have a database, and each database uses 10% of the hardware resources and 10% of the administrator's time. A group of 2010 2013 must manage SGA, database files, accounts, security, and so on, while They have to maintain 100 different computers. To display the problem in a reduced way, Figure 18-4 shows 11 databases, each mastered by its own application and server. The head of the DBA oversees a team of four DBA, each responsible for two or three databases. Responsible. answers include: Using virtual machines (VMs). In this model, you can replicate the operating infrastructure of the physical server — the operating system and the database — in a virtual machine. VMs are agile, but technical resources are not used efficiently and require custom management. Virtual expansion, which is just as expensive to manage, replaces existing physical expansion. Place multiple databases on each server. Stand-alone databases eliminate os replication, but do not share background processes, system and process memory, or Oracle metadata. Databases require custom administration. Logically separate the data into schemas or virtual private databases (VPD). This technique uses technical resources effectively. You can treat multiple schemas or VPD as one. However, this model is less agile than its alternatives and requires more effort for treatment, safety and transportation. In addition, the logic model typically requires extensive application changes, which discourages acceptance. A metadata link is a dictionary object that supports references and permissions to general metadata shared by all PDFs in the application store. If you specify METADATA in the SHARING clause or the DEFAULT_SHARING initialization parameter, you specify a reference to the metadata of an object, known as a metadata-dependent common object. The object's metadata is stored once in the application's root directory. Tables, views, and code objects, such as PL/SQL procedures, can share metadata. In this context, metadata includes column definitions, constraints, triggers, and code. For example, sales_mlt a common table that is related to metadata, the PDF for all applications uses a metadata reference to access the same definition of the table that is stored in the application root. The sales_mlt in each application's PDB are different, but the column definitions are the same. Most objects in an application are typically linked to metadata. So you only need to maintain one main application definition. This approach centralizes application management in multiple application pdf saas_sales_ac. The SYSTEM saas_sales_app an application called Application Clean up on version 1.0 (see Application Clean up). This application creates a common user account named saas_sales_adm. The schema contains a common table attached to a metadata named sales_mlt. -- Start installing saas_sales_app ALTER PLUGGABLE DATABASE APPLICATION saas_sales_app BEGIN INSTALL '1.0'; -- Create a table space for the application to saas_sales_tbs DATAFILE SIZE 100M AUTOEXTEND THE NEXT 10M MAXSIZE 200M; -- Create a user account saas_sales_adm that USER saas_sales_adm identified by ****** CONTAINER=ALL; -- Grant this user the necessary privileges GRANT CREATE SESSION, DBA saas_sales_adm; -- Makes the table space you just created the DEFAULT TABLESPACE saas_sales_adm saas_sales_adm THE ALTER USER saas_sales_tbs the default tablespace; -- Now connect the application ownerconnect saas_sales_adm/**@saas_sales_ac -- Create a table attached to metadata to create saas_sales_adm.sales_mlt SHARING=METADATA (YEAR NUMBER(4), REGION VARCHAR2(10), QUARTER VARCHAR2(4), REVENUE NUMBER); -- End of application installation ALTER PLUGGABLE DATABASE APPLICATION saas_sales_app END INSTALL '1.0'; You can use the ALTER PLUGGABLE DATABASE APPLICATION ... SYNC statement to synchronize the application's PDB to use the same master app definition. In this way, each application PDB has a metadata link to the saas_sales_adm.sales_mlt common table. cust1_pdb Within sales_mlt PDB named sales_mlt, the middle layer code adds rows to the table cust1_pdb, while the middle layer code that contains cust2_pdb sales_mlt adds cust2_pdb rows to the copy of the table. Only the table metadata, which is the root of the application, is shared. For metadata-bound application common objects, the metadata of the object is stored once in the application root directory. A metadata reference is a dictionary object that has the same object type as shared metadata. The metadata reference description is stored in the data dictionary of the data storage document in which it was created. The metadata reference must be owned by a generic application user. Metadata links allow you to share metadata only about common objects owned by their creator in the CDB root or an application root. Unlike data connections, a metadata connection depends only on the common data. For example, if an application contains local tables, dow_close_lt nasdaq_close_lt the application root, a common user cannot create metadata references for these objects. However, a common application table sales_mlt name may be metadata-related. If a user in a privileged encyclical changes sales_mlt metadata in the table, such as adding a column to the table, this change extends to metadata references. Application PDB users cannot change metadata in the metadata link. For example, a DBA who manages an application named PDB cust1_pdb can't add a column sales_mlt in this PDB only: such metadata changes can only be made to the application root. Database consolidation is the process of consolidating data from multiple databases into a single database on a single computer. The Oracle Multitenant option allows you to aggregate data and code without changing existing schemas or applications. The PDB/non-CDB compatibility guarantee means that the PRELIMINARY behaves the same as a non-CDB client that connects to Oracle Net. The application definition (such as tables and PL/SQL packages) that does not run on CDB runs the same installation schema with a PDB and produce the same In addition, the runtime behavior of the client code that connects to the PDB that contains the application definition is the same as the behavior of the client code that is not associated with the CDB that contains the

application definition. Full non-CDB operations work the same way on an entire CDB, such as Oracle Data Guard and database backup and recovery. Thus, non-CDB users, administrators, and developers experience essentially the same experience after merging the database. The figure below shows the information 1-4. The DBA team is reduced from five to three, the CDB is managed by a CDB administrator, while two PDB administrators have split the management of PDB's. This approach allows you to create and manage an application in this container. Most of the benefits of consolidation to CDB also apply to consolidation within the application store. For database consolidation of a multi-tenant architecture, you can reduce hardware and maintenance costs by consolidating your hardware and database infrastructure into a single backend process pool and efficiently sharing compute and memory resources. For example, 100 PDFs share a database instance on a single server. Easier and faster movement of data and codes According to the design, you can quickly connect a PDB to a CDB, pull the PDB out of the CDB, and then connect this PDB to another CDB. You can also clone PDFs as long as they remain available. You can connect pdb with any character set and access it without converting a character set. If the CDB character set is AL32UTF8, PDFs with different database sets can exist in the same CDB. Easier management and monitoring of the physical database The CDB administrator can aggregate the environment by performing a single operation, such as repairing or performing RMAN backups for all hosted tenants and CDB root. Backup strategies and disaster recovery are made simple. Data and code separation Although consolidated into a single physical database, PDB's mimic non-CDB behavior. For example, if the user error loses critical data, the PDB administrator can use Oracle Flashback or point-in-time recovery to retrieve lost data without touching other PDB's. Secure isolation of administrative tasks The common user can connect to any container on which he has sufficient privileges, while the local user is limited to a specific PDB. Administrators can split tasks as follows: Administrators use a common account to manage the CDB or application store. As eligibility is included the local user of one PDB in which it is given does not have permissions on other PDB's within the same CDB. Making it easier to set up performance is easier to collect performance metrics for a single database than it is for multiple databases. Lighter size of an SGA than 100 SGA. Fewer database repairs and updates It is easier to apply a patch to a database than to 100 databases and update a database to more than 100 databases. Page 2 The multi-tenant architecture allows the Oracle database to function as a multi-tenant storage database (CDB). This section contains the following topics: Page 3 Oracle Multitenant Administrator's Guide, 18c E84914-09 Copyright © 2017, 2020, Oracle and/or its affiliates. Primary authors: Randy Urbano, Lance Ashdown Contributing Authors: Patricia Huey, Roopesh Kumar, Bert Rich, Richard Strohm Contributors: Penny Avril, Thomas Baby, Hermann Baer, Yasin Baskan, Dominique Djeunot, Andre Kruglikov, Kishy Kumar, Sue Lee, Siyu Liu, Bryn Llewellyn, Colin McGregor, John McHugh, Valarie Moore, Muthu Olagappan, Bhavesh Patel, Kumar Rajamani, Giridhar Ravipati, Can Tuzla, Patrick Wheeler This software and related documentation are subject to the license agreement with usage and disclosure restrictions and are protected by intellectual property laws. 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