

Benefits and challenges of database-as-a-service adoption

[Science](#), [Computer Science](#)



Cloud computing is a well-known to process peta bytes of data. Cloud Computing allows configuration of multiple servers, operating systems and databases. The ascent of cloud computing has affected servers and storage industries, the benefits of cloud computing is availability on demand and as required. Cloud computing plays a vital role in driving down the expense of storing and processing data, alongside providing developer and business agility, high accessibility, and reduced infrastructure configuration and management. This paper introduces “ Database-as-a-service” (DBaaS) also known as Database Cloud. DBaaS promises to move operational burden of provisioning, configuration, scaling, performance tuning, backup, privacy and access control from the database users offering low cost.

DBaaS is very effective in managing today’s large growing datasets.

Database-as-a-service provides different potential advantages, including lower database licensing and infrastructure costs, faster time to application development, and reduced administration overheads. These benefits are most likely to be experienced by database admins and architects, although senior decision-makers and business users also stand to gain from having on-demand access to database services, rather than waiting for databases to be configured and deployed on dedicated physical or virtual infrastructure.

Database-as-a-service (DBaaS) involves the on-demand delivery of databases to be devoured by end users as a service, without the need to install any hardware or software. Another test is around time to arrangement new databases. At the point when an end user, be it a technical developer or a QA build, needs a database he or she regularly should experience an approval procedure, which at that point converts into a progression of

errands for the DBA, the sysadmin and storage administrator. This is a bulky and tedious process and may take days. Due to non-optimal utilization of limited computational assets and huge IT latency, it additionally has the risk of overspending by organizations.

Difference between Traditional Database and DBaaS

Companies must pay for infrastructure and resources to manage and maintain traditional databases in data centers which is very expensive and time consuming regardless you must design, hire people, purchase equipment's and software's.

Advantages of DBaaS

Complete solution for Cloud management is provided by Enterprise Manager, which is oracle's top product. Deployments, operations, diagnosis, troubleshooting and monitoring are handled in Enterprise Manager. It can handle multiple databases parallelly in cloud. It supports hundreds of applications. Enterprise Manager offers the following benefits. Quality of Service: IT associations are not just endeavoring to drive down costs, they are additionally taking a gander at arrangements that will at the same time enhance nature regarding execution and security. Cloud purchasers naturally advantage from the high accessibility qualities incorporated with the Cloud. Giving Resource Elasticity: The capacity to develop and contract the limit of a given database, both as far as capacity measure and register control, permits applications to meet workloads. Quick Provisioning: Databases in a Cloud can be quickly provisioned, frequently by method for a self-benefit framework, giving deftness in application sending. This lessens by and large

time in conveying developing applications, advancement stages, or making proving ground designs. Responsibility: Database utilization in a cloud should be estimated for planning and arranging purposes and for appropriating the managerial assets dependent on asset use.

Internal and External Risks

Problem most organizations face internally is availability of instances (databases) to test the enterprise applications after development, Database as a Service is the solution to parallelly run multiple databases on cloud. Compatibility and providing security to data with third party applications is external risk which can be handled by Enterprise manager. Migration Method Before migrating Oracle Database to an Oracle Cloud, some of the characteristics and factors to consider are:

- Database version (Ex: Oracle Database 10g, 11g, 12c).
- Cloud database version (Ex: Oracle Database 11g, 12c)
- Host operating system version. (Ex: Linux, Cent OS)
- Quantity of data (Ex: 10 GB Gigabyte, 10 TB Terabyte, 1 PB Petabyte)
- Data types used in the database (EX: Varchar2, Number, CLOB)
- Network bandwidth: Data Pump Conventional Export/Import method is used for migration. To migrate database to database on Cloud using Data Pump Export and Import, below tasks are performed:
 - On the database host, invoke Data Pump Export and export the database. Create a directory for export files. Invoke SQL Plus. Create directory to reference OS directory. Invoke Data Export as the SYSTEM user.

- Use a secure copy utility to transfer the dump file to the Cloud node. Create a directory for the dump file. To transfer dump file to the Database Cloud we use SCP.
- Invoke Data Pump Import on cloud node. Invoke SQL Plus on Database Cloud node, Create directory in the Database Cloud. Invoke Data Pump Import on the Database Cloud node.
- After verifying, you can delete the dump file (expdat. dmp).

Results

After implementation of Database as a Service the effective cloud database strategy is in place and users have easy and fast access to the database in their cloud applications. The application response time have been increased. Database as a Service has provided solution on how to manage and store resources. Database as a Service helped improve the response time by just sending a query than processing store input and output, enhancing performance.

Conclusion

There are numerous advantages of moving to cloud and DBaaS specifically, we hope to see development of database services in the coming years. Cost evasion and cost investment funds are an undeniable essential driver for more prominent adoption, however operational effectiveness, reduced administration overheads and quicker time to advancement will likewise drive more noteworthy adoption. Undertakings of all sizes are prescribed to begin evaluating DBaaS contributions, and in addition their current

outstanding tasks at hand to recognize those appropriate for migration to DBaaS.