

## Databases (DBaaS)

Questions	AWS	Azure		Google Cloud Platform	IBM Cloud	OTC	OVH
Which DB engines are offered?	<p>Relational DB</p> <ul style="list-style-type: none"> <li>- MySQL</li> <li>- PostgreSQL</li> <li>- MariaDB</li> <li>- Oracle</li> <li>- Microsoft SQL Server</li> <li>- Amazon Aurora</li> </ul> <p>Non-Relational DB</p> <ul style="list-style-type: none"> <li>- Amazon DynamoDB</li> <li>- Amazon ElastiCache</li> <li>- Amazon Neptune</li> <li>- Redis</li> <li>- MemCached</li> </ul> <p>Data Warehouse / Big Data</p> <ul style="list-style-type: none"> <li>- Amazon Redshift</li> <li>- Amazon Athena</li> <li>- Amazon EMR (Hadoop, Spark, HBase, Presto, etc.)</li> <li>- Amazon Kinesis</li> <li>- Amazon Elasticsearch Service</li> <li>- Amazon Quicksight</li> </ul>	<p>Relational DB</p> <ul style="list-style-type: none"> <li>- Azure SQL Database</li> <li>- Azure Database for MySQL</li> <li>- Azure Database for PostgreSQL</li> <li>- Azure Database for Maria DB</li> <li>- Microsoft SQL Server</li> </ul> <p>Non-Relational DB</p> <ul style="list-style-type: none"> <li>- Azure Cosmos DB</li> <li>- Azure Table Storage</li> <li>- Redis</li> </ul> <p>Data Warehouse / Big Data</p> <ul style="list-style-type: none"> <li>- SQL Data Warehouse</li> <li>- HDInsight (Hadoop, Spark, Hive, LLAP, Kafka, Storm, R.)</li> <li>- Azure Databricks (Spark)</li> <li>- Azure Data Factory</li> <li>- Azure Stream Analytics</li> </ul>		<p>Relational DB</p> <ul style="list-style-type: none"> <li>- PostgreSQL</li> <li>- MySQL</li> <li>- Google Cloud Spanner</li> </ul> <p>Non-Relational DB</p> <ul style="list-style-type: none"> <li>- Google Cloud BigTable</li> <li>- Cloud Firestore</li> <li>- Firebase Realtime Database</li> <li>- Cloud Memorystore</li> </ul> <p>Data Warehouse / Big Data</p> <ul style="list-style-type: none"> <li>- Google Cloud BigQuery</li> <li>- Google Cloud Dataflow</li> <li>- Google Cloud Dataproc (Hadoop / Spark)</li> <li>- Google Cloud Datalab</li> <li>- Google Cloud Dataprep</li> </ul>	<p>Relational DB</p> <ul style="list-style-type: none"> <li>- Db2 on Cloud</li> <li>- PostgreSQL</li> <li>- MySQL</li> </ul> <p>Non-Relational DB</p> <ul style="list-style-type: none"> <li>- Cloudant</li> <li>- MongoDB</li> <li>- ScyllaDB</li> <li>- Redis</li> <li>- JanusGraph</li> <li>- etcd</li> <li>- Elasticsearch</li> </ul> <p>Data Warehouse / Big Data</p> <ul style="list-style-type: none"> <li>- Db2 Warehouse on Cloud</li> </ul>	<p>Relational DB</p> <ul style="list-style-type: none"> <li>- PostgreSQL</li> <li>- MySQL</li> <li>- Microsoft SQL Server</li> </ul> <p>Non-Relational DB</p> <ul style="list-style-type: none"> <li>- MongoDB</li> <li>- Redis</li> </ul>	<p>Relational DB</p> <ul style="list-style-type: none"> <li>- MariaDB</li> <li>- MySQL</li> <li>- PostgreSQL</li> </ul> <p>Non-Relational DB</p> <ul style="list-style-type: none"> <li>- Redis</li> </ul>
Performance of MySQL (MySQL Sysbench, table-size (row data): 1000000, Threads: 16)	<p>- Read</p> <p>- Write</p> <p>- Read / Write</p>	<p>Transactions: 33160 (552.21 per sec.)</p> <p>Transactions: 32478 (541.12 per sec.)</p> <p>Transactions: 1670 (27.60 per sec.)</p>	<p>Transactions: 176741 (2945.27 per sec.)</p> <p>Transactions: 5072 (84.46 per sec.)</p> <p>Transactions: 3313 (54.97 per sec.)</p>	<p>Transactions: 26731 (445.22 per sec.)</p> <p>Transactions: 23683 (394.25 per sec.)</p> <p>Transactions: 1318 (21.71 per sec.)</p>	<p>Transactions: 30307 (504.81 per sec.)</p> <p>Transactions: 17910 (298.27 per sec.)</p> <p>Transactions: 1537 (25.37 per sec.)</p>	<p>Transactions: 67335 (1122.10 per sec.)</p> <p>Transactions: 36561 (609.14 per sec.)</p> <p>Transactions: 3199 (53.09 per sec.)</p>	<p>Transactions: 74280 (1237.77 per sec.)</p> <p>Transactions: 67035 (1117.12 per sec.)</p> <p>Transactions: 3678 (61.04 per sec.)</p>
Provisioning time for a MySQL instance	206 sec	132 sec		330 sec	151 sec	425 sec	414 sec
Performance of PostgreSQL	<p>Transactions: 33038 (550.36 per sec.)</p> <p>Transactions: 31290 (521.25 per sec.)</p> <p>Transactions: 1644 (27.15 per sec.)</p>	<p>Transactions: 165144 (2751.96 per sec.)</p> <p>Transactions: 82425 (1373.54 per sec.)</p> <p>Transactions: 7429 (123.55 per sec.)</p>		<p>Transactions: 26855 (447.30 per sec.)</p> <p>Transactions: 25059 (417.40 per sec.)</p> <p>Transactions: 1317 (21.69 per sec.)</p>	<p>Transactions: 127374 (2122.19 per sec.)</p> <p>Transactions: 35911 (598.18 per sec.)</p> <p>Transactions: 6615 (109.90 per sec.)</p>	<p>Transactions: 66697 (1111.31 per sec.)</p> <p>Transactions: 40548 (675.53 per sec.)</p> <p>Transactions: 2763 (45.82 per sec.)</p>	<p>Transactions: 73233 (1220.33 per sec.)</p> <p>Transactions: 70199 (1169.71 per sec.)</p> <p>Transactions: 3684 (61.17 per sec.)</p>
Provisioning time for a PostgreSQL instance	199 sec	71 sec		245 sec	701 sec	427 sec	516 sec
Supported DB Versions	<ul style="list-style-type: none"> <li>- MySQL 5.5, 5.6, 5.7, 8.0</li> <li>- MariaDB 10.0, 10.1, 10.2, 10.3</li> <li>- Microsoft SQL Server 2008 R2 SP3, 2012 SP4, 2014 SP2, 2016 SP1, 2017 RTM, 2019</li> <li>- Oracle 11g (11.2.0.4), Oracle 12c (12.1.0.2), Oracle 18c (18.0.0.0), Oracle 19c (19.0.0.0)</li> <li>- PostgreSQL 9.4, 9.5, 9.6, 10, 11, 12</li> <li>- Amazon Aurora - compatible with MySQL 5.6.10a</li> </ul>	<ul style="list-style-type: none"> <li>- MySQL 5.6, 5.7, 8.0</li> <li>- MariaDB 10.2, 10.3</li> <li>- Azure SQL Database: Microsoft SQL Server 2017</li> <li>- Microsoft SQL Server 2017, 2016 SP1, 2014 SP2, 2012 SP4, 2008 R2 SP3, 2012 SP4, 2014 SP2, 2016 SP1, 2017, 2019</li> <li>- PostgreSQL 9.5, 9.6, 10, 11</li> <li>- Azure Cosmos DB</li> </ul>		<ul style="list-style-type: none"> <li>- MySQL 5.6, 5.7</li> <li>- PostgreSQL 9.6, 10, 11, 12</li> </ul>	<ul style="list-style-type: none"> <li>- Db2-ge</li> <li>- PostgreSQL 9.5, 9.6, 10, 11, 12</li> <li>- MySQL 5.7.26, 5.7.29</li> <li>- Cloudant-h7</li> <li>- MongoDB 4.0.14, 4.2.6</li> <li>- ScyllaDB 3.0.10, 3.1.4</li> <li>- Redis 4, 5</li> <li>- JanusGraph 0.3.1</li> <li>- etcd 3.3, 3.4</li> <li>- Elasticsearch 6.8</li> <li>- Db2 Warehouse-ef</li> </ul>	<ul style="list-style-type: none"> <li>- PostgreSQL 9.5, 9.6, 10, 11</li> <li>- MySQL 5.6, 5.7, 8.0</li> <li>- Microsoft SQL Server 2016 EE/SE</li> </ul>	<ul style="list-style-type: none"> <li>- PostgreSQL 9.6, 10, 11, 12</li> <li>- MySQL 5.7</li> <li>- MariaDB 10.1, 10.2, 10.3, 10.4, 10.5</li> <li>- Redis 4.0</li> </ul>
Troubleshooting as a Service	yes	yes		yes	yes	yes	yes
- Rollback	yes	yes		yes	yes	yes	yes
- Support	yes	yes		yes	yes	yes	yes
Total price for the database per month	\$ 14.64 / db.t2.micro	\$ 70.01 / Gen 5, 2 vCore		\$ 29.60 / db-f1-micro	\$ 911.00 (this is a package price, more information at: <a href="https://cloud.ibm.com/catalog/services/compose-for-mysql">https://cloud.ibm.com/catalog/services/compose-for-mysql</a> )	\$ 110.49	\$ 8.77
- MySQL							
- 2 vCores							
- 100 GB Storage							
- Frankfurt / Western Europe							
- 100% active per month							
- No dedicated backup							
Total price for the database per month	\$ 18.30 / db.t2.micro	\$ 70.01 / Gen 5, 2 vCore		\$ 29.60 / db-f1-micro	\$ 103.81	\$ 115.46	\$ 8.77
- PostgreSQL							
- 2 vCores							
- 100 GB Storage							
- Frankfurt / Western Europe							
- 100% active per month							
- No dedicated backup							

Limitations: How many simultaneous requests to the DB?	MySQL: - max Connections: 7000 PostgreSQL: - max Connections: 5000	MySQL: - max Connections: 10000 PostgreSQL: - max Connections: 1900		MySQL: - max Connections: 4000 PostgreSQL: - max Connections: 1000	MySQL: - max Connections: 151 PostgreSQL: - max Connections: 115	MySQL: - max Connections: 151 PostgreSQL: - max Connections: unlimited	MySQL: - max Connections: 200 PostgreSQL: - max Connections: 200
How does backup/restore work?	Backups: - Automatic Backups. Restore: - Point-in-time restore	Backups: - Automatic Backups. Restore: - Point-in-time restore - Geo-restore		Backups: - Automatic Backups. Restore: - On-demand	Backups: - Automatic Backups. Restore: - On-demand	Backups: - Automatic Backups. Restore: - Point-in-time restore	Backups: - Automatic Backups. Restore: - Point-in-time restore