As per my knowledge, below are my responses.

**Migration of sample database**

**Q1-**Configure the Northwind sample database from this link

Below steps I followed to solve this

1. Downloaded sql script (instnwnd.sql) from ‘Northwind-Pubs GitHub repository’ and executed on my test MS SQL database on my workspace ‘Database.PNG’ file can be referred.

**Q2-**Use any method or toolkit to migrate this to PostGRE. Create a runbook to explain the steps involved in configuration, mentioning the special aspects to be considered based on your own experience.

Below steps I followed to solve this:

1. I use Schema Conversion Tool to Migrate this database from MS Sql to PostgreSQL
2. As we can see in attached report, Tables migrated 100%
3. Views migrated 75% successfully and 25% need minor changes.
4. Procedures 43% successfully migrated and 57% need some minor changes. Most of the changes are related with substring and case sensitivity.

**.Q3-**Any incompatibility needs to be noted and an approach identified for fixing that out.

1. Substring related functions are incompatible.
2. Must check case sensitive names
3. Few examples

SUBSTRING(CONVERT(nvarchar(22), O.OrderDate, 111), 1, 4) = @OrdYear

SET ROWCOUNT 10

Issue list we can find in **1.PNG** and **2.PNG** files

**B) Migration Strategy**

**Q1:** What will be the strategy to migrate such a database to PostGRE considering the size and transactional volume? Mention any tooling (open-source or proprietary) that can ease out this process.

1. As Database size is huge so first we have to find-out some SQL server specific features and syntax and this activity should perform in non-business hours because Larger databases may require more time for schema and data migration.
2. Rollback plan
   1. Develop a comprehensive rollback plan in case unexpected issues arise during or after migration.
   2. Regularly back up the PostgreSQL database during the transition
3. I will prefer to use AWS Schema Conversion Tool to migrate this database
4. (Optional) we can add more space temporarily to perform this activity (Optional but good to have)
5. After successful migration we should have PG Admin or DBeaver installed on the server to check the data and count

**Q2:** What can be the issues being faced and possible mitigation plan?

Below points should consider

1. Mismatch in data types between SQL Server and PostgreSQL.
2. We should carefully analyse the database schema and address syntax differences during the migration.
3. Modify stored procedures, triggers, and functions to align with PostgreSQL syntax.
4. Optimize queries and indexes in the PostgreSQL environment.
5. Conduct performance testing to identify and address any performance differences.

**Q3:** What will be the roadmap for the transition and what factors will determine the timelines of such a migration?

1. We Must schedule the migration during a low-traffic period, considering the database workload.

Regards

Vivek





