AlloyDB for PostgreSQL disaster recovery: A complete failover and fallback process

Architecture Solution

Many organization strive to be prepared for cloud region or cloud service outages, as unlikely as they are. Other organizations must have a disaster recovery plan and process in place because of internal policies or external requirements or regulations.

This blog presents a disaster recovery process that reestablishes the original deployment state for AlloyDB for PostgreSQL: a complete failover and fallback process.

Disaster recovery

Disasters in context of Cloud computing can take many forms, two important ones are introduced next.

Region outage

A region outage is considered a disaster. Disaster recovery is the process to recreate the production deployment in a second available operational region while the region experiencing the disaster is being brought back online.

Once the region that experienced the disaster is online again, the initial production deployment is reestablished in that region and the initial production deployment state is available again to the database clients.

System outage

Another form of disaster is the complete loss of the production deployment, however, with the Cloud region continuously being available. There might be many reasons why a production deployment can be lost; being prepared for this case is equally important.

Like before, once the root cause for the complete loss of the production deployment is resolved, a disaster recovery process reestablishes the production deployment in the region that experienced the disaster.

Focus: AlloyDB for PostgreSQL

The focus in this blog is not a complete application architecture and all its components, but only the database component, specifically AlloyDB for PostgreSQL, a new Google Cloud database service.

The complete disaster recovery process, including failover, fallback and switchover is described in detail. In order to execute one path through the process `gcloud` commands are provided for you to execute in order to get an idea of the steps that have to be executed.

Due to the disaster recovery process's length and complexity, including a complete example, the disaster recovery process is presented in this architecture solution document: Google Cloud AlloyDB for PostgreSQL Cross-Region Disaster Recovery Process.

Request for feedback

In case you have any feedback or input, please consider contacting me with details so that I can improve the architecture solution. Thank you!