Cloud-based high availability DBMS configuration

Overview

Even in a cloud environment, the reliability of a database is still important.

In order to ensure stable data management and service continuity, and to provide the same or similar level of high availability as in the legacy environment, leading cloud companies are providing dbPaaS (Database Platform as a Service) with cloud-based high availability configuration.

SDS Cloud offers **DB Service** based on optimized high availability configuration through technical analysis of various DB high availability configurations. Depending on the database type (RDBMS, NoSQL, etc.), you can utilize high availability architecture for optimal configuration. This document introduces the high availability configuration of **DB Service**'s flagship products, MySQL and PostgreSQL.

Architecture Diagram

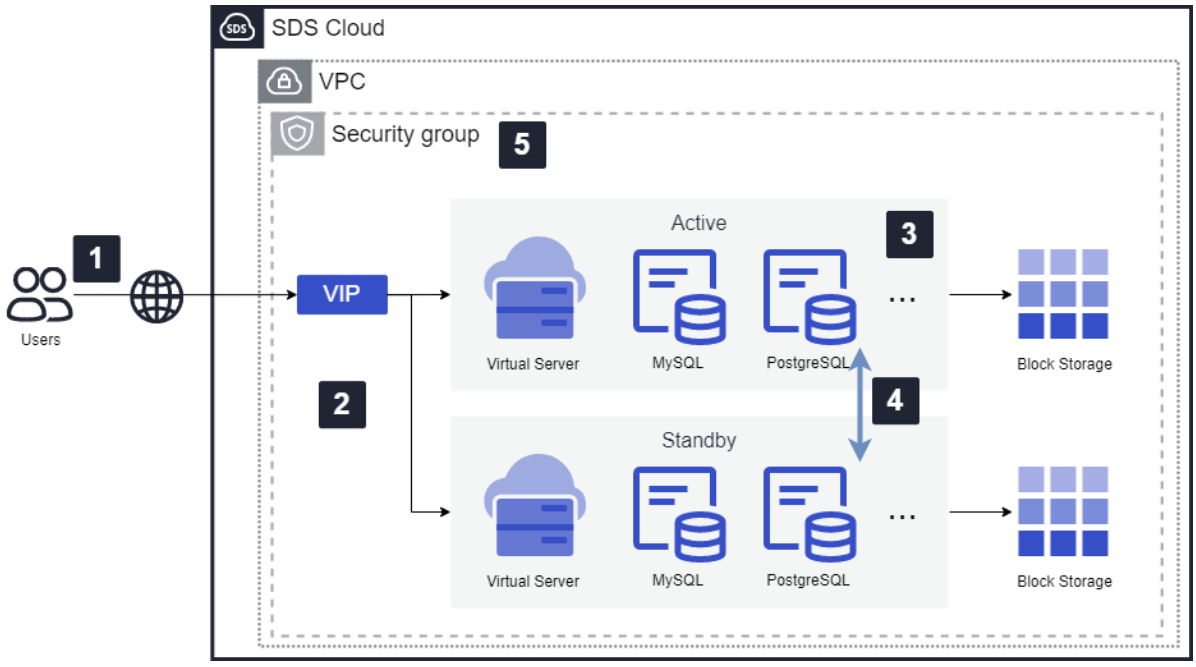

Figure 1. Cloud-based RDBMS high availability configuration

1. A client requests database service through VIP (Virtual IP) or DNS query. Users must configure **VPC** in advance before using a database service, and the database is created based on the configured **VPC**.
2. VIP or DNS has the current Active Node information in the redundant database configuration and forwards the user's request to the Active Node.
3. Database information created or changed in the Active Database is written to Block Storage, and the written data is synchronized and saved to the Standby Node.
4. In the case of service transition due to a problem with the Active or Standby Node through the synchronized **Block Storage** data, the service continuity is ensured without data loss.
5. The DB Port and Target IP are set in the **Security Group** for access to the created database.

Use Cases

A. Database utilization in various corporate solutions
(logistics, RPA, business automation)

Various business solutions of the enterprise can use database based on **DB service**, which provides non-disruptive service through infrastructure redundancy and highly available configuration.

In case of physical or logical DB failure (Hang, physical data loss, etc.), service continuity is ensured through failover based on high availability configuration.

B. Guaranteed continuity of DB service in case of infrastructure and DB failure

In the event of failure in infrastructure (virtual machine, OS, network, storage, etc.) or DB (Hang, DB process error, etc.), service continuity can be secured through failover within 1 to 2 minutes.

Pre-requisites

None

Limitations

A highly available database provides an automatic failover function, which requires

service checks for checking if the system is in a normal status.

Considerations

Depending on the importance of the service, clients can select a single configuration consisting of one **Virtual Server** or a redundant database with high availability. Since a redundant database utilizes two virtual servers and storage space, the cost is higher compared to a single database, and performance may be partially degraded due to data replication for redundant configuration.

To this end, it is recommended to select an option optimized for the service by conducting tests and performance verification before using the database.

Related Products

- DB Service (PostgreSQL)
- DB Service (EPAS)
- DB Service (MariaDB)
- DB Service (MySQL)
- DB Service (Tibero)